CHAPTER 1

Introduction to an Age of Small-Scale

> The mind is a metaphor of the world of objects
>
> – Pierre Bourdieu

In January 1665, the diarist Samuel Pepys bought a copy of Robert Hooke's newly published *Micrographia* and "sat up till 2 a-clock in [his] chamber, reading of Mr. Hooke's . . . Observations," finding it "the most ingenious book" he had ever read because it revealed in vivid detail a small world newly made knowable by technology.[1] The period's other famous diarist, John Evelyn, similarly marveled over miniscule wonders achieved by means of a metalworker's skill: "little ships and chariots such as a flie might cover" and a model "Flea, with the Chain of three and forty Links, Lock and Key made all of Steel, and weighing a single Grain only."[2] (Pope would later refer to "cages for gnats and chains to yoak a flea" in *The Rape of the Lock* [V. 124]). The two diarists shared an active interest in collecting the small-scale, including medals, paintings, models, and books. Pepys records one of numerous meetings: "By water to Deptford, and there made a visit to Mr. Evelyn, who, among other things, showed me most excellent painting in little" (November 5, 1665). An "indiscriminate love of minutiae" has been attributed to their contemporary John Aubrey.[3] The editor of the 1745 edition of Hooke's work (the text went through many printings) remarked on the way in which descriptions of hitherto unimaginable little objects had stimulated fantasies of the "minute" far beyond the experiences of these two friends: "a Desire of searching into the minute Wonders . . . is become almost general." Eighteenth-century people could carry around miniature microscopes, "just in case anything excitingly tiny turned up."[4] The catalog of the Musaeum Tradescantium (1656, accounting for the collection of John Tradescant and son) lists miniatures such as a cherrystone holding ten dozen tortoise shell combs, "flea chains of silver and gold with 300 links a piece and yet but an inch long," a "nest of 52 wooden-cups turned within each other as thin as

paper," and "a copper Letter-Case an inch long . . . with a Letter in it."[5] The two men's collection (ultimately purchased by Elias Ashmole of Oxford) was poetically summarized: "Whilst they (as Homer's *Iliad* in a nut)/A world of wonder in one closet shut" (Altick, 12). In his diary, Evelyn records a visit to the museum on September 17, 1657.

Interest in the small-scale is shared by the twenty-first century. In January 2001, then-President Bill Clinton enthused over the wonders of another kind of inquiry into the "minute," namely nano-research. "Just imagine," he urged, "materials with 10 times the strength of steel and only a fraction of the weight; shrinking all the information at the Library of Congress into a device the size of a sugar cube . . ."[6] Many (possibly most) people carry around miniature computers in the form of smartphones because they, too, would hate to miss anything that a small device might make available for their perusal. Samuel Johnson's *Dictionary* (the first full-scale dictionary of the English language, published in 1755) exemplifies the word *perusal* (from peruse, "to observe; to examine") with the following analogy: "As pieces of miniature must be allowed a closer inspection, so this treatise requires application in the perusal." Perusal was also a key methodological term for the scientific proceedings of the Royal Society, founded in 1660, indicating a need for attentive scrutiny of even the most minor detail.

In some respects, the fascination with downsizing between 1650 and 1765, the period of interest in this book, is counterintuitive for a culture often deemed to favor rational inquiry because of the seeming disconnect between form and function, between technological achievement and human use. Pepys records the trouble he took over a "new sliding rule":

> Abroad to find out one to engrave my tables upon my new sliding rule with silver plates, it being so small that Browne that made it cannot get one to do it. So I got Crocker, the famous writing-master, to do it and I set an hour by him to see him design it all: and strange it is to see him with his natural eyes cut so small . . . when for my life I could not, with my best skill, read one word, or letter of it. (August 10, 1664)

Although "cut so small" that Pepys cannot "read one word, or letter of it," he does not begrudge the expense of something both imperceptible and impractical: "Crocker . . . hath engraved to admiration, for goodness and smallness of work: it cost me 14s. the doing" (August 11, 1664). Yet, Pepys's pleasure should not seem remote from our own time: the practice of downloading elaborate images like full-length movies to cell phones and watch-faces is a popular practice and a lucrative business, despite the

difficulty of regarding or responding to sophisticated cinematography reproduced within a tiny fraction of a full-size theater-screen. Messaging programs have built-in apologies for the clumsiness of the human thumb on doll-sized keyboards, and autocorrect programs assume that the scale of the mechanism is really too small for accurate use.

What are the appeal and the functions of the small? What is it about scaling up and down that compels both technical and imaginative possibilities during certain eras of human experience? In a discussion of nanotechnology, Carol Batt notes the common "difficulty getting to grips with the concept of scale . . . The question is: what capability do most individuals have to project or embrace that scale and to demonstrate a meaningful level of comprehension?" She cites studies proving that "it is virtually impossible to visualize two objects that differ in size by nine orders of magnitude."[7] In Jonathan Swift's *Gulliver's Travels* (1726 [2012]), the scale of difference is a mere linear twelve to one, yet shared issues (as this book will demonstrate) connect the two historical periods. The Library of Congress condensed into a sugar cube is cognitively daunting. Gulliver, too, has trouble getting to grips: "I could make no Computation of their Altitude," he says of the "lofty" trees in Brobdingnag.[8] Johnson's character Imlac muses on cognition in term of size: "What space does the idea of a pyramid occupy more than the idea of a grain of corn?" (*Works* XVI: 173). His *Preface to Shakespeare* asks, "why an hour should not be a century in that calenture of the brain than can make a stage a field?" (*Works* VII: 77). These questions about the calibration of thought impute dimension not only to things but also to ideas. A grand pyramid shrunk into a grain of corn, a stage dilated into a field – this elasticity, this "stretch of human brain," as Alexander Pope expresses it in *An Essay on Man* (II. 7), is implicated in processes fundamental to being human, that is, to human systems of representation that enable us to supplement our direct, immediate experience of the world.

This book focuses on the phenomenon of miniaturization and on questions of size and scale drawn from three interconnected areas of scholarship: the evidence of a flourishing material culture of small-scale objects produced between approximately 1650 and 1765; the representation of miniaturization in literature of the same period; and theories of aesthetics and cognition that support an analysis of these phenomena in order to understand how human beings know the world and interact with it. I argue that the phenomenon of scaling objects down – objects as various as a teapot, a pile driver, a chest of drawers, a globe, a bucket, a battlefield, and a diving bell – has a relationship to large-scale events

(as large as financial revolution, war, globalization, and natural disaster) that challenge old modes of representation and demand new ones. Downsizing might at first seem to trivialize or diminish, but this book will demonstrate that the correspondence between fictional examples like Jonathan Swift's Lilliput and actual material objects created at the same time is no mere coincidence. Rather, both literary and material examples mediate between the demands of the old and the new. They participate in the effort to overcome the "difficulty getting to grips" with new cognitive demands of globalization, changing ideas of the human subject, consumerism, and scientific inquiry. This book will also raise questions about the extent to which the penchant for downsizing responds to recent events that had altered England fundamentally through civil war, regicide, the commonwealth experiment, religious faction, plague, and fire. It can be difficult to disentangle the Restoration and eighteenth-century from the mid-seventeenth-century "changes ... accompanied by violence and terror unmatched in the history of [the] country" because it can take decades, or even longer, to process a complicated legacy.[9] Scholars have noted that "the mid-century crisis had an ongoing impact" that suffused "imaginative and aesthetic qualities" in a broad range of cultural formations from religious tracts to cookery books.[10] Historians argue that models of good taste – an important function of miniatures – participated in a "culture of improvement" and "social civility" that were "especially necessary in order to heal the wounds created by the Civil Wars and the social and political chaos which ensued thereafter."[11] Within the complex web of which a culture is woven are relationships between the fundamental infrastructures of power and the seemingly superficial and transient manifestations of taste.

Theories of culture have attempted, in various ways, to account for human practices that occur and recur without obvious logical motivation or without direct use value – and yet that satisfy deep needs for certain societies at certain times. Mikhail Bakhtin's influential idea of carnivalization is one such attempt to understand – in this case – representations of the grotesque "open body" in ritual and art, representations that serve as a means of coping with unease over things that cannot be controlled, ultimately with anxiety over human mutability and mortality. Bakhtin understood the pleasurable excesses of carnival as the work of displacement, as an indirect means of confronting primal fears.[12] Direct practical results are not a relevant measurement of the worth of this phenomenon: no crops are sown, no houses built, no ledgers tallied by means of carnival. The idea of the small, like the idea of carnivalization, also taps into some

fundamental emotions, although its manifestation is not primarily in terms of human bodies and bodily functions but rather is in terms of created objects. Like the displaced functions associated with carnival, these objects usually have no obvious use value. What does one do with a book too small to read, a teacup too miniscule for drinking, or a chair of mere inches height? What kinds of "goods" are they? Mary Douglas observes:

> Instead of supposing that goods are primarily needed for subsistence plus competitive display, let us assume that they are needed for making visible and stable the categories of culture . . . Forget that commodities are good for eating, clothing, and shelter; forget their usefulness and try instead the idea that commodities are good for thinking.[13]

In a sense, miniature objects provide a kind of virtuality, a kind of alternative semblance of the real.

How do *things* that are also *representations of things* mediate between the physical and the intellectual, the sensory and the comprehensible? What is the evolution of the human capacity to conceptualize the real as an attribute of representations? My responses to these questions are informed by recent work in the interdisciplinary fields of cognitive cultural or cognitive literary studies. I share "the goal of . . . understand[ing] the evolving relationship between two immensely complex, historically situated systems – the human mind and cultural artifacts."[14] The study of texts is at the center of this complexity because texts can bridge the gap between the two. Other scholars have approached cognitive issues through different analytical strategies. These approaches include linguistics, narratology, and the language-basis of knowledge; neurology and brain science; and so-called mindreading or the capacity to internalize the thoughts and emotions of others. However, "the complex dynamics between cognition and literature" has not been analyzed extensively with respect to size and scale.[15]

That we can understand a field's broad grassy acres in terms of a stage's narrow wooden boards, as Johnson proposes, begins to suggest ways in which size and scale are involved in mental processes that allow abstraction, interpretation, and symbolization, that are "creative" in Raymond Williams' sense of the word. In *The Long Revolution*, a foundational text of cultural studies, he writes:

> The information that we receive through our senses from the material world around us has to be interpreted, according to certain human rules, before what we ordinarily call reality forms. The human brain has to perform this "creative" activity before we can, as normal human beings, see at all . . .

> [Reality] as we experience it in this sense is a human creation; . . . all our experience is a human version of the world we inhabit. This version has two main sources: the human brain as it has evolved, and the interpretations carried by our cultures . . . We can learn new rules and new interpretations, as a result of which we shall literally see in new ways.[16]

The development of ideas in the following chapters, then, arose first from recognizing the existence of counterparts, so to speak, between literature and the material world, between things in books and things in the larger array of eighteenth century manufacture. Little silver spoons could be found in Swift's *Gulliver's Travels*, as well as in London shops he might visit; little fortifications appear in Sterne's (1759–1766 [1980]) *Tristram Shandy*, as well as in collections of actual eighteenth-century military objects; little scenes of seduction that are described in Gay's (1713 [1974]) poem *The Fan* are also painted on actual contemporaneous fans, and so on. These objects could enable certain kinds of information to be processed to the mind in particular ways; they were neither mere description, nor conventional metaphor or simile. Their size contributes crucially to a process of understanding through which writers and readers could, in Williams' phrase, "literally see in new ways."

The analyses of miniaturized objects in this book will support an argument that differs substantially from those in recent studies of material culture in the long eighteenth century, although this book is related and indebted to them. Prior scholarship has brought different light to bear on important phenomena such as the it-narrative, the emergence of modern science, practices of description, and the growth of consumerism. It-narratives, as discussed by Julie Park, Mark Blackwell, and others, feature nonhuman entities (such as a slipper, a lap-dog, one shilling, a watch-coat, or a single atom) that become animated and/or anthropomorphized, that are given a consciousness and a voice.[17] Miniaturized objects, in contrast, remain steadfastly inanimate. While they may become involved in altering the consciousness of human subjects, they do not think independently, or express opinions, or narrate stories. Lisa Jardine's contribution to the history of science, *Ingenious Pursuits: Building the Scientific Revolution*, elucidates ways in which material culture played a role in the development of scientific knowledge in anatomy, mechanics, biology, astronomy, and other fields of learning.[18] Her chapter on scale models will be of interest to the discussion the Royal Society models in Chapter 6 of this book. Cynthia Wall's *The Prose of Things* identifies "changes in the rhetoric about and the employment of description" (p. 2) and relates them to four kinds of cultural change in technology, economics, epistemology, and

domesticity.[19] Her emphasis on visual phenomena and on ways of seeing is a helpful historical context for some of the cognitive theory that will be outlined in Chapter 2, in which the shift from perception to cognition is critical. However, this book's position on material culture demurs from her contention that late seventeenth and early eighteenth-century writers "rarely do more . . . than poin[t] to the things in their text," and that even Swift "ends up rendering 'things' so utterly palpable and strange that in effect they stand out as isolated . . . as contextless."[20] In contrast, material context will be foregrounded on the following pages. The production of miniatures (physical and textual) discloses the desires of a consuming public. The words *thing* and *object* share what Bill Brown calls "audacious ambiguity," and their multiple meanings will apply at different points in the following discussion. "As they circulate through our lives, we look through objects (to see what they disclose about history, society, nature, or culture – above all what they disclose about us)," writes Brown. As miniatures circulate through the eighteenth-century, they may fulfill this definition of objects but they also may assert themselves as things. They may "stop working" as objects and contribute instead to "the story of a changed relation to the human subject."[21]

Susan Stewart's (1993) *On Longing: Narratives of the Miniature, the Gigantic, the Souvenir, the Collection* clearly shares an interest in ideas of size and scale, as well as a specific interest in *Gulliver's Travels.* However, Stewart's reading of the miniature as the embodiment of the bourgeois subject's nostalgia or longing for preindustrial craft takes the material culture of the eighteenth century in a different direction from the one pursued on the following pages.[22] Stewart observes that perception of the small-scale as the totality of an object displays a world "not necessarily known through the senses of lived experience." This world ultimately can only stimulate longing for something that is absent, and a sense of incompleteness. She considers the miniature "as a metaphor for the interior space and time of the bourgeois subject."[23] The tempting complacency, the illusion of control over the little, is achieved at the expense of withdrawing from lived reality – although withdrawal brings a concomitant reward of escaping the large-scale authority of the state and the pressures of collective public life. The human subject interacting with a miniature thing yearns to be frozen in time, to avoid corporeal mutability, and to exist in a private space. Thus, Stewart's analysis of the dollhouse posits "a realization of the self as property" by a metonymic structure full of private rooms and ornamental details, and outside the vicissitudes of history.[24] She stops short, however, of offering a theory that can explain

how human knowledge is mediated through small-scale representations of the full-scale world. This book will argue, in contrast, that miniaturization served purposes far more public, social, and institutional.

One further distinction should be noted with regard to those instances in literature when miniaturization occurs not to a thing but to the human form. Like Swift's Lilliputians and like the figures painted to the scale of a locket-sized portrait, people look more attractive in miniature (although their inner qualities may be unattractive). That is, miniaturized people differ fundamentally from the kinds of short stature discussed in Deborah Armintor's *Little Everyman*, in which the treatment of the dwarf is related to the history of masculinity and deformity in the eighteenth century.[25] Evidence certainly exists of interest in freaks of nature, such as "the little manikin that was lately carried about in a box" to be shown in various taverns, recorded by Evelyn in 1689 (Altick, 42–43), and reminding us of Gulliver's experience in Brondingnag, where he, too, is exhibited for money. However, Gulliver emphatically is not a dwarf; the "real" court dwarf on the second voyage resents the novel kind of littleness of the Queen's new favorite and becomes his enemy. Pope's sylphs are transformed humans invisible to all but the poet, dainty enough to flit through the air and tiny enough to sit on Belinda's earring; they retain (as illustrations of the poem confirm) the exact proportions of their former earthly and amorous selves. Throughout this study, the focus will be on documentable counterparts between miniaturized entities in texts and in the material world, that is, examples will emphasize objects represented as smaller than their naturally occurring size (like a tree, a fly, a hill, an ocean, or a human body) or customarily constructed size (like a spoon, a house, a shoe, or a ship).

Material Culture: Preliminary Evidence

The microscope may have contributed to fascination with the small-scale but there is a crucial distinction between its revelations and the objects that command attention in this book. As Stewart rightly points out, "there are no miniatures in nature;" miniatures are always *produced*.[26] In contrast, the specimens observed by Hooke are naturally small, although his imaginative and anthropomorphizing rhetoric creates the illusion of seeing scaled-down versions of larger things. The louse described in Hooke's *Micrographia* is transformed figuratively into a little soldier clothed in "a curiously polish'd suit of sable Armour, neatly jointed, and beset with multitudes of sharp pins," and who has a distinct personality

("officious . . . Busie . . . impudent . . . so proud and aspiring withal, that it fears not to trample on the best"). A head of hair implicitly becomes a "micro-society" in which this creature is "plotting and contriving" to "draw blood." However, while in Hooke's fanciful account, a bloodthirsty villain seems to shrink to the size of an insect, the insect itself is always already tiny and never measures more or less than the dimensions of every other louse. Similarly, sixteenth- and seventeenth-century *kunstkammers* and "cabinets of curiosity" typically contain bits and pieces of little "wonders," often from around the globe: plants, pottery, exotic shells and preserved animals, bones, carvings, rare rocks and minerals, feathers, antlers and tusks, insects, automata, amber, gems, and the like. However, neither the microscope nor the *kunstkammer* nor the cabinet of curiosity are about miniaturizing per se.

My interest, in contrast, is in manufactured or constructed miniatures that replicate full-scale counterparts. They take many forms. Unlike the rarities of earlier centuries – the cherrystone carved with 300 faces, the precious amulet, the Bible inscribed on the head of a pin – late-seventeenth and eighteenth-century examples are increasingly about the everyday world of common experience and consumption: beds and buckets, tea sets and sedan chairs, books and globes, and hundreds of other items. They bespeak human effort and human endeavor. They do not suggest magical talismans, idols, or heaven-sent tokens. In this way, they differ from objects designed principally to arouse wonder, classified by Sir Thomas Browne in *Pseudodoxia Epidemica* (1646), as the result of "fine workmanship on a small scale."[27] Nevertheless, the level of craftsmanship, the exactitude of design, the quality of wood, metals, leathers, and luxury substances like ivory, silver, and porcelain, is often uncompromising. Research into various subsets of miniature objects, from silver spoons to warming pans, uncovers a recurrent theme: that the ingenuity and the quality of the objects produced reaches its highest point during the years 1650–1765 (see cover illustration and Figure 1).

Some preliminary supporting evidence is offered here, although the following categories of miniature, along with others, will be taken up in more detail in later chapters. My point here is to highlight the coincidence of opinion by numerous experts in various fields, all of whom situate the "height" or "rise" or "pinnacle" of miniature manufacture within the same chronological parameter between mid-seventeenth and mid-eighteenth centuries. The following selective summary begins with testimony about the similar timing of extraordinary fans, ship models, portraits, and dollhouses.

Figure 1 A collection of miniature objects of wood, pottery, silver, pewter, iron, paper, leather, and glass, with pencil to indicate scale [Winterthur Museum, Winterthur, DE]

The popular form of elaborate miniature painting that was done on fan leaves "not only reached new levels of perfection, but also became a thriving industry [reaching its] heyday in the seventeenth and eighteenth centuries."[28] The Worshipful Company of Fan Makers received its London charter in 1709, and by 1747 enrolled over 800 craftsmen: "the eighteenth century has traditionally been considered the era in which . . . production and artistry reached their heights."[29] Ship or dockyard models were a favorite collectible of James II and Samuel Pepys: "the craft and scale model of making was established by 1660" and developed "[i]n the 1660s and 70s [into] . . . the first golden age of ship models . . . [which] ended in the 1740s."[30] Miniature portraits, a "highly specific technical and cultural phenomenon," began as possessions of the Tudor aristocracy,[31] "but in the early eighteenth century this practice became an industry": "The 1750s was a crucial decade in the history of the English ivory