OBJECT LESSONS: TECHNOLOGIES OF EDUCATION IN BRITISH LITERATURE, 1762-1851

BY

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DISSENTATION

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ABSTRACT

Contributing to our understanding of self-development in literature, *Object Lessons: Technologies of Education in British Literature: 1762-1851*, examines Romantic-era and Victorian writers who represent education as an embodied experience, with learning and literacy grounded in what they called “object learning” or “the education of things.” Denouncing rote-learning in favor of an induction method, object lessons promised to coordinate the development of body and mind by using the pupil’s sense exploration of physical surroundings as a catalyst for higher cognitive thought. I begin with late-eighteenth-century author-educators who reconceptualized manual activities as education and child’s play as serious work. When adopted by utilitarian and Whig advocates of education for the poor, however, these pedagogies proved inadequate for addressing the challenges faced by nineteenth-century poor children.

*Object Lessons* helps to explain why humanities scholars portray education, alternately, as an ideological state apparatus used for control, or our best hope for empowering the oppressed. Returning to when these polarized conceptions of education begin, I investigate the consequences of predicating child agency on an object theory derived from Enlightenment science, which creates active child subjects by pacifying the world of things. This active/passive dichotomy construes all learning subjects as either omnipotent or powerless.
To my father, Dennis Massa and my mother, Donna Jean Fabry Massa
   And to all the motherly people in my life, especially
   Patricia Massa, Dee Hoiem, Christine Massa, and Rebecca Nachman
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# TABLE OF CONTENTS

CHAPTER 1: “Sensible Signs and Representations”: Object Lessons in British Literature……1

CHAPTER 2: “The education of things”: Liberty and Confinement in the Object Lessons of Maria Edgeworth and Jean-Jacques Rousseau……………………………………………………………………………….57

CHAPTER 3: “Morals and mechanics are here analogous”: Exemplarity and Necessity in the novels of William Godwin and Mary Hays...........................................................................................................103

CHAPTER 4: The Mechanics of Education / Education of Mechanics………………………………………144

CHAPTER 5: Self-governing Machines: Mechanical Literacy in Maria Edgeworth’s *Harry and Lucy, Popular Tales*, and *Belinda*…………………………………………………………………………………………………..189

CHAPTER 6: “Naughty ‘full-grown babes’”: Public Instructors and the Radical Press, 1816-1836........................................................................................................................................................................233

CHAPTER 7: Children of the Steam Engine: Industrialization in Books and Toys for Young Victorians.....................................................................................................................................................................277

BIBLIOGRAPHY.............................................................................................................................................321
CHAPTER 1

“Sensible Signs and Representations”: Object Lessons in British Literature

In the Pygmalion story of Jean-Jacques Rousseau, the first to provide a name for the lifelike statue, Galatea reaches out her hand to touch her lover. “Me,” she says, “‘tis me,” then, touching touches a block of marble, “oh! this is not me.”1 Like Frankenstein’s monster sensing the world for the first time, the moment when Galatea becomes a named individual happens when she feels the stone under her fingers. Like Georges-Louis Buffon’s Adam coming to life, she moves between nonliving objects and the warm life of her lover, awakening her awareness of herself as an object newly capable of feeling. In such Enlightenment moving statue stories, encountering the nonhuman world activates consciousness and begins the human’s separation from the world he or she seeks to know.2 Such primary object encounters were origin stories about how humans born without innate ideas acquire knowledge, including a basic self-identity, by activating a consciousness that senses and responds to a passive world of objects.3

1 Rousseau, Pygmalion, 31, 32. I quote from an English translation and adaptation of Rousseau’s play (1779). The original French from Rousseau’s play provided at the bottom of the English edition’s pages matches an earlier French edition (1772) with more sparse dialogue. Galatea simply says, “Moi,” Pygmalion echoes “Moi,” then Galatea, “C’est moi,” and touching the marble, “Ce n’est plus moi,” or “This is no longer me.” The closer juxtaposition of these lines in the French play further dramatizes this moment of méconnaissance as the origin of Galatea’s self-identity through sensation.

2 According to sensationist physiological theories of eighteenth-century empiricists (eg. Charles Bonnet, George Buffon, George Cuvier, the abbé Condillac), all sense impressions are united in the sensorium commune, where the brain meets the soul. Because of the unity of the senses, a person is aware of his unified conscious self. (Riskin, Science, 25). Rousseau’s Pygmalion closely follows the moving statue thought experiment of Condillac, which explains how a subject formed passively through sense impressions becomes active and self-aware. Condillac, like other sensationists, privileged the sense of touch as unmediated and as less deceptive than vision; therefore, in Condillac’s account, a moving statue that comes to life would only develop a self-identity when it gains touch and encounters other objects. Touch teaches a person where the self ends and the world begins, engaging the “sixth sense” or common sense that allows a unified self (Riskin, Science, 44-47). The legacy of Condillac’s elevation of touch over sight explains one reason why many British educators insist that sense exploration of passive objects must precede verbal literacy; touch is unmediated and completely intuitive, whereas visual literacy, like reading, requires extensive training. Buffon’s Adam agrees with Condillac’s statue, according to Riskin, and I would add that both agree with Rousseau’s Galatea. See also Figlio, “Theories of Perception.”

3 De Man, “Self (Pygmalion),” Allegories of Reading, 163-165; Yousef, Isolated Cases, 1-26, 96-114; Douthwaite, Wild Girl, 70-92. According to Douthwaite, these moving statue “thought experiments of sensationist philosophers
This dissertation considers how objects and literary texts function as complementary technologies of self-development. Studies on the invention of the modern subject in the eighteenth and nineteenth centuries privilege narrative, especially autobiographical writing, as an indispensable tool that allows subjects to give physical form to the disorganized stuff of experience, shaping fictional self-identities that seem present and whole to themselves. Drawing on Alasdair MacIntyre and Charles Taylor, for whom “narrative is the medium of human agency,” Michael Mascuch argues that an individualist self-identity is necessary for modern autobiography, a genre in which the author is at once creator, medium, and subject, “unified as a single, autonomous totality: the trope of the author as the hero and originator of his heroism.”

These theories have informed literary scholarship that documents an increased prominence of autobiographical genres during the eighteenth and nineteenth centuries, including the novel and lyrical poetry, as well scholarship on the corresponding rise in epistemological theories of the self’s formation in response to investigation and mastery of the physical world. Arguing that objects perform much of the same cultural work during this period as autobiographical genres, this study identifies emergent literacies of object manipulation and exchange that were taught together with verbal literacies.

According to much of the scholarship on narrative and subject formation, texts facilitate self-development because they are externalized, physical objects, or passive stand-in for the active selves that authors them. Such representations of self-fashioning through narrative objects are typical of Romantic lyrical poetry—Wordsworth’s egotistical sublime in particular—where composing poetry revisits and reorders earlier sensations into a coherent, self-reflexive textual such as Buffon, Condillac, and Bonnet were undertaken as a means of exploring the origins and processes by which human beings translate physical impressions into thought” (92).


5 See Smith, *Scandalous Knowledge*; Levine, *Dying to Know*. 
body that both calls into existence the poet’s self and mirrors the poet’s process of conscious self-creation. The poet’s authority to instruct readers in how to form an individualist self rests on his autodidactic education from rude landscapes, in place of corrupting social experiences. Despite Wordsworth’s dependence upon the literary marketplace and his interactions with his readers, he represents himself as a solitary wanderer or peddler, although such pretensions of autonomous self-creation among the Romantic poets are qualified by a self-conscious theatrical quality at odds with the poet’s claims of authenticity and simplicity. Jacqueline Labbe shows how the poems of Charlotte Smith, like Wordsworth’s *Prelude*, express “an active understanding of the act of composition, of putting words together; not merely reflecting the self but writing, and thereby re-presenting, a self.” Smith’s ventriloquism of her speakers and her multiple poetic personas call attention to her incomplete attempts to create herself through writing, “to sculpt or fashion—the shape of the Romantic Poet.” Like autobiography, lyrical poetry affords generative power to language by facilitating a mutually animating relationship between subjects and the natural world, just as Rousseau’s Pygmalion creates himself by bringing to life Galatea, who acknowledges herself in him.

Likewise, texts are physical avatars or circulating bodies in Nancy Armstrong’s argument that novels fabricate the modern subject. Individuated by superior wit and ability, spurred by dissatisfaction with the social world, the protagonist of a novel imagines and models for readers a modern subject defined by free choices and social mobility, who authors his or her own existence. Exceptional as authors, Pamela, Crusoe, or Moll Flanders “could inscribe him or herself in writing as an object, or body, separate and apart from the subject that inhabited that body, and put that body through a sequence of moves to enhance its social value.”

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subject that haunts philosophical debates about identity—Locke’s separation of person and self, or the Cartesian divide between mind and body—finds its practical substantiation in novels as textual bodies authored by characters. The novel is unique among cultural artifacts, according to Armstrong, in modeling for authors and readers “what the Lockeans could only theorize”—the fiction of a modern self-governing subject who owns and creates the self.\(^8\)

In order to question the exceptionalism that Armstrong claims for the novel we need only return to Locke, who offered practical implementation for his philosophy of mind in his essays on education. His recipe for self-governing children by disciplining the mind instead of whipping the body advises enticing children into intellectual activity through play, such as teaching them to read with lettered dice or cards. In the same decade that Samuel Richardson and Henry Fielding debated how to instruct their readers with model characters, Anthony Collins, John Newberry, and Thomas and Mary Cooper commercialized Locke’s suggestion by printing alphabet books that instructed parents to cut out the letters and make cards to play games with infants. Contemporaneous with the rise of the novel, such toys and books for children proliferated in the 1780s and 1790s. These education materials served a similar purpose as biographical literary forms by inviting children to sympathetically identify with toys as didactic reflections of the self and to see literacy as tangible property. This study examines educational objects—board games, toys, prints, classroom teaching aids, factory machinery, and automaton exhibits—that mirror self-development as they instruct and construct subjects, as well as how conventions for observing the physical world and narrating object encounters entered popular fiction and shaped its didactic strategies.

The literary texts I examine are written by authors with professional teaching expertise who represent learning as an embodied experience, with literacy grounded in what they called

\(^8\) Armstrong, *How Novels Think*, 5.
“object learning, “experiential learning,” or “the education of things.” Denouncing rote-learning in favor of an induction method, object lessons promised to coordinate the development of body and mind by using the pupil’s sensual exploration of physical surroundings as a catalyst for higher cognitive thought. I begin with late-eighteenth-century author-educators who reconceptualized manual activities as education and child’s play as serious work. When adopted by utilitarian and Whig advocates of education for the poor, however, these middle-class pedagogies proved inadequate for addressing the challenges faced by nineteenth-century poor children. Reform-minded Victorian authors and educators were increasingly skeptical of pedagogies that conflate work and play when child labor and extended hours for adults deprived working families of the leisure to learn. Remonstrating the slippage between work and play, working-class Radicals—who inherited a strong materialist tradition through William Godwin, Thomas Paine, and Robert Owen—nevertheless used the phrase “education of things” and denounced “mere words” as a protest against church-controlled schools and elitist government leaders whose nonsensical Latin training supposedly qualified them to lead the nation. As a bridge between practical and theoretical knowledge, object learning also offered middle-class reformers a way to repair cross-class sympathies by elevating the art of workers who produced goods and by informing consumers of the labor behind everyday objects.

Although I consider objects and texts as equally embedded within cultural landscapes that determine their meanings, many authors that I investigate assign object learning a unique status as a necessary precursor to writing. Objects promise to instruct people from outside of language, politics, or culture; an autodidact who learns from unfettered exploration and experimentation is therefore less corrupted or subservient and more creative, open-minded, and self-governing than someone who learns by submitting to the untested authority of texts. In some ways, the object
status of autobiographical texts is what enables these narratives to create free subjects. While this observation may seem counter-intuitive because we associate creative and active minds with authoring texts, it accounts for why literary scholars and the authors they study persistently describe the advantages of writing in terms of creating a textual body, or object, with this second textual self is owned, subjected, and manipulated while its author remains free. Writers shape themselves through their work, much like Pygmalion creates himself by forming Galatea, his second self. “It is the capital and distinguishing characteristic of our species,” explains Catherine Macaulay, “that we can make ourselves as it were over again,” becoming “the carver of [our] own happiness” and fashioning “that artificial being, a social man.” Macaulay’s sculpted “artificial being” underscores a tendency to externalize development by creating artificial doubles, models for self-reflection that give material substance to a linguistic convention of referring to “ourselves” in the possessive.

My interdisciplinary methodology takes advantage of the broader field of autobiography studies laid out by Mascuch by turning to the material culture and teaching practices of British education. Far from limiting the work of self-fashioning to texts, Mascuch uses Bourdieu to suggest that autobiography is a “field of significance” that in its most inclusive sense “leaves the graphe as open as the auto, and bios.” Potentially limitless in form, autobiography “includes not only conventional ‘literary’ texts” but also “non-verbal” discursive practices, such as “films, photographs, collections of ephemera, wardrobes, gardens, and so forth.” More recently, the intersection of autobiography and object has become the territory of thing theory. According to Igor Kopytoff and Arjun Appadurai, scholars who recover the broad and varied life cycle of “specific things, as they move through different hands, contexts, and uses,” resist commodity

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fetishism through “methodological fetishism,” or by ironically treating objects as if they are living people who can relate their autobiographies. Drawing on work in cultural studies and anthropology, literary scholars Julie Park, Mark Blackwell, Jonathan Lamb, Cynthia Sundberg Wall, Elaine Freedgood, and John Plotz have examined how the behavior of objects in literature has changed across centuries of colonial trade and commoditization, industrialization, and modern capitalism. In literature, objects are tools used to form and communicate identity, sometimes appearing as characters with their own stories to tell or as treasured personal talismans that, like fiction, transport memories across the globe. Turning to the literature and philosophy of education, I investigate where these connections between objects, fiction, and identity originate.

I have argued that the “object” status of texts gives life and agency to its author, much like the block of marble touched by Galatea makes her aware of herself. What most interests me about thing theory is its complication of the divide between the subject who knows and the object known, or between living creatures and stone. Objects safely kindle individuality because they have no will of their own; they evade the central contradiction in any myth of complete autonomy: if everyone creates themselves through free choices, then people who live together actually co-author one another. That is why when one person touches another person, their individual differences must be denied, or one person becomes an object to the other. When Galatea reaches out and touches the marble, she creates herself, but when she touches her lover,

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12 Park, Self and It; Blackwell, Secret Life of Things; Lamb, Things Things Say; Wall, Prose of Things; Plotz, Portable Property. Heather Klemann uses thing theory to explain the materiality of children’s literature and the novel, focusing on John Newbery’s The Pretty Little Pocketbook, sold with ball or pincushion. See also: Peer, Romanticism and the Object; Langbauer, “Marjory Fleming and Child Authors”; Kuznets, When Toys Come Alive.
13 Mascuch points out that the self is “co-authored” but “the individualist self overlooks this fact and subscribes to the illusion of total control, of personal autonomy, over and above mere agency. The individualist self imagines the peculiar fiction of being in total possession of itself in all situations” (Origins of the Individualist Self, 22).
her méconnaissance creates Pygmalion as an active subject against herself as object, as a person with no “I” to challenge his desire. Just so, Buffon’s Adam creates himself in his desire for Eve, who is part of his flesh. By contrast, Frankenstein’s companionless monster fully defines himself against the objects of nature only to battle the world of men each time his fingers meet stray from natural objects to socialized subjects. Novels of education are full of metaphorical moving statues feeling their way from object to subject status in order prove their creator’s agency. Children are the objects (and potential agents) by which parents prove their agency, while workers are the mechanical bodies (and potential agents) against which the middle class defines itself as the nation’s instructor. In this world where everyone is an object or a subject, but anyone can easily pass between these categories through education, the ability to manipulate dead matter is the passport to subjecthood. Each of my chapters explains a different sort of mechanical literacy that eighteenth- and nineteenth-century British educators believe children and the working classes must master, in conjunction with verbal literacies, in order to become agents who control their bodies and their environment.

**Learning from Objects in Science and Education**

The object lesson has a long history as a didactic form reliant on practical example or poetic justice. Many schoolroom prints and chapbooks use cautionary tales to frankly depict the consequences of playing with guns and fire, stealing, or climbing fences. During the seventeenth century, however, a new kind of “object lesson” gained popularity. Influential educators advocated strategies for learning more effectively through the senses, supported by scientific concepts of knowledge production through personal observation. These experientialist pedagogies value teaching children directly from things in the context of everyday life—from
object lessons in the literal sense. Rather than cautionary tales that substitute safe, virtual experience for learning the hard way, these object lessons invite children to try out what they read and learn from direct experience. Object lessons are both literary and non-literary; they include the practices of actual children who learn by examining what is at hand, pedagogical texts that describe how to teach using experiments, and literary narratives that portray children engaging in educational play. Such literary and non-verbal lessons are closely linked because narrated objects lessons are performative texts that invite children to imitate the experiments of child characters.14

While using the phrase “object lesson” in the context of Enlightenment experimental educators, I should clarify that in the history of pedagogy it is often associated with the Pestalozzian movement, which was popularized in Britain in the 1830s and became influential across the curriculum in the latter half of the nineteenth century.15 According to Swiss educator Johann Heinrich Pestalozzi, children should handle and describe objects, uniting “hand, heart, and head” in what was called “object teaching” or “object lessons.” But as Jill Shefrin argues, one of the peculiarities of the history of European pedagogy is the resurgent call as far back as classical Greek education texts for practical teaching methods that value physical engagement

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14 O’Malley, “Acting our Crusoe.” O’Malley demonstrates the performativity of Robinsonades for children, which invite readers to imitate in play the child characters who build their own tools and houses.

15 Carter, “On an Object Lesson,” 8. Carter credits Pestalozzi with the “basic concept of object lessons” and describes his method: “children were first to develop sensation, then perception, notion, and finally volition, learning how to act morally based on an individual view of the world.” Considering Pestalozzi published his education treatise, How Gertrude Teaches Her Children, in 1801, he developed his unique methods for object teaching in the same pedagogical climate as Maria Edgeworth. Although drawing on the same predecessors, these two educators developed methods of practical, experimental teaching for different arenas—Pestalozzi for teaching the poor in schools, and Edgeworth for teaching the middling or upper classes at home. Hence, one of the early British advocates of Pestalozzian teaching, Elizabeth Hamilton, advocated introducing Carter’s methods to train the senses of the poor in Lancaster schools as a way to make children active learners. To avoid confusion, I do not use the specific Pestalozzian phrase “object teaching,” but I consider “object lessons” as a phrase in general circulation, used in common conversation and open to literary scholars of all periods. I reserve “the education of things” for the Rousseauvian method.
over memorization. Their ideas rooted in Francis Bacon’s induction method and John Locke’s philosophy of mind, John Amos Comenius, Jean-Jacques Rousseau, Stéphanie Félicité, Comtesse de Genlis, the abbé Pluche, Lady Ellenor Fenn, and Richard and Maria Edgeworth, among many others, had previously established a pedagogical tradition of training children’s senses through objects well before Pestalozzi. I follow the practice of early children’s literature scholars in referring to object learning more generally as “experiential learning,” but I use “object lessons” to refer to a subset of narratives and practices that emphasize single object encounters or intense episodes rather than the vast, nebulous influence of natural landscapes or life experiences on the mind.

For educators who favored experiential education, the learning style of children is closely connected with the way scientists make discoveries. The overlap between scientists and children derives from the popularity in Britain of Francis Bacon’s induction method and Isaac Newton’s celebrity status as Bacon’s disciple. As subsequent generations understood Bacon’s method, induction explains how to carefully expand knowledge by moving from particulars to increasingly general theories. Bacon considers the significance of his methods for education in The New Atlantis. After the pattern of Thomas More’s Utopia, Bacon imagines a place where scientists pursue practical and theoretical knowledge at an educational and research institution called Solomon’s House, portraying Solomon as a scientist who pursues divine Wisdom by minutely gathering observations on the behavior of matter before slowly deriving general theories about the fixed laws that govern these behaviors.

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16 Shefrin, Dartons: Publishers of Educational Aids. Jill Shefrin’s recent survey of over 4,000 items from the Darton’s educational ephemera indicates just how much of what children’s publishers produced did not fall neatly under the category of books.
17 Schultz, Pestalozzi’s Mark, 25-29. See also Shefrin, Shefrin, Dartons: Publishers of Educational Aids for this history.
19 Olson, Kingdom of Science, 41-66.
At the same time that Bacon’s status grew, John Locke argued, in *An Essay Concerning Human Understanding*, that knowledge accumulates through the senses, with abstract ideas derived from particular observations. Locke’s essay implies that children follow empirical methods when they accumulate sensory impressions during infancy then produce secondary ideas of increasing sophistication and abstraction through reflection. Like a good scientist, who avoids hypothesis while gathering particulars and circumvents classical authorities with experimental methods, an ignorant child enjoys a privileged epistemological position because his faculties are unclouded by the false, untested assumptions transmitted by past generations.20 Children “have no prejudices,” writes Maria Edgeworth, whose *Practical Education* invokes Bacon’s practical methods, “therefore they have the complete use of all their senses; they have few ideas, but those few are distinct; they can be analysed and compared with ease.”21

Founded in scientific method, the “new philosophy” of education places children in a powerful position relative to the natural world, which they have the authority to creatively interpret, manipulate, and narrate. Speaking for the natural world requires poetic skill, but since its foundation is in observation and analysis of the material world, linguistic literacy is codependent with mechanical literacy. Arguing that Bacon’s induction is connected with the beginning of a modern attitude of “conquest” over nature, Paul A. Olson demonstrates that Bacon’s utopia depicts human triumph over “everything tangible” through combined scientific, educational, and colonizing projects. Believing that human improvement through education enables scientists to harness the forces of nature towards eliminating suffering, Bacon charts a dangerous path taken by successive nineteenth-century progressivist utopians and utilitarians,

who support state-sponsored universal educational as a means of engineer society.\textsuperscript{22} However, by depicting Bacon, Adam Smith, and the Utilitarians as environmentally short-sighted and pedagogically oppressive, and praising oppositional voices of Alexander Pope, the Lake Poets, and Charles Dickens, Olson deepens the divide between the “mechanics” of science and political economy on the one hand and the “organic” imagination of literature on the other, overlooking how these traditions intersect. As Jonathan Smith documents in \textit{Fact and Feeling}, scientists retained a respect for induction through the nineteenth century, but they increasingly called attention to the imaginative leaps and hunches that transformed their methodology into something more creative than naïve empirical fact-gathering, just as poets represented the subject of poetry and the writing process as grounded in observation and “particular facts.”\textsuperscript{23} What concerned Wordsworth, Coleridge, and their followers was not science, but depictions of the mind as a passive instrument that collects facts rather than an active shaper of the external world. More recent studies on sensibility by Sharon Ruston, Alan Richardson, and Noel Jackson emphasize the importance of materialism for the Romantic poets, documenting the closing gap between mind and brain—between thinking and feeling—in Romantic-era science.\textsuperscript{24}

What these studies neglect is the practical implementation of sensation, or experiential education, in children’s literature, private homes, and public classrooms, and how these practices informed authors of the period, who were more often than not professional educators. Among notable women authors—Anna Letitia Barbauld, Amelia Alderson Opie, Charlotte Smith, Mary Wollstonecraft, Mary Hays, Charlotte Elizabeth Tonna, Harriet Martineau, and Felicia

\textsuperscript{22} Olson, \textit{Kingdom of Science}, 66.
\textsuperscript{23} Smith, \textit{Fact and Feeling}, 55. Smith quotes Wordsworth’s Preface to \textit{Lyrical Ballads}. Smith argues that, “Far from repudiating the imagination, then, nineteenth-century scientists and philosophers say it is an indispensable component of scientific method” (37). During this period, Smith argues, the methods and language of science and poetry converge.
\textsuperscript{24} Richardson, \textit{British Romanticism and the Science of the Mind}; Ruston, \textit{Shelley and Vitality}; Jackson, \textit{Science and Sensation}. In Richardson’s study, . . . , while in Jackson’s account, Wordsworth, Coleridge, and Keats do not withdraw from history through their inward turn but embrace the self as historical through the mind’s embodiment.
Hemans—nearly every one wrote for children or the working classes, sometimes as a quick source of money, yet with great care and theoretical sophistication. While women like Hannah More and Charlotte Yonge wrote devout instructional texts, other educated women writers were concerned about making complex ideas approachable for less educated and affluent audiences. Elizabeth Hamilton wrote *Essays on the Principles of Education* for mothers who wanted to follow the latest cognitive theories of Dugald Stewart in their child rearing practices but did not find his philosophy of mind sufficiently approachable. In her *Essays on Education, Moral and Miscellaneous*, Mary Hays translated metaphysical debates over necessity into an epistolary exchange between two young women. Among the Lake Poets, the same dedication to education predominates. Robert Southey and Coleridge publically defended Andrew Bell’s monitorial methods, while William Wordsworth, a friend of Bell, volunteered in one of his schools for several years. In his obituary, *Household Words* celebrated Wordsworth primarily as a national educator, quoting at length from *The Excursion* to show his support “respecting National Education.” Considering that poetry and fiction defended their public usefulness in didactic terms, it is no surprise that the public image of authors during this period converged with that of the public instructor.

Despite vitriolic contests over who should be educated and to what end, some remarkable commonalities underlie diverse approaches to instruction. In their survey of teaching methods from 1770-1850, Steven Shapin and Barry Barnes find that, regardless of vast pedagogical differences, writings on education consistently reinscribe a “gnostic” / “banaustic” culturally

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25 “William Wordsworth.” *Household Words*, 1 no. 9 (May 25, 1850): 210-13. The lines chosen include the country’s obligation, “to teach / Them who are born to serve her and obey; / Binding herself by statute to secure / To all her children whom her soil maintains, / The rudiments of Letters, and to inform / The mind with moral and religious truth” (213). Technically, Wordsworth did not support the “National Education” system (Lancastrian schools) but a similar method under the Anglican church with Dr. Bell, but by the time of this obituary the distinction was less important. Nonetheless, *Household Words* subtly attempts to redefine Wordsworth’s legacy.
constructed binary in human mentalities that corresponds to social hierarchies of race, class, gender, and age. The gnostic mentality, assigned to adults, men, and upper classes, is verbal or symbolic and capable of abstract, complex thought, purposeful action, and self-control; whereas the banaustic mentality, assigned to children, women, and working classes, is primarily sensual or concrete, tending to superficial, non-symbolic thought and mechanical, automated action. According to this divide, the mental development of all persons in the banaustic category, adults included, seems equally child-like and “primitive.” Because they are illiterate or disinclined to abstract thought, such people experience the world differently, engaging directly with objects and using fewer cultural or linguistic mediations. Whereas education for wealthier children focuses on raising children from a banaustic to a gnostic mentality, note Shapin and Barnes, education for women and workers rarely encouraged this transition up the hierarchy from concrete to abstract thinking.26

Viewing humanity through this binary, childhood is one moment of intellectual equality during which everyone accesses the world as a sensual creature. Even when its ambitions are limited for educating the poor, I find the goal of object learning is to introduce children to abstraction in the only way possible, through the body’s contact with its physical environment. If sense experience is the sum of early education, then children must become adults with gnostic minds through the body’s mechanical movements. Instead of exercising abstraction or language, per se, object learning permits self-referential awareness of the process of learning through the senses; it fosters consciousness, self-monitoring, and abstract thinking by using object-exploration as a stand-in for self-observation.

In many of the texts I examine, such as Godwin’s Caleb Williams or Maria Edgeworth’s Rosamond stories, the physical world and the mechanical laws that govern it are analogous to

26 Shapin and Barnes, “Head and Hand.”
human beings and their anatomical laws, such that a child like Rosamond can learn about herself (and herself learning about herself) by investigating objects. The means of passing from banaustic to gnostic mentalities, therefore, is to develop this self-referentiality, which generalizes the child’s experience of control over passive and knowable objects into self-governance. This process, whereby children conceive themselves as abstract thinkers and autonomous individuals through sense exploration of passive matter, is what I mean by “mechanical literacies.” Such practices took many different forms. Authors who supported expanding the minds of workers through education often advocated access to diverse objects or pictures of objects, recommending theoretical mechanics as a way to elevate workers’ minds and respect their craft. Galatea’s object encounter with marble and flesh is another version of this self-referentiality, as are the children I later explore who watch automaton displays in London shows or machinery displays at the 1851 Great Exhibition. Despite my emphasis on the “mechanics” of a passive world, these methods for expanding minds are ultimately similar to those used by lyrical poets, who move from natural particulars, such as a flower, to observation of their own minds in contemplation, to an abstraction of human mental processes and sensual experiences.

The conviction that a child’s path to language lies through the senses supported a significant shift in how many wealthier children of the late eighteenth century learned to read. Making language accessible to these infants meant making words and letters physical things. In the following sections, I analyze new toys and methods that linked language with body movement and object manipulation, developing at once the child’s mechanical and verbal literacies. Since experientialist educators believed, for the most part, that all children begin as sensual creatures with minds equally empty, object lessons promised democratic access to unprejudiced, unmediated knowledge, transmitted from outside of politics, history, or
authority.\textsuperscript{27} I demonstrate, however, that rapid commercialization of object learning drew attention to how attitudes towards objects are necessarily class specific, dependent on concepts like property, labor, and consumption.

**Transforming language into tangible property**

The extent to which literacy connected with sensation is most obvious in the toys children used to learn to read. According to M. O. Grenby, during the second half of the eighteenth century children were increasingly likely to learn to read through alphabet toys instead of books.\textsuperscript{28} Taking the extreme position, Catherine Macaulay and children’s author Ellenor Fenn advised that parents should not allow toddlers to handle books before mastering their letters with toys. For young children who are easily waylaid by multiple distractions, books present too much information at once, whereas alphabet tiles made of horn or ivory, printed alphabet cards, or lettered dice allow children to interact with the letters in a physical space at their own pace. More affluent families could arrange these tiles in boxes or filing cabinets to increase the child’s physical movement and connect spatial memory with letters.\textsuperscript{29}

Because of these advantages, Fenn designed a box of educational toys to accompany her manual, *The Art of Teaching in Sport*, which explains to parents how to make learning active and abstract concepts concrete:

“Letters ought to be the most attractive toys; the study of them, the most sprightly play that can be invented. The first sounds of syllables should likewise be so acquired;

\textsuperscript{27} Manly, “Maria Edgeworth,” *Repossessing the Romantic Past*, 140-159. Manly argues that “Edgeworth’s notion of education” is “based on enquiry, observation, and experiment.” The discovery of knowledge is an “egalitarian, collaborative effort” between students and parents (144).

\textsuperscript{28} Grenby, *The Child Reader*, 41-43.

this may be effected with ease, by mean [sic.] of a set of letters, which the child may place as he is directed; this amusement may pass under the eye of a mother or an elder sister, as she sits at her work; and rather be allowed to the child as an indulgence, than required of him.

“To fetch the letters from another table, will enliven the sport, and effectually prevent that languor, which is so apt to creep upon a child who remains long in one place.

The rudiments of language should not be taught in a book; a *dull* child, or a *giddy* child will be disgusted; first impressions are powerful and lasting; who would not wish her little one to conceive, from the first, an agreeable idea of books? . . .

The sum of all this, is, that *reading must not be a task—No! it must be a lively amusement*.30

The goal of using playful literacy toys, for Fenn and many others, is to associate pleasure with reading so that children want to read on their own. Rather than reprimanding children for their inability to sit still and hold books, she accepts the child’s need to move around and touch things while learning, adapting the environment to fit the child. As a good observer, Fenn allows children to teach her how to learn—a concept of childhood that we tend to associate with Wordsworth. Fenn’s methods require children to “fetch the letters” from across the room because movement tackles short attention spans. Similarly, she uses beans or counters to teach math, because “Children ought always to count sensible objects,” and she suggests math and spelling games that use dice or cards.31

Active children at play are common illustrations for alphabets and grammar lessons, which associate letters with bodies in creative ways. The puppet horn book (1810) [figure 1]

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allows toddlers to handle or suck the harmless toy then slowly discover the alphabet carved on its torso, while older children can use the toy for puppet shows or to entertain younger siblings. Illustrations for *Posture Master’s Alphabet Jigsaw Puzzle* (ca. 1800) feature children exercising their bodies by bending to form each letter [figure 2]. Children can use the pieces like any other alphabet card, or assemble the puzzle pieces, or imitate the illustrations by making letters with their bodies. Because alphabet toys are sturdier than books, they have fewer prescriptions for proper use, affording children several ways to safely interact with letters while exercising their bodies.

Books for children increasingly anticipated the child’s need for active play, as the distinction between toys and books became less of a sharp division than a continuum. Semantically, books for children were often called “toys.”32 Sold as unbound chapbook sheets, inexpensive books required purchasers to fold, sew, and cut the pages at home, giving families the choice to instead glue pages to cardstock or post illustrations on the wall. Some of the earliest alphabet cards are from books, with the alphabet section printed twice so that parents can make cards of one set and a bound book from the other.33 During this period, publishers produced the first pop-up and flap books for children while, at home, collecting and scrapbooking illustrations from purchased sheets or lotto rewards was a common activity for children (as was writing in books), making the book’s format an invitation for tactile manipulation.34 By combining physical and mental exercise through these literacy toys, children reinforced the connection between training their bodies and learning about the world around them.35

32 A “toy book” is a specific kind of production, similar to a chapbook, but sold bound and adorned with a separately printed cover.
33 I have seen both a bound book and cards constructed from Thomas Cooper’s *The Child’s New Play-thing* at Princeton’s Cotsen Children’s Library.
34 Whitton, *Paper Toys of the World*.
In addition to unadorned tiles, alphabets transform into object lessons through the illustration of each letter with a corresponding object. I have come across these object alphabets on scrolls, panorama cards, Jacob’s ladders, dissected maps (puzzles), or themed card collections, which require tactile manipulations to accompany familiarization with letters. Because this style of illustration is so ubiquitous, isolated objects floating in space, arranged on lotto grids, or paired with single word labels constitutes a dominant visual rhetoric signifying childhood [figures 3 and 4]. These object arrangements associate literacy and play with property ownership and collection, as if children’s minds are little cabinets that organize and store what they pick up from the natural world, gathering quotidian detritus on the way to adulthood.

Although I do not want to suggest that philosophy of mind was so literally represented, or that every use of lotto prints is somehow an expression of abstract epistemological theories, there is at least some purposeful reinforcement between this visual rhetoric of objects and pedagogical theories.36 The eclectic design of two board games suggests as much: Learning in Sport! A Newly Invented Game to Promote Improvement [figure 5] and The Elegant and Instructive Game of Useful Knowledge, Designed to Impart Information to the Minds of Youth of Both Sexes [figure 6], both of which depict objects, framed and visually isolated, as a path for the players’ tokens. The complete randomness of these object selections, each with no connection from one to the next besides the connecting path (eg. dog, windmill, teakettle, monkey, estate house, man reading the paper), replicates the eclectic visual impression of lotto sheets or alphabet cards. The choice of a chain metaphor for Useful Knowledge may refer to Hartley’s theory of association, where objects picked up by the senses become organized in the mind along chains of

36 Te Heesen, World in a Box. According to Anke Te Heesen, pictorial encyclopedias like the picture academy for the young, which forms the center of her study, organize information about the world in storage boxes that represent the student’s mind. Even though Heesen’s study covers the German Enlightenment, the same ideas were propagated in England by David Hartley and later by James Mill. See also: Stafford, Artful Science, 225-264.
associations. Games like these are similar to *Shoots and Ladders*, but children can only advance if they answer quiz questions provided in a separate booklet that pertain to each space where they land. The game play for *Useful Knowledge* reinforces the notion that preliterate children sharpen their minds by encountering various practical objects before they learn to read by having players advance along the object-chain path to a central circle image of schoolboys presenting their slates to a schoolmaster [figure 6]. The architecture of the school, along with careful details (eg. the children’s hats kept on string, children grouped at the walls), suggests that the school depicted here is modeled on the methods of Quaker educator Joseph Lancaster, whose classroom materials were printed by the Dartons, the Quaker publishing family that made these two games. Lancastrian schools were among those that used rewarded lessons with prize tickets as a way to teach children to save money and appreciate property. In short, there is a subtle logic to the way this game gathers distinct, practical things, connecting them on chains to literacy, that is in keeping with teaching principles at use in classrooms and recommended by philosophy of mind.

Simple pictures of things serve a practical purpose as conversation starters for adults and toddlers, but their containment on grids, chains, and cards also suggests anxieties about double meanings, as if connecting language symbols as closely as possible to the objects represented prevents miscommunication. Consider the hieroglyphic puzzles popular during this period, which substitute objects for words, such as the set published by game and mapmaker John Wallis using Anna Letitia Barbauld’s *Hymns in Prose for Children* [figure 7]—some of the most common poems for children to learn by heart. In addition to providing clever puzzles, hieroglyphs reflect a linguistic theory, prior to the Rosetta Stone’s translation, that ancient Egyptian writing directly represents objects, unlike the sound symbols used in the Roman

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37 Several letters from children’s publisher William Darton to his children are written in hieroglyphs much like these.
alphabet. Hieroglyphic communication was, at the time, considered more direct, or closer to a primitive state when humans related to nature through their immediate physical needs. Consequently, Francis Bacon wanted to create a language of pictograms that would collapse the gap between objects and words. There may be echoes of Bacon’s dream that inform the use of hieroglyphs by later educators, who recognized the arbitrary nature of language signs and for that very reason wanted words to acquire some sort of material presence. In a more contemporary case, Pestalozzi recalls that he discovered his method of “pure forms,” which teaches language through drawing, when his orphan students refused to learn their letters until he practiced conversations about objects. He found himself “obliged to lay aside the alphabet, that first torment of youth” when the child “felt no interest in those dead signs; he would have nothing but things, or pictures of things.”

As these challenging games suggest, materials for making language active and tangible were by no means limited to toddlers. Inventive textbooks for children occasionally explain in the preface how teachers should take advantage of the child’s supposed absorption with physical realities. George Mudie, the author of *The Grammar of the English Language Truly Made Easy and Amusing; By the Invention of Three Hundred Moveable Parts of Speech* (ca. 1840) taught composition at the Strand in London by printing words on separate pieces of paper, color-coded by nouns, verbs, participles, etc. He published his method as a book with instructions for teachers, lessons for students, and an attached case containing words as “moveable parts.” In Dickensian prose, he mocks traditional instructors as “luminous expositors of palpability, and most methodical creators of confusion” who “complete the mystification of what the Students had sufficiently understood before their understanding fell into the hands of their new instructors,

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38 Olson, *The Kingdom of Science*, 56-57. Olson argues that Bacon wanted to prevent “linguistic libertinism” by using pictograms or “written signs that attach to real things rather than the phonology of a particular word.”
39 *Hints to Mothers*, 175.
by unintelligible terms and pompous enunciations.” He lists a befuddling array of grammatical terms, calculated to make students “relinquish in despair” and asks, Why all of these words, when students comprehend very well what is right in front of them? He rejects abstraction and celebrates mechanical, material approaches to language: “Students PRACTICALLY observe the divisions and distinctions themselves, though they can neither see through nor comprehend the clouds and mystery with which the School Grammarians have surrounded them. . . . They already know the THINGS themselves”40 Therefore, teachers should avail themselves “of Sensible Signs and Representations, and of Movable Pieces of the Parts of Speech and even of Colours.” With these methods “The laws of Grammar are thus practically exemplified . . . before the eyes of the Students, who thus readily perceive and easily comprehend.” He suggests that “Instead of abstract Rules,” teachers use “practical realities of Grammar.” “I show them the PARTS OF SPEECH themselves, and the GRAMMATICAL LAWS actually WORKING upon and amongst the Parts of Speech sensibly moving and changing, controlling and governing the latter . . . . before the eyes of the delighted, the attentive, and the rapidly improving Learners, who thus quickly obtain the very SUBSTANCE of the Grammatical Knowledge with which it is sought to imbue them.”41 The lessons that he provides draw analogies between simple grammatical terms and familiar objects. A Conjunction, for instance, is a “Grammatical Joint or HINGE.” He invites his students to “examine on the hinges or joints of the door of this room” and see how each joins together two things.42

George Mudie may seem like an unholy combination of Mr. Wizard and Thomas Gradgrind, but his methods are playful and child-centered. He implies a number of fascinating claims about the privileged epistemological position of children; they “know the THINGS

40 Mudie, Grammar, viii-x.
41 Mudie, Grammar, xiv.
42 Mudie, Grammar, 23.
themselves” precisely because they have not yet been mystified by language. Language properly taught can have substance (“SUBSTANCE”!) because words, like things, are subject to “LAWS” and can be manipulated “sensibly” by the same principles used to manipulate the material world. Abandoning traditional grammar jargon, Mudie adopts terms from mechanics to describe how language works: “laws,” “working upon,” “moveable pieces,” and especially his choice of both “joint” and “hinge,” which appear together in standard mechanics textbooks. Mudie considers grammar a similar enterprise to kinematics, reducing language to simple parts to see how they act on one another. And implicitly, he considers children’s practical, physical worldview similar to that of artisans and factory workers.

Making language into something tangible allows children to combine body movement and intellectual training with a growing awareness of their control over world around them. By manipulating words and the things represented by words, the child author builds his own mental landscape and becomes aware of his ability to shape himself.

Objects with properties and Children of property

Object learning teaches children about social station by connecting literacy with owning property. If stimulating objects from nature and nursery prepare infant faculties to comprehend texts, then children who do not own toys are, theoretically, at a disadvantage, especially if they work in cities at indoor occupations and have little access to objects from nature. Through “infant library” collections, toys, and natural history specimens, children of leisure from

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43 Egbert Willis’s Principles of Mechanism (1841) begins a section on the universal hinge: “DR. JOHNSON gives seven different definitions of the word joint, of which the second is that which is applicable to mechanism; namely, Hinge; ‘junctures which admit motion of the parts;’ or rather, of parts that are connected. But in scientific language I prefer to employ the term ‘lines of flexure’ for hinge-joints. Such joints were termed in Old English, gimmals or gimbal. The derivation of these words is doubtless from the French geneaux (gemella, Lat.), twins; which is applied properly not only to a hinge composed of two portions of exactly similar form and size jointed together, but to anything else which is formed of twin pieces of like dimensions united in any manner” (507).
comfortable homes reached beyond alphabets and grammar, imbibing a broader notion that comprehension is akin to ownership; we “grasp” ideas through objects.

Returning for a moment to Fenn’s *Learning in Sport*, the importance of property is implicit in her method, and not only because her materials were expensive. Children eagerly learn their letters from toys, according to Fenn, because they naturally desire to collect and own things. She recommends that mothers give their child a box and play a game of forfeits with the letters:

let him call [the box] his own; as he acquires a knowledge of the letters let him deposit them in his box . . . If he should forget a letter, then he forfeits that one till he recognizes it . . . Children love property; the box will be often produced, its contents displayed;—“these letters,” (the happy child will say) “are my own!” [Fenn’s emphasis]44

The child’s play literalizes an internalization process where the box represents the mind; the child grasps knowledge and owns it inside of himself like portable property. These alphabet lessons are couchéd within Fenn’s larger system of playful instruction, in which mothers use the picture cards she provides for starting conversation, or use daily constitutionals as opportunities for “instilling benevolence” and “infusing ideas” through everyday objects. The world is “full of toys for children.”45 A consistent logic connects all of these “sport” activities—from more direct object lessons, to picture conversations, to object letters and counting beans, to the infant’s first spelling books—such that the child gains knowledge of the wider world through the same exploratory activities used to teach reading and writing. Such methods for making language accessible to the senses through objects prepare children to become active learners and self-directed adults, while associating the acquisition of knowledge with property and social mobility.

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These connections between literacy and property are illustrated on box lids and book covers that depict wealthier children learning to read with toys. The sliding box lid for *The Alphabet Cabinet* shows a girl outdoors in a country estate, cards spread at her feet while she boasts her literacy to the family cat [figure 9]. The girl’s posture claims possession of her affluent space and uses her illiterate subordinate, the cat, to foil her education as the source of her authority. By the nineteenth century, children’s publishers also sold children’s books in sets as “Children’s Libraries.” These sets prepared children to see themselves as library owners by grouping early readers, nonfiction, and short fiction, as well as anthology collections from English novelists (made possible by the changes in copyright law in 1774), housing them in a small box or wooden bookshelf. The trend extended to other kinds of education equipment, such as specimen cases sold for young natural philosophers as well as different sorts of “toy cabinets,” or alphabet cards with animals, plants, herbs, etc., also sold in boxes. The alphabet as a cabinet collection evokes the popular practice of collecting unusual objects or natural history specimens, tying literacy with Enlightenment science and property ownership.

One of the early proponents of this idea was the abbé Pluche, whose *Spectacle de la Nature* Diderot used as a model for his encyclopedia.46 Its careful descriptions of the natural sciences and artisan crafts, based on Pluche’s observations of workers and factories, position its child readers as the bridge between physical labor and abstract science, anticipating that some children will become manufacturers or improve production with their scientific investigations. To stimulate active, spontaneous learning, Pluche recommends giving children “objects that belong to them, and instruments which they may dispose of as their own property. Give them an old-fashioned clock, a small timber-framed house put together with removable pegs, a jack, a

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small crane, rammers, and all the engines for driving piles into the ground to be taken apart, with each piece numbered in order to put the whole thing together again. By taking apart machines and putting them back together, children verse themselves in the mechanical interactions at work in the physical world. The added injunction that children should “own” these toy machines teaches what Simon Schaffer argues is a middle-class concept of intellectual property, propagated by the Encyclopedists, that only the managers of manufacturers can comprehend and survey the entire process of production, making them owners of knowledge previously protected by guild craftsmen. Although Cynthia J. Koepp considers Spectacle democratic in its attention to “mechanics” or artisan laborers, Pluche’s insistence that wealthier children connect physical with mental labor is advantageous to the developing managerial class who must comprehend the labor of factory workers and the mathematical concepts behind machinery. In England, these are the middle-class students who attended the Dissenting Academies and, in the next century, the mechanics institutes. Owning toys means taking responsibility for their condition by fixing them when they break, as recommended by Mme de Genlis in Adelaide and Theodore; or, Letters on Education and Maria Edgeworth’s opening chapter on toys in Practical Education (1798). The Edgeworths not only recommend Pluche’s Spectacle but make similar suggestions about mechanical play. Parents should give infants toys that can be taken apart, while older children learn mechanics by constructing their own machine models, reading print diagrams, and visiting factories.

Object learning became popular when it did not only because of Locke’s philosophy of mind and Bacon’s inductive method, but because material and economic factors were favorable.

Despite an emerging consensus that children are innocent and distinct from adults, wealthier young children actively participated in consumer culture as consumers. They were more likely than previous generations to join parents in fashionable nightlife and more likely to have a separate nursery space with toys and books targeting their specific age group. With Britain’s explosive population growth, there were more children in Britain than ever before, and a greater number of these received formal schooling at the insistence of ambitious parents for whom literacy, speech, and comportment communicated the family’s social status.

Object learning not only appealed to middle-classes values, but also to booksellers who wanted to sell books and toys at a time when education was becoming increasingly institutionalized. Past the age of seven, boys left the feminized spaces of home and dame school, where they acquired basic literacy, to finish their education in institutions that prepared students for various enterprises. “The end of the eighteenth century and beginning of the nineteenth can be understood as a transition,” comment Leonore Davidoff and Catherine Hall, “between a system built around informal training of children by the family, kin and community to one which relied on institutions created specifically for educational or professional training.” These schools required books and equipment, and since many of them were headed by dissenting families who wanted educational materials that fit the unique religious and occupational needs of their middling-class clientele, schoolmasters often wrote or designed their own materials for classroom use, then published these more widely. Anna Letitia Barbauld, who opened Palgrave school with her husband, Rochemont Barbauld, first wrote her infant lesson books for use in her classroom, while science instruction at Warrington academy used machines and manufacturing

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51 Peter Borsay shows that in the later eighteenth century wealthier parents were more concerned than previous generations about exposing girls and boys to fashionable entertainments to make them less shy and awkward under public scrutiny. See “Children, Adolescents and Fashionable Urban Society,” Fashioning Childhood, 53-63.
52 Davidoff and Hall, Family Fortunes, 235.
53 Sullivan, “Cultivating a ‘Dissenting Frame of Mind.’”
models with advanced students. Educational books and materials became a lucrative commercial enterprise by the 1780s and 1790s, with publishers and shops specializing in these wares.\(^{54}\)

The spontaneity of learning from whatever objects are at hand implies that children who must live in an unpredictable world-in-transition are ill-served by prescriptive rote lessons.\(^{55}\) Such an approach to education particularly appealed to those in the socially mobile middle-classes, who were responsible for producing most pedagogical literature.\(^{56}\) Andrew O’Malley argues that the middle classes embraced Locke’s concept of child subjects born equally blank, deficient in reason but malleable and improvable, in order to differentiate themselves from the stations above and below them. He connects the popularity of the *tabula rasa* metaphor for the infant mind with what Isaac Kramnick identifies as a dominant middle-class metaphor of life as a fairly run race—the “equal opportunity” of an even start that is really a “justified and morally acceptable inequality.”\(^{57}\) The middle and upper classes were also best situated to transform their homes into safe learning environments, according to the ideal promoted by object learning, where ordinary objects and household activities spontaneously suggest practical lessons in natural history, charity, time-management, frugality, and sensibility. Enclosed spaces under parental control certainly imply either estates with fenced gardens or town houses with rooms separate from servants and dangerous or breakable materials.\(^{58}\) Although object learning,

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\(^{54}\) By observing that children’s books and toys were more commercialized by the 1780s, I do not mean to imply that previous generations neglected to write children’s literature or sell equipment for rearing children. Recent work on Medieval and Early Modern children calls into question Peter Coveney’s sweeping statement that children only emerged thematically in the later eighteenth century.

\(^{55}\) On using quotidian objects and toys to teach young children in “education of the moment,” see Immel, “Mistress of Infantine Language,” 25.

\(^{56}\) Godwin captures this notion in his Enquirer: “It is of less importance, generally speaking that a child should acquire this or that species of knowledge, than that, through the medium of instruction, he should acquire habits of intellectual activity” (5). For the politics behind approaches to memorization in education, see William McCarthy’s essay contrasting Hester Thrale and Anna Barbauld’s pedagogical strategies with their respective students, “Performance, Pedagogy, and Politics,” 261-71.


\(^{58}\) For the significance of enclosed, domestic spaces for education to the middle classes, see Hall, *Family Fortunes*, 357-97; Smith, “Centering the Home-Garden,” 24-48.
especially in *Emile*, originally depended on quotidian objects, works like Maria and Richard Edgeworths’ *Practical Education* (1798) comfortably assume readers are tuned into the booming market in education apparatuses and have resources to purchase everything from microscopes and fossil storage cabinets to child-carpenter tools and mini-wheelbarrows. And, as we’ll see in Maria Edgeworth’s *Rosamond* stories, choosing between objects with different self-forming potentials can be dramatized as a purchase. The marketing advantages of object learning were quickly realized by children’s booksellers, who shamelessly printed stories where children played with and praised the educational toys sold in their shops, and they commonly packaged books together with toys. *A Pretty Little Pocketbook*, Newberry’s first children’s book, came with a choice of pincushion or ball for keeping track of faults and good deeds—essentially a toy version of a Protestant autobiography.59

Games and books for children are blatant, but also self-reflexive, about the participation of children and booksellers in commercial markets. Some of these works celebrate the child’s participation in consumer culture without an explicit didactic message. A card game like *The laughable game of what d’ye buy* (ca. 1860) had no more didactic content than the immensely popular “London Cries” chapbooks, which featured different street vendors calling their wares and services [figure 10]. Players simply match cards with items sold to the appropriate storekeeper’s card—for instance, “a dissecting map” (a puzzle) or “a dressed doll” belong to the “toyman.” While Patricia Crown deprecates such shameless commercialism, I am more inclined to celebrate that children’s books occasionally muster quality satirical commentary on the literary marketplace in the fine tradition of Jonathan Swift’s *A Tale of the Tub*.

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59 For some fascinatingly egregious examples of the practice, see Crown, “Visual Culture of Consumption,” *Fashioning Childhood*, 63-73. There is a noticeable difference for anyone reading these stories between the way respected educators criticize or promote objects for purchase and the blatantly self-serving marketing of publishers who tell their authors to promote their products. When Edgeworth suggests an object, she rarely says where to purchase it unless it is difficult to find, and she is quite selective, explaining her choices.
Even the most straightforward didacticism of marketplace narratives exhibits a level of clever, almost postmodern, play that argues against any knee-jerk rejection of such works. One of my favorites is John Newberry’s *The Toy-shop, or, Sentimental Preceptor* (1787), which hints that families demonstrate good conduct and taste when they visit toyshops. The mother protagonist, Lady Meanwell, brings her children to a special toyshop, where the shopkeeper tells instructive stories about each toy. For instance, he gives them a mirror that mocks vanity, while a telescope teaches how people see their own faults reduced and the faults of others enlarged. Lady Meanwell praises the shopkeeper as “a new kind of satirical person; your shop is your scripture, and every piece of goods is a different text, from which you expose the vices and follies of the world, in a very fine allegorical sermon.” The shopkeeper agrees, “I may, indeed, be called a parson,” for he delights to have “a full congregation in my shop.” The book suggests that some families make thoughtless purchases, while others use objects for self-improvement. The toyman warns that “people sometimes condescend to take home the text, perhaps, but mind the sermon no more than if they had not heard one.”

This extended analogy between the toyshop and the Bible transforms the toyshop into a microcosmic “book of nature.” The toys are texts that, like God’s creations, contain lessons for careful observers, and the children are natural philosophers.

Once they are old enough, the children learn to imitate the toyman’s conceit about objects that speak lessons. At one point they compose a story from the perspective of their old doll (a popular genre called the “it-narrative” or “object narrative”) in which they “let the doll appear to speak for itself.” When they return to the toyshop as young adults and request something “above the common baubles,” the shopkeeper again presents them with what he calls “a

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60 Barker, *The Toy-shop*, [ca. 1791] 26-7. The 1830 reprint of this book includes an introduction that explains the instructional advantages of fiction as a way to gain control over the imagination. Through books like this one, “The attention may be thus insensibly seduced from the present objects of the senses, and the thoughts accustomed to dwell on the past, the distant, and the future” (vi).

61 Barker, *The Toy-shop*, [ca. 1791], 87.
Looking-glass,” but instead of the same mirror he first introduced to the children, he hands them a book. “[I]t is the Looking-glass for the mind, or Intellectual Mirror,” he explains. “It contains an elegant collection of the most delightful little stories and interesting tales, such as cannot fail of improving and enlightening the understanding; the price of it is half a crown, and is sold by Mrs. Newbery, the corner of St. Paul’s Church-yard. I would recommend the perusal of it to all those, who prefer useful knowledge to empty conversation, and substantial advantages to mere phantoms.”62 The toyman advertises several other titles for sale, including abridgments of Fielding and Richardson’s novels, revealing that the shopkeeper is Newberry himself, and the children characters are the readers who have just purchased and read The Toy-shop. While the conclusion blatantly flatters customers for their superior discernment while pushing Newberry’s wares, there is something admirably complex in its metatextual contemplation on the status of books and toys as objects that fix didactic lessons within collectable material objects. The Toy-shop presents books, readers, children, and objects as strangely interchangeable, each speaking, acting, reading, and moralizing in turn. Books are mirrors, mirrors are books, and children’s minds are mirrors; children are like dolls, while dolls can be made to speak like shopkeepers.

Through these commercially conscious books, children associate learning to read with learning to make purchases in ways befitting their social station. The format of The toy-shop transforms Bacon’s empiricism by presenting objects within social settings, where they speak lessons determined by the context of their circulation. No longer isolated within laboratories, toys and books and artisan wares are social creatures, much like the shopkeepers who sell them, the parents who purchase them, and the children who speak for them.

For those children who lacked the purchasing power of the wealthy, literacy was nonetheless steeped in overt messages and subtle games about property. Poor children might

62 Barker, The Toy-shop, [ca. 1791], 118.
learn to read from donated books or by drawing in sand to avoid purchasing slates. They would be surrounded by prints of objects on the walls, some of these prints telling them not to steal. Their introductory reading lessons, which may comprise their entire education, usually featured passages from the Bible about respecting property. And, if they were successful at their lessons, they may be rewarded by playing “lottery,” where a child pokes a pin through a book and takes out a little square picture of an object, which students collected, like a poor child’s specimen cabinet. These object pictures, called “lotto sheets,” were staple classroom materials, and since pictures of objects were considered substitutes for learning directly from physical objects, there is some continuity between lotto rewards and John Harris’s marketplace object lessons. In Lancaster’s Monitorial schools, children earned reward tickets instead of lotto pictures, which they collected and traded for prizes or access to a lending library, if the school had one, again linking the accumulation of objects (economic or mental) with literacy. The purpose of these rewards was to teach poor children the pleasures of saving money and owning property earned by hard work. While middle-class children learned about consumption when they learned to read, working-class and charity school children learned to work for money and save their earnings. These connections between economic incentives and the advance of national literacy is explicit in government policy, where Parliamentary representatives who supported expanding schools for the poor simultaneously called for poor law reforms as a way to fund national education. As I discuss at length elsewhere, the wealthy people who managed schools wanted to teach less affluent children to adopt their attitudes toward literacy and property.

Experiential learning could vary significantly by class or institution, partly because the question of how to educate people for different stations seems tied to its most central concepts. Since people who labor with their hands were considered mechanically minded, object learning
was a logical choice for teaching working-class adults about rhetoric and natural philosophy, while at the same time, wealthier young people who expect to work as adults might enliven their memorization-focused, book-based routine by watching or imitating in play the work of skilled laborers. During a period when education became institutionalized, object lessons were one method of appropriating traditional modes of personalized, community-based education, such as apprenticeship, into modern classrooms or country estates, along with the skills of manual laborers. Even the mechanics institutes of the 1820s and 1830s could be viewed, in these terms, as places where workers, “whose lives being spent in the midst of mechanical operations, are at the same time instructed in the general principles upon which these depend,” as Henry Brougham explained, while “the learners of natural science in other conditions of life” can consult a “compendious set of machines” kept on-hand for practical experiments.63

In order to explain how labor and cross-class interactions function in object lessons, I will explore two sophisticated examples of theoretically informed experientialist children’s books. Selected to cover the full period of my study, both of these works illustrate how acquiring mechanical and verbal literacies requires educational exchanges between middle-class children and workers that are potentially problematic.

*Practical Education* (1780)

Only five copies of the second volume of *Practical Education* (1780) survive [figure 11]. The joint work of Richard Edgeworth, his second wife Honoria Edgeworth, and his close friend Thomas Day, the children’s story was published for a small audience of friends, eighteen years before Richard and Maria Edgeworth published their influential education treatise by the same title, *Practical Education* (1798). The story contains *The History of Harry and Lucy*, featuring

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two child characters that Maria Edgeworth later revived in *Early Lessons* (1801), in which the siblings perform scientific experiments with everyday objects like teakettles and wash basins. The origins of her storyline are evident in the 1780 volume, which depicts Lucy’s investigation of how cream is made in her mother’s dairy and Harry’s observations on how bricks are made. The lone second volume opens with a dedication to its pedagogical inspiration: “This little book, written upon the Principles of ASSOCIATION, Is inscribed to Dr. Priestley.” On the following page are instructions for how parents might use the book: “The asterisk in the text refer to the Glossary; and when the Child is directed to ask to see any thing, it is hoped, that his teacher will shew him what he asks for, and let him handle and examine it.” The appended glossary defines words from the stories that address the senses, like “observation,” “shape,” and “sweet.” But whenever it lists a common object that a child can ask to handle, the glossary withholds a definition in favor of first-hand exploration.

The story and glossary hypertextually reference the sensual, material world of child readers, inviting them to imitate Harry and Lucy by asking adults about the things they see, hear, touch, taste, and smell. Consistent with the Associationist principles of the physician David Hartley, whose work was recently republished in a heavily edited edition by Joseph Priestley in 1776 (without the section on vibrations that later offended Coleridge), the story assumes that children require sensual engagement to form orderly associations between the otherwise abstract or symbolic content of printed text. By combining things and words, *Practical Education* answers the concern that children might learn words as mere symbol or sounds without meaning. The book teaches by joining together concrete and abstract, objects and text, familiar and strange, hand and eye.

This strategic coupling of what is at hand, or known, with what is removed, unknown, or
abstract, also structures Harry and Lucy’s narrative. The story begins in the familiar domestic space of their bedroom, where the children wake from sleep; then proceeds outward into the strange world of dairies, meadows, and brick layers; and closes with the children’s introduction to narrative as they listen to their mother read a story. Implicitly, the child audience for *Practical Education* learns that reading books is related to the hands-on learning enjoyed by Harry and Lucy, and the glossary suggests that they turn from their books to examine the world around them.

The 1780 *Practical Education* may have had a small circulation, but its literary impact is far-reaching. Thomas Day’s classic Rousseauvian children’s book, *The History of Sandford and Merton*, was originally intended as a short story for a sequel volume before Honoria’s death made Richard Edgeworth abandon the project. Like Harry and Lucy, the two boys in *Sandford and Merton* model how education should integrate reading with physical play—to integrate symbolic and sensual learning. After reading a Robinsonade about four Russian sailors who survive shipwrecked alone on a desolate island with only a few tools, Day’s boys determine to build a house themselves using only wood and a hatchet. *Sandford and Merton* models how children should trade activities between reading their book and imitating the experiments it contains—a tradition extended through subsequent Robinsonades for children.64 Closer to home, Richard and Maria Edgeworth continued Harry and Lucy into three multi-volume collections. Beginning with *Early Lessons* in 1801, Maria Edgeworth began elaborating the history of *Harry and Lucy* by providing enough information about equipment and processes for children to carry out the same scientific experiments as her characters. This sort of half-fictional book, something between a science textbook and a children’s story, became a popular genre in its own right, with works by Jane Marcet, Harriet Martineau, and Nathaniel Hawthorne (*The Book of Wonder*)

64 Day, *Sandford and Merton*, 40-8, 64-5.
following suit.

*The New Picture Book: Being Pictorial Lessons on Form, Comparison, and Number, for Children under Seven Years of Age* (1858)

Designed by German educator Nicholas Bohny and first published in Germany as *Neues Bilderbuch* (1850), *The New Picture Book* reached at least nine British editions in a dozen years after its Edinburgh publication in 1858, its popularity amplified by enthusiasm for Froebel’s kindergarten movement. The first edition copy that I examined was signed “to Isabella Napier Wilkin from her loving Auntie, Jane Rigby, 1st January, 1860.” Based on the Pestalozzian method, which catechizes children about everyday objects through open-ended questions, the book offers illustrations as substitutes for direct object interactions, and its preface confidently affirms that discussing objects creates a foundation for abstract thinking. Both verbal and mathematical skills depend upon developing the child’s powers of observation:

“The first thing to be secured in Education is the habit of observing accurately, yet with readiness—a habit acquired by the exercise of attention, through the eye, on visible objects. All objects have form, are presented in different positions, and are one or more in number. In these properties of objects lie the germs of thought and knowledge; and in the perception of these, combined with the use of speech in describing them, we have a sure foundation upon which to rear a solid superstructure of education. Nor can we over-calculate the detriment arising from the neglect of this habit of readily and with accuracy observing the qualities and relations of objects.”

66 The copy of *The New Picture Book* that I examined is from Princeton’s Cotsen Children’s Library.
Notice the active participation demanded of the implied child audience, who must not only observe but verbally describe what he or she sees on these pages. The emphasis on “form” in the preface is peculiar to Pestalozzi, who approaches letters and numbers as aesthetic shapes composed of basic lines and curves. Drawing is a significant part of the Pestalozzian curriculum because it requires children to find and replicate basic curves or lines within everyday things—the same forms that children find replicated within letters and numbers used for symbolic representations.

The preface next expresses anxieties about the child’s quick perception and comparative difficulty detailing everything that so rapidly enters the eye:

“The experience of all who have taken interest in the early acquisitions of children, goes to show, that they easily comprehend objects, pictures of them, and find delight in examining them and speaking about them. They not only wish to compare and measure objects according to their shape and size, but to distinguish and separate the large from the small, the thick from the thin, the long from the short, etc. With this hint from nature, of which advantage may be safely taken, their mental activity can be turned to account in advancing their education. It is, however, necessary to direct the child’s observation carefully, in order to secure a correct impression of whatever is noticed, and an accurate mode of speaking about it. It has therefore been deemed advisable to . . . draw their attention to the objects which surround them in their every day life.”

Conceiving of children under seven as quick and mentally active by nature, The New Picture Book anticipates the strengths and weaknesses of this developmental stage by offering children familiar objects that they want to examine and discuss. Yet the teacher who uses this book must shape a child’s natural ability towards greater acumen, since that same eager eye may cause

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Instead of merely making numbers into physical objects, *The New Picture Book* builds upon associations with numbers that children may have experienced intuitively before learning abstract figures. The opening page progresses from “one” as conceptually singular, to “two” as intimate and confiding, and “three” as social [figure 12]. On the top line, one soldier holds his gun casually, resting contrapposto, his lack of military alertness suggesting that he is not threatened, nor does he feel observed by superiors who might expect him to stand at attention; then two soldiers engaged in conversation; and three soldiers stand at attention, as if observed. In the following pages, illustrations raise increasingly complex questions about the relationships between counting and categorization, form and identity. A full page dedicated to “five” compares five male deer, their antlers splayed out from their heads, against the forms of five fallen trees with bare branches that stretch towards the sky while loggers cut them apart. Below these, three butterflies, one caterpillar, and one chrysalis make five. Are these five the same animal, despite their radically different forms? And if what changes form retains its identity, what are we to say of the dead trees that the loggers cut apart to make into wooden objects? And what of the chrysalis, now dead, while the butterfly lives?

In addition to making abstract numbers concrete, these illustrations foreground questions of identity, especially since the objects selected are often combinations of living and growing creatures or dead objects accompanied by the craftsmen and tools used to transform natural resources into products. These living and nonliving items lie on the brink of transformation, much as the child looking at the book undergoes biological changes that may challenge his sense of self. The stories a child tells about these objects are biographies of things, and the telling mirrors and facilitates his own transformation from child to adult, exercising the same narrative
methods of self-creation ascribed to autobiographical writing or lyrical poetry.

Although based on different pedagogical theories, *The New Picture Book* and *Practical Education* (1780) take a similar approach to experiential learning. Both books are self-reflexive about how adults can teach children using books while also directing the children’s attention to the world beyond the pages, with conversation and sense exploration. What little text appears in *The New Picture Book* (directed at adults) explains how to use the book and what sorts of questions to ask about the pictures, while children are expected to experience the book as an aural, social, and sensual activity. Indicating its intended use, the book’s cover shows children of various ages engaged in age-specific toys that were associated with developing mechanical literacy, such as blocks, models, and drawing, all within a comfortable domestic schoolroom setting while a female instructor shows *The New Picture Book* to children ranging from about three to seven years old, who casually gather and touch the pages. Working in cross-age groups like these, children can access the book’s illustrations from a variety of developmentally specific subject positions, with the older children asking questions about abstract concepts or practicing arithmetic while the youngest practice simple descriptions of what they see. Although more textual and less visual, *Practical Education* (1780) models its use through its hypertextual glossary and through its conclusion, when Harry and Lucy listen to their mother read a story before discussing its meaning with her. In both cases, books are aural, conversational, familial, active and experiential.

Since both books celebrate the playfulness of learning, they share an attitude towards physical labor that is potentially problematic. Harry and Lucy enjoy depictions of physical labor and artisan skill—woodworking, bricklaying, smithy work, and so forth—which they replicate (or consume) as domestic play. The impulse to consider brick-making “fun,” as Harry clearly
does, is only possible because Harry and Lucy are not bricklayers, which begs the question of how pedagogies designed for children of leisure function for working children. *The New Picture Book* is a good illustration of this problem. Initially, Pestalozzi’s methods were associated with the poor, since he dedicated his life to teaching destitute orphans. In England, Pestalozzi’s methods were first introduced by novelist Elizabeth Hamilton for use in monitorial schools for charity children and later adopted by Wilfred Owen, who hired Pestalozzi-trained instructors for his New Harmony utopian experiment. Yet the cover illustration for *The New Picture Book* addresses wealthier readers with its depictions of middle-class children in a well-equipped, comfortable domestic setting, even though its pages show simply clothed artisans engaged in carpentry and farming. [figure 19] The contrast between the cover’s more middle-class occupants and the simply clothed artisans on its pages could indicate that charity schools might purchase a single copy by subscription, whereas wealthier children, like the one who received this copy as a Christmas gift from her aunt, might own a book at home. But the combination may instead reveal the ways that traditional modes of working-class education, such as apprenticeship or dame schools, were appropriated by wealthier families in order to preserve some sense of intimacy and practicality within institutional settings. Although scholars tend to celebrate children’s books that contain positive depictions of artisan skill or playful attitudes towards learning, these same books appropriate and idealize the educational practices being replaced by systematic, factory-style schooling as a way to soothe anxieties about the intrusion of educational institutions in what was formerly a private, family affair.69

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69 Of course, not all children are educated in the home by their parents, but the home setting was more common prior to the mass construction of schoolhouses in the early nineteenth century. Poor children learned their letters in dame schools, which were essentially kitchens where a mother did housework while teaching and babysitting children. Relocating infants from homes to schoolhouses is a major shift of the Romantic period, a trend in education that is similar to the professionalization and masculinization of other forms of work formerly performed by local women, such as the midwife. Nonetheless, education remained one avenue where women could assert public authority under the “natural” gender expectations.
Through such appropriation, object learning conflates the developmental stages of young middle-class children, who are occupied with the physical world, with that of adult workers. Children and workers are orally-centered, illiterate, sensually engaged, incapable of abstract thought, and occupied by immediate pleasures over sustained discipline—“primitive” in their relationship to the material world, which they experience in terms of direct needs and uses rather than as figurative, general, or abstract. Pestalozzi credits one of his assistants, notably a local illiterate man named Kresi, with discovering the “elementary principles of intellectual action,” presumably because Kresi has the advantage of existing in a closer mental state to the orphan students. As paraphrased by Pestalozzi, Kresi explains his discovery: “I did with my children, as nature does with savages, first bringing an image before their eyes, and then seeking a word to express the perception to which it gives rise.”\textsuperscript{70} Objects first, then words. When \textit{The New Picture Book} presents common objects from everyday life, it tells child viewers that they are like artisans and farmers; it begins with the child’s playful home world, then progresses to manual labor within its pages, much as Richard and Honora Edgeworth’s \textit{Practical Education} (1780) follows Harry and Lucy from their home to the brick layers and Smithy and back home again, where they transform the hard work of artisans into backyard play. This conflation of work and play is laudable for children who are not required to work and who acquire a love of learning through pleasurable schooling, but it is potentially harmful for poor children whose tiring work was easily romanticized as some form of educational improvement.

\textbf{Overview of the project}

Rather than focusing on a single genre, my chapters cover a wide range of popular literature associated with vulnerable audiences who were supposed to need guidance and self-

\textsuperscript{70} Pestalozzi, \textit{Biographical Sketch}, 192-3.
improvement: children, young adults, women, and workers. Recent collections have grouped together many of the same authors and genres as this dissertation, and I am indebted to these works as models of cross-writer and cross-audience approaches:71 Philip Connell’s *Romanticism, Economics and the Question of ‘Culture’;* Alan Rauch’s *Useful Knowledge;* Alan Richardson’s *Literature, Education, and Romanticism;* Ian Haywood’s *The Revolution in Popular Literature;* and Mary Hilton’s *Women and the Education of the Nation’s Young.* The didactic literatures examined in this study construct their audiences much the way that object learning understood children, as creatures close to the physical world who have difficulty with abstraction and self-control.

By combining so many forms, I do not mean to imply that certain adult readers are child-like or require protective guidance, but since authors like Hannah More, Sarah Trimmer, Maria Edgeworth, Jane Marcet, and Harriet Martineau specialized first in writing books for children and educational treatises and second in writing “safe” literature for the working classes, there is ample evidence that pedagogical strategies developed for middle-class children were universalized by the mid-nineteenth century and applied to educational programs and literatures for workers. Likewise, a century earlier, experiential education drew inspiration from the Encyclopedists’ project to unite practical artisan skills with abstract, mathematical knowledge. Over the course of two centuries, therefore, the project to popularize knowledge has conflated pedagogical strategies for a variety of so-called child-like or vulnerable audiences, which were collectively understood as mechanically-minded or unable to think and see beyond what is physically and temporally in front of them. However “child-centered,” any pedagogy of this kind has its limitations, which is why I include the voices of workers who were annoyed by object

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71 I borrow my terminology from U. C. Knoepflmacher and Mitzi Myers, who argue—concerning “cross writers” or authors who write books for children, adults, and other audiences—that books may specify an audience of readers while being read by a wide variety of unintended readers. See Myers, “From the Editors,” vii.
My second chapter defines the empiricist object lesson as the central genre of Enlightenment and Romantic-era children’s literature. By circumventing revered textual or parental authorities, object interactions promised that children might learn autodidactically, without reinforcing past errors or social hierarchies. I focus on object lessons in Maria Edgeworth’s Rosamond stories (1796-1821), placing her pedagogy in dialogue with Jean-Jacques Rousseau and Anna Letitia Barbauld to uncover the politics of empiricist pedagogies in Britain’s post-revolutionary climate. Using archival research from Princeton’s Cotsen Children’s Library, I show that British children’s literature emphasized that objects are imbued with social meaning, so that children learn their place in society by discovering how objects, as property, signify properties of their owners—that we are what we grasp.

My third chapter explores the philosophical underpinnings of the turn towards the education of things. I argue that materialist social protest fiction by William Godwin and May Hays altered the instructional function of the novel. Situating their work within the Fielding/Richardson debates over exemplary and cautionary characters, I use reception history to show that Hays’s *The Memoirs of Emma Courtney* (1796) and *The Victim of Prejudice* (1799) and Godwin’s *Caleb Williams* (1794) break with established generic conventions by instructing readers to understand characters in relation to the extensive social networks informing their behavior. Readers arrive at this new perspective through a novel whose characters make remote connections between points of moral crisis and early formative events, interpreting identity as the totality of a person’s experiences. Such fictions induct readers into a new way of comprehending moral agency, where humans and their physical environment are mutually formative. The
materialist approach to education exhibited in fiction by Godwin and Hays ultimately informs radical approaches to education in the 1820s through 1840s, explored in chapter 6.

My fourth chapter surveys pedagogical treatises, teaching aids, Parliamentary debates, and polemical essays to track object learning in the nineteenth century, when educating the poor gained public attention. With the rise of consumer culture, sensual exposure to a variety of natural and artificial forms was supposed to develop mental organs such as judgment and imagination, and access to objects became a precondition for gaining recognition as a subject with a complex mental life. If the education of things is the foundation of moral sentiments and intellectual capacity, as suggested by Dugald Stewart, Elizabeth Hamilton, Robert Owen, and Pestalozzi, then the widening “object gap” threatens social cohesion between rich and poor—between hyper-consumers who own collections and have leisure for contemplation and workers who are occupied with repetitive labor. Debates about educating the poor through object learning thus subsumed political positions on property and work.

Drawing on contemporary machinery displays, automata, and mechanics textbooks, my fifth chapter demonstrates how Edgeworth’s fiction participates in a larger cultural movement that associates machine technologies (pedagogical and industrial) with self-development and self-mastery as a function of human mastery over the “external” natural world, prefiguring the technological progressivism of 1820s and 1830s educators. Because of its abstract foundation in mathematics, mechanics bridges manual and intellectual labor. Instruction in “mechanical philosophy,” whether natural history or political economy, thus confers both the practical competence of artisans and manufacturers and a wider comprehension of the principles behind manipulating the world of things. Contextualizing Maria Edgeworth with writing for the working classes by Jane Marcet, Hannah More, Elizabeth Hamilton, and Harriet Martineau, I show how
her *Popular Tales* (1804), her novel *Belinda* (1801), and her science tales *Harry and Lucy* (1801-1821), use mechanism to mark racial and class inferiority, while owning, controlling, and modeling machines indicates social mobility and self-governance.

My sixth chapter follows oppositional voices that demanded access to a practical curriculum of hands-on learning but resisted linking intellectual development with property ownership. Debating education on working-class terms, radical periodicals called for labor regulations that would secure the leisure to learn and working-class management of institutions that disseminate knowledge, such as schools, libraries, and the free press. In Henry Hetherington’s *Poor Man’s Guardian*, so-called popular “education” (always in ironic quotations) deserves skepticism because elites use charity to control the curriculum. Similarly cynical, pamphlets published by William Hone adapted familiar classroom genres into political satire (e.g., Wilke’s *Catechism*, Hone’s *National Toy*).

Closing with the Great Exhibition of 1851 and industrial novels, my last chapter recovers little known books and games that educated children about political economy and the factory system to argue that education and machinery discourses become entwined through a mutual association with progress. Rather than dismiss these factual education materials as attacks on the child imagination, I show that children’s literature participated in the same concerns as social protest fiction of the same era. Factual books for children aimed to heal the two nations by raising a generation of educated consumers who know and care about how their goods are produced. Closing with nursery scenes from Michael Armstrong (1840) by Francis Trollope and *Hard Times* (1854) by Charles Dickens, I argue that changes in public sentiment supported decoupling work and play and accepting that educating the public requires regulating labor to create the leisure to learn.
CHAPTER 1: Figures

Figure 1: (top) J.E. *ABCD...* [Wooden jumping jack with inlaid ivory; hornbook]. 1810. Princeton University Library.

Figure 2: (bottom) *Posture master’s alphabet jigsaw puzzle.* [London?: Sayers and Bennett?] [ca 1800]. Princeton University Library.
Figure 3: (top) *Multiplication table. Neatly dissected.* England, [ca 1820]. Princeton University Library.

Figure 4: (bottom) *Common things necessary to be known.* London: William Darton. [ca 1825]. Princeton University Library.
Figure 5: *Learning in sport! A newly invented game; to promote improvement and amuse a friendly party.* London: William Darton [ca. 1822]. Princeton University Library.
Figure 6: (top) The elegant and instructive game of useful knowledge; designed to impart information to the minds of youth of both sexes. London: William Darton. [ca 1819]. Princeton University Library.

(bottom) Detail of the same.
Figure 7: Barbauld, Anna Letitia. *Hieroglyphic Lessons from Mrs. Barbauld*. London: John Wallis, [181–]. Princeton University Library. [The box front on the bottom right may be a facsimile created at a later date.]
Figure 8: Mudie, George. The Grammar of the English Language Truly Made Easy and Amusing: By the Invention of Three Hundred Moveable Parts of Speech. London. John Cleave. [not before 1840]. Princeton University Library.
Figure 9: (both images) *The alphabetical cabinet*. London: Printed and sold by Marshall & Co., [1815?]. Princeton University Library.

The miniature book that accompanies the cabinet (bottom picture) comes with the alphabet cards, which is common for “cabinets.” The cabinet invites various uses depending on the child’s reading skill, ranging from conversing about the pictures (pre-literate), to reading or catechizing with the book.
SIZE of any thing.

Neatly. Neat, is what is clean, smooth and in order.

Nosegay. A bundle of flowers.

Observed. To observe; is to mind, what we see and hear and touch.

Oven. Ask to see an oven.

Pits. Holes made in the ground—Ask to see a Pit.

Pay. To give money for any thing.

Punished. To be made to feel pain.

Pence. A penny, two half-pence—Ask to see a half-penny.

Perceived. To perceive.

Sweet. What tastes like sugar, or has an agreeable smell.

Squeezed. Pressed together.

Stung. Hurt by the sting of an animal.

Struggling. To struggle, is to try with all ones
Figure 12: Bohny, Nicholas. *The new picture book: being pictorial lessons on form, comparison and number, for children under seven years of age with explanations by Nicholas Bohny*. Edinburgh: Edmonston and Douglas, 1858. Princeton University Library.
Figure 13: [Champion, Joseph (Senior), illustrator], *The five senses* [writing blank]. London. Robert Sayer, [between 1752 and 1769?]. Princeton University Library.
CHAPTER 2

“The education of things”: Liberty and Confinement in the Object Lessons of Maria Edgeworth and Jean-Jacques Rousseau

Many children’s books of the late eighteenth century share the pedagogical approach of *Practical Education* (1780), explored in my opening chapter. As the book’s confessed investment in Priestley’s associationism indicates, books for children were in conversation with philosophical works of their time and offered commentary on human cognition through a medium with comparatively little cultural prestige. Following these cues, this chapter places Maria Edgeworth’s Rosamond stories in dialogue with Jean-Jacques Rousseau’s *Emile; or, On Education* (1762) to show two models of learning from objects that espouse different attitudes towards property and socialization. In doing so, this chapter uncovers the particularities of the late-eighteenth century educator’s approach to teaching with objects, especially how such pedagogies were understood in the context of Britain’s fraught political climate following the 1789 French Revolution.

Object lessons were a key formal element of Romantic-era children’s literature and its response to “the new philosophy.” As Catherine Macaulay explains, this concept of education as sensation “supposes the human character to be the mere creature of external impressions.”

From an optimistic perspective, the notion that children are passive clay or blank slates, their desires shaped by their surroundings, suggests the potential to mold perfected subjects (or citizens) through environmental conditioning. If, however, the ideal subject is an autonomous

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72 Alan Richardson notes that object lessons are the most recurrent structural element across Romantic children’s literature: “the fictionalized ‘object lesson,’ however theoretically inconsistent, came to shape the moral tales of many children’s authors of the period, including those who, like Trimmer and Sherwood, held Rousseau’s writing in anathema.” See *Literature, Education, and Romanticism*, 132.

one, then the very means of educating children through external impressions challenges the concept of an essential self who originates its own desires, judgments, and actions. How exactly can external sensations produce the ingenious interiority of bourgeois individualism? By considering children experiential learners who lack a developed symbolic or abstract intelligence, the new philosophy insists that the mind be educated through the body and autonomy developed through mechanical exercises. The object lessons of Maria Edgeworth and Rousseau narrate a solution to this epistemological and ontological paradox by imagining a process of ingenuous internalization, one that develops the child’s “inside” even though it must rely on the external world.

By beginning with Rousseau, I do not want to imply that Emile is more sophisticated that Edgeworth’s fiction, or than pairing children’s literature with canonical philosophy is necessary to justify taking it seriously. On the contrary, reading Edgeworth’s fiction alongside Rousseau calls attention to the larger stakes and sophistication of her object lessons, which detail how a child’s mundane interactions with objects reflect such political concepts as property ownership, desire, gender construction, moral autonomy, and constitutional reform. Any Enlightenment text on child development potentially rehearses a progressive narrative of human civilization emerging from the state of nature, as the child moves through the same stages from primitive sensual learning to abstract thought, associated with the transition from savage to civilized. Although more pronounced in Rousseau’s Emile, this tendency supplies an implicit political undercurrent to many pedagogical works, including Edgeworth’s children’s literature.74

Rousseau was attracted to object learning as a way to circumvent education’s immersion in the authority structures of social life, which would preserve children from the destructive taint of institutions and mimetic desires. Unlike his predecessor, John Locke, who advocates shame

74 Shapin and Barnes, “Head and Hand.”
and praise in place of physical punishment, Rousseau considers psychological or corporeal incentives equally dangerous. Either method teaches children to act according to the judgment of others and, when adults, they are unaccustomed to reasoning for themselves. Rousseau’s solution, what he calls “the education of things,” places Emile in a world of objects devoid of social context, which the child explores only in relation to his physical needs. Rather than commanding Emile, Rousseau indirectly instructs his pupil, shaping his desires through the orchestration of his environment.

The benefit, for Rousseau, of learning from things is that they are not people. But for Edgeworth, interiority is the product of socialization, and exploring objects with all their baggage of class, gender, and commerce, is how creatures of sensation transition into moral agents. Rosamond gains self-awareness by attending to the significance other people assign to those objects she chooses to acquire, which she learns reflect on her identity in ways she can anticipate but not control. In the worlds of commodity signification and experimental education, we are what we grasp.

By socializing Rousseau’s education of things, Edgeworth alters its significance. Instead of demonstrating how education can create a perfect generation that breaks with its cultural history and inherited assumptions, Edgeworth’s object lessons illustrate how children inevitably learn the social meaning of the choices they make and the objects with which they associate. Rather than total freedom, children can learn to control their actions under set constraints, since generational change implies participating in communities, and participation is the means for altering the possible interpretations under which they operate.

Objects and authority in the critical reception of the Rosamond Stories
In a series of short stories that begin with “The Purple Jar” and “The Birthday Present” in *The Parent’s Assistant* (1796), Edgeworth follows the educational development of Rosamond, an impatient heroine whose “little faults” include losing her needles, wildly riding her horse to show off her courage, and making excuses for everything. Rosamond’s debut story, “The Purple Jar,” (1796) is widely anthologized in children’s literature collections and commences Perry Nodelman’s genre study of children’s literature. It has long been the center of contentious discussions about the aesthetic value of didactic fiction and the construction of bourgeois identity through children’s literature. How the Rosamond stories are organized within the series emphasizes the importance of object lessons for teaching Rosamond how to “think for yourself.”

Beginning with “The Purple Jar” and its sequel “The Two Plums,” Rosamond’s mother gives her a choice between two objects available for her scrutiny, training her to develop her senses and use them for rational judgment. Rosamond’s first choice to purchase a pretty purple jar she fancies instead of the new shoes she needs is punished with sore feet for the rest of the month. In “Socializing Rosamond: Educational Ideology and Fictional Form,” Mitzi Myers praises Rosamond’s “rational mother,” a strong figure that often dominates women’s children’s literature, and finds in “Rosamond’s progress from confused passivity to rational agency” a dynamic alternative that combats the adult nostalgia behind Rousseau or Wordsworth’s stagnantly innocent child. The story’s insistence that a seven-year-old girl suffer weeks of sore

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76 “The Purple Jar” was published in Maria Edgeworth’s first collection of children’s literature, *The Parent’s Assistant* (1796), and republished as a series of Rosamond tales in *Early Lessons* (1801) that included “The Two Plums” and “The Rabbit,” among other additions. Two more sequels follow Rosamond into her teens: *Continuation of Early Lessons* (1814) and *Rosamond: A Sequel* (1821), containing “The Bracelet of Memory,” which I also discuss. Because these tales were frequently reprinted, many of the older editions available in libraries today combine stories from these four major collections under one of the earlier titles, which can be misleading. For instance, the “New Edition” of *Early Lessons* (London: Routledge, Warne, & Routledge, 1862) that I cite includes, under the title *Rosamond*, all of the stories from *Early Lessons* and *Continuation of Early Lessons*. Edgeworth’s publisher for all of these children’s books was Joseph Johnson (and his successor), known for publishing the work of 1790s radicals and dissenters, including Mary Wollstonecraft.
feet for choosing a frivolous purchase, showcases “a liberal psychology of child management directed toward rendering children autonomous and making the only penalty for error the experience of its natural consequences.” Responding to Myers’s work on Maria Edgeworth and Mary Wollstonecraft, scholars have subsequently reevaluated the previous dismissal of Georgian children’s literature as simplistic ideological programming. Building upon this revision of Edgeworth’s work, my argument contributes to our understanding of why the short stories composing *Rosamond*, like much contemporary didactic children’s fiction, exhibit a complex engagement with experiential learning by repeatedly structuring plots around a child’s object lessons. In doing so, these stories displace social relationships onto the world of things in order to depict moral knowledge as objectively generated, without relying on authorities like parents or revered texts for its verification. This displacement resolves anxieties over how to the transmission of cultural values to the next generation might be consistent with fostering independent thought.

In her review of the Rosamond stories from *Early Lessons for The Guardian of Education*, Sarah Trimmer expresses the most reservations about “The Purple Jar.” A staunch church and king supporter, Trimmer founded the *Guardian* to expose what she believed was an “illuminati” plot to overthrow the English government through works on education and children’s literature. What she dislikes is Rosamond’s reliance on her own observations instead of her mother’s advice. She recognizes that the story is “apparently founded upon this principle in the author’s System of Practical Education” and objects that if Rosamond had been taught Christian principles, then she would not “have been subject to such a variety of sensations, as evidently confused her mind, when left to form for herself . . . having acquired beforehand the habit of seeking the advice of her parents, and of submitting to it as a guide for her

77 Myers, “Socializing Rosamond,” 55.
inexperience.” Her advice for parents is that they use “The Purple Jar” to teach children that appearances are deceptive, and children are not to “depend too confidently on their own opinion, when they may avail themselves of the advice of their parents or other experienced persons.” Of course, “The Purple Jar” teaches precisely the opposite of both these morals, but Trimmer remains confident that “a mother or governess may easily give it this turn, by her own observations upon it.” Her suggestion that parents change the moral, presumably blocking their children from deriving their own interpretation, accords with Trimmer’s criticism of Mother for letting Rosamond make her own choices and mistakes.

Trimmer is quick to identify how knowledge circulates in the story outside of familial authority structures instead of directly from mother to child, and she connects this omission with Edgeworth’s secular approach. Matthew Grenby notes in his introduction to the edited collection of the *Guardian*, that Trimmer’s “initial questions of any children’s book that came before her were always first, was it damaging to religion and second, was it damaging to political loyalty and the established social hierarchy.” What Trimmer finds suspect about “The Purple Jar”—Rosamond’s ability to generate knowledge without rehearsing submission to Mother—is structurally embedded in object lesson narratives. It derives from the connection between experimental education and Enlightenment science. Object lessons use Bacon’s inductive method, which advocates observation without preconceived hypotheses, to derive moral and scientific knowledge from practical experience. The lessons that follow an object narrative seem to be the natural consequence of physical laws; there is no need to appeal to a teacher, tradition, or text for their veracity. Although subjectively interpreted by the child, such lessons appear universal by appealing to the object, rather than the student or tutor, as the source of information.

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Using this method to teach the next generation promises a progressive correction of human knowledge by learning without transmitting past prejudices. It is clear, then, why Trimmer does not like the moral of “The Purple Jar.” The universal accessibility of knowledge through the senses; the perfectibility of mankind; the possibility of teaching without practicing submission—these advantages of object lessons are associated with radical republicanism. At the very least, they gesture to politically sensitive questions: whether a revolutionary generation can radically break from its past through education; whether subordinates such as women, children, or the poor should consider matters for themselves without appealing to persons in authority; or, from a conservative perspective, whether the subjective ideas some people call prejudice (love of one’s country, religion), are among the most important things to teach.

**Rousseau and the “education of things”**

One of the biggest culprits, for Trimmer, of rebellious, anti-authority approaches to instruction was Rousseau, and she was not entirely off the mark. Rousseau’s *Emile* provides one of the most complex theories for how children learn from objects, clarifying how the experiential lessons of the later eighteenth century depart from mere cautionary tales. Imitations and parodies of Emile’s object lessons permeate British literature, testifying to Rousseau’s influence on the motif through his pedagogical novel *Emile*. A self-consciously contradictory amalgamation of practical childcare manual, thought experiment, and abstract pedagogical theory, it details the education of Emile by his fictional tutor and author-double, Jean-Jacques, from infancy through his courtship and marriage to Sophie, concluding with the expectation of their first child. I begin with *Emile* because it places object learning at the center of Rousseau’s concept of freedom. This discussion is refracted through in the pamphlet wars and Jacobin novels of 1790s Britain, where
the question of how environments are responsible for constructing subjects intensified the political controversies informing pedagogy and children’s literature. In the wake of the Reign of Terror, the treason trials, and the British censorship laws of 1795, anti-Jacobins identified Rousseau as the chief source for both the political theory of British contractarians and the new pedagogies of radical educators. I develop this relationship between object learning and freedom at length in order to highlight the corresponding political significance of Edgeworth’s object lessons and her different approach to developing child autonomy.

The importance of object learning to Rousseau first arises where he divides education into three categories: “The internal development of our faculties and our organs is the education of nature. The use that we are taught to make of this development is the education of men. And what we acquire from our own experience about the objects which affect us is the education of things.”80 These three categories, men, nature, and things, are less arbitrary when viewed in the context of his political philosophy, The Social Contract, written and published contemporaneously with Emile in 1762. The educational trajectory of Emile correlates with the history of human kind outlined in Rousseau’s political writings, the social contract aligning with puberty, when Emile gains the ability to use reason and is drawn into social life to fulfill his sexual needs. Before he is able to reason, Emile is free as the natural man is free, subject only to the limitations of his body and the material world, and learning exclusively through sensual experience—through objects. Emile’s interactions with objects are meticulously planned to form him into the kind of subject, with limited desires, who can rationally and freely submit to the general will because it aligns with his particular will. Consistent with perfect liberty, a citizen so educated is never asked to relinquish anything he wants or any power over himself as the price of political life. Whereas Hobbes imagines the state as a fearsome authority that prevents subjects

80 Rousseau, Emile, 38, hereafter cited in text.
from realizing their naturally limitless desires, which always exceed their needs and infringe on the needs of others, Rousseau imagines a society without hierarchical authority, made possible by subjects whose desires, firmly established in isolation, never exceed their needs or impinge on the needs of others. Only a person whose desires perfectly match what he can procure, who has no need for exchange or division of labor but chooses to engage in it, can participate in a society with others and remain as perfectly free as he would be in isolation: “The only one who does his own will is he who, in order to do it, has no need to put another’s arms at the end of his own; from which it follows that the first of all goods is not authority but freedom. The truly free man wants only what he can do and does what he pleases . . . all the rules of education flow from [this maxim]” (Emile, 84).  

Emile’s object learning thus always anticipates a social meaning apparent to the reader but kept hidden from Emile. Learning progresses outward from his body, beginning with what he can grasp sensually by taste or feel and eventually extending out to concepts, or what he can see at a distance, and finally to abstract or metaphysical ideas beyond sensation—coordinating with the development of his self-centered love in the state of nature (or amour-de-soi) into the love of others in relation to himself under the social contract (or amour-propre). When Emile gains a conscious awareness of the metaphysical concept of himself as an agent, free to follow or deny the physical impulses that shape his childhood, he becomes autonomous, capable of self-aware self-governance.  

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81 Catherine Macaulay recognized the centrality of this passage to Emile, which she paraphrases in her chapter on “Habits of Independence” in Letters on Education: “surely he alone is free, who stands in no need of the assistance of others to put his design in execution. Hence, says Rousseau, it follows, that the greatest of blessings is not authority, but liberty . . . his system of education is founded on independence; and all its parts are rendered conducive to this end” (42). She uses this passage in much the same way, to show that wealthy people surrounded by servants are the most dependent, and suggests both curbing those desires we cannot satisfy and freeing children from unnecessary restraints.  

82 Since my essay tends to focus on an empiricist Rousseau, James Miller’s description of Rousseau’s metaphysical concept of freedom is a helpful corrective: “Unlike Hobbes and other materialists, Rousseau took freedom to be not
Because Rousseau holds a metaphysical concept of freedom such that only other human wills could restrict Emile’s freedom, he emphasizes materialist education as a way to indirectly form Emile without submission to his tutor. Rather than command Emile to obey, Jean-Jacques changes his environment until Emile voluntarily does as he wishes. “You will not be the child’s master,” advises Rousseau, “if you are not the master of all that surrounds him” (Emile, 95). Jean-Jacques substitutes things, which act as necessities that cannot be questioned, for commands that would introduce hierarchy between tutor and pupil. By controlling Emile indirectly through his environment, Jean-Jacques prevents the satisfaction of Emile’s needs from ever becoming a contest of wills. “As long as children find resistance only in things and never in wills, they will become neither rebellious nor irascible” (66), and, “Let him see this necessity in things, never in the caprice of men.” (89). Supporting this advice is the logic of object lessons, which teach through consequences: “Never present to his undiscriminating will anything but physical obstacles or punishments which stem from the actions themselves and which he will recall on the proper occasion” (86). Object interaction, sequestered from the “education of men,” is the linchpin in Rousseau’s theory of freedom, ensuring that young Emile never submits to authority (others), only to necessity (himself). If the education of men interrupts the education of things, then power struggles are introduced that disrupt Emile’s delicate preparation.

Proper object learning that preserves a child’s freedom must begin at birth. The first a mere word for unimpeded action, but rather a mysterious power, revolving around an inexplicable spontaneity, the miraculous ability to initiate an act without a cause. . . . The choices a human being freely makes over time take the form of habits.” But “Freedom, in short, gives human beings, whether in isolation or in concert, the capacity to start over, to form new habits, even to establish spontaneously a new constitution of the soul or of society” (“Abyss of Philosophy’,” 96).

83 “Nature commands every animal, and the beast obeys. Man feels the same impetus, but he realizes that he is free to acquiesce or to resist; and it is above all in the consciousness of this freedom that the spirituality of his soul is shown,” Rousseau, Origin of Inequality, 26.

84 The paradox of internal freedom, enabled by mastering external environment, is shared by the Priestley circle’s adaptation of David Hartley.

85 For a similar discussion of Rousseau education of things, which supports my reading, see Simon, “Natural Freedom and Moral Autonomy.” Simon argues that relations between things fail to teach Emile social relations, leaving him morally dependent on his tutor as an adult.
object a child encounters is swaddling, which by the time Rousseau wrote *Emile* was already symbolic of personal liberty. Samuel Richardson’s heroine, Pamela, praises Locke’s call for loose clothing and sympathizes with the swaddled babies who resemble her late imprisonment under Mr. B.: “poor babies rolled and swathed . . . triple-crowned like a young pope . . . a miserable little pinioned captive, goggling and staring with it’s eyes, the only organs it has at liberty, as if it was supplicating for freedom to it’s fettered limbs!” From the very moment of an infant’s birth, the evils of swaddling “chains” show that our social customs violently interrupt nature’s intention—free movement—indicated clearly enough by the baby’s release from the womb. Swaddling introduces a power struggle, much like Hegel’s master-slave dialectic, between the parent who makes the child remain still according to custom’s constructed womb and the child who tries to move. As with any tyrannical government, nature gives way to constraint by force, but the child recognizes the injustice. He becomes angry, rebellious; he wants to be the one to make the rules. A battle for authority ensues: “Either we submit to his whims, or we submit him to ours. . . Thus his first ideas are those of domination and servitude” (48). Leaving the child’s limbs free allows him to conclude that his own physical weakness, not outside authority, makes him dependent on others to meet his needs. This child will long to become an autonomous adult who desires only what he can provide for himself. By contrast,

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87 Richardson, *Pamela*, 528.
88 In Hegel’s fight to the death, initiated by two selves seeking consciousness through recognition, the master defeats the slave but does not gain recognition because in his victory he declares that the slave is nothing. The slave, however, who has accepted his own nothingness through fear, can acquire a sense of consciousness through working on objects whose independence only he recognizes and internalizes. What Rousseau shares with Hegel’s concept of consciousness is a sense that victory over others unites omnipotence with dependence. The master, who is also nothing, constantly seeks further recognition for himself from all people and things only to confirm his impotence, whereas the slave (Rousseau’s natural man) who interacts with objects achieves true independence. That Rousseau thinks a child can develop consciousness by avoiding rather than overcoming a master-slave dialectic says a lot about why Emile’s sensual learning initially occurs in isolation. Rousseau’s object lessons enact a fantasy of unmediated learning between child and thing, where each object encounter proceeds on the same terms as the first one that initiated a self/other division, essentially preventing history (or, on the individual level, prior experience) from impeding a completely free series of object encounters over a person’s lifetime—exactly the opposite of Hegel’s embrace of history. Hegel, *Phenomenology of Spirit*, 633-35.
arbitrary restraint teaches the child that his needs are best met by manipulating or conquering his captor, and as an adult, this “slave and tyrant” will rage against others and demand their submission or use flattery in obsequious servitude. Such children confuse people with things: They attribute will to inanimate objects and objectify people; they throw tantrums when the physical world refuses to submit to their desires and “consider the people who surround them as instruments depending on them to be set in motion,” because they interpret all of the world as a challenging will they must bring into submission. When they are defeated, they become subservient cowards, convinced that if they are not omnipotent, they must be powerless.

The struggle for mastery potentially initiated by object encounters symbolizes a historical moment from Rousseau’s *The Discourse on the Origin and Basis of Inequality Among Men* (1754), the institutionalization of unequal wealth. When people become enslaved to their desires—which are enflamed beyond their needs by the increased production and status comparison that accompany cooperative communal life—the strong prey on the weak, and out of fear, all enter into a precipitous contract that secures unequal property under a pretense of legal equality. Interacting with the material world without attributing will to objects secures Emile from this detour until he can enter the alternative social contract Rousseau advocates, where each member voluntarily gives to every other member all of his freedom, and in chain letter fashion, achieves greater freedom in return. The social contract only exists as a constantly renewed, voluntary participation that celebrates continued autonomy. As adults, citizens make conscious choices that reaffirm the general will, and in doing so, express their autonomy (synonymous with self-mastery) by obeying the laws each person legislates for himself and everyone else through direct democratic governance. The renewed affirmation of self-governance through obedience, possible for adult male citizens, has its childhood corollary in the affirmation of an essential self-
hood through object encounters. Proper object interaction, like the social contract, is an expression of freedom through submission to law. Rousseau explains this relationship between natural and social law, objects and men:

There are two sorts of dependence: dependence on things, which is from nature; dependence on men, which is from society. Dependence on things, since it has no morality, is in no way detrimental to freedom and engenders no vices. Dependence on men, since it is without order, engenders all the vices, and by it, master and slave are mutually corrupted. [Each becomes dependent on the other.] If there is any means of remedying this ill in society, it is to substitute law for man and to arm the general wills with a real strength superior to the action of every particular will. If the laws of nations could, like those of nature, have an inflexibility that no human force could ever conquer, dependence on men would then become dependence on things again; in the republic all of the advantages of the natural state would be united with those of the civil state, and freedom which keeps man exempt from vices would be joined to morality which raises him to virtue. (85)

The law capable of leaving citizens free would be as constant and inflexible as gravity, and rebellion would be useless and unnecessary. In this new Garden of Eden, where eating the fruit is both impossible and undesirable, “society” is subordinate to “nature.” Its pedagogical foundation is a parallel subordination of “men” to “things.”

Perhaps the strongest confirmation of how object interaction determines political subjechthood is the education of Sophie, or woman, in Book V of Emile. Made “to please and to be subjugated” (358) and dependent on her husband for her needs, Sophie’s object interactions

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89 In chapter 1, I examine this affirmation through object encounters in Rousseau’s play, Pygmalion, which resembles Buffon’s story of Adam and Eve.
introduce her to mastery and subjection by initiating those same power struggles Emile must avoid. As Emile’s inferior in strength, Sophie cultivates qualities of the slave/tyrant power complex that bar her from civic life—flattery, deception, guile, showy display, loquaciousness—so that she “governs” Emile “while obeying him” by “exploiting man’s position.” Mary Wollstonecraft, who complimented Rousseau by reading him carefully, noticed that Sophie’s hierarchy retains in domestic life the relationship between King and subject rejected by contractarians for one of equal citizenship, mutual obligation, and self-legislation—thus her association of Rousseau’s “feminine” virtues with the aristocracy and “masculine” virtues with republicanism. For Rousseau, female subjection is necessary for male freedom because unlimited desire—what Hobbes used to justify the Leviathan—exists between men and women in the state of nature. And unlike the unnatural expansion of desire for unnecessary goods that precipitates the institutionalization of unequal wealth, sexual desire cannot be eliminated through education; it must be controlled through subjugation in a cordoned domestic arena if men are to remain free in civic life. Without modesty and shame, the female substitute for male reason and self-control, “men would be tyrannized by women” (359). Sophie is the most dangerous “object” for Emile because she is an inherently socialized object (i.e. an oppressed subject) that inflames his desire, but she prevents a power struggle between Emile and herself by her precautionary meekness. Metaphorically swaddled from infancy, Sophie indeed projects her will into objects, most infamously her doll, and manipulates others into satisfying her needs, just as Rousseau predicts men would do if their object lessons were given a social context.

In a purposeful defiance of those precautions that secure Emile’s autonomy, Sophie’s education of things is subordinated to the education of men. She grows up embedded in social life (we first meet her with her family), considering first and foremost not how things relate to

her, but how her encounters with objects are observed and interpreted by others. Rousseau repeatedly dramatizes this oppositional awareness of audience between boys, who “care little what might be thought of them,” and girls, who are “governed” by their fear of what others will say (365). For women, virtue includes the appearance of virtue:

It is not enough that [women] be estimable; they must be esteemed. It is not enough for them to be pretty; they must please. It is not enough for them to be temperate; they must be recognized as such. Their honor is not only in their conduct but in their reputation . . . when a man acts well, he depends only on himself and can brave public judgment; but when a woman acts well, she has accomplished only half of her task, and what is thought of her is no less important to her than what she actually is. From this it follows that the system of woman’s education ought to be contrary in this respect to the system of our education. Opinion is the grave of virtue among men and its throne among women. (365)

Empirical access to knowledge through physically engaging a world of objects is mediated, for Sophie, by her social relationships. This single rule unites seemingly disparate details of her education. Because she only approaches power or knowledge through others, she willingly gives her consent for her husband to mediate her access to religious truth, legislative power, and property. The link between her subjection to men and her mediated empiricism is confirmed by the many occasions when Rousseau contrasts Emile’s knowledge with Sophie’s aesthetic awareness: “Man says what he knows; woman says what pleases. He needs knowledge to speak; she needs taste” (376).

Audience in object lessons, which signifies social context (or the education of men), is emphasized for Sophie and eliminated or controlled for Emile. Whereas Sophie naturally feels shame while still a child, as if she is always watched, Emile maintains his moral innocence by
feeling unobserved: “it is important for a child to do nothing because he is seen or heard—nothing, in a word, in relation to others; he must respond only to what nature asks of him, and then he will do nothing but good” (93). If a boy is overheard by an adult who imitates or mocks him, Rousseau advises confronting the “actress” (she is female) with “My good woman, you are sick. I am sorry of it.” And before she can react, whisk the child away “before he can see the effect,” or, “distract him with other objects which make him forget it right away” (97). The way audience is handled in Rousseau’s object lessons indicates to what extent empirical learning yields autonomy.

Since as an adult Emile must live in society, Rousseau devotes one of his longest and most elaborate object lessons to Emile’s safe introduction to the world of audience. During the puberty stage between ages twelve and fifteen, when reason, sexual needs, and *amour-propre* are just emerging, Emile is newly vulnerable to seeking praise from others. His tutor protectively frames a lesson about audience within an empiricist object lesson about discovering how to build a compass, thereby containing the education of men with things. After playing some time with magnets, metals, and other materials that attract with charged particles, the two attend a fair where a performing magician attracts a floating wax duck with bread in his hand. They recreate the trick at home by shaping a wax duck around a needle, floating it in a tub of water, and attracting the duck with a magnet hidden in a piece of bread. The next day Emile attends the same show armed with his bread and magnet, where he embarrasses the magician by replicating his trick to the delight of all onlookers. Seduced by praise, Emile accepts the magician’s invitation to come again the next day and invites his friends, wanting “the whole of humankind to be witness to his glory” (173). But the magician uses Emile’s desire for approval as bate for his trap: he hides a boy with a stronger magnet beneath the tub. This time the audience jeers and
laughs when Emile fails, and they mock him by enthusiastically applauding the magician’s success. Cured of any notion that praise from others relates to his own merit, Emile realizes that the crowd praises or insults him to maximize their own pleasure.

To complete the lesson, the magician visits them the next morning and lectures them on their cruel attempt to ruin him, protesting, “if I had some other talent by which to live, I would hardly glorify myself with this one” (174). Emile observes, in the magician, a man caught in the master/slave complex, who commands the attention and applause of everyone, who seems to command nature itself, but who nonetheless is a slave to his audience’s pleasure because he cannot otherwise provide for his needs. During the Book III years of Emile’s life, Emile holds the greatest relative bodily strength as a ratio of his as-yet childish desires (i.e. his greatest self-determinism), which is why the magician’s attractive ability to command audiences and manipulate magnetic forces, a kind of super-autonomy, must be neutralized by revealing the connection between mastery and servitude.

At the story’s close, Emile discovers the floating duck and needle always point north. Emile’s social debut is contained within an object lesson about building your own navigation instrument, a symbol of self-guidance. Like his compass, Emile’s social self is layered in conformity to his natural self. He is pliable wax under his tutor’s hand, formed around a needle-center that now responds to natural laws, not magic tricks. Rousseau explains that children should always discover and make their own scientific instruments, literally, but also figuratively: “To arm him with some vain instruments which he will perhaps never use, you take away from him man’s most universal instrument, which is good sense. You accustom him to let himself always be led, never to be anything but a machine in others’ hands. . . . With all these fine speeches that you make to him now in order to get him to be obedient, you are preparing the
success of those speeches which will be made to him one day by a visionary, an alchemist, a charlatan, a cheat, or any kind of madman” (178). Emile is his compass, but potentially could have been the magician’s entertainment apparatus—these are the same instrument, used for different purposes. By constructing his compass, Emile prepares himself to follow only the gravitational pull of physical objects while he watches the magician shows of other people in the world at large. Placed in Book III, just prior to Emile’s social awakening, the controlled audience provides a warning that prepares Emile for his adult life, when his needs become entwined with those of others, and virtue becomes possible with the constant presence of an unstaged audience. The innovation of an audience for Emile’s object encounter in the compass narrative is so obviously foregrounded that the relationship between audience and moral autonomy becomes its subtext.

Any straight-forward reading of the compass object lesson is challenged, however, by the obvious comparison between the abject magician—who must deceive others, hide his knowledge, and lecture in public in order to earn a living—and his master magician doubles, Jean-Jacques the tutor and Rousseau the author. Rousseau clarifies in a footnote that Jean-Jacques must have orchestrated the entire experience, arranging everything ahead of time with the magician, Emile’s friends, and the townspeople in the audience. He is the ever-present tutor who masterfully controls his passive student, yet he claims invisibility for the sake of validating the objectivity of Emile’s lessons. Caught in his own master/slave relationship to his reader audience, Rousseau the author is likewise both a virtuoso intellectual performer who vainly inserts himself as a character in his own texts and a transparent medium for communicating empirically grounded observations about education.

On one level, then, the gender-specific handling of audience in Rousseau’s object lessons
habituates Sophie to constraint while it enables Emile’s autonomy. Yet the doubling of Jean-Jacques as both master magician and self-effacing guide for Emile’s explorations, gives credence to critics, from Edmund Burke and William Godwin to J. L. Talmon and Hannah Arendt, who question whether absolute submission to civil law as a sign of self-governance is actually consistent with moral autonomy. Isolating Emile from other human influences (i.e. eliminating audience) might be unsympathetically interpreted as securing Jean-Jacques’s power over Emile. In the state of nature, Emile is free to do as he chooses, but the desires that guide his choices are determined by his tutor’s micromanaged environment, a problem the text advertises as an advantage: “There is no subjection so perfect as that which keeps the appearance of freedom. Thus the will itself is made captive. The poor child . . . is he not at your mercy? Do you not dispose, with respect to him, of everything which surrounds him? . . . Doubtless he ought to do only what he wants; but he ought to want only what you want him to do” (120). Like the wax duck, Emile’s own status as a material body allows his tutor to shape him into his instrument, to control even his will. This passive child is borrowed straight from Condillac and other materialists, whose signature of influence on Emile appears as the automaton or moving statue metaphor, used to describe man’s sensual development from “a perfect imbecile, an automaton,

91 Critics object that under Rousseau’s social contract, if a citizen should disagree with the general will—understood as higher, truer expression of himself than his particular will—he must be forced to submit to it, which only increases his freedom. The forcer d’être libre provision of the social contract is supposed to explain how a person’s subjection to civil law furthers, rather than restricts, his natural freedom. But critics see the provision as a stepping stone to an abusive totalitarian democracy, where the government claims to know better than its citizens how to make them free, and there is no provision for dissent—indeed, free dissent is an oxymoron. Any persistent objection that the state is corrupt or mistaken would indicate these people are no longer citizens, but enemies of the state. (See J. L. Talmon, The Origins of Totalitarian Democracy, 38-50). Rousseau was likewise targeted in Isaiah Berlin’s influential essay “Two Concepts of Liberty” for suggesting that freedom requires both self-government and rationality, such that forces outside the self (other people, or the state), might step in and “second guess” a person’s true desires, justifying coercion by claiming superior awareness of that person’s best interests. The consequences of second guessing are certainly troubling in Emile. Since women are incapable of self-government, and children are incapable of reason, their interests would always be represented indirectly, by adult male citizens. For a discussion of Berlin’s objections and a feminist perspective on freedom in Emile, see Hirschmann, Subject of Liberty, 4-39. For a refutation of the authoritarian implications of Rousseau and an alternate reading of the forcer d’être libre provision, see Evans, “Freedom in Modern Society,” 245-46.
an immovable and almost insensible statue” in some of the text’s thought experiments. The child as passive object, subject to his tutor’s experiments, is connected with the very thing that is supposed to give him freedom, his isolation. No place seems circumscribed enough to satisfy Rousseau: “But where will we put this child to raise him like a being without sensation, like an automaton? Will we keep him in the moon’s orb or on a desert island? Will we keep him away from all human beings?” (94) Yes, we will. In an already socialized world, the environments suggested by Rousseau must be contained and controlled—that is, artificial. Even William Godwin, with his optimistic assessment of a teacher’s ability to form his student’s desires, rejects Rousseau’s isolationist methods. “The preceptor cannot go out of the world . . . . Attempts of this kind are generally unhappy, stamped with the impression of artifice, intolerance, and usurpation.”

The philosophical novels of the late eighteenth century that borrow from *Emile* reflect the tenuousness of Emile’s freedom when they describe enclosed and isolated education spaces as quasi-dictatorial worlds, vacillating between utopia and dystopia. As an alternative, Maria Edgeworth fuses the socialized life of Sophie with Emile’s object lessons to form a different model for the development of moral autonomy.

**Object-ing to Rousseau: Freedom and Enclosure in the British response**

The influence of *Emile* is traceable among popular British fiction in the surge of stunningly bizarre education experiment novels translated from French during the 1760s, 70s, and 80s, many of them with a Rousseavian flair. Only one year after the publication of *Emile* and

92 A full discussion of the relationship between sensation and discovering the existence of a free, essential self comes from the Savoyard Vicar section, explained by Noble, *Language, Subjectivity, and Freedom*, 133-70. By machine or automaton, Rousseau means the child’s body, distinct from functions of the soul, for instance, “accustom the operations of the machine and those of judgement always to work harmoniously,” *Emile*, 141.

Origins of Inequality, Gaspard Guillard de Beaurieu wrote L’Eleve de la nature (1763), translated as The Man of Nature by James Burne (1773). The protagonist’s father and mother (named Sophia Rousseau) agree upon their marriage to devote every child after the first six to “the hands of Nature, to be the subject of an experiment which may become useful.” In an unremarked instance of emotional distance, these parents raise this youngest son in a wooden cage set in a pit, equipped with a fly, unchanged straw, and a stone, while food, water, and heat appear during his sleep. His education truly begins at age fifteen when he is transported to an island, where he eventually finds a tutor in a Prospero-type philosopher and a wife in his daughter. After a brief tour of Europe, where he witnesses the evils of society and observes several innovative education projects, he returns to the island with a group of the virtuous, where he founds a new republic based on Rousseauvian pedagogy. A review of the novel from The Scots Magazine surprisingly praises the book for its morality, in combating “the bad effects of fashionable customs,” which makes up for the fact that “its primary idea” is not “absolutely new.” Nor would it be the last.94 Banned for its immoral tendency, the erotic novel Imirce; ou, la fille de la nature (1765, translated 1787) is narrated by a girl who is educated together with a boy in a dark cellar. In the most rudimentary of object lessons, the voyeuristic philosopher-master they mistake for a God-like provider periodically lowers single objects (a rose, a mirror, a parrot) to observe the effect on their developing faculties. Through sense exploration Imirce equates sex

94 Man of Nature citation. This English version has considerable alterations and additions to the French. Although the caged childhood experiment in Man of Nature greatly restricts its pupil’s movements and explorations, the result of the experiment is a summary of Emile’s basic principles: “the most perfect education, is not that which gives [children] those virtues and talents which excite admiration, but that which prevents their acquiring the vices of society, that brings them nearest to Nature, and trusts them in her hands” (vol. 2, 120). The caged man motif is merely a convenient devise that enables a first-person narration of Aristes’s early sensations on the island, which would ordinarily be experienced prior to memory or language. Dozens of pages near the completion of the tale are devoted to describing the educational methods of two idealized families in Europe, which combined with the information gathered from the island experiment constitute a new pedagogical system for the republic. The patchwork borrowing from Rousseau in The Man of Nature, with ample innovations on subjects like religion and co-education, characteristically illustrates how Emile was disseminated piecemeal through popular novels.
with pleasure and death with the smell of rotting flesh, discovered from her baby’s corpse. The female protagonist of *The Triumph of Truth; or, Memoirs of Mr. de la Villette* (1775) by R. Roberts fares better in semi-isolation, with a servant, playfellow, and carefully selected books, where she is committed by her mother to prove to her unbelieving husband the innate human ability for divine inspiration. The more explicitly ambivalent attitude of these novels towards isolated empirical learning draws attention to the troubled connection between *Emile’s* desocialized object lessons and autonomy.

These French novels were part of a larger cross-channel dialogue that included Robinson Crusoes who survive on isolated islands and Quixotes who survive on romances—later joined by the ingénue educated within the confines of the idealized British country estate, and its double, the Gothic protagonist trapped within convent or castle. The more popular of these, such as Mme de Genlis’s *Adèle et Théadore* (1782), Bernardin de Saint-Pierre’s *Paul et Virginie* (1787), Charlotte Smith’s *Emmeline; or, The Orphan of the Castle*, Ann Radcliffe’s *The Romance of the Forest*, and Thomas Day, *Sandford and Merton* (v.1, 1783), freely innovate *Emile’s* system, becoming influences in their own right on later philosophical novels. Rather than claiming the

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96 Stéphanie Félicité, comptess de Genlis, a writer on education often cited as Mme de Genlis wrote *Adèle et Théadore: ou, Lettres sur l’éducation* (Paris: Lambert and Baudouin, 1782), translated as *Adelaide and Theodore; or, Letters on Education* (London: Cadell, 1783). *Paul et Virginie*, a key work referenced by Maria Edgeworth’s *Belinda*, was translated as *Paul and Virginia* by Helen Maria Williams, the well-known English author of *Julie* (1790) and various letters reporting firsthand on the revolution in France. Her works influenced other English authors who lived in France while writing about the events, like Charlotte Smith and Mary Wollstonecraft. According to her “Preface,” Williams translated Paul and Virginia as a safe writing project during the Terror. Her edition became the standard translation of this enduringly popular novel. Radcliffe’s *Romance of the Forest* contains a framed tale about the ideal education of Clara in the Swiss countryside. Thomas Day’s *Sandford and Merton*, a children’s book about a rich and poor boy educated by a farmer using Rousseau’s methods, was published in three volumes in 1783, 1786, and 1789. Day was a family friend of the Edgeworths and notoriously performed his own unsuccessful Rousseauvian experiments on two French orphan girls he adopted, planning raise his ideal wife. Wollstonecraft’s children’s book about the education of two girls by a virtuous rational dame, *Original Stories for the Regulation of the Affections*, was called a female *Sandford and Merton*. 
direct influence of Rousseau on British educators like Maria Edgeworth, it is more accurate to say this genre-nexus provided various literary platforms for the mediation, diffusion, and satirization of Rousseau, among other authors on education, their ideas mingling into fresh combinations that lack the comprehensive and theoretically abstract vision of *Emile*. As French pedagogy became stigmatized as Jacobin subversion in the 1790s, British educators increasingly stressed the importance of individualized and practical plans over theoretical philosophy. (Godwin’s *The Enquirer*, Barbauld’s essay “On Education” and Maria and Richard Edgeworth’s *Practical Education* are all explicitly anti-theoretical.) In this political climate, the already established novel of ideas performed a particularizing function that refurbished earlier philosophical systems. As J. M. S. Tompkins notes in cataloguing “these secluded prodigies of the French imagination” and their influence on post-revolutionary English novelists, “with the English writers life will keep breaking in.” Many participating texts in this cross-channel discussion, children’s literature included, develop scenarios that imagine to what degree isolated education spaces develop independent adults or stifle autonomy through artificial constraint.

In general, British education experiment novels express greater skepticism about the control teachers can or should exert over their students and suggest less constricted and prepared environments in order to foster independent thought. If desires are formed by environment, then Rousseau makes a deceptive distinction when he substitutes physical force for moral authority,

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97 Education experiment novels influenced by the Rousseavian surge of earlier decades and published in the decade after the Reign of Terror include: William Godwin, *Things As They Are; or, The Adventures of Caleb Williams* (1794), Eliza Fenwick, *Secresy; or, The Ruin on the Rock* (1795), Elizabeth Inchbald’s *Nature and Art* (1796), Robert Bage, *Hermsprong; or, Man as He Is Not* (1796), Maria Edgeworth’s *Belinda* (1801), and Amelia Alderson Opie’s *Adeline Mowbray* (1804). An additional genre that borrows from Rousseau is the Socratic satire, where an uncivilized foreigner reports first-hand on European barbarity, for instance Voltaire’s *L’Ingénu; or, the Sincere Huron* (1768), and Elizabeth Hamilton’s *Letters of a Hindoo Rajah* (1796). The most original novel that enlivens these interlaced conventions is Mary Shelley’s *Frankenstein* (1818), separated by several decades but retaining all the immediate influences present to the her parents when they wrote about education. Other later examples of education experiments include Harriet Smith from, Jane Austen’s *Emma* (1815), and the island-educated Immalee from Charles Maturin’s *Melmoth the Wanderer* (1820).

or things for commands. Under isolation and enclosure, the student regresses into a passive machine or clay in the hands of her educators, the mind itself consumed in physical necessity. We see this transformation in Fanny Burney’s *Camilla; or, a Picture of Youth* (1796), a novel that satirizes Emile’s dependence on his tutor as he courts Sophie while exposing the limitations of the empiricist epistemology that underpinned new pedagogies. Camilla’s love interest, Edgar Mandlebert, is advised by his tutor, Dr. Marchmont, to carefully “test” and “experiment” with her character, “doubtfully to watch her every action, and suspiciously to judge her every motive,” to determine whether she has a “voluntary affection” for him.99 Although Marchmont assures Edgar that “a very little observation will enable you to dive into the most secret recesses of her character,” each investigation only reveals an uncertain knowledge of Camilla’s internal life from her indeterminate actions, justifying new investigations in an obsessive pattern that hazards alienating her. “Ah doctor!” Edgar pleads, “by this delay . . . by these experiments . . . should I lose her!”100 Altered by his scrutiny, Camilla becomes less spontaneous, less legible, less able to freely give Edgar her affections. She is transformed into “a fair lifeless machine, whom the music, perforce, put in motion.”101 Through the constant judging presence of Edgar and her family, Camilla discovers how little control she has over how her actions are interpreted by others, who are determined to misconstrue her motives. Edgar must accept that her actions will never yield a final confirmation of her choice in love before they destroy her ability to choose. The novel systematically rejects the determinacy promised by absolute control over environmental factors in *Emile*, even though it explicitly endorses experiential learning. *Camilla* opens by supporting the superior efficacy of experience over moral precepts, which the novel promises to prove: “The experience which teaches the lesson of truth, . . . comes not in the shape

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100 Burney, *Camilla*, 595, 671.
101 Burney, *Camilla*, 714.
of warning nor of wisdom. . . .'Tis in the bitterness of personal proof alone, in suffering and in feeling, in erring and in repenting, that experience comes home with conviction, or impress to any use.”

Using practical experience to teach is a sound method, but expecting to control the outcome is both undesirable and impossible.

The same distinction between embracing strategies from empiricist education while rejecting its power structures is reiterated in Secresy; or, The Ruin of the Rock (1795), an epistolary gothic novel by Eliza Fenwick, the close friend of Mary Wollstonecraft and Mary Hays. The novel follows an orphan heiress, Sibella, raised by her uncle, Mr. Valmont, on his walled and moated estate, along with an adopted brother, Clement, in an environment carefully manicured to simulate Sophie and Emile’s education in nature. Sibella is never allowed to leave the estate, and misanthropic Mr. Valmont admits few visitors. At the novel’s opening, Mr. Valmont consents to Sibella’s correspondence with Caroline Ashburn, a chance recent visitor, who has learned from the negative example of her dissipated, wealthy mother to appreciate Sibella’s simplicity. Caroline’s letters describe the social follies of her drawingroom associates, and the lessons she learned from less affluent friends. She is a projection of what the gifted Sibella might have been if her uncle permitted her to learn by circulating in society.

A surprising number of people manage to smuggle their way into Mr. Valmont’s walled estate and frustrate his little experiment. His overbearing control of his children proves futile at keeping the outside world at bay. Left vulnerable to the amorous and avaricious schemes of these visitors, Sibella is twice abducted and dies at the end of the novel. Her brother, Clement, the unworthily adored Emile to her Sophie, is himself seduced by the worldly pleasures he was raised unprepared to resist, and betrays a “natural marriage,” pledged and consummated with Sibella, to marry Caroline Ashburn’s mother for her money. The novel purports to teach the evils

102 Burney, Camilla, 8.
of secrecy—in particular, the consequences of Sibella’s secret natural marriage with Clement—but her secret is eclipsed by the bizarre secrecy of Mr. Valmont’s walled estate and education system. He never discloses to Sibella her eventual financial independence from him as a wealthy heiress, nor does he explain that in England marriage is a social institution requiring witnesses and a financial transaction enmeshed in anxieties about consolidating property. Even Sibella’s educated friends never explain to her the theory behind her education, and Rousseau’s name is conspicuously absent in this philosophical novel. While Sibella makes ignorant choices in a moral vacuum, Fenwick’s readers have access to a variety of social and literary contexts for decoding the significance attached to her actions, forcing them to confront how these contexts enable their character evaluations. With a plot hinged on an English marriage that is not one because there are no witnesses, Secresy develops a connection between social observation and virtue. Although I cannot do justice to the complexity of Fenwick’s critique of Rousseau in this chapter, it is worth noting the emphasis she gives to Mr. Valmont’s authoritarian control over his children’s environment, the ultimate failure of that control, and its stunting effect on his children’s virtue. The objections to Rousseau given in these novels paint the literary setting against which Maria and Richard Edgeworth published their education works.

**Maria Edgeworth and the socialized object lesson**

In the chapter “On Truth” from *Practical Education* (1798), Maria Edgeworth denounces Rousseau and other theorists who “have counseled parents to teach truth by falsehood. The privilege of using contrivance, and ingenious deceptions, has been uniformly reserved for preceptors; and the pupils, by moral delusions, and the theatric effect of circumstances
treacherously arranged, are to be duped, surprised, and cheated, into virtue.”¹⁰³ In what should now be a familiar line of attack, Edgeworth cites Rousseau’s bean garden property lesson as an example of how parents effectually lie to a child by creating a false environment, which teaches deception and artifice when the child figures it out. Emile first learns about property through an incident entirely prepared by his tutor, who engages a farmer to act a prescribed role in his object lesson. Jean-Jacques invites Emile to plant beans, mixing his labor with his soil in Locke’s concept of possessive individualism, so that he feels invested in the outcome. After several weeks tending the beans, Emile arrives to find them plowed under by a farmer who claims that Emile dug up melons that he planted previously. Because the farmer intended to share the melons, Emile immediately feels the loss as his own, and he understands the farmer’s plight because he shares the same grievance (Emile, 98-99). As a child, Emile understands morality only in relation to himself; he is never expected to sympathize with others who are different from him, since he should not yet realize other wills might conflict with his own. By taking the farmer under his employ, Jean-Jacques makes sure the farmer’s will does not initiate a power struggle of the sort Rousseau’s object lessons seek to avoid. He artificially removes social conflict from the property lesson, making ownership a relation between things instead of people.¹⁰⁴ The Edgeworths find this complicated effort to create a lesson ludicrous, impractical, and counter-productive, and they object, furthermore, to the whole concept of property it teaches.

In Maria Edgeworth’s alternative property object lesson, “The Rabbit” in Early Lessons (1801), a young girl, Rosamond, learns possessive individualism while defending her laburnums from a hungry animal, who turns out to be the pet rabbit of a poor girl. The real-life causal relation between Rosamond’s garden enclosures to protect her land, and the small natural

¹⁰³ Edgeworth, Practical Education, 1:286.
compensations available to the daughter of a city dressmaker, dangerously ill from working long hours in a restrictive city apartment, reintroduce a sensitivity to limited resources, conflicting desires, and social movements (enclosure and urbanization), intentionally avoided in *Emile*; likewise, a charged discussion between Rosamond and her siblings about what is best for the rabbit, a safe cage or release in the wild, and whether they have the right to decide for the animal, suggests the children’s ability to engage in political discussions about slavery, property, factory conditions, the restraints of women’s domestic education, and vegetarianism. By deciding not to keep the rabbit as a caged pet, the children demonstrate a sophisticated awareness of the abusive potential of claiming to know what is best for another, a liberal objection to Rousseau’s *forcer d’être libre* clause in *The Social Contract*, which notoriously suggests that citizens who withhold consent from the general will should be forced to do so because submission increases their freedom. Like so many caged animals in Romantic-era stories, the rabbit allows for a safely dislocated discussion of freedom. Without providing a simple or generalized solution, it exposes how contractarian political philosophies that make enfranchisement dependent on property constrain the choices of propertyless women, children, and laborers.

In addition to providing greater social context for similar object lessons, Richard and Maria Edgeworth dispute the importance Rousseau places on the child’s absolute freedom in *Practical Education*. They consider the substitution of things for men a slight-of-hand. “A false

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105 Edgeworth, “The Rabbit,” 42-61. The difference between “The Rabbit” and the story about Emile’s beans reflects the impact of Malthus’s theory of the social consequences of scarcity in *An Essay on the Principle of Population* on Rousseau’s argument that everyone’s desires can be met if they are restricted to those needs naturally indicated by their bodies. Against his own protestations, critics of Malthus considered his political economics sensualist. In order to prove that submission to the general will can be a submission to self, Rousseau eroticizes political and economic relationships by substituting, for these, Emile and Sophie’s mutual submission and equal exchange in reproduction. By contrast, Malthus describes a dystopic situation where sexual exchange ensures that physical needs cannot be met: Fulfilling sexual desire directly conflicts with attaining basic needs, like food, by creating food scarcities, which are only solved by denying our sexual needs. Both sexual needs and food are the key bodily needs identified by Rousseau, which enable *amour-de-soi* in “an extended sense” to replace *amour-propre’s* competitive impulses. By putting these needs into competition, Malthus offers a powerful critique of the political philosophy underlying *Emile* that Rousseau uses to counter Hobbes’s pessimistic converse relationship between individual freedom and social laws. Malthus more directly singled out Godwin and perfectibility for attack.
idea of the pleasures of liberty misled Rousseau. Children have not our abstract ideas of the pleasures of liberty... liberty is, with them, the liberty of doing certain specific things which they have found to be agreeable; liberty is not the general idea of pleasure, in doing whatever they WILL to do. Rousseau desires, that we should not let our pupil know that in doing our will he is obedient to us. But why? Why should we not let a child know the truth? Their objection rests first on the inevitability of excessive child desire and second on the deception offered the pupil, who thinks he submits to what must be when he really submits to Jean-Jacques’s will. Accusing Rousseau of dishonesty and artificiality voices a typical contemporary critique that Emile only appears to be free. What Edgeworth’s object lessons offer, then, is not a method for closing down the freedom of a natural child, as Wordsworth complained in Book V of The Prelude, but a different kind of freedom that she found more compelling and realistic—limited and provisional, but a product of the social world. My argument expands a conversation about Edgeworth and other women children’s writers that began with Mitzi Myers, who argues that a Romantic canon focused on Wordsworth, Coleridge, and Charles Lamb, men who wrote about children instead of for them, obscures the contribution of women once respected as education authorities, such as Anna Letitia Barbauld, Mary Wollstonecraft, Sarah Trimmer, Ellenor Fenn, and Maria Edgeworth. These women depict children as developing agents and rational thinkers instead of adopting the innocent child Rousseau popularized for their own aesthetic projects.

I propose that these women authors, Maria Edgeworth in particular, offered a compelling counter-position on liberty and autonomy to that described in Rousseau’s Emile. Instead of Rousseau’s natural child whose social development must be delayed until he reaches puberty and acquires

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106 Edgeworth, Practical Education, 1:264.
107 Myers, “Impeccable Governesses,” 31-6. Myers takes to task the early standard Whig histories of children’s literature, where Romantic educators liberate children from controlling women didactics, even though didacticism, or combining instruction with entertainment, was a respected literary norm of their period.
reason, these women assume children are social, sensual, and, to some degree, rational creatures
from birth—that in fact sensation is always socialized because objects are interacted with and
judged in the context of their cultural signification.

“The Purple Jar” opens with Rosamond and her mother window shopping on the way to
the cobbler. The seven-year-old Rosamond—whose all-encompassing desires are well beyond
her needs—begs her mother to buy all the pretty things she sees, with “O, Mother, how happy I
should be.” The sparse detail of the opening scene suggests its iconic status: Rosamond’s
excessive desires are typical for a young girl, and adult readers are invited to imitate the mother’s
strategy of using a common situation to develop their child’s discrimination. The mother’s
approach uses lively open questions: “What all! Do you wish for them all, Rosamond?” or “what
use would they be to me?” Vivacious Rosamond fires back with her own questions and
exclamatory descriptions of her sensations: “look, look! Blue, green, red, yellow, and purple!
Oh, mamma, what beautiful things! Won’t you buy some of these?” 108 The mother challenges
Rosamond’s connection between happiness and purchasing beautiful things as opposed to useful
things, but she prefers to let Rosamond discover this distinction on her own. Mirrored syntax of
questions and exclamations between mother and daughter indicate Rosamond’s learning
trajectory towards the sensory organization of her mother, while it overturns the one-sided
catechism of child textbooks.

The most attractive object for Rosamond is a purple jar she sees in a chemist shop
window, which she takes for a flowerpot. Her mother, who understands what the shop sells better
than her daughter, suggests that Rosamond “see it nearer” and “examine it” to make sure it is
what she expects, but she declines. 109 When they arrive at the shoe store, her mother gives

109 Ibid., 2.
Rosamond a choice of what she will buy for her that month: a useful pair of new shoes to replace her worn ones, or the pretty purple jar. Rosamond asks for her mother’s opinion, but she responds with the story’s most oft-quoted line, “Nay, my dear, I want you to think for yourself.” Rosamond chooses the purple jar, but she worries that her mother will think she is “very silly” for it, introducing an often over-looked theme of the story: Rosamond’s growing awareness that judgments are publically evaluated and produce social consequences. Her mother addresses her concern: “when you have to judge for yourself you should choose what will make you happy, and then it would not signify who thought you silly.”\(^{110}\) Feeling her choice confirmed by her mother, Rosamond happily returns home and waits for the servant to fetch her new jar. But when it arrives, Rosamond discovers it is filled with a foul-smelling purple liquor, and when emptied, it is an ordinary clear jar.

Regretting her decision, Rosamond offers her mother the jar in exchange for shoes, but the mother insists she abide by the consequences of her choice: Rosamond misses out when people call for her; she cannot go on family walks; and worst of all, she cannot go with her father and brother to the glasshouse. On the way out the door he notices her worn shoes and considers how her shabbiness would reflect publically on his parenting: “Why are you walking slip-shod? No one must walk slip-shod with me; why, Rosamond,’ said he, looking at her shoes with disgust, ‘I thought that you were always neat; go, I cannot take you with me.’ Rosamond coloured and retired.”\(^{111}\) As a consequence of choosing the purple jar, Rosamond has to endure painful shoes for a month, but the pain of her feet is connected to her embarrassment at being dismissed by her father and her realization that her mother thinks her “silly.” She learns not only

\(^{110}\) Ibid., 4.
\(^{111}\) Ibid., 7.
to use her senses to examine objects more closely, but also to apply what she learns to make better judgments.

Rosamond’s keen senses are alert to her environment and feed her imagination, but she cannot yet direct them towards an orderly and sustained examination, required for judgment, the faculty used to compare two ideas—a failing commonly ascribed by philosophy of mind to people deficient in reason, especially women and children. Her active imagination is symbolized by her attraction to the colors in the shop window, which Myers reads as “the young child’s undiscriminating openness to stimuli and the inability to read its culture which it must lose if it is to become an adequately functioning human being.” This lesson in cultural literacy is particularly structured to connect Rosamond’s reasoning skills with her sensual training, and suggests higher moral stakes. Barbauld, who influenced and corresponded with Maria Edgeworth, wrote a widely-read, admired essay on choices and their consequences, “Against Inconsistency in Our Expectations,” that sounds remarkably like Edgeworth’s story and uses a market metaphor for abiding by the consequences of our judgments: “We should consider this world as a great mart of commerce, where Fortune exposes to our view various commodities, riches, ease, tranquility, fame, integrity, knowledge. Every thing is marked at a settled price... Examine, compare, chuse, reject; but stand to your own judgment; and do not, like children, when you have purchased one thing, repine that you do not possess another which you did not purchase.” Barbauld cautions against the false optimism Rosamond demonstrates when she believes she can enjoy the benefits of both choices, instead of only what she chooses. Rosamond’s marketplace choice is a motif commonly used in Edgeworth’s stories about both boys and girls to emphasize that choices, like purchases, are irrevocable, often mutually

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112 Myers, “‘A Taste for Truth and Realities,’” 121.
113 Barbauld, *Select Poetry and Prose*, 188.
exclusive, and legible according to publically determined codes. As the only one of the Rosamond stories where she fails to make the correct choice, this first object lesson declares the need for the education that follows, as well as her potential to become a reasonable creature.

In a sequel joined with “The Purple Jar” in Early Lessons (1801), the mother asks Rosamond to repeat her judgment exercise by choosing between two plums that look identical from a distance. Remembering the purple jar, Rosamond asks to look more closely: she looks, touches, and smells the plums, and finds that one is only a stone that looks like a plum. While she eats the real plum, her mother places a housewife next to the stone plum and asks her to again choose which one she wants. Rosamond knows she could use the housewife because she keeps getting into trouble for losing her needles. “I hope I shall not make such a silly choice as I did about the purple jar! Let us consider; the [stone] plum is certainly the prettiest: but then to be sure the housewife would be the most useful.” At first Rosamond reasons falsely with herself that, of course, she might take the stone and be more careful with her needles, just as she earlier convinced herself that she could make do with worn shoes. Her reasoning process is unreliable when she divorces judgment from the evidence of her senses, which is why her mother tests her judgment using another deceptive purple object. The color purple triggers Rosamond’s memory in a visual and auditory way: “Rosamond, as she pronounced the words purple jar, turned her eyes from the stone plum and fixed them upon the housewife.”

What finally tips the balance is Rosamond’s desire for her mother’s approval when she no longer loses her needles: “I was very happy when you smiled and praised me, Mamma, and

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114 Patricia Crown argues that women and girls are more frequently depicted in children’s literature as discerning buyers as part of a developing cultural belief that “women were sensitive to and could appreciate things.” Anticipating that my readers might be aware of this stereotype, I want to clarify that Edgeworth also has little boy characters who learn practical shopping choices.
117 Ibid., 11.
said the other day that you were glad to see that I wished to cure myself of my little faults; and I
daresay, Mamma, that you will smile a great deal more, and be a great deal more pleased with
me when I really have entirely cured myself,” and when she finalizes her choice, “I hope, dear
Mamma, that I have considered well this time, and I think that I have chosen better than I did
about the purple jar.” In both stories, the mother never directly tells Rosamond what she thinks
of her choices. Rosamond only realizes what her mother thought about the jar after she
discovered her mistake for herself and thought herself silly, whereas with the plum, she
anticipates her mother’s judgment correctly because she has already internalized her mother’s
reasoning as her own. In order to learn good judgment, Rosamond needs to witness how other
people judge her according to what objects she acquires, which is part of experiencing the
consequences of her actions. Her mother’s advice “to choose what will make you happy, and
then it would not signify who thought you silly,” does not mean, as Rosamond first assumes, to
ignore what others might think of her, because the approval of others affects her happiness. If
that were not the case, her father would have defied public opinion and brought his daughter with
him to the glasshouse, regardless of how sloppy she looked. Instead, his actions clarify the
mother’s lesson by confirming that rational adults allow some consideration to what others think
of them when making choices.

Since Rosamond is a girl, we might suspect that Edgeworth is merely following
Rousseau’s gendered education in teaching her to care about what other people think, but the
complexity of her mother’s advice about valuing her own happiness belies that assumption. To
the contrary, the repeated opposition between the useful and the ornamental in Rosamond’s
choices can be read as a straight-forward rebuttal of Sophie’s necessary obsession with how her
actions are socially judged by their aesthetic appearance, rather than their moral substance: “Man

118 Ibid., 11, 12.
says what he knows; woman says what pleases. He needs knowledge to speak; she needs taste. Useful things ought to be his principal object and pleasing things ought to be hers.” The aestheticization of Sophie’s moral choices deprives her of Rosamond’s ultimate satisfaction in obeying her own judgment, her trade-off for at times defying public opinion. And lest we assume that Edgeworth encourages a mere performance of morality and independence, the ornamental objects are deceptive in precisely the way Rousseau describes women: “flatterers and dissimulators” who “quickly learn to disguise themselves.”119 Under Rosamond’s careful examination, this dubious compliment proves equivalent to a misogynist reduction of woman to dirty vessel.

Part of the difference between Edgeworth’s contextually-embedded object lessons stems from her attention to Locke’s Some Thoughts Concerning Education, which recommends that parents avoid corporal punishment for all but the most stubborn children and appeal to the child’s reason. Since Locke believes children should be treated as “reasonable beings,” he sees no danger that early socialization or appeals to the child’s reason could produce adverse results—quite the reverse: “The sooner you treat him as a man, the sooner he will begin to be one.”120 Rousseau honors Locke as a model for writing on modern education, but objects there is “nothing more stupid than these children who have been reasoned with so much. . . . If children understood reason, they would not need to be raised” (Emile, 89). Trying to reason with children would have the same outcome as Wordsworth’s “Anecdote for Fathers”; the child can mimic something he thinks will answer the adult’s demand, but his clumsy affectation is easily spotted by reasoning adults and only trains him in deception.

119 Rousseau, Emile, 369.
120 Locke, Thoughts Concerning Education, section 94.
Behind these opposing positions on reason is a debate over how to effectively guide the child’s internalization of his education so that he becomes an autonomous adult. Both Locke and Rousseau worry that children raised through strong authority will never transition from the fear of an externally-applied punishment to the need for self-approval and, once grown, will disregard their education to follow a default motivation. “Every man must some time or other be trusted to himself and his own conduct,” says Locke, “a good, a virtuous, an able man, must be made so within.”\textsuperscript{121} Accessing what is “within” requires stimulating the “most powerful incentives to the mind,” rewarding the child with esteem and punishing with disgrace to provoke “ingenuous shame.”\textsuperscript{122} These mental rewards and punishments, precisely those qualities Rousseau denigrates as \textit{amour-propre} (or self-love dependent on comparison with others), replace corporeal punishment in Locke’s treatise, producing psychological motivation that models adult autonomy. But as Rousseau sees it, ingenuous shame is a contradiction: the mental incentives Locke prefers feed the child’s need for approval from others, which will eventually corrupt him into adopting their follies. How is it, exactly, that Locke’s child is supposed to transition from shame and approval, as externally enforced as any beating, to a sense of virtue made possible by owning internally directed actions?

By objecting that children cannot reason, Rousseau accuses Locke of encouraging an affectation of reason, or an outward sign of an inward state that is developmentally impossible. As a child, Emile is not permitted to imitate virtuous actions like charity whose moral import is linked with intent, in an attempt to circumvent the anxiety surrounding affectation that plagues Locke’s treatise. As a passive receptacle for sensation, Emile has no “internal” separate from his external world; his “brain, smooth and polished, returns, like a mirror, the objects presented to it.

\textsuperscript{121} Ibid., section 42.  
\textsuperscript{122} Ibid., section 82.
But nothing remains; nothing penetrates. Our sensations are purely passive, while all our
perceptions or ideas are born out of an active principle which judges. . . . children, not being
capable of judgment, do not have true memory” (Emile, 107). Lacking interiority, children are all
affectation. They approach people and objects ready to take them in and establish an affinity
between themselves and their surrounds, accumulating sensations in preparation for reason’s
arrival. If a child can only learn through its senses, then Locke’s substitution—shame for beating
and praise for gingerbread—is a chimera. The only way to develop lasting internal motivation is
to develop the mind through the body.

The shift from separating mental and physical stimuli to collapsing them under sensual
education was picked up by Godwin as the centerpiece of his education writings, which is no
surprise if we consider Rousseau’s objection to Locke as resting on affectation. In the anarchist
philosophy of Political Justice, total honesty between people enables personal, voluntary self-
correction without the law’s use of force, which reduces all moral choices to compulsion. His
pedagogical work, The Enquirer Reflections on Education, Manners, and Literature, calls
attention to the extreme deprivations of liberty under which children must suffer in order to
learn, and mitigates these with solutions from Emile:

I may recommend some species of knowledge by a display of the advantages which will
necessarily attend upon its acquisition, or flow from its possession. Or, on the other hand,
I may recommend it despotically, by allurements or menaces, by showing that the pursuit
of it will be attended with my approbation, and that the neglect of it will be regarded by
me with displeasure.

The first of these classes of motives is unquestionably the best. To be governed by
such motives is the pure and genuine condition of a rational being. By exercise it
strengthens the judgment. It elevates us with a sense of independence. It causes a man to stand alone, and is the only method by which he can be rendered truly an individual, the creature, not of implicit faith, but of his own understanding.\textsuperscript{123}

Godwin clearly considers Locke’s shame and praise a form of physical compulsion, incapable of forming independent adults. The goal of Godwin’s approach is to “entirely change the face of education” so that there is neither “preceptor or pupil” and “everything bespeaks independence and equality.”\textsuperscript{124} Rousseau’s understanding of personal liberty is embraced by Godwin, but not by many of the rational dames, who objected to the implications for Sophie.

Shame emerges with reason and sexual desire during Emile’s transition into adulthood, creating an unexpected correlation between sexual maturity, reason, and interiority. As Mary Wollstonecraft noticed, however, shame is part of Sophie’s education from the time she is young. The implicit connection between Sophie’s body and her sense of shame reintroduces the prurient audience for her object lessons, implying an early moral awareness from her already sexualized body, prescient of her social function as mother. Emile’s liberating childhood and autonomous adulthood is never extended to Sophie because marking any transitional period of advent sexuality is too dangerous when Sophie lacks the outlet Emile uses for redirecting his sexual energies into an outward-extending investigation of the natural and social world beyond his body. Whereas Emile’s domesticity securely aligns his personal needs with social concerns, Sophie’s adult domestic space is commensurate with her childhood education environment, which conditions her to constraint and command. By connecting shame, modesty, and coquetry with Sophie’s body, her biological nature, Rousseau justifies reintroducing shame, the motivation technique he rejected in Locke, newly minted as sensory education.

\textsuperscript{123} Godwin, \textit{Enquirer}, 77.
\textsuperscript{124} Ibid., 80.
Although Edgeworth insists with Locke that children have reason and internalize through shame and approval, she offers an alternative to Rousseau by combining elements of Emile and Sophie in Rosamond. Concluding the lesson in choice from “The Purple Jar” and “The Two Plums,” Rosamond’s brother asks to borrow a needle, which she produces safely from her housewife. As a reward, her father invites Rosamond to join them while they do “several experiments with her needle and a magnet.” The father permits Rosamond to join in her brother’s scientific education, provided she did not lose her needle; likewise, in “The Purple Jar,” the worst consequence of her shoes was missing out on their trip to the glasshouse. Rosamond’s moral development is motivated by her desire to escape her house and share her brother’s scientific education. We can contrast Edgeworth’s problematizing approach to female desires with how object lessons are used in the popular and contemporary *The Daisy; or, Cautionary Stories in Verse* by Elizabeth Turner, published in 1807, a series of moral poems and illustrations that correct child errors through shame and pain. Turner’s aptly named “Miss Sophie” tumbles head first while trying to climb the garden gate, and learns from her “hurt and bruis’d” body that “girls should never climb”; In another panel, a girl who refuses to get dressed discovers that she is unsuitable to meet visitors or eat dinner. The direct physical impact of object lessons are more violently associated with their bodies, without offering alternative enjoyments that legitimate the girls’ desire for mobility and self-fulfillment.

The common objection that education should not produce bluestockings or consummate musicians, but women with practical feminine skills that endear them to others, is quietly countered by Edgeworth, who makes household management the prerequisite for pursuing the scientific and philosophical education often reserved for boys. Instead of restricting Rosamond’s

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125 Edgeworth, “Two Plums,” 12.
126 Turner, *Daisy; or, Cautionary Stories*, 41-42.
education, these stories illustrate that her lack of scientific learning—the ability to observe objects, or recognize chemistry equipment—impedes her feminine practicality. Edgeworth’s compromise between radical and conservative approaches to education is repeated in the political allegory behind Rosamond’s choice. The alluring jar filled with disgusting chemicals recalls Edmund Burke’s rhetorical association of chemistry deceptions with French politics in *Reflections on the Revolution in France*, as well as radical chemists Joseph Priestley, Humphry Davy, and Thomas Beddoes (Edgeworth’s brother-in-law), who largely inspired the association of chemistry with seductive revolutionary politics in the political cartoons of the 1790s.

Replacing Rosamond’s worn shoes offers incremental reform as a viable, rational alternative to revolution. Rosamond’s story opens with her already in the market, submersed in the moral and public world of Vanity Fair, and resolves with a compass instead of using it as a frame to contain her exposure to the outside world. The narrative thus combines elements from Sophie and Emile.

If all of these layers are not enough, “The Purple Jar” and “The Two Plums are stories about insides and outsides, about jars with icky insides and clear outsides, needles encased in wax, and fruits with stones inside and stones next to them—or about the process by which children internalize judgment through external stimuli. In *Rosamond, A Sequel to Early Lessons*

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127 Edgeworth’s collection, *Harry and Lucy*, follows the scientific adventures of a brother who teaches his younger sister by doing experiments together. Again, she embraces co-education in science, but her position is moderated by Lucy’s young age and the older Harry’s precocious understanding as her teacher.


129 Edgeworth commonly uses symbolic compromise, articulated as incremental “improvement” or education, to structure her fictional texts—for instance, in *Belinda*, the interesting Lady Delacore overshadows the perfect Mrs. Percival, but appears acceptable because Harriett Freke’s offensive radicalism takes her fall. Two less well-known examples that connect improvement with political moderation: 1) The slow and steady improvements of an Irish family’s rented property in “The Manufacturers” from *Popular Tales*, financially benefits both the Irish renters and their landlord, and enables the politically allegorical marriage of the farmer’s daughter to an Englishman. 2) In “The Will” from *Popular Tales*, three brothers compete for their father’s inheritance through hard work. While one brother fails by trying indiscriminately all kinds of agricultural improvement schemes and another tries none, the successful Mr. Marvel carefully investigates innovations before adopting, on his English farm, ideas proven by other nations with better expertise. He consults an Irishman about introducing potatoes and employs French prisoners with wool-dying techniques.
(1821), the teenage heroine undergoes a more complex choice between purchasing a horse for sixty guineas or a beautiful bracelet equipped with a hidden watch inside. The watch functions as a reminder mechanism that can prick the wrist at a set time. Like “The Purple Jar,” Rosamond chooses between mobility and ornament, but with larger stakes and greater ambiguity. The bracelet is useful for a forgetful girl like Rosamond, who has trouble telling regular time from her subjective experience of it as a racing or lagging measure, according to her own engagements. (In one story, she manages to be late while holding a watch, because she is too distracted to consult it.) Recalling the purple jar, she tells her sister, Laura, “I have reason to look careful . . . for I have a great judgment to make.” Laura draws her mocking brother into the next room while Rosamond deliberates, but Godfrey objects, “No, no . . . what a pretty sort of judgment a person must have who cannot decide when others are standing by; . . . I think that it is not quite fair that my mother should stand there, as she does, looking so anxious; that must disturb Rosamond’s reflections; and if she decides only to please my mother, or because she is afraid to give my mother pain, there will be no trial or no proof of prudence.”130 The presence of her family adds to the drama of Rosamond’s choice, since she is afraid of her brother’s mockery and of losing the respect of her parents and sister. Deciding for the horse, Rosamond explains that she would grow indifferent to the watch’s prick, a conclusion based on higher order ideas drawn from a sophisticated understanding of the sensualist principles behind her education. Situated near the conclusion of Rosamond’s education, “The Bracelet of Memory”—itself a kind of mind/object, or automaton replica of the human body—depicts Rosamond’s successful internalization of her mother’s prudence. Rosamond refuses to risk losing a skill developed from habituated discipline, her ability to keep track of time, by re-externalizing her own internal clock. By refusing the bracelet for the horse, Rosamond demonstrates her self-regulation.

Conclusion: Anna Letitia Barbauld and the “education of events”

The difficulty with separating the education of men from the education of things is most consistently argued by Barbauld, whose essays on education refute the notion that sensual learning escapes hierarchical structures. On the contrary, she demonstrates how the ability to create learning spaces depends on class status and augments the child’s ideological submersion. As the daughter of educators, the co-founder and instructor (with Rochemont Barbauld) of Palgrave School for boys, and tutor for young women pupils, Barbauld’s teaching credentials are extensive, and she was well-respected for writing some of the first books for infants and younger children. In “What is Education?” Barbauld objects to Rousseau’s complicated method of controlling the child’s every experience to avoid hierarchy, and she instead encourages an education suited to the child’s station but flexible to changing fortune. The trouble with minutely constructing the child’s environment to mimic rustics is that only wealthy people have the means to recreate a simple life for their children while also providing for all their needs. With her characteristic essayic bite, Barbauld emphasizes the distance between real and fabricated simplicity: “you take a country-house in a good air, and make him run, well clothed and carefully attended, for, it may be, an hour in a clear frosty winter’s day upon your graveled terrace . . . and you think you have done great matters.” Affluent simplicity is different from the occasional want that accompanies real poverty, and any attempt to recreate the education of a poor man on a rich man’s estate will not have the same result. Accepting this realization is difficult, Barbauld admits, because parents are attracted to Rousseau’s promise that children grow up to be like their teachers. Middle-class parents and gentlemen, like her letter’s addressee and others in her

132 Barbauld, Select Poetry and Prose, 324.
community of dissenters, who were raised with less money and fewer opportunities for a good education, do not want their children to grow up to treat their parents like inferiors; yet raising their children to be like themselves is impossible and misguided.

She embraces the theory that everything children encounter educates them, but in taking Rousseau and Hartley seriously to their logical extreme, she shows how class educates in its pervasive, irrepresible detail: “above all, your rank and situation in life, your house, your table, your pleasure-grounds, your hounds and your stables will educate him . . . the education of circumstances—insensible education . . . of infinitely more consequence to the habit, than that which is direct and apparent. This education goes on at every instant of time; it goes on like time . . . Poverty educated you; wealth will educate him. In your heart, you like plain dinners, and early hours . . . But it will not be so with your son.” The paradoxical phrase “insensible education,” or those experiences omitted from our education according to class, ironically remarks on the complacency with which Rousseau’s more conservative readers could assimilate the implications of education through the senses into private middle-class life. If knowing how environment forms a child’s mind opens the possibility of intentionally shaping children scientifically, as Catherine Macaulay and Mme de Genlis proclaimed, it also reveals the impracticality of doing so without attending to the structural changes in society at large, which are responsible for producing a limited range of subject positions. When reduced to consumer choices in toys and tutors, radical education strategies, first proposed to reform society through a mass reeducation in republican values, can be harnessed to serve the parent’s narcissistic desire to reproduce a replica of his thoughts and experiences in his child—an exact reversal in its progressive implications by assuring the continuation of the status quo.

133 Ibid., 307-08.
134 Catherine Macaulay and John Locke are mentioned as the modern education theorists whom Barbauld’s friend read prior to seeking her advice.
When middle-class families follow Rousseau’s advice about teething rags and simple clothes, the environment they prepare stops at the end of their lawns. They build a wall around the child (or a picket-fenced garden) and control everything within that private space by what they purchase. “It is not necessary, with Rousseau or Madame Genlis, . . . to surround him with an artificial world.” “In these mimic experiments of education,” writes Barbauld, “there is always something which distinguishes them from reality; some weak part left unfortified, for the arrows of misfortune to find their way into.” The allusion to Achilles dipped in the river Styx, but left vulnerable to an arrow to the heel, satirizes the engraving of this myth used as the frontplate for Book I of *Emile*. And why does this strategy not succeed? The mother holding the child’s heel changes the experiment by her inevitable presence, mediating the child’s interaction with objects while mistaking sensual learning for direct, unmediated access to the world. No education at home is truly a private education: “the education of your house, important as it is, is only a part of a more comprehensive system.” Barbauld encourages parents to remember that the larger world itself, controlled by providence, is also a constructed learning environment—what she calls “the education of events,” to rival Rousseau’s education of things.

Barbauld’s religious description of event education is no pilgrim’s progress of personal salvation in the next life; her pedagogy connects individual development with the political events of this world. As she does in her essay, “Sins of Government, Sins of the Nation,” Barbauld concludes by connecting the personal with the political: “States are educated as individuals—by circumstances.” Nations, too, are judged and educated by events that work for their reformation. The difference between things and events is control: There is no human, god-like mastermind capable of orchestrating events on any significant scale, calculated to develop

135 Ibid., 317.
136 Ibid., 319.
137 Ibid., 320.
children in particular ways, and any attempt to create such an omniscient power over children, let alone concentrate it in a few human beings with authority, is abusive coercion. Things are arranged; events just happen. Barbauld’s “education of events” is a short-hand for the English response to Rousseau: a recognition of the larger significance of the child’s social environment, an embrace of audience as part of object lessons, a rejection of isolation and the artificiality of theoretical experimentation, and a renewed emphasis on the temporality or historicity of learning.

Celebrating the spontaneity of event education is a way of respecting children’s liberty. By recognizing that an environment cannot be completely controlled, parents come to terms with their inability to determine what their children will do and think. That is why Rosamond must abide by her choice in “The Purple Jar”—not because the mother is cruel or overly utilitarian, but because Rosamond really is free to choose as she likes, and her mother does not deceive her when she promises to buy only one thing that month. Where Rousseau relies on the Savoyard Vicar to rescue individual freedom by arguing that sensation proves the existence of a unified self that feels and freely wills, Barbauld concludes that children are free because the array of experiences that shape them are too vast to come under the purview of other people or governments.

The impossibility of any totalizing will behind environmental influences opens the opportunity for the child to participate in self-creation. By associationist principles, the child creates itself, like any educator would, through its environment, which means self-creation is likewise an uncertain, socio-historical process. While the kind of liberty possible under Barbauld’s interpretation of empiricist education is limited, it does involve a measure of autonomy, granted by the children’s increasing understanding of the mechanisms by which their
environment shapes them, and their inevitable engagement with the social world in the process of self-creation, thus shifting their given restrictions even though these discourses are not under anyone’s control. In these respects, Rosamond’s freedom has more in common with Barbauld than Rousseau. By the conclusion of Rosamond’s education, she understands the mechanisms by which she has been formed, how her choices change both who she is and the environment in which her future choices will be made. She has an advantage not only over the unenviable Sophie, but over Emile, as well, who according to Julia Simon, remains dependent of his tutor at the novel’s conclusion because his liberal independence fails to equip him with the relationship skills necessary to teach his infant son. Rousseau’s “effort to preserve natural freedom destroys the possibility of creating moral autonomy,” the quality Rosamond successfully develops through socialization.  

In the following chapter, I show how Mary Hays and William Godwin finesse freedom in a determined world in a similar way. These materialist educators teach readers to understand the mechanisms through which their physical environment forms their minds, so that they can control their own development by mastering their material surroundings.

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CHAPTER 3

“Morals and mechanics are here analogous”:
Exemplarity and Necessity in the novels of William Godwin and Mary Hays

“All well written books, are in reality so many histories of the progress of the mind.”
Thomas Holcroft, “Introduction” to The Adventures of Hugh Trevor. 139

The introduction to The Adventures of Hugh Trevor by Thomas Holcroft is a strange philosophical conversation between two people on “the progress of the human mind.” One man, convinced that his mind generates knowledge from its own superior resources, resolves to write a perfect, irrefutable argument without consulting, “books, or things, or men,” while his companion, who “scoffed at innate ideas” replies “he knew of but one mode of obtaining knowledge; and that was by the senses.” 140 If his companion were correct, retorts the student of Locke, then he might as well have composed his perfect essay before being born. As Holcroft informs us, the purpose of this dialogue is to explain how his book will instruct readers through the senses: “For these reasons, I have occasionally called the attention of the reader to the lessons received by the principal character of the following work, to the changes they produced in him, and to the progress of his understanding.” 141 The recommendation that we learn from a character’s experience is nothing unusual. But Holcroft also recommends that we learn from how Hugh Trevor changes from his experiences, how his mind expands over time, and (since we identify with the protagonist) how our minds change as we read. Trevor is a model for how the reader’s mind develops from infancy through the senses, which for Holcroft is the highest purpose of novels.

139 Holcroft, Hugh Trevor, 1:ii.
140 Holcroft, Hugh Trevor, 1:iii-iv.
141 Holcroft, Hugh Trevor, 1:vi-vii.
In this chapter, I address two friends of Holcroft, Mary Hays and William Godwin, who largely share Holcroft’s philosophy of mind and write novels influenced by experiential learning. Fitting Holcroft’s idea of a “well written book,” their novels teach readers “the progress of the mind” and, like Hugh Trevor, they demand a new kind of reading practice. Instead of using the novel to teach through identification with a flawed protagonist (what amounts to a traditional object lesson), Hays and Godwin use the novel to teach how the mind develops over time, through the senses, in response to its physical environment. By following a character’s mental development, readers reflect on their own growth, gaining insight into how their mind forms as it experiences new things. Such novels teach the self-reflexivity that Rosamond gains by seeing herself in the purple jar or the time-keeping bracelet, which allows readers to master the mechanisms through which a material world determines who they become.

Godwin and Hays approached novels differently because they (and Holcroft) were philosophical necessitarians who believed that the principles of causality governing the natural world extend to human thoughts and actions. According to necessity, our decisions inevitably reflect an accumulation of prior experiences (education) that together constitute the conditions of possibility for our actions; experience determines our actions. Opponents of necessity argued that individuals are responsible for their moral choices; without acknowledging “liberty,” they argued, there can be no such thing as guilt or justice because society at large is responsible for everything. Philosophical necessity acknowledges that individual actions are part of what Clifford Siskin describes as “system.” The genre of system is a “primary modern means of totalizing and rationalizing our experience of the social” that became embedded in novels and changed how novel characters relate to their fictional worlds. Using Caleb Williams as his test case, Siskin shows how Romantic novels became “information systems,” their characters (and
readers) acutely aware of the social as “totalizing,” as what “we now call ‘The system.’”142 To adopt Siskin’s vocabulary, necessity is the system that makes novel characters commensurate with their totalized experience of the social, and the didactic purpose of necessitarian novels is to make the system legible and navigable. Caleb’s psychological development resembles a total picture of how his world is organized, and that picture, as well as his method for producing it, is the lesson Godwin’s novels encourage their readers to learn.

Because necessity questions whether readers control their actions as autonomous agents, necessitarian fiction departs from established generic conventions about how novels instruct their readers. According to Alex Eric Hernandez, most eighteenth-century fiction teaches through poetic justice that “functioned according to market principles of rational exchange”: Characters enjoy the rewards or suffer the punishments of their actions, while readers test their judgment according to whether they sympathize with virtue or applaud mischief and suffer self-conviction.143 Henry Fielding’s Jonathan Wild, the Newgate antecedent for Caleb, meets his end at the gallows—and Fielding clarifies that Wild “suffers the Punishment without obtaining the Reward. . . . I believe it is not easy to teach a more useful Lesson than this.”144 But in the novels of Hays and Godwin, as in much 1790s social protest fiction, characters are neither rewarded nor

142 Siskin, “Novels and Systems,” 202-211.
143 Hernandez, “Tragedy and the Economics of Providence,” 602. I do not want to imply that all eighteenth-century fiction uses a simplistic poetic justice model. Hernandez shows that Richardson’s Clarissa opposes a financial model of providence, where poetic justice is confined to worldly punishment and rewards, because Clarissa’s reward is in heaven. While this argument demonstrates the complexity of fictional justice models, Clarissa is still rewarded, herself, for what she does, which has more in common with Fielding’s justice in Jonathan Wild (where, similarly, Heartfree is ultimately rewarded on earth for his own actions) than it does with causal networks. In fiction by Godwin and Hays, individual judgment is difficult to separate from community judgment.
144 Fielding, Jonathan Wild, 221. Hays’s “tracing consequences” and Godwin’s essay “On History and Romance” (1797) (discussed later in my essay), form a helpful contrast to the opening pages of Jonathan Wild. Fielding defends his thief’s history by explaining that the histories of men’s lives provide “Knowledge of human Nature in general; its secret Springs, various Windings, and perplexed Mazes.” He sounds much like Hays and Godwin, until Fielding continues, “we have here before our Eyes, lively Examples of whatever is amiable or detestable, worthy of Admiration or Abhorrence, and are consequently taught, in a Manner infinitely more effectual than by Precept, what we are eagerly to imitate or carefully to avoid” (7). I don’t think that tracing consequences in Godwin’s fiction can be reduced to practical examples (the traditional object lesson).
punished as their actions deserve. Indeed, the lack of poetic justice in *Caleb Williams* or *The Victim of Prejudice* is thematized by their critique of the criminal justice system.\(^{145}\) What, then, is the instructive purpose of these histories of the mind if they do not teach poetic justice, but expose injustice?

Holcroft and Hays are quite explicit about what fiction should teach. “All well written books, are in reality so many histories of the progress of the mind,” Thomas Holcroft informs his readers as they begin *Hugh Trevor*,\(^ {146}\) while for Hays, the “most interesting” and “useful fictions” are those that “afford materials, by which the philosopher may calculate the powers of the human mind, and learn the springs which set it in motion” (*EC*, 3). Hays twice uses *Caleb Williams* as an example.

Tracing consequences or mental progress in necessitarian fiction is not about illustrating rewards and punishments or about offering a “moral” that readers might apply to their lives; it is about understanding characters in relation to the extensive socio-political networks informing their behavior. Novels can provide a roadmap for connecting a climactic crisis with early formative life events through retrospective narration. Because mental development is conceived as political, tracing consequences reveals how seemingly inconsequential details of experience accumulated over a lifetime shape individual habits to reflect large-scale cultural practices, such that each person’s moral improvement requires national reform. The necessitarian novel thus expands its didactic domain to include political critique as an implicit extension of domestic values commonly advocated by the novel, such as compassion, prudence, and family affections. Thus, while depicting “things as they are” through character psychology, this narrative form

\(^{145}\) For Richardson’s rejection of poetic justice in *Clarissa* as a rebellion against the mid-eighteenth century’s dominant didactic logic, and the resulting frustration expressed by readers, see Hernandez, “Tragedy and the Economics of Providence.”

\(^{146}\) Holcroft, *Hugh Trevor*, 1:ii.
suggests the possibility of new social realities. Furthermore, the same tracings that produce a snapshot of “things as they are” through character psychology can suggest new possible social realities. By practicing the causal analysis encouraged by these novels, readers can formulate what environments or institutions are most conducive to virtuous action. The novel is an experiment to discover these conditions, and characters are its subjects.

Although Godwin and Hays share this approach to the novel’s purpose, they each espouse different versions of philosophical necessity that are surprisingly legible in their fiction. For that reason, I explore their metaphysical systems in some depth, explaining how each author finds necessity surprisingly liberating. Following David Hume, Godwin links necessity with authorship and imagination, while Hays favors Joseph Priestley’s recuperation of the body as the promise of utopian progress. Consequently, both authors show how society “miseducates” their protagonists, but Godwin’s *Caleb Williams; or, Things as They Are* (1794) is a novel about psychological trauma, while Hays’s *The Memoirs of Emma Courtney; or, The Victim of Philosophy* (1796) and *The Victim of Prejudice* (1799) are novels about physical violence. All three novels feature protagonists who write their lives, which allows Godwin and Hays to imagine reading and authorship as sources of agency in a determined system.

The ability to create the self through authorship depends upon mastering the laws governing the physical world, which apply equally to the mind. “A long train of consequences succeed, even, our most indifferent actions,” reflects Hays’s heroine, *Emma Courtney*, “Strong energies . . . produce correspondent effects. Morals and mechanics are here analogous.”\(^{147}\) These comfortable analogies between mind and matter make the novel complementary with “mechanics.” Because ideas function like objects, education, self-fashioning, and human progress are subject to regularity, promising that even in a necessitarian world, individuals have

agency if they understand how the mind works. Reading necessitarian fiction, therefore, provides a form of mechanical literacy.

**Caleb’s mechanical literacy**

Godwin connects mechanical literacy with authorship in *Caleb Williams* through the diverse talents of Caleb. A Jack-of-all-trades, mental and physical, Caleb passes the time in prison constructing furniture while organizing his life story. Attracted from his youth to stories about “corporeal ingenuity or strength,” Caleb accustoms himself “to mechanical pursuits” and “mechanical invention,” but he is also literate: a secretary to Falkland, an author, and the narrator of his own tale.\(^{148}\)

In the 1797 third edition to *Caleb Williams*, revised the same year as he wrote his essay on romance, Godwin added a passage after the third paragraph of the book to explain why Caleb is at once curious, good with his hands, and obsessed with fiction.

The spring of action which perhaps more than any other, characterized the whole train of my life, was curiosity. It was this that gave me my mechanical turn; I was desirous of tracing the variety of effects which might be produced from given causes. It was this that made me a sort of natural philosopher; I could not rest till I had acquainted myself with the solutions that had been invented for the phenomena of the universe. In fine, this produced in me an invincible attachment to books of narrative and romance. I panted for the unraveling of an adventure with an anxiety, perhaps almost equal to that of the man whose future happiness or misery depended on its issue. (60)

Caleb’s “mechanical turn” quickly passes from “youthful sports,” to curiosity, to causality (59). Soon Caleb confesses himself a “natural philosopher” who investigates the workings of the

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\(^{148}\) Godwin, *Caleb Williams*, 60.
universe, and with one final, unexpected turn: Caleb loves “narrative.” From the casual way that Caleb explains the matter, there is nothing unusual in this progression from “corporeal ingenuity” to authorship, even though grouping fictional narratives, lower-class labor, and natural history together defies the conventional class-inflected division between the labor of a “mechanic” who works with his hands and the mental work of a philosopher who traces causality in a mechanical universe.

Godwin makes no such class distinctions. In his philosophy of mind, fictional narrative and causal analysis are as mechanical as making furniture and fixing watches. His *Enquiry Concerning Political Justice and Its Influence on Morals and Happiness* argues that causality operates with the same regularity whether it takes place in the mind (between thoughts) or in the physical world (between objects).\(^{149}\) Godwin’s definition of necessity incorporates this analogy between mental and physical causation by positing a hypothetical omniscient observer who can predict the actions of men with absolute certainty: “He who affirms that all actions are necessary, means that the man, who is acquainted with all the circumstances under which a living or intelligent being is placed upon any given occasion, is qualified to predict the conduct he will hold, with as much certainty, as he can predict any of the phenomena of inanimate nature.”\(^{150}\) By making the mind as regular as “inanimate nature,” Godwin transforms mechanics into natural philosophers and watch-makers into novelists. If the best novels, as Holcroft suggests, are those that follow the “progress of the mind,” then readers and authors of romance are the closest we come (short of God) to that omniscient observer imagined in *Political Justice*, who can predict

\(^{149}\) Godwin insists that this analogy between mind and matter is accepted intuitively by people of all ranks, who daily persuade their neighbors using their knowledge of human behavior with the same confidence that they plant crops according to the seasons. When someone acts unpredictably, they search “like the natural philosopher” for “the secret spring of this unlooked-for event,” just like Caleb searches for the cause of Falkland’s mental disturbance (*Godwin, Political Justice*, 1:373).

The link between “mechanism” and authorship strengthens when Caleb adopts additional identities that bridge these two talents. Over the course of the novel, Caleb has several jobs—secretary, carpenter, crime biographer, author, lexicographer, and watchmaker—all of which require investigating the complex interactions between simple building blocks like words, clock springs, and human motives. Curiosity is not what drives Caleb; his curiosity springs from his fascination with causality, with “tracing the variety of effects which might be produced from given causes.” Causality, wrote David Hume, piques curiosity; it makes natural philosophers of us all: “Nothing is more curiously en quir’d after by the mind of man, than the causes of every phaenomenon.”152 Caleb’s curiosity, his diverse mechanical talents, and his narrative impulses all spring from his captivation with tracing consequences.

Causality stimulates curiosity because cause and effect cannot be directly observed. Causality is the secret chest we all open, hoping to confirm what we suspect, but we are left only with more questions. Godwin borrows his omniscient observer, like his theory of necessity, from David Hume’s A Treatise of Human Nature (1739-40). Hume uses causation to demonstrated the limits of empiricism; we cannot actually see causation, yet we infer that one thing causes another based on a “conjunction of events’ that creates an “association of ideas.” After repeatedly observing that clapping my hands is accompanied by a sound, for instance, I might conclude that clapping always causes that sound. But that conclusion mistakes the association I have formed through repeated experiences for a causal relationship that I cannot witness. Causality in the physical world works just like it does in the mind: in both cases conjunction” or “association” is

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151 Instead of using self-reflection, like most philosophers of mind, Godwin uses a third-person observer, like David Hume. Since people cannot know the thoughts of another with the same precision as their own, introducing this third-person observer makes causal relationships a matter of speculative and subjective interpretation. Analyzing causality means generating fictional narratives or hypotheses that make sense of limited information.

152 Hume, Treatise, 266.
the closest we come to confirming cause and effect. The “true principle of association among ideas,” Hume explains, is “the very same with that betwixt the ideas of cause and effect . . . We have no other notion of cause and effect, but that of certain objects, which have been always conjoin’d together, and which in all past instances have been found inseparable. We cannot penetrate into the reason of the conjunction. We only observe the thing itself, and always find that from the constant conjunction the objects acquire an union in the imagination.” Godwin’s *Political Justice* uses Hume’s terminology, “correspondence” or “conjunction of events,” to describe causality: “[M]ind, as well as matter, exhibits a constant conjunction of events, and furnishes all the ground that any subject will afford, for an opinion of necessity. It is of no importance that we cannot see the ground of that necessity, . . . we are equally incapable of perceiving a ground of connection between any two events in the material universe.” The common notion that we witness causation is merely “a vulgar prejudice.” Clearly, Godwin agrees with Hume’s skepticism and with his connection between curiosity and causation. Because causality cannot be witnessed, it makes us curious investigators who question why one event follows another, much like an eager novel reader.

A skeptical account of causality gives a key role to fiction-making in knowledge

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153 Hume offers a skeptic’s reconciliation between the free-will and necessitarian positions by pointing out that a common objection to necessity—our inability to see thoughts, or observe mental causation—is also true of the natural world. Harris, *Liberty and Necessity*, 64-87. Harris’s book is an excellent resource for the different approaches to necessity in the eighteenth century.


156 Godwin credits Hume with the dominant role in shaping his theory of mental causation in all three editions of *Political Justice*, whereas Priestley (who attacks Hume’s skeptical necessity) is notably absent in Godwin’s citation footnotes and index. Godwin repeats Hume’s ideas in “Essay IV: Of the Sources of Genius” from The Enquirer (1797) as a reason why human knowledge is limited, indicating Hume’s enduring influence on his thought. He argues that we should be humble because “we imagine our science to be greater than it is,” when in fact, “We perceive the succession of events, but we are never acquainted with any secret virtue, by means of which two events are bound to each other” (20). Nevertheless, Godwin borrows Priestley’s teleological phrase, “the chain of cause and effects,” which implies a visible connection between causality that Godwin denies elsewhere in *Political Justice* and The Enquirer. The chain metaphor is inconsistent with Hume’s looser notion of a “conjunction of events,” and Godwin’s failure to clarify these inconsistencies could account for the widespread dissatisfaction with his necessitarianism among literary scholars.
production, since we constantly generate fictional causal relationships that transform conjoined events into meaningful narratives. When the senses fail, the imagination fills causal gaps with a story. While these fictions are subjective and possibly incorrect, we cannot make sense of the world without them. Thus Caleb’s “mechanical turn” explains his addiction to romance.

The plot tension in a crime novel like *Caleb Williams* depends upon “association” and “conjunction”—the juxtaposition of events that, according to Hume or Godwin, can deceive observers into finding causation where none exists. When he first joins Falkland’s service, Caleb rejects the story Collins tells of his master’s past and uses his mechanical skill as a “natural philosopher” to author his own narrative. Collins and Caleb observe the same events, but the history they generate to make sense of these conjunctions are different. Whereas Caleb interprets Falkland’s restlessness, his nights wandering the hills, and his emotional outpouring at a murder trial as the effects of a guilty conscience, Falkland’s steward interprets these as signs of insanity from the damage done to his reputation. According to Collins, Falkland obviously did not kill Tyrrel, because his strict sense of honor would demand calling him out in a duel: “a mere concurrence of circumstances made it necessary that the best of men should be publically put on his defence” (172). The ambiguity of “a mere concurrence of circumstances” (a conjunction) allows Falkland to get away with murder and prevents the falsely accused Caleb from clearing his name.

All of the novel’s prosecutions proceed on circumstantial evidence that require narration—Caleb, Falkland, and Hawkins are never caught in an act that speaks for itself. Even Caleb offers “circumstantial proof” of Falkland’s guilt (377). The narratives authored by Caleb, Gines, Collins, and Falkland compete for validity by promising their audiences a way of viewing the world and making character consistent; these authors make sense of events by transforming
ambiguous conjunctions into causal fictions.

**Godwin’s theory of authorship**

Hume’s determinism is the basis for Godwin’s theory of authorship. Authors are natural philosophers who understand how causation forms character, and by delineating character development for their readers, authors record everything that acts upon individual minds, amounting to the history of an entire culture. In his unpublished essay, “On History and Romance” (1797), intended for an abandoned sequel to *The Enquirer*, Godwin recommends that fiction assume the prestige assigned to history, for “True history consists in a delineation of consistent human character, in a display of the manner in which such a character acts under successive circumstance, in showing how character increases and assimilates new substances to its own” (466). By describing a character’s responsiveness to his evolving environment, the romance provides a complete social history in a psychological portrait. A fiction writer’s ability to collect, analyze, and select from all sources of human experience tests the limits of a writer’s abilities to project behavior. While posing as omniscient, authors can only try their best to master everything that acts upon each character at a given moment: “The Romance writer is continually straining at a foresight to which his faculties are incompetent, and continually fails” (167). Fortunately, incomplete stories invite reader participation, as readers test the author’s causal logic. As natural philosophers, authors make readers into students who are curious about causation, using novel characters to teach mental causality. These students become authors when they reflect on their own lives and education.

Although focused on individual characters, an analysis of mental causation through

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157 Godwin’s “On History and Romance” is quoted from its inclusion in the Broadview edition *Caleb Williams* and cited in-text.
novels teaches readers virtue in the wider world. Causality and virtue are closely connected in *Political Justice*, where utilitarian judgment requires a masterful ability to project into the future, anticipating benefit and harm across a whole population. The capacity to analyze present circumstances and produce intelligent predictions is the basis for virtuous actions; hence virtue “supposes an extensive survey of causes and their consequences.” Indeed, one of the most important goals of education is to produce people proficient in investigating consequences, who can help others comprehend the world and proceed with the more worthy objects in view: “Men of genius must rise up . . . to analysis the machine of human society, to demonstrate how the parts are connected together, to explain the immense chain of events and consequences, to point out the defects and the remedy. It is thus only that important reforms can be produced.”

Reformers must imagine the future by constructing a panoramic view of the present, and Godwin believed that the “Romance writer” possesses these abilities and can teach them to his audience. By instructing readers, authors give them the ability to take “voluntarily” action—that is, to accompany action with thought by using foresight, which elevates people from mere “automatism” into human beings capable of benevolence, or acting for the good of others.

Traditional authors use cautionary tales or exemplary characters, commanding readers to change their behavior by strength of will alone; the determinist author teaches causality, which invites readers to master the tools of narrative and become benevolent and transformative.

Novels that forgo direct moral instruction can teach foresight while preserving equality

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158 Godwin, *Political Justice*, 1:309; cf. Radcliffe, “‘Metaphysician’ to Novelist.” According to Radcliffe, virtue in *Political Justice* is conceived outside of a temporal space, whereas I emphasize the projection power of virtue and its connection with narrative. I argue that reading necessitarian fiction engrains habits that are the foundation of virtuous action. Mary Hays discusses this purpose in her epistolary novel, *Emma Courtney*, which incorporates letters from her actual correspondence with Godwin. Emma (Hays) writes to Mr. Francis (Godwin): “What is virtue, but a calculation of the consequences of our actions? Did we allow ourselves to reason on this principle, . . . we should be compelled to shudder at many parts of our conduct, which, taken unconnectedly, we have habituated ourselves to consider as almost indifferent. Virtue can exist only in a mind capable of taking comprehensive views. How criminal, then, is ignorance!” (*EC*, 135-36).

between author and reader. Instruction is vital yet problematic for Godwin because the implicit hierarchy between teacher and pupil undermines the goal of education: to make the instructor obsolete and the pupil independent.160 “All education is despotism,” argues Godwin, in his education treatise, The Enquirer, “There is no equality, no reasoning, between me and my task-master. If I attempt it, it is considered as mutiny.”161 Unlike Rousseau, who considered the submission of readers to books insurmountable, Godwin imagines that readers can create a dialogue with the author as equals by contributing thoughts as they read. Consequently, the author’s professed moral is unimportant next to the book’s “tendency,” or its effect on the reader’s mind.162 Because of the uniqueness of each person’s mental state, each reader needs to learn by “experiment” how books (and experiences, generally) alter their identities by creating or reinforcing new trains of thought. Tendency is an unpredictable alchemy between reader and text: A new stimulus interrupts established patterns, triggering “new trains of thinking” and “by a blending and compound effect, produce in him an improvement which was out of the limits of his lessons.”163 Becoming aware of tendency, of the workings of one’s own mind, requires understanding the basic principles guiding mental development, which are the study of novels. Readers who trace causality are active learners, who, like the students in Godwin’s education philosophy, accept neither “preceptor or pupil.” Between readers and author, students and teacher, “Everything bespeaks independence and equality.”164

Although determinism may seem to limit human freedom, Godwin finds a way to make

160 Note the similarity between Godwin’s instructor and government; they should make themselves unnecessary.
161 Godwin, Enquirer, 60, 67.
162 “The moral of a work is a point of very subordinate consideration,” Godwin insists, “the only thing worthy of much attention is the tendency. . . . a work may be fairly susceptible of no moral inference, or none but a bad one, and yet may have a tendency in a high degree salutary and advantageous. . . . The impression we derive from a book, depends much less upon its real contents, than upon the temper of mind and preparation with which we read it.” Godwin, Enquirer, 137. For an alternative reading of tendency, cf. Rajan, “Wollstonecraft and Godwin.”
163 Godwin, Enquirer, 146.
164 Ibid, 80.
determinism the foundation for equality, voluntary action, and authorship. The influence of
determinism on the novels of Godwin, Hays, and Holcroft is well established, but scholars
mistake its significance for fiction because they do not investigate the diversity of necessitarian
systems, some of which are compatibility with liberty and imagination. According to Gary
Kelly’s *The English Jacobin Novel*, necessity is analogous to logical argument, lending Jacobin
novels a sense of inevitability: plots are too predictable; characters are too polarized towards
good and evil; and readers are “bound by the chain of necessity” and “must draw the moral.”
As we will see, however, most critics believed *Caleb Williams* had no pervading moral. Jon
Klancher and Evan Radcliffe, agree with Kelly that necessity is hostile to the aesthetics of
narrative, and Godwin’s move away from necessity is couched in terms of his increased attention
to fiction, emotional motives, and imagination. There is no need, however, to place Godwin’s
Romantic appreciation for the imagination in competition with his determinism. Because
Godwin draws from Hume, imagination and fiction-making are necessary for making sense of
history and human behavior because causality is not available to the senses.

The Dysfunctional pedagogies of *Things as They Are*

In addition to instructing readers in causality, *Caleb Williams* is self-reflexive about the
didactic strategy of necessitarian fiction through its characters, several of whom are masters of

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165 Gary Kelly, *English Jacobin Novel*, 152. Kelly discusses Thomas Holcroft in these terms and argues that *Caleb Williams* is more successful at avoiding these pitfalls.
166 Klancher, “Republican Romance Genre”; Radcliffe, “Godwin from ‘Metaphysician’ to Novelist.” Klancher finds in Godwin’s unpublished essay on novel writing as history from 1797 a welcome movement away from the stultifying necessitarian view of history in *Political Justice*, towards a Romantic celebration of historical contingencies. Evan Radcliffe argues that Godwin must abandon the limitations and inconsistencies of necessity in *Political Justice* in order to narrativize the complexities of character choices in *Caleb Williams*. He unfavorably compares Godwin’s concept of static, consistent character in *Political Justice* with the dynamic portrayal of character in *Caleb Williams*. Radcliff does not take into account that character and necessity in *Political Justice* are borrowed from Hartley’s associationism, which describes character as constantly evolving through accumulated experience.
causal analysis. The novel’s ideal pedagogical model is the poet Mr. Clare, whose “remonstrances produced astonishment and conviction” but “never mangled what it was intended to heal” (83). Mr. Clare maintains equality between teacher and pupil, as an author does with his readers. On his deathbed, Mr. Clare uses causality to predict that Falkland and Tyrrel will have a violent conflict, and he shares his foresight by warning Falkland. With Mr. Clare’s death, the novel focuses on a struggle for power between two skilled narrators, Caleb and Falkland, who each misuse their mastery of causality to seize power and “instruct” (i.e. oppress) the other.

The paragon of causal foresight in *Caleb Williams* is Falkland, who is foiled by Tyrrel’s fatalism. Falkland anticipates conflict with Tyrrel and approaches him because he “foresaw consequences.” These forebodings seem arrogant to Tyrrel, who returns, “As for consequences, what must be must be. As we brew we must bake. . . . I shall not trouble myself about what is to be” (89). Since Tyrrel is unwilling to anticipate the future, he is a brutish man, incapable of voluntary action, a mere puppet of his educational conditioning. His plots succeed because he controls his accomplices through fear, and those like Emily and Hawkins who oppose him are equally unsophisticated in the science of causation. When he relates how Tyrrel ruined Hawkins, Collins remarks that Hawkins “ought to have foreseen the consequences” and known that Tyrrel’s wealth would triumph over his honesty. “Nothing could have been more easy to predict” (137). Unlike Tyrell, Falkland forges elaborate long-term plans that manipulate Caleb or anticipate how to best deceive his neighbors. The complicated contrivance to plant jewels just where Caleb would hide his things and to ask his servant to witness the broken lock on his storage chest requires precisely predicting Caleb’s actions, while the surprised Caleb finds himself “at a loss to conceive, through every stage of the scene, what would come next” (252). Only when unpredictable events trigger immediate, conditioned responses is Falkland surprised
into involuntary action. When Tyrrel returns drunk to the club after being expelled, for instance, “nothing could be more unexpected,” and Falkland draws on his habits from Italy to kill Tyrell. Recognizing this, Caleb pities Falkland for his involvement in “a catastrophe, exceeding all that . . . the most penetrating foresight could have suggested” (164).

If Falkland is a causality mastermind, then Caleb is his most promising student. While skilled in causation from his childhood, Caleb views the experience he gains living with Falkland as an education. Caleb’s “constant state of vigilance and suspicion” as Falkland’s victim quickly transforms Caleb into “a competent adept in the different codes in which the human intellect displays its secret workings” (199). Writing from a position of experience, the narrator Caleb uses fatalistic, foreboding language to throw into relief his former causal blindness to “what would come next” (252). In contrast with young Caleb’s naïveté, the narrator Caleb exaggerates Falkland’s skills into godlike omniscience, which Falkland encourages with threats and promises: “You have taken no material step through their whole course with which I have not been acquainted,” he tells Caleb. “I meditated to do you good” (383). While Falkland may pose as Caleb’s protective elder, Caleb perceives his instructive guidance as a threat. In Caleb Williams, truly “All education is despotism.” Caleb actually accuses Falkland of educating him: “You took me up a raw and inexperienced boy, capable of being moulded to any form you pleased. But you have communicated to me volumes of experience in a very short period. I am no longer irresolute and pliable”; he adds, with sarcasm, “I may thank you for having taught me a lesson of insurmountable fortitude” (384-85).

Their instructional relationship is dysfunctional as long as education is equated with exerting power over who another person becomes. When master and pupil are not equals, education presents one of two subject positions: the hunter or the hunted, the oppressor or the

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oppressed. Initially, Caleb resists adopting these categories: “I thought with unspeakable loathing of those errors, in consequence of which every man is fated to be, more or less, the tyrant or the slave. . . . I resolved . . . never [to] fill the part either of the oppressor or the sufferer” (238-39). In the tragic final court scene, Caleb must recognize in Falkland’s broken form the work of his hands—that he, too, is an instructor, a writer, “the author of this hateful scene” (427). His illusion of his teacher’s omniscience dissolves with Falkland’s wasted body, and he recognizes that his instructor’s knowledge is limited.

Part of Caleb’s intense guilt over Falkland’s destruction derives from his conviction that Falkland is a “man of genius,” with foresight and generous impulses, who could have reformed society had not his education instilled him with a misguided love of chivalry. Instead, Falkland’s ability to analyze the social machine and access the inner lives of others is perverted into a weapon. The path from benevolence to corruption followed by Caleb and Falkland suggests a productive reading of Caleb Williams as a response to the politics of Thomas Hobbes’s necessitarianism. According to Hobbes, humans are automata determined by an insatiable desire for pleasure, and deliberation is merely the process of projecting which option feeds the individual’s desire for the pleasures of life. Such self-serving and ultimately self-destructive appetites excuse the creation of an authoritarian state (also an automaton) whose power to punish places excessive desires in conflict with the natural impulse for self-preservation.

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168 Hobbes’s argument for necessity is only briefly outlined in The Leviathan, but expansively addressed in A Treatise of Liberty and Necessity. Hobbes’s debate with Bramhall formed the original modern philosophical conversation on necessity. The later contributions that are most influential across the century include those by John Locke, Anthony Collins, and Samuel Clark—but Godwin is unique in systematically rethinking how necessity relates to government. Godwin presumably names Caleb’s father-figure and mentor (Collins) after Anthony Collins. 169 While Hobbes was an atheist, pronouncing human abandonment to appetite nevertheless accords with the Calvinist defense of predestination. American revival preacher, Jonathan Edwards, wrote a necessitarian Calvinist work published in America (1754) and London (1776), read by Priestley before he wrote his necessity works, and favorably cited by Godwin. For Edwards, necessity explains why humans are irrecoverably sinful without the miracle of grace. Pairing Enlightenment optimism with necessity is a distinctly late-eighteenth century movement that ultimately shifted its politics.
Godwin’s contemporaries considered Hobbes the first English philosophical necessitarian, the politics of necessity had slowly shifted over the course of the eighteenth century as the radical dissenter Joseph Priestley reedited classic necessitarian works by Anthony Collins and David Hartley and republished them through Joseph Johnson, along with his own Unitarian treatises defending materialism.\footnote{Priestley’s publications track how this political shift in necessity occurred, as later-eighteenth century intellectuals learned about necessity largely from his works. A founder of Unitarianism and a celebrated pneumatic chemist, Priestley was lampooned by anti-Jacobins as a devil consorter but considered himself a dedicated Christian uniquely positioned to address the moral implications of materialist theories of mind. In his 1790 introduction to his reprint of Anthony Collins’s \textit{A Philosophical Inquiry Concerning Human Liberty}, which was generally considered the most cogent introductory text on the subject, Priestley admits that “unbelievers” like Collins, Hobbes, and Hume failed to adequately address legitimate concerns that necessity destroys moral responsibility for one’s actions, the efficacy of prayer, the presence of God in the universe, and divine revelation. His own work on necessity, \textit{The Doctrine of Philosophical Necessity Illustrated} (an appendix in vol. 2 of his 1777 and 1782 editions of \textit{Disquisitions on Matter and Spirit}) fills the relative silence on theological issues among necessitarian philosophers. Priestley describes how contemplating upon our determined actions fosters a sublime realization that all events have connections unknown to us but foreseen by an all-knowing, benevolent God. The teleological dimension of Priestley’s chain appears in another work he edited and reprinted in 1775 and 1790 David Hartley’s \textit{Observations on man}, a foundational text of associationist psychology that also defends necessity. Hartley theorizes how the mind mechanically joins together ideas from experience, creating causal chains of associated thoughts and actions unique to each individual. In Hartley’s optimistic assessment, social interaction mitigates undesirable extremes by exchanging associations. Thus association “has a tendency to reduce the state of those who have eaten of the tree of the knowledge of good and evil, back again to a paradisiacal one” (Hartley, 27). Priestley’s “chain of cause and effect” captures the utopianism implicit in Hartley’s association of ideas, thus offering Priestley a way to reconcile God’s goodness and justice with human suffering. He answers Hume’s “shocking suggestion” that God is the author of sin by arguing that what we perceive as evil leads to an unknown greater good. Priestly published sections of Hartley’s \textit{Theory of the Human Mind} in 1775 and 1790 with his own essay comments, and Joseph Johnson reprinted the entirety of Hartley’s \textit{Observations on man} in 1791, which contains Hartley’s chapter, “A View of the Doctrine of Philosophical Necessity.”} By the time \textit{Political Justice} appeared in 1793, the foundation was laid for entirely remapping the political implications of mental causation for the age of Rousseau by assuming human goodness and perfectibility. Most importantly, Godwin pairs his section on necessity in \textit{Political Justice} with an argument for benevolence. Human beings are “mechanical,” Godwin argues, but their need to accompany action with thought separates them from Hobbes’s “automatism”; they are capable of using imagination to project the consequences
of their actions for other individuals and of choosing the greatest good regardless of personal appetites. The capacity to act with benevolence reverses the political implications of necessity and destroys the case for government through fear. The complex emotional components of character motives in Godwin’s fiction, especially the novel’s sentimental conclusion, are manifestations of this new politics of causation.

The innovations of *Caleb Williams* not only reevaluate pedagogical methods along necessitarian lines, but in doing so support Godwin’s wider political argument that monarchies destructively educate their subjects. The 1795 preface to *Caleb Williams* makes explicit the novel’s “purpose” to refute Hobbes by providing “a general review of the modes of domestic and unrecorded despotism by which man becomes the destroyer of man” (55). Man is not by nature in a state of war against all; he “becomes” the destroyer of his neighbor as social hierarchies violently restructure his psychological makeup. Tragically, a gentleman’s education transforms a benevolent man like Falkland, who impulsively risks his life to save Emily from her burning home, into another Alexander the Great, scheming to sacrifice thousands to preserve his name for posterity. As things are, education is destructive—which implies an alternative possibility, where individuals might cooperatively instruct one another with voluntary benevolence in Godwin’s necessitarian notion of virtue.

**Contemporary Reception of *Caleb Williams* as Necessitarian Fiction**

While Godwin’s own literary circle may have understood the pedagogical strategy of necessitarian fiction, many of his readers did not. They expected a novel that teaches

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172 In *Caleb Williams*, the insatiable appetite that plagues Caleb is love, which makes him dependent on other people for his emotional well-being. Caleb curses nature that “endowed me with wishes insatiate, and sunk me in never-ending degradation!” (354). His insatiable wish for companionship and love make him unable to live alone. His benevolence endures and torments him in his isolation.
hierarchically, through cautionary tales and exemplary characters. Nowhere is the departure of *Caleb Williams* from established didactic conventions more clear than in its critical reception. When the novel first appeared in 1794 (without Godwin’s 1795 introduction), the *Monthly Review* hazarded two possible morals for what it called Godwin’s “fable,” which separated out a “higher object” from the interference of Godwin’s “favorite opinions.” First, “the fictitious narrative seems to have been written chiefly for the purpose of representing, in strong colours, the fatal consequence of suffering the love of fame to become predominant,” and second, “A farther object in this story appears to have been to exhibit an example of the danger of indulging an idle curiosity, merely for its own gratification.”¹ seventeenth-three The admittedly puzzled reviewer grasps at the two flaws that drive the main characters: curiosity and love of reputation. But there is something not quite satisfactory, even to the reviewer, about phrasing the moral of *Caleb Williams* in these terms. The first half of the novel is devoted to the educational background of Caleb and Falkland, explaining why Caleb is curious and how Falkland “imbibed the love of chivalry and romance” in Italy (67).¹ seventeenth-four By the time they have a serious confrontation, however, the question of how each will act is less of a moral quandary than a foregone conclusion.

The reception of *Caleb Williams* suggests that for a novel of this period to have a moral the characters must reap what they sow. The *Analytical Review*, therefore, finds the novel disorganized because of the way consequences fail to affect the characters responsible:

We will not enter more minutely into the discussion of a plot so imperfect; or inquire into the degree of probability, that such characters should act as they are made to do. It does not appear to us, that any entire moral pervades this narrative. The author’s occasional deduction, on the state of society are but too well founded. The character of Tyrrel is not

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¹ seventeenth-four All references to *Caleb Williams* are cited in text as *CW*. 
very uncommon, but his fate teaches us nothing. Falkland is extremely singular in his motives, his actions, and his wretched end; and this singularity pervades and governs the adventures of Williams. The adaptation of the causes to the effects, the merits or demerits of the personages, and the whole contexture of the story, apply too little to any thing within the ordinary course of observations, to afford any general moral.\textsuperscript{175}

The novel fails, surprisingly, in what the reviewer calls its “Adaptations of the causes to the effects” because there is no poetic justice to tie actions with consequences, which is quite different from the accurate psychological causality that concerned Godwin. The shortcomings of Tyrrel, who tyrannizes his sister to death, teach us nothing because his fate—he is randomly murdered by Falkland—does not follow from his poor choices. The reviewer expects Tyrrel to provide an edifying example of how vice produces its own punishments, but Tyrrel does not live to regret the cruelty that produces his isolation. Nor does his death avenge Emily, since he is killed privately, impulsively, to soothe Falkland’s wounded pride. He is merely the formative event that makes Falkland a virtuous murderer.

Remarkably, even though the reviewer acknowledges agreement with Godwin’s political observations, he finds no moral because the novel’s events are so “singular” that they cannot be generalized and applied to something readers might actually face. According to Godwin, however, necessitarian novel experiments are useful for the insights they provide into how individual minds respond to external political influences. The accuracy of these insights depends on whether the fictional narrative attributes to mental development the same causal regularity as the natural world, regardless of whether the scenario in which the characters are placed is itself highly unusual. Godwin frankly confesses his traffic in unusual scenes while insisting on the applicability of \textit{Caleb Williams} to real life. In the preface to his first edition of \textit{Fleetwood},

\textsuperscript{175} Graham, \textit{Godwin Reviewed}, 84.
Godwin offers his new novel, stocked with commonplace events, to his former critics as a “dish agreeable to your own receipt,” while conceding that “Caleb Williams was a story of very surprising and uncommon events which were supposed to be entirely within the laws and established course of nature, as she operates in the planet we inhabit.” Unusual events are not unnatural events, provided they submit to scientific regularity.

The critical reception of Caleb Williams suggests several ways in which reviewers differ from Godwin in how they imagine readers gain instruction from novels. Reviewers recognize moral content related to domestic affections and personal choices and separate these lessons from the author’s presumed political or philosophical messages. They give less weight to the expansive personal histories of characters, which for Godwin are central to the reader’s development of a necessitarian perspective on characters’ actions. Reviewers value symmetry between a character’s actions and the consequences visited upon that character, and they consider this symmetry vital to the novel’s cohesive vision, its realism, and its applicability to a reader’s life; whereas Godwin values accurate psychological causation, which because it conforms to the laws of the natural world, provides universal instruction about how the minds of all readers are formed.

Godwin anticipates his critics’ confusion within his novel through his exemplary character, Laura, who misreads Caleb’s life story. Laura cannot accept a world of complex morality, where a virtuous man like Falkland might also commit a horrible crime, or where vice is not punished and virtue rewarded. She finally refuses to hear Caleb’s defense because she reveres Falkland as the man who selflessly rescued her father from ruin. Addressed by Caleb as “admirable, exemplary Laura,” her position on moral clarity requires that she reject Caleb when she learns he is the subject of Gines’s Newgate biography (CW, 403). While a disreputable

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176 Godwin, Fleetwood, 13.
publication might seem unlikely to defeat months of established goodwill, it is unclear whether Laura finds Caleb a threat because she believes Gines’s story or because the existence of two plausible narratives threatens her with moral ambiguity. In Caleb’s youth, he recalls, he believed that “[i]nnocence and guilt” were “opposite to each other” (243). Laura now reflects back the beliefs Caleb overturned with experience. “The good man and the bad are characters precisely opposite,” she tells him, “not characters distinguished from each other by imperceptible shades.” She interrupts Caleb’s pleas of innocence with, “I do not wish to have my understanding perverted, and all the differences of things concealed from my apprehension” (404). In their debate, Laura takes Richardson’s position of moral clarity, while Caleb insists that characters like himself are morally complex.

Since Caleb and Laura are both instructors of Laura’s children, they represent two pedagogical models. Laura believes what is “recorded in books,” that “ingenuity” cannot “subvert the distinctions of right and wrong” (256-57). What especially bothers Laura is the possibility that “words” influence how we assign moral responsibility. “True virtue refuses the drudgery of explanation and apology,” she insists, “True virtue shines by its own light, and needs no art to set it off,” and she concludes, “Virtue, sir, consists in actions, and not in words” (256-57). She mistrusts Caleb’s verbal skills as a sign of deceit instead of a tool of analysis. Confronted with Laura’s expectations of moral transparency, Caleb is forced to fully recognize that fiction plays a role in his confessions as much as it does in Gines’s biography. “Exemplary” Laura occupies a position rejected by the novel and voiced in order to clarify Godwin’s theory of fiction, where conjunctions only become meaningful through fictional narration.

One reader who understood the pedagogy of *Caleb Williams* was Godwin’s friend, Mary Hays. In their correspondence, Hays tells Godwin that she considered him the ideal reader of her
life and her novels, because they both have a necessitarian approach to consequences: “It is 
because you are a philosopher that I can unfold my mind without reserve or apprehension: you 
are able to trace, & to investigate, the sources of its disorders & its mistakes.”177 Where Godwin 
speaks about conjunctions, Hays substitutes “tracing,” a phrase that evokes both writing and 
causality.

Hays comments astutely on the didactic function of novels, using *Caleb Williams* as her 
ready example for how writers should instruct readers through fiction. Her letter to the *Monthly 
Magazine* “On Novel Writing” that appeared in September 1797, opens by reviewing Samuel 
Johnson’s *Rambler No. 4*, in which he praises the novels of his friend, Samuel Richardson, for 
their exemplary characters, and questions whether Henry Fielding’s morally mixed characters 
encourage the wrong kind of emulation. Johnson’s view is that espoused by Laura in *Caleb 
Williams*. Differentiating virtue from villainy, while engaging affection for the one and disgust of 
the other, is what distinguishes the novel as an instructional tool over quotidian experience. Mary 
Hays respectfully disagrees; she criticizes the aloof perfection of Richardson’s Clarissa and 
argues that disgust prevents readers from developing humility and sympathy based on their 
common human frailties—what Fielding claims to cultivate through mixed characters. By using 
*Caleb Williams* as her prime model, Hays positions Godwin as an heir to Fielding, despite 
similarities between Caleb, an innocent fugitive driven from his home, and that other persecuted 
flight-risk, Clarissa Harlowe.

Hays and Godwin attach political signification to fictions that “trace” or explain causality

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and Miscellaneous* (1793) just months before she first read *Political Justice* and corresponded with William 
Godwin. Necessity was central to her theory of novel writing and education, making her a convenient ideal reader 
who “gets” Godwin’s method. Elizabeth Hamilton’s *Memoirs of Modern Philosophers* features two characters based 
on Godwin and Hays who spout necessitarian cant, indicating that a novel-reading public was expected to know 
their metaphysics (or not get the humor).
because theories of causation are also theories of power. 178 As Hume argues, the association of ideas”—that is, the fictions we create in our mind to explain what we experience—is the “source of all the relations of interest and duty, by which men influence each other in society, and are plac’d in the ties of government and subordination.”179 In short, power relationships depend on custom to appear natural. Kings, masters, and husbands do not have the power to command others because they are superior, or even because hierarchy is necessary for social order; they command because subjects and servants, who are accustomed to observe servants do what masters tell them, generalize from their limited sphere of observation that servants must obey their masters. That is why Godwin argues in Political Justice that submission out of respect to a person’s rank is more harmful to society than submitting to force, because at least force exposes that only violence (not superiority) maintains oppression. 180 Following Hume’s example, Godwin credits custom and habit with establishing everything from our religious beliefs and experimental inferences, to our assumptions about the power dynamics between human beings—that “the far greatest part of our reasonings, with all our actions and passions, can be deriv’d from nothing but custom and habit.”181 Causal fictions complete to establish hegemony; narrative is a tool, therefore, for revising what is possible. Caleb can change places with Falkland by authoring a different story about power: “At present,” Caleb muses, “he appears to be the persecutor, and I the persecuted: is not this difference the mere creature of the imagination?” (412). 182

178 “The several instances of resembling conjunctions lead us into the notion of power and necessity” (Hume 165). Hume is following a connection between causation and power shared by Locke’s chapter, “On Power,” which addresses freedom of the will.
179 Hume, Treatise, 12.
180 Godwin, Political Justice, 1:49.
181 Hume, Treatise, 118.
182 Cf. Evans, “Shelley, Godwin, Hume.” Evans gives a cogent explanation of Hume’s philosophy and its influence on Shelley and Godwin, but concludes “There is none of Hume’s skepticism, however, in Godwin or Shelley. . . . There is no evidence of Godwin’s awareness that in using Hume’s reasoning and illustrations he had completely
Mary Hays: Necessity against Exemplarity

If Elizabeth Hamilton’s satirical portrait of Mary Hays as Brigetina Botherim in Memoirs of Modern Philosophers is any indication, Hays’s necessitarianism contributed to her reputation as an aggressive bluestocking. Bridgetina is an avowed necessitarian who makes impetuous, random decisions that celebrate her disregard for accepted patterns of behavior. At one point, she abandons a house full of guests that she invited in order to visit a philosopher (representing Godwin) whom she has just learned is in the neighborhood. In response to her mother’s objections, she splices from Political Justice, “And do you think I am now at liberty to remain here? I wonder, mamma, how you can speak so ridiculously? Have I not told you again and again, that I am under the necessity of preferring the motive that is most preferable? The company, if they are not very ignorant indeed, must know that my going instantly to Mr. Glib’s is a link in the glorious chain of causation, generated in eternity” [Emphasis original]. By applying philosophical necessity to such quotidian events as a dinner party, Bridgetina unwittingly reveals the absurd grandiosity behind Godwin’s representation of individual lives as part of a historic, cosmic system of causation. Her impulsive irregularity reflects the position of Scottish common sense philosophers that necessity is merely theoretical. The life of a “practical fatalist,” pronounced James Beattie, would be “a series of adventures, more ludicrous, or at least more irrational than any of those for which the knight of La Mancha is celebrated.”

By feeding Bridgetina bits of decontextualized Godwin, Hamilton’s novel ignores that Hays was no passive Godwin groupie. She actually published on necessity before she knew reversed Hume’s fundamental point of view” (639-40). On the contrary, a letter from Hays to Godwin dated December 1795 indicates that both Godwin and Holcroft embraced Hume’s skepticism of causation when the three authors met over tea on November 24, 1795. For Hays’s letters to Godwin, see Brooks, Critical Study, 186-87.

Godwin or read his *Political Justice*. Both of her novels, *The Memoirs of Emma Courtney* and *The Victim of Prejudice*, are self-reflexive about how novels teach, and they represent readers who learn from texts and apply necessity in practical ways.

Her epistolary novel, *Emma Courtney*, is based on the author’s actual correspondence with William Frend, to whom she confessed her love, and Godwin, with whom she discussed her intellectual ideas and confessed her emotional frustration following Frend’s rejection. The novel is purportedly a series of letters collected by Emma for her adopted son, Augustus. Like Emma (and Hays), Augustus suffers from single-mindedly pursuing a person who refuses his love. The conventions of didactic literature inform us that if Emma’s voice is a mask for Hays’s advice, then Augustus stands in for the reader, whom she cautions to avoid her mistakes—or so one would assume. But what prompts Emma to send Augustus her letters is the news that he has already repeated Emma’s error, so the letters are too late to function as a cautionary tale.

Emma’s narrative is less concerned with how to avoid her errors, than with how to recover from them. The first portion of Emma’s letter are written to Mr. Francis (a figure for Godwin) to whom she turns for advice while recovering from the malaise of unrequited love. At

185 Mary Hays wrote to Godwin for the first time in 1793 to ask if she could borrow a copy of his *Political Justice*, which is three months after the publication of *Letters and Essays*. These dates are common knowledge, but the independent philosophical traditions of these two writers is not usually emphasizes. There is some indication that Hays was familiar with associationism and necessity in her first publication, *Cursory Remarks on an Enquiry into the Expediency and Propriety of Public or Social Worship: Inscribed to Gilbert Wakefield* (1791), which defended public prayer against Wakefield’s previously published objections. She does not think that prayer can alter God’s plans, but values regular prayer for the habits it forms:

> And though such devout aspirations can give no information to an Omniscient Being, nor alter his plans, originally designed for the greatest general and individual good; yet it is possible, that they may be links in the great chain of causes and effects, and by giving rise to pure and pious sentiments, be ultimately productive of consequences the most beneficial. . . . even a mechanical devotion, a mere performance of external duties . . . may have a restraining effect upon the conduct . . . when through the medium of the senses, repeated impressions have been made on the brain, good or evil habits acquire an ascendancy not easily to be eradicated; words must first be taught, and ideas will afterwards cling to them. (10)

Hays defense of prayer as a mechanical exercise might seem unusual for a Protestant tradition, but it shows the degree to which Hays approaches ideas or abstractions through the body. Even religious belief is grounded in repeated actions.
first Mr. Francis responds to Emma’s confessions by blaming Emma for allowing herself to love and pursue a man who fails to declare his interest. All of her misfortunes, he insists, are “assiduously, uninterruptedly, provided by yourself,” because Emma refuses to control her character and her heart. But Emma rebukes Mr. Francis, arguing that she is not the agent of her actions or her circumstances. Francis has mistaken his role as her reader. She corrects him, “To what purpose did you read my confessions, but to trace in them a character formed, like every other human character, by the result of unavoidable impressions, and the chain of necessary events.” Her tracing process does not reveal places where Emma could have chosen differently, as Francis would like to think; it confirms the “unavoidable” and “necessary” influences in her childhood.

Emma’s correction of Mr. Francis reminds her son, Augustus, that her life story is a model for how to learn from the past by creating a narrative arc connecting remote experiences from early life with adult moments of crisis. Emma tells Augustus to search her letters for “the effects” that Emma’s experiences “have produced on my mind. . . . While I trace them, they convince me of the irresistible power of circumstances, modifying and controlling our characters, and introducing, mechanically, those associations and habits which make us what we are; for without outward impressions we should be nothing” (10). Couched in the language of “habits” and causation, the kind of instructive reading that Emma recommends to Augustus and Mr. Francis should be familiar by now as the same pedagogical strategy I have outlined in Caleb Williams. The novel closes with a description of Augustus’s early education and Emma’s innovative parenting, providing the groundwork for him to continue where she concludes by tracing his own life, just as readers come away from Hays’s novel with the ability to trace their lives.

186 Hays, Emma Courtney, 147. Hereafter cited in text.
Hays’s second novel, *The Victim of Prejudice*, interrogates how novels instruct readers by targeting Samuel Richardson through Mary Raymond, a heroine who confesses, “my virtues and my sufferings” are “alike unrewarded.” (Her life reflects neither *Pamela*, subtitled “Virtue Rewarded,” nor *Clarissa*. Whereas Emma Courtney is a flawed heroine who learns to value the wisdom gained by hard experience, Mary Raymond is an exemplary heroine whose prudent choices and dutiful sexual self-regulation utterly fail against that grand conspiracy, “prejudice.” She writes her story while in prison, placed there by the man who raped her, where she seeks to “beguile my woes by tracing their origin and their progress” (*VP*, 168).

The necessitarian account of Mary Raymond’s life, “traced” by herself, contains a framed cautionary tale: the epistolary confessions of Mary’s mother, a fallen woman who murdered her seducer. *The Victim of Prejudice* plays these two ways of reading and writing against one another. Like a good novel reader, Mary Raymond attempts to use her mother as a negative example to guide her behavior, but she finds that her choices are limited by circumstances beyond her control. Mary writes, “the recollection of my misfortunes lost its poignancy when I reflected that by no prudence could they have been averted, nor could any activity have served to repel them. In no one instance had I been wanting to myself, but, passive and helpless, a victim to circumstances over which I had little power” (*VP*, 131). Her mother’s cautionary example proves simply irrelevant in the face of harmful social norms: men can ruin or rape women with impunity; wealthy men are unassailable by the law; and women have few employment options.

If we read the mother’s cautionary tale as an inherited didactic genre, which Mary Raymond finds inadequate for organizing her own narrative, then its failure to prevent the daughter’s ruin represents Hays’s frustration with her own literary tradition. Rather than pretend that women can simply choose virtue in a vacuum, Hays prefers necessity, which ties individual
behavior to social environment. A recurrent theme in Hays’s writing, Mary Raymond’s tragic repetition of her mother’s fate despite her ideal education demonstrates the futility of reforming moral behavior on an individual level in an unreformed world. Mary makes this complaint explicit: “While the practice of the world opposes the principles of the sage, education is a fallacious effort, morals an empty theory, and sentiment a delusive dream.” (VP, 33)

Like Hays, who reworks Richardson’s Clarissa, Mary Raymond discovers an unexpected moral in her mother’s story. She learns that morality is not reducible to individual choice: “by enlarging the circle of my observation, though in the bosom of depravity, my understanding became enlightened: I perceived myself the victim of the injustice, of the prejudice, of society.” (VP, 66). Mary feels liberated by knowing that she is not responsible for her fate. However, Mary Hays’s reviewers tended to praise the mother’s confessions as the most instructive moment in the novel and complain that Mary Raymond’s story shows no correspondence between moral choices and consequences. Of course, that’s the point.

**Necessity and the body: Mary Hays and materialism**

Considering that Hays and Godwin agree on how readers might learn from biographical fiction, it may seem surprising that Hays uses Emma Courtney’s Mr. Francis, who represents Godwin, as a bad reader who fails to understand necessity. However, Hays embraced a different version of philosophical necessity that tends to emphasize the body over ideas. For instance, when Mr. Francis insists that even love, may be “subjected to the laws of investigation and reasoning,” Emma objects that to “argue with the wretch infected with the plague” will not “stop the tide of blood, that is rapidly carrying its contagion to the heart” (EC, 141). Where Godwin uses necessity to write a novel about psychological trauma, Hays uses necessity to write about
rape, illness, and violence. Although the bloody trauma of Hays’s novels can make them seem utterly depressing, Hays ultimately uses necessity to locate agency for women in education. Where Godwin uses Hume to find liberty in the imagination, Hays turns to Joseph Priestley’s Christian Unitarian necessity to find redemption through experiential education.

Hays rejects the latent Cartesian dualism that persists in Godwin’s concept of “reason” as a locus of agency or self-control over the passions. Derived from her education among the Unitarian community, Hays embraces a determinist materialism that makes the mind biological without resorting to gender essentialism. “This fancy of a naked, unembodied mind,” she argues in support of the body’s resurrection after death, “appears to me uncomfortable and cheerless.”

In a letter to Godwin, written a year before the publication of *Emma Courtney*, Hays confesses that she is a “materialist” since “man appears to me to be but of one substance,” meaning that Hays did not believe in a soul or mind separate from the body. A material mind explained, for Hays, how patterns of behavior establish themselves as part of the body itself through repeated actions that become habit or through customs we observe repeated by others.

Hays’s correspondence reveals that she disagreed with Hume’s skeptical substitution of association for causation, the position espoused by Godwin and Thomas Holcroft. Following a tea with Godwin and Holcroft in December 1795, Hays writes Godwin to continue a debate between the three authors on causation: “My philosophy will, I doubt, become sadly deranged if I must banish the terms & the ideas of cause & effect: my whole system of necessity, which I conceived to be founded upon a rock, begins to totter.” Although Hays mentions no specific texts

188 October 1, 1795, “I have said that I was a materialist & I would say so still if I knew what I meant: but, as I am very ignorant of the nature of matter, I will only say, that man appears to me to be but of one substance, capable of receiving from external impressions sensible ideas, successively formed into various combinations & trains, carried on, by means of sympathy & association with mechanical exactness, in an infinite series of causes & effects” (Brooks, *Critical Study*, 400).
or philosophers, she describes and rejects Hume’s idea of causation as merely an association of ideas, created by the imagination and existing in the mind. While Godwin presumably supported skepticism over tea, Hays objects that if there is no certainty of causation, then the natural world would not function. She continues,

Had I seen you for an indefinite number of times, follow’d by Mr Holcroft, I might have call’d you the antecedent & your friend the consequent, but, at the same time, this notion wou’d have been very different from what (by way of distinction) we call a physical cause & effect. (I shall get bewildered, you admit of no system of physics, I believe, you will make me, ere long, like the ancient pyrrhon’ics, doubt of the reality of my own existence, of matter & motion . . . ) . . . . If I, with design, stretch out my h& a thousand times a day, & repeat the experiment every day of my life, to grasp an unresisting object—this design, this invariable motion, & invariable consequence, seems to bespeak a real & necessary connexion, subject to fix’d laws, & which, however ignorant I may be of the nature of those laws or the generating substance, I think may, without impropriety be denominated cause & effect.189

Even if we do not observe or understand causation, argues Hays, it is safe enough to conclude there is a “real and necessary connexion” when the conjunction remains the same, time and again. Taking a practical approach, Hays refuses to question her senses or her material existence.

As a participant in the Unitarian community, Hays’s philosophical necessity was connected with Christian materialism. From 1791-1794, Hays had tea several times with Priestley and other Unitarians, while she studied with the Tutors of New College in Hackney. She read Priestley’s *Disquisitions on Matter and Spirit* and his editions of David Hartley and

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Anthony Collins, works she cites in “Letter to Amasia” in her pedagogical work, *Letters on Essays, Moral and Miscellaneous* (1793).\(^{190}\) She specifically praises “Priestley’s admirable preface to Collins’s equally excellent inquiry concerning human liberty” where Priestley attempts to reclaim necessity as a Christian concept.\(^{191}\) For Priestley, dualism is a Greek perversion of early Christianity that vilifies the body and denigrates women. These ideas remained attractive to Hays, who fell prey to the malignant literary tradition of demeaning women intellectuals by associating female authorship with misogynistic representations of women’s reproductive bodies.\(^{192}\) The Unitarian community, in turn, appreciated Hays’s writings on necessity. A copy of Hays’s *Letters and Essays* gifted to Theophilus Lindsay, co-founder with Priestley of the Unitarian church, produced a short letter of gratitude, in which Lindsay singles out her letters on necessity for praise: “The scarecrow doctrine of Necessity you have known how to strip of the horrid form, and to familiarize and make it easy, and I think to vindicate its truth. . . . In short, I like both your metaphysics and divinity.”\(^{193}\) All of this indicates that Hays’s necessitarianism, unlike Godwin’s, comes from a Unitarian tradition of Christian materialism that helps Hays put necessity to practical use in women’s lives.

While engaging with contemporary feminist intellectuals, Hays differs in her theorization of bodies as capable of thought as part of her practical feminism. Whereas Mary Wollstonecraft concedes the superior strength of men in order to defend the equal potential of the female mind, Mary Hays sees the female constitution itself as sculpted by male domination in intellectual and

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192 Taking advantage of her reputation, Charles Lloyd, a friend of Hays’s correspondent, Charles Lamb, fabricated a story about rejecting Hays’s advances. Elizabeth Hamilton’s portrait of Hays as Bridgetina Botherim in *Memoirs of Modern Philosophers* is typical in its depiction of a scrawny, grotesque figure, more of an intellectual follower than an originator, who is mocked and abused in her quest to secure a man who misconstrues her frank courtship. These satirical portraits seeped into the reception of Hays’s novels, as when *The Critical Review* dismisses *The Victim of Prejudice* as “an abortion of improbabilities, issuing from the frigid brain of a paradoxical sophist” (*VP*, 250).
political arenas. As Emma Courtney explains to Mr. Francis, “I disallow [sex] as a natural plea” for “weakness,” while “I admit it as an artificial, plea.” Women are weak because “character” is “modified by circumstances: the customs of society, then, have enslaved, enervated and degraded women” (39). Qualities, such as weakness, attributed to women naturally, are produced through education and reinforced across generations when young women observe weakness in women (and become accustomed to hearing women called weak) and, accepting weakness as natural, form habits that conform to their degraded self-image. Biological development includes a social feedback, whereby individual women become what they are told they are.

The shocking prevalence of explicit violence and bodily illness in Hays’s fiction is part of her project to expose how bodies inscribe the emotional and mental experiences of individual women as part of their very composition. Her work forces its audience to consider how patterns of domestic abuse and violence against women are interdependent with the failure to respect women as intelligent beings. According to the materiality of mind that Hays envisions, women who struggle to re-mould themselves against the grain of their ideological conditioning must endure the pain of a surgical procedure. After childhood establishes habits recorded in the flesh, reform and reeducation is a form of self-mutilation. The pain endured by women thus occurs in two stages, first during childhood and adolescence as girls form unhealthy patterns of behavior, and second as women restructure themselves while made to feel self-hatred for mistakes committed in consequence of their early conditioning. One reason that Hays dislikes exemplary women characters is that they teach women to hate themselves for their imperfections. Hays intercedes in this pattern of violence and self-destruction by suggesting that women view their actions from a much wider temporal and social perspective, a strategy that emerges from necessitarian philosophy.
In her writing, Hays works through the implications of necessity and materialism for how women might assert control over their lives, despite a lifetime of exposure to cultural influences that weaken their mental powers and their constitution. Taking seriously the control exerted by social influences, which become locked in individual bodies through experiential education, Hays paints a dismal prospect of the possibilities for any one woman to transcend the limitations of her historical moment, but she does so in order to group women together into a history of heroic resisters whose painful lessons create the horizon of possibilities for the next generation.

Hays draws from Priestley and Hartley the promise that physical suffering is a sign of redeeming transformations, in individuals over a lifetime and in humanity across history:

the God of Providence either subjected our minds to mechanical principles, or lead & governs us by the circumstances with which he has surrounded us; that his power implies his goodness; & that, after the struggle of the passions has unfolded our reason, we shall be gradually prepared for greater & still encreasing perfection.—That we ought to regard the vicious in no other light than we do the diseased, & that it is a part of the duty assigned to us to aid the general effort for improvement & restoration.¹⁹⁴

Hays makes the typical Enlightenment transition between personal education and humanity’s historical progress. As Emma Courtney’s experience demonstrates, “the struggle of the passions” is painful and violent but redemptive. Painful experience educates, improves, and restores.

Pain and violence permeate Hays’s writing as a sign of her materialist theories of education. Pain becomes “improvement & restoration” through the cross-historical, collective action of women. Throughout her writings, Hays mentions “victims” and “martyrs,” the latter distinguished by her choice to submit to violence publically rather than lend credence to the status quo by submitting to authority. In other words, a victim becomes a martyr only when she

publically chooses suffering over submission, transforming individual suffering into a meaningful lesson for humanity as a whole. Through victimhood and martyrdom, Hays considers how an individual woman’s actions are part of the collective thoughts and actions of other women.

**Victims and Martyrs: Hays’s theory of authorship**

“I will not see the name of my girl enrolled in the tragic list either of martyrs or of victims.”

—*The Victim of Prejudice*, 32.

The twin labels, victim and martyr, consistently appear throughout Hays’s corpus of writing. Both of Hays’s fictional works of the 1790s include “victim” in the title and refer to heroines as martyrs, while her biographies of women collected for young readers retell stories of women who maintain their integrity under persecution. Her six-volume collection, *Female Biography; or, Memoirs of Illustrious and Celebrated Women of All Ages and Countries, Alphabetically Arranged, Written for Girls*, includes the story of Protestant martyr Anne Askew, whose life Hays reinterprets as a form of feminist resistance. Askew’s biography clarifies how Hays associates martyrdom with female authorship, as well as how she uses violence against women to establish a tradition of female intellectual resistance.

According to Hays, Askew is thrown out of her home for “Her presumption in making use of her own judgment,” which “disgusted and incensed her husband.”


Askew is a threat because her willingness to express heretical beliefs challenges the authority of her husband by displaying her intelligence and independence. Askew travels to London, where Henry VIII (still Catholic) arrests her for heresy. Hays’s description of her torture contrasts Askew’s mental
stability with the angry men surrounding her, who are easily herded by priests and court politicians in their eagerness to maintain power:

[Askew’s] magnanimity, so worth of admiration, served but to incense her barbarous persecutors, who endeavoured by the rack to extort from her what she had refused to their demands. She sustained the torture with unshaken fortitude, and meek resignation: her courage, her youth, her sex, her beauty, failed to soften the hearts of the monsters which fanaticism had inflamed. Wriothesely, with unmanly and infernal rage, commanded, with menaces, the lieutenant of the Tower to strain the instrument of his vengeance: on receiving a refusal, he threw off his gown, and, maddened with superstitious zeal, exercised himself the office of executioner, and nearly destroyed the tender frame of the innocent victim. Anne, loosed at length from the horrid engine of their cruelty, with every limb dislocated, fainted with anguish. When recovered, she remained sitting two hours on the bare ground, calmly reasoning with her tormentors. Again, by flattery, sophistry, and menaces, they sought to move her from her purpose, and once more were confounded by her courage and resolution. Unable to stand, she was carried away in a chair, and pardon and life again offered to her, upon condition of recanting her declarations, which having still refused, she was condemned to the stake.\textsuperscript{196}

While “unmanly” Wriothesely tears off his clothes and cannot restrain his anger, Askew reasons with her torturers. In Hays’s account, Askew provokes the authorities specifically because her intellectual competence and “her courage and resolution” violate gender norms: “The sex and age of the heretic aggravated, rather than softened, the malice of her adversaries, who could not pardon in a woman the presumption of opposing arguments and reason to their assertions and

\textsuperscript{196} Hays, \textit{Female Biography}, 1:110.
dogmas.” By including Askew’s biography alongside those of Catholic women like Mary Queen of Scots, who also earns praise for following her conscience, Hays clarifies that her histories reinterpret religious and political martyrs as advocates for women. Like many Clarissa-like novel protagonists in fiction by Wollstonecraft, Charlotte Smith, and Elizabeth Inchbald, Askew is betrayed, imprisoned, and her body assaulted to extort concessions by the very men who should protect her, thus exposing the myth of the benevolent patriarch.

Martyrdom in Askew’s biography exemplifies Hays’s theory of authorship and reception. An author while in prison, Askew writes “a confession of her faith, and an attestation of her innocence,” which she entrusts to a visitor for preservation, implicitly empowering a biographer like Hays to interpret her work within a wider context. Passing along knowledge learned through pain is, likewise, the motive for both of Hays’s novel heroines to compose their autobiographies. Mary Raymond records her tale in prison “to beguile my woes by tracing their origin and their progress,” taking comfort in the evidence that a “fatal mechanism” produced her downfall despite her innocence (VP, 168). Mary first addresses her manuscripts to the next prisoner to inhabit her cell, while her last words composed in prison exclaim, “Posterity, receive my last appeal!” (VP, 168) Emma Courtney, who concludes that “character” is “formed” by “unavoidable impressions, and the chain of necessary events” learns these determinist principles “at a dear rate—at the expense of inconceivable suffering.” (VP, 147) She willingly revisits her “painful mistakes” and “sufferings” so that her life can contribute to a larger “science of mind” that will explain the education process (VP, 9). Tracing one’s development grants agency, therefore, only when lives are made public, through authorship.

197 Hays, Female Biography, 1:108.
198 Hays, Female Biography, 1:110.
The martyr status of Hays’s novel protagonists, Mary and Emma, depends on their ability to join their actions to a larger, trans-historical reform movement through the autobiographical process of “tracing consequences.” However, whether these women are recognize as martyrs, as opposed to victims, rests on their future audiences, who are called to read a larger significance onto individual suffering. This distinction places less importance on the victim’s passivity, as opposed to the martyr’s conscious choice to suffer violence rather than abandon principle to force. By leaving their status as victims or martyrs dependent on writing and reception, Hays develops a mythos of persecuted women working trans-historically to overcome abuse.

Hays makes individual women represent communities by linking their bodies with the body politic. She establishes a correspondence between how the individual body is constituted by habitual associations and formed in response to customs, and how society maintains vestigial practices through customs and institutions. Hays’s writings are brim full of materialist analogies that compare self-improvement and political reform to changes in the body. Her “Thoughts on Civil Liberty,” for instance, compares violent revolutions to a diarrheic cure that might kill: “The body politic of Europe in general, seems at present like the body natural; when struggling to expel offensive and morbid humours; the convulsive efforts threaten more immediate danger than even the lurking mischief, and there is reason to dread lest the patient expire under the operation of the powerful remedy.”199 The body politic and biological bodies reflect, in their construction, the entirety of their experiences, education, and history. Hays compares these experiences to a sickness or poison in the body, something foreign from without that is strangely part of us. We are composed, entirely, of our past. (After all, personal identity, from Locke to Godwin and Hays, is a matter of establishing continuity across time.) Since people are always in flux, adding to their associations, the body is in a constant state of conflict with itself. Change

199 Hays, Letters and Essays, 19. This passage precedes a quotation from “the good Dr. Hartley.”
requires biological violence. As Mary Raymond remarks, “Human life has not unaptly been compared to a warfare” (VP, 37). Hays’s novels present two sides of the struggle for change: Emma Courtney, whose education is seriously flawed, fights against her socially constructed weaknesses, while Mary Raymond, who receives the ideal education Emma advocates, wards off invading prejudices that attempt to reconstruct her body.

As an author, Hays experienced the pain of publicizing private suffering. She admitted to Godwin that she would not invite personal suffering for the public good: “I should shrink from the idea of a revolution, for I want sufficient courage to claim the crown of martyrdom (and those who suffer in endeavouring to benefit others, whatever be the cause, are unquestionable martyrs).”200 Her sense that authorship is a kind of martyrdom reflects the reality among radical English writers after the Reign of Terror, when the reading public abandoned the reform movement and became increasingly hostile to their political fiction. Amelia Alderson Opie, who was once friends with Godwin, admired Hays’s willingness to dare public disdain in this climate. She wrote Mary Wollstonecraft in December 1796, “I am delighted with Miss Hays’s novel Emma Courtney I would give a great deal to have written it, tho’ as society now is, it is something to be capable of admiring it”201

Hays’s concept of authorship as martyrdom promises redemption, however, by reaching beyond the present moment. In her concluding letter to young Augustus, Emma remarks that tracing her life is “painful” and “humiliating,” but she believes it will heal “the constitutions of society. . . . reformation dawns, though the advance is tardy. Moral martyrdom may possibly be the fate of those who press forward, yet, their generous efforts will not be lost.” Posterity will celebrate those who “trace, to their springs, errors the most hoary, and prejudices the most

venerated” (VP, 196). Like Askew, Mary, and Emma, Hays saw herself as writing, in part, for future generations, when her ideas would be sympathetically received. Her Female Biographies are dedicated “more especially to the rising generation, who have not grown old in follow, whose hearts have not been seared by fashion, and whose minds prejudice has not yet warped.” Only by reaching girls before they adopt established customs can Hays reach a sympathetic audience that might benefit from her writing.

CHAPTER 4

The Mechanics of Education / Education of Mechanics

“Very soon I was obliged to lay aside the alphabet, that first torment of youth; he felt no interest in those dead signs; he would have nothing but things, or pictures of things.”
—Johann Pestalozzi (describes his experience teaching a three-year-old child) 203

Connections between natural philosophy, mechanics, and literacy reach far beyond a narrow circle of determinist educators and novelists. By the early nineteenth century, a variety of education systems consider the regular laws of mechanical philosophy in some sense analogous to the mind’s slow unfolding, according to its own regular laws. These systems promote using objects to, at once, “exercise” children’s “bodily faculties” and “excite their intellectual faculties,” priming the body with ideas accumulated from the child’s immediate environment, before organizing these through spoken language and, finally, representing objects symbolically through writing. Without activated, developed mental faculties, children’s minds lie dormant, unable to respond with curiosity to the more rigorous and abstract demands of book learning.

Pulling together diverse evidence from mechanics textbooks, Parliament debates, and treatises on Pestalozzian and Monitorial methods, this chapter investigates a distinct education goal that I have referred to as “mechanical literacy,” or children’s capacity to read themselves in relation to the regular systems in which they participate. My concept of mechanical literacy revises how we think about the relationship between machines and education. Not only was “mechanics,” in a literal sense, a valued component of any nineteenth-century education curriculum (both as a branch of natural philosophy and artisan skill), but “mechanical literacy” (in the sense that Caleb connects his “mechanical turn” with “natural philosophy”) includes the

203 Biber, Dr. Henry Pestalozzi, 175. Biber quotes Pestalozzi’s account of his teaching experiences.
ability to read social systems—economics, education, government, and trade—which in their regularity (and self-regulation) resemble machines.

Furthermore, education itself was celebrated as machine. As anxieties rose over the effects of repetitive labor on worker intelligence, education became the machine to fix all machines. Supporters of the German educator, Johann Heinrich Pestalozzi, or of Andrew Bell and Joseph Lancaster (who invented Monitorial schools), describe these educational methods as mechanical systems that organize classrooms and lessons [figure 14]. Depending on whether the instruction method or the child is mechanized, labeling education a “machine” is one moment a compliment and the next an insult. One proponent of Pestalozzi, for example, favorably contrasts his system against Monitorial schools. “Pestalozzi awakened in one child a consciousness of his powers, and a tendency to mental self-activity” then uses the child “in awakening other children,” whereas “Bell and Lancaster” merely “drill one child through an artificial machinery of lifeless tasks, and the child, so drilled, they employ to drill others in the same manner.” He exclaims passionately against the empty memorization in Monitorial classrooms, “Oh, that men would not harden their hearts and their heads by the repetition of hollow sounds!” Instead, instructors should follow, like Pestalozzi the “unalterable nature of things.”204 Yet this very same pamphlet, two pages later, quotes Pestalozzi on the origin of his system in “the existence of certain physical and mechanical laws, to which our mind is subject in the receiving and fixing of external perceptions” to which his friend, Mr. Glayre, responds, “Vous voulez mécaniser l’éducation.” [You want to mechanize education.] Pestalozzi readily agrees, but specifies what he means by mechanism: “my intention was to bring the different means of education and

204 Biber, Dr. Henry Pestalozzi, 170-71.
instruction into regular courses, adapted to the nature and progressive development of the human faculties; and taking the term ‘méchaniser’ in this sense, he certainly was quite right.”

What Pestalozzi intends by “mechanism” is here commiserate with organicism. His great “secret of education,” Pestalozzi confesses, is to teach the child “in harmony with, the measure and character of the powers already unfolded in him.” The Reverend Mayo, often credited with popularizing Pestalozzi’s ideas in Britain during the 1830s, describes Pestalozzian education as “essentially organic” like “a plant” that “grows by the continual expansion of those organs which lie folded up in its germ.” Mayo’s contrast between a plant and a stone, which grows externally, suggests a possible line of influence between Pestalozzi’s ideas and Samuel Taylor Coleridge’s mechanical and organic growth. Within education discourse, however, the dangers of mechanization or repetition are superseded through positive machinery, and all of these machines concern organic bodies.

If anything, modern scholars have asserted a binary where, historically, educators were much more nuanced. One “Irish Traveler” who visited Pestalozzi and published his system carefully negotiates the multiple meanings of “mechanical” as he lays out Pestalozzi’s method for teaching math:

His Intuitive Arithmetic is, in fact, more or less mechanical; but it is a species of mechanism absolutely necessary, because it has for objects merely abstract numbers, which, not existing in nature, require some mechanical representation to convey to our minds a precise and determinate knowledge respecting the units that compose any sum; and it rests upon the idea that our natural faculties can only developed by the impressions which our senses receive from external objects. But it is not, at the same time, the

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205 Biber, *Dr. Henry Pestalozzi*, 173.
mechanism of a machine whose construction remains unknown to the person who uses it; it operates with force on the soul. . . . As soon as a child, by means of intuitive calculation, has obtained a clear and distinct conception of unity, all mechanism ceases. In fact, the blind mechanism of the mind can only consist in the vain repetition of rules and words not understood. 208

The Irish Traveler approves of mechanism when it means providing objects that make abstract concepts available to the senses. And he admits that our “natural faculties” function mechanically. The child is mechanized, however, only so long as the “construction” of the “machine” is “unknown” to him. Pestalozzi uses the mechanism of objects to give children “a clear and distinct conception” of how everything they learn fits together. This privileged viewpoint is precisely what I mean by mechanical literacy. Those who can read machines can navigate them; no longer mechanized, they control the physical world by commanding machines.

**Mechanics as the mind’s preparation for reading**

One of the earliest and most influential proponents of these ideas, Elizabeth Hamilton in *Letters on Education* (1801) outlines a plan of instruction organized, not by subject, but according to a child’s cognitive development. Combining Dugald Stuart’s Scottish “common sense” with the Edgeworths’ practical education, she introduces mothers to the philosophy of mind usually reserved for men by suggesting practical applications in the nursery. Alluding to her uncharacteristic public support for female philosophy, the *Monthly Review* cannot resist poking fun: “Miss H. will perhaps alarm many good mothers by her abstract notions and expressions; and the energy of mind, which is here required to be called into action, sometimes borders not a little on that quality which the author herself has known how to satirize in modern

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208 Pestalozzi, *Sketch of Pestalozzi’s Intuitive System*, 45-47.
philosophers." Anticipating such criticism, Hamilton promises not to impose “nice subtleties of logic or metaphysics,” yet she calls upon mothers as “rational creatures” to embrace difficult studies, for “the woman who would educate her children with success, must begin by educating herself.” Hamilton rejects determinism yet arrives at the same conclusion as Priestley, Hays, or Godwin, on the importance of early education through the senses and the correlation between a child’s mind and its physical environment. Because a child is no “mere automaton,” she argues, the infant mind gathers perceptions even before the child speaks or reasons, which means that parents should direct the mind’s “ever-active principle” from infancy through object learning.

Hamilton argues against reading and memorization without training the senses through objects. Because children develop “perception” first, of all faculties, and “reflection” last, God has designed the world itself as “a school of virtue,” where “the objects that inspire delight are liberally scattered on every side.” By appealing to “the objects of sight and sound, before the mental faculties have begun to open,” mothers prepare their children’s mind for reading.

Hamilton dramatizes this argument through a sample dialogue on everyday things between Mrs. Z and her infant son. Notice how Mrs. Z conducts her child through various “faculties” (terminology borrowed from Stuart), beginning with perception, through attention, reflection, and judgment, thus capturing metonymically, in a casual nursery conversation, the entire mental maturation process that spans an infant’s early years:

209 “Miss Hamilton’s Letters,” Monthly Review, September, 1802, 55. This review is for a second edition of Letters on Education, which used Hamilton’s revised title, Letters on the Elementary Principles of Education. The reviewer’s comments refer to Hamilton’s Memoirs of Modern Philosophers, which satirizes Mary Hays as a necessitarian Quixote because she applies abstruse metaphysics to everyday life, yet in Letters on Education, Hamilton advises women to learn some metaphysical principles for practical purposes.

210 Hamilton, Letters on Education, 5, 9. Her Letters argue that women and men are equally intelligent and protests parents who would educate their daughters for “the seraglio.” She encourages mothers not to favor their sons: “Of all the prejudices inimical to the establishment of a sense of justice, practical and universal, I take the early distinction that is made between the sexes, from which boys acquire ideas of an inherent superiority, grafted on pride, and supported by selfishness, to be the most fatal” (173).


212 Hamilton, Letters on Education, 220.

“Here is a pretty box, mama; but it won’t open for all that I can do.”

“That box, my dear, won’t open by force; the lid is screwed on, and it must be turned in such a manner as to take out the screw. Observe. There—it is opened—now see how the part that fixes, is cut in the manner of a screw.”

“Oh, yes, now I understand it, for I remember what papa told me one day about the cork-screw, when I was looking at it: but I thought there was no use of screws, but to draw corks.”

“All screws are made upon the same plan, or principle, as it is called; will you remember that word?” . . . “A piece of furniture that is just by you, is made upon the principle of the screw; and if you will find it out, I will give you a kiss.”

“I see! I see! It is the stool on which my sister sits at the piano-forte. It turns and rises just like the lid of this box.”

Mrs. Z allows her son’s immediate curiosity about the box to direct their conversation (he asks how to open it); then she provides a general principle exemplified by this particular box lid (the screw), which allows a practical test of his judgment (the piano chair). As Hamilton explains, Mrs. Z “taught her son the properties of one of the principles of mechanics, in unscrewing his toy,” merely one example of how she guides his “accurate examination of every object that came within the sphere of their observation.”

And what is the long-term result? “Reading was taught with ease, and considered by the children in the light of a privileges, rather than a task.” Whereas this boy, Hamilton predicts, will one day thoughtfully analyze The Iliad, another woman’s child will struggle with reading and hate his lessons. “Viewing the subject in this light, I consider the multitude of little books

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that are now given to children at an early age, as so many destroyers of their faculties. If the conceptions have not acquired vigour by being exercised on material objects, before they are employed on those emotions which it is the business of fiction to describe, I greatly apprehend that they will never be cultivated to perfection.\textsuperscript{217} Children should only read books that provide “accurate ideas” of what they are developmentally ready to consider.\textsuperscript{218}

Like Godwin’s Caleb, Mrs. Z’s son combines curiosity with the work of his hands to acquire “natural philosophy” and literacy. Indeed, the connection between mechanics and literacy would be more dramatic for Hamilton’s audience, mothers whose nurseries may include the toy most likely used by Mrs. Z’s son: an alphabet, printed on round cards, and stacked in a cylindrical box with a screw-top lid [figure 15]. Mrs. Z’s son must, quite literally, learn mechanics to access his alphabet. I take Hamilton’s recourse to mechanics (the screw is a “simple machine”) to represent a broader skill-group, the capacity to manipulate the material world through the body, aided by tools. The infant’s capacity to grasp, explore, and observe, is his earliest manifestation of his uniquely human ability to conquer his environment by mastering the general principles of natural philosophy.

Mechanics was often the first branch of natural philosophy taught to children, and its uses were defined as the ability to act upon the physical world to create new objects as property. According to an opening advertisement in the perennially popular Pinnock’s \textit{A Catechism of Mechanics} for the subject’s importance,

\textit{MACHINERY} is now so extensively used in this country to abridge manual labour and produce results which are so much above the physical strength of man, that every attempt to elucidate its principles and develop its laws, cannot fail to enlarge the boundaries of

\textsuperscript{217} Hamilton, \textit{Letters on Education}, 113.
\textsuperscript{218} Hamilton, \textit{Letters on Education}, 113.
knowledge and demonstrate the advantages derived from the skilful application of mechanics. Machinery is employed in preparing for our use the gifts of nature, and in adapting to our convenience and comfort very many of her productions. The bread that we eat, the wine that we drink, the clothes we wear, the house we inhabit, the coach we travel in, the ship that brings us the merchandize of distant countries—are so many proofs of the utility of this science, which the genius of man has made his peculiar property.²¹⁹

Even mechanical knowledge itself is something owned or held as “peculiar property,” like the “gifts” of nature that it “adapts” for human “convenience,” the “labor” and “strength of man” that it supplements, and the products that it creates—products that we assimilate to our bodies as food, clothing, and transportation. An article from the S.D.U.K.’s *Penny Magazine* on machinery reinforces human dominance through mechanics over an environment of objects: “[Man’s] power is in his mind,” which “teaches him to subject all the physical world to his dominion, by availing himself of the forces which nature has spread around him. To act upon material objects he arms his weakness with tools and with machines.”²²⁰ Note that man’s power over “all the physical world” includes these prosthetic pieces of himself, the tools and machines that become part of his body. Mechanical skill has a way of radically distinguishing humans from the environment they dominate, only to collapse the distinction when mastery over objects overlaps with mastery over the self. Indeed, many mechanics textbooks teach simple machines together with human anatomy [figures 16 and 17].

Investigating objects prepares a child’s mind for literacy because it ensures that the world is in complete sympathy with the mind before language creates the complexity of representation. The main point of Pestalozzi’s determination to “unite labour to study” in his school is to

²²⁰ “Great Principle of Machinery.” *Penny Magazine*, 403.
stimulate children’s bodily and mental faculties into “spontaneous development,” which creates “a perfect agreement betwixt their internal thoughts and external objects,” a kind of intellectual honesty or accuracy. Just a few correct ideas, confirmed by direct experience, are far better than empty words that convey to a child no ideas. Language, or the “knowledge of a just and correct denomination,” is simply another level of comparison between object and representation.

Pestalozzi developed this system while working with poor and orphan children, who ordinarily learn by repeating lessons without really understanding the words. With such a limited sphere of experience, and faculties degraded by “privation and want,” the children could not connection their lives with the information they were required to repeat. To accustom his students to speak only what they understand, Pestalozzi instead began teaching with “those objects only which immediately encircled my pupils,” with what they actually know and can describe with certainty and accuracy, before gradually expanding their knowledge in concert with their experience. His object lesson question and answer school books for infants, published in Britain by Rev. and Elizabeth Mayo, ask children about their hands, then their bodies, followed by objects in the room, and proceeding outward towards increasingly abstract subjects [figures 18 and 19].

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221 Pestalozzi, Biographical Sketch, 41, 51.
222 Pestalozzi, First Exercises in Language, 12.
223 Pestalozzi, Biographical Sketch, 14.
224 Pestalozzi, Biographical Sketch, 16.
225 “In every branch of study the point de depart is sought in the actual experience of the child; and from that point where he intellectually is, he is progressively led to that point where the instructor wishes him to be. Thus he proceeds from the known to the unknown by a process that connects the latter with the former . . . he is lead by a course of analytical investigations of the knowledge actually possessed, to form for himself those intellectual abstractions which are in general presented as the primary truths. . . . For this purpose, real objects are presented to the examination of the younger pupils; the physical senses are trained to accurate perception, and the understanding is gradually led to generalize and classify the notices it receives through them” (Mayo, Memoirs of Pestalozzi, 26-27).
In the Pestalozzi system, reading and writing are based upon this foundation of practical knowledge, gathered through the senses. For instance, letters emerge from the child’s observation of “pure forms,” or the lines and shapes that compose the objects around him, so that the alphabet itself proceeds from what children “intuitively” learn through the senses. Children draw lines, circles, curves, etc., and they practice finding these forms in buildings, trees, food, etc. as the composite pieces of these objects, before they consider the same forms as the basic building blocks of the alphabet. Prior to teaching letters, Pestalozzi’s assistant, Buss, taught students what he called an “alphabet of intuition” [figure 20]:

[C]hildren ought to be taught to read all these different outlines, like words, and to designate all the separate lines, curves, and angles, by letters, in such a manner, that their combination may be expressed in writing, so as to comprehend the whole as perfectly as a word is spelt, by uniting the letters that compose it: that lines and curves ought to become an alphabet of intuition, and, by that means, the basis of a language by which the differences of all forms can be not only clearly understood, but expressed and defined by words, in the most exact manner.226

Numbers, too, should be avoided until children can perform math using what teachers today call “manipulatives,” or identical objects for counting. Early British Pestalozzian publications for teaching “number” contain odd drawings and charts with squares divided into sections. [figure] Ordinarily, students do not just look at these charts, which are for the instructors; rather, the teachers direct students on how to divide up their slates into regular pieces. Such exercises convey that all quantities are part of a whole and provide children with an intuitive grasp of factions prior to their symbolic representation with numbers, much as the “pure forms” lead to letters.

226 Pestalozzi, Biographical Sketch, 95.
For all subjects, Pestalozzi divides knowledge into these more basic composite pieces, which he makes directly tangible. Complex objects, movements, sounds, sentences, and so on, all become legible, as if the world itself is composed of alphabets. Even the children’s aerobic exercises are broken down into “the simplest exercises,” called “the alphabet of abilities,” which include “striking, carrying, throwing, pushing, pulling, turning, twisting, swinging, &c.”\(^{227}\) Apparently, students perform a sort of Pestalozzian yoga, moving through these basic motions “arranged in the order in which they follow each other practically, according to the structure of the human body.” These movements are an “apprenticeship of virtue” that develops a clear understanding of and control over the body.\(^{228}\) Such methods became prevalent in Britain, beginning in 1815, influencing infant schools and adult education in the mechanics institutes of the 1820s, and becoming general across schools for all classes from 1830 to the present.

**Mechanics as a Bridge between hands and head**

Teaching mechanics before (or in tandem with) reading and writing makes sense because mechanics is the branch of natural philosophy that explicitly spans body and mind. In textbooks, as well as in Richard Edgeworth’s chapter on “Mechanics” in *Practical Education* (1798), “mechanics” is the part of the natural sciences that addresses how physical objects move and interact, and how parts of the human body-machine work together on the same principles. Newton referred to this philosophical knowledge, which borders on geometry and mathematics, as “rational mechanics,” as distinct from the “practical mechanics” used by artisans in their workshops—a distinction that polices boundaries between social stations by excluding the practical knowledge gained through hand labor from the abstract knowledge of intellectual

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\(^{227}\) Biber, *Dr. Henry Pestalozzi*, 388.  
\(^{228}\) Biber, *Dr. Henry Pestalozzi*, 389.
laborer. Essays on the principles of mechanics celebrate an intellectual comprehension of natural forces, which permits the efficient manipulation of the material world to serve human comforts. Implicitly, this kind of knowledge is about organizing people as well as things, factory workers as well as factory equipment.

A casual surveying of natural philosophy textbooks indicates that the order of these lessons about the world roughly follows a child’s development from sensual creature, consumed with material needs, to an abstract thinker who investigates what he cannot touch. Applied to adults, workers (as mechanics) are stranded in an infantine stage of sensual learning, from which wealthier children emerge through an education that moves from manual to abstract thinking. Studying mechanics can provide this transition if the curriculum covers the generalizing or philosophical principles behind practical craftsmanship.

In books on natural philosophy, mechanics is often one of introductory sciences, preceding subjects such as astronomy, electricity, and magnetism, which border on metaphysics. Jane Marcet, who admired Edgeworth’s children’s literature, begins her *Conversations on Natural Philosophy* (1819, a ubiquitous schoolbook that features three female speakers) by explaining the definition of a “body” and “matter,” then exploring gravity and motion, then the mechanical powers—thus progressing from what we touch to how we move it. These studies provide the foundation for later chapters on astronomy, hydrostatics, and optics.229 Jeremiah Joyce, tutor to Earl Stanhope’s children (Stanhope supported Whitbread’s 1807 education bill), begins his *Scientific Dialogues, Intended for the Instruction and Entertainment of Young People* (1800) with a volume on mechanics, prefaced with extensive thanks and dedication to the Edgeworths (and a nod to Anna Barbauld and John Aiken) for inspiring him to imbed his scientific lessons into family dialogues. His lessons on mechanics, a field comprising “[e]very

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229 Marcet, *Conversations on Natural Philosophy*, 1-4.
thing which is the object of our senses,” follow a typical formula that dictates progressing from concrete to abstract, beginning with a definition of such basic concepts as matter, space, and time, before proceeding to Newton’s laws of motion and the mechanical powers, and concluding with illustrations of compound machines. Each lesson moves from concrete experiments to the general principles they prove, encouraging readers to use their senses to aid abstraction.

All knowledge, including morality, is founded on the child’s initial exploration of her physical environment. Establishing this progression, Adam Walker’s *A System of Familiar Philosophy* opens with a description of a child’s senses unfolding as the foundation of knowledge: “here is laid the corner stone for our knowledge of Nature and her law,” he explains, “for at a time when a nurse supposes a child is only amusing itself by striving to catch hold of every thing within and without its reach, it is laying in a stock of important information! By this propensity, we learn to know distances, hardness, softness, painful and pleasurable objects, heat, cold, and may other qualities of bodies, long before it is suspected by the unobserving part of mankind.” The general “law” of nature, as well as moral law, Walker asserts, “is in the constitution of things.” In other words, moral principles are legible in the arrangement of physical objects and their movement in the world.

Like Walker, James Mill connects early impressions with morality (and with sanity), since the child repeats in thought, as he senses his surroundings, the succession of events in the natural world, internalizing an awareness of causality that forms the basis of morality:

“[C]hildren ought to be made to see, and hear, and feel, and taste, in the order of the most invariable and comprehensive sequences, in order that the ideas which correspond to their impressions, and follow the same order of succession, may be an exact transcript of nature, and

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always lead to just anticipations of events.”

Mill credits Hartley, Condillac, and Helvetius for these insights and recommends Maria Edgeworth’s literature for laying the groundwork of benevolence in children explicitly because her works are founded on these scientifically-based theories of mind.

In conclusion, not only are children’s textbooks on natural philosophy organized according to theories of child development, but many of these textbooks are written by authors with clear connections to the circle of literary authors most invested in object learning, who believed that because mechanics addresses matter in motion, as well as human bodies acting upon the material world, it forms a foundation for later abstract thinking—a concept analogous to how children stockpile simple ideas from sensation at an early age in preparation for complex ideas. This association between mechanics and early development is implicit in Richard Edgeworth’s appraisal, that “no species of knowledge is better suited to the taste and capacity of youth,” and his approval of parents who are “anxious” for their children to learn “the mechanic powers” at an early age. Likewise, Maria Edgeworth’s Rosamond stories depict the family’s visit to a factory as a suitable educational outing for a seven-year-old girl. My point is that the physical laws of the natural world, as experienced through the senses, were widely considered by education experts to be the catalyst for moral and intellectual development. These beliefs grant ideological significance to the study of mechanics, because it could be construed as a middle- or

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233 Incidentally, James Mill regarded Maria Edeworth with enough respect that he attempted to recruit her participation in the Chrestomathia school by sending her a copy of Bentham’s treatise.

234 *Practical Education*, 2:276. Mechanical powers are the lever, pulley, inclined plane, wheel and axle, wedge, screw, and block and tackle—what we usually call “simple machines.” Richard Edgeworth advises that children should also observe household repairs, investigate machine drawings, and eventually design their own machines that demonstrate mechanical principles.
working-class access-point to abilities like abstract thinking and benevolence, which had long been associated with citizenship and considered the purview of the ruling landed class.235 “The classical scholar may be better qualified for decorating his speech with rhetorical flowers,” admits Jeremy Bentham, defending his focus on natural sciences over classics, “but the chrestomathic scholar, after a familiar and thorough acquaintance has been contracted with things, with things of all sorts, will be, in a much more useful and efficient way, qualified for the general course of parliamentary business.”236 Bentham reiterates the slogan of object learning (things over words) to establish mechanical literacy as the foundation of statesmanship.

By bridging hand and mind, mechanical knowledge not only infuses artisan labor with the dignity of natural philosophy, but also confers the power of self-mastery through self-knowledge. Richard Edgeworth emphasizes that children must be conversant with common terms, such as “fulcrum” or “time,” in order to “abstract” and “reason upon general topics,” but technical language should be grounded in the body. Through haptic exercises that require children to combine their bodies with tools, they feel the comparative effort of moving objects assisted by machines. An engineer himself, Richard Edgeworth invented such a machine, which he called the “Panorganon,” for “giving a general notion of the mechanical organs” by allowing children to “feel” the “effect of his own bodily exertions with different engines.”237 [figure 21] He describes experiments performed with the Panorganon that allow children to measure their comparative strength using pulleys, different sized levers, screws, and other simple machines, activities designed to “bring the sense of feeling to our assistance in teaching the uses of the

235 Barrell, Birth of Pandora, 42-55.
mechanic powers.” In addition to *Practical Education*, the device is described and illustrated in William Nicholson’s *Journal of Natural Philosophy, Chemistry, and the Arts* (1801), as well as the *Encyclopedia Britannica* (1823).

The Panorganon transforms knowledge about the physical world into a form of self-knowledge, as children explore how their bodies move in conjunction with the machine. The name Panorganon, like its design, combines all organs into a single sensory experience, from parts of the body, to the brain’s mental organs, to the parts of the machine. The Panorganon’s tendency to complicate the distinction between human and tool is typical of late-eighteenth-century automata that more carefully simulate living organisms than their later nineteenth-century counterparts, using supple and wet materials to recreate the effect of squishy biological substances. The rubber tubing invented for Vaucanson’s Digesting Duck, or the padded, wet leather and linen birthing machines designed and distributed by Mme Du Coudray exemplify what Jessica Riskin calls “eighteenth-century wetware,” machines that she argues helped “vivify machinery,” transforming earlier enlightenment theories of mechanism by complicating the divide between vitalist and materialist philosophy. Revising Riskin’s position, Douthwaite sees these automata as “incorporating an ambiguity at the heart of Enlightenment thought, since many materialist thinkers who espoused vitalism did not make any distinction between matter and spirit.” Thinkers like Jean-Jacques Rousseau and Condillac (I might add Helvetius and Joseph Priestley) advanced “an epistemology at once mechanistic, vitalist, biological, and

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240 As a name choice, Panorganon also connotes odd machine combinations used in popular educational entertainments, such as Maelzel’s Panharmonicon (1818), placing Edgeworth’s domestic machine within the context of scientific lectures.
Christian. “The Panorganon thus draws from an intellectual tradition that considers sense
stimulation the vehicle for self-reflection or consciousness.

Other educators join anatomy and mechanics by drawing an analogy between God-
designed human body and human-designed inventions. Following the examples of the classic
visual textbook of the natural sciences, Spectacle de la Nature (recommended by Richard
Edgeworth), contemporary titles such as Margaret Bryan’s Lectures on Natural Philosophy
include anatomy, or “Man as a Machine,” as a subtopic of the mechanics lesson. After teaching
the mechanical powers, Bryan directs her students’ attention to their bodies: “Behold that various
and complicated machinery, which forms the graceful column of man! composed of bones,
joints, and arteries; and clothed with muscled, veins, and teguments!” The body is furthermore
a convenient at-hand reference for teaching machines without fancy equipment for
demonstrations.

Cumulatively, these comparisons between machines and bodies, and between God-as-
creator and human-as-inventor, enhance the prestige of rational mechanical knowledge and
associate it with mastery over the body’s work. Those who possess mechanical literacy know
how to enhance the body’s energy and strategically direct its efforts, thereby manipulating the
physical world to serve human ends. Mastering the world of objects is akin to mastering one’s
own body, since both are subject to a reformatory process, whether by clever gears and pulleys or
by education machines. Mechanics becomes an aid to self-awareness and expression, akin to
literacy by enabling self-fashioning. Mechanical knowledge signifies, therefore, not only the
practical know-how of artisans and factory workers, but, increasingly, a wider comprehension of
the principles behind manipulating the world of things, which signifies the sort of lively

243 Bryan, Lectures on Natural Philosophy, 48.
intellectual life of self-reflection and moral feeling that grants individual identity and permits participation in public life.

With the rise of consumer culture, the collection, display, and contemplation of objects helped construct the subject’s interiority. In the context of education, sensual exposure to a variety of physical forms, both natural and artificial, was considered key to developing mental organs such as judgment and imagination. Julie Park’s argument that “anthropomorphized” mimetic commodities, such as dolls and automata, reveal “human identity’s susceptibility to becoming embodied in inanimate objects,”244 implies that access to these objects is a precondition for gaining recognition as a subject with a complex mental life. When workers’ environments are reduced to the machines they tend, the working poor suffer (the theory goes) from underdeveloped mental abilities that stunt their potential to learn and retract their status as thinking beings. If the education of things is the foundation of moral sentiments and intellectual capacity, then the widening gap between wealthy and poor threatens social cohesion between rich and poor—between hyper-consumers, their homes stocked with objects and their days filled with leisure for contemplation, and common people tasked with undemanding labor, their homes comparatively empty.

**Mechanical literacy and the “object gap: the crisis of diverging class environments**

Children who acquire mechanical literacy act out the ascendancy of middle-class managers, who move from practical to rational mechanics as they gain a theoretical understanding of manual labor. According to Simon Schaffer, an awareness of one’s participation in legible systems of political economy—one aspect of mechanical literacy—marks a fundamental class divide between analytical and mechanical labor. Drawing from eighteenth-

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244 Park, *Self and It*, xiii, xv.
century political economists and French philosophes, Schaffer shows how public intellectuals established “their power,” as system organizers, over artisans and laborers “through their view of the machine.” Whereas artisans are “ignorant of the system in which they are themselves combined,” philosophers like the Encyclopedist Denis Diderot or scientific lecturer John Theophilus Desaguliers who observe artisans at work can reconstruct a comprehensive picture of industrial processes. Thus while the philosophes claimed to elevate the mechanical arts by initiating their readers into the higher philosophy behind craft processes and disseminating knowledge hoarded by protectionist guilds, they actually claimed credit for technologies developed by workers in order to justify placing manufacturing under the “guidance of enlightened managers.” A new class of engineering professions managed workers as unthinking parts of an organized machine constructed to think for them. Treating workers like automata is optimal, according to economist James Ferguson: “manufacturers, accordingly, prosper most, where the mind is least consulted and where the workshop” is “considered as an engine, the parts of which are men.”

The kind of pedagogical systems extended to workers by wealthy reformers are themselves appropriations of instruction methods used between workers. Artisan apprenticeship or family education, where children live and work with working adults, is the basis for all experiential education. Even dame schools, which education reformers routinely criticized, combine by necessity learning the alphabet with everyday things and manual labor, since the “dame” is a neighborhood woman who teaches from her kitchen while giving the local children occasional errands and tasks. With rare honesty, Robert Southey insisted that the Monitorial

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system, which both Bell and Lancaster disputed was their original invention, derived from Indian peasants, whose methods of mutual instruction Bell observed and implemented in his Madras school before publishing his system in Britain. What educators did, then, was systematize traditional methods used by workers in order to assert their education expertise, placing the curriculum goals and content firmly in the hands of those invested in maintaining a stable, stratified society.

Even though mechanical literacy reflects middle-class values, it was extended to the working-classes more frequently than Schaffer’s argument might lead us to suppose. In the early nineteenth century, proponents of popular education adapted a revised version of mechanical literacy for workers, one that maintains class boundaries (with the occasional “genius” exception), because they believed that the rational consent of the governed could best prevent protest or revolution. Whether religious or political, consent requires an active, educated mind, and reformers blamed social unrest on a poorly educated, passive public that did not comprehend its true interests. Hannah More’s *Village Politics* or Harriet Martineau’s *Illustrations of Political Economy*, for instance, try to convince workers that they harm themselves by burning ricks or going on strike.

The double appropriation of educational methods and artisan knowledge is most apparent in the mechanics institutes, which were imagined and created by workers but quickly overrun by wealthy Whig reformers. Henry Brougham, in *Practical Observations upon the Education of the People, Addressed to the Working Classes and Their Employers*, supports the mechanics

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248 See Southey, *Origin, Nature, and Object of the New System of Education*, 180-84. Southey notes that some people affirm “neither Dr. Bell nor Mr. Lancaster have any claim to invention at all, but that the new system is merely the Hindoo system imported into England” (180). Southey agrees that the Indian people teach this way, but give credit to Bell for systematizing this method and introducing it in England: “The person who first introduced into a school the principle, as a principle, of conducting it by means of the scholars themselves, is as much the discoverer of that principle, as Franklin of electricity or Jenner of vaccination. The facts were known before them, but in an insulated and unproductive form; they systematized them, and thus communicated to us a new power” (184). Note that Southey compares this education system to other technologies.
institutes as a means of uniting practical and theoretical knowledge by placing artisan and middle-class students together. Although most workers have no need to “go beyond the rudiments,” those possessed of “superior minds” can study the abstract principles behind the machines they tend, their experience as workers lending them an advantage over those who have never engaged in manual labor. Brougham encourages “whoever feels within himself a desire and an aptitude” to “press forward” in theoretical mechanics and become one of the inventors of new machines. “Indeed, those discoveries immediately connected with experiment and observation, are most likely to be made by men, whose lives being spent in the midst of mechanical operations, are at the same time instructed in the general principles upon which these depend [i.e. theoretical mechanics], and trained betimes to habits of speculation.” If workers learn to think abstractly and creatively about “objects at once useful and sublime,” they would be better at invention than people from wealthier backgrounds because they possess practical knowledge gained through a lifetime of work. “Machinery, even in its complicated form, is more easily understood by them [workers].” For those who lack the worker’s knowledge, Brougham suggests using models of machines, much like Edgeworth’s Panorganon, as a way to supply their deficiency. By studying together, those with practical backgrounds lend their inventive intuition to “the learners of natural science in other conditions of life.” Sharing practical and mechanical knowledge creates unity between two classes that, as Brougham admits, too often believe their interest are “in opposition to each other.”

Jeremy Bentham’s Chrestomathia curriculum, which includes moral teachings and the natural science for people of all classes, likewise extends mechanical literacy to all classes. He

249 Brougham, Practical Observations, 14.
250 Brougham, Practical Observations, 14.
251 Brougham, Practical Observations, 5.
asserts that in recent years educators have been forced to admit that, in addition to religious instruction,

> there are things worthy of their attention connected with the objects of this present world,—the properties and relations of the air they breathe, the soil they cultivate, the plants they rear, the animals they tend, the materials they work upon in their different trades and manufactures,—the instruments with which they work,—the machinery by which a child is able to produce more than many men, and a single man to generate, combine, control, and direct a physical power superior to that of a thousand horses. There is a growing conviction, that the communication of knowledge of this kind to the working classes would make them better and happier men; and that the possession of such knowledge by these classes would be attended with no injury whatever to any other class.²⁵²

Note the kind of power that Bentham places in the hands of children, who, augmented by “instruments” and “machinery” can bend the material world around them. Clearly, mechanical literacy was the means through which workers could ascend the social ladder, and yet, such ascendancy is portrayed as the path of exceptional minds.

The more basic “object learning” techniques advocated in schools for the poor focus instead on recovering workers from the mental degeneracy of repetitive labor so that they are no longer refractory. An uneducated and tractable workforce might theoretically increase factory production (and not everyone agreed that was the case), but a vocal subset of public intellectuals and policy makers viewed illiteracy as a political liability. The few educated and politically subversive working-class leaders could easily lead astray destabilized and uprooted populations,

unschooled in values traditionally transmitted within parish communities. The old networks of parish education, like the poor laws, failed to meet this new threat.

Unlike Schaffer’s account of Enlightened management of automaton workers, the workforce of early nineteenth century Britain could not remain “ignorant of the system in which they are themselves combined” if the country was to avoid upheaval. At a time of competing system organizers, or competing machine-builders, some of whom are dangerous deceivers, the working classes must be equipped to distinguish between machines; they must rationally support the “real” machine, the one that represents a viable, desirable social order, and reject fanciful, theoretical systems that could never materialize as sustainable forms of government. Those who supported popular literacy did so, therefore, by citing the same fears as reactionaries who wished to curtail the press—that “too much cannot be attempted for the purpose of averting those dreadful calamities by which neighbouring nations have been visited.”\footnote{Colquhoun, New and Appropriate System, 69.} In this pro-education discourse, machines are responsible for degrading the bodies of workers, while education is described as a rival machine that redeems the factory system by repairing minds with intellectual mechanism.

**The division of labor in schools and factories**

The theory of civilization’s two machines was promulgated by Adam Smith in *The Wealth of Nations* in a widely referenced defense of compulsory national education. Smith appealed to an “object gap” (my phrase) between rich and poor as an undesirable result of modern production that should be countered by mandatory education for poor children. “In civilized state,” he explains, occupations are divided among the populace, so that only those with “leisure” have “an almost infinite variety of objects” to form their minds. Among the leisured
class, “contemplation of so great a variety of objects necessarily exercises their minds in endless comparisons and combinations, and renders their understandings, in an extraordinary degree, both acute and comprehensive.”254 By comparison, the “man whose whole life is spent in performing a few simple operations” is unfit for government because he “generally becomes as stupid and ignorant as it is possible for a human creature to become. The torpor of his mind renders him, not only incapable of relishing or bearing a part in any rational conversation, but of conceiving any generous, noble, or tender sentiment, and consequently of forming any just judgment concerning many even of the ordinary duties of private life. Of the great and extensive interests of his country he is altogether incapable of judging.”255 Since moral sentiments develop through diverse social experiences, the leisured classes are suitable governors—yet Smith raises the problem of consent: a certain level of moral behavior and critical thinking among workers is necessary for them to recognize the advantages of civic republicanism.

To alleviate this problem, Smith advocates teaching workers “the elementary parts of geometry and mechanics,” because these subjects are useful in nearly any trade, where they would “gradually exercise and improve the common people in those principles, the necessary introduction to the most sublime as well as to the most useful sciences.”256 The implication is that because mechanics occupies a liminal space between the labor of the hand and of the mind, the subject provides foundational groundwork to lure the common people into an abstract realm of higher moral thought. Surprisingly, mechanics opens the mind in ways that the Romantics associated with poetic and fictional language; it stretches the mind’s ability to use everyday sensation to stimulate imaginative, moral ideas.

254 Smith, Wealth of Nations, 841.
255 Smith, Wealth of Nations, 842.
256 Smith, Wealth of Nations, 843.
By the nineteenth century, educators recalled Smith’s concerns with a new sense of urgency as mechanization and the division of labor reduced the intellectual stimulation of work to an unprecedented degree, creating a new generation of workers doomed (so they feared) to mental degeneracy. Because most children worked, the question of how work environments shape the minds of children was a source of anxiety, especially as Britain’s transformation from an agricultural to an industrial society created uncertainty about what kind of future population these new labor practices would produce. Since education encompassed “every thing” that “operates” on the child’s mind “from the first germ of existence, to the final extinction of life,” there was no clear separation between education and work.257 Labor, food, family, tools, clothes—these educated children, while formal schooling was infrequent.258

As a post-Mathusian incarnation of Smith’s proposal for national education, James Mill’s “Education” article in The Encyclopedia Britannica regrets: “The state of defective food and excessive labour, is the state in which we find the great bulk of mankind,” a condition that erodes their sympathies through constant pain. The first step in educating children is, therefore, to feed them, for “nature herself forbids, that you shall make a wise and virtuous people, out of a starving one.”259 A good third of Mill’s article addresses the body’s health and labor, and how these affect the mind. Prominently retracing Adam Smith’s warning, Mill argues

Dr Smith made the important remark, that the labour in which the great body of the people are employed, has a tendency to grow less and less favourable, as civilization and the arts proceed. The division and subdivision of labour is the principal cause. This confines the attention of the labourer to so small a number of objects, and so narrow a

258 On these grounds, a skeptic of Whitbread’s defense of national education questioned whether Scotland had less crime and sedition because of its education system. Education has comparably little effect, compared with food, clothing, etc.
259 Mill, James Mill on Education, 90.
circle of ideas, that the mind receives not that varied exercise, and that portion of aliment, on which almost every degree of mental excellence depends. When the greater part of a man’s life is employed in the performance of a few simple operations, in one fixed invariable course, all exercise of ingenuity, all adaptation of means to ends, is wholly excluded, and the faculty lost, as far as disuse can destroy the faculties of the mind. The minds, therefore, of the great body of the people are in danger of really degenerating, while the other elements of civilization are advancing, unless care is taken by means of the other instruments of education, to counteract those effects which the simplification of the manual processes has a tendency to produce.260

With this faithful summary, Mill explains why the same tools that enable civilization—technology and the division of labor—ultimately lay the groundwork for what Carlyle later calls the “two nations” problem and the threat of revolution. As machines and the division of labor make production more efficient, a portion of the population has leisure to expand their intellectual and sympathetic capacities through diverse engagements. Civilization is predicated on these two complementary classes, but as the division of labor increasingly refines work into mentally vacuous tasks, which degrade the minds of workers—“obliterating sympathy, inspiring cruelty and intemperance, rendering impossible the reception of ideas, and paralyzing the organs of the mind”—the working classes no longer comprehend themselves as beneficiaries of the political system they make possible.261 For Mill, as for Smith, the solution is to appeal to “the other instruments of education,” that hopefully “counteract” the dangerous tendencies of dull,

261 Mill, James Mill on Education, 90.
repetitive labor. Divided labor is categorized as one kind of education—a negative, harmful education—which deliberate schooling must counteract.\(^{262}\)

Even Rowland Detrosier, a self-taught manufacturer who helped to found the Mechanics Institution at Manchester, frequently blames repetitive labor for deforming the minds of common people while he argues for extending political power to them. He gives a more radical spin to these familiar ideas. “What is the reiterated apology for refusing even a limited extension of acknowledged political rights to the great body of the people?” he asks. “Their political ignorance and moral degradation.” But no wonder the people are ignorant. “They are human machines for the creation of wealth, whose physical education in the adaptation of their hands, &c. to mechanical purposes is all that is thought of.” He notes that if humans are the “creature of education and circumstance” and their entire lives are “labour,” then they must be so degraded.\(^{263}\) He concludes by joining political life with education, “why not make public education a part of our scheme for obtaining political reform. Why not educate our youth to public as well as to private virtue?”\(^{264}\) And this education should focus on politics and science, not religion: “‘Let our Sunday-schools become the UNIVERSITIES OF THE POOR, in which the infant mind shall be taught to look through nature up to nature’s source” through “natural philosophy.’”\(^{265}\) Detrosier adopts the rhetoric of mechanical literacy to advocate using natural philosophy to extend the worker’s mechanical skills into something recognized as politically empowering.

\(^{262}\) Coupling labor and hunger as the twin pains that degraded the working classes, Mill echoes Thomas Malthus, who, along with Smith, formed the intellectual credentials for William Whitbread’s opening argument in Parliament (1807) for a national school system.

\(^{263}\) Detrosier, *Address, Delivered*, 6-7.

\(^{264}\) Detrosier, *Address, Delivered*, 14.

\(^{265}\) Detrosier, *Address, Delivered*, 10.
Against the machinery of repetitive labor ranks the machinery of education systems. As proposed by Bell and Lancaster, monitorial schools were an appealing, cost-effective solution to the threat of social dissolution posed by mechanized labor. They spread rapidly from 1800 to 1815 because they vastly reduced the cost of educating many children under a single master by organizing students to teach one another and minimizing supplies like books and paper. By repeating lessons in pairs simultaneously, pupils efficiently covered the material in less time, requiring children to absent themselves from work for a shorter portion of their youth, an advantage in poor families where parents were tempted to withdraw children from school for them to earn wages. This “approved system of mechanical education,” as Whitbread called it, offered a poetic solution where the division of labor, after causing so much trouble, emerged once again on the side of “civilization” when implemented in the classroom.\textsuperscript{266} If one kind of machine destroyed minds, another machine would regenerate them.

Sir Thomas Bernard, president of the Royal Institute and its parent organization, the Society for Bettering the Condition of the Poor, directly connects the “mechanism” of monitorial education with its ability to counter the “mechanism” of labor. Citing Adam Smith, his pamphlet supporting Monitorial schools celebrates the civilizing advance of the division of labor, which “gave a new power to the application of corporeal strength, and simplified and facilitated the most irksome and labourious operation,” then notes that whomever introduced this innovation “did not more essential service to \textit{mechanical}, than Dr. Bell has done to \textit{intellectual} operations. It is the division of labour in his schools, that leaves the master the easy task of directing the movements of the whole machine, instead of toiling ineffectually at a single part. The principle

\textsuperscript{266} Whitbread, “Poor-laws Bill.” \textit{Hansard}. HC Deb. 24 vol. 9 (April 1807): 551.
in manufactories, and in schools, is the same.” 

267 But far from degrading the mind, the machinery of Monitorial schools improves the intellect of workers by forming “the habit of using and exercising his own faculties.”

268 Invoking the French Revolution for support, Bernard argues that intelligent “cottagers” make more loyal subjects, for “in political commotions, the uneducated pauper has neither principle nor motive, to induce him to respect or defend that state of society, the benefits whereof he has not been taught to appreciate.”

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The root causes of unrest cited by Bernard are industrial wealth, global trade, the influx of foreign commodities—and the intellect-degrading employments of industry. He describes British society as divided into two camps, one whose minds are dissipated by an influx of luxurious objects and another whose minds are ruined producing them:

If other commercial states, if other mighty empires, have been weighted down by the burthen of the rich and splendid ornaments with which they have been encumbered, how is Britain to plead exemption? What is left but EDUCATION, to preserve her from the effects of a rapid and unceasing influx of wealth from both the Indies?—from the consequences of boundless and lucrative speculations in every part of the globe?—and from the influence of manufactories, which congregate legions of the rising generation, disciplined only to watch and direct their machinery, but neglected and forgotten as to every privilege and distinction of a rational and immortal being?

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The threat Bernard describes is a version of what he elsewhere praises as the foundation of civilization, but brought to an extreme where the division of labor determines access to consumer

267 Bernard, Education of the Poor, 35. See also Bernard, New School, 17-18. He repeats the same passage about the division of labor in both works.

268 Bernard, New School, 38.

269 Bernard, Education of the Poor, 47.

270 Bernard, Education of the Poor, 51-2.
objects to such an extent that those surrounded by fashionable luxuries can no longer relate to those who produce them.

The “object gap” between rich and poor, described by Smith and Bernard, intersects with philosophy of mind by Dugald Stewart on the how varied sensations develop the mental faculties. Since the ability to abstract general laws requires early sensual training, children raised in barren or unvaried environments are more likely to suffer mental atrophy from repetitive labor.271

These were the public concerns when Elizabeth Hamilton turned from estate nurseries to poor schoolrooms with Addressed to the Patrons and Directors of Schools (1815), which introduced Pestalozzi to the British public as a supplement to Monitorial systems.272 While Hamilton is better known today as a novelist, contemporary education specialists frequently cite her application of philosophy of mind to the education of the poor.273 Concerned about child workers who “have their sense of sight perpetually occupied in a narrow sphere,” Hamilton advocates developing the senses of working-class students as preparation for learning to read and write.274 Based on personal experience while volunteering in Bell and Lancaster school, Hamilton insists that poor children, especially girls, only seem incapable of learning because of their environment, but with proper education “the intellectual faculties appear often strong and

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271 Elizabeth Barrett Browning’s “The Cry of the Children” appeals to sensory deprivation as one of the worst grievances of child labor.
272 Mme de Staël may have alerted the British public to Pestalozzi around the same time. An anonymous 1815 treatise gathered to promote Pestalozzi credits both Stael and Hamilton. See Pestalozzi, Biographical Sketch, vi.
273 Hamilton is cited frequently for her advocacy of Pestalozzi. Shepherd, Joyce, and Carpenter’s Systematic Education (1815) recommends the pedagogy of Elizabeth Hamilton for further reading; Andrew Irvine mentions “the ingenious invention of Pestalozzi, which has recently been recommended in the warmest terms, by a justly celebrated Writer, in her ‘Hints of Education,’” referring to Hamilton’s work on education of the poor (Irvine, Reflections on the Education of the Poor, 50.). David Davidson lists the pedagogical philosophies “of Pestalozzi, Hamilton, and Jacotot” as “perhaps the most prominent” of those who “propose to make the business of instruction easy to the teacher and agreeable to the pupil” (Remarks on the Best Means of School Education, 4).
vigorous.”275 Through exercises that teach “an attentive observation of these objects,” children are “led to the acquirement of new ideas, till, step by step, they arrive at those in the want of which their apparent stupidity originated.”276 Like Adam Smith, Hamilton concludes from her philosophy of mind that the availability of objects for the senses accounts for class and gender differences in intelligence. Across the political spectrum, Wilfred Owen’s “academy for the formation of character” at New Lanark designed its curriculum upon similar principles. His infant schools begin educating the child’s body from infancy with a program of military exercises and dancing, activities that Owen speculated helped to improve learning. Like Hamilton, Owen was intrigued by Pestalozzi; he hired German teachers personally trained by Pestalozzi to teach in his American experiment at New Harmony.

As Pestalozzi’s methods became more popular, they were used to teach diverse students, adult and infant, wealthy and poor [figure 22]. In my concluding section, I use Samuel Wilderspin’s writings on infant schools to show subtle differences between object lessons designed for working-class and middle-class children and discuss the circles of appropriation between classes.

All children are mechanical, but some children are more mechanical than others

As one the founders of infant schools, Samuel Wilderspin promoted with national tours and publications schools for children under seven, prior to their admittance in the Monitorial schools. His Infant Education: or, Practical Remarks on the Importance of Educating the Infant Poor, from the Age of Eighteen Months to Seven Years outlines his system (attributed to Pestalozzi in the preface to his second edition), which emphasize exercising body and mind

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276 Hamilton, Principles of Education, 82.
together. They repeat lessons while on a swing; they form geometrical figures with their bodies; they sing many of their lessons. The students learn from cards with objects attached, focus on the manufacturing process, moving from raw materials to products. These cards remain stationary about the room, while the children circulate, allowing them to move about as they learn.\textsuperscript{277} Learning to read in begins by orienting the children within the room. [figure 23] The instructor asks questions about where they are seated, what is behind and in front of him, and finally, what he holds (a card with a letter). By delaying literacy, the children learn to read much faster once they being. “It has been a charge brought against the system, that we are not sufficiently anxious to teach the children to read, &c. I consider their learning to read a secondary object, to that of teaching them to examine into, and find out the nature and property of things, of which words are, but the \textit{signs}. It is with \textit{things}, and not \textit{words}, we wish to make our children acquainted.” Learning “\textit{signs}” too early allows children a shortcut that circumvents investigation, while object lessons create an “inquisitive spirit.”\textsuperscript{278}

These methods genuinely aim to liberate poor children from the potentially oppressive power of education by teaching them independent thought. “Now, the first thing we attempt to do in an infant school is, to set the children thinking,—to get them to examine, compare, and judge, of all those matters which their dawning intellects are capable of mastering. It is of no use to tell a child, in the first place, what it should think,—this is at once inducing an idleness of mind, which is but too generally prevalent among adults.” Children who are told what to think

\textsuperscript{277} Wilderspin describes teaching from objects, which is about manufacturing. For example, one board might have: “a piece of help, a piece of rope, a piece of string, a piece of bagging, a piece of sacking, a piece of canvass, a piece of hessian, a piece of Scotch sheeting, a piece of unbleached linen, a piece of bleached linen, a piece of diaper linen, a piece of dyed linen, a piece of flax, a piece of thread, a piece of yarn, a piece of ticking, a piece of raw silk, a piece of twisted silk, a piece of wove silk, figured, a piece of whit plain silk, and a piece of dyed silk, a piece of ribbon, a piece of silk cord, a piece of silk velvet, &c.” (\textit{Infant Education}, 257) Other boards display cotton and its products, various wooden animals, or different kinds of wood. These items are glued or attached to boards (\textit{Infant Education}, 238).

\textsuperscript{278} Wilderspin, \textit{Infant Education}, 148-49.
never learn to think for themselves. We make children into passive followers by giving them “dogmas instead of problems, opinions instead of interrogatories.” Their minds become “a heap of useless lumber,—without a single opinion or idea it could call its own” and “incapable of exertion.” Unlike other reformers, Wilderspin advocates this method, not because it makes children religious or useful, but because it is “due to the child as a rational being” and “essentially necessary for the development of its intellectual faculties.” These are the sentiments that Edgeworth or Barbauld apply to middle-class children.

Where object lessons become clearly class specific is on the playground, an innovation whose modern ubiquity stems from Wilderspin’s influence. The playground mediates between the theoretical space of the classroom, where students learn lessons, and the dangerous, unsupervised space of the street. On the playground, these predominantly working-class infants learn the social significance of objects that, within the classroom itself, exist in a utopian abstract realm. The playground’s periphery includes plants and fruit trees, used for object lessons in natural history, but also to teach “respect to private property” by tempting them. He compares taking the children outside to training animals: “if only one half the pains were taken to break, train, and exercise the infant poor, that is taken with gentlemen’s horses and dogs, we should very soon sensibly feel its effects.” Whereas class status tends to recede within the classroom, where object encounters liberate children by awakening their faculties, class reappears in the playground, as a space where students may return to “street” activities, such as stealing or fighting.

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281 Wilderspin, *Infant Education*, 152. I want to be clear that Wilderspin advises the playground not to control students, but to make them healthy, and his motives are admirable. But he does use the playground to watch their behavior and figure out whether his lessons stick. Wilderspin specifically offers the playground as an alternative to “schools of industry” where students learn spinning or knitting inside alternately with reading. Such schools could be potentially abusive because what the students produce is sold to support the school, providing little incentive to balance the apprenticeship in manual skills with other instruction.
Whereas Wilderspin’s school for working-class infants uses classroom organization to extend outward, changing behavior in the home and on the street, his object lessons for middle-class students, appended to his treatise, connect students with systems of production and consumption widely across geographical space. For the wealthier children’s first geography lessons, “I would have a floor-close in every nursery, painted like a map.” Then “let the children then be told to proceed from a certain spot, to go through certain counties, towns, &c. and to fetch a piece of cloth from Yorkshire, or a knife from Sheffield, cheese from Cheshire, butter from Dorset, lace from Huntingdonshire, &c. &c.” Next, he suggests constructing a huge table tray of water with little cork islands, complete with animals, inhabitants, and “natural products.” “A little boat should then be provided, and a voyage to a given part undertaken; various islands might be touched at, and various commodities taken on board or exchanged, according to the mercantile instruction the children should receive; whilst brief accounts might at first be read or given of the climate productions, and inhabitants of the respective places; till the little scholar should be able to conduct the voyage, purchase or exchange commodities, and give an account of the various countries and their inhabitants, &c. by himself.”

Although Wilderspin is passionate about making all of his students “active,” the kind of object lesson that he reserves for wealthier students reinforces the connection between mechanical literacy and participatory control of complex systems, such as manufacturing and political economy. These students essentially act out the ascendance of the middle-classes from the “mechanic” class, equated with their childhood.

The extension of Pestalozzi’s methods to wealthy students adds yet another level of appropriation, where the mechanical, tactile existence of very young children is ontologically

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282 Wilderspin, *Infant Education*, 289. Note the similarity between these activities and the Wallis map games produced a decade later. See chapter 7.
privileged in the way that Brougham praises workers with practical machine experience—that is, because it is the means of overcoming one’s own status as a machine. Experientialist pedagogies and object learning in particular keep changing hands, invented first on a practical level between working children and adults, then systematized within institutions that try to imitate the “real world” scenarios of work. In a way, Elizabeth Hamilton participates in the same appropriation process relative to female nurses and mothers, adopting methods used decades earlier in the nursery as newly minted cognitive theories, then offering these back again to mothers. Mechanical literacy helps us understand this strained relationship between work, play, and education, categories that keep shifting as education institutions attempt to bring together theory and practice.
CHAPTER 4: Figures

Figure 14: *Northampton Lancasterian School Reading Lessons*. Northampton; London: Abel, Bookseller, and Cordeux, Printer; Havery Darton, [ca. 1830]. Princeton University Library.

These are posted on classroom walls, while students from different classes gather around the separate stations. The cards eliminate the need for books. It is possible, therefore, for poor children to learn to read in Lancaster schools without ever picking up a book, although schools might have small lending libraries. One of the money-saving devices of Monitory schools was to divide lessons into smaller books or cards, rather than have each child hold a large book with every lesson bound together.
This cylindrical container for holding an alphabet likely resembles the toy used by Mrs. Z’s son.
Emerson differentiates between artisan and philosophical mechanics: “It is not my design to treat at all on the lowest part of Mechanics, which concerns, annual arts or working by hand. For there is no theory required here, but only a habit of working, to be acquired by constant practice.” As a result, he communicates the “fundamental principles both in theory and practice.”
These Pestalozzian lesson books guide instructors through the kind of exercises used to train the senses of working-class children. These were not generally popular until the 1830s. The top page is an introductory lesson, which begins with the most basic and sensual topic, the hand. Lesson three (from a different book) teaches the concept of “different substances” by comparing the child to the table, then to a cabbage.

(continued next page)
Figure 20: (both images) Biber, [George] E[duard]. *Dr. Henry Pestalozzi, and his plan of education; being an account of his life and writings; with copious extracts from his works, and extensive details illustrative of the practical parts of his method.* London: John Souter, 1831. Cambridge University Library.
Figure 20 (cont.): (both images) Biber, [George] E[duard]. Dr. Henry Pestalozzi, and his plan of education; being an account of his life and writings; with copious extracts from his works, and extensive details illustrative of the practical parts of his method. London: John Souter, 1831. Cambridge University Library.
This Stereometry set is used to teach the relationship between geometry and three dimensional shapes. The set comes with a pamphlet, which suggests that children begin by handling the blocks. The cards show people contemplating ruins in natural landscapes, adding a trendy Gothic element. Children who handle the blocks move from concrete to increasingly abstract contemplation of geometric principles, as suggested by the way the blocks are pictured reconstructing old buildings and monuments, with abstract shapes hovering in the sky. The contemplating watchers in the pictures function as interlocutors for this contemplative process. This toy is an example of a middle-class object lesson.
motion of the plan here recommended, it will be advisable to connect with our alphabetical and reading lessons, as much information as we possibly can. By so doing the tedium of the task to the child will be considerably lessened, as well as much knowledge imparted. The means of doing this in a variety of ways will no doubt suggest themselves to the intelligent teacher; but, as an illustration of what we mean, the following conversational plan may not be useless.

We have 26 cards, and each card has on it one letter of the alphabet, and some object in nature. The first for instance has the letter A on the top and an apple painted on the bottom. The children are desired to go into the gallery, which is simply seats elevated one above another at one end of the school like stairs; the master places himself before the children in a situation so that they can see him, and he them, and being thus situated, proceeds in the following manner.

Q. Where am I? A. Opposite to us. Q. What is on the right side of me? A. A lady. Q. What is on the left side of me? A. A chair. Q. What is behind me? A. A desk. Q. Who are before me? A. We children. Q. What do I hold up in my hand? A. Letter A for apple. Q. Which hand do I hold it up with? A. The right hand. Q. Spell apple.* A. A-p-p-i-e. Q. How is an

* It is not supposed that all or many of the children will be able to spell this, or the subsequent words, or to give such answers as we have put down, but some amongst the older or more acute of them will soon be able to do so; and thus become instructors of the rest. It may be proper to mention, also, that the information on natural history, &c. &c. displayed in some of the answers, is the result of the

Figure 23: (both images) Wilderspin, Samuel. Infant Education: or, practical remarks on the importance of educating the infant poor, from the age of eighteen months to seven years, containing hints for developing the moral and intellectual powers of children of all classes. London: Simpkind and Marshall, 1829. Online. Google Books.

Note that Wilderspin begins teaching infants the alphabet by asking questions about their position in the room. The actual portion of the lesson that focuses on letters or spelling is small in comparison with all of the other questions. He proceeds from A for Apple to questions about fruit and trees.
CHAPTER 5
Self-governing Machines:
Mechanical Literacy in Maria Edgeworth’s *Harry and Lucy, Popular Tales, and Belinda*

“Now the human mind may fitly be called that great and universal machine by which we operate upon all things. We all know the fame which was so deservedly obtained by the late Mr. James Watt, for his great improvements in the steam-engine. . . . In improving then this universal engine [the mind] we are conferring a service on mankind something the same in kind with the improvement of the steam-engine, but in degree and extent of usefulness beyond all comparison greater.”

—“Improvement of the Mental Faculties,” *The Penny Magazine*, October 26, 1839, 414

Justifying Thomas Love Peacock’s lampoon of the S.D.U.K. as the “Steam Intellect Society” in *Crotchet Castle*, this speech by Matthew Arnold’s father, the Headmaster of Rugby, excerpted in Charles Knight’s *The Penny Magazine*, presents the machinery of education and of industrialization as twin avenues for improving society. The more complicated machinery of the mind constructs and controls these engines of progress in order to subject the material world to human purposes. “Unhappily,” reflects Arnold, there is “no James Watt to perfect this mightier engine,” or perhaps “mind being less manageable than iron and steam, the engine has refused to be moulded according to the model proposed for its improvement.”

Arnold equivocates between blaming the mind’s complex development or its inherent unruliness for the instructors’ failure to transform students into a preconceived vision, but he retains the analogy of instruction as engineering, implying that students are submissive (if unpredictable) objects worked upon by their teachers. In this analogy, the student’s passivity is complicated by Arnold’s simultaneous assertion that the mind is a “great and universal machine” that rules “all things,” a machine that creates other machines (the steam-engine) to leverage its power over the material world. Arnold

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justifies the controlling mechanisms of education by pointing to its results: a powerful adult who comprehends and masters the physical world, using machines as an extension of himself.

Illustrating how education and industry fused into a single discourse of machine improvement, this chapter examines the literature of self-improvement or moral tales from the first decade of the nineteenth-century, which popular literature scholars have shown prefigures the Victorian social-problem novel by dramatizing political class conflicts in terms of the individual’s moral character. Focusing on Maria Edgeworth’s *Belinda, Popular Tales,* and *Harry and Lucy,* I show how texts that ostensibly target different audiences—children, affluent adults, and newly literate readers—consistently use machines as models of self-development and link technological progress with education.

Although Maria Edgeworth did not consider herself scientifically inclined, her literary partnership with her father, an engineer with practical experience in road and canal construction, provided her with the technical details for her stories, while the practical industrialists among his Lunar Society friends—Erasmus Darwin, Josiah Wedgwood, Richard Arkwright, and James Watt—were regular family correspondents mentioned in her tales. “My father long ago foresaw, what everybody now feels,” Maria Edgeworth recalled in 1825, “that the taste for scientific, as well as literary knowledge, which has risen rapidly, and has spread widely, would render it necessary to make some provision for the early instruction of youth in science.” At times she describes herself as the literary machine for disseminating her father’s inventions: “My father will allow me to manufacture an essay on the Logograph,” she writes to a friend in April

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285 Haywood, *Revolution,* 83; Patricia Comitini argues that the popular moral tales of Edgeworth and Hannah More support the spread of literacy to address the social problems of early capitalism without disrupting the existing social order. To do this, these tales reduce “all relations of social and economic dominance to individual ‘choice’” (73). The “illusory” choices presented to characters, however, are deceptively arranged so that they must either accept the emergent middle-class ideology of self-improvement or be dismissed as criminal and undeserving poor. (91)


287 “Introduction,” *Harry and Lucy,* xii-xiii. This introduction is dated May 31, 1825.
1795, while her father worked intensely to perfect an early telegraph signal system, “he furnishing the solid materials and I spinning them.” A dose of imaginative quirkiness pervades Richard Edgeworth’s favorite inventions, which include a machine to climb walls, a wind carriage, and “a wagon drawn by fire” (i.e. a steam train). The inspiration for his devotion to mechanics was his chance encounter with the traveling exhibit of William Bridge’s Microcosm, a complex clock decorated with automaton figures and a working model of the planets [figures 24 and 25]. Maria Edgeworth also attended at least one automata exhibit on her first visit to London, and clockwork figures appear in many of her works as representations of how discipline enables independence.

Machines in Edgeworth’s fiction range from mundane to wonderful, suggesting that mechanical knowledge is useful and accessible to people of all stations. In Popular Tales, factory managers and farmers alike reap financial rewards for investing in technologies, while small inventions cobbled together by the innovative working-poor are often the means to their social advancement. The destitute siblings of The Orphans, who are kicked off their land by a pitiless Irish landlord, transform a nearby ruined castle into a manufacturing center where the children make shoes. Even something as simple as an improved wedge for locking carriage wheels, constructed by a beggar boy in “The Basket Weavers,” secures him a benefactor. Rewarding these workers requires educating a generation of patrons who recognize the value of machine

288 Hare, Life and Letters, 1: 40-41.
289 Butler, Maria Edgeworth: A Literary Biography, 34-45.
290 Butler, Maria Edgeworth: A Literary Biography, 24.
291 Marilyn Butler’s biography records that in the spring of 1798 Maria Edgeworth accompanied Richard Lovell and Frances Edgeworth on their wedding trip. Butler finds this visit “remarkable for the slightness of the contribution it made to Maria’s experience, at least as reflected in what she afterwards wrote,” yet Butler’s description of the mechanical wonders that Maria Edgeworth witnessed suggests otherwise: “several factories in the Birmingham area”; “the great ironworks at Ketley Bank”; and, in London, “galleries, museums, and a mechanical exhibition” (141). Although Butler does not specify what mechanical exhibition, the date correlated with the popularity of Maillardet’s London show. Alternatively, Edgeworth could have known the contents of the Maillardet show from advertisements, which describe the items she uses in Belinda.
innovation. Factory tours are an appropriate family outing in *Rosamond*, and in *Harry and Lucy* (1801-1821), Harry extends his expertise in the natural sciences to his impetuous younger sister, describing experiments in detail that readers can replicate at home. After playing with the power of steam using a kettle, the siblings watch steamboats at the seashore and investigate the steam-powered machines of Arkwright’s cotton mill under their father’s guidance. They tour the industrial districts of England in *Harry and Lucy Continued* (1825), describing “a black dreary waste, with half burning, half smothering heaps of dross, coal and cinders.” Verging on the exotic, Edgeworth’s aristocratic characters treat their children to trendy London automata exhibits, and celebrated automata makers M. Bautte and Henri Maillardet make cameos in *Rosamond Continues* and *Belinda*.

The striking diversity of machines and tools in Edgeworth’s didactic fiction indicates its participation in a larger cultural project that associated machine technologies (pedagogical and industrial) with self-development and self-mastery as a function of human mastery over the “external” natural world. Just as the science of mechanics explains how to control bodies in motion, the science of education explains how to direct children, who, as I have argued in my previous chapters, eventually comprehend these principles and educate themselves. At a time when rural domestic settings dominate the moral tales genre, Edgeworth addresses political economy and technological improvements within these traditional domestic settings, anticipating authors Jane Marcet and Harriett Martineau who later praise her work.

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293 Before M. Bautte appears in *Rosamond Continued* (1821), where the celebrated Swiss automaton-maker tempts her with an ornate “memory bracelet,” young Rosamond investigates a small automaton toy in the curiosity cabinet of her mother’s friend.
294 *Harry and Lucy* recommends Jane Marcet’s “Conversations on Chemistry” (106); Marcet’s first publication on political economy recommends Edgeworth’s fiction and credits her for her inspiration.
In Edgeworth’s fiction, authorship and machine-making perform similar cultural work. Literary critics have explained the development of genres like the domestic novel or lyrical poetry, as externalized, textual representations of the author’s body, which imagine the possibility of a valuable interiority. In How Novels Think, Nancy Armstrong argues that Pamela, Robinson Crusoe, and Moll Flanders are “exceptional” only in their ability to “inscribe him or herself in writing as an object, or body, separate and apart from the subject that inhabited that body, and put that body through a sequences of moves to enhance its social value.” Likewise, Thomas Pfau in Wordsworth’s Profession argues that the literary forms of psychological self-narration promoted by Romantic middle-class writers created reading publics that experienced aesthetic pleasure from an anxiety-producing pedagogy of self-surveillance, epitomized by Andrew Bell’s Monitorial System of education. My analysis suggests that literary forms that create textual representations of the writer’s interiority—such as confessional literature, biography and bildungsroman, epistolary fiction, and lyrical poetry—operate on the same principles as mimetic machines. By observing and identifying with machines, Edgeworth’s characters seize a position of authority over their machine selves, thus translating the intrusive internalization of regulatory structures that comprises education into the reverse: a comforting sense of authority over an externalized model of mechanical self-development.

Connections between self-development and mimetic machines are suggested by the recent criticism regarding automata in literature by Julia Douthwaite, Julie Park, and Alex Wetmore. Although perusing quite different projects, these authors collectively suggest that

295 Armstrong, How Novels Think, 6.
296 Pfau, Wordsworth’s Profession, 143-179.
297 See Douthwaite, “Frankenstein of the French Revolution”; Wetmore, “Sympathy Machines”; Park, Self and It. Douthwaite, with her astounding discovery of an antecedent to Mary Shelly’s Frankenstein in François-Félix Nogaret’s Le miroir des événements actuels, ou la belle au plus offrant (1790), a political allegory featuring a scientist named Frankenstein who builds an automaton musician to win an heiress, resitutes Shelley’s novel of failed education experimentation alongside Nogaret’s early optimism towards technological progress as the means...
automata dramatize the hierarchical subject/object divide, where a mechanical genius asserts his active, human agency through his manipulation of the passive machine that he enlivens. It is this divide between creator and created, human and machine, implicit in the automaton show, that enables its flexible representation of hierarchical relationships, including self-governance.298

Each of the three Edgeworth stories in this chapter describe machine encounters as formative moments that determine whether a protagonist is capable of improvement and worthy of education. In *Harry and Lucy*, young Lucy pleads to learn natural philosophy like her brother, and her lessons on the power of the steam engine symbolize her ability to channel the energy of her imagination in productive ways. The working-class protagonist, Jervas, from *Popular Tales*, proves his ability to ascend the social ladder when he constructs a machine model of the mines where he worked as a child. Finally, in *Belinda*, Lady Delacour signals her reform from dissipated aristocrat to devoted mother by visiting an automaton exhibit with her daughter. In each case, a potentially mechanized protagonist escapes from a mechanized condition by acquiring mechanical literacy. In some cases, peripheral characters encounter machines but prove themselves incapable of using these to gain a broader vision or implement reform.

While Lucy, Jervas, and Lady Delacour circulate in different spheres, all three characters transform themselves by reconceptualizing their relationship to the world of things, displaying a way of reading themselves in the world that I develop in chapter 4 as mechanical literacy. These different fictional narratives illustrate practical instances of how mechanical literacy works, by

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conferring a self-reflexivity about human productivity and creativity—a consciousness of oneself as an active constituent (and microcosmic representation) of large-scale systems of industrial production and consumption, guided by the principles of political economy and contributing to human progress. This self-reflexivity grants a privileged viewpoint, whereby the social machinery seems rationally organized according to natural laws that make it accessible to a select few; thus mechanical literacy includes a mix of ideological associations, whereby machinery is linked with progress and improvement, as well as the printing press and the spread of literacy. As Lady Delacour’s reformation indicates, mechanical literacy implies an ethos about conspicuous consumption as well as production; those who govern machines are not governed by excessive desires for the things machines produce. Thus it implies a narrative about how humans control the world of things by mastering the natural sciences as well as themselves, which sets apart the industrious middling classes from both the laboring poor and those among the wealthy who mechanize themselves by mistaking luxuries for necessities.

**Harry and Lucy: Mechanics for girls**

Mechanics connects micro and macro scales: local production with global trade, domestic education with empire expansion, simple tools with planetary motion. In *Harry and Lucy*, mechanics connects domestic, feminized work with natural philosophy and global trade, granting Lucy the sense that her limited sphere as a young girl extends to great things. The series dramatizes the relationship between the poetically-inclined Lucy and her scientifically-gifted elder brother, Harry, in a coeducational relationship that mirrored Edgeworth’s partnership with her father and illustrates monitorial education in the home.\(^{299}\) Flighty and imaginative, Lucy is

\(^{299}\) Although Edgeworth doesn’t mention Monitorial education, her introduction to the 1825 edition recommends that children learn from other children, and this theme is underscored throughout: “The system of mutual instruction
frustrated because her female education has made her grow apart from her favorite brother, who has “grown so excessively fond of mechanics, and all those scientific things, which he is always learning from my uncle and papa.” At the commencement of the series, Lucy successfully advocates with her mother for the right to join her brother, once again, in his science lessons, and the mother is forced to acknowledge with Lucy that “by acquiring knowledge, women not only increase their power of being agreeable companions” to “sensible men” but also “their own pleasure in reading and hearing of scientific experiments and discoveries” (1:7). In addition to these Wollstonecraftian arguments for expanding women’s education, the purpose of studying the sciences is to train Lucy’s ability to direct and sustain her attention, a goal that mutually hones her powers of language and observation. The scientific education of women is valued in Lucy’s family because her parents believe it will transform her mind, allowing Lucy to control her faculties, independent of parental discipline. Meanwhile, Harry is forced to confess that he should “try to like poetry better” when he discovers its ability to stimulate affective investment in scientific advances (1:54).

Experimental science and poetry are symbiotic in Harry and Lucy—siblings, perhaps, or (autobiographically) father and daughter—a point that Lucy’s father makes by offering the children a rapprochement through a passage from Erasmus Darwin’s The Economy of Vegetation from The Botanic Garden on “the wonders performed by the expansive force of steam.” Following the children’s steam experiments with a teakettle, he chooses descriptive passages of steam-powered machines like grain mills, pumps that drain mines, and bellows in foundries, can be still more advantageously pursued in teaching the rudiments of science than those of literature, and may be extended even to higher branches of intellectual education. Upon this principle, . . . the young brother is employed to teach his sister what he has learns, either from his father or from books” (Harry and Lucy, xi). This “system of mutual instruction” is another way of saying monitorial methods, which by this point were implemented in middle-class schools and in secondary schools.

300 Edgeworth, Harry and Lucy, 2. Hereafter cited in text.
culminating with the steam-powered national mint: “Hard dies of steel the cupreous circles
cramp, / And with quick fall his massy hammers stamp; / The Harp, the Lily, and the Lion join, /And George and Britain guard the sterling coin.” At these recitations Harry “looked triumphant” (1:134) at what he calls the “terribly great power” of steam, which “can do more in an hour than two hundred horsed and fourteen hundred men. . . . Think what we men can make it do at our bidding” (1:143, 1:118-19). Lucy translates Harry’s praise into her poetic language, exclaiming that steam “does more at men’s bidding than any of the genii in the Arabian Tales, more than any of the slaves of Aladdin’s lamp” (1:119-20).

Both Harry’s technical observations and Lucy’s poetic allusions fantasize commanding vast quantities of labor through machines. With such control, the world becomes enlivened, as if working in perfect obedience under human management—but these are proper slaves of fantasy that have no human needs, desires, or grievances, while the work of actual people is omitted. Because the elements can be subdued, Lucy, too, can control herself—she will learn to control her imaginative powers while she learns how to measure the world with instruments and comprehend machines. As her father’s readings from Darwin hint, Lucy’s mastery of scientific principles is not merely an individual journey of progress; she takes part in a transformation of national significance, as steam literally makes money, wherein “The Harp, the Lily, and the Lion join,” the nations coming together in united power over air, water, and fire. Since Harry and Lucy was published around the time of Irish unification with Britain in 1802, the steam-engine represents a new future where technology translates seamlessly across borders, bestowing universal benefits that enrich every nation at the expense of none.

These technological fantasies tie the quotidian education of Lucy’s family with vast political changes, economic systems, and physical laws. The method through which both
children learn—Lucy, for instance, observes how the teapot creates steam, and how steam condenses on cold surfaces—connects the feminized domestic concerns of education and self-regulation and the national concerns of political economy and industrial supremacy.\(^{301}\) As Harry soon discovers while learning about his sister’s work, industry requires knowledge from the domestic sphere. After Mangling “a chain” of tambour work, he must acknowledge not only the intricate skill required, but the difficulty of comprehending it accurately enough to replicate women’s labor with a machine. Even their father fairs no better, and the two consol themselves “that their perfect theory [of needlework] had helped, would help, or should have helped, them very much” (1:138). The subtext of the episode is that Lucy is superior at some tasks merely because of practice, so her brother should be more patient with her progress in the sciences. This lesson precedes their visit to Arkwright’s mill, where they learn about the history of cotton manufacturing, whose “machinery earns for England one thousand pounds every working hour,” instead of “doing everything by the labour of men’s hands, as in India” (1:177, 1:176). The quality of English muslin, their mother notes, now competes with Indian muslins because of British innovation. *Harry and Lucy* shows how mechanical literacy might give a young girl a sense of expansive power.

\(^{301}\) There is a biographical element to the domestic and political convergences through which *Harry and Lucy* weaves together the bourgeois discourse of education with a political narrative of British progress. While Maria Edgeworth was occupied with codifying domestic education with her moral tales, Richard Edgeworth turned his attention to the problem of legislating popular education in Ireland. She writes to Charlotte Sneyd in April 2, 1799, “In the paper of to-night you will see my father’s farewell speech on the Education Bill,” and she acknowledges that her friend has provided input both “to the Chairman of the Committee of Education [her father] and on her literary ‘lessons for the poor’” (Hare, *Life and Letters*, 1:67-8). Richard Edgeworth’s bill did not pass, and since Ireland’s parliament was dissolved with unification soon afterwards, it is difficult to say whether the issue was related to those impending political changes. His draft of the bill survives in the family papers. He supported government schools for both Protestant and Catholic children, educated together or separate according to local choices, and where separate schools are established, Catholic clergymen were empowered to appoint teachers, just as the Anglican clergy did for other schools. His position on education and religion is closer to the Lancasterians, or to James Mill’s rallying call “schools for all, and not for churchmen only”—that is, he objected to exclusively Anglican schools under the control of the Anglican clergy. After her father’s death, Edgeworth despaired of finishing *Harry and Lucy* without his help, and the later stories occasionally betray a more guarded assessment of industrial landscapes omitted from the celebratory descriptions of earlier tales (Butler, *Maria Edgeworth: A Literary Biography*, 144).
Popular Tales and Popular Literacy

Lucy proves herself worthy of joining her brother’s studies in natural philosophy through her ability to appreciate the complexity of machines and what they represent. Similarly, the working-class protagonist of “Lame Jervas,” the leading story for Edgeworth’s Popular Tales, uses mechanical literacy for self-fashioning. His ability to understand networks of production and global trade are continually linked with literacy, appropriate for a story collection that, I argue, intercedes in contemporary debates on expanding popular literacy.

“Lame Jervas” follows the rags-to-riches progress of a fictional automaton-maker, William Jervas, who makes his fortune through a machine model of the Cornish tin mines where he worked as a child. After touring Britain with his model, Jervas captures the attention of an East India Company agent, who employs him as Andrew Bell’s assistant in his orphan charity school in Madras. A historical contemporary of Edgeworth, Bell introduced the Monitorial System in England (or Madras System) after its confirmed success in India. Referred to by Bell’s friend and supporter, Samuel Coleridge, as a “vast moral steam-engine” that should be “adopted and in free motion throughout the Empire,” the Bell system was praised by contemporaries for organizing the classroom like a machine and, more recently, derided by Michel Foucault as a disciplinary mechanism.302 In other words, Jervas’s progress via automaton construction intersects with a historical, international debate about expanding literacy through mechanically organized students and classroom exercises.

Edgeworth is one of the post-revolutionary educator-authors that spearheaded the utilitarian project to educate the masses by disseminating information through printed mediums, similar to Charles Knight and Henry Brougham efforts in the 1820s and 30s. Describing “Lame

302 Coleridge, Stateman’s Manual, Lay Sermons, 41.
Jervas” as a “story of self-help which looks back to Dick Whittington and forward to Samuel Smiles,” Alan Richardson identifies Jervas “as a prototype of the self-educated technician and self-made inventor and entrepreneur who would constitute the ideal (if hardly the actual) reader of *The Mechanics’ Magazine* and the Library of Useful Knowledge.” Edgeworth suggests that mutual investment in the system of labor exchange and property ownership provides a foundation for class reconciliation based on shared values like family affection, loyalty, frugality, and industry.

The fused values of property ownership and popular literacy in *Popular Tales* captures the spirit of reform promoted by allied Whigs and Radicals in Parliament after 1800. In contrast to the patterns of oppression that dominate in a novel such as Godwin’s *Caleb Williams*, Edgeworth designs lines of cooperation that depict sympathetic, poignant interactions across class boundaries. When Jervas complains of “tyrants” in the mines, he refers to the way older workers defer heavy, dangerous tasks to young children and habitually blame them for their own negligence (9), which causes his injury. While at first Jervas longs to become the abuser instead of the abused, he exits this cycle of violence through the care of Dr. Y— and his “master,” the mine’s proprietor, who tends him after he breaks his leg. When he contrasts their affection with the neglect of his companions, he decides to “imitate” the “better sort” of miners who visit him. “I learned how they laid out their time and their money,” he reflects, “and I now began to desire to have, as they had, a little garden, and property of my own, for which I knew I must work hard.”

Rebounding with his new appreciation for investment, Jervas next protects his master’s property by informing on several miners who hide their discovery of “Cornish diamonds” and secretly steal the load for their own profits. Jervas gains the confidence of his next master, a

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traveling lecturer, after he calls attention to his mistake in giving him a guinea covered with quicksilver (from a chemical demonstration) in place of a shilling. Thereafter, the suspicious instructor trusts Jervas with his property, allowing him to read from his library of books and participate in producing his lectures. Once in India, the reports of Jervas’s honesty impress Tipu Sultan, who employs him to tutor his son and improve his diamond minds. Pointing to the prevalence of paternal mentor figures in Edgeworth’s fiction, Julie Wright argues that fostering creates a “double-discipline of sentiment and duty” that bonds characters like Jervas to the establishment and counteract Edgeworth’s prescient for unlikely (and socially disruptive) reversals of fortune. As Wright observes, each stage in Jervas’s advancement requires passing “a test” that “proves his usefulness to his masters,” but the common denominator of these paternalistic relationships is quite specific for Jervas: by repeatedly demonstrating his respect for his masters’ property, they reward him with access to a quality education, one that bestows mechanical literacy.305

The story’s over-determined relationship between property and education positions literacy as something more than reading and writing; learning to read involves a sanctioned redirection of desires for objects towards the desire for knowledge, which permits long-term investments and delayed gratification. In this way, Popular Tales advocates a particular relationship between people and things, property and labor, environment and education, which characters must embrace in order to reap the rewards of middle-class security. The collection makes the case for educating the working classes and permitting upward mobility on the condition that they embrace and disseminate these values of property, labor, and improvement. Those who make this transition are masters over machines; they organize the world of things.

305 Wright, Ireland, India, and Nationalism, 74; Wright, “Courting Public Opinion,” 149; see also Haywood, Revolution, 85. Jervas “chooses paternalism over anarchy and violence.”
Explicitly aimed at the newly literate classes, the collection announces its concern with literacy and working-class education by opening with the mystery of a miner’s signature, carved in the rocks of a Cornish tin mine. Pointing “to some letters that were carved on the rock,” a gentleman touring the mines asks his guide: “Whose name was written there?” The guide pronounces, “William Jervas,” and proceeds to recount Jervas’s disappearance long ago and the rumors that his ghost haunts the mine. When the ladies and gentlemen laugh at the quaint superstitions of their Cornish guide, “words” almost come “to blows” before the inquiring gentleman can “put an end to the dispute” by revealing, to everyone’s astonishment, that he is William Jervas. The miner-turned-gentleman visits the mine’s proprietor, Mr. R—, and the miners accept a general invitation to dine outside in tents with their employer, where Jervas appears “dressed in his miner’s old jacked and cap” to tell his story (6-7).306

The audience assembled by Jervas for dinnertime biography symbolizes the rapprochement between classes advocated by Edgeworth’s collection, with its economically diverse target audience. Because he prevents violence from erupting between the miners and the touring gentlemen, Jervas is a double for Maria Edgeworth, who convenes a mixed-class audience in the intimate setting of her literary dinner table and performs her stories while self-consciously costumed in the cloak of a working-class speaker. Recognizing her ventriloquism, The Edinburgh Review praises Edgeworth’s “talent of observation,” which “has taught her” the “simple art, of talking on paper, in the very style really employed by such characters as those that she so naturally represents.”307 In the wake of Castle Rackrent (1800) and Belinda (1801), which established Edgeworth’s reputation as an adult fiction writer, Popular Tales pleased for similar

306 The choice of a Cornish miner as the main character could possibly refer to the abysmal literacy rates among mining children, as well as the (rather contradictory) claim that Thomas Paine’s Rights of Man circulated in the Cornish Mines. Ian Haywood specifically mentions that Paine’s Rights of Man was reportedly read in the “Cornish tin-mines,” which is Jervas’s locale (21).
307 “Miss Edgeworth’s Popular Tales,” Annual Review and History of Literature, January 1804, 461.
reasons (its Irish characters are always mentioned with enthusiasm), extending Edgeworth’s ability to wear the clothes, or assume the voice, of particular stations as well as nationalities.

The project’s political significance is obvious to the reviewer, who finds it “superior in genius, as well as utility, to the laudable exertions of Mr. Thomas Paine to bring disaffection and infidelity within the comprehension of the common people, or the charitable endeavours of Messrs. Wirdsworth & Co. [sic.] to accommodate them with an appropriate vein of poetry.” Such “superfluities,” he insists, “they might have done very tolerably without.” While the notion of combining amusement and instruction is as venerable as Homer, he admits, the innovative contribution of *Popular Tales* is its entertaining stories, featuring quotidian experiences actually faced by the less affluent reading public—a combination that offers a viable alternative to the unsavory literature aimed at these audiences. These remarks take their cue from Richard Edgeworth’s preface, which defines the audience of *Popular Tales* as statistically as those nine in ten literate Britains, estimated by Edmund Burke at “eighty thousand readers,” of which, he estimates, seven in eight are neither “nobility, clergy, or gentlemen of the learned professions.” These seventy thousand readers from “beyond circles which are sometimes

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308 “Miss Edgeworth’s Popular Tales,” *Edinburgh Review*, July 1804, 330. If the British elite learned one thing from the suppression of publications in the wake of Thomas Paine’s *Rights of Man*, which sold 200,000 copies in one year, it was that artisans, tradesmen, and common laborers would read literature. As Hazlitt recalled, “It was impossible to prevent our reading something” (qtd. Altick, *English Common Reader*, 73.) Paine’s *Rights of Man* was issued in two parts. Part one, published in March 1791, cost 3s., the same price as Burke’s *Reflections on the Revolution in France*, and reportedly sold 50,000, in part because Corresponding and Constitutional Societies aided distribution. In response to demand, the second part, issued in Spring 1792, was available in a 6d. edition, and a cheap edition of part one was issued as well. The sales figures for these inexpensive editions made the availability of revolutionary literature to less affluent readers a matter of national security (Altick, *English Common Reader*, 69-70). For further discussion of Paine and the 1790s as a formative period that defined the popular reading public, see Haywood, *Revolution in Popular Literature*, 11-25.

309 The *Edinburgh Review* anticipates that *Popular Tales* will find favor among “the great and respectable multitude of English tradesmen, yeomen, and manufacturers—in that most important part of our population which consists of the well-educated in the lower and middling orders of the people,” although it may fail to convert “millinery misses and aspiring apprentices” who prefer novels populated by “counts, baronesses, or Adelines” (330).

310 Burke’s eighty thousand readers is quoted by contemporaries as well as scholars of popular literature (Haywood and Altick), but since Haywood cites Altick, I don’t know that the original Burke tally has been located. In *Proposals for Peace with the Regicide Directory of France* (1796), Burke estimates the informed British public at “four hundred thousand political citizens, . . . about eighty thousand” of whom are “pure Jacobins” (67). The
exclusively considered as polite” deserve “instruction, in the dress of innocent amusement,” adapted to their “different ages, sexes, and situations in life.” Writing literature for this audience is necessary, he explains, because the “art of printing has opened to all classes of people various new channels of entertainment and information.”

Despite its professed audience, *Popular Tales* was priced above the pockets of Cornish miners. Ethical barbs directed at wealthier readers—e.g. “The Manufacturers” censures a factory owner who would rather play gentleman than look after the condition of his workers—suggest that *Popular Tales* discourages sedition among the poor while correcting wealthy readers who fail to accept their paternalist responsibilities. This unacknowledged audience of readers with a charitable or political investment in the national education and poor law debate, suggests that Hannah More’s *Cheap Repository Tracts* is not, as most critics assume, the closest contemporary corollary for *Popular Tales*. Furthermore, while Edgeworth’s didacticism might seem heavy-handed to today’s readers, there are some indications that Edgeworth found political tracts condescending. In her introduction to Mary Leadbeater’s *Cottage Dialogues*, Edgeworth implicitly advocates didactic complexity in literature for working-class readers: “None of the interlocutors in these dialogues are destined merely to speak the author’s fine sentiments, or to acknowledge the folly of all who are of an opposite opinion—one of the dramatis personae is not produced to harangue, and domineer, and the other to ask questions, and be refuted—one is not made a miracle of wisdom, and the other a man of straw.”

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312 Provide price information; look up whether Edgeworth attempted to produce cheaper editions, which I think she might have.
313 Cf, Haywood, *Revolution*, 83-86.
distributed to the poor by Sir Thomas Bernard, co-founder of the Society for Bettering the Condition of the Poor, Edgeworth’s *Popular Tales* was not put to the same use—although Edward Wakefield, an educational philanthropist and Lancaster supporter, suggested its distribution.315

While *Village Politics* may have inspired *Popular Tales*, the closest match is Elizabeth Hamilton’s *The Cottagers of Glenburnie* (1808), which ostensibly provides moral guidance to the poor but in actuality addresses a question that primarily concerned elite readers: Should they fear educating the masses?316 Both Edgeworth and Hamilton offer competing constructions of the newly literate public that challenge the anti-Jacobin fear-mongering that surrounding the spread of literacy. The need to make popular literacy seem safe explains why both books afford a central place to rags-to-riches protagonists—Edgeworth’s Jervas; Hamilton’s Mrs. Mason—who gain literacy through a benevolent patron, repay education with gratitude, and become centers of moral authority within their communities while serving as school teachers for the poor. Where Edgeworth promotes monitorial education by inserting Andrew Bell’s school into “Lame Jervas,” Hamilton recommends the now forgotten Irish monitorial educator, David Manson, adding Joseph Lancaster in later editions.317 These texts promote monitorial schools in the same decade that Whitbread defended the practicality of a national system of education before

315 “Did the government purchase the copy-right of Miss Hamilton’s *Cottagers of Glenburnie*; or Miss Edgeworth’s *Popular and Rural tales*; Mrs. Leadbeater’s *Cottage Dialogues*; and a few more such works, and sell them at a cheap rate, it would save the sheriff the cost of many a halter, and effect more than half the acts of parliament which will be passed in the next ten years” (Wakefield, *An Account of Ireland*, 2:416).
316 Edgeworth recommended Hamilton’s *Cottagers of Glenburnie* in a letter to Mrs. Margaret Ruxton, dated Feb 2, 1809: “This minute I hear a carman is going to Navan. I hasten to send you the Cottagers of Glenburnie, which I hope you will like as well as I do. I think it will do a vast deal of good in Ireland, & besides it is extremely interesting which all good books are not it has great powers both comic and tragic” (Hare, *Life and Letters*, 1:160). Contemporaries pair *Popular Tales* with *Glenburnie*, for eg. in a Letter from Agnes Porter to Lady Mary Talbot dated 9 Feb 1810: “I think you would like Mrs Hamilton’s Cottage of Glenburney [sic], and Mrs Edgeworth’s Tales of Fashionable Life” (Porter, *A Governess in the Time of Jane Austen*, 292).
317 Perhaps because they are not mired in English education politics, Edgeworth and Hamilton avoid partisanship: Bell was the choice of most Anglicans and Lancaster associated with dissenters, but neither mentions religion in their recommendations.
Parliament by citing Bell and Lancaster. Thus unlike Hannah More’s *Village Politics*, *Popular Tales* speaks with a forked tongue to two audiences. Jervas is not only a model for other workers; for wealthy readers, he represents what the educated worker of the future might look like.

For Jervas, the path to literacy begins with his experience as a manual worker. The tools of his trade become the means used to teach him the usefulness of reading. When Jervas first joins Dr. Y—‘s household, he finds the doctor with his “children about him” engaged in active investigations that require moving their bodies: “one little chap on his knee, another climbing on the arm of his chair; and two bigger lads were busy looking at a glass tube, which he was showing them when I came in.” The doctor invites Jervas to join his children’s lessons, when, “He saw that I gazed, with vast curiosity, at several objects in the room, which were new to me: and, pointing to the glass tube, which he had been showing the boys when I first came in, he asked me if they had such things as that in our mines; and if I knew the use of it? I told him I had seen something like it in our overseer’s hands; but that I had never known its use. It was a thermometer. Mr. Y— took great pains to show me how, and on what occasions, this instrument might be useful” (31). Rather than mocking Jervas’s ignorance, the doctor praises him when he asks a “sensible question” (32). Here is the typical illustration of Edgeworth’s treatise, *Practical Education*: the domestic scene, where adults converse rationally with children, teaching them casually by letting the children explore the objects surrounding them. Since *Practical Education* targets education in affluent households, it is significant that the entire focus of the doctor’s character is to illustrate how these techniques might be extended to a working-class child like Jervas.

The doctor follows several principles embraced by the pedagogical innovators of Edgeworth’s circle, even though these are not typically valued in educating the poor. He lets
Jervas’s curiosity determine what lessons he teaches instead of following a preset agenda; he connects new knowledge with older, concrete knowledge from Jervas’s own experience; he uses the Socratic method and invites Jervas to ask questions; and he permits Jervas to explore the thermometer with his hands. Through handling the thermometer, the doctor discovers Jervas’s illiteracy and, once again guided by Jervas’s desires, offers to pay the writing master “as I wished to learn” (32). The relationship between handling the thermometer and learning to read is the first indication that Jervas’s education plaits together mechanical literacy with other forms of literacy. Significantly, Jervas associates the thermometer with a position of authority. It belongs in the “overseer’s hands” and Jervas “had never known its use” (31). Now that he holds the instrument and understands its uses, Jervas takes the place he previously affords the overseer.

Jervas the narrator holds up the doctor as an “example” for “those who give advice to young people, especially to those in a lower station than themselves,” because “instead of haranguing with the haughtiness of superior knowledge,” he speaks “with such kindness as to persuade” and “convince” (35). The methods Dr. Y— uses to teach Jervas are implicitly those embraced by *Popular Tales* more generally, which seeks to persuade readers of all stations through appeals to rational argument. The tone of Jervas the narrator, wearing his old work clothes while he addresses the miners, imitates the doctor’s attitude toward young Jervas, who is a shadow-figure for Edgeworth herself.

In a broader political context, the episode with Dr. Y— supports the position common among whigs and utilitarians, that educated elites should superintend the extension of literacy across all classes in order to ameliorate the discontent spread by unsupervised print cultures. “We have always thought general knowledge necessary for the lowest ranks of the community,” comments one contributor in the *Gentleman’s Magazine* (1813), sounding much like Richard
Edgeworth’s “Preface,” “because they become less liable to be duped by those specious publications, of which “The Rights of Man” and “The Age of Reason” were the precursors.”

“[M]eeting with untutored intellect,” such works “produced incalculable mischief.”318 Through education, the lower classes become rational, meaning that they support the status quo. Against the subset of conservatives who opposed any reading curriculum (let alone writing) in schools for the poor, author-educators from Hannah More to Harriet Martineau, argued that workers resorted to smashing machines and self-destructive food riots, because uneducated, illiterate people are naturally driven by the irrational desire to alleviate their most pressing pains by shortsightedly grasping at immediate pleasures.319 Indeed, this tendency to shortsightedness is itself a barrier to educating the poor. Samuel Johnson held the opinion that “among the lower classes of men, there will be found very little desire of any other knowledge than what may contribute immediately to the relief of some pressing uneasiness, or the attainment of some near advantage.” One commentator adds in 1825, that the “insurmountable obstacle” to educating “the lower classes of society” is their “inappetancy” for “any species of information which does not lead, in a direct manner, to the gratification of their sensual appetites.” The “advantages” of education are too “remote” to compete with “animal pleasures.”320

Assuming the material-mindedness of the poor, educational practices devised for them aimed to draw out the mind from its obsession with the immediate, physical world, enabling the poor to focus attention on things remote and abstract, or on rational arguments that emphasize long-term rewards. This transition, however, required meeting the poor where their minds originally stood—in the physical world. Jervas’s story describes his transition from the education

318 “Suggestions to the Promoters of Dr. Bell’s System of Tuition,” Gentleman’s Magazine, July 1813, 57.
319 For the benefits of reading to social stability, see Altick, English Common Reader, 140-41. Also, Simon, The Two Nations & the Educational Structure, 120-40.
of things to the education of words. In the lesson with the thermometer, his plunge into literacy is tied to investigating an instrument of measurement, itself an abstract extension of his body and a symbol of authority over the mines. Learning to read is, furthermore, the impetus for his first investment. He uses the reward money from his master to hire craftsmen that help build a model of the mines where he worked, according to his specifications. The project requires Jervas to revisit the mines at night, risking his life to “make it exact.” “I measured and minuted down every thing with the most cautious accuracy,” he recalls (39). As an observer of the mines, Jervas’s understanding of the mining process now resembles that of the proprietor who holds the thermometer: Jervas returns to the mines to measure them.

Jervas uses his sophisticated automaton model of the mines as an educational demonstration for the local children of middle-class families. He describes his model workers as mechanical men, superior to the miners in the docility with which they submit to his corrective tools. Jervas adjusts “one stiff old fellow” and “an obstinate old woman, who would . . . but curtsey, when I wanted her to kneel down and to do her work” (43).

It was some time, even when all this was ready, before we could contrive to make our puppets do their business properly: but patience accomplishes every thing. At last we got our wooden miners to obey us, and to perform their several tasks at the word of command; that is to say, at the pulling of certain strings and wires, which we fastened to their legs, arms, heads, and shoulders: which wires, being slender and black, were at a little distance invisible to the spectators. (41-42)

Jervas’s transition from puppet to puppet-master is representative of a larger pool of such tales about automaton makers whose intellect places them above machines that do their bidding. Like Maillardet’s exhibit with the child automata, Jervas’s automaton miners communicate a variety
of associations—order, improvement, hierarchy, control—linked with both education and industrial inventions.

In modeling the mines, Jervas places himself in a God-like visual position, able to see the entire mining process at once and comprehend it as his own creation. With his newfound perspective, Jervas distances himself from mechanical labor and views the mines as a system. To understand the class significance of this move, consider how Andrew Ure (decades later) defends the “factory system” as a mysterious whole, incomprehensible to the common laborer: “Of the amount of the injury resulting from the violation of the rules of automatic labour, he [the laborer] can hardly ever be a proper judge; just as mankind at large can never fully estimate the evils consequent upon an infraction of God’s moral law.”321 The perspectival change that Jervis undergoes illustrates an emergent iconography used to describe how laborers might be given greater respect and authority through education. If Jervas accesses literacy, education, and (eventually) wealth through his mechanical knowledge, then presumably other workers can do the same. It is unclear, however, to what extent his story advocates that popular education extend to the poor the kind of visual power that Jervas assumes through his automaton model of the mines.

**Jervas in India and Tipu’s Tiger**

After touring English schools with his automaton model of the mines, Jervas secures a position as an assistant in Andrew Bell’s Madras charity school in India, then tutors Tipu Sultan’s son and heir in the natural sciences, and finally managing Tipu’s diamond mines. In this second half of “Lame Jervas,” Edgeworth celebrates Jervis and Andrew Bell as representatives of British superior mechanical skill, the one in natural philosophy and the other in education.

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Curiously, her story overwrites an actual history of theft and appropriation, since the British stole an automaton from Tipu Sultan and Andrew Bell learned his Monitorial method by watching Indian children teach one another. This intersecting history is worth considering in partnership with Edgeworth’s fictional tale because she carefully constructs her narrative around facts, citing Andrew Bell’s pamphlet on Monitorial education and alluding to recent events in India.

The lessons about property rights and social mobility that Jervas gleans in England are supported by the dysfunction Jervas finds in Tipu’s mines. Instead of carefully investigating the diamond mines in order to patiently correct the corruption that plagues his operations, the Sultan rules through fear by punishing innocent workers based on unsubstantiated rumors. Since the miners are slaves, they feel little incentive to improve the mines beyond terror. By allowing workers to share in the profits created by inventing or implementing new methods, Jervas increases mine production, and he eventually persuades the Sultan to free his slaves. His services are not rewarded, however, as the cycle of spite and deception land Jervas in jail, and he narrowly escapes with his life. By locating ineffectual and abusive working conditions in India, the story implies that English miners are comparatively well off as “free” laborers in a capitalist system that rewards hard work and honesty.

Jervas’s Indian adventures skirt the border between realism and Romance, while referencing actual historical figures like Andrew Bell and Tipu Sultan. As Julia Wright notes, Edgeworth’s Tipu “is painted in overwrought orientalist colours,” while Jervas, as Ian Haywood argues, makes “an ideal representative of empire” in Tipu’s court, as “an ambassador of technological modernization.” Consumed with greed and petty competition, Tipu fails to learn from Jervas’s scientific lectures. “The Sultan,” Jervas observes, “was much more intent upon displaying his small stock of mechanical knowledge than upon increasing it; . . . Sometimes he

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322 Wright, Ireland, India, and Nationalism, 75; Haywood, Revolution, 85.
would put himself in competition with me, to show his courtiers his superiority; but failing in these attempts, he would then treat me as a species of mechanic juggler, who was fit only to exhibit for the amusement of his court.” When Jervas uses instruments to demonstrate scientific principles, the Sultan demands the objects as gifts “with the eagerness of a child who has begged and obtained a new plaything” (75-6). Instead of appreciating the abstract principles of science, which have practical applications in Tipu’s realm, Tipu fetishizes the objects used in the exhibits and relishes mere entertainment. His encounter with Jervas’s machines prove that he cannot improve himself or his people.

Tipu Sultan’s appreciation for showy displays of wealth and power and his dismissal of improving entertainments contrasts with the curious, respectful bearing of his son. Historically, two of Tipu’s children became the hostages of Lord General Cornwallis in 1792 at the close of the Third Mysore War, ensuring Tipu’s complicity with an unfavorable treaty that seized half his lands and a large portion of his wealth. Although these events are not referenced by “Lame Jervas,” the story must take place after the heir’s return to Tipu’s court but before the Tipu’s death in 1799, when General Baird destroyed Seringapatam. Thus Edgeworth’s readers would interpret the superior manner of Tipu’s heir as the result of his British education. Analyzing popular sentimental images of Tipu’s sons that circulated in Britain, Catherine E. Anderson concludes that depictions of the hostage transfer Europeanize Tipu’s sons and communicate their eagerness to accompany Lord Cornwallis, who is represented as a safe, paternal figure. These same images, she argues, represent Tipu as effeminate, “a poor father, to his subjects and to his sons,” making the case that “the East India Company constituted a better parent to India than its own native rulers.”323 The characterization of Tipu and his heir in “Lame Jervas” merely reiterates this prescription and proves inconsistent with the letters of Bell’s assistant, William

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323 Anderson, “Tipus Sultan’s Sons,” 20, 27.
Smith, whom Edgeworth cites as a real historical corollary for Jervas. Smith’s report of the scientific demonstrations he performed in Tipu’s court are appended to Andrew Bell’s pamphlet on his monitorial system. By Smith’s account, Tipu displays technologically savvy when he indirectly interrogates Smith about the military applications of English technologies, which is consistent with the respect and fear accorded him, in real life, by British officials.

There can be little doubt, then, that Tipu’s casting in “Lame Jervas” as an incompetent ruler and cruel slave-owner legitimates the British invasion of Tipu Sultan’s fortress at Seringapatam on May 4, 1799, when troops killed Tipu and destroyed the town. Newspaper accounts of the fall of Seringapatam appear in the months preceding October 1799, the date of composition for “Lame Jervas,” along with reports of Tipu’s unparalleled library (promptly shipped to England). Considering the preoccupation with property rights in Popular Tales, Edgeworth’s portrait of Tipu as an avaricious ruler erases the looting of Seringapatam at his death, which was notorious enough to furnish the vengeance legend for Wilkie Collins’s The Moonstone. A half-century later, “Lame Jervas” is the only Edgeworth story reprinted in the collection Moral Tales “for young readers in Bengal” (1849), with the unfortunate title, “The Reward of Honesty.”

In the months following the invasion of Seringapatam, models of the battle, with “new scenery and machinery” became a popular entertainment advertised in British London papers. This strange intersection between mechanical popular entertainments and British military

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326 “Extraordinary Novelty,” The Times, September 30, 1799, 1. This paper advertises for a show on “The Storming of Seringapatam” with “new scenery and machinery.” Such displays are usually conflagration models of cities destroyed, as described in Altick, Shows of London.
expansion in India received an addition twist with reports, in April 1800, that an automaton constructed in Tipu’s court was on its way to London. As described in *The Weekly Entertainer*, the machine depicted Tipu’s royal tiger attacking an agent of the East India Company [figure 26]:

A piece of mechanism representing a tiger in the act of devouring a prostrate European. There are some barrels in imitation of an organ within the body of the tyger: the sounds produced by the organ are intended to resemble the cries of a person in distress, intermixed with the roars of a tyger. The machinery is so contrived, that while the organ is playing, the hand of the European is often lifted up to express his helpless and deplorable condition. This piece of mechanism was found in a room of the palace at Seringapatam appropriated for the reception of musical instruments.

Upon arrival in October 1799, the tiger was presented to the royal family and promptly displayed in the Tower of London, along with two cheetahs and Tipu’s gold throne. Oddly enough, the automaton caught the public’s imagination, and a figurine depicting the tiger mauling Monrow (the man thought to be depicted) became, as “The Death of Monroe,” one of the most popular chimney-piece decorations in British households. In other words, “Lame Jervas” chronicles the progress of a Cornish miner, who tours England with an automaton model of the mining process and earns his fortune by adapting European technologies to Indian diamond extraction—but in reality it was Tipu’s automaton that traveled to London, where it was tamed into a harmless, porcelain model.

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327 “Capture of Seringapatam,” *General Evening Post*, April 1800. Describes Tippoo’s Tiger in detail, saying that it will be shipped to England from Madras.
328 “A Description,” *Weekly Entertainer*, December 1800. Lists “gifts” to the royal family, taken from Tippoo, including the automaton. Other reports appear in dozens of papers.
329 Alan Rauch brought these popular porcelain figurines to my attention.
“Lame Jervas” portrays a unidirectional transfer of technologies (industrial and educational) from England to India, where England is the metaphorical mentor to Mysore, represented by Tipu’s sons. This colonial paternalism is undermined, however, by the story’s engagement with actually historical events. By citing Andrew Bell’s pamphlet on his Madras school for orphans of mixed-race parents, Edgeworth reminds readers that the monitorial methods used to educate poor children in England derived from Bell’s observations of children teaching children in the villages of India. *Popular Tales* cannot consciously register the dual-directional, transnational circulation of technologies of education, because these exchanges contradict the narrative of technological and educational progress it uses to assert British supremacy. Instead, it replaces this history with Tipu Sultan’s failed machine encounter. His ignorance about anything that happens in his mines contrasts with the powerful visual survey that Jervis grasps through his automaton model.

Such comparisons between England and India follow what Michael Adas describes as a new mode of Eurocentrist cultural assessment at the close of the eighteenth-century, at which time “European observers came to view science and especially technology as the most objective and unassailable measures of their own civilization’s past achievement and present worth. In science and technology their superiority was readily demonstrable, and their advantages over other peoples grew at an ever increasing pace.” He notes that expressions of Britain’s national superiority increasingly reference technological supremacy, notably the steam-engine. Technological supremacy is clearly connected, in “Lame Jervas,” with educational supremacy. Maintaining British power depends on supporting popular education sufficiently to locate future innovators from among the general population—or so its supporters argued. As Andrew Irvine,

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330 Adas, *Machines as the Measure of Men*, 134.
chaplain to Marquess Cornwallis, explains in his pamphlet promoting monitorial education for the poor, some children will rise in rank, becoming those “by whose skilful exertions the resources of our national prosperity will be extended, and Britain’s superiority over other nations maintained upon the most noble and commanding grounds.” Much the same as the stolen automaton, the appropriation of pedagogical methods from the Indian people are conveniently forgotten.

Automated Husbands and Mechanical Wives in *Belinda*

Thus far I have explored in Edgeworth’s fiction those machines with less obvious mimetic qualities: Jervas gains authority over himself by modeling his labor in the mines, while the Panorganon transforms simple machines into something children feel with their bodies. These principles are also at work in Edgeworth’s *Belinda*, where Jervas’s progress via mechanical literacy is replaced by Lady Delacour’s transformation into a model wife and mother. Those characters who embrace a life of continued education, like Lady Delacour and the Percivals, triumph over characters who remain stagnant, mechanical, and unimproved. Yet the process of reformation that Belinda teaches the Delacours requires a level of discipline and self-control that might be described as mechanical, at times reducing Belinda herself to an automaton. Belinda demonstrates the complexity of middle-class attitudes towards “mechanized” education in its various forms—at once embracing experimental methods that require the body to learn from objects, while also regulating the body and rejecting an accessorized approach to identity, where a person’s whole self seems to reside, superficially, in costumes, coaches, and exotic aloes.

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332 Irvine, *Reflections on the Education of the Poor*. I should find out if this is THE Cornwallis who fought Tipu and educated his sons. The pamphlet is written after his death in 1805, so Irvine may have served his heir?
Encapsulating these contradictions, the automaton show referenced in *Belinda* was a London sensation for decades. It featured three child-sized automata that executed drawing, penmanship, and musical exercises—all creative accomplishments mastered through repetitive exercise. Opening with the Arrival of Swiss clockmaker, Jacquet-Droz from Paris in 1776, the exhibit continued under his partner, Maillardet, after the London branch’s liquidation in 1790 until 1820. Shortly before Edgeworth wrote *Belinda*, Maillardet gained publicity from royal attendance. In 1798, Queen Charlotte, accompanied by the Princesses Elizabeth, Augustus, and Sophia, and the royal family’s governess, Lady Charlotte Finch, visited Maillardet’s “Automatical Exhibition” in the Grand Exhibition Room of Spring Gardens, London “on which they bestowed the most flattering marks of approbation” [figure 27]. While the details of the display are little discussed in *Belinda*, off-hand references to pieces made by Maillardet assume readers’ familiarity with his work, which toured Britain just before *Belinda*’s publication and was featured in numerous pamphlets and periodical articles.

The exhibit’s composition shifting as pieces were resold, sent on tour, or replaced with replications, but the central figures remained child machines whose repeated labors imitated the exercises assigned to schoolchildren. Resembling a young boy of three-to-four years old, the *Draftsman* draws six different pictures in pencil, a medium suited to his age. He pauses to blow the dust from his paper with bellows-induced breath. The companion of his youth, a *Scribe*, uses a quill to draw pictures and compose poetry, his compositions available for purchase as a souvenir for the visitors who watch his progress. The central figure, a young “musical lady,” bows to her audience before seating herself at her organ. She offsets the mechanical precision of her notes, set to time with her tapping foot, with the interpretive expression of her body movements, “the gracefulness” of her “gesture, and lively motion of the eyes,” while her “bosom
heaves” with the same bellows that animate her instrument. Presiding over the three students is their creator, a headmaster-of sorts, who exhibits his own genius through the masterful repetition of his students. Occasionally he turns to the mechanical dolls and urges them with the commands, “Write! Play! Draw!”

By the time Maillardet exhibited his automaton schoolchildren in London, automata were already linked in the cultural imagination with industrial technology and the factory system, as well as with education reform projects. Advertisements for Maillardet’s exhibit promised family entertainment that could “entice Youth to an exertion of their mental faculties.” Another puff announces, “future ages may boast of abilities in mechanics, which were first inspired by viewing on a holiday Maillardet’s Automatical Exhibition, Spring Gardens.”

The entertainment orchestrated by this exhibit depends on a constellation of associated themes and debates concerning education alive at the turn of the century. The way these child automatons are exhibited depends on the audience’s awareness of what Otto Mayr argues is the machine’s facility in representing authority and obedience. When the showman commands his automatons, he playfully defines himself as a free agent or artistic genius, elevated above the passive creations that must do his bidding—much like Jervas positions himself apart from and above the mining operations through his automaton. As human creations, these machines are passive tools that clarify the ordinarily contentious liberty of the human agents who build them, in much the same way that object learning and mechanical literacy bestows agency on children who become masters of their physical environment. Maillardet’s authority over his students mimics the hierarchy between instructor and child. Yet the child machines are themselves engaged in activities associated with self-improvement, foreshadowing the day when (real)

333 “Maillardet’s Automatical Exhibition,” The True Briton, April 1798; qtd. Altick, Shows of London, 66.
334 “Public Office, Bow-Street,” Morning Chronicle, July 13, 1798.
335 Mayr, Authority, Liberty, and Automatic Machinery.
children will no longer be objects formed by adults, but self-forming adults. These child
automatons illustrate an educational principle of their day, that mechanical repetition trains the
body to form healthy associations and habits. “Mechanism” is the means to autonomy, as well as
its anathema, an ambiguity captured in the definition of “automatous” in Johnson’s dictionary as
a “having the power of motion in itself,” as well as its association with the opposite of self-
governance, a person who lacks some quality essential to humanity.336

This paradox dovetails with what I have argued concerning mechanical literacy.
Mechanics is an essential component of the curriculum for all classes; it develops the faculties
necessary for abstract thinking and bringa the poor and the wealthy together through their mutual
appreciation of the cycles of production and consumption that contribute to human progress. “Is
it reasonable or creditable, or decent,” asked one contributor in the Quarterly Journal, who
questioned prioritizing classical learning over the sciences, “that boys of fifteen years of age and
more should know absolutely nothing of the simplest laws of mechanical philosophy? That they
should know nothing of the growth, production and manufacture of the various objects which are
daily subservient to their necessities and pleasures?”337 Yet the reason poor children should study
mechanics is partly because repetitious labor was considered a degenerative influence. And for
wealthier children, the kind of “mechanical literacy” advocated by educators was defined so as to
largely deny the practical mastery of technologies gained by working-class laborers themselves,
instead emphasizing the need for a larger theoretical understanding of machine principles and
political economy—specifically how these are used to articulate the moral and social message of
the middle-class.338

337 Qtd, Brian Simon, Two Nations, 100.
338 What I explain, here, is further developed in the next chapter on working class efforts to gain representation in
the governance of educational institutions.
Belinda dramatizes these contradictions in the tension between its mechanized characters and the educational mechanisms promoted by Belinda and the Percivals. The various characters in the novel betray mechanistic behavior when they are controlled externally by others or internally by unrestrained passions or regulated desires—a distinction that correlates with the two meanings of “automaton.” Lord Delacour, made predictable by his jealousies and petty power struggles with his wife, “must be wound up with half a dozen bottles of champagne, before he can go” (Belinda 12). Clarence Harvey allows his club friends to fool him into nearly drowning himself, while Belinda’s other suitor, Vincent, is easily manipulated by Mrs. Luttridge into gambling away his estate. Lady Delacour’s one-time “masculine” friend, Harriet Freke, performs the manual exercise with her rifle, just like a soldier automaton owned by Haddock that toured England in the 1790s. And Belinda’s first rejected suitor, Sir Phillip Baddely, makes himself ridiculous by repeating stock-phrase exclamations gleaned from his club buddies (“’Pon honour!” and “damme!”), like a speaking machine. Like Harriet Freke, he disguises his lack of wit by playing with “his little stick, with which he went through the sword exercise.” Perplexed by Belinda’s refusal of a man of his fortune, he “finished by breaking it, and then having no other resource, suddenly wished miss Portman a good morning” (154). He is a man ruled by conventional language and habituated movements, unable to recognize Belinda’s sincere rejections of his offer because her motives do not conform to social prescription. These machine characters forfeit their ability to exercise their own judgment, instead subjecting themselves to the external guidance by their manipulative, so-called friends.

Two Maillardet automata are specifically named in the novel, and both have thematic significance. The most prominent is from Maillardet’s exhibit. After the firm dissolved in 1790, Maillardet added another draftsman, as well as a conjurer and several small, mechanical animals.

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Just as Lady Delacour’s daughter, Helena, describes, viewers fed the conjurer tokens printed with different questions (for example “What is the most universal passion?”). The figure consulted his book, struck his wand, and a door opened to reveal the correct answer (Love). As featured in the novel, Maillardet’s conjurer thematically connects with Lady Delacour’s visit with Mrs. Freke and her object of flirtation, Colonel Lawless, to the celebrated fortune teller Mrs. W—, described as “no common conjurer,” as well as multiple “magic” tricks Mrs. Freke perpetrates to punish those who earn her displeasure (Belinda 47). Maillardet’s mechanical bird recalls Virginia St. Pierre, educated in complete isolation by Belinda’s love interest, Clarence Hervey, according to Rousseau’s prescripts for Sophie. As the subject of Hervey’s experiments, Virginia is quite bird-like: She faints faster than a canary in an airpump when she sees even a portrait of the man she loves and resembles her pet bullfinch in her ignorance; she is kept in a cage and taught to repeat the same song. In other words, there are direct corollaries between the Maillardet automata specifically mentioned by Edgeworth and certain characters in the novel.

As “mechanical bird,” Virginia is an especially complex example of a human/automaton character. Closer to an animal than a human, Virginia cannot distinguish right from wrong or reality from fiction, and she lacks crucial skills of self-knowledge necessary to develop desires of her own. “I have only confused ideas, floating in my imagination, from the books I have been reading,” she says. “I do not distinctly know my own feelings” (Belinda 381). By reading romance novels, Virginia over-exercises her imagination, responsible for generating ideas, without balancing it with reason, which orders, compares, and organizes thoughts. She ultimately pairs up with Captain Sunderland, who fell in love with her through a telescope, indicating the artificiality of her isolation and their interaction. Virginia’s love was inspired by the captain’s

340 Altick, Shows of London, 66-7. Incidentally, the two automata Edgeworth mentions are the same two featured by the cover illustration of Decremps’s The Conjurer Unmasked and Philip Astley’s Natural Magic, books that provide scientific explanations for uncanny phenomena. The topic was likely to interest the Edgeworths.
miniature acquired in her youth and resembles Mary Wollstonecraft’s description of memory in *Vindication of the Rights of Woman* as a noncreative function that can enslave the female mind to first impressions: “One idea calls up another, its old associate, and memory, faithful to the first impressions, particularly when the intellectual powers are not employed to cool our sensations, retraces them with mechanical exactness” (*Vindication* 201). Apparently, this woman of nature is all mechanism. The way her memory functions is similar to Marillardet’s draftsman, tracing impressions left from her childhood to sketch exact artistic renderings of her early memories, without innovation.341

As the protégé of Lady Delacour, Belinda benefits from the negative example of the mechanized society people who surrender themselves to the dictates of fashionable behavior, sacrificing personal happiness to create outward display of what everyone else believes will make them happy. Lady Delacour and Mrs. Luttridge are preoccupied in a destructive competition to outdo one another in lavish parties and political campaigns, while Lord Delacour is consumed with his wife’s superior wit and her flirtations with other men. In this environment, Belinda learns a skeptical approach to her succession of well-intentioned advisors and to trust her own judgment—first rejecting the correspondence of her aunt, then separating herself temporarily from Lady Delacour, and finally refusing the well-intentioned match favored by the Percivals, the story’s moral center.

Belinda’s progression is mirrored by the transformation of those around her, many of whom are reformed by the ongoing education of experience, like her, into seizing control of their own actions and moral development. The ability to self-correct after a reflexive process of candid evaluation distinguishes those characters like Clarence Harvey and Lady Delacour, who

341 The figure shows a close-up of the draftsman’s cams, a series of stacked, flat, metal pieces that rotate while a metal needle traces their irregular shape, then transfers that movement to direct different parts of the mechanism. Clarence Hervey notes that Virginia’s drawings are exact copies of scenes from her childhood, as if no time has past.
are eventually deemed worthy companions of the novel’s moral paragons, the Percivals and Dr. X—. By making improvability rather than perfection the evaluative measure, Belinda complicates the stock character foils used in moral tales. Potentiality—that quality of uncertain destiny that distinguishes the young ingénue—seems widely dispersed among the most experienced and degenerate of the novel’s characters, allowing Lord and Lady Delacour and Clarence Harvey to follow the trajectory of improvement traditionally reserved, in a novel like Francis Burney’s Evelina, for the young lady entering society. To drive home this point, Clarence Harvey discovers that he prefers Belinda’s sophistication over the untried innocence of Virginia St. Pierre.

Perhaps because Belinda’s experience contrasts with Virginia’s innocence, she embodies the ambiguities of an automaton. She is self-controlled to the point of artificiality; indeed, those around her often misread her wisdom as affectation. Lady Delacour may exhaust herself and her rouge pot trying to convince the world that she is happy, but Belinda requires just as much effort to reason herself out of being in love with Clarence Hervey when she believes he will marry elsewhere. Even though Belinda prides herself on knowing her own mind and acting by her own moral principles, her free choices are so packaged in rational consideration that they are indistinguishable from successful ideological indoctrination. By the novel’s conclusion, Belinda has learned to stifle her blushes as effectively as Lady Delacour’s paint can disguise them. Her stoicism frustrates her sympathetic friend (the Lady “de la coeur”), and by comparison, Belinda is less interesting and less witty—in some ways quite like Johnson’s automaton in her too-perfect control from within.

The convergence at Covent Garden of Lady Delacour and Lady Percival, who represent such opposite domestic tendencies, makes sense in light of the automaton show’s paradoxes.
Magicians as well as specialists in practical mechanics used machine displays before mixed audiences, the one to entertain with mystery and the other to illustrate scientific advances and advertise a mastery of mechanics. Automata displays further blurred distinctions between quacks and professional scientists by dramatizing how professional scientific lecturers relied on a magician’s showmanship to stage intriguing experiments. Trick automata like Kempelen’s Turk (which claimed to play chess) could provoke high emotions in audience members because these public deceptions threatened to discredit the automaton as a useful and instructive mode of entertainment and, by extension, question the expertise of the rising professional class—as shown from the oddly virulent objections voiced by Philip Thicknesse in his pamphlet, Speaking Figure and Automaton Chessplayer, Exposed and Detected, to machine displays that claimed to contribute to industrial progress while offering audiences a mere illusion.

The virtues and vices of Lady Percival and Lady Delacour thus intersect in the allure of machines that both imitate and explain life. In the Percival family, as Belinda observes, “there were not family secrets” or “petty mysteries,” while, by contrast, Lady Delacour delights in masquerades and protects her “secret” fatal illness behind locked boudoirs and letter drawers, though she truthfully confesses she has “nothing worse than folly to conceal” (215, 270, 57). The preoccupation of Belinda with rationalizing mysterious phenomena and opening feminine spaces to the “ocular demonstration” of scientific professionals like Dr. X— has attracted critical attention. Lady Delacour is herself a mechanical mystery of sorts, whose driving mechanisms (like her secret sufferings) are artfully concealed behind decorative exteriors.

Secrets and revelations, the drama of Lady Delacour’s life, are dramatized within automaton show themselves. By the time Maillardet ran the London exhibit, display conventions for mimetic automata that claimed to instruct viewers in the motions of animal anatomy had been

342 Stafford, Artful Science, 121-30.
codified into a familiar scripted narrative about scientific enlightenment. Like a cadaver opened before medical students, automata showcased their amazing ability to imitate life, usually followed by an initiation of the audience into its secrets when the showman opened the mechanism and explained how it worked. When exhibited on-stage at a Paris opera house, Vaucanson’s flute player began to play with the curtain down while the audience wondered at its quick and exact execution; then the curtain lifted to reveal the mechanical player. Similarly, his *Digesting Duck* (which ate corn and produced “digested” matter) exactly replicated the bone and feather structures of its biological original, but was displayed with its supporting column of mechanical gears exposed for inspection. Authors latched onto the enlightenment narrative of machinery display by including automata in booklets, such as *Physical Amusements Exposed and Detected*, which explain supposedly magical phenomena through natural philosophy.

Edgeworth’s *Belinda* notoriously concludes in just such a series of revealed secrets and rationally explained mysteries. Juba, the superstitious servant from the West-Indies, finds his nightly visions of an Obeah-woman are easily dispelled when Belinda demonstrates to him how Mrs. Freke executed the practical joke using phosphorus; The mysterious boudoir, where Lady Delacour conceals her medicines, is opened to observation and her concealed illness confessed to friends and physicians; Her drawer that guards her correspondence with Clarence Hervey’s with a secret lock is opened for the perusal of Lord Delacour; and Lady Delacour’s Methodist visions of ghostly visitation are proved natural in origin when the gardener’s trap that closes on Mrs. Freke, while a moderate minister recalls her to rational religion. In each case, close examination, especially “ocular demonstration,” uncovers the illusion through a display-and-explain procedure similar to automaton demonstrations (133).
Most critics seem to think these revelations put Lady Delacour in her place. Such a reading fails to account for why she retains her ostentatious wit and capricious sensibility through the novel’s conclusion. When considered as part of an automaton show, however, revelation is not necessarily conservative. One commentator, who explained the secret behind Kempelen’s chess player, a famous automaton hoax that contained a human, explained in the *Edinburgh Philosophical Journal* that the deception is actually made possible by an elaborate series of disclosures. Kempelen opened all the cabinets and turned back the chess player’s clothes, while the human player slid around to avoid detection. During this procedure, any men of science who happened to be in the audience were invited forward to closely examine the automaton. The writer notes that Kempelen’s tactics were “dictated by sound policy, which teaches that the exhibitor cannot be too assiduous in affording facilities to explore every corner and recess, which, he well knows, contains nothing that he is desirous of concealing.”

Do Lady Delacour and Clarence Hervey sincerely reform, then, by opening up their secret boudoirs, or do these they keep false cabinets and invite ocular inspection in order to conceal? These characters pave their way to virtue in smashed machinery and open cabinets, yet they continue to exhibit the artistic genius and theatrical skill of an automaton showman. During a crucial crossroads of her development, Lady Delacour’s reformation is momentary interrupted by her insecurities about her worthiness to be loved, culminating in her jealous accusation that innocent Belinda self-servingly fosters family peace with the object of marrying Lord Delacour for his title after her death. Angry that her life of pleasure yields such fickle friends, “she pointed to a coronet set in diamonds on her watch-case, which lay on the table. Then suddenly seizing the watch, she dashed it upon the marble hearth with all her force, ‘Vile bauble!’ cried she” (*Belinda* 206). Lady Delacour later admits her mistake and pleads for the departed Belinda to

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return, after which she submits to an examination by Dr. X— that proves her breast cancer merely an irritation due to the malignant incompetence of her quack doctor.

In a parallel incident, Clarence Hervey, “man of genius,” has trouble extricating himself from a mechanical snake masquerade costume of “much ingenuity,” which he accidentally sets on fire while applying phosphorous to create glowing eyes (23). Such automaton costumes actually made appearances in London masquerades, as Fanny Burney describes in her diary. Burney was friends with John Joseph Merlin, a former partner of Cox and an eccentric inventor, who advertised his skills by appearing at the Prince of Whale’s masquerade inside Fortune’s Wheel and at the Pantheon masquerade as a sick man in a wheelchair invented by himself; he crashed other soirées as Cupid and Vulcan “forging his own darts.”344 (Incidentally, Merlin was also a close friend of Richard Edgeworth in his youth and fostered his fascination with “natural magic.”) Hervey sheds his snakeskin automaton to anticipate that he will abandon what Edgeworth describes as a “chameleon-like” tendency to adapt his manners to friends, whose dangerous gambling and thoughtless dissipation threaten to mechanize him. Yet, at the novel’s close, the bizarre revelation that Clarence Hervey is secretly experimenting on a young lady can hardly bode well for domestic bliss, while Lady Delacour’s ability to stage the novel’s concluding scene closes by affirming her dramatic skills.

Conclusion

Edgeworth’s automata suggest that behaviors censored as “mechanical” among working or leisured classes are overcome through practices like education and industrial innovation, which, as Maillardet’s automata playfully suggest, are potentially just as mechanical. That is to say, Jervas automatically produces resources, and Lady Delacour unthinkingly consumes them,

344 Altick, Shows of London, 74-5.
but their mutual departure from such automated participation in morally vacuous economies requires gaining self-reflexive awareness of these systems, a process signified by watching self-regulating machines.

The tendency among middle-class educators to emphasize the similarity between children and machines when advocating mechanical literacy suggests rethinking how machines metaphorically and practically defined class boundaries. While people from all stations are surprisingly machine-like, those who possess mechanical literacy have an analytical distance between themselves and the machines they resemble.

According to Simon Schaffer, the wonder these machines elicit from audiences depends upon a vein of forgetfulness about their technological origins: when the audience willingly suspends disbelief and forgets that these machines are programmed to write verses and play music, the machines seem to execute creative acts independently, by their own initiative. This forgetfulness is at work in the idealized product of Enlightenment education, a morally autonomous adult individual who stands apart from his age of tutelage—a performance that invites collective amnesia about how subject formation happens through education, an inevitably social process.345 The automaton show thus asks audiences to participate what Nancy Yousef outlines as a common thought experiment of the Enlightenment: a momentary forgetfulness about the process of education for the purpose of imagining the “autonomous adult” as an uneducated person, sprung full-formed into adulthood. According to Yousef, the point of such experiments is to reaffirm, paradoxically, the profound importance of education for subject-formation and the inevitable intersubjectivity of human beings as social animals.346 I am suggesting that a similar thought experiment is at work in Maillardet’s exhibit, as well as Lucy’s

345 Schaffer, “Babbage’s Intelligence,” 204-06.
346 Yousef, Isolated Cases, 1-26, 96-114.
domestic power, Jervas’s progress, and Lady Delacour’s transformation. Maillardet’s child automatons both display the mechanisms of education (and their determined submission to Maillardet) while, simultaneously, inviting the audience to forget the process of education (and their creator) in the wonderful variety of their self-directed motions. This strange balance between celebrating the mechanisms of education, as a process, while eschewing “mechanism,” as an abstraction, is emblematic of the logic at work in the middle-class approach to self-formation.
Figure 24: (left) Davies, Edward, proprietor of the microcosm. A succinct description of that elaborate and matchless pile of art, called, the microcosm. With a short account of the solar system, interspersed with poetical sentiments, on the planets extracted from the most approved authors on that subject. The eighth edition, with additions. Newry, [1767?]. Eighteenth Century Collections Online. Gale. University of Illinois Urbana Champaign. 22 June 2013.

Henry Bridge's automaton clock, The Microcosm, inspired Richard Edgeworth to student mechanics.

The Microcosm:
Or, The World is Miniature, Lately made by
Mr HENRY BRIDGES;
AFTER The Nevevade Study and Application, when called to public View, was honored with the Presence of the Royal Family, as well as the Nobility and Gentry, and received the Approbation and Acclamations of the whole Company of Philosophers of the Royal Academy, and Scientists that composed it.

The Author having thus succeeded beyond his Expeditor, in his first Attempt, but few, with the usual Ability, could confute Additions and Improvements, to that the Peace is now completely fulfilled, and thankfully offered to the Consideration of his further Application.

The Machines, for the Malignance of its Structure, the Beauties of its Painting and Ornaments, the Excellence of its Metal, the soft Velvet and Jewels of its moving Figures, inclosed one of the most curious Pieces of Mechanism, that ever appeared in Europe.

Its Height is Ten Feet, and in the Ball and, and ninth Propul- sion of the same, is the Top an in Time beautiful climax, which change alternately.

I. The Microcosm, or the Nice Model, playing on divine musical Instruments, at the Time, Hearing, Sight, Touch, and Feels. On the second, immaterial Euphonous, in the first, playing on the Lyre, and having each Time to such Tune, that by his exquisite Harmony charms even the wild Beech.

II. The Time moves a delightful Curve, wherein are nine by nine, and in such a manner as to make such Picturesque, as will delight the most exacting Sportsman, and is a great work of Art, with all the Agreeable and Delightful Phenomena that can be imagined.

III. In the Third Part, we are told The Mummers, very before called. But the First is without the Solar System with the Moons and their proper Examinations, in Proportion to each other, in which the Planets, in the like Proportions, perform their respective annual and Periodical Motions, by Clockwork, with a Minute of Time of Mechanics and the Account of the Small Wheel. The Second is in a System of the Sun and his Four Planets, in their Proportion; prefacing their proper Revolution with the Solar System, culminating in the Inversion, and Envenoning out of Typhon's Shadow, with their Occultation by, and the transit over the Body of that Planet, with all their annual Variation in each other, and in much more Agreeable Phenomena than can be imagined.

The Sun is in this Part in a fine Landscape, with a Postillion, to the right, where two are sitting with a proper- nately Mobile, according to their turning Bodies. On the Land are Chickens, Geese and Cattle, all playing with their Heads, walking over the Road, where the Farmers sit as they should be. But at a great Distance in a Wood, lying asleep, on a Horse, in a Pewter-Mill at Work. On the other River appears a Village, with the most agreeable Commerce and Life, that can be imagined, and with the flowering of the Dogs and Ducks, and many other Creatures, also follow here to partake.

IV. In the Landscap, in Fashionable Life, in the Country, a Countryman's Year, wherein the great Phenomenon of that Trade is well so naturally represented. At the four Time it is performed the Most of the Year, without any, or in Cooler, in a very agreeable Manner, much of which are usually seen, or encompass on Parade for this Necktie.

The Work is judged by Time for time to come, to make the Value of a Time, as it was done, and without any other, and the Necktie of this Kind, and as it will bear being more than once, by lying on Silk, will take it well, if not exposed to be too formed Time great.

N.B. Mr Bridges being engaged in so much Skill and Art, would gladly style this Machines, rather than solemnly in Partnership.
Figure 26: (both images) *Tipu’s Tiger*, displayed at the Victoria & Albert Museum, 2011, photograph by the author.
Figure 27: “The Queen accompanied by the Princesses Elizabeth, Augusta, and Sophia, and attended by Lord and Lady Aylesbury, Lady Chatham, Lady Cardigan, and Lady Charlotte Finch, Thursday, viewed Maillardet’s Automatic Exhibition, Spring Gardens; on which they bestowed the most flattering marks of approbation. Her Majesty condescendingly intimated, that her opinion of its merit would procure them the honour of his Majesty’s presence.

Impromptu, written in the room, on seeing Maillardet’s Automatic Exhibition, Spring Gardens.

Of all the scenes London may jullly boast,
Varied and curious, those which pleased me most,
And what I think beyond all competition
Is Maillardet’s unique grand Exhibition,
The Little Conjurer that’s free from evil,
Performs such feats you’d think he was the devil.
His wondrous art enraptur’d I surveyed
The Bird’s, Rope Dancer, and angelic maid,
Whose respirations seems by breath divine,
Whilst magic sounds proclaim the work sublime.
Long may Britannia, Arts, and Science nourish,
And Worth and Genius in Old England flourish.

This date of this advertisement roughly corresponds to when Maria Edgeworth may have seen Maillardet’s automaton exhibit during her visit to London. The figures described in the poem match those referenced in Belinda.
CHAPTER 6

“Naughty ‘full-grown babes’”: Public Instructors and the Radical Press, 1816-1836

“Reading and writing are but extensions of the faculties of seeing and speaking, and is it enough for Toryism to refuse those aids? Would it not go further, and have the people deaf, dumb, and blind, if it had the power? . . . But nature makes no hereditary distinctions . . . . she is incapable of bestowing the exclusive advantages of sight, speech, and hearing on the privileged classes.”

—Standard 347

Reading and writing are extensions of more than the faculties of sight and speech. They are extensions of all the senses that let in knowledge. . . . How does the Great-Giver of hearing and sight impart those inlets of knowledge? Does he place no guides—no guardians—no control upon the first exercises of the dawning senses? Do we allow children unwarned to touch or to taste whatever the eye discloses, to hear and repose in memory, all to which the ear may be open? . . . . The very same duty of care which requires that we should not allow the lisping infant to burn himself at the fire or foul himself in the housepail, enjoins that the full-grown babe, the uneducated literate, which the most perfect instruction, without religion, must leave a man—be not allowed to inflame his mind with The Poor Man’s Guardian, or make himself nasty by dabbling in the Times.”

—Examiner

During the turbulent years between Waterloo and Chartism, authors in the radical press presented themselves as the educators of the people. They offered their publications as an alternative to either the National or British Society schools, promoting radical literature as a source of politically empowering knowledge for a disenfranchised public and a corrective birch for those in power. At the same time that editorial voices assumed the tone of an instructor, however, they play-acted the school child, using Socratic irony, name-calling, and infantile rage. Styling themselves as young rebels against a parental church and state, radicals embraced and reconfigured images of themselves as uneducated children. The child or student—not the animal (the “swinish multitude”)—is the favorite epithet embraced by the radical press after 1816. 348


348 For the intersection between children’s literature, satire, and radical publishing, see Marcus Wood’s meticulous and comprehensive study, Radical Satire and Print Culture.
Child and adult, student and instructor—these are interchangeable positions for radicals accused of being children because they dare to correct their natural superiors. In the opening exchange (above), the *Standard* presses for Anglican instruction and church controlled curriculum against the position, espoused in the *Examiner*, that the government should support all schools that teach reading and writing, regardless of their religious affiliation. Both papers equate literacy with the senses, as “inlets” of knowledge, and both equate adult workers with young children, but where the *Examiner* sees popular literacy as an aid to free exploration, with literate adults like awakening infants who search and grasp and learn, the *Standard* envisions danger on all sides of these “full-grown babes,” who crawl unattended until they find poison and human feces.

Henry Hetherington’s paper, *The Poor Man’s Guardian*, captures a radical editorial voice that mockingly plays the public educator in response to exchanges like this one, which the *Guardian* reprinted as a “specimen” of “that press to which we are constantly referred for instruction.” As if recommending an edifying article, the *Guardian* commands its audience, its ready students, to read it “for God’s sake” and “for your own,” then, reversing its pedagogical purpose, promises to “expose” the “ignorance” of the “‘legitimate’” press. Closing their excerpt with the *Standard’s* lament that the poor do not purchase cheap “innocent” literature over unstamped periodicals, the *Guardian* celebrates this news as the sign of an educated infant public:

So the people will not buy literature in the Whig market! Alas! For the firm of Brougham and Co! . . . the naughty ‘full-grown babes,’ with the fear of God and Lord Brougham’s birch before their eyes, will still inflame their mind with The Poor Man’s Guardian, and make themselves nasty by dabbling in the *Times.*’ Naughty, naughty, ‘full grown babes!’

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349 For the “public instuction” role of the radical press, see Murphy, *Toward a Working-Class Canon*, 7-31.
Now Henry Brougham is the schoolmaster, and the *Guardian* infantilizes its own readers, reveling in the scatological imagery used by the *Standard*. Perhaps the “‘legitimate’ press” would care to put out the Promethean fire of the radical press, they ask, “by such a process as Gulliver put out the fire in Lilliput.” Descending into nursery humor, the *Guardian* is at once a “nasty” child and schoolmaster to the people, corrector of the stamped press and unquenchable flame, while its readership is a whipped schoolboy whose reading tastes are at liberty, like an unswaddled child’s eyes and limbs. Throughout its response, the *Guardian* restates and appropriates the language of the *Standard* and the *Examiner*, erasing the fine lines between several forms of classroom repetition and child’s play—passive memorization, mockery, irony, and satire—until any faithful repetition of the “innocent” lessons provided by the “legitimate” press can no longer sound innocent. Is the babe’s infant prattle “naughty” or nice?

By combining instructor and child in a single utterance, the radical press critiqued their disenfranchisement as infantilized adults, who, like children, have no need for political information beyond what they are fed by their protectors who supposedly govern on their behalf. The child’s voice—alternately impotent rage and innocent naïveté—when self-consciously performed as political commentary (and, therefore, as public instruction) subverts and confuses conservative portraits of the people as passive, uninformed “childlike” readers by making an innocent voice into a sign of mischief. Through irony and satire, the radical press repeats lessons as instruction, and through these repetitions adds new echoes of meaning that make any childlike speech into a mockery of innocence.

In the exchange between the *Guardian* and the stamped papers, children and working-class readers are paired together as vulnerable audiences who need “innocent” educational literature. While children have yet to be formed by their environment, the vulnerable public is

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composed of newly born readers, with bodily senses left open to chance influences. As this analogy suggests, experiential learning conceptually reinforces the political analogy between infants and the working classes, who both lead hand-to-mouth existences, and who both require supervised education to train them in abstraction, language, self-governance, and delayed gratification.

Against this potentially infantilizing conflation of children and workers, radicals and working-class writers appropriated the language of object learning when they repeated (seriously and playfully) its claims about the value of practical experience and physical labor as an important supplement to book learning. They embraced the superiority of the child’s epistemological position—the child’s closeness to things, its inability to lie, its thirst for knowledge, and its potentiality. If mechanical literacy can facilitate the development of abstract thought, then it follows that workers are more suited to political life than the leisured classes who govern in their name. This radical message differs, in most cases, from the mainstream middle-class version of object learning, which had appropriated both artisan labor and Baconian induction as nursery “play”; but the value this appropriation placed on materiality, observation, and the senses fortuitously opened an opportunity for spinning its pedagogical discourse in a direction favorable to workers who sought political representation and uncensored access to knowledge.

Object learning—a pedagogy that formalizes for nurseries and schoolrooms what working children do all the time—was one educational discourse re-borrowed, repeated, and reinterpreted by the radical press. I close this chapter by showing how radicals mockingly and seriously debated what their children (or poor charity children) should read, taking upon themselves the same protective duties that church and state used to target the radical press. Given
the playful tone of radical language, which favors appropriation, their (very often) entirely serious use of object learning pedagogies to lend respectability to their public education project seems poetically fitting. Working-class periodicals could pursue a materialist critique without referring to trendy systems of education, but when they do so, they lend the authority of a scientific discourse to their radical program of public instruction.

Satire and vulnerable audiences

Following the example of Cobbett’s two-penny Register (1816), inexpensive radical periodicals, most of them with regional circulation, set an early precedent for the Guardian by instructing the public as children while assuming the child’s voice. Since censorship of the radical press was justified as protection for vulnerable, ignorant readers, radicals assumed the protective mantle of parent and teacher, in their turn, by objecting to what poor children read and recited in schools. Thomas Jonathan Wooler’s Black Dwarf condemned a hymn sung by the charity children of Tower Ward (and reproduced in Sunday school hymnals), which teaches “prostration of the understanding.”351 He regrets that many of the people who support the school come from lowly backgrounds, yet instead of encouraging children to emulate the great, they teach them that poverty is their destiny:352

\[
\text{Thy gracious hands to different ranks,} \\
\text{Hath different tasks assign’d;} \\
\text{‘Tis our’s to tread the lowly path,} \\
\text{And bear a HUMBLE MIND,}
\]

351 Wooler, “Modern Charity,” Black Dwarf, November 20, 1822, 737-40.
352 The hymn published by Wooler accurately matched one included in several early nineteenth-century hymnals, indicating that Wooler did not invent it as a parody of submissive hymns. See, for example, Hymn 139 in The Union Hymn Book; Hymn 101 in The Poetical Monitor.
‘Tis our’s with *industry* and *care*,
To earn our *daily food*;
*We are not likely to be great!*
But surely *may be good.*

“*Labour will sweeten plain repast,*
And *peace will give us rest*;
But ‘tis *thy favour crowns the whole,*
And *makes our station blest,*

When *thus we work, when thus we live*
*Our patrons will rejoice,*
To see *the poor to knowledge brought,*
And making God *their* choice.

By critiquing the hymn, Wooler elevates *The Black Dwarf* to guardian of nursery reading, a censorship role not entirely distinct from that of his opponents, who claimed that radical papers deceived vulnerable adult readers. By dissecting the poem’s politics line by line, Wooler separates his readers, who are skeptical enough to learn from this hymn, from children, who would unquestioningly repeat what they are taught. He finds the song unintentionally honest because it baldly states: while children “work hard, eat little, and confine all their hopes to the *next world,* the *patrons will rejoice.*” He concludes with a parody hymn for the wealthy patrons to sing in church:

*Our gracious lord to *different ranks,*
Has different tasks assign’d
‘Tis ours to tread the *royal path,*
And bear a haughty mind!

Without industry, or care,

We take our daily meat;

For though we aim not to be good,

Yet all allow us great—

Let others labour, while we feast,

Their toil shall give us rest

This G—’s favour crowns the whole,

And makes our station blest!

While thus we feast, while thus we sing,

How can we but rejoice,

To see the poor so finely taught,

To play the slave by choice?\(^{353}\)

With this parody, Wooler forces the school’s patrons to sing with a child’s honest voice about why they teach poor children submission, while his close-reading of the original child’s hymn transforms its simplicity into complex political speech. Child and adult are slippery, unstable positions for Wooler and his audience, but also for charity children and their patrons.

Radical parody depends upon a display of fork-tongued speech that implies a second, simple voice, making the language of children’s literature a helpful mirror of radical language because it constructs an innocent child reader, one who cannot detect multiple meanings. According to Jon Klancher, radical texts “work out strategies of quoting, parodying, rewriting,” while “the radical writer always claims the last word, laying bare the rhetorical stance which his middle-class interlocutors find intolerably fixed. Necessarily so, for amidst the proliferation of

\(^{353}\) Wooler, “Modern Charity,” *Black Dwarf*, November 20, 1822, 737-40.
signs in the nineteenth century that makes urgent the struggle for their control, the real or imagined reference point must be that discourse and its audience whose position is never in doubt.” In its appeal to the dominant, confident voice of what is conventional, or unquestioned until reprinted and reworked by the radical press, radical authors adopt a strain of straight-speaking, multi-tonal speech in some respects oddly coextensive with a child’s speech, as imagined by adults. (Imagine the radical press as the caterpillar, speaking with Lewis Carroll’s Alice.) Children’s literature, because it is written by adults who mimic the simplicity they imagine belongs to children, is defined, according to Perry Nodelman, by its “doubleness”: a “simplicity” mutually constructed by its “shadow, an unconscious” that “hides but still manages to imply the presence of—something less simple,” the “hidden adult.” Something akin to Nodelman’s theory is at work in the article from The Black Dwarf. Wooler places a child’s hymn in a patron’s mouth to fantasize about a truthful child’s confession from duplicitous adults, just as these adult patrons accidentally confessed their self-serving motives by commanding children to speak a truthful hymn.

There are historical reasons for this formal similarity between radical texts and children’s texts. Socratic irony is a favorite technique of radicals, which they share in common with Dissenting children’s literature of the previous generation. In addition to William Blake’s Songs of Innocence and Experience (the obvious example), Barbauld and Aiken’s “Things by Their Right Names” is a dialogue between a father and his children about the difference between a “battle” and a “massacre,” while Elizabeth Inchbald’s novel, Nature and Art, features a child protagonist, Henry, who cannot distinguish between “prosecute” and “persecute.” Moreover, Marcus Wood meticulously proves that the children’s book industry overlaps extensively, during

354 Klancher, Making of English Reading Audiences, 100.
355 Nodelman, Hidden Adult, 206.
the Romantic era, with radical satire—a fact easily overlooked, as Donelle Ruwe demonstrates, because works that fail to conform to a Romantic concept of childhood innocence (i.e. satirical children’s books) are less likely to survive into the children’s literature canon. In other words, modern scholars prefer books with children who speak with a simpler voice. And so did the more politically mainstream middle-class writers, publishers, and adult purchasers whose tastes slowly distinguished two vulnerable audiences, children and newly literate workers, thus forming the modern children’s literature industry. The familiar argument that the origins of children’s literature lie in middle-class ideology, forwarded by Isaac Kramnick and Andrew O’Malley, overlooks the constitutive role of the radical press, which required (as Klancher explains) a simple voice against which to position its linguistic play. In many cases, the child, as constructed by children’s literature, was that voice.

The House that Hone Built: Children’s Literature and Radical Satire

During the turbulent post-Waterloo proliferation of cheap periodicals, William Hone published satires that made him the best-selling author of 1819 and 1820, several of these based on iconic forms of children’s literature with illustrations by his close friend and collaborator, George Cruikshank. Although popular children’s nursery rhymes and chapbooks were commonly adapted by English satirists, Hone’s texts more carefully attend to the instructional methods used in books and classrooms. Flaunting the reader’s active transformation of texts, his satires of children’s rhymes and the Anglican catechism protest the passivity of education in

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357 Kramnick, Republicanism and Bourgeois Radicalism; O’Malley, Making of the Modern Child.
358 Klancher hints at the radical distinction between words and things: “The radicals’ verbal truth” insists upon its reference, the squaring of signs with things and writers with the readers they represent.” Making of English Reading Audiences, 110.
359 Grimes, “Verbal jujitsu,” Satiric Eye, 175. Since Cruikshank was willing to work for whomever paid him, his pen supports conflicting sides of political conflicts. Although the two parted ways, on his deathbed Hone requested Charles Dickens to help him make peace with Cruikshank, and the two held hands during Hone’s last hour.
Sunday or charity schools, where children memorize such texts. Through these parodies, Hone playfully performs the role the rebellious school child who refuses to repeat his lessons without embellishment, thus appropriating for his own purposes the dismissive conflation of the working classes with “children.” In the context of debates over expanding popular literacy, his satires suggest that once laborers learn to read, they will refuse to repeat what they were taught and transform their literacy to serve their own purposes, turning from prescribed conservative books of their youth to the instruction served up by the popular press.360

Hone’s writings make explicit the connection between his satirical “toy” The Queen’s Matrimonial Ladder (1820) and children’s literature. According to his account, Hone reluctantly agreed to defend Queen Caroline at the request of her allies, who approached him in her name during his evening visit to the British Museum Reading Room. That night while walking home he saw “The Matrimonial Ladder,” a children’s paper toy that laid out the virtuous path of married life on rungs of a ladder.361 Inspired by the didactic toy, Hone published The Queen’s Matrimonial Ladder, a National Toy, with Fourteen Step Scenes, a political pamphlet sold together with a prop-up pasteboard ladder toy for one shilling [figure 28]. As discussed in chapter 1, selling books with toys was an established marketing technique of children’s publishers since Newberry and Cooper’s 1740s collaboration on alphabet games. The “ladder” toy, in particular, was a common reference to the ubiquitous “ladder of learning,” put to multiple education-themed uses, including the marriage toy Hone saw that night [figure 29].

The “national toy” offered with Hone’s pamphlet is a bookmark version of a Cruikshank cartoon depicting the Queen perched in triumph on top of a ladder. Each rung bares a word—degradation, coronation, accusation, etc.—imitating pronunciation and spelling lessons where

360 For more on William Hone’s satires as children’s literature, see Wood, Radical Satire and print Culture, 215-63.
361 Qtd. Wilson, Laughter of Triumph, 320. Wilson cites Hackwood, William Hone; His Life and Times, 236-7.
children recite similar words in long lists grouped by sound, in this case Latinate words that recall a privileged education.\textsuperscript{362} The rhyme story of the accompanying pamphlet, written in the style of children’s poetry, uses one of these words on each page to relate how the incompetent and dissipated Regent (“qualification”) marries his German cousin, Caroline, as stipulated by Parliament in return for paying his debts, later running her out of the country (“emigration”) and prosecuting her for infidelity to secure a divorce (“accusation”). In her defense, the Queen widely publishes her evidence (“publication”), using the free press to successfully prove her innocence (“indignation”) against the unpublished “bag” of mysterious evidence gathered by the king’s spies.

Using royal sexual politics as a stand-in for the relationship between government and the common people, \textit{The Queen’s Matrimonial Ladder} casts the British public in the role of the injured Queen, who

\begin{quote}
owes her safety to a fearless Press;

With all the freedom that it makes its own,

It guards, alike, the people and their throne.\textsuperscript{363}
\end{quote}

Exhibiting motherly affection in one drawing, Queen Caroline nurses the Princess Caroline under a picture of a devil chasing a woman, while outside her husband flirts in the garden. The accompanying verses criticize the king’s refusal to “reform” and desire her “form.” Like the Queen who was courted for her dower, radical publishers and their readers protested that heavy taxes following the Napoleonic wars stole labor from the common people to support lavish royal

\textsuperscript{362} Wilson cites Hackwood for the existence of a similar –tion ladder as a lottery advertisement from the time, depicting the rise of family fortunes through lottery winnings. While this may have influenced Hone, the lottery advertisement itself may have used the –tion references for this same reason, i.e. that children learned pronunciation and spelling through groups of such words.

\textsuperscript{363} Hone, \textit{Queen’s Matrimonial Ladder}, n.p.
carousing and unnecessary court and church lackeys and their pensions. Furthermore, the queen faces government spies and secret evidence, in common with many radical publishers and protesters. In the recent Oliver scandal, the government allegedly paid spies to entrap desperate men, encouraging rebellion and then prosecuting for treason those who were involved. In Hone’s own trials for Blasphemy (1817), the prosecutor’s evidence was kept secret from the accused and the public alike. The tables are turned in the conclusion of the *The Queen’s Matrimonial Ladder*, when the king stands trial for adultery and the people give him “the bag” (referring, visually, to a bag of evidence, but figuratively to the hangman’s noose) and a decrepit-looking Cupid sells his body for cat’s meat.

Close replication of generic markers was a staple of the Hone-Cruikshank satire team. *Buonaparte-phobia, or Cursing Made Easy to the Meanest Capacity* (1815), with its schoolbook-sounding title, attacked John Stoddart’s scurrilous articles in *The Times*. Hone printed this work, as well as his other satires on *The Times* (eg. *A Slap at Slop*, 1821) as one large sheet formatted like the newspaper’s front page. Likewise, Cruikshank’s cartoon, *Specimen of a Bank Note* (1819), criticized the easily counterfeited one-pound bank notes, which tempted the desperate poor to commit a capital offense, by imitating an actual printed pound note. Hone and Cruikshank had a record of signaling generic traditions, and getting the details right, and they had the background to do the same with children’s literature in *The Queen’s Matrimonial Ladder*. As an illustrator for the premier children’s publishing firm of John Marshall (Sarah Trimmer, Hannah Moore’s *Village Politics*, the Taylor sisters), Cruikshank acquired a familiarity with the trade in its politically conservative form, while Hone would soon turn to family periodicals in 1825s for his livelihood.
By appropriating the trappings of children’s books, Hone promotes the radical press as an alternative or “true” educator of the people, against both the false education of middle-classes who sold improving toys or the aristocrats who learned with Murray’s Latinate grammars. As a symbol of progress, the ladder of learning is commonly associated with children learning to read, but Hone attaches progressivism to the imminent power of the free press to bring transparency to shady royal dealings and corrupt courts. The most clever part of Hone’s satire is its ironic juxtaposition of a passive, memorization technique commonly used in schools (the repetition of unmeaning, foreign-sounding and aristocratic words, through the -tion headings), with a practical example of himself as a bad student become dangerous instructor, a satirist who refuses to repeat a lesson without adding his own voice.

Satirical versions of Ballads, national songs, the Bible, and chapbook rhymes are so ubiquitous that Hone’s preference for these forms may seem indistinguishable from common practice. Where Hone departs from this tradition is through an ironic address to his (mostly adult) audience as child students, positioning himself as instructor in a performance that became typical of the radical periodical press. At stake is the easy slippage between so-called “uneducated” adults and innocent children, who cannot differentiate the subtle valences of philosophical or satirical writing and require watchful parents to select appropriate literature for them.

We can see the use and reuse of “child” language in action with Hone’s *The Political House that Jack Built* (1819), which reached 54 editions and spawned multiple sequels and rebuttals. The original nursery rhyme (*This Is the House that Jack Built*) is a nonsense cumulative tale, but like many ballads and national songs for which radicals provided

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364 *The Royal House that Jack Built; The Real or Constitutional House that Jack built; A Parody on the Political House that Jack Built; The Loyalist’s House that Jack Built; The Dorchester Guide, or a House that Jack Built.*
political lyrics, its appeal lies in its immediate familiarity as a folk rhyme circulated by chapbook or oral recitation. Nevertheless, its status as a children’s rhyme is just as important for Hone as its folk origins, as indicated by his opening dedication to the “nursery of children six feet high,” to whom he, their “political godfather,” offers “this juvenile publication” for “their uninformed minds.” The reference to adult-sized, ignorant “children” criticizes the infantilization of working-class adults by charitable instruction, while Hone offers alternative mentorship that substitutes political for spiritual instruction, a poke at church educators who attempt to drown agitation with spiritual platitudes. By adding politics to innocent or innocuous children’s rhymes, Hone captures the radical perspective that real education politically empowers the common people, which contrasts with Whig efforts to disseminate politically vacuous artisanal knowledge or free market economics (eg. *The Penny Magazine*), as well as Tory efforts to spread Anglican teachings.

A mania for Jack’s architectural achievements swept across Britain in the months following Hone’s publication, while among these spin-offs, the question remains in the fore, who counts as “children” and who can “instruct” the public. Surveying the slew of nursery rhymes reinvented, *The London Review* expresses surprise to find “Our juvenile companion” is “pressed into the service” of “Radical Reform” and singles out for praise a conservative reply to Hone’s *Political House* that contrasts an adult John Bull as the Prince Regent in smart military dress against “his CHILDREN, a reprobate pack.” A vignette “The British Constitution Triumphant,” forming the title page for *The Loyalist’s House that Jack built*, pleads for reviving

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365 The first print appearance of *This is the House that Jack Built* was 1755, as a children’s book, making it one of the early contributions to the emerging children’s publishing industry. The oral origin of the rhyme could be hundred of years earlier.
the birch rod of laws against sedition to teach “baby” who “beats the nurse” his proper place [figures 32 and 33]. Yet another rebuttal, *The Real or Constitutional House that Jack built*, begins with the call to war in Shakespeare’s *Henry V* and the warning against French sympathizers within: “O England! . . . Were all thy children kind and natural!” While the family analogy of King-as-father and subjects-as-children is nothing new, the focus on false instructors and true fathers is a significant theme throughout this work. For several decades, a serious criticism of the Prince Regent involved his disregard for royal succession through profligacy and womanizing. Fondly reinterpreting this dubious legacy, *Constitutional House* refers to the “Prince of a generous Mind” as a reformed, spirited Hal who “Dismiss’d from his presence / the Friends of his Youth” in time to trounce Napoleon. Fallstaff makes his appearance as William Cobbett, the false teacher and turncoat friend who was no friend in need. A string of these loyalist satires brand Cobbett “The Public Instructor,” picturing him as a travelling vagrant, “two penny trash” in his pockets and Tomas Paine’s coffin on his back [figures 32 and 33]. The name and image stuck with him. Just returned from America, where he fled to avoid arrest, Cobbett took advantage of his sojourn to publish a surprisingly seditious grammar book and bring Paine’s remains back with him to English soil.368

368 Through Political Jack’s offspring, Hone’s name was used to promote two additional political satires on nursery rhymes that are not his work, *The Green Bag: ‘a dainty dish to set before a king’, a ballad of the nineteenth century,* (1820) and *The Political ‘A, Apple-Pie’ or, the ‘Extraordinary Red Book’ versified; for the instruction and amusement of the rising generation* (1820), while Hone published a third, *The Man in the Moon* (1820). Adopting the form of an alphabet book, *The Political ‘A, Apple-Pie’* lists the names of those supported by tax dollars with their salaries or pensions and an alliterative poetic description. For each letter, a Cruikshank’s cartoon depicts them greedily carving up the national pie, while the parties currently out of favor watch with mouth-watering envy. As with Hone’s *Political House*, the book addresses its audience as instructors to children and connects literacy with political knowledge. The theme of a “National Feast” may have evoked another immensely popular series of children’s book satires from the previous decade, John Harris’s children’s satire series *The Butterfly’s Ball and Grasshopper’s Feast*. The alternate title “The Extraordinary Red Book” refers to another protest against public spending, *The Extraordinary Black Book*. Both names derive from the practice in Bell’s Monitorial schools of keeping a Black Book of offenses, which the teacher reads to the entire class at the end of the week. Students form a jury and judge their peers. This jury practice gave some pause to promoters of the system, some of whom believed it trained poor students in an exercise of a power they would not have as adults.
Although the family political analogies at work in these texts are commonplace, the metaphor takes on new valences given the transformation in opinion concerning public education during this decade. Religious disagreements may have prevented any coherent national program of education, but paranoid fears about the rapid spread of Dissenter schools forced the conservative Anglican clergy and provincial leaders to enter the fray in full force, despite their reservations whether an educated populace is more content with its lot. By leaving a vacuum of leadership concerning “the education of the lower orders,” Anglicans elites learned that they invited the likes of Jeremy Bentham, Joseph Lancaster, Robert Owen, or Francis Place to step in with their “atheistic” rational schools, requiring a panicked, belated response to head them off by establishing proper Anglican schools. It was just such reactive Church organizing that lead to the organization of the National Society (1811), doomed Bentham’s Chrestomathic project as atheist, and ultimately forced Henry Brougham to compromise on religious instruction in his education bill. Looking back over past decades when the clergy neglected their education post, The Extraordinary Black Book (1832) observes, “Public education is a subject that appears to have peculiar claims on the attention of the clergy; . . . Yet this is a duty they have generally neglected. Had not a jealousy of the Dissenters roused them into activity, neither the Bell nor Lancaster plans of instruction would have been encouraged by them. A similar feeling appears to have actuated them in the foundation of King’s College, . . . a rival establishment to the London University.369 As these hints of clerical incompetency suggest, the radical press offered their services as an alternative to both Whig and Tory educators, and they had their own ways of defining “education” and “adulthood” in terms of acquiring full citizenship. By useful knowledge, Radicals invariably mean political knowledge, and by adulthood, they mean the

369 Wade, The Extraordinary Black Book, 6. Cobbett notices the same trend of Anglicans following the lead of Dissenters in his article “National Education,” Cobbett’s Weekly Political Register, April 19, 1834.
capacity to guide one’s own education, which includes a free, untaxed press and working-class management of the means of disseminating knowledge.

These debates are the contemporary scene for Hone’s three parodies of the *Catechism*, *The Lord’s Prayer*, and *The Ten Commandments*, attributed to John Wilkes but almost certainly written by Hone. These are not parodies of the Bible, per say, but of the Anglican service, targeting material that children memorize in Anglican schools.\(^{370}\) Although dissenting religious schools composed reading lessons from Bible verses, they usually omitted the Catechism, and Anglican accusations that they neglected The Lord’s Prayer and The Ten Commandments suggests that Hone’s three parodies directly contribute to the education question with sympathy for the Dissenters. Grouping Hone’s parodies with the work of Evangelicals (which makes sense in this context), Rev. William Lisle Bowles\(^{371}\) in letters to Brougham and James McIntosh blames the increase of crime on these omissions by instructors, who hold up “nauseous accounts of miracles of conversion by instant grace (without a word of Christian duties) in the on hand, and Paine’s Age of Reason or Hone’s disgusting Parodies in the other: even the very Grammar, that has lately been published by Cobbet [sic.], shows its object is to pervert and corrupt the youthful mind in its first and earliest avidity of knowledge.\(^{372}\) He repeatedly singles out “the catechism,” the “ten commandments,” and the “Lord’s prayer” as what makes Anglican education superior,\(^{373}\) and he acknowledges radicals with a lengthy response to their imputations.

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\(^{370}\) For William Hone’s publish status as the last man put on trial for blasphemy, see March, *Word Crimes*, 1-77.

\(^{371}\) Bowles is Chaplain to the Prince Regent. He argued against Whitbread’s 1807 education bill on similar grounds: Only religious instruction, not merely scientific instruction brings moral progress. The revival of education debates in Parliament in 1819 responded to Brougham’s call for an investigation into whether charity funds for education were used properly. Since these funds were often connected to clerical positions, there were complaints that the clergy appropriates for their own use funds willed to them for the express purpose of educating the poor. The McIntosh inquiry concerned reforming the criminal code, but crime and education were closely tied because false education was blamed by all for increases in crime.


\(^{373}\) See Bowles, *Thoughts on the Increase of Crimes*: “the Catechism by which everyone in the kingdom knows what is taught to the children, and in which at least the TEN COMMANDMENTS are not forgotten” (46); “I have said
that the catechism teaches “the first rudiments of political servility.” The Wilkes parodies tapped into these concerns of Dissenters and radicals that Anglican education prepares children for a life of quiet submission.

In citing Hone and Cobbett as evil instructors, Bowles followed the lead of Justice Abbott, the judge for Hone’s three trials for blasphemy. Abbott described for the jury how young, innocent readers, would learn impiety from the Wilkes satires. After Hone demonstrates that Gilray, on state pension, produced parodies of The Bible and the Ten Commandments, the judge abruptly redirects the conversation by reprimanding the accused as a neglectful father, asking,

if he were a man who felt an affection for his family and for their future welfare, for their religion and their morals, how was it possible for him to publish this parody? Could he seal hermetically the eyes and ears of his children, that the poison should not enter their minds; or if not, how could he hope for a moment that they would not be infected with that impiety which such writings must inevitably excite? Would children be able to resist that which people of mature years and judgment could not avoid? . . . What but a feeling of impiety, if not of ridicule, could exist on the mind of a child during divine service, if on the Saturday night or Sunday morning this publication had fallen in its way?  

the Church of England teaches and blends with public instruction the Ten Commandments. What will a Christian legislator think of a great part of religious population studiously excluding these and the Lord’s prayer?”; and in conclusion, “This I am sure of, that the manufacturing districts, where the population habitually despise the clergyman, however exemplary his life and conduct, who imbibe their divinity from other instructors, are much worse in point of morals than those districts (which they call still in darkness), where the divinity of such books as I have mentioned, the ravings of “black dwarfs and yellow dwarfs,” and even the solemn sarcasm and portentous lucubrations of the second Jeremy, have not yet reached” (55).

Bowles, Thoughts on the Increase of Crimes, 16.
Hone, Three Trials, 65-66.
Every time children hear the catechism, the judge imputes, they will hear Hone’s parody in the back of their mind, destroying the sacred effect of the original. Through this method, the Wilkes parodies defy the power of repetition as a means of education more effectively than the new pedagogies of the last generation because they make passive repetition impossible. At the conclusion of Hone’s trial, the prosecution makes the same appeal to the jury, mixing the vulnerability of child readers with that of servants and workers. “If there be any among you, which is doubtless the case, who is the father of children, and the master of a household, I will ask him, if he would suffer that publication to be perused by his servants, who are not so well educated as himself? Or if he would suffer his children for one moment to read it?” The closing speech shows how easily child readers were joined with “common and ordinary people,” described as “the ignorant and uninformed.” The judge implies that most people are not educated enough to reflect on what they read, making political satire read like unsophisticated mockery. By pricing his satires for these “ordinary people,” argues Abbott, Hone ensures that he will seduce an audience made vulnerable by their ignorance. Although Hone may agree with earlier educators like Edgeworth, Locke, or Anna Letitia Barbauld who questioned whether memorization and repetition brought true understanding and eyed askance mere words without things, Hone differs in his willingness to apply these pedagogical principles to a population marked for perpetual childhood, who were not expected (as were middle-class or wealthy children) to fully transition from a mechanical, bodily existence to self-governance. At the time of Hone’s trials, the more conservative proponents of public instruction supported teaching the poor to read their Bibles but not to write because these plowboys and artisans might write back or (and I’m not making this up) commit forgery. In such

376 For an extended argument of how Hone’s parodies force readers to hear the originals differently, see Grimes, “Verbal Jujitsu,” *Satiric Eye* 173-84.
377 Hone, *Three Trials*, 75, 76, 76.
a world-view where the written opinions of common people are automatically dismissed as narrow and ignorant, all such writings are, intentional or not, a kind of imitation or forgery of original productions—the mockery of school children.

**Alive to the senses: the child as a materialist critique**

In addition to criticizing rote learning, radical pedagogies were experientialist because they valued the senses and the body as a foundation for literacy. One of the important proponents of “practical” education, of sorts, was William Cobbett, who valued the skill and intelligence required for physical labor. Like Wooler, Cobbett takes up children’s hymns in *Cobbett’s Weekly Political Register* to protest the ignorance of the so-called higher orders, who should “begin by causing themselves to be educated” since they are “without a parallel in the records of human ignorance.” Cobbett, who was vilified as “the public educator,” continually attacked government-sponsored education as thinly-veiled subjugation, paid for by overtaxing the poor. Although provided as a sample of what children are taught, Cobbett’s hymn is actually a parody written by himself. He accuses the church of undermining the child’s development of the senses because nothing but willful blindness can silence the public:

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Come, little children, list’ to me,
While I describe your duty,
And kindly lend your eyes to see
Of lowliness the beauty.

‘Tis true your bony backs are bare,
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378 Cobbett, “Education and ‘Heddekashun,’” *Cobbett’s Weekly Political Register*. December 7, 1833. Note that the article with this psalm is untitled, appearing annexed to the article “Education and ‘Heddekashun.’
Your lips too dry for spittle;  
Your eye as dead as whiting’s are,  
Your bellies growl for vict’al.

But, dearest children, O, believe!  
Believe not treach’rous senses!  
‘Tis they your infant hearts deceive,  
And lead into offences.

. . . .

Let dungeons, gags, and hangman’s noose,  
Make you content and humble.  
Your heav’nly crown you’ll surely lose,  
If here, on earth, you grumble.\(^{379}\)

The hymn makes explicit, with a child’s honesty, what Cobbett thinks is the implicit message of religious instruction for poor children: Instead of succumbing to deceptive sensations like sickness, cold, and hunger, children should have faith in an insubstantial (but somehow more real) reward in the afterlife. Although Cobbett’s writings consistently support Christian instruction for children, this hymn exposes how propaganda circulates disguised as a nonsensical, impractical “religious” text, which tells children to deny their senses and mistrust their own experience. The form of a simple child’s hymn allows Cobbett to expose the plain truth hidden behind false religious instruction.

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Several radicals develop their own materialist rhetoric, sometimes drawing on Godwin, sometimes (like Cobbett) on English practicality. The skeptical, “rational” paper, The Medusa, for example, in its opening issue addresses its message “TO THE PUBLIC, Alias The ‘ignorantly-impatient Multitude.’” This banner allows The Medusa to berate its simplistic audience (“Infatuated mortals!”) for letting themselves be governed by their bodies, which feel their misery, instead of listening to the authorities, who say they are happy. “Are you determined, like Lovegold, to ‘feel, feel, feel, and touch, touch, touch,’ before you will allow your happiness to be real? Dreadful obstinacy! How unacquainted are you with the wonder-working powers of imagination!—Can you not believe that your hunger and thirst are gratified, unless you eat and drink?” The opening tirade ends with a command to stop thinking, since they cannot think as they are told. “Let your betters, therefore, think for you; . . . . and if the phantom should again seize your brain, and tempt you to conceive you are not happy, you must petition the happy Constitution to furnish you with some patent engines, pullies, and screws, whereby you may at any time wind up your imagination to their pitch, dance to their music, and be as happy as themselves.”

As a tool for social control, the imagination dominates and mechanizes the public more than the senses, which offer the truth.

Despite their different positions on Christianity, Cobbett and The Medusa both associate simplicity and ignorance (the child-like voice) with reliance on sensual evidence, which permits them to insist upon the practical facts of poverty and bodily necessities by ironically denying their importance. This radical materialist rhetoric insists that real knowledge derives from practical experience (or the senses) instead of words (books, authorities). Cobbett had little interest in philosophy of mind, and his didactic books follow his own practical approach without referencing other pedagogical systems for legitimacy. Nevertheless, his skepticism of any

teaching that denies reality, as experienced by the senses, accords with one of the main messages of experientialist pedagogies.

**The Education of “Words” and “Things”**

The concept of an “education of things” fit with radical distrust of the established educational institutions, accused of churning out despotic, ill-qualified young men fit only for cushy government positions that were awarded through cronyism and paid for by burdensome taxes. Radicals denounced the emphasis on Latin and Greek in public schools as tribute to “mere words,” nonsense used to fabricate a false superiority over common people.

Questioning whether clergymen truly earn their salaries as public educators, an article in Thomas Wooler’s *The Black Dwarf* distinguishes between the knowledge of words and things:

> In general learning and acquirements, [clergymen] will not frequently be found to excel gentlemen of their own rank in society. In practical and useful knowledge, they are, for the most part, lamentably deficient. Ignorant alike of men and things, and employed for the most part in the study of the language and history of a barbarous age and people, they acquire an artificial character, . . . In the business of education, therefore, if we make any distinction between a knowledge of mere words and a knowledge of things, between truth and fiction, we must allow that, in this respect, the Clergy, so far as they have interfered in public instruction, have done more harm than good, by impeding the progress of natural and scientific knowledge.\(^{381}\)

Since the free press competed with the Church for the self-proclaimed role of public instructors, clergymen most often attracted criticism in the radical press as false instructors in the education of words. Wooler, for instance, contributes articles to his paper in the character of The Black

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Dwarf of Sir Walter Scott’s novel by the same title, and in one of these he pretends that he in an instructor in a children’s school, laying about with his birch on his infant students, the unruly and ignorant members of Parliament.

According to working-class radicals, the education of words is what the upper classes learn, an education of fluff and fiction, useful only for deceiving the people. Reared on words, the British elite told fantastical stories about the way society must be, which were based on what they observe: that everyone gives them their way. Convinced of their natural superiority, these elites never consider that hierarchy and submission are learned behaviors, even though they take pains to teach these values in school. The education provided to the poor by charities run by the rich taught children to consider their state of deprivation the natural, inevitable order of things. Referring to this shared radical narrative, Wooler comments “it is truly whimsical to perceive the cunning which the managers of charities use to render the education they bestow subservient to the purpose of perpetuating “things as they are.”[382] Presumably, the radical press offered knowledge of “men and things,” the knowledge of people with real experience of how the world works.

In addition to instructing the working-classes, radicals playfully provide a school of experience for wealthy children. While criticizing Princess Victoria’s £10,000 education, funded with tax money, The Poor Man’s Guardian offered to educate the princess as an act of charity so that Parliament could afford schools for the poor. How is it, asks the Guardian, that “their ‘education’ costs more than that of a whole country? Poor things! they must be most extraordinarily—most extravagantly—most majestically thick-headed and stupid;—why, a hundredth part of Miss Guelph’s school-money, would redeem an idiot, would make a ‘learned

pig.”383 The pun refers to a popular street entertainment where a trained pig used child’s spelling cards to write messages, but also to the poor as “educated swine,” here transferred to the princess. References to “Miss Victoria Alexandrina Guelph” (never called by her title) and her expensive education became a running joke in a working-class publication sold cheaply “In Defiance of the Taxes on Knowledge!” as proclaimed at the top of every issue. The Guardian always refers to “education” in ironic quotations unless education includes free access to political knowledge. “[L]et the little girl be placed under our tuition for a few months,” the Guardian suggests, “and we will teach her such a lesson out of the book of nature as shall make her a better woman than will the libraries of incomprehensible error, with which her natural good sense and good heart will be fortified and prejudiced against common truth and common right.”

The author laments that the royal instructors will corrupt the princess, the niece of the king and queen: “Poor child! You will be never allowed to think for yourself until removed so far from the truth that its light can never reach you: your young mind, now incapable of self-action, will be drilled into order and submission to established institutions, until you become the willing slave of all the errors—the cruel errors—of this darkened age!”384 When the education of words replaces real experience and uncensored reading, even a princess learns error and submission just as thoroughly as poor children in charity schools.

By criticizing “mere words,” radicals did not contradict their celebration of the free press as a symbol of freedom. Words properly used should convey actual knowledge, a distinction Cobbett addresses in his fascinating grammar book. Designed to aid workers who teach

384 “Friends, Brethren, and Fellow-Countrymen.” The Poor Man’s Guardian. August 6, 1831. In another article, the Guardian dramatizes the voice of the King pleading with parliament to fund education for the princess so that she will not be as ignorant as he is: “I know the necessity of a good education, for I feel the want of it; I can’t even write my own speeches—I am a child in leading strings” “Friends, Brethren, and Fellow-Countrymen,” The Poor Man’s Guardian, October 29, 1831.
themselves, Cobbett’s *Grammar* encourages young people to read the “history of those Laws of England, by which the freedom of the people has been secured” but dismisses pronunciation (traditionally part of grammar) because “it is sense, and not sound, which is the object of your pursuit.”

His readers are treated to political examples, such as this one, which teaches commas:

“There were, in the year 1817, petitions from a million and a half of men, who, as they distinctly alleged, were suffering the greatest possible hardships.” Through conjugation, Cobbett suggests that radical agitators will ignore legal persecution: “Evans defies the tyrants; Evans defied the tyrants; Evans will defy the tyrants.”

In the practice section, Cobbett’s students correct the king’s speeches. Although teaching grammar teaches words, Cobbett constantly reminds his readers to respect the intelligence required for manual labor and the practical knowledge of experience, for “a comparatively small part of useful knowledge comes from books” and those who cannot read are not ignorant. On the contrary, too many wealthy people acquire the “endowments” of “a parrot or a bull-finch” through classroom memorization. “It is this mode of teaching, which is practiced in the great schools, that assists very much in making dunces of Lords and Country Squires. They ‘get their lesson;’ that is to say, they repeat the words of it; but as to its sense and meaning, they seldom have any understanding.”

The opposition between words and things in radical discourse bares no chance resemblance to the rhetoric of object learning. Some radicals were deeply invested in pedagogical theories, and those who wrote for multiple audiences alternate between addressing the working-classes with their message about common sense and addressing the middle-classes

386 Cobbett, *Grammar*, 78. Cobbett’s use of “who” in this sentence is important. Cobbett instructs his readers to refer to “the crowd, who” rather than “the crowd, which” to emphasize that crowds or groups or people are composed of “rational creatures.”
387 Cobbett, *Grammar*, 44.
with the legitimizing, scientific language of education philosophy. Richard Carlile and his common-law wife, Eliza Sharples, exemplify how radicals draw on pedagogical philosophy, including the education of things.

Writing while in prison for publishing Thomas Paine’s *Rights of Man*, Richard Carlile, editor of *The Republican*, *The Gorgon*, and *The Lion*, outlined an alternative program of education, presumably for both wealthy and poor children, one that recognizably relies on experientialist pedagogies. He calls for “men of science” to stand up to the church, declare the superiority of their modern knowledge, and use the press to educate the public in mechanics, chemistry, and the natural sciences. Children should “at an early period of life form correct notions of organized and inert matter, instead of torturing their minds with metaphysical and incomprehensible dogmas about religion.” There are “[m]any new plans and schemes for education,” he observes, but they all have the same error, “for the subjects upon which our youth are taught to read and write, and those in which the dead or foreign living languages are taught, are by no means calculated to expand the mind, or to give it a knowledge of Nature and her laws.” With the references to “inert matter” and Nature’s “laws,” Carlile indicates his indebtedness to radical materialist philosophy of mind (likely Condorcet or Godwin), which makes political reeducation analogous to mechanics. Addressing with this pamphlet a more formally educated and affluent audience than usual, Carlile warns that classical study “fills the mind with useless jargon” and “unmeaning trash—words of sound, to which it would be difficult to attach an idea.” Instead, “every school-master ought to be a Man of Science, and not a parish priest, as Mr. Brougham would have.”

References to education schemes and Brougham’s 1820 education bill suggest that Carlile has equal familiarity with pedagogical and political sides of education debate. Whereas religious instruction will “stupefy” children “by so dull and so

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constant a repetition,” observation and experiment kindle genius. “Here every thing both in the animal and vegetable world, which comes under the every day observation of the child, or even the grown person, might be familiarly described and explained in our school-books.” Then a child can make the world his classroom and “read a useful lesson in every object that came within his view.” Carlile describes an experientialist approach for all ages and classes of students, with instruction proceeding between equals, as forwarded by William Godwin two decades earlier. He accurately describes how to learn from chance, everyday things (“every object”), what Ellenor Fenn calls education of the moment, a technique popularized by several education experts, including the Edgeworths. Clearly, Carlile is familiar with education treatises, and he sees himself participating in this genre.

Modified to include what we might call “nontraditional” adult students, Carlile’s “system of education” bears a surprising resemblance to the new philosophy of the previous century, with its Baconian emphasis on induction and experiment. Indeed, Bacon furnished the radical press with their favorite slogan, “Knowledge is Power,” and the kind of knowledge they urged the public to “get,” as they put it, was at once political and practical. The undertones Carlile gives to the word “education” are quite different from, say, the Edgeworths’ concept of “practical education.” His pamphlet calls “men of science” to end their duplicity, their proud free inquiry into the natural world, so inconsistent with their servile submission to church and state for the honor of joining the Royal Society—most especially, their unwillingness to express the most subversive conclusions of their investigations in plain speech for the common public, lest they be accused of fomenting materialism and unrest.

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391 The influence of Godwin’s pedagogy obvious in speeches by Eliza Sharples. She nearly quotes his *Political Justice* and *The Enquirer* when she says, “It is not in fierce encounter that mind is subdued by mind; but in gentle persuasion, in smooth insinuation of doubt supported by argument—in a manner that exhibits more desire to be instructed than to instruct.” Sharples also delivered a lecture on determinism.
A decade later Carlile and his common-law wife, Eliza Sharples, transformed the London Rotunda into a public education space, something resembling a working-class school. When Eliza Sharples (editor of the weekly paper, *Isis*) managed the Rotunda (1830-32), she delivered an opening speech in the character of Isis, Goddess of Wisdom, in which she invited her working-class audience to test the education of words with experiments: “[K]nowledge must consist of observations made on mankind, and on whatever else exists within the scope of your observation. Books will aid you, but you must not make an authority of books, or of that which is written” but “prove all things.” Only instructors who invite students to actively participate in their education by testing words against things truly treat students as equals. “My profession,” announced Sharples, nearly quoting from Godwin’s *Enquirer*, “is that of an instructor willing to be instructed.”392 The language she uses sounds carefully borrowed from pedagogical treatises and materialist philosophy of mind, and, indeed, she later lectured on determinism.

As goddess of wisdom, Sharples took advantage of an already established female public identity: the “surrogate mother” or “rational dame,” the neighborhood teacher who bestows letters and moral lessons from her home kitchen, which became a symbol for the female author of children’s literature. According the Christina Parolin, Carlile’s Rhotunda “catered for and attracted a significant number of women at a time when other radical venues were less inclusive,” and government spy reports record that children attended events, if not in great numbers.393 What is remarkable, however, is not the few children that Sharples reached, but that she makes forming the infant mind so central to establishing her public authority. She encouraged her audience to “labour” for “the life of mind, or second birth, in addition to the life of body, or first birth.” Her first address asked mothers for their aid: “What say you, sisters? . . .

393 Parolin, Christina. “‘Pythoness of the Temple,’” *Radical Spaces*. For scholarship on Eliza Sharples and women radicals, see Taylor, *Eve and the New Jerusalem*; Rogers, *Women and the People*; Clark, *Struggle for the Breeches*. 
Will you let your children gather round me, and learn from me a love of truth; not to learn to lisp
the language of superstition with their first sweet prattlings; but that we may teach the young
idea how to shoot in matters of reason, preserving the purity of the infant mind from those
overwhelming corruptions which now pervade the general society?”394 Sharples uses the
innocent child in order to elevate women into an already established role, promoted by the
middle-classes: the mother/teacher who guards early impressions and bestow the gifts of literacy.
She invited parents to bring their children to the Rotunda (“Let your sons and your daughters
come”), and offered to open a school. That Sharples never opened such a school only
underscores that her position as a female public educator was, in part, a rhetorical strategy.
Sharples and Carlile exemplify how working class radicals could combine materialist rhetoric
with specific phrases lifted from pedagogical theories in order to lend respectability and
legitimacy to their message.

By the 1830s, radical periodicals occasionally refer to famous philosophers of education
including Locke, Godwin, and Pestalozzi, the latter a familiar name through Robert Owen’s
contributions and the infant school movement (see chapter 4). Because Owen’s schools used
Pestalozzi’s methods, the cooperative magazines tend to have the most explicit grip on the fine
points of object learning pedagogies. Advising the best approach for teaching in mechanics
institutes, The Cooperative Magazine and Monthly Herald insists that students should be “taught
a real knowledge of things acquired by the evidence of the senses, instead of the words of dead
languages, scarcely ever taught so as to be known, to be spoken, written, or even read!”395
[emphasis original] Any donations toward the institutes should be spent on classroom equipment,
“the sensible signs (where you cannot get the objects themselves) of the things to be taught—

394 Sharples, Isis, February 11, 1832.
395 W.T., “To the Members and Managers,” The Co-operative, February 1826, 44.
maps, models, prints, machines, apparatus, books, &c.” Professors should have “a knowledge of all the objects of nature,” rather than theoretical knowledge only. “The old plan of instruction was to teach by words and books,” cultivating the “memory,” while “in the new system, words and books are mere instruments towards the elucidation of things themselves, or of their representatives, submitted to your senses.”\(^{396}\) Although there is nothing “new” about learning through “things themselves,” the newness of experiential education must be proclaimed with each generation, since appealing to things over words promises to circumvent authority, prejudice, and tradition. Object learning promises the unassailable knowledge spoken by things themselves, a break with history that remains perennially new and appealing to radicals.

**What kind of Knowledge places “Power in their hands”?**

The definition of education as the sum of human experience, with practical learning elevated over verbal memorization, was attractive to the working classes, for whom labor and education necessarily overlapped. After the 1832 reform bill, however, many middle-class “theoretical” skills gradually became grouped with “men” and “things” as useful, empowering knowledge. This shift in what constitutes a working-class “education of things” is legible in *The Poor Man’s Guardian*’s opposition to Cobbett on the question of what kind of education empowers workers.

In his *Political Register*, Cobbett protested that institutional education is properly called “headikashon” because it is empty, useless words:

“scrawling upon paper with a pen, and gabbling over words printed upon paper; it signifying nothing what sort of scrawling it is, or what are the words which are printed upon paper; whether the scrawling be legible or not whether the right letters be put into

the words that are intended to be made, or whether the gabbling be of a Magdalen Hymn, or of a smutty ballad: still it is all “headikashon.”

According to Andrew Carnegie, who recalled in his autobiography the influence of this article on his own concept of education, Cobbett opposed the “headikashon” of formal schooling to the “handikashion” of practical knowledge, which children acquire by working alongside adults. Like many radicals, Cobbett equates words without ideas with ideological mystification. Words set up some alternate, palliative reality that dupes the working classes into submission, which he suspects is the design of most church or charity affiliated schools.

In his Register, Cobbett uses the phrase “headukation” for any kind of learning that sacrifices training in reliable, manual occupations without producing the “bacon”—that is, education provided with plenty of promises about getting ahead, but few solid-paying job opportunities for ambitious working-class youth. In the same article, Cobbett spells headikation differently each time he uses it, mocking the indifferent literacy bestowed in government or charity schools. Cobbett uses “headukation” again in his response to Lord Althorp, who called Cobbett “an enemy to the education of the people” because, as a representative in the House of Commons, Cobbett opposed a grant for the British museum. Cobbett points out that such institutions lie about their mission to educate the people because they are closed on evenings and Sundays, the only times available to workers. The museum is a symbol for Cobbett of a larger scheme for taxing the poor to headucate the rich.

In this, one of his most lengthy public statements on educational policy, we can see Cobbett trying to reconcile his early Toryism with the radicalism of his later years. Most of

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397 Cobbett, “Education,” Cobbett’s Weekly Political Register, October 12, 1833. The word “headikashion” is seldom written the same way twice, possibly as a way to mock conventional spelling. Alternatives include: headikashon, hedikashion, heddekashun, and heeddekashun.

Cobbett’s minor objections to national schools are those voiced by the Tories for the past 30 years. Children sacrifice valuable information learned on the farm with their parents to scrape together a little reading and arithmetic, convinced (along with their parents) that it will make their fortune, only to find themselves dependent upon fickle employers and lacking the fallback of a skilled trade. These are real concerns. Hone only narrowly escaped life as an impoverished copy clerk through a generous loan from his in-laws to start a bookshop. But Cobbett concludes with his strongest objection, that headikation “has a direct tendency to fashion the minds of the people to passive obedience and submission, be their wrongs or their sufferings what they may.”

Sneering at Brougham and the SDUK, he writes, “‘Knowledge is power,’” says every pert coxcomb, who believes, of course, that all his mamby-pamby phrases contain knowledge. Very true,” he concedes, “but it must BE knowledge.” Not some tricky bate-and-switch. Far from empowering the poor, National Schools are “seminaries of slavery” where children “are taught those principles which make men contented with a Government, under treatment which ought to urge them on . . . to lawful resistance.” And how could teachers do otherwise, he asks, when their salaries are paid by the government? He points out that anyone with a bit of “common-sense” can see that these same politicians who say they want to educate the public pass laws that suppress information and aggravate poverty. No doubt reflecting on the Great 1832 Reform Bill of the previous year, Cobbett insists that if Parliament intended to give people power, they would give them the vote. “How, then, are we to believe; how is any one but an idiot to down the belief, that they really mean, by this ‘heddekashun,’ to give the people knowledge which shall be power in their hands?” No, they want “to bend the minds of children towards passive obedience and slavery.”

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The deep paranoia in Cobbett’s education articles when he refers to teachers as government “spies” and “informants” in every county is a staple in radical discussions about education since Peterloo. As a voice for agricultural labor, Cobbett focuses on food (bacon) because he perceives government schools as a tool for removing children from farms and making them wage-dependent, and therefore dependent on their employers to eat. As England became more urban, however, radicals came to value precisely the sort of abstract knowledge that Cobbett rejected, seeing access to higher education—or education beyond indifferent literacy—as a solution to poverty and political disenfranchisement. Consequently, Cobbett’s antipathy to headikation invited skepticism from contributors to The Poor Man’s Guardian, one of whom believed Cobbett intended to keep “the labouring people” mere “willing beasts of burthen,” another of whom sympathize with his suspicions about Whig intentions. Back during his anti-Jacobin days (before his two-penny Register in 1816), Cobbett referred disparagingly to Whitbread’s supporters for the failed education bill (1807-08) as “popular education philosophers” who were so delusional as to believe that the public should value Virgil’s poetry over a good sirloin. Acquainted with Cobbett’s earliest views on education, the editor of The Poor Man’s Guardian believed that “Mr. Cobbett does not care a bean whether the labouring classes are educated or not, provided they can plough and make hurdles on the one hand, and have plenty of home-brewed ale and bacon on the other.”

These responses to Cobbett suggest that what Andrew Carnegie called “handikation” in his autobiography, after Cobbett’s “headukation,” came to include, in the 1830s, theoretical subjects like political economy and natural philosophy. In much the same way that mechanical literacy among the middle-classes was the foundation for mental and economic advancement, the

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400 S.R.M., “Mr. Cobbett and Education.” The Poor Man’s Guardian. August 31, 1833, 283-84.
402 Hetherington, “Mr. Cobbett,” The Poor Man’s Guardian, September 14, 1833.
working classes considered their acquaintance with hard manual labor a spring-board for politically empowering and financially rewarding knowledge, which came to include natural philosophy, mathematics, mechanics, and rhetoric. Even Cobbett readily acknowledged that literacy empowers those who cannot live off the land; “schools are very proper things” in urban locations.403

Heavily influenced by Robert Owen’s Godwinian theories of character and determinism, the cooperative societies tended to express the greatest trust in abstract or theoretical knowledge as power in the hands of workers. Reporting on their free evening school, the Co-operative School Association of Manchester boasts that three times a week “many ragged little boys, barefooted and barelegged” are “absorbed in the study of geometry and algebra.” The author taunts Cobbett as the old generation, whose ideas on are outdated:

methinks we hear old Cobbett or some of his disciples exclaim, ‘are the people cracked?’

What! ‘Experiments in electricity and aerostatics for working men instead of beer and racks of bacon! And bare-legged boys studying algebra instead of going, ‘at six year old, as I did,’ into the fields. . . . Softly, Old Cobbett! The people are not going to desert bacon for ‘headikashion.’ . . . It is the bacon that has deserted them, and the ‘headikashion’ is only part of the means of bringing it back, and something better besides.404

On one point they agreed with Cobbett. Even when accepting considerable charitable donations, workers should have the majority leadership in all schools or they risked turning education into exploitation.

Even though radicals occasionally adopted the ideas and rhetoric of object learning, their motivation was quite different. The middle-class movement in experiential education came out of Spectacle de la Nature and the Encyclopedias, the effort to watch artisans at work and publish their methods, disseminating knowledge that the rising generation used to educate the future managers of the industrial revolution. When celebrating mechanical literacy as the foundation for higher learning, the middle-classes confessed to appropriating knowledge and experience from workers into their classrooms. Unless workers ran their own technical schools, they risked becoming yet another exploitable source of practical knowledge.

The cooperative societies seem especially concerned about this possibility of abuse, perhaps because their ideas were targeted by moderate radicals and whigs. Charles Knight advocated capitalist division of labor as the true “principle of co-operation,” while Brougham offered the mechanics institutes as a place where workers learn “the true principles and mutual relations of population and wages.” By sharing theoretical and practical knowledge, workers and capitalists can prevent “the two classes” from conceiving their interesting “in opposition to each other.” However, stealing the knowledge of workers while charging them tuition was not the cooperative vision of the more radical Coorporatists. A meeting of “The British Association for promoting Co-operative Knowledge” in 1831 opened with a reading from Brougham’s Practical Observations upon the education of the people, which they promptly condemned, despite Brougham’s support in his speech for working-class governance of the mechanics institutes. The conversation swings to how “the poorer classes” were “‘educated’ as it was called by the rich or their underlings—that is, they were taught just as much as would suit the purposes of the

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405 Knight, Knowledge is Power, 433; Brougham, Practical Observations, 5.
406 I suspect which parts of his speech would have met with disapproval: a brief Malthusian passage against expending charity on food, an opening toss-off assumption that anyone has at least a little time and money for education, and his rather back-handed praise of workers as the source of innovation, a sort of “watch them closely” if you would like to make some money to the middle-class students.
latter. Thus it was in National Schools, and the same spirit prevailed even in Mechanics’ Institutions, where the instruction was strictly confined to science. Men were allowed there to have the luxuries, but not the necessaries of learning. But what was the use of a man being able to explore all the works of the Creation, if he could get nothing to eat. (Hear.) Mr. M. strongly urged the Working Classes to take their education into their hands.  

407 The same subject frequently appears in the cooperative journals. “Let the mechanics every where govern their own institutions: let them conduct their own affairs,” W.T. (possibly William Thompson) urges in a multi-issue series on worker management of the mechanics institutes. And “If the higher or better orders—as they call themselves—will not aid the mechanics as paid teachers, let the mechanics instruct themselves and each other.”  

408 Associated with the Corresponding societies of the 1790s, mutual instruction has a long history that intersects with organization. When workers advocate these methods, they claim that all education, including scientific education, should be political.  

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Mutual or self-instruction in worker-managed schools circumvented concerns that education pacifies students, which made radicals who, in other respects have little in common (eg. Godwin, to Cobbett, to J. S. Mill), oppose national systems of education. With increasing frequently, however, radicals declared that any sort of education, however propagandist, would at least impart the literary tools for correcting ignorance during adulthood. Objecting to The Bible as a primer, a mid-nineteenth century reformer like George Holyoake nevertheless insisted that any education is better than nothing: “I would prefer National without Scriptural instruction, I consent to accept both together, if National Education cannot be had alone. The Scotch


Presbytery, the Methodist Conference, the Baines League, or the Church of England, separately, or altogether, may direct it. Their sectarian interference will impair but not destroy its efficacy.410 Opposition to national education was, if anything, more common among the most radical of poor workers. In a public campaign speech in 1832, John Hunt assured a crowd that he shared Cobbett’s position; he “certainly was a warm advocates for the Education of the people; but he wished the people to be well remunerated for their labour, whereby they would be well fed, well clothed, and to educate their own children in their own way, and not by charity (tremendous cheering.)”411 The distinction of charity education was considered demeaning by poor and, with its degradations, a cradle for tyranny. So Charles Dickens would characterize the petty charity student, Noah, in Oliver Twist, as a boy taught shame and teasing that he might abuse anyone lower than himself.

Support for public education was problematic in part because very poor families relied upon child wages to survive, but Parliament was unwilling to regulate child labor and raise adult wages so that children could attend school without starving. Unless these regulatory changes were made, taxing the poor for national education effectively transferred money up the social ladder. The National Union of the Working Classes submitted a petition to parliament objecting to the “wringing of taxes from the hard-earnings of the poor, in order to pay for the education of the rich.” Yet this announcement was followed by a Mr. Warden who “exhorted the Working Classes to bestir themselves and get knowledge” to “show them [Parliament] (mob and rabble as we are) that we are capable of doing our business in that house [of commons], better than it has ever yet been done for us.”412 Clearly, “getting knowledge” did not necessarily require support

411 Hetherington, “Mr. Hunt at Blackburn and Padiham,” The Poor Man’s Guardian, December 8, 1832.
for government schools. Unlike more conservative opponents of national education schemes, radicals embraced the education of the poor, but those who supported national education were not willing to cede control of the schools to churches or more conservative government appointees. Self-governance was closely tied to education for radicals, not only to qualify them for suffrage but because they desired popular control of the means of public and political information.

**Respectability and Radical Pedagogy**

While performing child and instructor, the working-class press engaged with pedagogical theories in order to lend authority to their education project. Their formulation of object learning was part of a larger effort to use education and improvement as a sign of working-class adulthood and maturity. Adult radicals were not above screening the literature of their own children, and their willingness to protect “innocent” youth was a sign of respectability. Censoring what children read may seem hypocritical for the champions of the free press, but by doing so radicals asserted their right to determine what their children should learn.

Likewise, women radicals could use the “surrogate mother” position common in middle-class children’s literature, just like Anna Letitia Barbauld or Charlotte Elizabeth Tonna, to present themselves as responsible authorities on education. Most women may not speak as Isis in the Rhotunda, but they could participate in public politics as mothers who educate their children. In a letter thanking *The Poor Man’s Guardian* for a list of pro-union shops, one woman writes, “I was much pleased, and said to myself this is what women can do, this is a part in the drama we can take . . . The spending of money (especially in domestic concerns) is the province of women, in it we can act without the risk of being called politicians.” She explains that women
are helpmates of men, and they can support their reform efforts in several ways, especially by reading educational literature to their families:

the “poor Man’s Guardian,” Mr. Cobbett’s “History of the Reformation,” the “Poor Man’s book of the Church,” “Church Examiner,” “The National Holiday,” the Political Writings of Mr. Paine, and other such excellent publications. No man nor woman with intellect one degree above that of the brute creation, can read them without becoming wiser and better, for they not only expose the wickedness of those in high places, but set forth in the clearest light, the duty such an individual owes to himself and his fellow creatures; another method is for the mothers and teachers of both sexes, (whose business it is to instruct the rising generation,) to read them themselves, so that they may be able, by their precepts, to instill into the minds of their young pupils, the important truths these works inculcate. Women have much to do in the education of men in their infancy. It is from us they imbibe their first ideas, and the impressions we then make on their mental faculties, (be they good or bad,) are too indelible for time to wear out; and through life the influence we have over their minds, as well as their hearts, is so powerful, that to it may be traced the principles which govern their conduct.

The letter concludes by advocating education for women, “for how can we train up others in the way they should go, if we ourselves be ignorant?” Therefore, “I advise all my sex . . . to read the publications just mentioned” and to “gather up all the useful information we can, as well for the sake of ourselves as for the edification of our children.”\textsuperscript{413} The title of the letter—“To the Women of England”—accidentally aligns this domestic appeal with a similar defense of women’s influence and duties published a few years later: Sarah Stickney Ellis’s \textit{The Women of England} (1839).

\textsuperscript{413} M.A.B. “To the Women of England,” \textit{The Poor Man’s Guardian}, May 26, 1832.
Respectability and satire are not always easy to distinguish. While Richard Carlile was in jail, he received a packet of “religious fiction” from a Rev. W. Wait of Bristol intended for him and his children, which he promptly consigned “into the water-closet as an appropriate sacrifice to Jehovah,” remarking, “I value the moral welfare of my children much too high to place such trash in their hands.”\textsuperscript{414} Carlile’s playful account of protecting his children affirms his fitness as a parent to conduct their education, as he ironically performs the censorship duty that landed him in jail.

While using middle-class pedagogies, working-class radical walked the line between appropriation and satire. They used some of the concepts of objects learning, such as the practical foundation of knowledge, the pleasure of learning through activity, and the integration of work and learning, but for their own purposes. Where radicals deploy the pedagogical philosophies of experiential or object learning, they do so to insist on their qualifications to test what the government or the church teaches against their practical experience. Responding satirically to representations of adult workers as ignorant and childlike objects of charity, radicals wrote their own textbooks and formed their own “schools” and “instructors” through the free press. With generous charity for the less fortunate, they repeatedly offer to “teach” members of Parliament a thing or two, gratis.

\textsuperscript{414} Carlile, \textit{Reformers of Great Britain}, 10-11.
CHAPTER 6: Figures

Figure 28: (top) Hone, William and George Cruikshank. The Queen’s Matrimonial Ladder. London: William Hone, 1820. Cambridge University Library.

Figure 29: (bottom) Ladder of Learning. [London, ca 1850]. Princeton University Library.

The puzzle at the bottom is one example of the “ladder of learning” as a children’s toy. Marcus Wood shows much closer visual connections between Hone’s ladder and contemporary lottery advertisements and toys about marriage. However, this puzzle uses Queen Victoria as a central figure for the alphabet in a way that resembles Queen Charlotte’s association with the free press.
Father and Children in loyalist satires: The opening page from The British Constitution Triumphant (top), a response to The Political House that Jack Built by Hone and Cruikshank, promises that England’s “biting laws” will be used like a father’s birch. (bottom) The formula for Jack’s House loyalist parodies includes a page like the one on the bottom left, showing an unruly, shouting crowd of “scoundrels” or just “the people.” This particular one figures reformers as a crowd of children, while a fatherly “John Bull” decides “punishment” or “protection.”
Figure 32: (left) Adams, M. *A Parody on the Political House that Jack Built: or the Real House that Jack Built.* London: C. Chapple, 1820. Cambridge University Library.

Figure 33: (right) *The Real or Constitutional House that Jack Built.* Fifth Edition. London: J. Asperne, W. Sams, 1819. Cambridge University Library.

Both illustrations show William Cobbett as “the public instructor” with Thomas Paine’s bones on his back. On the right, *The Real or Constitutional House* shows Cobbett as Falstaff.
I began this dissertation with object lessons, which teach children through direct observation without transmitting prejudice or error. As imagined by Richard and Maria Edgeworth in Practical Education, collapsing the distinction between toys and books transforms child’s play into serious work. But what happens when work is more likely to damage young people than educate them? By the 1830s, reports on poor conditions for children in mines and factories made work seem incompatible with learning, while Matthew Arnold, John Ruskin, and William Morris depicted the factory system as antithetical to cultivation and a threat to civilization.

During the 1830s and 50s, when factory legislation focused on protecting women and children from dangerous work, the division between work and play was renegotiated, in part, through books for young people on science and manufacturing. Far from sharing Ruskin or Carlyle’s aversion to mechanization, these texts envision education as a modernizing force allied with industrialization. Such a close relationship between cultivation and manufacturing was not uncommon in writings on the factory system. Apologists such as Andrew Ure, William Cooke Taylor, and Edward Baines, according to Joseph Bizup, admire the vitalism of machines as living organisms and use cultivation metaphors to describe the growth of industry. Bizup argues
that Arnold constructs “culture” in opposition to industry in order to fight this entrenched alternative, which for decades successfully promoted manufacturing as a civilizing force.\footnote{Bizup, \textit{Manufacturing Culture}, 18-30; 1-5.}

Appealing to the senses, experientialist industrial children’s books combine fact and fiction in ways reminiscent of industrial fiction and nonfiction for adults, often using similar rhetorical strategies to expose injustice or apologize for child labor. Viewed through the lens of \textit{Hard Times}, that most canonical of industrial novels, early Victorian efforts to teach children about industry and political economy through factual, practical lessons seem like a recipe for killing the imaginative faculties necessary for sympathizing with others. Yet many children’s texts on industrial processes try to foster cross-class sympathies by educating consumers about the labor behind everyday articles, a strategy that Susan Zlotnick locates in early industrial novels by Charlotte Elizabeth Tonna and Francis Trollope. Children should visit factories and farms, speak with children from other walks of life, and experience what it feels like to work. By conflating work with play, however, books on industrialization for children can depict physical labor as educational and fun, by, for example, celebrating, in \textit{Little Henry’s Holiday}, the industrial spirit of English workers (“work! work! work!”) while Henry and his family are on holiday. Furthermore, most books for children celebrate wonderful machines while overlooking workers, which frustrates efforts to expose the hardships people endure from grueling or dangerous work. As one author warns his young readers, “Such advocates of the factory system seem to be so taken with the beautifully polished wheels and spindles of the machinery” and the “perfect motion of the same, as to lose all sight of every consideration but the iron and steam of the question.”\footnote{Brown, \textit{Cotton Fields and Cotton Factories}, 147.} I conclude by putting these children’s books in conversation with two industrial novels that critique the conflation between education and labor: \textit{Hard Times, for These Times} by
Charles Dickens and *The Life & Adventures of Michael Armstrong, the Factory Boy* by Francis Trollope.

“*Now, what I want is, Facts* . . . with a healthy dollop of fiction”

Books on industrialization for middle-class children formally deny any divide between imagination and utility by combining textbook-style lectures, technical diagrams, domestic fiction, and biography into a unified narrative form. *Francis Lever, the Young Mechanic* (1835) first published by John Harris (known for imaginative children’s literature), exhibits the heteroglossia typical of this form [figure 34]. Young Francis is unenthusiastic and unmotivated in school until he witnesses construction equipment used to repair a home on his street. Amazed at the practical application of abstract subjects like math and physics, he declares, “I should like to understand mechanics. . . then I could understand machines and engines. I—I—I think I should like to be—*an Engineer*.”

His parents enroll him with a professor who combines theoretical principles with practical experiments and field trips, a pedagogical approach endorsed by the novel’s formal combination of theoretical concepts, with practical diagrams and the particularity of fictional characters. The children who read Frank’s story learn the same way that he learns; they can emulate Frank by using the book’s instructions for home experiments and by studying the same diagrams.

Adapting this form to biography, Henry Mayhew wrote a popular series on the boyhood of famous inventors. *The Wonders of Science; or, The Young Humphry Davy* (1840) invites

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417 Harris, *Francis Lever*, 5.

418 The full titles for Mayhew’s scientist biographies for children emphasize autodidacticism of poor boys: *The Story of the Peasant-boy Philosopher; or, “The child gathering pebbles on the sea-shore.”* (Founded on the early life of Ferguson, the shepherd-boy astronomer, and intended to show how a poor lad became acquainted with the principles of natural science.) (1854); *The Wonders of Science; or, Young Humphry Davy* (the Cornish apothecary’s boy, who taught himself natural philosophy and eventually became president of the Royal Society), *The Life of a Wonderful Boy; Young Benjamin Franklin; or, The Right Road through Life: A story to show how young Benjamin*
child readers to perform, in real life, the experiments of the famous chemist who improved conditions in mines by inventing a safe lamp that avoids explosions, called “the miner’s friend.” The biography provides diagrams and directions for building Davy’s lamp, but Mayhew spends just as much time developing Davy as a fictional character, making him sympathetic to suffering miners and imaginative about the symbolism of fire and steam as figures for God’s spirit that breathes inside every person. Note that Mayhew focuses his biography of Davy around his safety lamp, since “the miner’s friend” demonstrates that intellectual labor can serve manual labor; this is a biography about class unity, about healing the two nations.

These books are not always exclusively about men or written for boys. Several of the books about industry that I have examined are given by women or signed by girls. In one case, *The Triumphs of Steam* (1840), the female author (Mrs. E. Burrows) publishes anonymously [figure 35]. She frames biographies of James Watt, Joseph Arkwright, and Robert Stephenson within a fictional story about two boys who learn the history of steam-engines from their Aunt Helen, a strong lady fashioned after the surrogate rational mother figures of didactic children’s fiction. *The Triumphs of Steam* uses its fictional framework to offer meta-commentary on how children are supposed to combine theoretical and applied mechanics. One of the nephews only wants quick answers about who invented what: “give me the results,” he declares, “and I do not care so very much to know how they were obtained.” Aunt Helen responds that true knowledge means understanding the larger picture. Using her husband’s mechanical prints,

*Franklin learnt the principles which raised him from a printer’s boy to the first ambassador of the American Republic; a boy’s book on a boy’s own subject* (1861).

More technologically detailed works from the later half of the nineteenth century are more commonly given to boys, but adult women are often listed as the giver. Gift inscription examples from Cotsen Children’s Library at Princeton: “R.B. Clifton Presented by Aunt Beth” on *Wallis's Picturesque Round Game of the Produce & Manufactures, of the counties of England and Wales*; “Elizabeth Gilbom Prin [?] to her granddaughter Sophia” dated 1843 when all the children and 12 grandchildren dined at Anna Wills” in *The cabinet of useful arts and manufactures, designed for the perusal of young persons*. From the Rare Book & Manuscript Library at the University of Illinois: F. Aglynn Price The gift of his friend Mrs. Jenkins April 1864” in *The Triumphs of Steam*.

*Burrows, Triumphs of Steam, 24.*
Helen painstakingly teaches her nephews to understand the “principles” behind the machines she describes, and implicitly child readers must try the same experiments for themselves in order to acquire more than superficial knowledge. By doing so, readers follow the example of James Watt, who was inspired by his Aunt’s teakettle and “used, when quite a boy, to take his toys to pieces; examine how they were made, and then put them together again” to learn “the principle on which they were constructed.”

For famous inventors and child readers alike, domestic settings and everyday objects illustrate scientific principles.

While often neglected by modern scholars, this popular hybridized fiction/textbook genre has its roots in several canonical eighteenth-century children’s texts. The use of a loose fictional framework imitates Newbery’s immensely popular *Tom Telescope*, in which Tom, a child genius, teaches the natural sciences to neighborhood families through lectures and experiments in his home salon. The level of textbook specificity provided by Mayhew recalls Charlotte Smith’s natural history lessons in *Rural Walks* (1795) and *Rambles Farther* (1796) or Maria and Richard Edgeworth’s *Harry and Lucy* (1801-1821), the story of two siblings who perform experiments at home, examine prints from science books, and tour factories and shipyards. Less obvious but equally influential, *The History of Sandford and Merton* by Thomas Day (1783-1789) and *Adèle et Théodore ou Lettres sur l’éducation* by Stéphanie-Félicité, Mme de Genlis (1782) combine fiction with descriptions of instructional activities and family tours.

The early Victorian hybrid texts of this kind provide nonfiction material through fictional characters; they use conversation between children and adults, either retaining the “dialogue”

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421 Burrows, *Triumphs of Steam*, 18-9; 16-7. Biographies of James Watts for boys are fond of mentioning his ability to learn from objects. The teakettle story is a favorite. One article on Watt from *The Boys Own Magazine* from April 1, 1855 begins “the observations of a boy may lead to results of the utmost value to his country,” accompanied by a picture of young Watt reading next to a boiling tea kettle.

422 Mme de Genlis includes a manufacturing tour in this immensely influential work on education. Adelaide and her family visit a utopian artisan village founded by a local aristocrat couple who study manufacturing methods and teach them to whomever comes searching for work.
form used for many textbooks or superficially nesting instructional child/adult dialogue within a novelistic form; and they invite child readers to perform the same activities as the fictional characters by providing detailed instructions. Their fictional child protagonists model how to combine practical and theoretical education by referencing books and prints, performing experiments, and visiting modern manufacturing locations, such as cottages, factories, or shipyards. Such works continue in the later Victorian period through adolescent periodicals, which offer factual and fictional stories side-by-side. *The Boys’ Own Magazine*, launched in 1855, offers a familiar compendium of inventor biographies, fictional stories, odd facts, and instructions for science experiences, accompanied by advertisements for magic lanterns, steam engines, and “Brougham Microscopes”—in effect replacing the hybrid novel-length form. One of the most cherished articles in *The Boys’ Own Magazine* was a series instructing children how to build their own model steam engine. The correspondence section of the paper for years received repeated requests for information on steam engines—for instance, a child with the pseudonym “Crankshaft” inquires “how to make a model steam engine and a sponge cake”—suggesting that children enjoyed literature that combined fact and fiction.423

As published in the early Victorian period, children’s books of this hybrid genre perform cultural work in common with industrial novels. They address middle-class readers; they imagine solutions to class conflict through sympathy and charity rather than wide-spread reform; they draw on biography and contemporary factory reports. If their hybrid form seems distinct from industrial fiction, that is because we no longer read industrial novels as they first appeared, serialized in Victorian magazines and priced affordably for working-class readers. For instance, Dickens included *Hard Times* in *Household Words* alongside news articles about contemporary

423 “Correspondence,” *The Boys’ Own Paper*, November 8, 1879, 96.
strikes or Harriet Martineau’s descriptions of factory tours. His readers could switch between the scene of Stephen Blackpool’s death, when he falls down an abandoned mine shoot, and Henry Morley’s harrowing factual accounts of factory accidents. Both Morley and Dickens targeted Utilitarians, who favored statistics, by humanizing accident victims. Fiction and nonfiction work together in Household Words to convince readers to support safety regulations so effectively that Butwin argues “an independent volume” of Hard Times “was bound to appear incomplete,” compared to the experience of the serial.

Formal similarity between children’s science books and early industrial novels is more pronounced in Charlotte Elizabeth Tonna’s novels, which lean towards popular tales or children’s literature in their heavy reliance on instructional dialogue and factual references. Her first industrial novel, Helen Fleetwood (1839-1841), describes itself as a social experiment based on real life: “We are to follow a single family through vicissitudes that thousands of English families are perpetually encountering.” Although Tonna uses fictional characters, her narrator corrects readers who expect a novel: “Let no one suppose we are going to write fiction. . . . Names may be altered,” she admits, but she places her fiction in the same category as sworn worker testimonies before Parliament: “we will set forth nothing but what has been stated on oath, corroborated on oath, and on oath confirmed beyond the possibility of an evasive question.” Composed on the same premise, Tonna’s narrator in The Wrongs of Women (1843-1844) periodically lays aside her fictional storyline altogether for an extended essay on factory conditions. The hybrid method favored by Tonna is less pronounced in Francis Trollope’s

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424 See Waters, “‘Fairy palaces’ and ‘wonderful toys,’” online.
425 Butwin, Hard Times: The News and the Novel, 186. For a more recent appraisal of factual reports in dialogue with Hard Times, see Berman, “Aweful Unknown Quantities.”
426 Tonna, Helen Fleetwood, 17.
427 Tonna, Helen Fleetwood, 45. The question of whether workers swore an oath was used to undermine the 1833 Saddler reports. Tonna’s reference to oaths shows that she wants to place her fictional account in the same formal category as autobiographical interviews circulating during this period.
Michael Armstrong (1840), but any reader familiar with Joseph Blincoe’s autobiography would recognize memorable events and conversations lifted from Blincoe’s apprenticeship at Litton Mills. By comparison, more canonical novels by Charles Dickens and Elizabeth Gaskell less directly replicate contemporary nonfiction. Scholarship on industrial fiction understandably favors novels, such as *Hard Times*, that repudiate “facts” in favor of imaginative entertainment, obscuring earlier influences on industrial novels.

Joining the “Two Nations” by exploring the labor behind everyday things

In addition to uniting fact and imagination, these hybrid texts address the condition of England question by teaching children the labor used to make everyday things. In this respect, plain factual books of industrial information build cross-class sympathy by educating consumers about producers. An edition of George Dodd’s *Days at the Factories; or, the Manufacturing Industry of Great Britain Described* (1843), published by Charles Knight and drawing on articles from *The Penny Magazine*, describes the problem of alienated labor and argues that children should become educated consumers: “The bulk of the inhabitants of a great city, such as London, have very indistinct notions of the means whereby the necessaries, the comforts, or the luxuries of life are furnished. The simple fact, that he who has money can command every variety of exchangeable produce, seems to act as a veil which hides the producer from the consumer.”

*Days at the Factories* raises the veil on labor, for instance, by informing children that most of their toys are produced in London by other children: “Could we dive into the alleys and narrow streets at the east end of London, we should probably find many whole families—father, mother,

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428 The Introduction to the Nonsuch Classics edition of *Michael Armstrong* mentions that Robert Blincoe’s memoire was an inspiration for Trollope (9).

429 Dodd, *Days at the Factories*, 1.
and children—employed in making toys under their own poor roof.” Considering that progressive reformers of this period seek to regulate without abolishing child labor, Dodd’s description of families working together may have a more celebratory tone than we might think. Such an apology for child labor is by no means inconsistent with promoting an ethics of informed consumption among middle-class child readers; most fictional stories and “rags-to-respectability” biographies of working children adopt the same position.

Fiction for middle-class children creates sympathy with working families through child protagonists who visit farms and factories. Children’s author Jane Marcet, who inspired Harriet Martineau with her immensely popular books on science and political economy, wrote a fictional story about a six-year-old child’s railroad journey to discover the labor behind everyday things. In *Willy’s Travels on the Railroad* (1847), Willy admires the power of steam when he sees a train for the first time; he learns how people dig tunnels and construct tracks; he meets agricultural workers who bring goods to the market and who explain the economic benefits of railroads; and he tours a Derby factory and a family farm. Working children describe the production of food and goods for Willy with a level of technical detail appropriate for a textbook.

During his trip from London to his grandmother’s farm, Willy learns that everyone is interdependent because the division of labor requires exchanging goods and services. The railroad becomes a metaphor for personal connections made possible by new markets. Not only is Willy connected to his distant relations, but he is connected with other children who share the railroad, with the farmers who trade goods by rail, and with child factory workers who make the cloth he wears. These lessons begin with Willy’s family and expand to geographically broad communities connected by the rail line.

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430 Dodd, *Days at the Factories*, 11.
The book opens with a familiar stagecoach-as-state metaphor applied to the steam carriage. Willy must imaginatively expand his notion of community beyond his family by making his desires compatible with the happiness of other passengers. At first, Willy tosses a ball with another little girl until their rambunctious play annoys an elderly passenger, who (after a warning) throws the ball out the train window. In complete disregard for all the other travelers, the spoiled girl throws a tantrum and demands that her mother turn the train around to retrieve the ball. Since Willy controls his temper, the annoyed passenger lends Willy a children’s book and allows him to look at the bag of toys she bought for her grandchildren. If Willy restrains his pleasures to meet the needs of other passengers, then everyone enjoys the ride, whereas the spoiled girl insists on her own direction of travel. Willy expands his cooperative abilities across classes when the family moves (as his request) from his first class carriage to the open carriages of third class, where he helps Betsy, a farmer’s daughter, feed and unload her fowls; finally, he visits farms, gardens, and factories, learning the interdependence of agriculture and manufacturing, worker and capitalist, consumer and producer.

The grand lesson of *Willy’s Travels* is that the division of labor facilitates interpersonal relationships. The degree to which every activity in *Willy’s Travels* requires sharing and specialization approaches the absurd. Even picking daisy chains in the arboretum requires a division of labor by gender, since the girls, accustomed to sew, have the skills to rapidly split stems and assemble the chains, while the boys agree to gather the flowers. As the daisy chains illustrate, dividing any task creates opportunities for collaboration. Thus every object exchanged in *Willy’s Travels* prompts an intimate story about human relationships: The stern grandmother shows Willy her beloved purse, created by three pieces, each sewn by three granddaughters,
which she, in turn, fills with toys for them; likewise, Betsy’s fowls afford her tea and sugar to comfort her blind mother.

Although Marcet anoints regional rail trade with the intimacy of a small village, she nonetheless reasserts the importance of personal property and free markets by teaching Willy the difference between capitalist and gift economies. At his first visit to an Inn, Willy discovers that hospitality, in the case of strangers, is a business, and his parents must pay for food and lodging that supports the Innkeeper’s children, “So you see, Willy, she takes money out of her pocket to spend for us, and we put money into her pocket to pay her back again”—plus a little extra, his mother explains. Willy similarly mistakes a farm for a food charity that makes “bread and meat for poor people’s dinners,” until the farmer’s son, Johnny, explains:

“father don’t give it away . . . he could not afford that; he helps the poor people as much as he can, and pays them wages for their work, but his corn he sells to the baker, who makes it into bread; and his cattle to the butcher, who makes it into meat; and they sell it both to rich and poor, they care not which, so that they do but get paid for it.”

“But the poor have no money to pay with,” observed Willy.

“Then they must work to earn money; and that they may do either in a farm or a factory. Why, in a factory, as I told you, even little children get paid for their work.”

(131-32)

Such conversations are basic lessons in political economy, with a specific focus on how child consumers and producers relate to one another. Jane Marcet’s approval of child labor is by no means unusual; the point is that Willy should know why these children work and what they produce. Johnny explains that his family must buy clothes produced by these factory workers, and the boys discuss of all the different factories that each produce thread, cotton, wool, etc. that

432 Marcet, Willy’s Travels, 71. Hereafter cited in text.
combine to form finished clothes. “Well, how nicely that is contrived!” Willy exclaims, “People all help one another; it is tit for tat, like Betsey and her hens” (133).

Marcet conjoins trade with “help” by depicting generosity as the best protection for personal property. In Marcet’s novel, amiable business exchanges between strangers universally conclude with gifts between friends, tempering impersonal capitalism with cooperative spirit. The Innkeeper’s daughter, for example, picks berries with Willy on the condition that he won’t eat any, and Willy’s temperance earns the children an invitation from the Innkeeper to eat some of the cherries. On their return home, the innkeeper presents Willy’s mother with a basket of fruit, which she reciprocates with a silver pencil case for the daughter. Likewise, Mr. Joseph Strutt, who owns the factory that Willy tours, “may spend his profits in whatever manner he chooses.” Fortunately, he chooses to build a beautiful and instructive arboretum, free to the public, and “made for the poor more than for the rich” (66). Because of Strutt’s generosity, Derby serves “other factory towns, ever so far off” with its leisure gardens, the same towns and countryside that feed and clothe one another—all joined by the railroad (110). Because each person respects the property of the other, exchange facilitates friendship, gifts, and charity. In this light, the opening carriage scene in which Willy plays ball depicts an immoral, selfish economy. The ball toss, a metaphor of property exchange, introduces the children at the expense of other passengers. As a fit punishment, Willy forfeits his property.

Prior to Willy’s Travels, Marcet wrote Bertha’s Visit to her Uncle in England (1830), a three-volume fictional child’s journal about Bertha’s voyage from Rio de Janeiro to England. Together, Willy’s Travels and Bertha’s Visit offer a panoramic survey of global trade that manages the increasing complexity of Victorian production and consumption. By applying the order of personal narrative, Marcet gives children a comprehensive view of an interconnected,
global system. Rather than dividing humanity or atomizing individuals, modern industries unite everyone in mutual dependence and necessary cooperation. Victorian nonfiction books about manufacturing communicate the same message. Whereas earlier books about artisan trades tend to feature a master and apprentice, or parent and child, Victorian books depict many people working together; Beautifully illustrated books such as this edition of *The Boys Book of Industrial Information*, include sections on raw materials, international trade, skilled labor, engineering, and industrial design, capturing huge networks [Figures 36 and 37]. “This is the meaning of commerce,” explains *An History of Useful Arts and Manufactures*, “that nations separated from each other by six or seven thousand miles, busy themselves reciprocally about each other’s wants.”

Manufacturing-themed games from the Victorian period teach that complex manufacturing systems are comprehensible and invite cooperation. Consider the game produced by Wallis in the 1830s, titled *New Game of Genius, or Compendium of Inventions Connected with the Arts, Sciences, and Manufactures, Accompanied by a descriptive book and designed for the amusement and instruction of youth of both sexes* [figure 38]. Most educational games of this kind are like chutes and ladders. Game play requires children to give information memorized from an accompanying booklet in order to advance from each square where they land. In the *Game of Genius*, the outer ring of pictures represents traditional fine accomplishments (singing, painting, and archery), children’s entertainments (the kaleidoscope, the magic-lantern), and industrial processes both ancient and modern (battering-rams, steamboats, and pin-making). Players progress along a road of technologies and activities towards a central contemporary scene, which celebrates the conquest of time and space through engineering. The rulebook narrates this image: “At the distance is seen a manufactory worked by steam; on the river a

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433 *History of Useful Arts and Manufactures*, 57-8.
steam-vessel pursues its rapid course, while the stream is crossed by a suspension, or chain-bridge, along which is passing a train of those wonderful locomotive engines, which on a railway have conveyed the most enormous burdens at the almost incredible speed of thirty miles per hour.\textsuperscript{434}

Games like this one feature temporally and geographically expansive networks of workers, inventors, producers, and consumers. Using their game pieces, children are virtual travelers who use the train, steamboat, or suspension bridge of the central image to trace connections between diverse human accomplishments. During the 1840s, Wallis produced another game with a similar message, the \textit{Picturesque round game of the Produce and manufactures of the counties of England and Wales} [figure 39]. The map depicts the unique historical, literary, and industrial contributions of each region, which players pass through as they spiral toward London. These two Victorian games comprehensively represent vast systems of production and exchange and allow child players to navigate these systems. Players who master the booklets traverse a metonymic geography of all labor and invention from the comfort of home.

In their sanguine exuberance for machines,\textsuperscript{435} books for children are comfortable asserting that machines and people are interchangeable and may describe workers as bionically connected to their tools. As his name suggests, Francis Lever is like a machine when he first struggles to learn engineering. Without a supportive teacher, Frank’s “slowly moving powers might not have gathered sufficient force to overcome so disastrous a check . . . ; and thus the

\textsuperscript{434} Rule book, n.p.; available at Cotsen Children’s Library, with Wallis, \textit{Game of Genius}.

\textsuperscript{435} The steam engine, in particular, attracts rhapsodies, such as these lines from \textit{A Popular Description of the Steam Engine}: “the Steam Engine has infinitely increased the mass of human comforts, and rendered cheap and accessible all over the world the materials of wealth and prosperity. It has armed the feeble hand of man, in short, with a power to which no limits can be assigned” and “completed the dominion of mind over the most refractory qualities of matter” (8).
actual powers of the intellectual machine would have remained inert, like those of an engine, whose fly-wheel may be detained at first by a cause incomparably less in power than that which could arrest it during its subsequent tremendous motions. The metaphor—Frank’s brain is an engine—is ludicrously detailed, yet the tone is entirely serious, and there is no indication that Frank’s progression from broken to flawless machine is anything to regret. Neither does Jane Marcet’s *Willy’s Travels* hesitate to pronounce functional equivalence between biological and mechanical sources of power when Willy learns about factory machines. “I think a spinning-wheel must be very like a factory in little,” Willy conjectures, “for it does just the same thing, only grandmamma’s foot, which turns the wheel, is not a bit like a steam-engine or a stream of water.” Willy’s friend, Johnny corrects him, “Well, if it is not like, it does the same thing; her foot is the power that turns the wheel; it don’t signify what the power is, so that it be strong enough to do the work” (120). Comparisons between humans and machines are rarely threatening if children are depicted as mechanically literate. For many writers who celebrated the factory system, machines symbolized the divine beauty of an automated system run on the regular laws of physics. As managers of machines, surveyors over the factory system, the wealthier child readers of these works enjoy a privileged position over machines and over the workers who tend them.

**Machines as teachers; factories as schools**

A positive association between machines and child education may seem puzzling in books published during the same decades when factory work was blamed for destroying the minds and bodies of child workers. But as I explore more in depth in chapter 4, this paradox has a long history in public discussions about educating the working poor. British philanthropists

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436 Harris, *Francis Lever*, 46.
who supported schools for poor children quoted from *The Wealth of Nations* that the division of labor advances civilization while degrading the minds of common people. These arguments were repeated in the early nineteenth century. James Mill warned that “The minds . . . of the great body of the people are in danger of really degenerating, while the other elements of civilization are advancing,” unless we employ the “instruments of education.” As civilization progresses, our minds atrophy.437 Unfortunately, a healing education is impossible for children who work long hours from a young age. Rather than regulate child labor, early Victorians applied the division of labor to the schoolroom using the Monitorial methods of Andrew Bell and Joseph Lancaster to reduce the cost and time it takes to learn. What Lancaster described as his “new and mechanical system of education,” Samuel Taylor Coleridge praised as “this incomparable machine, this vast moral steam-engine,” and Henry Brougham named “the steam engine of the moral world.” Sir Thomas Bernard, an early advocate of educating the poor, clarified the connection to Adam Smith, “The principle in schools and manufactories is the same. The grand principle of Dr. Bell’s System is the division of labour applied to intellectual purposes.”438 And for decades these phrases were echoed in Parliament. If factory machines degraded the mind, then intellectual machines could fix them.

Ultimately, the association between education and machinery was one way to evade child labor regulations. Once education is associated with machinery and steam power with child genius, then factories conveniently seem like wonderful schools. By arguing that machines turn

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437 Extending these anxieties to intellectual specialization, Victorians John Henry Newman and Matthew Arnold fear that even professionals degrade their minds through narrow intellectual work. In “The Idea of A University” (1852), Newman argues that human progress is at odds with individual cultivation: “the more the powers of each individual are concentrated in one employment, the greater skill and quickness will he naturally display in performing it. But, while he thus contributes more effectually to the accumulation of national wealth, he becomes himself more and more degraded as a rational being.”

labor into leisure, defenders of the factory system like Andrew Ure make a 72 hour work-week seem compatible with self-cultivation. Because steam engines relieve workers from heavy manual labor, they leave the mind free for contemplation. Ure reports, “A mule-spinner told Mr. Tufnell, that in the intervals of labor allowed by his steam-going spindles, he had read through several books. The workmen who superintend the frames . . . seemed to me so much at their ease, that they might study the circle of the sciences in the course of their business.”

Criticizing Lord Ashley’s call to limit how long children work so that they can attend school, Ure suggests that the factory is itself an educational environment. Three quarters of children “engaged at piecing at the mules,” have the free time to study while they work. “When the carriages of these have receded a foot and a half or two feet from the rollers, nothing is to be done, not even attention is required.” Ure interprets this interval as an opportunity for self-improvement. The adult spinner and child piecer “stand idle for a time, and in fine spinning particularly, for three-quarters of a minute, or more. Consequently, if a child remains at this business twelve hours daily, he has nine hours of inaction. And though he attends two mules, he has still six hours of non-exertion. Spinners sometimes dedicate these intervals to the perusal of books” or “moving about in a sportive mood.”

Adolescent periodicals regularly print rags-to-riches stories about children who learn in factories. An 1881 article in “Chatterbox” on David Livingston, the missionary to Africa, claims that “He brought his books to the factory, and placing one of them on the ‘jenny,’ with the lesson open before him, he divided his attention between the running of the spindles and the rudiments of knowledge.” In such stories, mere proximity to machines inspires children to learn. An

439 Ure, Philosophy of Manufactures, 371.
440 Ure, Philosophy of Manufactures, 310-11.
441 “A Glasgow Factory Boy,” Chatterbox, April 23, 1881, 175.
article on the history of abolition in *Boys’ Own Paper* notes that “While watching a steam-engine fire in a shipyard, [Frederick Douglas] learned to write.”

Implicitly supporting Ure, biographies for children imply that child workers can easily teach themselves while they work because factory machines leave them little to do, and steam engines are so inspiring. In such cases, children’s books that claim to expose the hidden labor behind everyday articles make a false revelation where machines seem to do all of the work. In *A Visit to the Exhibition in eight changeable pictures. Showing its beautiful objects of art and how they were made*, children make a virtual visit to The Great Exhibition of 1851, where they first admire finished products, then “raise the curtain” to reveal how these goods are produced [Figures 40 and 41]. The pictures show people at work, but in the captions parents wax poetic about machines and neglect to mention the workers. In Jane Marcet’s *Willy’s Travels*, Willy observes:

> “Every thing seems alive in the factory, . . . nothing stands still except the people, who are really alive, and they move only when they have threads to tie, or other work to do, whilst the machinery is at work all day long; it works a great deal harder, and does a great deal more, than all the live people.”

> “Very true,” observed his papa, “but the machinery would work to no purpose if these living people did not set things to rights when they went wrong” (156-7).

Willy’s father barely qualifies his son’s impression that factory work is leisurely, and he is comfortable with Willy’s personification of the machines.

In one case, I have seen these ideas directed at children who work in factories, blaming them for their ignorance. A lengthy tract entitled *The Young folks of the factory; or, Friendly Hints on their Duties and Dangers* (1840) informs children that factory work may “quicken your

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442 “Slavery as It Was and Is,” *The Boy’s Own Paper*, 187.
faculties of observation,” but warns them against “being so entirely engrossed with one pursuit, as not to exercise the faculties of observation and common sense upon the various objects that surround us. People of this class are little better than machines.”443 Here is Adam Smith’s well-worn fear about the division of labor; but the author believes the factory itself offers a schoolroom to mend the mind: “I can hardly conceive of a young person so stupid as to go day after day to work in a factory an never inquire into the principle of the steam-engine, into the method of obtaining cotton, wool, coal, iron, . . . and through what process they have previously passed, and what is still required to fit them for the consumer.”444 The author of this pamphlet assumes that factories supply child workers with an empowering vision of the factory system, failing to consider that only children of leisure, like Francis Lever or Willy, who learn abstractly from books in schoolrooms benefit from a practical field trip to a factory. In other words, the same narrative used in books for wealthier children was leveraged to make child labor and mass education seem compatible, when in fact, education for children and adult workers alike depended on regulating work hours to create the leisure to learn.

Not surprisingly, Chartists argued this point when they demanded a ten-hour workday. During the 1830s, Radicals redefined education on their own terms, calling for a political education that would prepare people for public life. One of the children’s books on industrial production that I found articulates a Radical position. The Cotton Fields and Cotton Factories: . . . adapted for youth, by “Henry Brown, artisan” (1840) spends half its pages in textbook reveries on factory machines, and half in virulent denunciation of child labor. This volume demonstrates that celebratory language about machines does not always correlate with a particular political stance on the factory question. Brown directly enlists middle-class children as agents responsible

443 Young folks of the factory, 310.
444 Young folks of the factory, 312-13.
for learning the “full political and moral bearing” of the factory system and criticizes the present state of education that leaves most Englishmen “utterly ignorant of the nature of that policy which regulates their present existence.”445 Because they, too, are children, young people should know that the wealth of English manufacturing “has done little more than nothing for that infant population, whose nimble fingers are said to be so essential to the manufacture.”446 One day, Brown envisions, his child readers may end child labor in favor of schools. Then an educated workforce will “feel their own consequence, morally and politically” and “command that machinery which has so long and cruelly commanded their parents.”447 Despite his politics, Brown closes his volume with the same image of children who master their destiny by mastering machines.

The most Radical moment in Brown’s text is when he energetically condemns Sunday and Factory Schools that attempt to make education compatible with work to avoid regulating child labor and implementing universal primary school. Ascribing selfish motives to charity schools, Brown blames the wealthy for educating the poor out of fear:

Doubtless, like Frankenstein, they beheld with silent dread the monster which they had created, and feared, like him, its solitary and mindless wanderings. Perhaps this fear was the origin of the education system which was now about to be introduced among them. Education! Pardon us that word; it was proposed that the children should be taught to read; but mark! The mill-owners were still determined to relinquish no part of the children’s toil. Sunday schools and night schools were to be established for this purpose.

447 Brown, Cotton Fields and Cotton Factories, 166.
Truly, the children must have had but an irksome life; what with their toil of the day and their “education” at night, a jaded and miserable existence must have been theirs.\textsuperscript{448}

Remarkably, this book for children uses the same rhetorical strategy as \textit{The Poor Man’s Guardian} when Brown puts “education” in quotations, which was code for schools that indoctrinate children without providing access to political information. Brown anticipates what slowly becomes public consensus over the second half of the Victorian period, that young children should be prevented from working while they attend school. Learning is the proper work of children, but work that is incompatible with labor because equally exhausting; furthermore, all people deserve “rest, for relaxation, in short, for pleasure.”\textsuperscript{449} Brown’s \textit{Cotton Fields} is a fascinating example of a radical author who addresses a technologically and politically sophisticated message explicitly to child readers as political agents and serves as a reminder that much of what was written for adults on the factory system, however venomous or polemical, may have circulated among the family.\textsuperscript{450}

I have argued that books for children engaged in the condition of English question that occupied canonical Victorian industrial fiction of the 1830s through 1850s. While some of these children’s texts exposed the labor behind everyday things, others compromised this project by occluding human work behind industrial technology. Susan Zlotnick offers a similar reading of industrial novels by Charlotte Elizabeth Tonna and Francis Trollope, which use everyday objects purchased by middle-class women to reimagining the factory as an extension of the home. “By

\begin{footnotesize}
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\item Brown, \textit{Cotton Fields and Cotton Factories}, 121.
\item Another example of a radical addressing children with a political message is Rev. Bell’s speech to the children of Leeds in 1833, urging them to protest the Royal commissioners appointed to investigate factory conditions for young workers. According to published reports, over 1,000 children marched in Leeds to protest the choice of commissioners, whom they suspected of partiality. Trollope mentions Bell, briefly, in \textit{Michael Armstrong}, as a hero to children, praising him through the criticism of evil characters. A more conservative work for children on the factory system is Charles Knight’s \textit{Knowledge is Power}; \textit{A View of the Productive Forces of Modern Society, and the Results of Labour, Capital and Skill} (1855), which in its original introduction specifies Knight’s wish to attract young readers.
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creating a private world either littered with or sustained by objects manufactured in the public world,” Tonna and Trollope “lay bare the submerged connections between the factory and the family.” As consumers, women are “directly implicated in a system of economic exchange and hence economic exploitation,” but their complicity is obscured as long as the domestic sphere appears protected from and morally superior to the public sphere of market competition.\textsuperscript{451}

Although Zlotnick sees “domesticity,” which divorces objects from the human labor used to create them, as “commodity fetishization on an epic scale,” these same domestic values supported educational enterprises that recovered for middle-class children “a social biography” of household objects.\textsuperscript{452} Because child education is both a domestic enterprise and a national crisis, the question of what constitutes education (or miseducation) traverses public and private educational discourses, joining nursery, schoolroom, and factory. In the remainder of this chapter, I consider intersections of work, leisure, and learning in the educational spaces of two industrial novels: \textit{Michael Armstrong} and \textit{Hard Times}.\textsuperscript{453}

\textbf{Michael Armstrong}

Francis Trollope’s \textit{Michael Armstrong} addresses education of both the rich and the poor in a sophisticated way. The novel makes fiction a subject of study by exposing the carefully orchestrated political fictions invented by Sir Matthew Dowling, factory owner, and supported in

\textsuperscript{451} Zlotnick, \textit{Women, Writing, and the Industrial Revolution}, 130.
\textsuperscript{452} Zlotnick, \textit{Women, Writing, and the Industrial Revolution}, 133.
\textsuperscript{453} In the tradition of Mary Edgeworth’s \textit{Belinda} or Eliza Fenwick’s \textit{Ruin on the Rock}, briefly examined in chapter 2, both \textit{Hard Times} and \textit{Michael Armstrong} contain tropes of the education experiment novel, with Sissy “reclaimed and formed” by Gradgrind like Michael’s (performed) adoption by Sir Matthew (84). In the female gothic education plot, a scientifically minded male instructor observes the development of a female protagonist under his pet system as he prepares her to become the ideal wife for himself or his associate. In the case of \textit{Hard Times}, this pupil and instructor dynamic is split between Sissy/Louisa and Gradgrind/Bounderby, with Louisa’s upbringing under Gradgrind’s “system” following the same pattern as the doomed brides in novels by Edgeworth and Fenwick, while Sissy and Gradgrind find redemption at the novel’s close. Dickens wrote another novel that loosely fits the education experiment formula: \textit{Our Mutual Friend}. 
exchange for favors by his circle of corrupt beneficiaries. The father of a family large enough for Malthusian hypocrisy, Sir Matthew Dowling adopts (or abducts) young Michael, the only healthy wage-earner for his widowed mother, as a publicity stunt. Soon tired of a boy who cannot perform affecting gratitude on cue, Sir Matthew packs him off as apprentice to a secluded mill, where Michael languishes half-starved until rescued by the novel’s heroine, Mary Brotherton, an independent heiress drawn to his plight. Mary’s trajectory follows her reeducation from a complacent beneficiary of her father’s wealth, garnered from parish poorhouse apprentices, to an inquiring mind on a mission to investigate the factory system. She demands to know whether factory workers are shunned and kept out of sight for their infectious moral decrepitude, as generally reported (and as Tonna’s factory novels depict), or for the moral convenience of everyone else. For much of the novel Sir Matthew and Mary offer competing interpretations of Michael and the Lancaster factory system, dramatizing how second-hand accounts of Industrial Districts, Trollope’s novel included, compete for believability among uninformed readers—much as the public and Parliament debates concerning child factory labor revolved around which testimonies or witnesses were deemed trustworthy.454

Trollope’s novel positions Mary Brotherton as a young adult version of Marcet’s Willy, a model for readers of an active pedagogy that supplements reading with experiential learning. The antidote to Sir Matthew’s rumors and political fictions is not more reading but personal observation. Trollope’s narrator reflects on Michael’s apprenticeship, “Let none dare to say this picture is exaggerated, till he has taken the trouble to ascertain by his own personal investigation, that it is so.” And “woe to those who supinely sit in contented ignorance of the facts.”455

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454 Recalling factory reports and investigations, Mary plays the part of a commissioner by interviewing several factory children, while Michael endures nearly the same exact experience as Robert Blincoe reported as Linton Mills.
Trollope’s readers, like Mary, must visit Industrial Districts and use their eyes and ears to investigate what they have heard second-hand, especially because factories like Deep Valley, where Sir Matthew banishes Michael, are “hid from the eye of every human being but those engaged in them” (160). Rather than trust Sir Matthew’s report that his workers are well-paid but miserable from their indolence and wickedness, Mary proposes to her companion (her nurse from childhood) “to see and judge for ourselves” (219). And rather than trust Trollope, or other publications, readers should reject the fashionable practices of rising families whose children abhor the factory as “shop talk” by learning about their business (200).

Fiction, rumors, and hearsay compete against observation in the opening third of Trollope’s novel, which culminates in a “masque” commissioned by Sir Matthew from an obsequious poet and performed by his family—notably in the Dowling Place schoolroom. The amateur theatrical recounts Michael’s heroics while “rescuing” Sir Matthew and Lady Clarissa (a silly, middle-aged aristocrat of declining family) from a harmless cow, which under Sir Matthew’s embellishment becomes a vicious monster threatening the love object of his chivalric pretensions. Mere propaganda masquerading as high art, the masque is a fiction adapted from romantic fancies, created to bolster Sir Matthew’s reputation. It opens with an ironic “Shakespearean Prologue” that commands Sir Matthew’s neighbors (as Trollope commands her readers) to “Open your ears! For which of you will stop / The seat of hearing, when rumour speaks?” and promises to reveal Sir Matthew’s true nature (150). What Mary hears, however, as she steps backstage at the play’s conclusion is Sir Matthew beating Michael for forgetting his

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456 See also, “It is hardly possible to conceive a spot more effectually hidden from the eyes of all men, than this singular valley” (Trollope 259).
457 These lines echo Jesus’ defense of his didactic use of parables, perhaps parallel to Trollope’s use of fiction: “Therefore speak I to them in parables: because they seeing see not, and hearing they hear not, neither do they understand.” The Biblical passage appears, suitably for Sir Matthew, in Matthew 13:13 (King James Version).
lines, the noise obscured from the audience out front by the many “accomplished” Dowling children banging their “tambourines and triangles” (163).

By setting this revelatory scene in a schoolroom, Trollope simultaneously critiques middle-class education as a performance of learning that disguises ignorance, while exposing how child factory labor is excused through a strategic conflation of work and instruction. Accompanied by Martha, the eldest Dowling daughter, Mary exits behind the curtain through a room “dedicated to the reception of globes, slates, guitars, dumb bells, dictionaries, embroidering-frames, and sundry other miscellanies connected with an enlarged system of education” adjoining “that part of the school-room now occupied as the stage” (160). Instead of enlightening Dowling’s children, the implements of their well-stocked schoolroom are an expensive “masque” for the ignorance of wealthy second-generation manufacturing families. The sheer abundance of instructive objects transforms the Dowling schoolroom into a self-contained educational space. These tools of object lessons no longer function to bring practical lessons into the home, but to erase from the home any evidence of their father’s business. Like the instruments that drown out Sir Matthew while he abuses Michael, the schoolroom’s “enlarged system of education” is mere noise, or the clanging symbol of false charity.458

The repressed factory returns to haunt the schoolroom through the figure of Sir Matthew, who ambiguously exhibits the discipline of schoolteacher and factory overseer. His friend, the doctor, cautions him to stop his abuse before he destroys his scheme merely “because a stupid brat can't say his lesson perfect” (163). But Sir Matthew insists that Michael is a rebellious worker who refuses to say anything positive about his employer: “It was not the lesson that

458 I am drawing out a possible Biblical resonance to this scene. Sir Matthew’s play is supposed to create the illusion that he is charitable, but ends with noisy symbols, recalling I Corinthians 13:1: “Though I speak with the tongues of men and of angels, and have not charity, I am become as sounding brass, or a tinkling cymbal” (King James Version). Biblical allusions are generally subtle but important for Michael Armstrong. For instance, Mary’s quest for the truth is contrasted with Martha’s feminine obedience, like the Biblical Mary and Martha.
choked him. How much will you bet me that if I get fifty lines written down abusing me and nothing else in ‘em, he won’t learn them off as glib and perfect as any actor on the stage?” (163). Sir Matthew’s concept of education is indoctrination through repetition, exactly the sort of government or charity supported education that some Radicals feared would pacify the workforce while claiming to empower them.

Lending credence to these fears, Dowling and the mill owners regularly use the pretense of education as a masque to keep workers ignorant. We learn from Mary’s interview with a factory girl that long work hours for mothers and children interrupt the popular mode of transferring literacy from mother to child. Factory schools replace the mother’s role ineffectually because the exhausted children cannot stay awake, but these schools perform exactly as intended by the mill owners who are themselves barely educated and feel threatened by popular literacy. Workers who cannot read or who do not know the law are forced to depend upon Dowling and his circle to advise them, whereas Mrs. Armstrong’s literacy is “one reason she is so outdacious about the workhouse.” As one of Sir Matthew’s accomplices imperfectly pronounces, “There’s nothing on earth does so much mischief among the mill people as making scholards of ‘em” (207). Ultimately, Sir Matthew, with Martha’s help, convinces Mrs. Armstrong to sign Michael’s apprenticeship papers because she trusts their promise to educate him in a trade, when in fact Michael is sent to the secluded Deep Valley mill where he learns nothing. Through multiple substitutions of work for education, Sir Matthew inserts himself into the working family as an indispensable advisor and replaces the intimacy of home schooling or artisan apprenticeship with factory schools and factory apprenticeship. As both schoolmaster and mill master, Sir Matthew removes working children from familial education and sequesters his own family from the mills.
The central place of apprenticeship in Trollope’s plot may seem strange, since by 1840, parishes rarely apprenticed poor children to factories. It makes sense, however, as a way to expose apologists for child labor, like Andrew Ure, who deceptively laud factory work as instructive. Nowhere is the slipper division between education and work more glaringly abused than in the apprentice system. While water-powered factories of the early nineteenth century, located in the countryside, lacked an urban population from which to draw child labor, they imported poor and orphaned children from London parish workhouses, promising to teach the boys stocking-weaving and the girls lace-making. Apprenticing workhouse children was a common investment that provided a future livelihood for children who might otherwise become adult parish paupers. But binding so many children to work in factories located hundreds of miles from their parish and parents (if alive) ensured that factory owners, bereft of oversight in isolated country towns, could abuse their charges and abandon their contractual promise to teach these children actual skills. Factory Apprentices were not usually paid, and they could not legally leave their “contract,” which could bind them into service for many years.

Although apprenticeship declined significantly by the time that Trollope researched Michael Armstrong with a Manchester tour in 1839, harrowing stories of abused apprentices were instrumental in stirring the public against child labor throughout the 1830s, following the publication of working-class autobiographies that detailed abuse suffered by adult survivors.459 Shaped by its Radical editors, Robert Blincoe’s memoire (1828, 1832) links the abuse he suffered as a child apprentice with efforts to further limit child labor in the present by reminding readers that public outrage largely ended parish apprenticeship and could again improve conditions for another generation of children through protective legislation. Apprenticeship would have resonance in the 1830s public consciousness, furthermore, because of constant

459 For background on parish apprenticeship, I draw from Horn, Children's Work and Welfare, 12-34.
comparisons between child factory workers and West Indies slaves, typified by Richard Oastler’s remarks in the *Leeds Mercury* (1830). The same Act that abolished slavery in the West Indies required former slaves to work 40 hours per week without pay for their former owners under what was called the “Apprenticeship System,” supposedly so that these workers could “learn to be free.” Thus Parliament used “apprenticeship” in 1833 to legalize unpaid work under the guise of “instructing” former slaves and their owners how to practice the idealized paternalism supposedly enjoyed by English agricultural workers. For these reasons, the rhetoric, laws, and practices surrounding “apprenticeship” helped to renegotiate the line between education and labor during the mid-nineteenth century, which explains why *Michael Armstrong* attacks child labor through a practice largely fallen from use. Apprenticeship served as a constant reminder of the fine distinction between factories and schoolrooms.

The malicious Sir Matthew and his cronies, who rub their hands and cackle while they whip children, may make Trollop’s novel appear simplistic compared with more nuanced works like Elizabeth Gaskell *Mary Barton* or Charlotte Bronte’s *Shirley*. However, Trollope comes closest to the note of Radical working-class periodicals where education is concerned (see chapter 6). Her novel distinguishes between real education, the kind that would empower Mrs. Armstrong to make an independent, informed decision for Michael, and the appearance of “education.” And Trollope exposes how wealthy children become complacently misinformed about working-class life in much the same way that *The Poor Man’s Guardian* laments the Princess Victoria’s expensive education as deception.

Trollope’s exposé is significantly more radical than most of the middle-class children’s literature I have examined. Although aimed at reconciling the two nations, books like Marcet’s *Willy’s Travels* or *The Triumphs of Steam* too often provide middle-class children with the false
impression that work is leisurely or educational. A wealthy boy like Willy uses the railroad to learn about trade, manufacturing, and farm labor, but his participation in work activities alongside less privileged children is, for him, a form of play. Whether picking cherries, helping with the chickens, or monitoring factory machines, Willy only has to work as long or as hard as he likes. By imitating work in play, a boy like Willy learns that work is light, fun, and universal for all classes. But unlike many child workers, a wealthy boy’s hands-on learning complements his book learning; it is but one component of a diverse education that elevates him, through object-learning, from a child of the senses to a well-rounded, affluent adult, who can think abstractly and command the world of men and things. For privileged boys who need not labor at a young age to support their families, educational work is leisurely and empowering. By collapsing work and play, experientialist pedagogies make unrelieved child labor seem playful, educational, even invisible.

Experiential education does not always so consistently obscure the hardship of physical labor. Late-eighteenth-century Rousseauvian children’s books like Sandford and Merton usually depict labor as arduous but restorative. For John Locke or Rousseau, with their domestic Spartan attitude towards comfortable clothes and fine food, a gentleman’s infant who exerts himself barefoot outdoors gains health and initiative because he is not spared physical pain. A closer antecedent to Marcet’s Willy, Maria Edgeworth’s Rosamond suffers pain in her feet as the consequence of mismanaging her money, even though her affluent mother could intercede and purchase some shoes (see Chapter 2). Pain has its place in economic lessons. In Dorothy Kilner’s The Life and Perambulation of a Mouse (1884), a gentleman commands his mischievous son, who mixes threshed grain as a practical joke, to sort the grain and beat the rest himself. Soon exhausted, Will bursts into tears; “his arms ached ready to drop off, and his hand was so sore he
could not bear it,” but he must work into the night before his father allows him to eat.\textsuperscript{460} The poetic justice is clear: A boy who does not know that making bread is hard work cannot eat until he feels that fact in his body. Is this the haptic lesson that Willy learns, blithely picking cherries with the Innkeeper’s daughter? Kilner’s Will suffers while he works and cannot choose to rest. When his father returns, he asks Will how he would like, “after you have been labouring all day, to have your work to do over again, for the sake of diverting a foolish boy.” He is a demanding task-master, who forbids his son from relieving his limbs until he experiences the full measure of compulsory labor: “But go on, William, I am determined that you shall, for one day, know what it is to work hard, and thereby be taught to pity, and help, not add to the fatigue of those who do.” Kilner offers a convincing lesson in cross-class sympathy that uses experiential education expressly to distinguish work and play.\textsuperscript{461}

\textit{Hard Times}

If experiential education fails in Willy’s adventures and Sir Matthew’s nursery because it transforms work into play, then the very reverse happens in \textit{Hard Times}. Gradgrind’s school fails because it transforms playful childhood cultivation into painful work. As Catherine Gallagher demonstrates in \textit{The Body Economic}, Dickens rejects Carlyle’s religion of work in favor of Jeremy Bentham’s Utilitarian categorization of labor under “pain.”\textsuperscript{462} Since labor is by definition misery, the source of Coketown’s unhappiness is that everyone works all the time, even the children at school or Sleary’s troupe at the circus. Contrary to most political economists, for whom performers and teachers are unproductive, Dickens asserts the value of his own profession by depicting entertainment as productive labor, and to make this point, he emphasizes the

\textsuperscript{460} Kilner, \textit{Life and Perambulation}, 1:75-6. Published as “Perambulations” in other editions.

\textsuperscript{461} Kilner, \textit{Life and Perambulation}, 1:76.

\textsuperscript{462} Gallagher, \textit{Body Economic}, 64-7.
psychological and physical toll of circus work, “the weariness of imposed jollity and the affective dissonance that results from ceaselessly troping play into work and work into play.”

Only Bounderby mistakenly insists that the circus children are apprenticed “to idleness.” According to Gallagher, the circus deforms and mangles its workers just like the factory, a comparison that destroys the novel’s clean “work-versus play opposition.”

If entertainers like Dickens and Sleary are workers, what of students and teachers? The one character in *Hard Times* who equates education with pain is Bounderby, and even Gradgrind suspects his error: “Education! I’ll tell you what education is—To be tumbled out of doors, neck and crop, and put upon the shortest allowance of everything except blows. That’s what I call education.” For Bounderby, education is either labor or abuse. Creating his life story after biographies of inventors with humble origins, Bounderby purports to be an autodidact formed purely out of his environment, like “a commercial wonder more admirable than Venus, who had risen out of the mud instead of the sea” (268). The odd conjunction of Venus with Bounderby hints that he has usurped the role of wife and mother, a figure who in the children’s literature market symbolized the earliest memory of learning letters, seated at the mother’s side.

In order to appear the self-made man, Gradgrind (like Sir Matthew) repeatedly seizes the mother’s role in transmitting literacy, first by denying the instruction provided by his own mother, and then by supplanting Mrs. Gradgrind’s place in Tom and Louisa’s family. We first meet Bounderby in the Gradgrind kitchen, boasting that he learned his letters and numbers by studying chance objects encountered in his environment: “Josiah Bounderby of Coketown learnt his letters from the outsides of the shops, Mrs. Gradgrind, and was first able to tell the time upon a dial-plate, from studying the steeple clock of St. Giles's Church, London, under the direction of

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a drunken cripple, who was a convicted thief, and an incorrigible vagrant” (55). Oddly enough, he describes an experiential technique piloted by Ellenor Fenn as “education of the moment” and often modeled by characters in domestic moral tales, only he eliminates the mother figure who generates conversation about everyday things to instruct her charges.466

One way that education is reduced to work and equated with pain is, therefore, by eliminating its connection with familial affection, embodied in the mother-as-instructor. The novel pulls hope from its despairing pages by restoring the mother teacher, concluding with “Sissy’s happy children loving her; all children loving her,” while Louisa shares her position (315). Together these women fill the “surrogate mother” defined by Mitzi Myers, an authoritative motherly character who commands from within a text as stand-in for the female author’s supplement to biological parents. As both Myers and Mary Hilton argue, writing didactic literature provided women authors with a legitimate avenue for participating in political life as the nation’s educators, here suggested by Sissy’s ambiguous future as either a biological mother or a mother to all England.467 Elizabeth Starr is right when she reads Dickens as appropriating female domestic authority by allying himself, as author-educator, with Louisa and Sissy in this closing scene, but such appropriations were standard practice for male authors who sought to write for family audiences.468 Dickens is one of many male authors toting “imagination” as child liberation who push aside the female didactic tradition—the women

466 See Immel, “Mistress of Infantile Language.”
467 See Myers, “Impeccable Governesses”; Hilton, *Women and the Education of the Nation’s Young*. The surrogate mother is the role taken by female authors, and in the case of Wollstonecraft, explicitly supplements negligent or absent mothers with literary instructor/parent exempla. Myers shows that many male critics over the years have expressed unease at the intimidating position assumed by the strong, perfect, controlling instructress figure in didactic literature. Her description of this figure clarifies that Bounderby is a male version, the man who steps into the family because of the weak mother, Mrs. Gradgrind, while Dickens allies himself with Louisa and Sissy, surrogate mothers who ascribe to his preferences for imaginative literature.
468 Starr, “Manufacturing Novels,” 333-34. Alan Richardson explains that fairy tales, preferred by Romantic poets for child reading, were not superior to the didactic tales usually produced by women. Fairy tales were not as political as other forms of literature available for children. See *Literature, Education, and Romanticism*. 
authors Percy Muir infamously called “that monstrous regiment” because they threatened to replace fairy tales in the nursery with moral tales. While the genders are reversed in *Hard Times*—Louisa and Sissy replace Bounderby—the battle they represent is an old and familiar one. While celebrating the mother, therefore, Dickens offers his own substitution, which obscures that many children’s authors who wrote “factual” fiction embraced the “surrogate mother” role, like Mrs. Mrs. E. Burrows, who speaks through “Aunt Helen” in *Triumphs of Steam*.

Next to Bounderby, Gradgrind at least intends to cultivate his children, but he pursues an expensive, modernized version of Bounderby’s school of hard knocks. *Hard Times* offers an astute critique of what amounts to an eviscerated form of experiential learning, by questioning whether such techniques succeed on their own terms. In a scene reminiscent of Trollop’s revelation in the Dowling nursery, Dickens describes Gradgrind’s home as a state-of-the-art educational environment, a modern estate equipped with the latest home technologies and, among these, every instructional technology the market can supply:

A lawn and garden and an infant avenue, all ruled straight like a botanical account-book. Gas and ventilation, drainage and water-service, all of the primest quality. Iron clamps and girders, fire-proof from top to bottom; mechanical lifts for the housemaids, with all their brushes and brooms; everything that heart could desire.

Everything? Well, I suppose so. The little Gradgrinds had cabinets in various departments of science too. They had a little conchological cabinet, and a little metallurgical cabinet, and a little mineralogical cabinet; and the specimens were all

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469 “The Monstrous Regiment” is that name of a chapter in Percy Muir’s *English Children’s Books, 1600-1900*. For the recuperation of women authors who wrote children’s literature with strong female mothers, see Norma Clarke, “‘The Cursed Barbauld Crew,’” *Opening the Nursery Door*. Dickens transfers his enmity to Bounderby, who takes the place of a dame school teacher in the kitchen.
arranged and labelled, and the bits of stone and ore looked as though they might have
been broken from the parent substances by those tremendously hard instruments their
own names; and, to paraphrase the idle legend of Peter Piper, who had never found his
way into their nursery, If the greedy little Gradgrinds grasped at more than this, what was
it for good gracious goodness’ sake, that the greedy little Gradgrinds grasped at! (48)

The specimen cabinets refer to Pestalozzian object learning, popularized for middle-class
education by Charles and Elizabeth Mayo in the 1830s. Just prior to the publication of *Hard
Times*, object learning cabinets like these were sold as mini domestic versions of the materials,
machines, and manufactured products on display at the Great Exhibition of 1851, and by the
1860s, children’s magazines regularly advertised both new and used domestic cabinets of
chemistry, botany, and mineralogy [Figures 42 and 43]. While Pestalozzi’s methods repeatedly
drew praise for their “organicism,” he approaches religion, spirituality, and affections by
providing concrete objects that children can explore with their senses.470 Although *Hard Times*
may seem consistent with the Pestalozzian call to unite “head, heart, and hand,” Dickens rejects
the notion that affection or imagination can be “grasped at” through objects.

As Dickens sees it, teaching children though the senses does the very opposite of what it
intends. Instead of transitioning material-minded children into abstract thinkers, object lessons
deprive children of the room for creating mental pictures of things unavailable to the senses.

470 I discuss Pestalozzian methods more in depth in Chapter 4. In his biography of Pestalozzi, Charles Mayo
summarizes the purpose of object learning as a method for activating abstract thought: “In every branch of study the
point de depart is sought in the actual experience of the child; and from that point where he intellectually is, he is
progressively led to that point where the instructor wishes him to be. Thus he proceeds from the known to the
unknown by a process that connects the latter with the former . . . he is lead by a course of analytical investigations
of the knowledge actually possessed, to form for himself those intellectual abstractions which are in general
presented as the primary truths . . . For this purpose, real objects are presented to the examination of the younger
pupils; the physical senses are trained to accurate perception, and the understanding is gradually led to generalize
and classify the notices it receives through them” (Mayo, *Memoirs of Pestalozzi*, 27).
Unlike the (often materialist) British thinkers who advocated object-learning techniques, Dickens assumes that children are not stuck in a material state but forced into one. Thus when Louisa, broken by marriage and seduction, returns to her father, she wishes her senses had been impaired: “if I had been stone blind; if I had groped my way by my sense of touch, and had been free, while I knew the shapes and surfaces of things, to exercise my fancy somewhat in regard to them; I should have been a million times wiser, happier, more loving, more contented, more innocent and human in all good respects, than I am with the eyes I have” (242). Substituting groping for grasping, Louisa describes blind man’s bluff as a parody of the technique used by Pestalozzian instructors to develop the mental faculties of young children by handing them unusual shaped pieces of wood or other materials and asking questions about line, texture, color, and so forth. She claims that the emphasis on sense learning in her youth created the “deadened state of my mind,” which is precisely the condition among neglected, traumatized orphans that Pestalozzi developed his methods to treat (242).

*Hard Times* also targets the genre of industrial children’s books explored in this chapter by questioning whether these accomplish their aim. Whereas Jane Marcet and Charles Knight praise the division of labor as a boon to cooperation across classes, Dickens specifically rejects any notion that learning about how things are made constitutes a sympathetic engagement with workers. The “improving party” that attend Louisa’s wedding “knew what everything they had to eat and drink was made of, and how it was imported or exported, and in what quantities, and in what bottom, whether native or foreign, and all about it,” but as Bounderby’s self-centered marriage speech demonstrates, the event marks an affectionless and barren union that bodes ill for national unity (140). Nevertheless, Dickens supports the purported goal behind such instruction—to bring together rich and poor in common understanding and sympathy— by
assigning this message to the novel’s working-class hero, Stephen Blackpool, who reflects with his dying breath, “If soom ha’ been wantin’ in unnerstan’in me better, I, too, ha’ been wantin’ in unnersta’in them better” (292).

As an alternative to industrial, rational, or sensual education, Dickens offers entertainment: Sleary’s circus. While the circus is a place of work equal to the factory, it nonetheless offers an educational arena that foils Gradgrind’s model school and his nursery. And in order to do that, the circus must remain on some level a source of pleasure. In order for the circus to function as an educational space that critiques Gradgrind’s home, Dickens must juggle two contradictory views of its operations—one from the perspective of Sleary’s troupe, for whom horseriding is work, and the other the perspective of the audience, who, like Bounderby, mistakes a theatrical performance of play for “idleness.”

There is a price for retaining the circus as a place that nurtures the imagination. Ultimately, Dickens reinforces the same problem exhibited in Marcet’s *Willy’s Travels*, in which a wealthy child acts out in play what less affluent child companions experience as work. Indeed, the novel emblematizes this contradiction in the circus children who perform “the fairy business” while Louisa seeks redemption by experiencing their performance as a forbidden wonderland (73). Although *Hard Times* rejects the invasion of work into the nursery through practical education, Dickens remains invested in a romantic “child of nature” that just as easily appropriates the working child (usually the peasant child) for its own purposes and, in the process, pushes aside, for a moment, the reality that poor children perform labor.

**Conclusion**
The confusion between work and play in Sleary’s circus is one example of the larger problem with experiential education that I have examined in this chapter and in this dissertation as a whole. As a form of experiential education, object learning empowers children by placing them above the elements composing their environment, which they control through mechanical literacy—that is, by learning the dependable laws governing how things are sensed, manipulated, created, purchased, manufactured, and exchanged. Gaining popularity at a time when middle-class families increasingly sent their children to learn in institutional settings outside the home, experiential pedagogies appropriated and idealized the instructional practices used in working families, in which children learn in a familial space that serves as home, schoolroom, and place of work. The industrial books for children and the industrial novels examined in this chapter reveal how these pedagogies could empower middle-class children while conflating work and play in ways that potentially obscure the needs of child workers, who required time and space apart from work in order to learn.
Illustrations for *Francis Lever* combine technical drawings or sketches of what Francis observes during his studies with depictions of his school. In the top illustration, Francis dramatically displays a model for other students. This combination of illustrations switches the child reader between watching Francis and seeing through his eyes as he investigates machines and books, a common focalizing technique in books about child scientists and engineers.
“Stephenson teaching the Navvies” communicates the engineer’s leadership presence by highlighting both his physical strength (grasping a pick-axe) and his literacy (pointing to the map). Burrows praises Stephenson for working alongside his men, whom he prepares to become construction leaders. The train-themed book cover is on the left.
Both of these nonfiction works are beautifully illustrated. Noyce’s *Boy's Book* has engravings by the Dalziel Brothers, the only artists whom Dante Gabriel Rossetti trusted to engrave his prints. The Frontispiece montage places physical labor in the center, joining natural landscapes (the source of raw materials) with the printing press (the spread of knowledge). The boy who reads on the right implicitly becomes the industrial manager on the left through a combination of literacy and labor.
Figure 38: (top) [Wallis]. *Wallis’s New Game of Genius or Compendium of Inventions connected with the Arts Sciences and Manufactures Accompanied by a descriptive book and designed for the amusement and instruction of youth of both sexes*. London. E. Wallis. [183–]. Cotsen Children’s Library. English 18 40513. Princeton University Library.

(right) Game protective envelope for same.

Note how steam transportation unifies all of the inventions and accomplishments featured in this game, both with the central illustration and the cover envelope. Games like this one are printed, then divided into panels, which are attached to a cloth for easy folded storage in an envelope.
Figure 39: (top) [Wallis]. Wallis’s Picturesque Round Game of the produce & manufactures, of the counties of England and Wales. London: Edward Wallis [not before October. 1840], Princeton University Library.

(bottom) Detail of same.

Each region on the game map shows local attractions and industries, often with tiny figures at work. Wallis originally produced maps, which is why they began inventing games in the 1790s that use left-over maps.
Figure 40: (top) *A Visit to the Exhibition in eight changeable pictures.* Showing its beautiful objects of art and how they were made: sculpture, pottery, jewelry, carved wood, glass, metal work, silk fabrics, machinery. Illustrated by Harrison [William Charles Harrison?]. London: Dean & Son, pub., 11, Ludgate Hill, [between 1857 and 1865]. Princeton University Library.

Figure 41: (right) Detail of same, tab pulled.

Each of the eight pictures in this moveable book use the same printed framing picture shown here, with families gathered around the manufactured items on display. Only the text and stage contents change. There are two pictures per page, switched by pulling a tab at the bottom. In the dialogue, a mother tells her daughter that lace is made by steam, like a tea kettle.
Several lesson books about the Great Exhibition were published in the 1850s in association with periodical called *Pleasant Pages*. *Pleasant Pages* claims three objectives, the first “To exemplify the PRACTICE of a system of instruction founded on the principles of Locke, Pestalozzi, and others.” The “object lessons” advertised on the right are probably a picture book, but other advertisements mention box kits with actual objects to accompany the texts. The Gradgrind nursery follows an education system like the one described here.
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