Numbers, Literature, Aesthetics

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Abstract:
I presented this talk as a keynote address at the "Beyond Narrative: Literature, Culture, and the Borderlands of Narrativity" conference held in Leipzig in October of 2019. One thrust of the paper was that quantitative and aesthetic discourses are not as opposed as we tend to think—that numbers can possess the kind of dramatic, affective, narrative power often taken to be uniquely literary. My paper built toward a reading of Robert Louis Stevenson's Treasure Island, focusing on the enchanting, wonderful merging of quantitative and aesthetic domains. Five months later, with the arrival of the COVID-19 pandemic, I found myself obsessively processing data with very different emotions: fear, anger, regret, and the anguish of uncertainty. These, too, may seem the stuff of literature, but just as we impose narratives on numbers, numbers impose meanings on us.

No one knows for sure why Roberto Bolaño titled his posthumously published 2004 novel *2666*. Bolaño's earlier novel, *Amulet* (1999), refers to the year 2666, and by some accounts, the biblical story of Exodus takes place 2666 years after God created the world (Echevarría 897; Hitchings). But it may be that the exact figure of Bolaño's title is less important than his gesture of using a number—a gesture that, like much of the first section of the book, feels vaguely ironic and threatening. *2666* begins with "The Part About the Critics," which features four literary scholars obsessed with a reclusive German author who provides tenuous order to their otherwise purposeless lives. In one scene that promises to be particularly revealing, Manuel Espinoza and Jean-Claude Pelletier talk on the phone about the failed marriage of Liz Norton, their fellow scholar and mutual lover:

> The first twenty minutes were tragic in tone, with the word *fate* used ten times and the word *friendship* twenty-four times. Liz Norton's name was spoken fifty times, nine of them in vain. The word *Paris* was said seven times, *Madrid*, eight. The word *love* was spoken twice, once by each man. The word *horror* was spoken six times and the word *happiness* once (by Espinoza). The word *solution* was said twelve times. The word *solipsism* seven times. The word *euphemism* ten times. The word *category*, in the singular and the plural, nine times. (40-41; emphasis in the original)

And so on for other words: "*structuralism*" (1 time); "*American literature*" (3 times); "*dinner*," "*eating*," "*breakfast*," and "*sandwich*" (19 times total); "*eyes*," "*hands*," and "*hair*" (14 times). The joke is that numbers cannot represent the kind of complex unfoldings of interiority that one might expect from a novel. The threat, heightened by the impotence of the literature professors, is that the passage qua statistical report actually charts the characters' thoughts and feelings well enough to convey meaning and invite interpretation. In a novel that contains numerous catalogues and lists—including the chilling, numbing details of over one hundred police reports on murdered women—Bolaño's data feels both foreign and appropriate to his larger aesthetic designs, both a replacement for and a mode of what we might call the literary (Jaussen). From cosmopolitan academics to armies moving across national boundaries to life on the borderlands between Mexico and the United States, *2666* explores the liminal spaces between numbers and narrative.

Perhaps David Foster Wallace had *2666* in mind in his posthumously assembled novel, *The Pale King* (2011). One of the book's narrators, David Wallace, discovers his calling when he wanders into an accounting seminar taught by a Jesuit priest. Wallace (the character) recalls how, as a child,

> [...] instead of reading something, I'd count the words in it, as though reading was the same as just counting the words. For example, 'Here came Old Yeller, to save me from the hogs' would equate to ten words which I would count off from one to ten instead of its being a sentence that made you love Old Yeller in the book even more. (160)

Wallace (both as author and character) punctuates *The Pale King* with meta-literary enumerations. For example: "I've said 2,752 words right now since I started. Meaning 2,752 words as of just before I said, 'I've said,' versus 2,754 if you count 'I've said'—which I do, still" (160). Wallace later reports how the Jesuit, after "8,206 words," ends his class with a stirring speech that Wallace reproduces verbatim but does not quantify, as if inspired, quasi-religious eloquence lies beyond the reach of numbers (225). The joke here is that the priest's apparently transcendent speech is an encomium to accounting as numbers and narrative become, not so much incommensurate, but entangled and even congruent. Indeed, the most dramatic arc of *The Pale King* is not a love plot or some heroic journey—it is the character Wallace making his way from the airport to the Examination Center of the US Internal Revenue Service. As in *2666*, there is irony here but also a threat to aesthetic conventions. What, *The Pale King* seems to ask, is the difference between data and narrative, between information and literature?

This may seem a question for the twenty-first century and postmodernists navigating our digital revolution. With the dominance of Big Data, Big Tech, and the STEM fields, and with the rise of statistical analysis in the digital humanities and data-driven accountability in the corporate university, literary critics today might

feel that they face unprecedented pressures from informationalism. Such pressures, however, can be understood as part of a long information revolution stretching back to at least the nineteenth century, for as much as our digital age can feel newly exciting or frightening, the unfolding relationship between literature and data has historical roots that go largely unexplored.[1] In accordance with this volume's interest in the borderlands between symbolic forms, what follows resists the longstanding assumption that information and literature are fundamentally separate, offering instead a counter-narrative of liminality and hybridity in which nineteenth-century authors find data congenial to their aesthetic aims. Robert Louis Stevenson's *Treasure Island* (1883) serves as a primary case study that shows how the dynamics between information and literature have been marked not only by estrangement and antagonism but also by accommodation, negotiation, and collaboration.

Literature versus Information: A Brief History

There are at least two reasons why literary studies lacks a robust historical account of the relationship between data and narrative. The first is the presentist orientation of most thinking about our information age. We are told that the internet has changed everything, that our digital revolution is a radical epistemic break, and that computational power has left the past behind as it launches toward a utopian or dystopian future. The second reason is that information and literature are often taken to be incommensurate, essentially opposed, or categorically different. Literary narrative is typically associated with subjectivity, formal unity, affect, beauty, and wonder, whereas data is regarded as objective, reconfigurable, logic-based, instrumental, and disenchanting. Such dualistic thinking is why distant reading can stir so much controversy and why the 'two cultures' divide between science and literature has proven so recalcitrant. It is why some cultural stereotypes have proven so stubborn—the boring accountant, the passionate artist, the emotionally-stunted tech genius, the storyteller who reveals interior truths that statistics cannot explain, the heartless financier with his hair slicked back, people of certain colors, women, and the elderly supposedly unfit for informational enterprises but possessing intuitive folk wisdom. Though neuroscience has disabused the notion,

1 Jerome McGann worries that the digital humanities are working under an "increasingly attenuated historical sense" (14). Andrew Piper writes of humanist and computational scholars, "[w]e are talking not only past each other but also past the past itself" (3). For a recent article that begins its history of the relationship between quantification and literature in the mid-twentieth century, see Ted Underwood, "Machine Learning and Human Perspective," esp. 92.

left brain calculation versus right brain creativity remains a popular belief, as if our very minds are split between the informational and the literary.

Though some literary scholars are drawing on information and media studies or adopting scientific and statistical methods, most abide by a literature/information divide that has been traced to—and projected onto—the nineteenth century. Brilliant scholars such as Lev Manovich, Mary Poovey, Friedrich Kittler, and Christopher Newfield set literature and data at odds, as do poststructuralists who follow Nietzsche in discounting the authority of objectivity and empiricism.[2] The Frankfurt School supercharges Weber when setting aesthetics against calculation, while Heidegger and Wittgenstein help literary critics make arguments against scientism.[3] New Critics like Cleanth Brooks and Robert Penn Warren define poetry against "mere information" (180), while related aestheticians follow F.R. Leavis, who once wrote that life "cannot be aggregated or equated or dealt with quantitatively in any way." (65-66). Carlyle took science to "destroy Wonder, and in its stead substitute Mensuration and Numeration," (53), and Coleridge used the metaphor of a shattered mirror to lament how knowledge and texts are broken into disarticulated units (72). Wordsworth, Melville, Thoreau, Dickens, Dickinson, Elizabeth Barrett Browning, Anthony Trollope, and their contemporaries satirized efforts to measure the world. With the rise of statistical thinking, bureaucratic systems, algorithmic processes, and data management, the nineteenth century witnessed the spread of romantic, proto-modernist ideologies that set literature against information.

Here are just three examples of this dominant, dualistic narrative. As quantitative sociology emerged in the 1830s, practitioners measured, among many other things, book ownership and literacy rates (Hacking; Porter, *Rise*; Porter, *Trust*).[4] Dickens's "Full Report of the First Meeting of the Mudfog Association for the Advancement of Everything" (1837) is a precocious satire of such efforts and a prescient exploration of differences between informational and aesthetic concepts of literature. Dickens in "Mudfog" introduces Mr. Slug, a statistician whose presentation on books owned by children in London includes the following table (364):

2 See, here, Lev Manovich, *The Language of New Media*; Mary Poovey, *A History of the Modern Fact: Problems of Knowledge in the Sciences of Wealth and Society*; Friedrich Kittler, "Number and Numeral"; Christopher Newfield, "The Trouble with Numerical Culture."

3 See, for instance, Max Horkheimer and Theodor Adorno, *Dialectic of Enlightenment* (164); Martin Heidegger, *What Is Called Thinking?*; Jonathan Beale and Ian James Kidd, eds., *Wittgenstein and Scientism*.

4 For quantitative tracking of literacy in the 1830s and 1840s, see Stephen Colclough and David Vincent (284-85, 297-99).

Jack the Giant-killer	7,943
Ditto and Bean-stalk	8,621
Ditto and Eleven Brothers	2,845
Ditto and Jill	1,998
Total	21,407

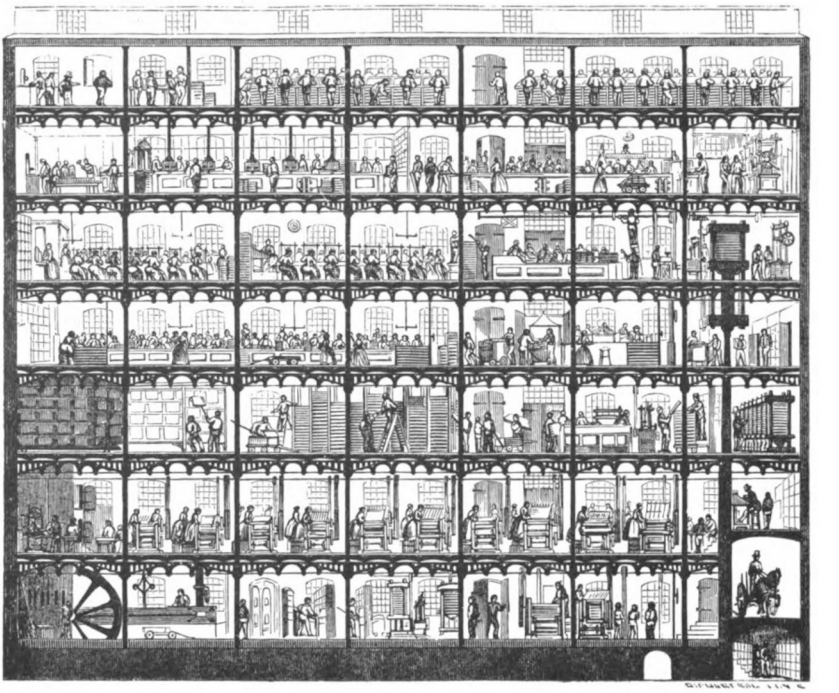
Slug calculates "the proportion of *Robinson Crusoes* to *Philip Quarlls*" (4.5 to 1), "*Valentine and Orsons*" to "*Goody Two Shoeses*" (3 1/8th to one-half), and "*Seven Champions*" to "*Simple Simons*" (also 3 1/8th to one-half) (364; my emphasis). The Mudfogians then debate the morality of Jack and Jill while lamenting that some children believe in Sinbad the Sailor. And just in case some readers fail to apprehend the juxtaposition of literature and data, the section concludes with President Woodensconce's call for "stor[ing] the minds of children with nothing but facts and figures" (364-65). Dickens's satire is heavy-handed enough, and yet the incongruity between Slug's dismal information and the imaginative play of children's literature is not as simple as it may appear. The children's books themselves betray a lack of creativity in that Jack is a mass-produced protagonist, while the very titles of some books—*Seven Champions*, *Goody Two Shoes*, *Jack and Eleven Brothers*—suggest how children's literature is already embedded in discourses of data under which numbers gain authority, aesthetics languish, and books proliferate without bringing variety or joy.

Melville, at times, also defines literature over and against the rise of information. During the industrialization of the mass book trade, which included the collection and distribution of publishing data, Jacob Abbott wrote *The Harper Establishment* (1855), a technical book with ample statistics on the Harper Brothers' new printing factory and warehouse (Zboray 3-16; St. Clair; McKitterick). Readers learn how many books are produced, how much time it takes to produce them, how much they are worth, how much they weigh, how many workers are employed, and so forth. Abbott also provides an image of the highly regulated operations, including the organization of female laborers (Fig. 1).

Melville probably had the Harper's operation in mind when he wrote "The Paradise of Bachelors and the Tartarus of Maids" (1855), a story in which a narrator describes his visit to a dehumanizing paper factory:

> I found myself standing in a spacious place, intolerably lighted by long rows of windows [...]. At rows of blank-looking counters sat rows of blank-looking girls, with blank, white folders in their blank hands, all blankly folding blank paper. In one corner stood some huge frame of ponderous iron, with a vertical thing like a piston periodically rising and falling upon a heavy wooden block. (1270)

Fig. 1: Jacob Abbott's The Harper Establishment (1855, 42)

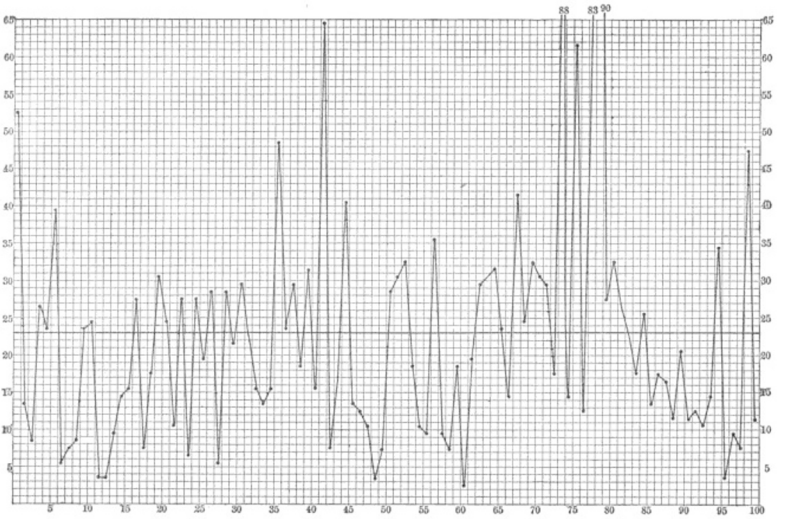


Melville's passage reflects the workflow of Abbott's image, which includes women feeding the presses with paper (on the second floor), women folding paper at counters (on the fourth floor), and the pistons of the finishing press (on the sixth floor). Melville also had business connections with Harper's, for he lost hundreds of unsold novels in 1853 when the old Harper's printing house burned down, and "The Paradise of Bachelors and the Tartarus of Maids" first appeared in *Harper's Magazine*. The narrator of the story is horrified by industrialized print, which stands in brutal contrast to romantic notions of reading and writing. Like Melville's "Bartleby, the Scrivener" (1853), "The Paradise of Bachelors and the Tartarus of Maids" recoils from the reduction of literature to algorithmic, bureaucratic, informational processes.

A more sustained example of efforts to treat literature as information comes from Lucius Adelno Sherman, Professor of English at the University of Nebraska, whose *Analytics of Literature: A Manual for the Objective Study of English Prose and Poetry* (1893) offers a range of proto-stylometric case studies, some with accompanying graphs (Fig. 2). Sherman calculates the average sentence lengths of admired prose stylists (Macaulay 22.45 words per sentence, Emerson 20.58, Spenser 49.82, and so

on [259]). He determines ratios of stressed to unstressed syllables as a measure of poetic force (for instance, the three stanzas of Robert Browning's "Count Gismond" move from 23:38 to 24:41 to 30:44 [17]). He also demonstrates the superiority of *Hamlet* (1609) to Percy Bysshe Shelley's *Alastor* (1816) by comparing ratios of phrases ranked according to five classes of rhetorical power (57). Sherman studied philology at Yale and aspired to scientific objectivity, though he worried in *Analytics* about the "very natural antipathy to treating aesthetics by scientific methods" (xiii).

Fig. 2: From Lucius Sherman's Analytics of Literature. Lengths of the first one hundred sentences of Thomas Macaulay's Critical and Historical Essays (1843). The x-axis is the number of the sentence; the y-axis is the quantity of words (288).



Sherman's concerns turned out to be well-founded with the hardening of the literature/information divide. Willa Cather, who once called literary scholars "information vampires," (111) took a course from Sherman at the University of Nebraska and ridiculed his methods in a poem titled "He Took Analytics" (see, esp., Jewell and Zillig 167-70). Stephen Crane, after speaking with Cather about Sherman's techniques, wrote to her: "Where did you get all that rot? Yarns aren't done by mathematics" (qtd. in Sorrentino 154). Around the same time, Frank Norris expressed similar disdain for the quantitative criticism he encountered at college:

> 'Classification' is the one thing desirable in the eyes of the professors of 'literature' of the University of California. The young sophomore [...] is set to work counting

> the 'metaphors' in a given passage. This is actually true—tabulating them, separating them from the 'similes,' comparing the results. [...] The conclusion of the whole matter is that the literary courses of the University of California do not develop literary instincts. (1110-11)

Long before distant reading, nineteenth-century authors resisted efforts to treat literature as data and in so doing helped establish dualistic views that remain in force today.

Between Literature and Information: The Case of *Treasure Island*

Literature can be defined against information, but there is also a counter-narrative in which nineteenth-century writers found aesthetic enchantment in informationalism, and this narrative can help literary scholars today rethink their relationship with data. *Moby-Dick* (1851) brims over with numbers and facts, including a catalogue of the quantities of gin and beer required for a whaling voyage. Ishmael writes, "Most statistical tables are parchingly dry in the reading; not so in the present case" (1269). *Walden* (1854) contains a map of its titular pond along with an account of how Thoreau measured its depths, and we can read the book as an effort to combine data and narrative while also gauging the differences between them (306-11). Fanny Fern's *Ruth Hall* (1854) tells the story of a naïve writer who comes to master the calculative business of authorship. Fern includes financial figures and commentary on the informational economy of journalism as her protagonist flourishes simultaneously in gender-coded domains of literature and data (269). Trollope was both a successful novelist and a high-ranking bureaucrat for the British Postal Service, an institution at the forefront of the Victorian information revolution. Trollope's *Autobiography* (1883) provides a ledger of his earnings as an author while describing his aesthetic process—or perhaps more accurately, protocol—in informational terms:

> [I]t still is my custom [...] to write with my watch before me, and to require from myself 250 words every quarter of an hour. I have found that the 250 words have been forthcoming as regularly as my watch went. [...] This division of time allowed me to produce over ten pages of an ordinary novel volume a day, and if kept up through ten months, would have given as its results three novels of three volumes each in the year. (170)

As a result of the literature/information divide, Trollope's *Autobiography* damaged his artistic reputation but it also shows how some nineteenth-century authors challenged such dualistic thinking.

One genre has been particularly committed to blurring distinctions between the literary and the informational: British and American adventure novels of the long nineteenth century. From deserted island narratives to American frontier fiction to the exploration fantasies of Edgar Allan Poe, H. Rider Haggard, Arthur Conan Doyle, and Edgar Rice Burroughs, adventure novels deploy quantitative discourse for dramatic, affective ends. Scholarship on the genre is often taken to focus on its disavowals of modernity: As much as authors imagine escapes from civilization, they cannot help but carry its ideologies with them (cf. Loxley; Bristow; Weaver-Hightower). In some cases, however, adventure fiction can be acutely self-conscious in exploring relationships between myth and modernity more generally, and narrative and data in particular. At least this is the case with Stevenson's *Treasure Island*, an apparent rejection of informational discourses that actually stages a complex encounter between numbers and aesthetic enchantment. Recalling *Robinson Crusoe* (1719) while he worked on *Treasure Island*, Stevenson wrote of Crusoe's catalog of salvaged items, "the bare enumeration stirs the blood" ("Gossip" 260). He then went on to fill his own adventure novel with stirring enumerations.

Stevenson did so advisedly, for *Treasure Island* is sensitive to the power and problems of data. The absence of quantification matters at the start of the book when the pirate Billy Bones takes up tyrannical residence at the Hawkins family inn. Mr. Hawkins, the father of the young narrator Jim, dies before he settles Bones's account, thus setting the stage for Jim's maturation as numbers drive the bildungsroman plot. After Jim's no-account father passes, Billy Bones in turn dies before paying his bill, and so Mrs. Hawkins tries to take from his sailor's chest the seven guineas he owes. The problem is that she will not settle for "a fraction" more or less than her due, but she can only "make her count" in English money, whereas Bones's coins come from all over the world and are beyond her ability to convert them (32). Jim and his mother must finally flee, though not before Jim grabs Bones's oilskin packet to, in his words, "square the count" (33). In so doing, Jim takes on the role that his father should have fulfilled—the management of accounts—even though Jim's coming-of-age will entail a recognition of the limits of numbers.

Famously, Bones's oilskin packet contains a book that has a map to the treasure of the mythic Captain Flint; and yet if the volume is the gateway to narrative enchantment, it is first and foremost "an account-book" containing geographic coordinates, financial figures, and a table for converting currencies (46). Like the coded message of Poe's *The Gold-Bug* (1843), Bones's ledger reduces the stuff of romance to numbers in seeming anticipation of Weberian disenchantment. But as with Poe's story, quantification in *Treasure Island* opens up imaginative possibilities only to readers of sufficient literary sensibilities. It is the romantic Squire Trelawney, not the scientific Dr. Livesey, who first cracks the code of Bones's book.

The ensuing adventure further indicates how information and literature, data and narrative, work in enchanting conjunction. Flint's treasure, the very object of

fantasy, is repeatedly referred to as "seven hundred thousand pounds" (247). Numbers also work their way into Stevenson's pirate ballads: "[O]ne man [returned] of her crew alive,/ What put to sea with seventy-five" (3) and—most famously—"Fifteen men on a dead man's chest,/ Yo Ho Ho and a bottle of rum" (172). Moreover, when the pirates first attack the loyalists' stockade, the heroic Captain Smollett reckons the proportion of good guys to bad by subtracting casualties and wounded. "Five against three leaves us four to nine," he says, "That's better odds than we had at starting. We were seven to nineteen then" (160). And when Jim earlier discovers the mutinous plot of the pirates, he writes: "[T]here were only seven out of the twenty-six [sailors] on whom we knew we could rely; and out of these seven one was a boy, so that the grown men on our side were six to their nineteen" (94). With Long John Silver calculating interest rates and Jim enumerating time and topography, *Treasure Island* can be read as an escapist novel that actually furthers the disciplinary purposes, not only of global capitalism and imperial bureaucracy, but of the data-driven practices fundamental to both (Parkes; Gubar 70-92).

At the same time, the numbers that appear throughout *Treasure Island* advertise the limits of their explanatory power as Stevenson displays a tension that Poovey and John Guillory set at the center of novelistic aesthetics—the urge both to leverage empirical particulars and to differentiate literature from the data-rich genres of political economy and scientific empiricism.[5] Thus, Smollett's calculations on the stockade battle feel fatuous, for he himself has been wounded. Surely the stalwart Captain should count for more than one feckless, drunken pirate. Jim suggests a similar point when first calculating the odds of the mutiny: How one should count—that is, whether one can count on—a boy is a central question that *Treasure Island* resolves, not with blunt statistics or quantitative assessments, but through narrative unfoldings, even as data remains crucial to the novel's plot. It matters how many pirates there are, how many guns they have, how far it is from the trees to the fort, how many hours have passed. Such data needs to be aesthetically arranged—it requires literary narrative—but Stevenson's designs also require the explanatory power of information.

We see this interdependence in the climax of *Treasure Island* when Jim struggles to describe the wonder of Flint's treasure:

> It was a strange collection, like Billy Bones's hoard for the diversity of coinage, but so much larger and so much more varied that I think I never had more pleasure than in sorting them. English, French, Spanish, Portuguese, Georges, and Louises, doubloons and double guineas and moidores and sequins, the pictures of

5 See, here, Mary Poovey, *Genres of the Credit Economy: Mediating Value in Eighteenth- and Nineteenth-Century Britain*; John Guillory, "Memos and Modernity" and "Literary Study and the Modern System of the Disciplines."

> all the kings of Europe for the last hundred years, strange Oriental pieces stamped with what looked like wisps of string or bits of spider's web, round pieces and square pieces, and pieces bored through the middle, as if to wear them round your neck—nearly every variety of money in the world must, I think, have found a place in that collection, and for number, I am sure they were like autumn leaves, so that my back ached with stooping and my fingers with sorting them out. (260-61)

This enchanted passage contains stirring enumerations, but numeracy gives way to an unaccountability in which counts cannot be squared. Flint's treasure is seven hundred thousand pounds, which is one way to understand its significance. But it is also irreducible to a single unit of value as Jim's description grows increasingly lyrical, subjective, metaphorical, affective, and (in a word) literary. Coins conjure romantic histories and faraway lands. They become pieces of jewelry with totemic power. The data-driven job of sorting and calculating is painful but also intensely pleasurable in the manner of the sublime. And as "for number," Jim can only equate the haul to "autumn leaves."

Seven hundred thousand pounds can fire the imagination, but such data cannot in and of itself convey the aesthetic pleasures of pirate booty. Yet neither can the narrative of *Treasure Island* succeed without a sense of the numbers involved. In a sample of 105 adventure novels between 1820 and 1920, the frequency of keywords associated with quantification—Arabic numerals, number words, words linked with mathematical operations—is, according to a modest statistical study, significantly higher than in non-adventure novels from the time (Lee 139-52). That the genre is particularly committed to data is suggested by the last sentence of *Treasure Island*, which is itself an allusion to *Robinson Crusoe*. As Jim straddles the line between boyhood and maturity, myth and modernity, he recalls the cries of Captain Flint's parrot: "Pieces of eight! pieces of eight!" (266) Stevenson leaves us with this synthesis of data and narrative, the enumerations that *Treasure Island* finds so stirring on the borderlands between literature and information.

Conclusion

Stevenson was not the only nineteenth-century author to find aesthetic power in numbers, nor was the nineteenth century alone in merging literary and informational discourses. From the sprawling libraries of Borges and Eco to the swamped bureaucracies of DeLillo and Saramago to the oversaturated semiotic conspiracies of Pynchon to the ironic and threatening numbers of Foster Wallace, Bolaño, and Carmen Maria Machado, postmodernism plays on the borderlands of data and narrative, as does much cyberfiction, detective fiction, and mystery novels. But such play is not exclusive to our digital age or to its popular genres, for the nineteenth

century helped establish the terms for the twenty-first century's ongoing negotiations between the literary and the informational. Knowing the history of such negotiations can help literary critics respond more thoughtfully to the rise of data, technology, STEM fields, and the digital humanities insofar as it helps us resist the urge to ascribe monolithic narrative and symbolic forms to literature. It may even help us better make the case for the humanities in our digital age and the corporate university. No single response or set of responses necessarily follows from the recognition that literature has historically engaged informationalism in a variety of ways—except to suggest that hard divisions between literature and data are not as fundamental as they are sometimes taken to be and so should not constrain continuing efforts to reimagine literary studies in our long information revolution. Just as Stevenson dreams of "pieces of eight," we too can find enchantment in our information age.

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