Ulysses Pianola

PAUL K. SAINT-AMOUR

"Does this thing play?" . . .
"Like a musical gorilla with fingers all of one length. And a sort of soul."
—H. G. Wells, *Tono-Bungay* (1909)

The pianola "replaces"
Sappho's barbitos.
—Ezra Pound, *Hugh Selwyn Mauberley* (1920)

LITERARY STUDIES HAS A GRAMOPHONE PROBLEM. WHEN REACHing for a sound-reproduction technology to set beside literature, scholars now habitually grasp the phonographic assemblage. Understandably so: this is a device whose best-known names—*phonograph*, *graphophone*, *gramophone*[1]—announce its relation to writing, specifically its claim to write speech. Much of phonography's early discourse reinforces the conceit of vocal inscription these names encode. "Whoever may speak into the mouthpiece of the phonograph," said *Scientific American* in 1877, "has the assurance that his speech may be reproduced audibly in his own tones long after he himself has turned to dust" ("Wonderful Invention"). In its early stenographic uses, the phonograph offered a means of commercial correspondence. But Edison cylinder recordings of Alfred, Lord Tennyson, Robert Browning, and Mark Twain reading or reciting their work helped turn the technology, through its association with the authorial voice, into an auratic end in itself. From the mid-1880s on, the phonograph also cropped up as a prized diegetic object in works of fiction by Edward Bellamy, Arthur Conan Doyle, Jules Verne, Bram Stoker, and others.[2] As Ivan Kreilkamp has shown, the device haunts Joseph Conrad's *Heart of Darkness* (1898), in whose play with disembodied speech it is nowhere

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named but everywhere implied. And in a number of celebrated modernist works—James Joyce's *Ulysses* (1922), T. S. Eliot's *The Waste Land* (1922), Thomas Mann's *The Magic Mountain* (1924), William Faulkner's *As I Lay Dying* (1930), Virginia Woolf's *Between the Acts* (1941), and Ralph Ellison's *The Invisible Man* (1952)—we find prominent phonographs wired tightly into the texts' formal self-conceptions. No wonder modernist studies has been quick to appoint phonography its cardinal regime of sound recording, storage, and playback—and to find implicit in the gramophone not just the audiobook but the book, period.

This interest in analog sound reproduction has produced a wealth of absorbing scholarship. Some of it views the gramophone as a death-bringing object against which modernism "embraces the audience, the speaker, the human connection" by insisting on the superiority of live performance (Knowles 2). More often, scholars of literary phonography participate in a Derridean critique of phonocentrism, reading in the gramophone an extreme case of the voice's detachability from speaker, body, and presence (Stewart; Kreilkamp; Scott). Or they use a text's phonographic hardware to entrain literature into a Kittlerian discourse network—to connect "abstract meanings to real, tangible bodies, and bodies to regimes of power, information channels, and institutions" (Suárez 748; see also Rice; Sterne). In sorting them this way, I have made the Derridean and Kittlerian approaches sound discrete, even incompatible. But in fact they are powerfully allied, for media histories of phonography receive categorical heft from a deconstructive speech-writing analytic they in turn endow with historical depth. The gramophone is not only the primary site of this improbable alliance but also, by now, its sign—the technology that millennial scholars of sound and literature would have needed to invent had it never existed.

What I am calling our gramophone problem arises from the success of this rapprochement: in amplifying one technology of sound reproduction, it has effectively muted the rival and neighboring regimes in relation to which phonography emerged and was defined.[3] This silencing oversimplifies at least two stories: our account of the discourse networks of the late nineteenth and early twentieth centuries and our history of the period's literary soundscapes. Stripped of its competitor and tributary technologies and thus of its contingencies, phonography gets configured as the unavoidable route to the sonic present, its history narrated from that present's vantage—narrated, too, through the speech-writing dialectic native to phonography rather than through exogenous terms that could produce a different account. While this dialectic holds sway, even the most historically inclined students of the connections between sound recording and the literary text will tend to understand phonography as either asserting the primacy of speech over writing or exposing speech's ineliminable ties to difference, delay, absence, and partiality. But this opposition will underwrite a profounder collusion: as long as the celebrants and the critics of phonocentrism remain inside the speech-writing complex, they will continue to sustain a deepening regime of *gramophonocentrism*.

This article offsets the gramophone problem by drawing attention to a technological assemblage that was roughly coeval with phonography, developing alongside it in mixed relations of rivalry, symbiosis, intimacy, and indifference, an assemblage whose elements have become variously extinct, exotic, and ubiquitous. I refer to the player piano, or pianola, a pneumatic playback instrument whose bellows were operated by a human "pianolist" pumping two foot pedals or by an electric motor and whose approach to recording, storing, and replaying sound contrasts with phonography's. Where Edison's analog device physically cut sonic vibrations into hard storage materials, the pianola transcribed the mechanical elements of a keyboard performance into a

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binary machine language encoded in perforations on a paper roll. Phonographic playback involved acoustic amplification and varied modestly from one machine to the next; the pianola's pneumatic system translated binary code back into mechanical-acoustic events subject to the idiosyncrasies of the playback instrument and capable of being significantly altered by the pianolist through expressive pedaling, transposition controls, and manual levers affecting tempo and dynamics.

As against the purely analog phonograph, the player piano was a binary-analog hybrid, allowing for greater interactivity even as the sight and sound of the instrument "playing itself" were at least as uncanny as the phonograph's disembodied voice. Although it used its pneumatic lungs to replicate the work of fingers—to play rather than to reproduce singing or speech—the pianola was dissevered neither from the voice nor from the mark: piano rolls were crisscrossed with multiple forms of writing unique to the medium, including the perforations that activated individual notes, inked tempo and dynamics instructions for the operator, and song lyrics for the benefit of singers. The pianola was proto-karaoke: not an acoustic capture of a single vocal performance for later listening but a spur to participatory singing, a song prompter whose disorienting bottom-to-top manner of lyric scanning continues to fascinate poets and visual artists.[4] And this is to speak only of the instrument's more technical and material aspects. There will be more to say about its cultural ambidexterity as a durable good for brothel and living room, dance hall and concert hall; its gendering work as prop and stage for a certain model of bourgeois femininity; its play with aura and distance in being able to reproduce, with greater and greater fidelity, the nuanced pianism of great performers; its debatable effects on piano pedagogy and amateur music; and its way of alternately vexing and materializing the recording, storage, and playback technology we call the novel.

It might seem too soon to rescue the player piano, which can still be heard in recordings and seen in the odd home or pizza parlor. But if the pianola remains in sight, its strangeness has gone into hiding: for most it is a curiosity unworthy of attention, while those who do attend to it, whether as boosters or detractors, have tended to do so in reductive or emblematic terms.[5] Some of the most vehement haters have been postwar novelists. In *Player Piano* (1952), his first novel, Kurt Vonnegut made the instrument the master emblem for a dystopia of automation. William Gaddis nursed a pianola obsession for over five decades, pursuing the instrument through *The Recognitions* (1955), *J R* (1975), and the posthumously published *Agapē Agape* (2002), whose original subtitle was "A Secret History of the Player Piano."[6] Although Gaddis was more engaged than Vonnegut with the pianola's development and cultural history, he too finally saw it as epitomizing technology's rationalizing energies. Both writers were extending a strand of antimechanical modernism that we can trace back at least to Joseph Conrad's *The Secret Agent* (1907), in whose Silenus beer hall a clangorous pianola is an omen of the "perfect detonator" imagined by the book's resident nihilist, the Professor (93). Meanwhile, the player piano's most original and influential later-twentieth-century proponents, the composers Conlon Nancarrow and György Ligeti, praised the instrument's ability to exceed the precision, speed, and dexterity of human performers, embracing the very aspects of the device that chilled its disparagers. The pianola has thus been difficult to keep in focus as a specific series of assemblages, tending to congeal into an ahistorical emblem of dehumanizing mechanization or superhuman capacity. The instrument's susceptibility to allegory is part of the cultural history with which we will need to come to terms. I propose to do this by resubjecting this frozen iconicity to the instrument's technological and cultural particulars, at the same time reentangling

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them with a cultural history of phonography that has become all too discrete. The idea is not to replace one technology—much less one technological determinism—with another. Quite the contrary: it is to restore some lost complexity to the sound-capture, -storage, and -playback universe to which twentieth-century literary works often turned in testing and revising their self-concepts.

Against Ulysses Gramophone

As a way of weakening our gramophonocentrism, I would like, a little perversely, to pay more attention to a particular gramophone: the one Derrida theorizes in "Ulysses Gramophone: Hear Say Yes in Joyce," which he delivered as the opening address of the 1984 International James Joyce Symposium in Frankfurt and subsequently published.[7] Thirty years on, Derrida's essay has become a touchstone for studies of sonic modernity, its identification of a "gramophone effect" in Joyce's novel licensing the argument that literature might do more than represent sound-reproduction media, might imitate, even adumbrate, the gramophone's grasp of speech as inscription (276).[8] Without exhaustively rereading "Ulysses Gramophone," I suggest that one price of its touchstone status has been a loss in the essay's argumentative bandwidth—a loss, specifically, of Derrida's critique of the often cited gramophone effect. Far from simply promoting the gramophone as an emblem of a triumphant antiphonocentrism, Derrida invokes it, too, as shorthand for a totalizing drive in *Ulysses* to archive all knowledge as well as to preempt all future discourse about itself. Gramophony in this sense, implicitly a form of *graphomania*, indexes "a yes-laughter of encircling reappropriation, of omnipotent Odyssean recapitulation," an ungenerous laughter in contrast to which Derrida celebrates "the yes-laughter of a gift without debt, light affirmation, almost amnesic, of a gift or an abandoned event" (294). Although he insists on the inseparability of these two laughters—the yes of memory and the yes of affirmation—Derrida implicitly charges his audience to listen more closely to the latter: to attend to Joyce's work less as a "machine of filiation" grounded in professional competence than as a rebuke to competence whose preemptive energies are "joyfully dispersed in a multiplicity of unique yet numberless sendings" (294, 304). Understood along these lines, "Ulysses Gramophone" might as accurately be titled "Against Ulysses Gramophone."

Despite its frequent conscription by scholars of literature and sound media, Derrida's essay is not occupied with the kinds of technological and historicist questions that most concern those scholars. It spends little time with the famous gramophone passage in *Ulysses*'s "Hades" episode, less with the machine's reappearance in "Circe," and none unfolding the history of phonography or its engagement by Joyce's work. In fact, Derrida's gramophone is less acoustic playback device than computer, "programophoned" (283), a preprogrammable archive, a "hypermnesic machine" (281). The gramophone effect in Joyce's work takes shape as "the most powerful project for programming over the centuries the totality of research in the onto-logico-encyclopedic field," and its author "has at his command the computer of all memory" (281). Having figured *Ulysses* as a gramophonic computer, Derrida imagines Joyce studies as a computer of the same kind: a remotely searchable compendium of all of Joyce's works and their critical commentaries, ready for infinite queries, operating only in English and with a United States patent (286). But the computer is not only a figure for *Ulysses*'s encyclopedic conceit, or a device for twitting American Joyceans for their monolingualism. The essay closes with a fantasia about a second machine, an "*n*th generation computer that would be up to the task" of testing Derrida's reading of the yes in Joyce. This imaginary device would at once fulfill

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and explode the dream of competence; it would typologize, in all languages, the yeses of the text while also working against typology by understanding how yes eludes metalanguage; and it would trace the interplay of the two yes laughters without presuming to separate them through reductive binarisms, instead attending to their doubling, their mutual countersigning, their forming, together, a vibration. "I hear this vibration," Derrida writes, nearing the end, "as the very music of *Ulysses*. A computer cannot today enumerate these interlacings, in spite of all the many ways it can help us out. Only an as yet unheard-of computer could, by attempting to integrate with it, and therefore by adding to it its own score, its other language and its other writing, respond to that in *Ulysses*" (308).

Two computers: a present-day one that materializes the Joyce industry's completism and competence fetish (its gramophone effect) and a future device that would respond uniquely and unforeseeably to what is unique in *Ulysses* (the very music of *Ulysses*) instead of subjecting the text indiscriminately to a string of preset operations. Were Derrida of the party of Conrad, Vonnegut, and Gaddis, he would have named the bad computer after the player piano, that emblem of deadening mechanization. But the pianola goes unmentioned by Derrida, despite playing as prominent a role in *Ulysses* as the gramophone. Nevertheless, an essay that names the gramophone without dwelling on it can be understood to dream of, without naming, the pianola: a device whose "computer reading-head" registers the music of *Ulysses* by adding to it its own score (307)—an assemblage comprising a scrolling code, a given instrument with unique timbres, a singer or singers, and the inimitable acoustics of a room. In exceeding its own binarity—in quantizing music without dematerializing it, in subjecting the purity of its signal to the noise and risk of multiple contingencies—the pianola instantiates the yes of affirmation, dispersing a single recording "in a multiplicity of unique yet numberless sendings." It enables playback while soliciting song.

To read "Ulysses Gramophone" as a critique of what Derrida calls the gramophone effect is not to level the same critique at scholars of literary phonography, even those who cite Derrida's essay as a warrant for their work. No one who studies the phonograph would draw a straight line between its particular technological and cultural capacities and the abstract work Derrida has it do in "Ulysses Gramophone." But to weaken the affirmative bond between those terms—to insist that the essay neither equates *Ulysses* with a gramophone nor posits the device as the novel's logo or coat of arms, that it rather resists such identifications—allows us to consider what ways of reading *Ulysses* might emerge from Derrida's critique of gramophonocentrism. How might we approach the problems of recording, storage, and playback in Joyce's book without deepening the rut of the speech-writing binarism? If, as I have argued, Derrida's essay subjects the gramophone it names to a haunting by the pianola it does not, what alternative portrait of the novel might appear under the sign of that spectral instrument, with its self-depressing keys?[9] And what uninvited guest might come to occupy the player piano's empty bench?

Mechanical Music Makers

So far I have pitted the gramophone and the pianola against each other, in part because, as we will shortly see, the "Circe" episode in Joyce's novel stages a kind of duel between them. But the gramophone and the pianola were, if not born together, at least reared in adjacent nurseries. As the two media emerged, they were often spoken of in a single breath—"linked," says the historian David Suisman, "as two aspects of a single phenomenon" (17). The United States Copyright Act of 1909, he reminds us, handled them under

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a single legal device, the new compulsory mechanical license, which permitted the creation of "mechanical reproductions" (as distinct from copies) for a preset royalty, without the consent of the copyright owner. Writing during the debates that led up to the 1909 act, the composer John Philip Sousa also lumped the phonograph and the player piano together as "mechanical reproducing machines" in deploring their effect on amateur musicianship. Not least that of American girls: "let the mechanical music-maker be generally introduced into the homes; hour for hour these same girls will listen to the machine's performance and, sure as can be, lose finally all interest in technical study." A single-technology view of the phonograph or the pianola misses how they were paired, even conflated, by copyright law and by those who saw "the mechanical music-maker" as a unified regime posing one dire threat to amateur music. And another threat to a musically interpolated model of femininity: the girl who would rather listen to a player piano than practice her scales would have her counterpart in the phonograph-wielding mother at bedtime. As Sousa asks, "[W]ill she croon her baby to sleep with sweet lullabys, or will the infant be put to sleep by machinery?" (281).

I will consider, below, how *Ulysses* replicates and travesties the pianola's staging of gender. But before turning to Joyce's novel, we should dwell on the piano itself for a moment, to prize it apart from its automation and to ask why a novel might find one of its self-concepts in a *player* piano as opposed to the standard instrument. To call the pianola a mechanized piano is to imply that the piano alone is not already mechanical. But, as Suisman again reminds us, the modern pianoforte results from centuries of Western keyboard-instrument development crossed with nineteenth-century industrial manufacturing. Not an incursion of mechanism, the pianola is an intensification of it. This realization helps dispel any organic fantasies about the standard piano, making it visible as already extravagantly mechanical. We might think of the player piano as a reading of the piano—or, equally, as the piano's metafictive turn: as materializing the piano's self-understanding as mechanism. Among the things it underscores is the standard piano's conscription of a human player less as an agent of self-expression than as a part of the instrument's sound-reproduction mechanism. Classical players, in particular, spend years developing disciplined techniques, often involving repetitive biomechanical reflex conditioning, in order to execute pieces in the manner designated by the composer. As Suisman puts it, "[T]he point of the player's labor was, just as it would be later with increasingly mechanized technologies, reproduction of sounds determined earlier, by someone else" (21–22); in other words, the alpha version of the player piano was the classical pianist. This sounds darkly Foucauldian, but it might prompt us to reconsider Sousa's deploration over amateur music's death at the hands of mechanical music makers. Say for the sake of argument that the "technical study" of the piano, even for nonprofessionals, required the acquisition of competence (to use Derrida's word) through numbing, strenuous, repetitive discipline. Perhaps then the pianola, long accused of dehumanizing musical expression, should be reclaimed as an emancipatory technology: as a device to root out routinization. This would be to find the pianola's reflexive turn exposing as fake the organicism that surrounds the standard instrument—to find metafiction publishing the hidden regimens of fiction.

Ulysses's Pianola

The pianola makes its appearance late in Joyce's book, in the hallucinatory "Circe" episode, written in the form of a dramatic script. Leopold Bloom has followed the inebriated Stephen Dedalus and his friend Lynch into Dublin's red-light district, where they have

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entered a brothel run by Bella Cohen. There, through an open window, the Yorkshire-born sex worker Zoe hears a group of people in the street singing "My Girl's a Yorkshire Girl":

> ZOE
> That's me. *(she claps her hands.)* Dance! Dance! *(she runs to the pianola.)* Who has twopence?
> BLOOM
> Who'll . . .?
> LYNCH
> *(handing her coins.)* Here. . . .
> ZOE
> *(turns the drumhandle.)* There.
> *(She drops two pennies in the slot. Gold, pink and violet lights start forth. The drum turns purring in low hesitation waltz. Professor Goodwin, in a bowknotted periwig, in court dress, wearing a stained Inverness cape, bent in two from incredible age, totters across the room, his hands fluttering. He sits tinily on the pianostool and lifts and beats handless sticks of arms on the keyboard, nodding with damsel's grace, his bowknot bobbing.)*
> (468–69; 15.4004–22; 1st ellipsis in orig.)

The table is pushed to one side so that Stephen and Zoe can dance as Bloom looks on.

> *(The prelude ceases. Professor Goodwin, beating vague arms, shrivels, shrinks, his live cape falling about the stool. The air in firmer waltz time sounds. Stephen and Zoe circle freely. The lights change, glow, fade gold rosy violet.)*
> THE PIANOLA
> Two young fellows were talking about
> their girls, girls, girls,
> Sweethearts they'd left behind . . . . . .
> (469; 15.4047–53)

The pianola continues to speak or sing the words to the song, as if it were part gramophone. As the dancers whirl with greater abandon, the stage directions mime their dip and spin. An apparition of Stephen's father, Simon, says, "Think of your mother's people!" to which Stephen responds, "Dance of death" (472; 15.4137–39). There follows a long paragraph in which the lyrics of the pianola's song are interspersed with references to earlier episodes in the novel; at the end of this, a vision of Stephen's dead mother rises through the floor, precipitating one of the episode's crises.

Pianola, like *zipper*, *thermos*, and *heroin* (and, for that matter, *gramophone* and *phonograph*), is a proprietary eponym—a term that started out as a brand name but became a generic, in this case for any player piano. So we will not expect to be able to identify the specific instrument in "Circe." Instead, in accord with the episode's dream logic of condensation, what we find is a conflation of several discrete machines, a synchronic capsule history of the player piano. As if in answer to Bloom's asking, "Who'll . . .?" (play the piano, presumably), Professor Goodwin, Molly Bloom's former accompanist, now retired, appears. His age and the "handless sticks of arms" he lifts and beats on the keyboard make him an anthropomorphic version of the Aeolian piano player, or "push-up player" (fig. 1), a separate device that was wheeled up to a regular piano until its sixty-five leather-covered fingers were positioned over the corresponding keys. But earlier in the episode Bloom had heard piano playing from the street—"A man's touch. Sad music. Church music" (387; 15.1278)—and, thinking the touch might be Stephen's, had asked Zoe whether Stephen was inside. Once he enters the music room eight hundred lines later, Bloom indeed finds Stephen standing at the instrument—"with two fingers [repeating] once more a series of empty fifths" (410; 15.2072–73). The accessibility of the keyboard here implies not a push-up player but an "inner player" (fig. 2), an upright piano with the pneumatic and mechanical stack of the push-up player built into its cabinet. These instruments first appeared in the late 1890s, which squares with Zoe's asking Bloom, in the wee hours of the novel's 16 June 1904 setting, "Are you coming into the music room to see our new pianola?" (408;

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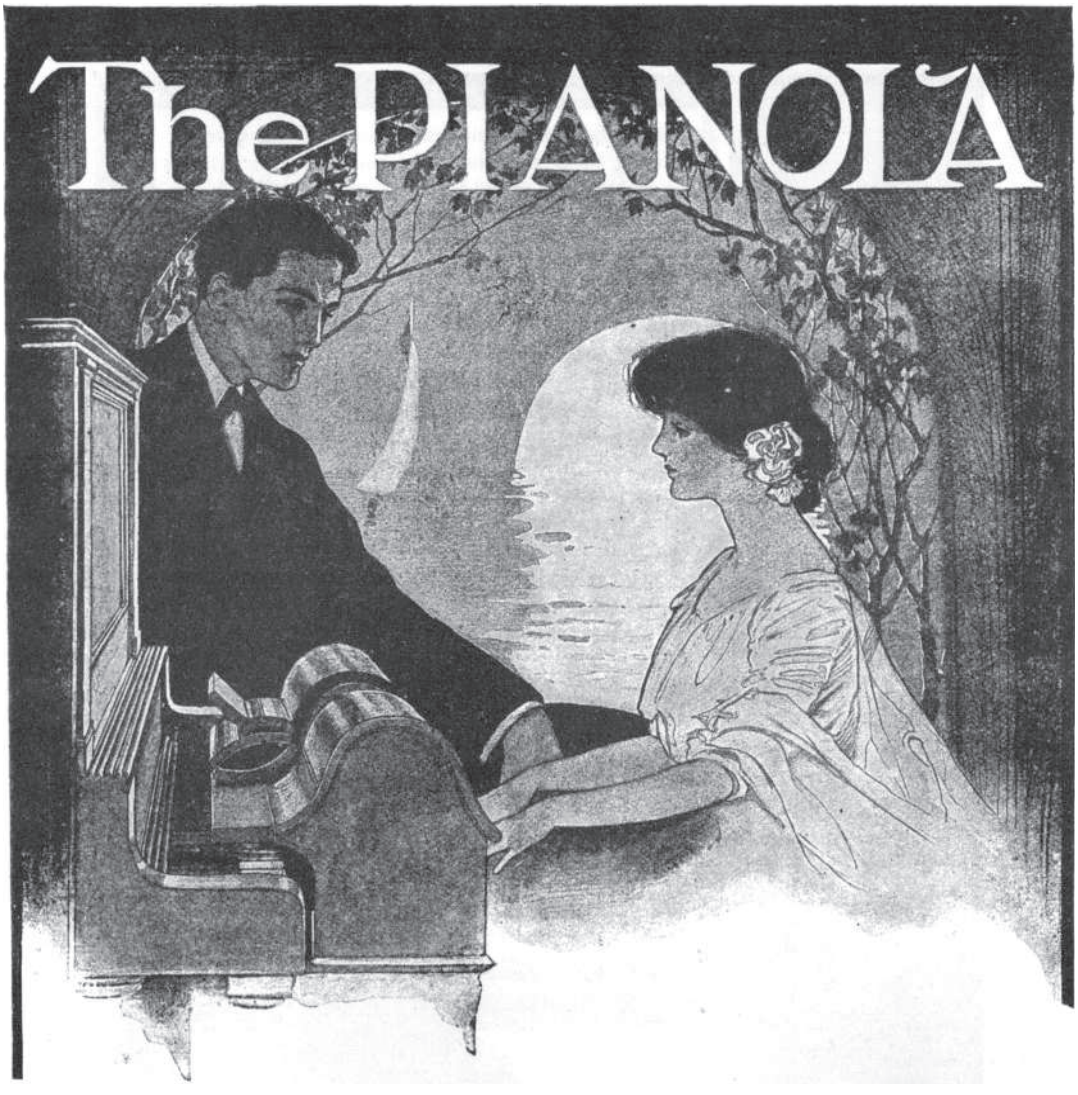


FIG. 1
Ad for a push-up pianola.

15.1990–91). But the fact that Zoe can select a particular tune by "turn[ing] the drumhandle" indicates an instrument with a sophisticated device permitting multiple rolls, such as Wurlitzer's Automatic Music Roll Changer (fig. 3). These precursors of the jukebox would have been installed in coin-operated instruments such as the Wurlitzer IX (fig. 4), whose electrified motor relieved humans of having to pump and whose backlit art-glass front could have supplied those fairground-like "gold, pink and violet lights" that start forth. Machines like this did not appear until 1910 at the earliest, but such anachronisms should not surprise us much given that the song "My Girl's a Yorkshire Girl" was not published until 1908, four years after the novel's action. In *Ulysses*'s Homeric intertext, Circe can see the future. What would have been chronological howlers in other episodes seem commensurate with the porous temporality of Joyce's "Circe."

Looking closely at the ad for the Automatic Music Roll Changer, we see the menu "Classical, Opera, Songs, Dances, or the National Airs," indicating the broad variety of musical genres available as pianola rolls. A playback machine with easily exchanged rolls could play almost any kind of music and

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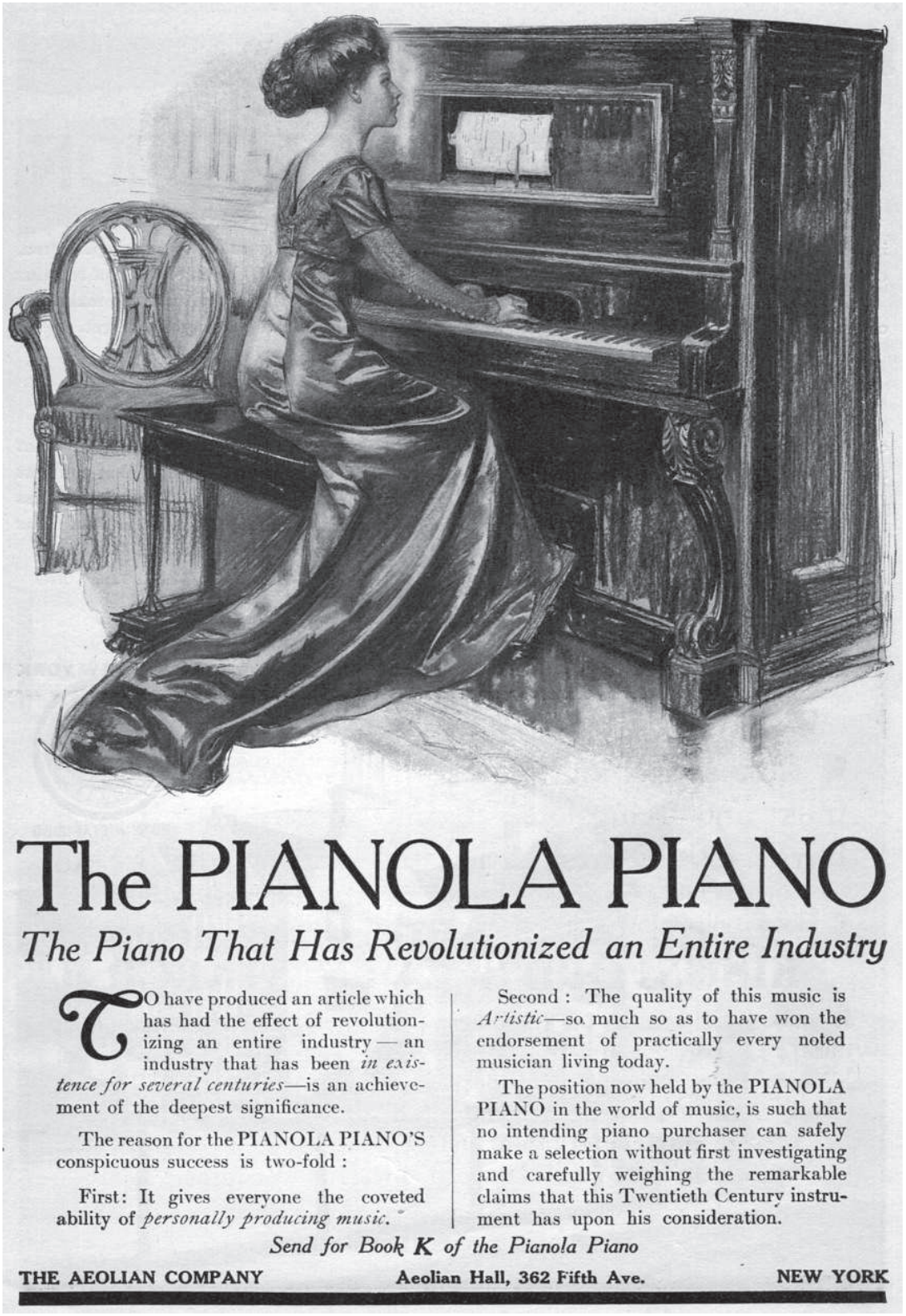


FIG. 2
Ad for an inner player (*Everybody's Magazine*, 1900).

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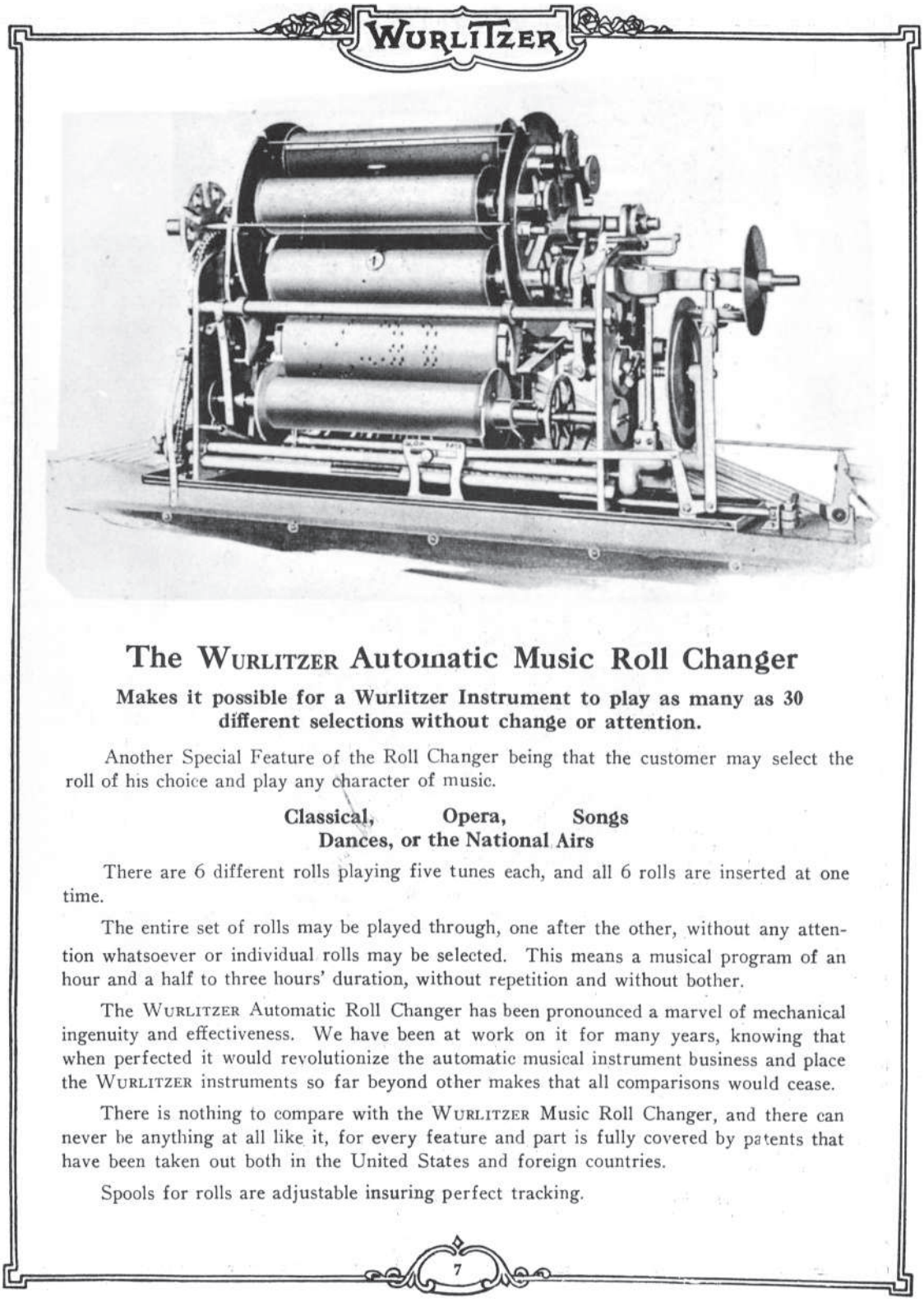


Fig. 3
Ad for the Wurlitzer Automatic Music Roll Changer.

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FIG. 4
Flyer for the Wurlitzer IX.

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consequently be marketed for a wide range of commercial, public, and domestic uses. But this flexibility also made the player piano unstable as a cultural marker. By the turn of the century, the instrument's ability to pump out popular tunes had made it a fixture in bars, dance halls, penny arcades, and brothels. Yet in these settings it signified a certain classiness: the machines were expensive—even the Aeolian push-up player sold for £65 at the turn of the century—so the pianola sitting in Bella Cohen's music room would have conveyed her establishment's prosperity, its aspiration to gentrify and thus facilitate sex work through the maintenance of an upscale, bourgeois, and implicitly metropolitan backdrop. Witness the scolding Bella gives Stephen: "This isn't a musical peepshow. And don't you smash that piano. Who's paying here?" (453; 15.3528–29). We should notice that the madam's demand for payment and Stephen's compliance with her demand take place while he is still seated at the pianola, an instrument that allowed male clients to purchase performances of the sort of music they might, in their daylit lives, hear played for free by middle-class women in domestic parlors. Thus, when Zoe asks Bloom whether he is "coming [in] to see our new pianola," she is speaking literally but also euphemistically, inviting him to come put a few pence down the slot in exchange for the sort of music he is not, as he is painfully aware on this day in June, being offered at home. Bella Cohen's coin-operated pianola is not just in a brothel; it metonymizes the brothel.

Even as it gave a respectable gloss to the brothel, the pianola could bring an unwelcome whiff of the brothel into the home. But nothing cleanses like classicism, as the author of *Ulysses* knew well. Paul Vanderham has argued that after the book was declared obscene in the United States in 1921, Joyce tried to sanitize its reputation by enhancing and publicizing the Homeric correspondences he had built into it. The pianola industry had played a similar game for decades, giving instruments names like Aeolian, Juno, Apollo, Venus, Mars, Helios, Orpheus, Pan, Minerva, Phaedra, Erato, Daimonion, and Nero. (The Leipzig firm of Popper produced an orchestrion called the Circe.) Endorsements by composers, virtuosos, American millionaires, and even the king of England further bolstered the pianola's upmarket cred; this was made still more robust by the arrival in 1904 of the more sophisticated "reproducing" pianola, which, by duplicating a performer's expressive shadings, could put performances by Hofmann, Paderewski, Rachmaninoff, and other greats in one's living room. It could put them on the concert stage too, and on several occasions the instrument was the featured soloist in a major orchestra's performance of a piano concerto.

These testimonials may seem to take us far from sex and the marketplace; after all, they were intended to do so. But the reproducing pianola's association with famous concert pianists was partly aimed at selling instruments to women, specifically to young women either ungifted with or uninterested in acquiring conventional pianistic ability, that key index of middle-class marriageability at a time when women played most of the keyboards in middle-class homes (Kallberg 35–36). Advertisers and other defenders of the pianola claimed that the instrument enabled such women to get back in the game, even to outshine their unassisted rivals insofar as the player piano allowed them to "perform" pieces of virtuosic difficulty.[10] Yet while relying on the difference between male virtuoso and female aficionado, the integrated playback system of woman, pianola, and perforated roll presented the gentleman caller with a stranger complex of relations—sexually, informatically, and industrially—to realize which we have only to picture a female pianolist seated at the instrument, her face flushed with effort as she rhythmically pumps out florid arpeggios encoded in paper rolls cut in factories, often by working-class women her own age, from a virtuosic original. The

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pianola at once exposed and hypercompensated for its user's lack of musicianship, giving her a limited dominion over maestros and tempos through her interaction with a flatteringly expensive, state-of-the-art instrument dependent on her exertions for its celebrated "self-play." A cartoon in the *Sat y Evening Post* captures these functions of the instrument (fig. 5): a young woman is seated at the pianola in a posh drawing room, her calves, ankles, and high heels in view on the pedals, her back arched with the effort of looking statuesque while pedaling. Her mother, Mrs. Neurich (read "nouveau riche"), says to a friend, "Yes, my daughter has a great foot for music."[11] Even ads that tried harder to secure the pianola's identity as a cultural hearth for the angel of the house were organized around her availability and the visibility that implied it. To look at a pianola was to look at a woman playing the pianola; indeed, it could be difficult to know which was accessory to which.

Pianola versus Gramophone

I suggested earlier that "Circe" configures its pianola as a brothel in miniature, a tiny emporium where what passes for a gift in the bourgeois domestic sphere is peddled even as the peddler aspires to membership in that more genteel world. One might expect *Ulysses*, concerned as its author was to rescue his book from charges of obscenity, to avoid any metonymic chains that might link it to sex work. But instead the novel seems to declare a kind of allegiance, even a kinship, to the pianola in Cohen's ten-shilling house. I have already touched on some of these kinships between book and instrument—their tense and productive juxtaposition of high and mass culture, their shared deployment of the classical as an alibi, if often a botched or bad-faith one, for charges of obscenity. Here I turn to the pneumatics of the player piano, particularly in contrast to what *Ulysses* presents as its rival sound-reproduction technology, the



Fig. 5
Cartoon (*Sat ay Evening Post*, 1921).

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gramophone.[12] As we have seen, the latter device was touted as a form of sound writing so faithful as to resurrect the dead acoustically. But the emphasis in *Ulysses*'s treatment of the gramophone is not on its fidelity but on that fidelity's limits. Earlier in the day, Bloom is walking through Prospect Cemetery, in Glasnevin, after attending a friend's burial there. Surveying the sea of grave markers, he thinks, "How many! All these here once walked round Dublin." This becomes a meditation on technologies for remembering the dead:

> Besides how could you remember everybody? Eyes, walk, voice. Well, the voice, yes: gramophone. Have a gramophone in every grave or keep it in the house. After dinner on a Sunday. Put on poor old greatgrandfather. Kraahraark! Hellohellohello amawfullyglad kraark awfullygladaseeagain hellohello amawf krpthsth. Remind you of the voice like the photograph reminds you of the face. (93; 6.962–67)

The passage is an homage not to signal but to noise—to what Tim Armstrong calls the "scratchy, dim, and shortwinded infancy" of shellac (3)—even as it asserts *Ulysses*'s superiority as a sound-recording medium with its bravura transliteration of the needle's being set down on the record ("Kraahraark") and sizzling in the run-out groove ("krpthsth"). When another gramophone appears in "Circe," rearing "a battered brazen trunk" in the window of a rival brothel, the emphasis is again on noise (368; 15.605–06). Interrupting the intervals Stephen plays on the pianola, it "*begins to blare* The Holy City," drowning out even the American evangelist summoned by the lyrics of the song and eliciting cries of pain from listeners with its shrill final phrases: "Whorusalaminyourhighhohhhh . . . *(the disc rasps gratingly against the needle)*" (412, 414; 15.2115, 2210–12; ellipsis in orig.). And when Bloom's just-buried friend Dignam appears elsewhere in the episode as Nipper, the iconic Victrola dog, he holds his ear not to the gramophone but to the ground as he adapts the famous words: "My master's voice!" (386; 15.1247).

Introduced in passages that alternate with or parallel those about the gramophone, the pianola supersedes it as the episode's favored mode of acoustical resurrection: from beneath the instrument's "coffin lid," Father Dolan and Father Conmee, priests at the Jesuit school Stephen attended as a child, emerge and deliver undistorted utterances—"Any boy want flogging? Broke his glasses? Lazy idle little schemer"—that reprise scenes in Joyce's *A Portrait of the Artist as a Young Man* (458; 15.3671). Whereas the gramophone is bested by the more sensitive recording technology of *Ulysses*'s prose, the pianola materializes the novel's ability to store and replay passages from Joyce's other works and from its own earlier pages. Incarnating *Ulysses*'s status as a "hypermnesic machine," in Derrida's phrase, the pianola presides over what may be the book's most densely retentive and formally daring passage:

> *(. . . With clang tinkle boomhammer tallyho hornblower blue green yellow flashes Toft's cumbersome turns with hobbyhorse riders from gilded snakes dangled, bowels fandango leaping spurn soil foot and fall again. . . . Closeclutched swift swifter with glareblareflare scudding they scootlootshoot lumbering by. Baraabum! . . . Bang fresh barang bang of lacquey's bell, horse, nag, steer, piglings, Conmee on Christass, lame crutch and leg sailor in cockboat armfolded ropepulling hitching stamp hornpipe through and through. Baraabum! On nags hogs bellhorses Gadarene swine Corny in coffin steel shark stone onehandled Nelson two trickies Frauenzimmer plumstained from pram falling bawling. Gum he's a champion. Fuseblue peer from barrel rev. evensong Love on hackney jaunt Blazes blind coddoubled bicyclers Dilly with snowcake no fancy clothes. Then in last switchback lumbering up and down bump mashtub sort of viceroy and reine relish for tublumber bumpshire rose. Baraabum! . . .)* (472; 15.4125–50)

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For all that it enacts the blur effects of whirligig and wheeling dancers, the passage is made up of discrete bits of language from previous episodes—mostly "Proteus," "Aeolus," and "Wandering Rocks"—intercut with the lyrics (which I have underlined above) to "My Girl's a Yorkshire Girl," all reproduced without gramophonic garbling.[13] The excerpts from earlier pages of the novel are too brief to function as full-blown references, which would have some cognitive purchase; they are echoic in the sense of being more sonic than cognitive but without the distortion or entropic decay of echoes and without the noise that attended early analog recordings. As sonic memory traces, they are not acoustically or ambiently recorded but rather transduced, encoded, and reproduced, switched on in series, as if the book were spectrally playing itself thanks to miles of concealed tubing that linked disparate pages and could mechanically restage linguistic events across those distances. For this, again, is just how the pianola works, redefining the keyboard as an array of binary switches and the initial performance as a series of switch events stored on the paper roll. That roll, when played, allows the machine to convert the binary data back into mechanical, and thereby acoustic, events immune to bad sound engineering, warped or scratched records, needle hiss, or any of the other factors that bedevil the phonographic signal. Yes, the passage inverts word order and fuses words ("cyclist doubled up like cod in a pot," in "Lotus Eaters" [70; 5.551–52], becomes the single word "coddoubled"), but these manipulations are the hallmark of a storage system that can maintain discrete sounds in a durable, binary form without the fidelity loss of analog media—even as the acoustics of the playback instrument prevent a tediously perfect replica of the "original" performance.

None of this is to deny *Ulysses*'s fascination with the propagation and social consequences of error, decay, distortion, and wandering. But it is to insist that for all its interest in noise, Joyce's book is one of the least noisy ever written in its storage and reproduction of its own language. Should *Ulysses*'s pneumatics of delay (to adapt Hugh Kenner's description of the book's "aesthetic of delay") seem to rely on some naive metaphysics of presence, we need only recall that its mechanical avatar, the pianola, is a theater of absence, a machine engineered to be haunted by as many phantom ivory ticklers as possible. This is an instrument in which the presence of a sound is triggered by a hole—by a perforation breaking a particular note's vacuum seal as it passes over the designated port in the reading head or "tracker bar," an instrument whose keys drop on their own, even as its operator seems possessed of and possessed by that absent pianist's abilities. The pianolist's *Ulysses*, we could say, decouples eventfulness from presence while insisting that absence need not entail unwittingly comic distortions like the gramophone's; thus, the book's precise reproduction of its own language in "Circe" seems unmotivated by something we could call a subject. The impression of perfect storage *Ulysses* gives comes to depend, in fact, on the absence of a human rememberer, as if only a hypermnesic machine could so virtuosically recall and replay itself.

Yet in modeling a recording and playback decoupled from the subject, Joyce's novel does not detach those operations from their social and material moorings. As we have seen, the book takes pains to locate its pneumatic-mnemonic avatar not in the nonplace of abstraction but in a specific place of gendered sexual labor, mingled bodies and social classes, and potential violence. Its most granular moments of self-reference are therefore enmeshed in wayward and fungible social performances and in the ongoing threat of instrumentalized being. The device that stands for informatic fidelity stands in the house of sexual infidelity—a house, moreover, whose metonym it is. The player piano at Bella Cohen's

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does not produce a fixed and single way of constellating gender, economics, and informatics. But as much as any promise it harbors of flawless storage or noiseless signal, I take this to be the crux of *Ulysses*'s pianola: that the sharpest acts of memory or performance depend for the better part of their resonance on, if you will, the particular social acoustics of a room and on the bodies—voiced, gendered, marked by history and exchange, pleasure-seeking, laboring, contending—in it. The pianola resonates because it is in the brothel.

Toward a Pneumatic Criticism

In positing a pneumatic *Ulysses*, I have wanted to shift our approach to the novel away from phonography's speech-writing binary and toward a heuristic concerned with playing, coding, and playing back: toward a playing that is not speech, a binary machine coding that is not a conventional inscription, and a playback that is not exactly reading. How, then, to address the fact that the text of "Circe" accords the pianola a speaking part? It is true that unconventional speakers—a trouser button, a gas jet, a bar of soap—are everywhere in "Circe," which turns the promiscuous ascription of speech into a technique. But the ontology of a pianola's scripted speech is distinct from a gramophone's, which is distinct from a bar of soap's. When a line from "The Holy City" or a word like "Whorusalaminyourhighhohhhh" is assigned to the gramophone, we understand those words to render sounds issuing from the instrument's horn. When Bloom's bar of soap sings, "We're a capital couple are Bloom and I," we suspend disbelief and, thanks to the wonders of commodity fetishism or of the imagination, envision it doing just that (360; 15.338). But when "Circe" attributes the lyrics of "My Girl's a Yorkshire Girl" to the pianola, we do not imagine hearing those *words* coming, as diegetic audio events, from the instrument. Rather, we are being shown at least two relations an instrumentally played melody can have to the lyrics that go with it: the melody can summon those lyrics to the listener's mind, and it can provoke their singing. Garrett Stewart has coined the term *phonotext* to describe the silently voiced or subvocal activation of a written text produced by a reader in the course of traversing it. The phonotext is not the sound of print declaimed but what the silent reader mentally "hears," and it may track a written text closely or diverge from it, variously supplementing, multiplying, and undermining that text's semantics (27–29). We need a complementary term to describe an instrumental melody's way of implying an absent lyric text. Note that this *pianolatext* (how did you silently voice *that* word in reading it?) is not quite the obverse of the phonotext: the lyrics that a known melody prompts us to hear in our minds are activated not by speech but by instrumental playback. What is more, if we choose to sing this implied pianolatext (or its later-twentieth-century successor, the Muzaktext), what we vocalize is not the written text per se but our remembered version of it, complete with mondegreens, mumbled bits, and onomatopoeic vocalizations of hooks and instrumental flourishes ("*Baraabum!*"). Again, although the pianola in "Circe" indexes a hypermnesic storage medium, its playback is keyed to kinesis, recombinant phonics ("*tublumber bumpshire rose*"), improvisation, dispersal.

The pianola has a third, nonaural way of referring to the lyrics to the song it plays: by reproducing them in print on the paper roll for the benefit of those who sing along. Here is how two lines from the chorus of "My Girl's a Yorkshire Girl" look in "Circe" when attributed to the pianola, scanning conventionally from left to right and top to bottom:

> Though she's a factory lass
> And wears no fancy clothes.
> (472; 15.4130–31)

Because a piano roll scrolls downward as it is wound on the take-up spool, any lyrics

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printed on the roll will read from the bottom up, hyphenated and contracted to fit in the narrow right-hand section of paper space dedicated to them and placed adjacent to the perforated "notes" along with which they will be sung during playback. Here is how the same two lines might look on a piano roll:

CLOTHES
CY
FAN-
NO
WEARS
AND
LASS
T'RY
FAC-
A
SHE'S
THOUGH

Or see in figure 6 how a few lines from "The Holy City," the song the gramophone plays in "Circe," look in the song's piano-roll form. Not even in the radical verticality of Hope Mirrlees's *Paris: A Poem* (1920) do we find mimicked the down-scrolling of pianola lyrics, and Erica Baum's "The Melody Indicator" (2012), subtitled "The Player Piano as Poem," scrolls from left to right, embedding lone panes of piano roll in a more traditional reading environment. So strong is our vertical scanning bias that the pianola lyrics' upended directionality is all but illegible outside the specific mechanical context that made it necessary. Yet when in *Ulysses* the instrument "says" the words to "My Girl's a Yorkshire Girl," the conventionally scanned rendering of those words should conjure in the reader a mental image of the inverted, resegmented text native to the piano roll—the only way a pianola has of "saying" song lyrics. In effect a second type of pianolatext, this alternative textuality unscrolls in the mind's eye even as the Joycean page—in this, as orthodox as can be—conspicuously effaces it.

Far from being just another vociferous object in the Nighttown episode, *Ulysses*'s pianola is a pneumatic switchboard for the novel's aesthetic of delay, materializing models of both hypermnesis and analog scattering, of a remembering the better to disperse.[14] In its extremity, the player pianism of Joyce's book can help us approach more contained instances of novelistic metadiscourse routed through the instrument. We might return to *The Secret Agent* to trace the player piano's juxtaposition with the Professor's detonator (also pneumatic: an air bulb that, when squeezed, sets off explosives the character wears whenever he goes out, as a guarantee against being arrested) and with the newspapers that are so often read and discussed over the instrument's noise. Starting and stopping without warning

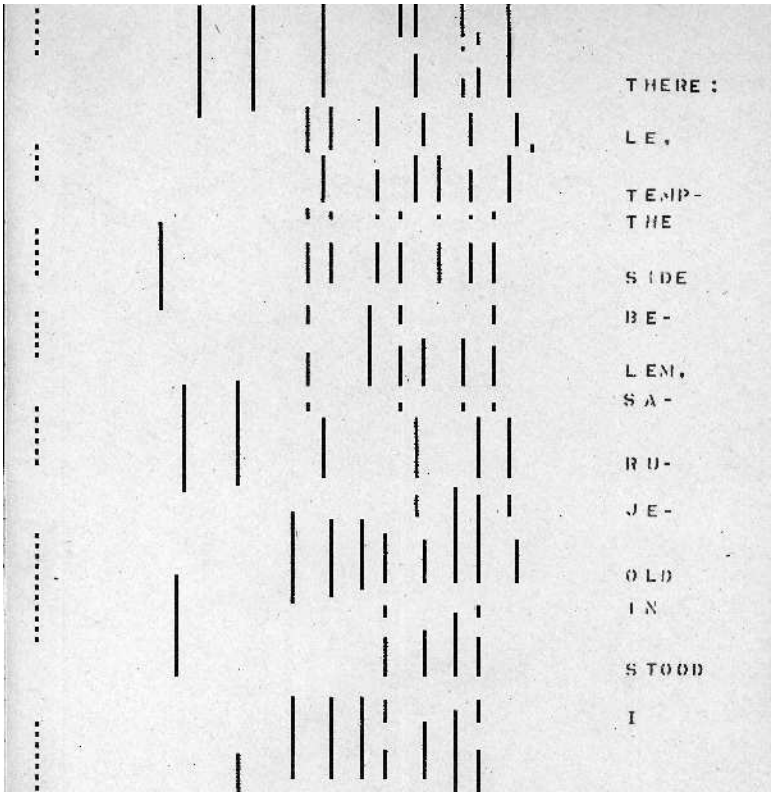


FIG. 6
Section of a piano roll to "The Holy City" (1892), with lyrics on the right margin (QRS 669).

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in the Silenus, Conrad's pianola is also an underexamined figure for the narrative itself, whose violent fermatas and recursions are typically read as effects of the explosion engineered by Verloc at Greenwich. The metrostyle pianola at Bladesover in H. G. Wells's *Tono-Bungay* (1909) presides over, even precipitates, George Ponderevo's affair with Beatrice Normandy. It is *The Kreutzer Sonata* that clinches things ("It is queer how Tolstoy has loaded that with suggestions, debauched it, made it a scandalous and intimate symbol" [402]), as if the pianola roll played back the adultery script of Tolstoy's 1889 novella along with the Beethoven piece after which it was named. In E. M. Forster's *Maurice* (1914; published 1971), Clive Durham and Maurice Hall remake the pianola—iconically a staging ground for feminine display and heterosexual wooing—into a site for queer courtship, playing rolls of the third and second movements of Tchaikovsky's *Pathétique* symphony, which the composer dedicated to a nephew with whom, we later learn, he was in love. The playback device also models plot's iterability. "A movement isn't like a separate piece—you can't repeat it," Durham responds when Maurice asks him to play the second movement again (38). Yet this claim adheres to the logic of the concert hall, not of the player piano, whose essence is repeatability, and the novel belies Durham's comment by ending in a mood more compatible with the *Pathétique*'s lively middle movements than with its dire finale.[15] In all three of these instances, a diegetic pianola doubles as a narratological hub.

There are additional ways for the pneumatic critic to proceed: by tracing, as Mark Goble has done, the mediating functions of race in literary deployments of the pianola; by noting, as Maud Ellmann does in her discussion of "Circe," the instrument's proximity to the figure of the animal; by pursuing, at the intersection of artificial intelligence and the philosophy of language, Ludwig Wittgenstein's use of the pianola in *The Brown Book* (1935–36) to exemplify a "reading machine" flexible enough to be "guided by the signs" it scans (118); by exchanging a metaphorics of voice and tone for one of code, valve, switch, pressure. We could take a cue from the pianola's hybridity by asking how the novel, in its turn, might not hew to the simple supersession of analog by digital in its self-concept or its distribution. And we might consider how literary pianolas locate the novels that contain them in the machine-code lineage that connects Joseph-Marie Jacquard's 1801 automated loom, Charles Babbage's 1837 analytic-engine design, Herman Hollerith's 1890 census tabulator, the 1929 Link flight simulator, and the early IBM and UNIVAC computers. That is, we might consider the pianola as a site where novels variously intuit, negotiate, and commemorate their fitful drift from their analog origins, beginning to conceive of themselves as programmable, as performing operations beyond capturing expression for the sake of a reader's amusement or instruction. Whatever our approaches, the point would not be to produce a pianola's-eye view of literature or to mourn a lost moment when vacuum pressure was king. Rather, we would aim to place literature in the fullest possible mediatic landscape, with all its weird materialities, its compound and parallel modes, its mutant, dormant, and resurgent forms. In one region, a technology that makes air vibrate, reproducing the voice but not the breath; in another, a way of using air to make technology vibrate, harnessing breath without reproducing the voice; and, nearby, some even unlikelier thing to take us farther still from the speech-writing complex. In recovering the variety of media forms eclipsed by triumphal single-medium histories, we would begin to recognize how currently inert elements of a work threaten or prop up or provoke literature's self-concept. And insofar as our own writing and research are historically entangled in rapidly superseded, rapidly forgotten media and informatics, we might rediscover,

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too, lost octaves of critical practice, a note or two of which I have tried to sound here.

Coda

Midway through this essay, I wondered what uninvited guest might sit on the empty bench of the player piano. In "The Menace of Mechanical Music," Sousa retells an anecdote he found in an editorial on the decline of amateur musicianship: a little boy rushes into his mother's room and says, "O Mamma, come into the drawing-room; there is a man in there playing the piano with his hands!" (280 [fig. 7]). For Sousa and the editorial writer, the joke proves that mechanical music has become the norm for a new generation unacquainted with human instrumentalists and, by extension, with music lessons. According to this view, the pianola and the gramophone are antipedagogical, at once extinguishing the demand for human music teachers and failing to offer a viable mechanical instructor in their place. It is true that the gramophone, which produced notoriously poor recordings of the piano and could tell one nothing about the physics of the instrument, would be essentially useless as a surrogate piano teacher. But imagine the student—maybe one unable to learn from another person—who could sit alone at the pianola and, by slowing the tempo and touching the keys as they were pneumatically depressed, learn from the machine to play. Would such a student pass the pianistic Turing test? Or would he or she play detectably "like a machine," even if the machine that had provided the lessons was celebrated for playing "like a person"? In either case, if a child—or a novel—could sit at the self-playing keyboard and learn to play, what would we need to report back to Sousa about the pedagogy of the player piano (fig. 8)? My stepfather, under whose heavy tutelage I spent my adolescence rebuilding pianolas and pianos, was such a student. The only child of two professional musicians, he had learned to play



"'There is a man in there playing the piano with his hands!'"

Fig. 7
Cartoon accompanying John Philip Sousa's "The Menace of Mechanical Music" (*Appleton's Magazine*, 1906).

by closeting himself with a player piano for thousands of hours, and his playing was, like the man himself, human—all too human.

Notes

This essay was written for a symposium at Hamilton College honoring the work of Austin Briggs. I am grateful to Eric Hayot, Joseph Lavery, Patrick Moran, and Julia Panko for their invaluable comments on drafts of the piece.

1. Thomas Edison's phonograph, invented in 1877, played cylinders. The graphophone, a modified cylinder player patented in 1885, was developed by Alexander Graham Bell's Volta Laboratory. Emile Berliner patented his gramophone, which played pressed discs, in 1887.

2. On Bellamy's "With the Eyes Shut" (1889), see Gitelman, *Scripts*, ch. 2 (62–96). On the early recordings of Tennyson et al. and on the aforementioned works by Conan Doyle et al., see Picker, ch. 4 (110–45).

3. Friedrich A. Kittler's work has been a factor in this imbalance: *Discourse Networks 1800/1900* and *Gramophone, Film, Typewriter* ruminate on phonography without mentioning the pianola. Mark Goble provides an important exception to the gramophonocentrism I describe here. In a brilliant reading of Willa Cather's *My*

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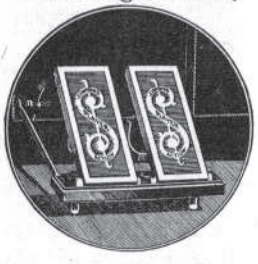


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Ántonia (1918), Goble traces the novel's construction of the blind, formerly enslaved musician d'Arnault as, variously, a pianola and a phonograph. Having argued that both instruments are cognate with modernist machine aesthetics and T. S. Eliot's notion of art's "impersonality," Goble notes how frequently these aesthetic models recruited the raced figure of the African American to mediate between person and thing, animal and machine.

4. See, e.g., the work of Karen Green, who uses piano rolls as a medium for ink work and as collage components, and Erica Baum, who frames square excerpts from found piano rolls, calling attention to the semantic deformations and serendipitous lyricism produced by the rolls' bottom-up scanning. On the economic, semiotic, and legal challenges that piano rolls pose to the sheet-music paradigm of music inscription, see Gitelman, "Media."

5. This tends to be true of the few literary scholars who address the instrument. Tim Armstrong offers an excellent introduction to the literary pianola, but his use of it is finally emblematic: music, he asserts, is always already a kind of player piano insofar as it organizes and redeems entropy, crosses time, and plays and replays the melodies of human intentionality on the piano that is the body.

6. On Gaddis's player piano obsession, see Moore. Suisman addresses the construction of the player piano in Vonnegut's and Gaddis's work (25–30). Like Magome, St. Clair considers Philip K. Dick's *We Can Build You* (1962; published 1972) alongside Vonnegut's and Gaddis's novels, owing to its interest in the player piano.

7. Written and delivered predominantly in French, "Ulysse gramophone: Ouï-dire de Joyce" was first published alongside Derrida's earlier "Deux mots pour Joyce" in French in 1987.

8. E.g., Scott 100; Suárez 754; Danius 226–27n10; Rice 154–55; Knowles 4.

9. Joyce marveled at this aspect of the instrument. He and Frank Budgen were sitting in a Parisian café when a pianola started up, interrupting their talk. As Budgen tells it, "'Look!' said Joyce. 'That's Bella Cohen's pianola. What a fantastic effect! All the keys moving and nobody playing" (228). During the mid-1920s, Joyce attended a premiere of the pianola sections of *Ballet mécanique*, by his friend the composer George Antheil, and liked it enough to ask the pianolist to repeat a roll. The ensemble for Antheil's unfinished opera version of *Ulysses*'s "Cyclops" episode was to have featured a gramophone and sixteen synchronized pianolas (Martin 94, 98).

10. Dolan describes a 1924 story about an unmusical young woman whose marriage was saved by the purchase of a pianola: it enriched her education while playing music to which she and her husband could dance (112–13).

11. Proust's description of Albertine at the pianola (389–90), juxtaposed with Marcel's memory of her riding a bicycle (another commodity frequently pictured with the female figure in early ads), could be a variation on such images. For a detailed account of that scene, with particular attention to its synaesthetic vision of the pianola as a magic lantern, see Carter 137–47.

12. In a 1920 letter to Budgen, Joyce wrote, "The whirligig movement in *Circe* is on the refrain *My Girl's a Yorkshire* etc, but to unify the action[,] the preceding *pas seul* of S[tephen] D[edalus] which I intend to balance on the gramophone of the opposite kip should be on the air of that same ditty played on Mrs Cohen's pianola with lights" (Letter 151).

13. For a fascinating genetic analysis and careful unpacking of this passage, see Hampson 158–62.

14. There are intimations of the pianola elsewhere in *Ulysses*: in "Sirens," whose overture implies that the body of the episode has already been captured by a storage-and-playback device to which the overture writer has access, and in the book's most pneumatic (or Aeolian) episode, "Aeolus," which imagines the newspaper office as a giant machine of wind and type and in which Bloom muses on the typesetter's backward reading practice.

15. I am indebted here to an online comment on the pianola scene in the 1987 film adaptation of *Maurice*: "The power of that happy ending is greatly intensified by the way the soundtrack . . . has tripped us into expecting gay tragedy instead" (exponential63).

FIG. 8
Ad for the Standard Player Action (*Saturday Evening Post*, 1925).

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