

## THE PHYSICIST LEOPOLD BLOOM

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Joyce's *Ulysses* remains a comparatist's dream. The novel insistently looses itself from the locus of English letters and, as if given to centrifugal flight, shoots off into myriad differing literatures and spheres of thought. Before leaving "Telemachus" —*Ulysses'* opening episode— behind, annotators such as Gifford (1988: 12-27) catalogue allusions to the Greek rhetorician Dion Chrysostomos, to the mythological artificer Daedalus and Roman messenger Mercury, to Latin Scripture, to the Hebrew prophet Malachi, to Xenophon's *Anabasis*, to Nietzsche, to Saint Ignatius of Loyola and Saint Thomas Aquinas, to the *Upanishads*, to Aristotle's *Metaphysics*, to Virgil and Dante, to Carlo Goldoni, to Photius, patriarch of Constantinople, and to the heresiarchs Arius, Valentine, and Sabellius. If bound alone to the first of *Ulysses'* 18 episodes, the catalogue above leaves out as well numerous allusions to the *Odyssey*, from which Joyce drew his novel's sweeping architectural order.

Long the object of study by such distinguished comparatists as Harry Levin and David Hayman, *Ulysses* lends itself no less to recent critical debate concerning modes of knowledge and claims to truth, particularly those proper to science. With such debate as a pretext, one might look to *Ulysses* for reflection on the physical sciences, less as a critique of scientific inquiry — though it is scathingly parodied, nowhere more than in "Ithaca"— than as a route to understanding *Ulysses'* textual behavior. In doing so one instantly discerns the aspiring physicist Leopold Bloom.

An optimal point of textual departure arises at the close of "Calypso," *Ulysses'* fourth episode. Having "felt heavy, full: then a gentle loosening of the bowels" (*U* 4.460), Bloom has just visited the outdoor loo and, while reading "an old number of *Titbits*" (*U* 4.467), relieved himself with revolutionary candor. As Bloom comes forth "from the gloom into the air" (*U* 4.539-40), the closing prose of "Calypso" reads:

In the bright light, lightened and cooled in limb, he eyed carefully his black trousers: the ends, the knees, the houghs of the knees. What time is the funeral? Better find out in the paper.

A creak and a dark whirr in the air high up. The bells of George's church. They tolled the hour: loud dark iron.

*Heigho! Heigho!*

*Heigho! Heigho!*

*Heigho! Heigho!*

Quarter to. There again: the overtone following through the air. A third. Poor Dignam! (U 4.541-51)

As with most any fragment in Joyce, much might be underscored first, as if singular, distinguishing features of the prose were to compete for attention. I am drawn, for example, to the initial, assonant *bright light, lightened . . . eyed*, to the alliterative *light, lightened . . . limb*, to Bloom's minute inspection of his *black trousers* and to the lexical oddity *houghs of the knees*, the former term denoting the hollow part behind a person's knee joint, to the visual link allying *black trousers* to *dark whirr*, to the *black* and *dark* offsetting *light, lightened*, to the onomatopoeic *creak* and *whirr*, to the pun of *tolled the hour* on *told the hour*, to the dense stress cluster *They tolled (the) hour: loud dark i(ron)*, to the oddly orthographic rendering of ringing *bells* as *Heigho! Heigho!*, to Bloom's mysterious deciphering of *the hour*, and to the closing, exclamative lament, *Poor Dignam!* In the end, however, what most strikes the eye is the finely attentive acuity of Bloom's ear, able to distinguish *the overtone following through the air* and, in light of *There again*, likely not surprised by it. With the period-enveloped, exclamation-previous *A third*, moreover, *the overtone* would seemingly engender its own echo. Formally enhanced not only at episode-close but at the close of the first episode devoted to Bloom, this sequence might bear a tacit reading cue.

I choose to take *bells* and *the overtone* as specific cues and seek to trace their significance to the discipline of acoustics. In its entry "bell," the *Harvard Concise Dictionary of Music* notes that the "tone of a well-tuned bell is characterized by a great number of partials, which in old bells (chiefly those of the Continent) are slightly out of tune. . ." (Randel, 1978: 47). The notion of *partials*, richly characteristic of ringing hollow vessels, ties directly to Bloom's *the overtone*, as Randel observes in his entry "acoustics":

Strings and most other vibrating systems generally vibrate in several modes simultaneously. . . [T]he several modes of vibration will produce frequencies that are integral multiples of the fundamental frequency. . . Frequencies above the fundamental in this series are also sometimes called *overtones*. . . [A] single string or other vibrating system used in music produces a series of discrete frequencies (called *partials*) simultaneously. . . (Randel, 1978: 5-6)

As the latter entry details, overtones occur in simultaneity: one can discern them when listening closely enough above the fundamental tone, yet the overtones appear alongside rather than sequentially after it. Since sound uniformly moves through the medium of air at 20° celcius with a speed of 340 meters per second, the perceptible noting of an *overtone following* would be admirably acute indeed. And since the exact phrasing *the overtone following through the air* does denote sequentiality, one might argue that Bloom confuses *overtone* with *reverberation*, the latter defined in these specifying terms:

When a source creates a sound wave in a room or auditorium, observers hear not only the sound wave propagating directly from the source but also the myriad reflections from the walls, floor, and ceiling. These latter form the reflected wave, or reverberant sound. After the source ceases, the reverberant sound can be heard for some time as it grows softer. (Berg, 1993: 572)

I must confess I do not know whether Bloom mistakes overtones for reverberation or does in fact distinguish them. The mention of *A third* only adds to the ambiguity, for it refers at once to a mathematically recognized partial and to a possible third echo rebounding off a differing reflective surface.

Complicating matters further, Bloom is congenitally and congenially given to scientific ineptitude. Befuddled just 78 lines into his aesthetic existence by the absorption of heat (“Be a warm day I fancy. Specially in these black clothes feel it more. Black conducts, reflects, (refracts is it?), the heat” [U 4.79-80]), Bloom’s scientific fumbling carries on when inaccurately rendering Archimedes’ principle —

Because the weight of the water, no, the weight of the body in the water is equal to the weight of the what? Or is it the volume is equal to the weight? It’s a law something like that (U 5.39-42)—

and the rate at which falling bodies accelerate:

What is weight really when you say the weight? Thirtytwo feet per second per second. Law of falling bodies: per second per second. They all fall to the ground. The earth. It’s the force of gravity of the earth is the weight. (U 5.43-46)

These instances of scientific confusion redouble the doubt surrounding what Bloom names on hearing *the bells of George’s church*. Whatever he perceives, one unequivocally notes Bloom register acoustic phenomena, perceive them acutely, and identify a species of echo or iterative resounding whose waves mathematically owe to an originary source. This is the cue I am after. How

might Bloom's language itself evidence these twin phenomena, an acute consciousness of sound, on the one hand, and particularly of iterative resounding, on the other?

The iteration of a fundamental sound in language corresponds to the phoneme, minimal unit denoting difference in meaning. In the three passages to follow, I will first foreground a semantic or formal recognition of sound and then look closely for evidence of phonemic recurrence. When addressing in "Sirens" the physics of resonance, for instance, Bloom inexplicably introduces above-cited phrasing regarding Archimedes' principle of liquid weight displaced —*the weight of the water*— and the rate at which falling bodies accelerate —the quoted *Law of falling bodies* prefiguring *law of falling water*. The passage in "Sirens" reads:

O, look we are so! Chamber music. Could make a kind of pun on that. It is a kind of music I often thought when she. Acoustics that is. Tinkling. Empty vessels make most noise. Because the acoustics, the resonance changes according as the weight of the water is equal to the law of falling water. Like those rhapsodies of Liszt's, Hungarian, gypsyeyed. Pearls. Drops. Rain. Diddleiddle addleaddle ooddleooddle. Hissss. (U 11.979-85)

If Bloom here scientifically strays wide of the mark, his peculiar *Acoustics that is* point to the echoing of phonemes in proximity. *Diddleiddle addleaddle ooddleooddle* trips off the tongue with lulling delight in phonemic coincidence, the sixfold *-ddle* core admitting in three reduplicative pairs the prior *Di-* to *i-*, *a-*, and *oo-*. Linked to the adjacent, alliterative *Drops*, the *Diddleiddle* sequence overshadows all other like sound in the passage, namely *O . . . so!* / *the weight of the water* / *law . . . like . . . Liszt's* / and *gypsyeyed. Pearls. Drops. . . . Hissss*.

The linguistic acoustics specific to the passage, moreover, name *a kind of pun*, echoed by the contiguous *a kind of music* and signaling sound-engendered play with multiple meanings. The pun obtains when identical or similar sounds yield two or more meanings in a context admitting the significance of each, as in Hamlet's early parry to Claudius, "Not so, my lord. I am too much in the sun" (I.ii.67). As regards *Chamber music. Could make a kind of pun on that*, the context of "Sirens" and of the Joyce oeuvre at large admits at least three meanings: the face value music of a string quartet; the *kind of music*, a species of *Tinkling*, issuing from a chamber pot in use; and the first book Joyce published, the lyric suite *Chamber Music*, at once disparaged and cherished by its author. As a lexically explicit instance, the enabling multiplicity of these punning options does scarce justice to the minute acoustics of Joyce.

Lexically doubled along with *music* and *acoustics*, the *make of Could make a kind of pun* reappears in *Empty vessels make most noise*, the latter as much a mock scientific maxim as an adage for the self-exaltation of those with the least to

boast about. One cannot help but observe in this regard that empty exhalation informs the loud-mouthed bullying of the Citizen, to appear just 428 lines onward in "Cyclops," *Ulysses'* subsequent episode. In strictly sonic terms, the categorical *Empty vessels make most noise* initiates Bloom's endeavor to account for the physics of sound, and specifically for the *Tinkling* produced by *falling water* in a chamber pot. The endeavor includes mention of *the resonance*, in reference to sound waves reverberating in the pot, and exemplifies its specious theorizing with *Like those rhapsodies of Liszt's*. A further lexical identity—the twofold *water of the weight of the water and the law of falling water*—underscores Bloom's disciplinal confusion.

Turning to a third example of the physicist Bloom's thought, one points to the period-enveloped *Confession* and reflection on it in "Lotus-Eaters":

Confession. Everyone wants to. Then I will tell you all. Penance. Punish me, please. Great weapon in their hands. More than doctor or solicitor. Woman dying to. And I schschschschschsch. And did you chachachachacha? And why did you? Look down at her ring to find an excuse. Whispering gallery walls have ears. Husband learn to his surprise. God's little joke. Then out she comes. Repentance skindeep. Lovely shame. (*U* 5.425-31)

Drawn to the "cold smell of sacred stone" (*U* 5.338), Bloom has entered All Hallows and wryly observes "some sodality" (*U* 5.340) of women taking the Eucharist. An awareness of singular sound inheres in *Whispering gallery walls have ears* and formally in the phoneme-multiplying *And I schschschschschsch. And did you chachachachacha?* The former *Whispering gallery* stands glossed by Gifford in these *low whisper* terms: "Bloom imagines that the confessional would be like a whispering gallery. . . . In the most famous whispering gallery, the cupola of St. Paul's Cathedral in London, a low whisper can be distinctly heard at the opposite wall 108 feet away" (Gifford, 1988: 97).

Focusing solely on the dialogic *And I schschschschschsch. And did you chachachachacha?*, distant cousin to *Diddleiddle addleaddle ooddleoddle*, one notes that the dialogic sequence yields in its orthographic rendering dual phonemic latitude, the *cha-* sounding as in *charter* or *character*, the *sch-* as in *schwa* or *scholar*. The intuitive reading here opts for the first versions of each. If taken so, the sixfold *schschschschschsch* extends out in concentric rings to echo in *Confession / Punish / she / and shame*. Bringing to mind the paralinguistic *Sb!* bidding silence, *I schschschschschsch* might then accord with the penitent's low-voiced speech to quiet or assuage the guilt of assumed sin. The *cha* of *And did you chachachachacha?*, in turn, might intimate, if not the dance of Latin American origin, pleasure viewed as sinful.

In lieu of phonemic iteration leading beyond lexical recognition, as in the two fragments detailed, a further passage opens with a single monosyllabic

onomatopoeia, the exclamative *Bom!* Bloom in "Hades" rides along with the funeral cortège that accompanies the dead Paddy Dignam to the Prospect Cemetery. Cortège conversation turns at one point to the means of transporting corpses to the cemetery. Martin Cunningham recalls a macabre moment in the history of such transport, namely the scene when "the hearse capsized round Dunphy's and upset the coffin on to the road" (*U* 6.415-16). Taking in Cunningham's recollection, Bloom's interior monologue envisions *Dignam shot out and rolling over stiff in the dust*:

Bom! Upset. A coffin bumped out on to the road. Burst open. Paddy Dignam shot out and rolling over stiff in the dust in a brown habit too large for him. Red face: grey now. Mouth fallen open. Asking what's up now. Quite right to close it. Looks horrid open. Then the insides decompose quickly. Much better to close up all the orifices. Yes, also. With wax. The sphincter loose. Seal up all. . . .

But suppose now it did happen. Would he bleed if a nail say cut him in the knocking about? He would and he wouldn't, I suppose. Depends on where. The circulation stops. Still some might ooze out of an artery. It would be better to bury them in red: a dark red. (*U* 6.421-35)

On the heels of its onomatopoeic *Bom!*, Bloom's parodic envisioning demonstrates closely interwoven recurrence. Bilabial plosives and a doubled *out*, for instance, string together the domino-like spilling objects: the *Bom! Upset* of the carriage capsizing leads to the *bumped out* coffin being *Burst open* and to Dignam *shot out and rolling over stiff in the dust in a brown habit*. The entire chain reaction of successive objects falling seems to conclude with *Mouth fallen open*, whose *open* denoted the projectile-ejecting of *Burst open* and after resurfaces in the *Mouth-modifying Looks horrid open*.

Further phonemic echoing elsewhere catches the ear, as in the *Bom* partially inhabiting *bumped*, in the cluster *st* at eddy-opening (*Burst . . . stiff . . . dust*) and close (*stops. St ill*), in the clear gusts of *Quite . . . quickly / With wax / and would . . . wouldn't . . . where*, in the dense stress cluster *loose. Seal up all*, in the *nail and cut* to unite in *knocking*, and in the concluding sputtering of *be better to bury*, akin to the eddy's opening bilabials. The eerie monosyllable *ooze* at passage-end likewise strikes the eye.

Drawing to its close, this note sketches the outset of promising further inquiry. Any comparatist at all familiar with the Joyce oeuvre incessantly stumbles over its marked phonic exuberance, from the lyrics of *Chamber Music* to the phonologically wild *Finnegans Wake*. Early in the morning of his memorable existence, the aspiring physicist Leopold Bloom hears a cue that casts the exuberance in relief.

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