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Borges’s mirror

by Jacob Howland

On the depredations of infinity.

“There is a concept which corrupts and upsets all others,” Jorge Luis Borges wrote; “I refer not to Evil, whose limited realm is that of ethics; I refer to the infinite.” The infinite and its avatars—the incommensurable, the unbounded, the immeasurable—have always occasioned intellectual horror. The Pythagoreans dreamed that all things have an articulable logos (reason, proportion, ratio). The ancients claimed that the philosopher Hippasus drowned at sea, a vestige of the Chaos from which Hesiod taught that all things spring, following his discovery of irrational magnitudes. While this story may be apocryphal, the discovery of the unspeakable (alogon) $\sqrt{2}$, which no ratio of whole numbers can express (and whose decimal representation is interminable), was inevitably memorialized as tragedy. In 1874, Georg Cantor proved that the infinite set of real numbers is non-denumerable—that it exceeds the infinite set of positive integers, and so could not be “counted” (matched one-to-one with the natural numbers 1, 2, 3, . . . ) even by God himself. He was thereafter tormented by mental illness. What would Euripides, whose maddening Dionysus explodes the most fundamental law of logic, the principle of non-contradiction, have made of that coincidence?

The Greek philosophers struggled to find measures of world and soul that would not dissolve on close inspection. Heraclitus declared that “you could not discover the limits of the soul, even if you journeyed the whole way, so deep is its logos.” Plato plays with similar thoughts in his Statesman, where he compares untamed human nature to $\sqrt{2}$. In the same dialogue, he has Socrates suggest to his companion, a mathematician who demands threefold recompense for speeches about the sophist, statesman, and philosopher, that the lover of wisdom is radically incommensurable with the first two types. Socrates, who claimed not to know whether he was a multiform monster or a tame and simple animal, sought sunlit uplands of truth beyond the Cave of human existence because he understood that it is not man who is the measure of all things, as the sophist Protagoras declared, but the cryptic god of Delphi, or the mysterious Good that transcends all beings.

Aristotle grappled more soberly with the problem of due measure in his ethical and political writings. His Nicomachean Ethics begins by acknowledging the possible insatiability of human
desire: “If there is indeed some end in the realm of action that we want for its own sake, and the rest for the sake of this, and we do not choose everything for the sake of something else—for thus it will proceed into the unlimited [to apeiron, infinity], so that our longing will be empty and vain—it is clear that this would be the good and the best.” The human good would be the implicit terminus of our restless longings. Its general outlines emerge when we notice that we live not in an endless, empty expanse but in a world: a harmonious assemblage of determinate beings, including living ones that spontaneously strive to actualize their specific potentialities within suitable environments. Properly understood, nature itself directs desire and choice toward fulfillment in the concrete and delimited (but by no means uniform) work of being human. A green, blooming, eagerly heliotropic plant could rightly be called happy; so, too, would an individual man or woman in whom the organic endowment of distinctively human capabilities is developed and flourishes over the course of a lifetime.

Nietzsche saw a wasteland where Aristotle saw a world. Perhaps just for this reason, Nietzsche understood that “every living thing can become healthy, strong, and fruitful only within a horizon.” Unrounded, our little lives would spill into the void: the ancients would not have quarreled with this insight. Nor would Borges, whose stories illustrate the debilitating consequences of the removal of essential dimensions of human finitude like death (“The Immortal”), forgetfulness (“Funes the Memorious”), and ignorance (“The God’s Script”). But it is the historical eclipse of Aristotle’s moderate and sensible understanding of the world—an understanding echoed in the biblical story of the emergence of intelligible determinateness through God’s limitation of the watery chaos—that forms the backdrop to “The Library of Babel” (1941), Borges’s most celebrated exploration of the depredations of infinity.

In a footnote, the anonymous editor of “The Library of Babel” imagines a book containing “an infinite number of infinitely thin leaves.” (This and all other quotations from the story are from James E. Irby’s 1962 Labyrinths.) Like that “silky vade mecum,” the pages of Borges’s story—itself a pure intellectual construction—unfold into superimposed planes of meaning that together constitute, by some mysterious calculus of the imagination, a substantial reflection on the tragic delusions of modern scientific philosophy.
“The Library of Babel,” an account of “the universe (which others call the Library),” seems to originate nowhere—or what is the same, anywhere—in absolute, Newtonian space and time. Its “unknown author” (the editor’s words) speaks of places up or down, times past or future; these are necessarily relative frames of reference, calculated with respect to an arbitrary moment in the interminable temporal continuum, or arbitrary coordinates within the inestimably vast Cartesian grid of identical, interconnected hexagonal rooms that constitutes the Library’s material structure. That simple and endlessly repetitive structure recalls the representation in organic chemistry of molecules as interconnected hexagons of bound atoms. And the interminable spiral stairways that link the hexagons strangely anticipate the discovery of the helical ladders of DNA from which our chromosomes are spun, with their endless iteration (known since 1919) of alphabetically designated nucleobase rungs (A, G, C, T).

But there is little in “The Library of Babel” that is organic except decay. The universal atmosphere is one of gloomy abstraction, sterility, and dissolution. The author refers once to his birth, but does not mention women, children, or families; the Library appears to be populated only by solitary, occasionally itinerant men. These hombres—librarians—exhaust themselves in a fruitless search for meaning, ceaselessly studying, in an “insufficient, incessant” light, vertiginously random sequences of orthographic symbols inscribed in innumerable books of uniform format that line the shelves of the hexagons. An intellectual breakthrough centuries earlier had seemed to promise a total understanding of the universe whose achievement would justify their existence, but this great hope had long since been dashed. The text speaks of suicides, strangulations, epidemics, corporeal decomposition, “final [fecal] necessities,” latrines, and narrow closets where one may sleep standing up—a difficult act, Solzhenitsyn relates in The Gulag Archipelago, imposed by necessity on inmates of some notorious Soviet prisons. The librarians are prisoners in an endless labyrinth.

Nietzsche saw a wasteland where Aristotle saw a world. One begins to suspect that “The Library of Babel” is really about intellectual imprisonment. The author echoes Kant in noting the argument of “idealists” that “the hexagonal rooms are a necessary form of absolute space or, at least, of our intuition of space.” More generally, his own language is Euclidean and occasionally scholastic. He recalls two fundamental “axioms.” First, “The Library exists ab aeterno”—an axiom whose “immediate corollary” is “the future eternity of the world” (not the transcendence of time that eternity signified in the religious tradition, but sempiternity or unlimited duration, a notion more congenial to scientific minds). Second, “The orthographical symbols are twenty-five in number.” He mentions two “incontrovertible premises”—that all of the Library’s books are made up of the same elements, and that no two books are identical. And he specifies the “fundamental law” that was “deduced” from these premises, namely, that the books of the Library “register all the possible combinations of the twenty-odd orthographical symbols . . . in other words, all that it is possible to express, in all languages.” The knowledge that “there was no personal or world problem whose eloquent solution did not exist in some hexagon” at first gave rise to “extravagant
happiness,” and later to the terrible realization that the chance of anyone’s finding meaningful information in a Library that contains 251,312,000 volumes of random sequences of letters (1,312,000 being the number of characters in any given book, each of which admits of twenty-five variations)—or even of discovering reliable criteria for what counts as meaningful—“can be computed as zero.”

If the author’s talk of axioms, corollaries, premises, and deductions echoes Spinoza’s metaphysical demonstrations “in geometrical order” (ordine geometrica), he also recalls the early modern cosmologist Giordano Bruno in repeating the “classic dictum” that “the library is a sphere whose exact center is any one of its hexagons and whose circumference is inaccessible.” Bruno’s conception, Borges observes in his 1951 essay “Pascal’s Sphere,” filled the eponymous French mathematician and philosopher with horror; it is also one that finds confirmation in an extraordinary paradox of contemporary cosmology. To peer out into the universe is to look back in time; the Hubble image of a quasar ten billion light years away registers its massive jets of superheated particles as they appeared ten billion years in our past. In theory, an astronomer with a sufficiently powerful telescope anywhere in the universe would be able, looking in any direction, to see all the way back to the Big Bang. The inconceivably dense point from which the universe is thought to have exploded would thus seem to be present at every point on the surface of an imaginary sphere with a radius of 13.8 billion light years (corresponding to the estimated age of the universe) centered on the observer, wherever he may happen to be. The exact center of everything is everywhere, which is to say that it is nowhere: an image of the frightful relativity of all perspectives within any infinite field.

In posing the problem of detecting an infinitesimally weak signal within an astronomically large expanse of noise, “The Library of Babel” recalls the biblical tale of the city “called Babel, for there the lord made the language of all the earth babble” (as Robert Alter translates Genesis 11:9). But a seemingly insignificant detail suggests another, deeper connection with the Bible’s infamous Tower. That detail forces the reader to consider how some of humanity’s loftiest intellectual aspirations—aspirations in which the reader is in some small way implicated in the very attempt to decode Borges—may produce unprecedented forms of abjection and despair.

The modern project of “practical philosophy” does not conform to, or even recognize, the natural order Aristotle so prudently attended to, much less the scala naturae, or Ladder of Being, of the medieval Christians. It seeks to replace the biblical Logos with another sort of logic: to begin not from the old, creative Word of God, but from the new, analytic and synthetic word of man.

“In the hallway there is a mirror which faithfully duplicates all appearances”: the author invites us to consider the implications of this mirror, from which “men usually infer . . . that the Library is not infinite (if it really were, why this illusory duplication)?” One is perhaps on safer ground in observing that the Library is itself an only superficially faithful duplication of the actual world, traces of which are occasionally visible in the story. Like the image in a mirror, a two-dimensional projection of three-dimensional objects, the Library is curiously flat; the hexagons, interconnected
by hallways on opposite sides and staircases up and down, all occupy the same plane. The author calls the two inadequate lamps found in every hexagon “spherical fruit”—but where would he have seen anything like an apple tree? (Here there is also the echo of a book—the Book: these artificial lights are dim reflections of the Trees of Knowledge and Life, whose fruit seduced human beings with the promise of godhood.) Now an old man, he explains that his corpse, thrown over the railing by “pious hands,” will “sink endlessly and decay and dissolve in the wind generated by the fall”: somehow there is atmosphere and gravity in these infinite spaces, as on Earth. He compares the shelves of the Library to “a normal bookcase,” as though some other, everyday lifeworld were the measure of the one and only universe of the Library. His handwriting crudely reproduces the “organic letters” of the books; more mysteriously, these “punctual, delicate, perfectly black, inimitably symmetrical” letters are said to imitate “the twenty-five natural symbols.” (One is reminded that the Greek words grammata and syllabai mean “letters” and “syllables,” but also “elements” and “compounds.”) Finally, it cannot escape notice that the mirrors in the hallways linking the hexagons reduplicate the librarians as well as their surroundings—that they literally see themselves in the Library. It was Hegel who observed that the scientific theoretician who attempts to penetrate the veil of appearances, positing laws, forces, and elementary forms of matter and motion, enters an “inverted world” of hypothetical objects in which he encounters only his own thoughts.

In brief, Borges allows us to see that the Library is the literary image of a historically particular intellectual construction that imperfectly reflects and significantly distorts the reality it is supposed to describe. That construction was inaugurated by the founders of modern science, who believed, with Galileo, that the book of nature was written in the language of mathematics, and who sought knowledge that, in Descartes’ optimistic and ambitious phrase, would make human beings “the masters and possessors of nature.” The modern project of “practical philosophy” does not conform to, or even recognize, the natural order Aristotle so prudently attended to, much less the scala naturae, or Ladder of Being, of the medieval Christians. It seeks to replace the biblical Logos with another sort of logic: to begin not from the old, creative Word of God, but from the new, analytic and synthetic word of man. Borges’s author insists that “no book can be a ladder,” but the books of the moderns are nothing if not the mechanism by which man would storm the heavens.

Descartes indicates the revolutionary character of the modern project in his Discourse on Method, a simultaneously cautious and bold call to arms under the banner of technology whose six parts contain the same “embarrassing, presumptuous echo of the six days of Creation” that the philosopher Amélie Oksenberg Rorty finds in the six stages of his Meditations. In the Discourse, Descartes summarizes his book Le Monde, which “certain considerations” (doubtless including the trial in 1633 of Galileo by the Holy Office in Rome) prevented him from publishing. Starting with just two assumptions, the initial condition of “a chaos as confused as any of the poets could concoct” (cf. Genesis 1:2—it is not Hesiod he is thinking of) and the operation upon this material chaos of certain “laws of nature,” Le Monde offers nothing less than a hypothetical explanation of the origin of the universe and all that it contains, beginning with light, the heavenly bodies, and the formation of the earth, followed by the emergence of plants, animals, and finally
man. Descartes’ disingenuous opinion that “it is much more likely that, from the beginning, God made it [the world] such as it had to be” cannot conceal the unlimited ambition with which he derives the actuality of the existing world from the innumerable multitude of all possible worlds. For he tries to demonstrate in Le Monde that the laws of nature “are such that, even if God had created many worlds, there could not be any of them in which these laws failed to be observed.”

At the beginning of the sixth part of the Discourse, Descartes explains that he had hesitated to publish his scientific notions because “it would be possible to find as many reformers as heads, if anyone other than those God has established as rulers over his peoples or even those to whom he has given sufficient grace and zeal to be prophets were permitted to try to change anything” in the sphere of moral conduct. But in the end, he believed he “could not keep them hidden away without sinning grievously against the law that obliges us to procure, as much as is in our power, the common good of all men.” Descartes behaves precisely like a prophet or a ruler in revealing this new “law,” which has the force of a divine injunction although it is to be found nowhere in the religious tradition, and which radically expands the biblical obligation from love of the neighbor to care for all mankind.

The immediate sequel makes it clear that Descartes is an early prophet of the religion of humanity, a religion that exalts unbounded human desires and intellectual capacities. In its prototypically modern form, this religion promotes what ultimately came to be known as “technology”: the concerted employment of extensive social resources for the advancement and application of science, with the goal of transforming man, if not into an actual deity, then at least into what Freud calls a “prosthetic God.” In proposing to replace “speculative philosophy” with “a practical philosophy, by means of which, knowing the force and the actions of fire, water, air, the stars, the heavens, and all the other bodies that surround us . . . we might be able . . . to use them for all the purposes for which they are appropriate,” Descartes seems to imply that the mastery and possession of nature will be governed by some intelligible standard of what is fitting and needful for human beings. But nature, now reductively understood as matter subject to physical laws, can furnish no such standard. Nor can human nature, whose inner infinitude both propels and is confirmed—or religiously speaking, justified—in the project of mastery.

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Descartes explains that mastery of nature is desirable “for the invention of an infinity of devices that would enable one to enjoy trouble-free the fruits of the earth,” and because it would make it possible to “rid oneself of an infinity of maladies”—the “maintenance of health” being “unquestionably . . . the first good and the foundation of all the other goods of this life.” Why une infinité of devices and cures? Because human desire, as Aristotle understood,
endlessly increases itself in the absence of natural limits. From the Cartesian perspective, even the finitude of our mortal coil supplies no such limits: Descartes supposes that the means to make human beings “more wise,” and perhaps even to eliminate “the frailty of old age”—goals that far exceed the maintenance of health—lie in medicine. Wise and undying, we would live as gods for whom the “truths of the faith,” which Descartes fraudulently avers “have always held first place among my beliefs,” would be utterly irrelevant. We could then fill the endless expanse of time with the “infinity of experiments” he foresees, experiments that would disclose an “infinity” of possible “forms or species of bodies” we might desire to produce, if only because we can.

Borges’s author asserts that the discovery of the fundamental law and basic structure of the Library was, “in spite of its tragic projections, . . . perhaps the capital fact in history.” Immediately thereafter, “all men felt themselves to be masters of an intact and secret treasure.” This initial giddiness was followed by pervasive isolation and depression as surely as a hangover chases intoxication. The inordinate hopes aroused by the “thinker” of “genius” who formulated the law were essentially religious in nature, as were the extreme agitations of soul produced by their disappointment. “Pilgrims” traveled to remote regions looking for “Vindications: books of apology and prophecy which vindicated for all time the acts of every man in the universe.” “Inquisitors” fruitlessly searched for clues to “the origin of the Library and of time.” One sect blasphemously juggled letters and symbols, trying to generate the “canonical books” by chance; another, the fanatical “Purifiers,” destroyed millions of volumes in a vain attempt to eliminate useless works. In some districts, young men still “prostrate themselves before books and kiss their pages in a barbarous manner”; meanwhile, “the impious maintain that nonsense is normal in the Library.” The author notes that “heretical conflicts” and increasingly frequent suicides “have decimated the population.” But the thought that somewhere there must exist “a book which is the formula and perfect compendium of all the rest” inspires him to pray that someone—the legendary “Man of the Book”—may have examined and read it, so that “for one instant, in one being, Your enormous Library . . . [may] be justified.”

“Like all men of the Library,” the author traveled in his youth; so did Descartes, who “spent some years . . . studying in the book of the world.” Like Descartes, he thereafter retreated to his closets, where his isolation from worldly disturbances allowed him to consider that “the universe . . . can only be the work of a god.” (Descartes worked out the rules for the direction of his mind alone in a “stove-heated room,” where he briefly retired from serving in the conflict between Catholics and Protestants known as the Thirty Years’ War.) In pondering these resemblances, one must observe that plagiarism is unavoidable in the virtually infinite Library. “To speak is to fall into tautology,” the author observes; any logos is inevitably a repetition of the same (to auton): “This wordy and useless epistle already exists in one of the thirty volumes of the five shelves of the innumerable hexagons—and its refutation as well.” If there is nothing new under the sun, it is perhaps because there is no sun—no real source of life and light, spontaneity and freedom—in this sterile universe of pure information, effectively generated by a computational algorithm that produces uniqueness without meaning.
Nietzsche observes somewhere that the so-called ancients, for whom the world was fresh and new, are in truth young—that late modernity is, in fact, the old age of mankind. Borges’s aged author suspects that “the human species—the unique species—is about to be extinguished.” We readers of Borges know, but perhaps do not appreciate, that we are but one among many richly variegated forms of life; it is only in the mirror of modern mathematical science, in which nature appears to be just fluctuations of energy or endless strings of code, that we perceive ourselves to be “the unique species.” If we are to recover the one and only actual world from the terrible abyss of possibility that has opened up beneath us—the blessed world in which countless earlier generations have taken root and grown, flourished and suffered—we must cease to trust in the illusory promise of this distorting mirror. Even the anonymous author of “The Library of Babel,” who after all subsists only in the twilight of Borges’s synthetic imagination, has an inkling of this human necessity. For in the solitude of his dying days, he is “gladdened” by an “elegant hope”: that the plane of the not-quite-infinite Library bends around some unknown center to form a closed surface, so that “if an eternal traveler were to cross it in any direction, after centuries he would see that the same volumes were repeated in the same disorder.” This seems to be a distant echo of the celestial spheres once thought to surround the fertile, sun-bathed globe that is our proper home.

Jacob Howland’s latest book is Glaucon’s Fate: History, Myth, and Character in Plato’s Republic (Paul Dry Books).

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