

## Joyce's *Ulysses*: A Writer's Commitment to the (Scientific) Sign of the Times

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From early new physics breakthroughs such as the splitting of the atom, the theory of relativity or the discoveries of quantum mechanics,<sup>1</sup> up to more contemporary theories in cosmology and the science of chaos,<sup>2</sup> the explosion of scientific knowledge in the 20th century has turned our times into an age of meditation on the universe itself and on the role of the human being within it.

But if we are to look back at the very origins of this new scientific revolution, it was the development of thermodynamics at the beginning of the 19th century—a science positing that cosmic evolution is ruled by the tendency towards disorder<sup>3</sup>—that first shattered the so far stable metaphysics sustained upon the deterministic premises of Newtonian physics. This new scientific discipline brings about a metaphysical theory that accepts chaos and entropic equilibrium<sup>4</sup> as the final stage of the universe. Order and causality give way to hazard and probability as the new ruling paradigms of the modern world.

In particular, Albert Einstein's theory of relativity, in its famous equation  $E=mc^2$ , comes to identify energy and matter reducing everything to the former. Both the special (1905) and the general (1915) theory of relativity proved that reality was made up from a cloud of energetic particles producing a constant flux of energy, an assertion which inevitably led the scientific community to the rejection of classical premises such as the law of causality, the Aristotelean either/or principle, or the traditional concepts of time and space.

By demonstrating that both temporal and spatial categories are relative dimensions, as they are subject to the referential framework from which they are observed, Einstein proposed a new alternative dimension: the space-time continuum. Outside spatial and temporal limits, external reality becomes no longer objective and absolutely cognoscible. Put it simply, the human being realizes that s/he is unable to fully apprehend the world with his/her limited perceptual system. As R. Nadeau points out, the cognoscitive uncertainty of modern thought puts at stake the dogmatic nature of 19th century naturalistic science:

... there is the growing suspicion in the scientific community that knowledge in the sense of an absolute transcription of physical reality may be a kind of necessary illusion for the symbol-making animal [i.e. the human being]. It could also mean, if the present scientific revolution continues to have an impact upon the subjective experience of members of this culture, that absolute knowledge in other aspects of our lives might come to be regarded in the same way.<sup>5</sup>

Together with the theory of relativity, the development of quantum theory—which tries to describe the random, uncertain subatomic

world—also coincides in asserting that physical reality cannot be known with absolute precision, but only within certain restricted limits.<sup>6</sup> Causality and determinism are replaced by statistical probability. The universe is now regarded as a place of increasing complexity, whose final interpretation always depends on the individual—and therefore subjective—mind observing it:

Quantum mechanics thus obliges us to give up classical expectations of representational closure of “objectivity.” In other words, there exist multiple, equally valid representations of reality that cannot be assimilated into a comprehensive vision.<sup>7</sup>

Faithful to a time when traditional imperatives are abolished, James Joyce's works deeply reflect the impact of modern science on the philosophical and literary panorama of the time.<sup>8</sup> If 20th century science shows that the universe is really complicated, Joyce—as a literary creator affected by the sign of the times—attempts to fabricate an artistic universe as complex as the physical one. In this sense, *Ulysses* reifies the writer's interest in portraying the new world-view of change and indeterminism proposed by the scientific community.

The reader of *Ulysses* soon realizes its great concern with the fact that reality no longer provides a common fund of meaning and experience, but rather appears strangely ambiguous to the observer. After Einstein's new dimension of the continuum, the human mind, Joyce seems to claim, loses its faith in its understanding of the universe either by means of temporal and spatial parameters or through human subjective—and therefore uncertain—perception. An early intrusion of Stephen's thoughts rendered in the stream of consciousness technique—“I hear the *ruin of all space*, shattered glass and toppling masonry, and *time one livid final flame*”<sup>9</sup>—textually suggests the modernist destruction of the traditional categories of time and space, thus precluding deep epistemological undertones beneath the whole narrative.

In order to exemplify the paradoxical possibilities of perception and knowing, Stephen's monologue points out that the inner self is the only shelter from the modern shattered world: “Thought is the thought of thought. Tranquil brightness. The soul is in a manner all that is: the soul is the form of forms: tranquility sudden, vast, candescent: form of forms” (*U* 21).

The Proteus chapter is particularly relevant as far as the unreliability of human perceptions is concerned. Stephen's mental renderings concentrate on the record of immediate sensations. As he walks along Sandymount, with his eyes closed and his bare feet cracking the seashells, Stephen realizes that spatial and temporal dimensions are subjective limits arbitrarily imposed by the human being: “I am a stride at a time. *A very short space of time through very short times of space*. Five, six: the Nacheinander. Exactly: and that is the ineluctable modality of the audible” (*U* 31, emphasis added). Coming to the conclusion that the individual does not know reality directly, but through his/her mental apprehension of it, Stephen's thoughts metaphorically recall Plato's world of shadows —“the obscure soul of the world, and darkness shining in brightness which brightness could not comprehend” (*U* 23)—one of uncertain and indirect knowledge.

The relativity of observation and apprehension of external phenomena depicted in *Ulysses* seems to lead the human being to a state of absolute uncertainty. The modern world, as Stephen's thoughts depict, is ruled by the law of probabilities, according to which nothing can be absolutely certain:

“what might have been: possibilities of the possible as possible: things not known” (*U* 159). The character's flux of ideas, evoking once again the Platonic philosophy of knowledge, comes to insist on the necessity of attaching oneself to the present, as this seems to be the only thing for sure. Only within the mind, the individual can really discover the continuity of time and space:

Space: what you damn well have to see. Through spaces smaller than red globules of man's blood they creepycrawl after Blake's buttocks into eternity of which this vegetable world is but a shadow. Hold to the now, the here, through which all future plunges to the past. (*U* 153)

Similarly, Bloom's meditations are tinged with the feeling of an absurd existence. Life is seen as the inevitably passing of time: “Always passing, the stream of life, which in the stream of life we trace is dearer than them all” (*U* 71), an idea which recurs all along the novel. “Because life is a stream” (*U* 126), “[s]tream of life” (*U* 128), are once again Bloom's remarks in the Aeolus chapter, where the reader is allowed to contemplate quick snaps of the character's ordinary life in the newspaper's office, as well as short but detailed views of Dublin's life.

The impossibility of an absolute knowledge of the world outside the self mainly accounts for the novel's philosophical concern with the sense of fragmentariness. On the one hand, the novel deepens into the realm of the subjective in order to faithfully portray the characters' minds. Characters are presented through the rendering of their thoughts, and by doing so, the reader discovers the working of their minds. On the other hand, at a textual level, the conventional third person narrative account is also interrupted—fragmented—by these mental digressions and recurrent passages of the stream of consciousness. Put it simply, the narrative framework tends to avoid traditional linearity, and instead, discontinuous accounts are put together to form a more complex narrative web.

Far from having the random nature of ordinary thought, everything is carefully arranged and highly structured in the stream of consciousness technique, but the arrangement is concealed by an ingenious pretence of free association. One train of thought switches, through associations which are neither logical nor conscious, to another. At times, the flux of characters' consciousness openly reveals the self's fragmentation and internal chaos. “Contradiction. Do I contradict myself? Very well then, I contradict myself” (*U* 14), thinks intertextual Stephen, for instance. At other times, as if following the dictates of the new science, this technique is used to shatter, once again, the traditional conceptions of time and space. Time is textually subverted by means of prolepsis and analepsis,<sup>10</sup> temporal deviations which metaphorically insist on the relativity of time. In the same manner, the flux of consciousness leads the human being to re-consider the past—kept in the form of mental contents—and actualize it whenever s/he wants. Mind's feedback thus breaks categorical barriers between past, present and future; subjective temporal frontiers disappear in the mind, and past, present and future merge together in a continuum.

*Ulysses's* recurrent use of the interior monologue confers to the conventional narrative account an instance of experimentation. The story is told in the characters' own words. Characters continuously keep on talking to themselves, and this stream of consciousness is presented in internal monologues. By disclosing the characters' thoughts, the reader contemplates the free—timeless, to be more precise—waverings of consciousness. In this sense, the looseness of the interior monologue could well be equated to the

indeterminacy and randomness of the physical world. Through the stream of consciousness the reader is presented the thoughts of the characters, put all together in a verbal continuum which comes directly from the random selective character of memory and the free association of ideas—a pastiche of remembrances, images and impressions kept in the memory of the characters to be later actualized. They are all instances and recollections of purest mental constructs. This is the case of the following monologue of Bloom's after discovering that the mock Victorian heroine, Gerty, is lame:

Poor girl! That's why she's left on the shelf and the others did a sprint. Thought something was wrong by the cut of her jib. Jilted beauty . . . Girl in Tranquilla convent that nun told me liked to smell rock oil. Virgins go mad in the end I suppose. Sister? How many women in Dublin have it today? Martha, she . . . Sometimes Molly and Milly together. Anyhow I got the best of that. Damned glad I didn't do it in the bath this morning over her silly I will punish your letter. Made up for that tramdriver this morning. That gouger M'Coy stopping me to say nothing. And his wife engagement in the country valise, voice like a pickaxe. (U 301)

Quite remarkable is also the Circe chapter, which takes the form of a play, with speech tags and stage directions. In it, Bloom's elaborate hallucinations arise buried memories and fears. Through almost two hundred pages full of recollections of Bloom's sad and meaningless past, the reader is presented a thorough portrait of the individual's confusion amidst the relativity of the, up till then, absolute temporal and spatial categories: "But tomorrow is a new day will be. Past was is today. What now is will then morrow as new was be past yester" (U 420), concludes Bloom.

Similarly, Stephen, bringing a match near his eyes so as to see better, also meditates upon the uncertainty of human perception: "Must get glasses. Broke them yesterday. Sixteen years ago. The eye sees flat. Brain thinks. Near: far. Ineluctable modality of the visible" (U 456). His thoughts end up with a repeated and deep—perhaps the deepest of the whole novel—metaphysical consideration, which so much recalls scientific undermining of categorical space and time, relating it to the evanescence of human life: "Time's livid final flame leaps and, in the following darkness, ruin of all space, shattered glass and toppling masonry" (U 475).

Closely linked to the novel's interest in the relativity of apprehension is the notion of referentiality, a concept which is deeply questioned as well. Henri Bergson, in his essay "Time and Free Will: An Essay on the Immediate Data of Consciousness," affirms that language becomes the agent of human alienation:

We instinctively tend to solidify our impressions in order to express them in language. Hence we confuse the feeling itself, which is in a perpetual state of becoming, with its permanent external object, and especially with the world which expresses this object . . . Not only does language make us believe in the unchangeableness of our sensations, but it will sometimes deceive us as to the nature of the sensation felt.<sup>11</sup>

Similarly, *Ulysses* puts at stake the validity of language—traditionally, a human way to represent external reality. Language is no longer a reliable instrument to faithfully transmit the world outside as it is arbitrary, ambiguous and may often lead to a multiplicity of meanings and interpretations.

The leitmotifs of colours, organs, arts, etc. that fill each chapter, together with the multiple symbology that runs throughout the whole book, undergo

continuous variations and repetitions. Apart from binding the episodes together, thus giving the narrative a complex degree of coherence, such motifs create an endless web of significations ultimately subject to each reader's own interpretation of the different symbols and their corresponding variations. By this means, the novel shows that language does not transmit information in a direct way, and therefore, it is necessary to complement such arbitrariness of information by using other semiotic codes (such as those of music, arts, colours, etc.). In this way, we may think that the apparent chaos of details and of metaphorical complexity that a first reading of *Ulysses* suggests, is nothing but a meditated attempt on the part of the writer to posit and, in a sense, "clarify" the obscurity and ambiguity inherent in language usage. To put it into other words, pure objectivity and referentiality are no longer applicable to language, and, by reinforcing it with a frame of symbolism, readers are somehow allowed to surmount the barriers of a unique and misleading interpretation.

Language's delusive objectivity is in fact counteracted in *Ulysses* through rhetorical devices that, anticipating Derridean thought, lay bare its ambiguous nature. An unresolved tension between opposites, for instance, keeps on appearing throughout the whole novel: order and disorder, life and death, the young Stephen and the adult Bloom, mind and body, religion and sex, man and woman, and, above all, the fusion of symbolism and realism in the novel.

None the less, it is through the use of metaphor that the strictly referential nature of language is expanded *ad infinitum*. Metaphor should be here understood as a deviated use of language, as it goes beyond its pure referentiality. As J. Bono explains it: "Metaphor involves a transfer of meaning from one term, to which that meaning attaches properly or literally, to another, where the meaning becomes improper, deviant, or metaphor."<sup>12</sup> One of the most relevant metaphors of the whole novel is, to my concern, Stephen's tower, which indirectly refers to human isolation amidst an ungraspable reality external to the self. A powerful symbol of modernist solipsism, the tower becomes a place to withdraw from the boredom of quotidian experience, from loveless and futile relationships, and from the lack of communication in modern society. As a matter of fact, what unites Stephen and Bloom is their common consciousness of alienation, not merely their uneasy social positions but also their homelessness. Both experience the loss of meaning, the existential scepticism of the individual.

Like a scientist contemplating the instability of the external world, Joyce veers the reader's interest towards those epistemological concerns brought about by the metaphysics implied in new science's notions. Both Stephen and Bloom become searchers for their own identity; hero-losers lost in a world broken down into pieces, both literally (a historical time that corresponds to the years following World War I), and metaphorically (uncertainty, chaos and hazard as the new imperatives ruling the physical universe).

As far as scientific analogies are concerned, the Ithaca chapter—science being the art of the chapter—is particularly interesting as it is developed through a series of questions and answers, somehow parodying the style of scientific abstraction. Parody<sup>13</sup> takes up the whole chapter, and irrelevant details such as (1) Bloom about to fall, or (2) Stephen's reason for declining Bloom's offer of a cup of tea, are explained by the narrative voice in a mock-scientific tone:

- (1) Regaining new stable equilibrium he rose uninjured though concussed by

the impact, raised the latch of the area door by the exertion of force at its freely moving flange and by leverage of the first kind applied at its fulcrum. . . . (U 546)

(2) That he was hydrophobe, hating partial contact by immersion or total by submersion in cold water, (his last bath having taken place in the month of October of the preceding year), disliking the aqueous substances of glass and crystal, distrusting aquacities of thought and language. (U 550)

However, in my understanding, the quality of this chapter strongly lies on Bloom's extremely elaborate mental workings. By using a paradoxical—almost non-understandable—language, Bloom's stream of consciousness concentrates once again on epistemological issues concerning human existence, an existence which is now regarded as an endless moving or flux from one point to its opposite one until the literally "inevitable but unpredictable" (U 556) death comes: "From inexistence to existence he came to many and was as one received: existence with existence he was with any as any with any: from existence to nonexistence gone he would be by all as none perceived" (U 545).

At other times, the difficulty of human beings when trying to apprehend external reality is approached by the narrative voice itself: "What reflections occupied his mind during the process of reversion of the inverted volumes? The necessity of order, a place for everything and everything in its place. . ." (U 583), the narrator says, referring to the character's contemplation of the books reflected in a mirror.

In any case, the relativity of human understanding is ultimately ineluctable. Bloom finally concludes that, by proceeding "from the unknown to the known through the incertitude of the void" (U 572), human logic may allow for possible error. In this sense, the character's world-view, strikingly similar to that posited by the new science's premises, is rendered in the following monologue, which becomes a brilliant compendium of all the metaphysical and epistemological issues dealt with all along the novel:

That it [Bloom's logic] was a Utopia, there being no known method from the known to the unknown . . . a mobility of illusory forms immobilised in space, remobilised in air: a past which possibly had ceased to exist as a present before its probable spectators had entered actual present existence. (U 575)

Subject to one's own relativity, everything—both world and individual existence—is left unresolved, suspended in the abyss of doubt. The last chapter of the novel, breaking once again with traditional narrative conventions, presents a final interior monologue—that of Bloom's wife, Molly. The chapter runs along more than thirty pages with a total absence of punctuation and apparent logic of connections. Consequently, the reader may also become caught up by an apparently disjointed web of associations and fragmentary impressions, and, like the characters of the novel, s/he may be left in the middle of a confused reading activity.

However, despite such pessimistic panorama, the novel's last pages, full of mythical undertones<sup>14</sup> (end of the day, and end of the hero's archetypal quest—Bloom's return home), turn into a desperate cry for love at a time when incommunication, scepticism, and isolation characterise modern life. Liberation from the locked tower of selfhood calls for human communion. The modern "waste land" as, intertextually, T.S. Eliot called it, waits to be fertilised and regenerated. In *Ulysses*, the possibility of escaping from despair is finally reified in the female figure of Molly,<sup>15</sup> whose thoughts

become suspended, spinning around one single idea, love, an affirmative answer to life: “and yes I said yes I will Yes” (*U* 644).

In moments of special intellectual distress clearly associated with the lack of religious faith and the modern condition, mythic notions reappear to fill up the works of literary creators such as Joyce.<sup>16</sup> Survival, the cycle of rising, falling and rising again can only be possible with love. *Ulysses* ends with a vision of reconciliation: love—either sexual, parental, filial, brotherly or social—pervades the whole novel. In the search for a final understanding, the mythical undertones of the Joycean narrative finally suggest the impending need to transcend physical reality. In this sense, myth represents the integrative element, the continuity between the objective and the subjective realms, between man and world, between flesh and soul. “Yes,” as Molly ends up the novel, seems also to be the writer’s final cry for hope in a world of shattered values and fragmented selves.

Joyce’s *Ulysses* is a profoundly epistemological novel, as it comes to conclude that the Newtonian cosmivision is no longer valid after the new science’s premises. The novel is clear literary proof that the process of a thorough understanding of the world has become problematic, and consequently, philosophical uncertainty pervades all through this magnificent literary work. The writer’s acute awareness that the forms resident in human subjective reality are ill-equipped to describe or contain reality itself turns *Ulysses* into a metaphor of the fact that the world around us is a chaotic entity only partially cognoscible (by means of conceptualizations and approximate mental calculi)—probabilistic, to use the appropriate scientific term. The epistemological distance between the mind and external reality seems here to become unavoidable.

Considering the modernist novel as a faithful portrait, in fiction form, of subjective life—philosophical considerations upon the individual’s existence, meditations on the self and on life and death<sup>17</sup>—the reader may see in *Ulysses* the mirrored image of the general feeling of uncertainty that characterises 20th-century world-view. No doubt, the reading of *Ulysses* is, from beginning to end, magnificent in its psychic explorations and in the symbolist obliquity of its organization. The misinterpretative quality of language to translate and convey a fragmentary metaphysical vision based on uncertain criteria leads the reader to find something which escapes the grasp of discourse, of an ambiguous syntax, of polysemic signifiers, and of an imagery, all of which seem to have become more accurate substitutes for the highly imprecise linguistic codes. The process of interpretation of the novel becomes an endless chain of significations and understandings which go beyond mere referentiality.

In the same way the famous modernist writer attempted to prove that language is an ambiguous tool to transmit our knowledge of the world, the reader is finally left to consider and meditate on how interpretation—the process of reading, as also happened with that of writing—is problematic. Like the characters, readers are suggested to accept the never-graspable complexity and mysteries of the universe, as science has revealed it to be. In the midst of epistemological dilemmas, *Ulysses*’s self-consciousness and reflexive commentaries<sup>18</sup> encourages its audience to accept the limitations of the real world and, consequently, to create one’s own alternative and subjective version of the world, as mental constructs seem to be the only way out for human existence in the modern chaotic universe.

If, from an empirical position, 20th-century science proved that reality is not unique but a mental interpretation subject to one’s personal viewpoint, the modern human being, as Joyce’s *Ulysses* claims, should learn to face and

accept, instead of the traditionally unique and absolute world-view, an infinite plurality of interpretations concerning the inextricable modern universe.

#### Notes

1. See Robert Nadeau, *Readings from the New Book on Nature: Physics and Metaphysics in the Modern Novel*. (Amherst: U of Massachusetts P, 1981), and J. Fisher Solomon, *Discourse and Reference in the Nuclear Age* (Norman and London: U of Oklahoma P, 1988).

2. See Paul Davies, *The Cosmic Blueprint* (London: Unwin, 1987), N. Katherine Hayles, ed. *Chaos and Order: Complex Dynamics in Literature and Science* (Chicago: U of Chicago P, 1991), or Stephen Hawking, *Historia del tiempo: del big bang a los agujeros negros* (Madrid: Alianza Editorial, 1990) among others.

3. See Richard Morris, *Las flechas del tiempo* (Barcelona: Salvat, 1986).

4. According to the second law of thermodynamics, energy slowly dissipates, matter disintegrates and the universe will finally reach a state of absolute chaos and an absence of movement, or what is called "entropic equilibrium" (Morris 110). As modern cosmology states, it is this tendency towards disorder, resulting from a concurrent dispersal of heat and an annihilating deep freeze that may eventually contract in a final Big Crunch.

5. Nadeau 9.

6. Planck's theory of quanta, Heisenberg's principle of indeterminacy, Boltzmann's theorems of statistical mechanics, or Boltz's theory of probability, are, among others, main catalysts of the metaphysical viewpoint of the new physics. For further details see Paul Davies, *The Cosmic Blueprint*; Jaques Monod, *Chance and Necessity* (London: Collins, 1972); and Alastair Rae, *Quantum Physics: Illusion or Reality* (Cambridge: Cambridge UP, 1986).

7. In Eric Charles White, "Contemporary Cosmology and Narrative Theory," *Literature and Science: Theory and Practice*, ed. Stuart Peterfreund (Boston: Northeastern UP, 1990) 91-137.

8. Conscious of the revolutionary advances in the scientific field, philosophers of the time show similar concerns. An attempt to present the relation between science and myth as one of linear continuity and not as one of paradigmatic antagonism is found, for instance, in James G. Frazer's well known anthropological study *The Golden Bough: A Study in Magic and Religion* (London: Macmillan, 1915). Or to put another example, Henri Bergson, one of the foremost philosophers of the century recognized—as the new science had done—that the new forms and structures are coming into being all the time, so that the universe is advancing, or evolving with a definite arrow of time. For further details, see Louis Menand, *Discovering Modernism: T. S. Eliot and His Context* (Oxford: Oxford UP, 1987).

9. James Joyce, *Ulysses* (Harmondsworth: Penguin, 1977) 20, emphasis added. Henceforth quoted parenthetically in the text.

10. See Gérard Genette, *Narrative Discourse* (Ithaca: Cornell UP, 1980).

11. Qtd. in Menand 35.

12. James J. Bono, "Science, Discourse, and Literature: The Role/Rule of Metaphor in Science," Peterfreund 59-89.

13. "Parody" understood, in general terms, as "repetition with critical distance," as defined in Linda Hutcheon, *A Theory of Parody: The Teachings of Twentieth-Century Art Forms* (London: Methuen, 1985).

14. In the line of preeminent myth interpreters like Sir James G. Frazer or Mircea Eliade, Joseph Campbell, *The Hero with a Thousand Faces* (Princeton: Princeton UP, 1979) 17, defines myth and the quest for transcendence as a withdrawal from a never graspable ontology and its consequent epistemological gap: "The first step, detachment and withdrawal, consists in a radical transfer of emphasis from the external to the internal world, macro- to microcosm, a retreat from the desperations of the waste land to the peace of the everlasting realm that is within."

15. Apart from mythical interpretations of the female figure as mother earth, creative power, or principle of life, in modernist times "woman" may also be



regarded as the symbol of the Jungian anima, that is, the female archetype in the process of the individuation of the self. See Carl G. Jung "The Archetypes of the Collective Unconscious," *The Collected Works*, ed. Herbert Read et al. (London: Routledge and Kegan Paul, 1971) 9: 1.

16. See Mircea Éliade, *El mito del eterno retorno* (Madrid: Alianza, 1982) 133-35.

17. For further details, see Edmund J. Smyth, *Postmodernism and Contemporary Fiction* (London: Batsford, 1991) 10ff.

18. As understood in Brian Stonehill, *The Self-Conscious Novel: Artifice in Fiction from Joyce to Pynchon* (Philadelphia: U of Pennsylvania P, 1988).