QUANTUM POETICS

Yeats, Pound, Eliot, and the Science of Modernism

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This is a book with three large propositions: first, that the English Modernist poets of the early twentieth century strove to break down the walls that separate the text from its messy, pre-verbal origins and from its digestion in the mind of the reader; second, that the methods of physicists helped to inspire poets to search for the elementary particles of which poems were constructed – poememes, one might call them. These first two propositions are closely related, in that the search for the poememe entails research into the fundamental operations of the imagination. If the poet is to find the poetic atom, it is useful to discover what a poem is before it is a poem, and what a poem becomes after it is assimilated by its audience. The poememe is not necessarily an element that exists only on a typed page or in speech – a lexeme or a phoneme: it may subsist before the poet verbalizes it, and it may remain in the reader's mind after the poem's exact wording has been forgotten.

My third large proposition is that the more narrowly the Modernists tried to isolate the poememe, the more elusive it became. Therefore, as the particle model for analyzing the behavior of poems developed itself, a contrary model developed side by side: the wave model. If a poem is made, not of little bits of poem-stuff arranged by the poet, but out of beams, or radio-waves, or X-rays, it will behave quite differently, and that difference will entail new – sometimes disturbing – relations between the poet and the audience.

This book does not concern itself with science, only with the appropriation of scientific metaphors by poets. In a sense, every appropriation here has to be a misappropriation: an elementary poetic particle is, and must be, a fiction. I doubt that there are valid quanta of poetry. A poem is not a bundle of discrete inspirational units, but an inflection of language, exploring intensifications of semantic figures by means of counterpoint with patterns of acoustic figures. Therefore the search for irreducible poetical minima of poetry – whether particles or

waves — is bound to lead to exasperation. (The fact that actual scientists also found themselves in exasperating positions when trying to explain the real world according to a particle model or a wave model is only a nice analogy, not a proof of some profound congruence between science and art.) Certain poets, especially Pound, aspired to a genuinely quantum-mechanical view of the poetic act, as if poetry and physics were the same thing; but I believe that the construction of poetic ultimates through the theft of the elementary particles of physics is merely an exercise in metaphor, and deceptive metaphor at that.

But the success or failure of a work of art has never depended upon the correctness of the artist's theories about art. Theodor Adorno argued, in The Philosophy of Modern Music (1948), that Debussy and Stravinsky destroyed their music by acting on a pseudomorphism, that is, by confusing the structural principles of music with the structural principles of the visual arts. It is possible to agree with Adorno that Debussy and Stravinsky had a poor theory of music; but I resist Adorno's claim that they therefore wrote poor music. This book will investigate the pseudomorphism between poetry and physics, the remapping of the theory of poetry on models supplied by physicists. This transgression requires, as will be shown, all sorts of distortions and contortions of verbal structures, all sorts of willful violence to modes of literary apprehension. But if poets drew power from the belief that there exist basic units of poetical force, comparable to a proton or an electron or a quantum, so much the better for poets. We will see, in the course of this book, that the pseudo-physics of Modernist poetics displayed tremendous imaginative energy. Quantum poetics is itself a great Modernist poem.

In this Introduction I will present my three themes in turn: the breakdown of the barrier between the text and its origin; the text as a coordination of elementary particles; and the text as a modulation of waves.

I TEXT, PRE-TEXT, POST-TEXT

Contemporary semioticians, particularly in France, have speculated widely and deeply about the tenability of the concept of a text. Here are some samples, all borrowed from a fascinating paper ("Does 'text' exist?") that Louis Hay gave in Charlottesville, Virginia in 1985, translated by Matthew Jocelyn (revised by Hans Gabler):

In structuralism, the text is considered as a finished product . . . categorically distinct from the pre-text and the post-text which remain peripheral (though they

are both to be found within the work which thus seems to include the text, the pre-text, and the post-text). (Michel Arrivé, *Le Texte* in *Grand Larousse de la langue française*, vol. 7, p. 6043 [1978])

The difference between *The Text* (finished, in other words: published) and the pre-text is that the former offers itself as an entity spell-bound in its destiny, where the latter holds and reveals its own history. (Jean Bellemin-Noël, in *Essais de critique génétique*, p. 116 [1979])

[The pheno-text is] a finished product: an utterance with a meaning . . . [the geno-text is] an infinite syntactic and/or semantic generation . . . which cannot be reduced to the generated structure. (Julia Kristeva, in Essais de sémiotique poétique, p. 207 [1972])

Hay himself prefers to speak, not of text, but of texts — as if every sheet of paper (like a square of phyllo pastry, or like the book with an infinite number of pages in Borges's "The Library of Babel" [1941]) can be peeled into a thousand sheets of onionskin, each printed with a slight variant, an ampersand instead of an "and." A text, then, according to recent textual critics, is a purely hypothetical entity, what Hay calls "a necessary possibility" that teases readers, writers, and, especially, editors.

As we see, the tendency of modern semiotics is to regard the text as a coordination of written words temporarily paralyzed, stunned into Roman or elite quiescence, but liable to reassume a state of extreme fluidity, infinite semantic possibility, at the instant when the reading Medusa averts her gaze. The tendency is to regard the pre-text as either (1) a bundle of rough drafts, slowly dissolving into a heat-sink of related documents — as Coleridge's "Kubla Khan" disperses into travel literature in Lowes's *The Road to Xanadu* (1927); or, more breathtakingly, (2) the aggregate of all possible meanings of all possible propositions in all possible languages — the Gibraltar of diction out of which any finite set of sentences is quarried. The nightingale in Crashaw's "Music's Duel" (1646) carries a whirlwind, a whole earthquake in her breast; and, similarly, every text (according to some semioticians) is the tip, the point of manifestation, of its own pre-text, a field of immense semantic pressure, semantic gravity, operating invisibly behind the printed words.

But older generations of poets did not have the advantage of knowing recent semiotics, and conceived the pre-text somewhat differently – though not entirely differently. Much of post-structuralist thought proposes a general triumph of language – omnia vincit lingua: the genome itself is a kind of pre-text, busily inscribing daisies and butterflies on the empty pages of meadows. But the prestige of language varies from century to century, and when it becomes too great there always arises a

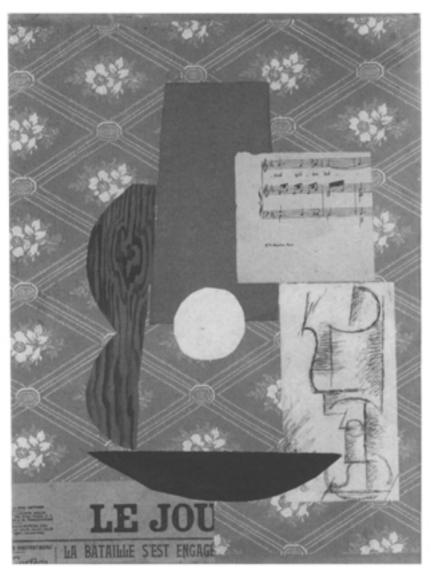
Goethe, whose Faust indignantly erases from his Bible "In the beginning was the Word," and replaces it with the formula, "In the beginning was the Deed" (Faust [1808], line 1237). (A post-structuralist might reply, with perfect justice, that this rewriting nevertheless takes place exclusively within the domain of language.) For the poets considered in this book chiefly Yeats, Pound, and Eliot, though I will appeal to a great many others as well - language does not completely constitute reality; behind words there exist references, dwelling partly outside the charmed circle of speech. Furthermore, the Modernists did not regard the nonlinguistic arts, such as painting, sculpture, and music, as merely discourse pursued by other means. Most contemporary semioticians, when they consider the pre-text, imagine something verbal: alternate nouns, alternate syntaxes, alternate predicates, questionable interjections, failed tropes, whole rejected paragraphs, pieces of Shakespeare or advertising jingles to which the pheno-text alludes, Webster's second International. a vast Chomskian sentence with a trillion dependent clauses, all floating about in some linguistic sky. But the Modernists did not regard the pretext as a field composed entirely of verbal elements.

The Modernist doctrine of the pre-text is, roughly, this: a poem derives its meaning from the pre-textual elements that it utters and arrays; these pre-textual elements are not words, but omni-sensuous entities at once verbal, pictorial, and musical - pertinent to some undeveloped but intense world of signification simultaneously available to ear, eye, and intellect. A poem appeals to some archaic unity, before the arts became separate from one another, before words became separate from things. The vocabulary of Modernist poetics (symbol, image, absolute rhythm, absolute metaphor, vortex, objective correlative, and so forth) implies that each constituent element of a poem belongs to some domain of Absolutes, of valid equations, where there exists a unique picture, or unique prosodic rhythm, or unique trope, exactly equivalent to the feeling that the poet wishes to evoke. A poem is a kind of paraphrase or metaphrase of hieroglyphs, pictograms, program music. The pre-text, then, is not a huge film of words, but a deep field of talking pictures, visible eighth-notes, liquid statues, transcendental half-objects, significant spectres struggling to emanate upon the page of a book. Some of the Cubist papiers collés of 1912-14 contain strips of newsprint, outlines of guitars or violins, and even (in the case of Picasso's Guitar and Glass) a scrap of sheet music: the pictorial plane forks out into musical and textual planes. Modernist poetry also strives to compose itself out of stuff charged with plastic and musical energy, as well as verbal.

Do we understand the whole text by understanding each of its parts, or do we understand each part of the text by understanding the whole? — this is the famous hermeneutic circle. Nowadays we tend to argue the second case: the whole has tremendous prestige. Kristeva's eloquence concerning the infinite depth of virtual meaning implicit in the genotext is only one symptom of the prestige of the whole. One might almost believe that a text is merely the senility of the pre-text, the vain residue left behind by the evaporation of the pre-text. But the atomic school of Modernist poetics tends to support the first case: a poem's strongest meanings reside in its smallest elements — symbol, image, vortex exist before the text begins, perhaps before the poet was born, and endow the finished poem with an electric charge of signification. The poem (according to this model) is a conscious deployment of autonomous meaning-units discovered, not invented, by the poet.

If the meaning of a literary work is chiefly determined, not by the interplay of contexts within and around the text, but by pre-textual atoms, then the writer has a large incentive to cram as much of the pretext as possible into the text itself. And this is exactly what the Modernists did. The Modernist method is to produce a text that is at once an enigma, a key to the enigma, and a specimen of the kind of decoding of the enigma that an ideal reader might perform, using the key. Such books as Yeats's A Vision (1925, 1937) and Stuart Gilbert's James Joyce's Ulysses (1930) — into which Joyce smuggled his private tables of correspondences — attempt to encompass and specify the whole zodiac of literary process, from the generation of pre-verbal images in the heaven of imagination, to their embodiment in the text, to their reception and interpretation by the reader. These books are not ancillary to Modernist literature, but important parts of its achievement.

Arrivé's notion that the pre-text, the text, and the post-text are generally included in literary works is a very plausible one; but in Modernist literature one sometimes has the disquieting feeling that the pre-text and the post-text have usurped the place that ought to be occupied by the text. From one point of view, Eliot's *The Waste Land* (1922) is a bundle of pre-texts and post-texts – auto-scholarly and auto-critical apparatus, undigested quotations from Jacobean playwrights and serving-maids, and so forth – with no text to be found anywhere. In this sense, the strangest moment in the poem is the cry "'You! hypocrite lecteur! – mon semblable, – mon frère!" (*Collected Poems*, p. 55), a nearly unclassifiable rhetorical act at once pre-textual (a quotation from Baudelaire) and post-textual (an accusation through the text, aimed directly at the reader). The



1. Pablo Picasso, Guitar and Wine Glass, 1912. Collage and charcoal.

persona of Stetson's interlocutor, the fictitious landscape, the decorum of poetry itself, break down into a bizarre direct confrontation between the reader and the chyme and chyle of an unwritten poem.

In *The Waste Land*, as often in Modernist poetry, the walls that separate the written-about from the writing, the writing from the reading, crumble in order to heighten the immediacy of the poetic act. The poem aspires to a state of transubstantiation in which the pre-text is physically present in the text; a state of radioactivity in which the rays emitted by *symbols*, *images*, *ideograms* could register directly on the reader's senseorgans.

2 POETICAL QUANTA

The year 1900 was in some ways an unsatisfactory inauguration for the twentieth century. Historians of the arts have usually preferred later dates (say, 1910, the date of Fry's first Post-Impressionist exhibition, after which, according to Virginia Woolf, human character itself changed) or earlier ones (say, 1886, the last exhibition sponsored by the Impressionists, which introduced Seurat and Signac to the public) for the beginning of the great Modernist yawp; psychologists have only half-heartedly embraced 1900 – the date printed on the first edition of Freud's *The Interpretation of Dreams* (which actually appeared in 1899). But physicists are often satisfied with 1900, for in December of that year Max Planck read a paper postulating the existence of what he called *the elementary quantum of action* – a discrete unit of energy. Planck discovered that, in order to explain the heat-radiation from a body as the vibration of minute oscillators (perhaps atoms), he had to assume that energy was exchanged, not in a continuous gradation, but stepwise, in tiny chunks.

In the very age that physical energy became quantized, poetical energy became quantized as well. It is true that rhetoricians had tried for many centuries to isolate and denominate various speech-acts, including the elements of poems; and, some years before 1900, a school of poets – the Symbolists – had chosen one of these poem-elements, and flamboyantly promoted it to a state of hyper-aesthetic autotely. But it was not until the early years of the twentieth century that poets started to become seriously engrossed in the nomenclature of elementary poetical particles: suddenly there was a giddy multiplication, not only of isms, schools of poets, but of basic units to be studied in those schools.

Many of the Modernists liked the scientific notion of a minimum unit – atom or quantum. And they were intrigued by the fact that modern

physics was eagerly subdividing the atom into subatomic particles. Pound, for example, considered that physics and art alike had long been encumbered by crude elementary particles – too gross, too clumsy; the tinier the atom, the greater the possibilities for finesse, *souplesse*, precision:

via Stravinsky and Antheil . . . we are brought to a closer conception of time, to a faster beat, to a closer realisation or, shall we say, "decomposition" of the music atom.

The mind, even the musician's mind, is conditioned by contemporary things, our minimum, in a time when the old atom is "bombarded" by electricity, when chemical atoms and elements are more strictly considered, is no longer the minimum of the sixteenth century pre-chemists. (*Ezra Pound and Music*, p. 316 [1926])

Pound was fascinated by the metrical exactitude of Stravinsky's system of notation: it seemed that Stravinsky, by manipulating smaller rhythmemes than previous composers, was capable of subtler, more rapid, more penetrating musical effects.

In their earlier years, when the exhilaration of twentieth-century science was in its first bloom, the Modernists were excited by the Futurist hope that art could assimilate scientific themes, that art and science could cooperate toward some complete elucidation of mankind. When Eliot decided, in 1919, to explain the prehistory of a poem in the poet's mind by the reaction of sulfur dioxide and oxygen in the presence of a platinum filament (*Selected Essays*, p. 7), he certainly suggested a profound affiliation between chemical and aesthetic processes. Pound, in 1916, wished for elegies written in research laboratories, not country churchyards:

It is to be noted that one is not forbidden any element, any key because it is geological rather than vegetable, or because it belongs to the realm of magnetic currents or to the binding properties of steel girders and not to the flopping of grass or the contours of the parochial churchyard. (*Gaudier Brzeska*, p. 125)

Pound considered his poetics, full of such elementary particles as *images*, *vortices*, *hard bits of rhythm*, and *ideograms*, to constitute an experiment in searching for the literary equivalent of the gene or the atom: "Have always held re/ vortex, dominant cell in somatic devilupment, convergence in atom structure etc. IF a few can agree they can bust the massed slush" (*Pound/Lewis*, p. 301 [1956]). The smallest bit of matter, the smallest determinant in the growth of an organism, must, Pound held, be organized like a *vortex*, a tiny whirlwind capable of generating large shape. When the microscope is turned to its highest resolution, it appears

that cellular structure, molecular structure, and artistic structure all become congruent. Indeed Pound devoted much of his career as a critic of the arts to proving the following theorem – a key theorem of the Modernist agenda, never, to my knowledge, explicitly stated, perhaps because the vocabulary in which it could be readily formulated did not then exist:

poememe = rhythmeme = pixel = spermatozoon = sub-electron

Physics, biology, literature, music, painting, each has its separate technique and separate purpose; but they radiate out of some common center. Some germs enjoy spatial extension, as pictures, statues, or climbing vines; other germs enjoy temporal extension, as poems or sonatas. After the germ unfurls itself into the world of space and time, it quickly loses its interchangeability with its congeners; this is why (according to the 1914 edition of Wyndham Lewis's impudent magazine, Blast), the vortex "is the picture that means a hundred poems, the music that means a hundred pictures" (Ezra Pound and the Visual Arts, p. 151). But despite Pound's insistence on the separateness of the arts, he discussed the origin of the art work with a vocabulary that tended to break down aesthetic barriers: for example, by speaking of the *image* at the heart of the poem, the *image* that was a complex caught in an instant of time (*Literary Essays*, p. 4 [1913]) - as if any component of discourse could resist the drawn-out quality of the discursive. The arts and the sciences all draw together as the analyst breaks them down into their smallest pieces: at the hypothetical limit, at the very quick of epistemology, there is convergence of speech, picture, song, and instigating force. The term vortex was useful for this pan-aesthetic atom: deliberately neutral, applicable on the broadest possible field, suggestive of no specific art-form, only a focused dynamism.

In the 1910s, then, poetry seemed to embrace science ardently. Then Einstein started to become widely known, and carried all before him:

Einstein the Great has visited England . . . Einstein has taken his place in the newspaper with the comet, the sun-spots, the poisonous jelly-fish and octopus at Margate, and other natural phenomena.

Darwin is the representative of those years [the eighteenth and nineteenth centuries], as Newton of the seventeenth, and Einstein perhaps of ours. (Eliot, "London Letter," *The Dial*, July and September 1921)

But the revolt against Einstein came quickly, and soon Einstein was to become one of the great villains of literary Modernism.

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Why would a band of poets, seemingly committed to the methods and the revolutionary world-view of modern physics, turn against the greatest physicist of all? The answer, oddly enough, is that Einsteinian physics seemed to promote a literature that was rapidly becoming outmoded – all hazes and fogs. Einstein enjoyed playing the fiddle; indeed, in *Einstein on the Beach* (1976), Robert Wilson and Philip Glass put a violinist dressed in an Einstein wig on stage, as a modern Nero, fiddling while the world burns from the bombs that his physics made possible. And yet, perhaps unknown to himself, Einstein also enjoyed a strange career, not as a musician, but as a Symbolist poet.

Some of the Modernists found Einstein disturbing because he seemed to unrealize the universe – and perhaps because he was a Jew:

We are all very pleased with Mr. Einstein for knocking that eternal axis out of the universe. The universe isn't a spinning wheel. It is a cloud of bees flying and veering round. Thank goodness for that, for we were getting drunk on the spinning wheel.

Mr. Einstein, we are glad to say, has pulled out the very axle pin . . . But the Jewish mind insidiously drives us to anarchical conclusions. (D. H. Lawrence, Fantasia of the Unconscious [1922], pp. 66, 208)

Lawrence found the blooming buzzing confusion of Einstein's universe preferable to the rigid clockwork cosmos of Newton; but, when Lawrence came to write the credo of his religion, he denied Einstein as well as Newton – Lawrence's Zeus superseded, or subseded, the electron:

Far-off
at the core of space
at the quick
of time
beats
and goes still
the great swan upon the waters of all endings
the swan within vast chaos, within the electron.

The references to Einsteinian physics were stronger in the first draft (called "Religion") of the sequence of poems in which "Swan" is included:

("Swan" [1929], Complete Poems, p. 435)

But now only the electron behaves and misbehaves incomprehensibly and forces tie themselves up into knots of atoms, then come untied: and nothing else but this that everything ties itself up into complicated little knots, that barge about and bump on one another, and come untied[,] and either release energy, or swallow it up and make the considerable mess that isn't even worth the name of universe any more

For me, it's not good enough.
I'm a religious soul.
For me, at the moment
the Father of all things swims in the vast dusk of all the atoms
like a wild swan, or a goose, whose honk goes through my bladder.

(Complete Poems, p. 950)

Einstein seemed to advocate a vision of unsolid and unstable worlds, in which matter existed only in the form of temporary clots of randomly circulating energies.

What sort of literature would reflect such a physics? Insofar as his reality seemed to be demoted to a dreamlike and evacuated condition, Einstein was a kind of Symbolist. Insofar as his reality seemed to be a nervous spasm of ever-changing relativistic data, Einstein was a kind of Impressionist or Post-Impressionist. Yeats (in "The Autumn of the Body" [1898]) and Pound both held that the progress of the arts in the modern age was a continual insubstantializing, a thinning-out: "you may argue that Wagner . . . produced a sort of pea soup, and that Debussy distilled it into a heavy mist, which the post-Debussians have desiccated into a diaphanous dust" (*Ezra Pound and Music*, p. 255 [1927]). Einstein proffered a universe that really did seem to consist of diaphanous dust, a model exactly consonant with the artistic textures of advanced music – or of Seurat, in whose *pointilliste* paintings the spectator can see, as in a chart to test color-blindness, shapes consisting of swarms of visible molecules, almost a centimeter in diameter.

But Einstein's seeming conformity with the cultivated vacuum of Symbolism, or the divine languor of certain Post-Impressionists, left him open to the Modernist attacks against those artistic movements. Impressionism, according to Pound, was a passive kind of art, indeed corpse-like (Ezra Pound and the Visual Arts, p. 152 [1914]); Wyndham Lewis despised Impressionism even more vehemently. And some of Einstein's contemporaries used similar terms in describing Einsteinian physics: "laziness is the fundamental law of Einstein's universe" (Lewis, Time and Western Man, p. 273, citing a comment by Bertrand Russell). Einsteinian space does not lie in flat sheets, neatly superimposable into great spatial cubes; instead it bulges, stretches, sags, as if it could not support the

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weight of the stars stuck into it. Einsteinian time is equally slothful, sullen, growing slower and slower as objects in it get faster and faster – the limp watches in Dali's *The Persistence of Memory* (1931) seem perfectly justified by the chronometry of the Lorentz transforms. In *Time and Western Man* (1927), Lewis described (and, to his credit, strongly rejected) the notion promoted by Spengler and others that Jewish physicists eliminated the necessity for *force* in descriptions of the universe. Still, a sense of lethargy and looseness, passivity, clings to the Modernists' descriptions of Einstein's physics.

Elsewhere in *Time and Western Man* Lewis described Einstein as a psychologist *malgré lui*:

though it [Einstein's theory] sets out to banish the mental factor altogether and to arrive at a purely physical truth, it nevertheless cannot prevent itself turning into a pyschological or spiritual account of things, like Bergson's. For the mind of Einstein, like that of Bergson, or like that of Proust, is not a *physical* mind, as it could be called. It is psychologic; it is mental. (p. 111)

Lewis's book is a great polemic against psychological models of reality—ill-formed, slushy, queasy, requiring us to admire not the art of the tangible and hard, but the art of mental diarrhea, such as the novels of Proust and Joyce. Einstein seemed to be a scientist who crumbled rock in his hand until nothing was left, not an atom, not an electron, not even a hand to hold the remnants of the rock; and psychology rushed in to fill the void left by the general abdication of solid matter. Lewis saw Einstein as one of the many misshapers of the present age, the Piranesi of physics, who hid his Gothic subversiveness behind the mask of simplicity:

Einstein . . . has rather the affectation, if anything, of being quite prosaic – the 'simple physicist.' (p. 200)

Einstein, a more finicky, fastidious, and at the same time bizarre architect [than Newton], produces a simple, intricate, amorphous thing. (p. 271)

Science and art evilly conspired (according to Lewis) to deny the objectivity, the *there*-ness of the world, to abstract palpable reality into a state of sheer hallucination:

Science has to possess impersonal units of some sort. It consequently assembles the movements it is studying into 'events' or serial 'groups' – but always groups and aggregates: and so, as regards the 'nature' it shows us, it arrives at a sort of shimmying, contourless metis [Greek: wisdom, craft]. Some groups are conspicuously *slow* in the movements . . . for instance, a mountain remains very much longer in the same place and of the same shape than does an ocean-wave. So the mountain has a certain spurious status as an object, and is disliked by