

Out of Control: Yeats & Frayn

Carol Jacobs

Abstract: There is a certain symmetry to it. Yeats in 1936 writes a poem that laughingly anticipates the bombing of London to come. Frayn, at the end of the century, immerses us in an uncertain jumble of time and space as his fictional, but historical, characters contemplate their past and the atomic bombs that ended the war that Yeats had so lightly dismissed. In both “Lapis Lazuli” and *Copenhagen* a nation at war, a meditation on what it means to be human, and a questioning of the medium of that contemplation: poetry and art in Yeats; the narrative of scientific theory, theatrical presentation, and historical recuperation in Frayn.

“Lapis Lazuli” culminates in the description of a carved piece of stone. The strange linguistic events of this last stanza rewrite the relationship between observer and the observed and also any sense of individual subjectivity. In *Copenhagen*: a crucial meditation on language, especially a confusion generated by metaphorical substitutions, upsets our sense of human understanding and also of scientific truth. Yeats’s poem ends in another world – one of unspecified gaiety: Frayn’s piece closes with apocalyptic forebodings. And yet, the unsettling implications of the two are similar.

Keywords: William Butler Yeats, Michael Frayn, “Lapis Lazuli”, *Copenhagen*, Ethics, Science and theory, Language of Poetry

Poetry: William Butler Yeats: “Lapis Lazuli”

In 1936 William Butler Yeats writes the remarkable lines which he gathers into five stanzas and names “Lapis Lazuli.” The poem’s title refers to a gift Yeats had received on the occasion of his seventieth birthday (June 13, 1935). He writes of it a year later. The poet is now in his seventy-first year, the age at which Socrates drank the hemlock.¹ One delights to imagine both poet and the philosopher going, as Yeats wrote in another instance, “proud, open-eyed and laughing to the tomb” (“Vacillation” line 34).² Yeats had been coming to terms with old age in a similar vein since his very first publications,³ and contemplating his own passing years and impending end in some of his most famous works,⁴ often hinting at a heroic encounter with death.⁵ And yet, in “Lapis Lazuli,” how shall we

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1 The name of *The Republic’s* author haunts the last decade of Yeats’s work.

2 Yeats 1983, p. 249

3 “The Wanderings of Oisin,” the first poem of the collection *Crossways*, “The Song of the Happy Shepherd,” Perhaps most famously in “Among School Children,” but also “Meeting” in “A Woman Young and Old” and many others.

4 “The Circus Animals’ Desertion”

5 Stallworthy cites a letter to Dorothy Wellesley in this regard: “I thought my problem was to face

regard heroic will as the poet, almost accidentally, comes upon another mode of art.

In the uncertain medium of poetry, at the same moments his language fails to find its stability (stanzas 1, 2, and 5), the poem sidesteps the apparent intent of descriptive performance through more precarious displays of language. This is the open proclamation of another poem written very shortly after “Lapis Lazuli,” “The Circus Animals’ Desertion.” The aging poet casts a cold eye on critical moments of his earlier writings. His passion has shifted, he tells us, from a burning desire for the imaginary object depicted, “for the bosom of [Oisin’s] fairy bride” (in “The Wanderings of Oisin” [1889]),⁶ to a withdrawal in later works from those things his words set forth to represent. Thus, in writing about the play *On Baile’s Strand* [1904]:

Players and painted stage took all my love
And not those things that they were emblems of.
 (“The Circus Animals’ Desertion” lines 31-32)⁷

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Something similar will take place in the course of “Lapis Lazuli” where it is the mode of thinking, which is to say the linguistic gestures, that are the disconcerting and exhilarating upshot of it all.

This is already evident in the closing lines of the first stanza. A breaching of the border of the state, an act of war: it is 1936 and the barbarians threaten to eradicate the state – or, at least, to beat flat the city of London as they attempted to do in the Great War.

I have heard that hysterical women say
They are sick of the palette and fiddle-bow,
Of poets that are always gay,
For everybody knows or else should know
That if nothing drastic is done
Aeroplane and Zeppelin will come out (lines 1-6)⁸

Coming to terms with the bombardment as political reality is at stark odds with the gaiety of those who wield the “palette and fiddle-bow,” the visual and musical artists, and at odds above all with the poets. What are the remaining lines of “Lapis Lazuli” if not a rehearsal of this gaiety?

As the poem continues Shakespeare takes on the role of poet in the second stanza. The mournful melodies of the serving man who carries a

death with gaiety.” Stallworthy 1969, p. 49

6 Yeats 1983, p. 35

7 Yeats 1983, p. 346

8 Yeats 1983, p. 294

musical instrument (stanza 5) is the subdued counterpart to those who play the fiddle-bow. And the visual “handiwork of Callimachus” (stanza 3) in its contrast to the carved piece of lapis lazuli (stanzas 4 and 5) will return to confront us with yet another mode of gaiety.

For everybody knows or else should know
That if nothing drastic is done
Aeroplane and Zeppelin will come out,
Pitch like King Billy bomb-balls in
Until the town lie beaten flat. (lines 4-8)

Norman Jeffares caught sight of it, writing just a few years after “Lapis Lazuli” was published:⁹ the threat may be of the current historical moment, but the violence that looms is pitched to us in terms that jumble several historical eras, and that blur the border that might distinguish history and poetry. “The Zeppelin, anachronistic for bombing purposes in 1936, is probably due to the poet’s memories of air raids on London in the 1914-1918 war. The ‘bomb-balls,’ however, are of older origin, for they seem to be derived from ‘The Battle of the Boyne,’ a ballad included in *Irish Minstrelsy*, an anthology.” He goes on to cite the 1888 “Battle of the Boyne.”

King James has pitched his tent between
The lines for to retire;
But King William threw his bomb-balls in
And set them all on fire.

With a certainty of knowledge about 1936, “For everybody knows or else should know,” the hysterical women insist. Over and against an unshakeable sense of impending apocalypse, a bacchanal of interchangeable historical moments and literary reference carries us back and forth among: the seventeenth century battle between the protestant William of Orange and the deposed English Catholic king James II, the 1888 ballad in which that same King William “between /The lines” “threw his bomb-balls in”;¹⁰ and that other King William (“King Billy,” as Yeats calls him) whose Zeppelins had carried the bomb-balls of the first World War, Kaiser Wilhelm II. Pitched in between the lines of “Lapis Lazuli” it is not difficult to hear echoes of another “Willy,” as the young poet was often called who was later to orchestrate this confusion.

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9 Jeffares 1950, p. 489

10 Richard J. Finneran, in the notes to *Parnell's Funeral and Other Poems* cites from the 1935 text of Yeats's lectures in America. The Battle of the Boyne is cited several times here. Yeats 1983, pp. 660ff

1936, 1914-1918, 1888, 1690.¹¹ How are we to understand the jumble of the metaphorical palimpsest? The women cry apocalypse. Clear and present danger. A definitive end. Willy laughs their fears into the substitutability of one past crisis for another, and, in turn, of the poetry that might cite them.

The stanza to follow invokes an exemplary English poet, also, coincidentally a “William,” to speak of “Gaiety transfiguring all that dread” (line 17). Might we regard this gaiety with all its powers of transfiguration as the half-way house on the ascent to the poem’s closing lines, lines which might seem to do the same: transfigure tragedy? Does stanza 1 close with a bravado that tosses aside all dread, because, as so many other passages in Yeats suggest, a heroic displacement of fear by gaiety or joy might be instrumental in transcending death?

The second stanza stages an answer to this question.
 All perform their tragic play,
 There struts Hamlet, there is Lear,
 That’s Ophelia, that Cordelia;
 Yet they, should the last scene be there,
 The great stage curtain about to drop,
 If worthy their prominent part in the play,
 Do not break up their lines to weep.
 They know that Hamlet and Lear are gay;
 Gaiety transfiguring all that dread. (lines 9-17)

In an essay published around the time “Lapis Lazuli” was being written, Yeats wrote: “The heroes of Shakespeare convey to us through their looks, or through the metaphorical patterns of their speech, the sudden enlargement of their vision, their ecstasy at the approach of death.”¹² A few such patterns follow this generalization, Horatio wishing to follow the dying Hamlet and ready to take his own life, for example. Hamlet begs his friend, rather, to remain, in order to tell Hamlet’s tale. “Absent thee from felicity awhile.” “Felicity” stands as metaphor for death. Similarly, Yeats offers us Cleopatra’s words “My baby at my breast” (*Antony and Cleopatra*, Act 5 Scene 2). Just as she is about to take her own life by offering her breast to a deadly asp, she substitutes the baby, figure of new life, for the venomous termination of her own. Such metaphorical patternings are simple substitution and reversal, like joy in place of dread in “Vacillation” which lauds those who come “Proud, open-eyed and laughing to the tomb.” These are more graspable, more systematic, less chaotic than the confused similarities holding together the close of

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 11 It is not simply a question of history repeating itself. The plays on William and Wilhelm and the equal role given to literature and bare fact make it something else again.

12 “A General Introduction for my Work,” (1937) in W. B. Yeats 1961, pp. 522-23.

stanza I. What one needs to ask is whether gaiety, here in “Lapis Lazuli,” transfigures dread, transcends a fear of death, through such heroic, willed gestures of substitution and reversal.

The hysterical women claim certain knowledge of an imminent, total disaster. Bombs dropped from the heavens. The town beaten flat. In the world of theater (also in the realm of *all the world as stage*),¹³ both characters and the actors who play them (perhaps all of us), perform their tragic play. What is known has merely the appearance of a definitive end.

All men have aimed at, found and lost;
Black out; Heaven blazing into the head:
Tragedy wrought to its uttermost.
Though Hamlet rambles and Lear rages,
And all the drop-scenes drop at once
Upon a hundred thousand stages,
It cannot grow by an inch or an ounce. (lines 18-24)

“The great stage curtain [is] about to drop.” (line 13) “Black out” (line 19): it returns King Billy’s “bomb-balls” to mind (line 7). “Black out” is at once a theatrical term for extinguishing the stage lights,¹⁴ a maneuver to curtain off the city in times of enemy air raids, as well as utter loss of consciousness, the bombs from “Heaven blazing into the head”: culmination of and escape from the bombing conflated. Tragedy is wrought to its uttermost, but it is wrought rather than complete.

Knowledge, no longer the certainty of an imminent end (line 4), becomes the common knowledge of actors, as well as the figures the actors play. (They *know*, as does just about anyone, “that Hamlet and Lear are gay.”). Gaiety here, then, as an instrumental force, has the power to utterly transform the dread implicit in tragedy.

The potential fall of the “great stage curtain,” unlike that of bombs that fall from Heaven, can be upended by the thought of a less drastic version of the same: “all the drop-scenes drop[ping] at once / Upon a hundred thousand stages” (lines 22-23). Yeats, man of the theater, substitutes drop-scenes dropping for the “great stage curtain” which marks the end of the play. Drop scenes produce no end and bring about no black out. On them, painted scenes are lowered to delay the action, temporarily. No destructive bomb obliterating and culminating, they signal a disruption in a play that is yet to continue. Actors and painted stage had all of Yeats’s love and not the tragic end they might seem to speak of. Hamlet may ramble and Lear may rage, but their lines maintain an unbroken surface, lines that the actors, if worthy of their parts, lines that

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13This is strongly suggested by earlier versions of the stanza. See Stallworthy 1969, p. 48.

14This has been noted by a number of Yeats’s readers. See McCormack 2013, p. 8.

the characters, if worthy of their parts, do not break up. They may speak of death but in their gaiety they do not perform or succumb to its rupture.

The theater of “Lapis Lazuli” shifts to the stage of world history where other draperies will rise.

On their own feet they came, or on shipboard,
Camel-back, horse-back, ass-back mule-back,
Old civilisations put to the sword.

Then they and their wisdom went to rack: (lines 25-28)

At the close of stanza 1 historical events and their poetical reenactments were not quite beaten flat but scrambled. Here in stanza 3 the eras of history move forward to the clip-clop of beasts of burden. Each civilization has its place in the progression. Each replaces and destroys its predecessor. Art is exemplified in the handiwork of the ancient Greek sculptor Callimachus.¹⁵

No handiwork of Callimachus
Who handled marble as if it were bronze,
Made draperies that seemed to rise
When sea-wind swept the corner, stands;
His long lamp-chimney shaped like the stem
Of a slender palm, stood but a day;
All things fall and are built again
And those that build them again are gay. (lines 29-36)

However masterful such achievements might appear, they come to a dead end in the abrupt and isolated verb “stands”: which, marks, of course, a previous fall. Fall is as certain here as the gaiety of building anew.

A carefully constructed counterpart to Callimachus’s art follows: the lapis lazuli that celebrates Yeats’s seventieth birthday. The handiwork of Callimachus is evidence of hard-won control over natural stone (he “handled marble as if it were bronze” [line 30]). So realistic were his celebrated draperies, they seemed responsive to the sea-wind sweeping by his marble artistry. Mimetic triumph.

The scene on Yeats’s lapis, as well as the scene in Yeats’s “Lapis Lazuli,” stone of the East, they too present themselves as copies of a world exterior to art. But the poem will offer us a narrative tale with many more wrinkles, many more dents, than Callimachus’s creations in marble. The designation “symbol” alters the force and intent of this particular carving, wresting it from replication to a traditional and agreed upon signification.

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15 O’Donnell reminds us that Yeats had spoken of Callimachus as half-Asian and McCornack reiterates that. O’Donnell 1982, p. 359. But here in “Lapis Lazuli” there is a stark differentiation between Callimachus and the Chinese artist whose work will follow.

Two Chinamen, behind them a third,
Are carved in Lapis Lazuli,
Over them flies a long-legged bird
A symbol of longevity;
The third, doubtless a serving-man,
Carries a musical instrument. (lines 37-42)

We are free of the impending threat of death, those falls in the opening stanzas: of bombs (stanza 1), of theatrical curtains (stanza 2), of the gravitational pull into disintegration over time (stanza 3). As we arrive at the poem's titular concern (lines 37ff) longevity, awkwardly forced to rhyme with "lapis lazuli," sets the mood.

The scene flies in the face of Yeats's initial description of the actual lapis lazuli that Harry Clifton had sent. Writing to his friend Dorothy Wellesley:

... someone has sent me a present of a great piece carved by some Chinese sculptor into the semblance of a mountain with temple, trees, paths and an ascetic and pupil about to climb the mountain. Ascetic, pupil, hard stone, eternal theme of the sensual east. The heroic cry in the midst of despair. But no, I am wrong, the east has its solutions always and therefore knows nothing of tragedy.¹⁶

The imprecise details of the letter are corrected in the poem Yeats was yet to write.¹⁷ Ascetic and pupil of the letter will in the poem become three: "Two Chinamen, behind them a third . . . doubtless a serving-man." A half-way house will displace the "temple." Yeats's initial take describes the stone and, most importantly, prepares us for the closing lines.

No artist's name is affixed to the carved stone. Still, the letter gives all we need concerning the Chinese sculptor. Unlike Callimachus whose name is well known, whose dates and works might be approximated in the Western calendar, "some Chinese sculptor" – which is to say no one in particular – might claim the lapis as their handiwork.

And yet, Yeats does in a sense put a name to the author of this lapis carving: "discoloration," accident, "crack," "dent." One might be tempted to call it time, as Yeats seemed to suggest in stanza 3, the progression of time which brought all things down in the West, even those fashioned of marble. Or, better yet, the force of nature, like the sea-wind that swept by the long lamp-chimney. But the artist of this artifact from the East might yet be more elusive.

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¹⁶Yeats 1954, p. 837

¹⁷ See McCormack's essay on this transformation of the letter's details into the poem's content. The essay brings much new material to the understanding of "Lapis Lazuli," addressing as she does Chinese iconography, tradition, and cultural assumptions. McCormack 2013, pp. 5-6

Every discoloration of the stone,
Every accidental crack or dent
Seems a water-course or an avalanche,
Or lofty slope where it still snows
Though doubtless plum or cherry-branch
Sweetens the little half-way house
Those Chinamen climb towards, and I
Delight to imagine them seated there; (lines 43-50)

Work of “some” unnamed sculptor, it is, however, not simply work of the hand (“handiwork”). “Discoloration,” “crack or dent”: every instance of them, creates an accidental landscape of chance and conjecture, perhaps even of imagination. If the water-course sends us from above to below, and the avalanche suggests a more violent version of the same, the lofty slope carries us gently up to where it “still snows,” where the avalanche’s beginnings remain benign. Downward thrust or upward lift? Who is to say? Who is to fix the object, much less what it seems to depict? Unlike the symbolically determined signifying space reserved for the long-legged bird (line 39), this work, it now turns out, is potentially dented or cracked into being and into signifying--with what result one cannot say for sure.

Yeats will “delight to imagine [the figures] seated there” (line 50), floating “half-way” - in the uncertainties of the up and the down. “Lapis Lazuli” parts way, yet again, with Harry Clifton’s stone. It creates what is not there in Yeats’s first take of the stone. To the letter to Dorothy Wellesley the poet adds: not just the additional figure of stanza IV, the “third” who carries a musical instrument, but also, first, that “plum or cherry-branch” that sweetens the half-way house, and then the imagination that delights them into being. It places them half-way up, neither here nor there, between the ground of sage beginnings and the uncertain crest of that “semblance of a mountain” (Letter to Dorothy Wellesley).

The “Chinamen” on Clifton’s gift climb towards (lines 48-49) a half-way house, but the next lines find the journey already at an end, tranquility found. “I / delight to imagine them seated there” (lines 49-50): and we think, we sense, the new-found constancy of that completed ascent. We feel almost certain in the relation of the poet and “there.” We would, were it not for the lack of a period one might expect to find, at the close of line 50.

What then of this “there” voiced at the end of line 50 and repeated at the beginning of line 51, as though to clarify. The repetition suggests for a brief scan of the reader’s eye that they have reached their destination and that we might expect a further elaboration of their new-found repose. They, so the poet imagines, are “seated there; / There, on the mountain . . .” (lines 50-51). A bit like a drop-scene dropping, the repetition hints that there is, inevitably, more to come. Perhaps this is why the lines of poetry float so freely, with such uncertainty.

and I
 Delight to imagine them seated there;
 There, on the mountain and the sky,
 On all the tragic scene they stare.
 One asks for mournful melodies;
 Accomplished fingers begin to play,
 Their eyes mid many wrinkles, their eyes,
 Their ancient, glittering eyes are gay. (lines 49-56)

“Doubtless” (line 41), “doubtless” (line 47), “Every” (line 43), “Every” (line 44): Yeats has played with repetitions suggesting certainty. But “there; / There” and “on... / On” (lines 50-52) are another matter. Inevitably, we are compelled to read them as cracks and dents, the apparent accidents of repeated terms that do not hold a fixed place. “There” and “on” bid us with each appearance, with each step forward of our eyes, then, to read as we might, but then to shuffle forth and back among other, disconcerting possibilities as we attempt to progress.

“And I / Delight to imagine them seated there; / There, on . . .”: with the repetition of “there,” with the introduction of the adverb “on,” are we about to discover more about the place they have come to, how they are seated, on what, at the half-way house? But it is not easy to carry over our expectation from “seated there” (line 50) to the “There, on” of line 51. If we can draw on the term’s consistency, then they are seated “there / There on the mountain and the sky.” (lines 50-51) How could the outcome of the climb find them so unseated, tossed floating between the stony mountain beneath them and the sky?

Of course, one needs only to slip down the lines (pretending they are unbroken by punctuation, line breaks, unsettling logic) and then make one’s way back up to find a syntax which makes more sense. Much poetry demands no less of us. The “there,” of course, can be read as *while there*, *being there*: while seated there, they stare on the mountain and the sky (which is to say, for reasons we have yet to contemplate, also “On all the tragic scene.” [line 52]) Or, the second “There” (line 51) can abruptly shift us away from the half-way house as it points to what they stare at: mountain and sky. Difficult to say how the mountain on which they are seated got suddenly shifted over there. “There” in line 50 is a calm place reached through an act of imagination. “There” at the outset of line 51, then, would flicker between that previous sense of stillness and a deictic wrenching to the horizon of their gaze.

The mountain and the sky – perhaps, after all, they are the key: what takes all the poet’s love – are stone and heaven. Not the marble stone of Callimachus, not the “Heaven” blazing into the head of line 19. They stare on the mountain and the sky, stone and blue sky: lapis (stone) lazuli (sky-blue).

“Lapis Lazuli.” The material of Harry Clifton’s gift,¹⁸ and also, in a sense, title of the poem we have been reading – created by intentional carving (line 38), or accident (line 44), or poetic imagination (line 50), or readerly interpretation (lines 45-47), the language object of Yeats’s creation, “Lapis Lazuli.” Every step of the readings, a glittering possibility that flickers in the interrelations of phrases and words – there – on the mountain, “on the semblance of a mountain” – there on the mountain and the sky – that is to say, there on all the tragic scene (seen). How could we have overlooked it – mountain and sky?

There is nothing tragic in the scene. Yeats has blended in the tragedy of stanza II with its theatrical scene, but there is nothing tragic in the seen – just mountain and sky – no bomb-balls crossing into London or crossing over the River Boyne, not even stage curtains falling or drop scenes, no works of art failing because falling (as in stanza 3), since fall and crack and dent might well be the force that created the scene offered us here.

And yet, this is not without relationship to what preceded it. The stanzas, as one reads them, have a logic of progression: the present threat of all out destruction through bombing, the ultimate fall of all civilizations and artworks, interrupted by the poetry of the Shakespearian stage with its claims to “Gaiety transfiguring all that dread.” (line 17) Still, already there, there in both the second and third stanzas, the hardly perceptible echo chamber of “there” and “their” had begun. Small cracks, tiny accidents in the visual and aural landscape of the texts one reads past: There/their: in the early stanzas as one reads they slide by unnoticed, eight times, and acquire particular significance only retrospectively, in the closing lines of “Lapis Lazuli,” from which it is as though we find ourselves standing on thin ice, with crackling connections now sending us back to the earlier lines. Yeats rewrote his early drafts of “Lapis Lazuli.” “There” and “their” are newly inserted no less than seven out of the eight times in stanzas 2 and 3 where they had not appeared originally. They break up the lines. For if “there,” “there,” “their,” “their,” and “their” somewhat overwhelm the closing lines of “Lapis Lazuli” (lines 50-56), breaking up its lines with their odd echo on the triumphant path to gaiety, they have their place as well earlier in the poem: eight times.¹⁹

There/their: in their thirteen emanations they might be compared to small chips of stone in a kaleidoscope, shapeless until, under the gaze of an ordering observer, and with the aid of mirroring, they seem to form patterns, however accidental and momentary. It tells us much

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18 The material of the artwork takes Yeats’s love and our attention, just like the players and painted stage in *On Baile’s Strand*.

19 O’Donnell has a stunning sentence that appears suddenly with no preface to it and with no further development: “What ‘Lapis Lazuli’ accomplishes is done with words, rhythms, and repetition rather than with logical presentation of ideas.” O’Donnell 1982, p. 366.

about the stage scene (stanza 2): the possibility of pointing, of situating, of recognizing (“There struts Hamlet, there is Lear”),²⁰ the apparently unproblematic relation of observer to the object of observation, relation of audience to a stage (over there), the sense of easily recognized individual consciousness or personhood (their)—only slightly disturbed in the uncertain distinction between actors and characters in “their tragic play.”

By the end of the poem, all this becomes radical dispersal of the deictic, questioning the gesture of pointing directly rather than an imposed kaleidoscopic organization. We cannot settle with known certainty on how or where to turn our attention. The scatter shot of the final stanza moves from half-way house to mountain and then to mountain and sky: to lapis lazuli. It may not be sensed on reading stanza 2 until one is sent back, nevertheless, to a newly understood there/their that was, as it turns out, already at play. If we learn anything in stanza 5, it is the uncertainty of any “there” presented to us as readers or observers, an uncertainty that just might, accidentally, break out and break up, through the aftershocks of an almost imperceptible earthquake, muted explosion of the relatively celebratory simplicity of “there” in stanza 2. A “there” that does not hold still, that connects back, reflects back on the material and linguistic materiality of which the artwork, poem, and thought are made up. Thus the disembodied eyes, “Their eyes,” that come to us three times in the closing lines, accompanied by “accomplished fingers”: they may cheer us but they do not build anything anew (line 36). Their gaiety, rather, is about no thing of which we can be certain. This is no transfiguration of negative dread of death to joyous liberation: the East, as Yeats wrote to Wellesley, knows nothing of tragedy. Accidental kaleidoscopic vision? Effect of an imperceptible explosion? Earthquake? Who is to say? “All metaphor” as Yeats put it two years later in “High Talk.”

Science (Theater): Michael Frayn: *Copenhagen*

1941: It is just five years after Yeats completed “Lapis Lazuli,” as Michael Frayn’s *Copenhagen*²¹ begins. Again, a question of beating cities flat, of eradicating the enemy state, of what it means to cross the border between nations. Again, an impending apocalypse, though certainly not in the etymological sense (lifting of the veil, disclosure of knowledge). No laughing matter. It is more than a citational frolic with King Billy’s bomb balls. No gaiety of a historico-poetical metaphorical jumble. No metaphors for war here. This time it is for real. We understand the dates in question--1941, 1947, 1924-1927: Werner Heisenberg’s visit to Niels Bohr, his return six years later, the three years Heisenberg spent with

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20 That deictic gesture is also underscored by “that” in line 11: “That’s Ophelia, that Cordelia.”

21 Frayn 1998

Bohr as a very young man along with the extraordinary transformation of atomic physics that their collaboration brought about, and occasionally something less definite, in between. Still, it is not always easy to understand what we are observing. Frayn's characters, Niels Bohr and Werner Heisenberg, two of the 20th century's most renowned physicists, should be able to set the story straight. They share the stage with Bohr's wife, Margrethe, who knows the issues well, personal as well as scientific, knows them at certain moments, or from a certain point of view, better than her male counterparts. Her role is often to do just that.

Bohr and Heisenberg met in 1924: mentor and pupil, father and son, spiritually, and yet Dane and German. They work intensively together for three years when Heisenberg leaves to accept a chair at Leipzig. Three years, give or take, in which Heisenberg and Bohr develop the whole Copenhagen Interpretation (61) of atomic physics.-

In 1941, when Heisenberg returns to Copenhagen, the questions of physics are inseparable from politics, from the border dividing their two countries, between occupiers and occupied, and inseparable from the most extreme questions of ethical responsibility. As in Yeats's poem ever a call to vigilance about the medium in which thought takes place, which is to say, here, the language of science.

But, also, theater: the stage, which plays such a prominent role in "Lapis Lazuli," returns, because *Copenhagen* is not, of course, strictly speaking, science, but a play, even if it sometimes reads like a series of science lectures, with a great deal of other material strewn in between. It has much to tell about science, what it is, or at least, what kind of validity we might expect from atomic physics, what we cannot. It is the name we give to another, this time non-philosophical and non-poetical mode of truth. Explanations of fission in relation to the atomic bombs of World War II, wave mechanics and matrix mechanics (62-66), the uncertainty principle (66ff), complementarity, strung together in the guise of a play, with its assumption of a traditional, though, in the case of this unusual theater piece, uneasy, relation of observer or audience to the stage. Here too, then, as in Yeats, the concept of "there" could easily be underestimated. All this taking place in a theater work about the uncertainty principle (among many other things) in which the relationship of observer to observed, of course, cannot be taken for granted.

The bombs return, and with them various explosions, both historical and interpersonal, and not one of them is gay—and with them the dislocations of usually unquestioned spatial and temporal relations, and, once again, the end-times of "our ruined and dishonoured and beloved world" (94). Yet despite Frayn's very earnest, elaborately documented attempt at rigorous science and plausible history,²² we never forget it is

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22 Frayn attaches a very lengthy postscript to his play in which he goes over historical issues, scientific issues, and the varying opinions on what might have been said in 1941.

a work of fiction, upon a stage. This is a stage on which the drop scenes fall so fast and furious, a play in which what we are to see or read is so frenzied, we are not always sure what year we are in or what exactly we are observing, there before our eyes.²³ Uncertainty with respect to time and place is there from the very beginning, for even before the action is situated in 1941 we read:

Margrethe. But why?

Bohr. You're still thinking about it?

Margrethe. Why did he come to Copenhagen?

Bohr. Does it matter, my love, now we're all three of us dead and gone? (3)

To which Heisenberg echoes:

Heisenberg. Now we're all dead and gone, yes, and there are only two things the world remembers about me. One is the uncertainty principle, and the other is my mysterious visit to Niels Bohr in Copenhagen in 1941. Everyone understands uncertainty. Or thinks he does. No one understands my trip to Copenhagen. (4)

No one understands Heisenberg's trip to Copenhagen. Not Bohr, not Margrethe, not even Heisenberg, and certainly not Frayn, if by understanding we mean settling on one fixed view of it. The entire play, it turns out, poses as "a series of approximations." (72). It is a thought experiment²⁴ about a brief exchange of words in 1941 that might "just possibly" (94) have significantly altered the horrific closing chapter of the second world war. As Heisenberg puts it on approaching the Bohrs' front door "of all the 2,000 million people in this world, I'm the one who's been charged with this impossible responsibility." (12-13) What he has to say to Bohr will potentially have earth-shattering repercussions.

Heisenberg has come to Copenhagen to give a lecture on astrophysics. He carries it in his bag. But the more puzzling text he came to deliver is in his head. (6) Whatever it is he has come to say: "the more I've explained [it], the deeper the uncertainty has become." (4) Heisenberg speaks from the ghost time that engulfs the story, time of

²³This is partially due to the complexity of what David Barnett, in a highly intelligent essay, calls "the problematic time-levels of the play." Barnett 2005, pp.141-43

²⁴ See Victoria Stewart's excellent essay: Stewart 1999, p. 303

the dead, who speak sometimes to, but also past, one another. Now they hear what the others are saying, now they circulate in their own individual orbits, so that even when responding to, or echoing them, they might remain only half aware of the voices that share the stage.

Much of the play will be couched by the characters as a series of possible events. They call them at intermittent points: “drafts,” like a scientific paper in search of a language that is just right. The script implicitly claims to represent plausible, if not the actual events of the enigmatic collision of these two bodies, Bohr and Heisenberg, in September 1941. Three times? Four times? Or is it five? Three times, at least three times, given the guideposts of almost the same grouping of words: “Heisenberg. I crunch over the familiar gravel to the Bohrs’ front door, and tug at the familiar bell-pull. . . .”

Followed by:

Bohr. My dear Heisenberg!

Heisenberg. My dear Bohr!

Bohr. Come in, come in . . . (12, 53-54, 86)

And here begins the flood of all the non-scientific, nevertheless, perhaps, historically responsible language it’s so difficult to account for: the intense love between the two men. Heisenberg was “one of the family” (4), Bohr tells us. “Margrethe. Niels loved him, he was a father to him.” (16) In the realm of modern atomic physics Bohr was “the father of us all” (5), Heisenberg declares. Father and son, then, a relation which will soon fall in with the tragic deaths of two of the Bohrs’ children.

Alongside this, are descriptions of the strange energy in the years of shared scientific creativity. The one constant in it all is the combative nature of the relationships. Heisenberg remembers Bohr’s generosity, extending a hand to the German scientific community after the First World War. Bohr remembers holding out his hand and that Heisenberg “bit it” (22). It was 1922, Göttingen, their first encounter at a lecture festival in honor of Bohr. Heisenberg stood up at one of those lectures and publicly laid into Bohr because his “mathematics [were] wrong.” (22)

Bohr: “You were always so combative!” (23) Heisenberg: “You were insanely competitive!” (23) And what follows now are the stand-ins for those scientific wars of words, tales of table-tennis and of poker (23), also chess. But above all skiing which will be a metaphor for scientific modes of thinking throughout the play, the cautiousness of Bohr’s choices, the great speed of Heisenberg’s paths in which decisions seem made *for* him, not by him.

Heisenberg. Your ski-ing was like your science. What were you waiting for? . . .

Bohr. At least I knew where I was. At the speed you were going you

were up against the uncertainty relationship. If you knew where you were when you were down you didn't know how fast you'd got there. If you knew how fast you'd been going you didn't know you were down. (24)

As we near the close of the first staged encounter, silence takes over. But we hear their voiced thoughts which in the course of the play return again and again to the accident that took Christian's life, the first born, the eldest son.

Heisenberg. Those short moments on the boat, when the tiller slams over in the heavy sea, and Christian is falling. . . . (29)

Bohr. If I hadn't let him take the helm . . . (30)

What law of physics about the collision of two bodies makes this an inevitability? Bohr had handed his son the helm: first of many errors in relation to questions of control as the scenes rush by.

Bohr. Those endless moments in the water.

Heisenberg. When he's struggling towards the lifebuoy.

Bohr. So near to touching it.

Margrethe. I'm at Tisvilde. . . . There's Niels in the doorway, silently watching me. He turns his head away, and I know at once what's happened.

Bohr. So near, so near! So slight a thing!

Heisenberg. Again and again the tiller slams over. (30)

At a loss as to how to communicate in that meeting of 1941, Bohr suggests one of their famous walks, away from all observers. Everything they say to one another might be observed: by the Gestapo, the Danes, us too. A precarious time for language. Bohr promises his wife to speak of physics and not of politics. "Heisenberg. The two are sometimes painfully difficult to keep apart." (18) Inside, they knew, the "walls had ears." (31) Outside meant away from the secret microphones, away from the listening witness of Margrethe. "If they're walking they're talking." (31) Uncharacteristically, they are back in a flash. "Margrethe. Ten minutes after they set out . . . they're back! . . . there's Niels in the doorway." (31) Niels in the doorway, as on the day that the tiller slammed Christian into the sea. Bohr is about to lose a son, yet again.

"Heisenberg wants to say goodbye" (31), Bohr announces. "What did he say?" (32), Margrethe asks. "Nothing." Bohr responds. "I don't know. I was too angry to take it in." (33) Surely, most of the audience does not take it in. We wait a considerable time to hear the words in Heisenberg's head in 1941. But Bohr had already registered something, what he at least thought he heard: "He's not right, though. How can he

be right? John Wheeler and I . . .” (32) John Wheeler and I? Bohr had from the beginning dismissed Margrethe’s suggestion that the Germans might be developing a weapon based on nuclear fission. (11) “One of the implications of [Wheeler and Bohr’s] paper is that there’s no way in the foreseeable future in which fission can be used to produce any kind of weapon.” (12) If the audience had been able to take that in, it could have rightly surmised that Bohr heard Heisenberg to suggest that a bomb was nevertheless possible. He had and he hadn’t.

In 1947 Heisenberg returned to Copenhagen seeking food parcels for his starving family and hoping to agree about what he and Bohr had said to each other in 1941. They couldn’t even agree where they had walked that night. Where Heisenberg remembers the fall leaves of September under street lamps, Bohr remembers the October drift of papers on his desk under the reading lamp.

Margrethe. So what was this mysterious thing you said?
Heisenberg. There’s no mystery about it. . . . I remember it absolutely clearly, because my life was at stake, and I chose my words very carefully. I simply asked you if as a physicist one had the moral right to work on the practical exploitation of atomic energy. (36)

Bohr doesn’t remember the carefully honed sentence, but he is again, as in 1941, horrified, certain of what it means: that Heisenberg was working on the bomb. While Heisenberg had said that he “now knew that [uranium fission] could be” (37) “used for the construction of weapons” (36), he himself had not, as he tells it, been working on the bomb but on a reactor, to produce electricity, something he could not say outright for fear it might get back to the Nazis.²⁵

Everything revolves around the fact that there were two ways to make atomic bombs. Bohr assumes a bomb using U-235 separated out with great difficulty from natural uranium, like the one eventually dropped on Hiroshima. In 1941 it seemed an impossibility because he had concluded that it would take 26,000 years to produce “even one gram of U-235.” (34) He was wrong. The fact is that Frayn’s tale of scientific endeavor is filled with miscalculations, overestimations, underestimations, each with implications for political advantage.

But Heisenberg had not come to say that he could separate out enough uranium 235. He had in mind, rather, the 1939 prediction of

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²⁵ In 2002 Frayn returns to *Copenhagen*, once again to respond to criticisms of his play. These criticisms, inevitably, almost always have to do with perceived discrepancies between the play and the historical truth, despite Frayn’s clear declarations about what his emphatically fictional and hypothetical piece might and might not accomplish. Still, the most striking revelation in the piece speaks of a letter Bohr drafted and redrafted over the last years of his life, but never sent. Bohr recalls Heisenberg giving him the impression of having led work to develop atomic weapons over the past two years. Frayn, of course, regrets not having had access to the letter earlier. Frayn 2002, p. 7

Bohr: that the U-238 in natural uranium would absorb the fast neutrons and would be transformed into Neptunium which in turn would decay and form the new element Plutonium which was just as fissile (37). (Plutonium was used in the Nagasaki bomb.) In short: "Heisenberg. If we could build a reactor we could build bombs. That's what had brought me to Copenhagen. But none of this could I say." (37) In 1941 Bohr had flown off, assuming Heisenberg was considering building bombs for Hitler. On their second meeting in Copenhagen, 1947, Bohr comes around. He calls on them to "start all over again from the beginning," and in an echo chamber of the phrase "plain language" (38) they set out to discover what had actually happened in 1941.

Heisenberg begs Bohr "to listen carefully . . . instead of running off down the street like a madman." (40)

Heisenberg. My one hope is to remain in control. . . .

Heisenberg. [S]ooner or later governments will have to turn to scientists and ask . . . whether there's any hope of producing the weapons in time. . . . So they will have to come to you and me. . . . In the end the decision will be in our hands. . . . That's what I want to tell you. . . . [I]f I manage to remain in control of our programme / I will have to decide what to tell them! (40-41)

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Not collision, rather cohesion, is what Heisenberg desperately desires, between the two who meet in Copenhagen, and cohesion among the various scientists, this is what Heisenberg claims he was calling for: scientists on both sides in solidarity, to avoid the otherwise inevitable production of the bomb. This Bohr should have told the Allies in 1941. The premise is choice, decision, control.

Heisenberg. That the choice is in our hands! In mine – in Oppenheimer's! That if I can tell [the Nazis] the simple truth when they ask me, the simple discouraging truth, so can he!

Bohr. This is what you want from me? Not to tell you what the Americans are doing but to stop them? (44)

Bohr finds the proposal most "interesting," his code word for nonsense. "Heisenberg. It's not a plan. It's a hope. Not even a hope. A microscopically fine thread of possibility. A wild improbability. Worth trying, though, Bohr!" (44) Bohr dismisses it as "bold ski-ing," racing down the slopes without regard for where one is going, letting the skiing determine the direction of the skier, anything but a carefully controlled plan.

But here is the complication, or one of many in this play so filled with complications. How to find the proper place for an ethical point of view? As beautiful and utopian as this thread of improbability is, it is intertwined with the reality that if Heisenberg adheres to this, his hope,

which the play suggests he might have done, even without a commitment from the other side, if he chooses what is obviously the ethical path from a universal prospective, it is Germany that will perhaps be bombed. “We have one set of obligations to the world in general, and we have other sets, never to be reconciled, to our fellow-countrymen . . . our family, to our children.” (77-78) So even though Germany is “in the wrong”:

Heisenberg. Germany is where I was born. Germany is where I became what I am. Germany is all the faces of my childhood, all the hands that picked me up when I fell, all the voices that encouraged me and set me on my way, all the hearts that speak to my heart. Germany is my widowed mother and my impossible brother. Germany is my wife. Germany is our children. I have to know what I’m deciding for them! (42)

How can one not feel compassion for that impossible choice between generalized righteousness and what, after all, is nationalism? Frayn has written the most impassioned and moving lines of the play for the German.²⁶ Perhaps this simply means that Heisenberg is the most eloquent of the three, or is it that such ethical decisions are nigh impossible?

Without control over the German atomic energy program, however, this whisper of a plan is not possible. No decision will be in his hands. Without control Heisenberg cannot decide what will be done, what the Nazis will learn, what will and will not be accomplished. (40-41) And if he does all that he claims, if he manages not to tell Speer that the reactor will produce plutonium and thus might be a crucial step on the way to making a bomb, if he is able to “continue with the reactor” (49), if he manages on purpose to limit his support to only “barely enough money to keep the reactor” program going (49), then that was the end of the German atomic bomb. Such a perilous bit of tight-rope walking.

This necessity of control, without which no moral choice appears effective, is thus established, but another sets in, in which Heisenberg utterly fails. If the program was under his control the reactor was not. “You couldn’t even keep the reactor under your control. The reactor,” says Bohr, “was going to kill you.” (49) It had no cadmium rods and the reaction would not, as Heisenberg believed, have been self-limiting: had it gone critical, it would have melted down (50) and they would “all have died of radiation sickness.” (51) “Nothing was under anyone’s control . . .!” (51) And now, here it comes: “Heisenberg. Two more weeks, two more blocks of uranium, and it would have been German physics that achieved the

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26They are accompanied by descriptions of Heisenberg walking through puddles of molten phosphorous and people trapped in various stages of burning to death after a Berlin bombing, “as if the streets have been fouled by the hounds of hell.” Frayn 1998, p.43

world's first self-sustaining chain reaction." (51) Nationalism, after all: and scientific failure, if the measure of science is less its content than the combative race to be first.

They all fall into silence, and when silence falls upon them "once again the tiller slams over, and Christian is falling" (53), even though it is really Heisenberg who is falling, the one son ever a figure for the other.²⁷ Unlucky strike.

So why did Heisenberg come? Bohr would never have told him what the Allies were up to. He would have returned to work on the reactor whatever transpired. "Bohr. Tell us once again. Another draft of the paper. And this time we shall get it right. This time we shall understand." (53) This new draft, however, is not strictly about 1941. Heisenberg crunches over the familiar gravel as he did in '41, and tugs at the familiar bell-pull. He senses the absurd and horrible importance of someone bearing bad news (53), that he had indeed "discovered a way you can use theoretical physics to kill people." (10). But there is also "Something good. Something bright and eager" (53). My dear Heisenberg! My dear Bohr! Come in, come in. The door opens and we are swept back to the twenties. Christian is still alive. What this draft of the paper reviews is the years of friendship and scientific collaboration (is it cohesion, is it collision?), explanations of their research, and also reflections by each of the three about the general implications of their work. They are following "the threads right back to the beginning of the maze" (56), as Bohr puts it.

This often entails using human beings as metaphors for atomic- and other particles and vice versa.²⁸ The linguistic gesture is offered, no doubt, as "plain language" so that someone like Margrethe (and the audience) might follow, but it also has other implications. Heisenberg had moved into the private office next to Bohr's "like the electron on the inmost orbit around the nucleus" (58), "with other electrons on the outer orbits around [them] all over Europe. . . . Max Born and Pascual Jordan" (59), for example. We progress to the narrative of "two . . . Dutchmen [who] go back to a ridiculous idea that electrons can spin in different ways" (59): ([Human] electrons now thinking through the concept that electrons can spin.) And what everyone wishes to know is how Bohr, the papal figure of their religion, will reflect on this outrageous idea. He steps onto a train. On the station platforms, along the way to Leiden and back, other scientists (like photons, it will turn out) check in with Bohr to find out how his ideas on spin have developed along the route (60). Pauli and Stern in Hamburg: Spin, Bohr says, is "interesting," which is to say nonsense. Einstein in

27 See Soto-Morettini's thoughtful commentary on the problematic of ethical certainty. Soto-Morettini 2002, 76-77.

28 See Victoria Stewart who raises similar issues: "*Copenhagen* is structured around the interchange between metaphor used to explain science and science itself used as a metaphor to explain action." Stewart 1999, p. 302

Leiden: his relativistic analysis resolves Bohr's doubts who now reverses his position. Heisenberg and Jordan in Göttingen, same question; Pauli again, but this time in Berlin, each hoping to hit upon any changes in Bohr's thinking along his path. The collision with Einstein has certainly brought about a deflection from Bohr's initial mode of thinking on spin. A few minutes later the theater audience is finally in on the joke when the three speak of the cloud chamber (65) and of the uncertainty principle. What we have been tracing is not a path, not a track, not a trajectory (65). It is a question, rather, of intermittent moments of contact with Bohr that each offer just a glimpse (66).

"If you detach an electron from an atom, and send it through a cloud chamber" (65), one seems to see a track. "And it's a scandal" (65), Heisenberg says, because, walking around Faelled Park he had realized that what one really observes is, rather, like a telescope in Norway catching sight of him as he passes in and out of darkness: first, under some streetlamps, then falling back into obscurity, and now coming into the sphere of a new light source, say the lamp-post near the bandstand. "Heisenberg. And that's what we see in the cloud chamber. Not a continuous track, but a series of glimpses – a series of collisions between the passing electron and various molecules of water vapour. . . ." (66-67) We don't even see the collision but the droplets condensing around them (67). This in turn is like Bohr's "great papal progress to Leiden and back in 1925." (67) First the metaphor of electrons to stand in for human life and then the metaphor of human figures to stand in for electrons.²⁹

In another rhetorical adventure, wishing to speak of the recoil of an electron inside the atom when it meets a photon, Heisenberg proposes: "Copenhagen is an atom. Margrethe is its nucleus. . . . Now, Bohr's an electron. He's wandering around the city somewhere in the darkness. . . . I'm a photon. A quantum of light." (68-69) And when the light particle collides with the electron he slows it down, he deflects it. The electron is deflected by the light particle that might have shown us where it is. Uncertainty.

Uncertainty not only with respect to the particles within the scientific tale, uncertainty also about the status of the scientific explanation. And let's set aside the temptation of the audience (a temptation Frayn encourages) to imagine that quantum physics might claim to speak of human behavior. Once that narrative is in "plain language" there is a dizzying relation between humans and scientific objects, electrons, photons. "Plain language" entails a disconnect between language and what it refers to. Nothing shows this better than the intricate usage of metaphors mixing particles and humans.

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²⁹ In a highly intelligent and rich article, David Barnett is particularly astute on this issue of "physics-based metaphors" used by the characters. Barnett 2005, p. 143

In order to explain science one has a choice of two languages. Over and over this is the argument between Heisenberg and Bohr.

Bohr. As long as the mathematics worked out you were satisfied. . . . But the question always, What does the mathematics mean, in plain language? What are the philosophical implications? (25)

For Heisenberg, mathematical language cannot be adequately transformed into “plain language.” He describes the moment when he “got” uncertainty. “I’ve got it. I seem to be looking through the surface of atomic phenomena into a strangely beautiful interior world. A world of pure mathematical structures.” (62) This is seeing of another order. No uncertainty. No disconnect between the mathematical language that describes it and the object observed.

Heisenberg. What something means is what it means in mathematics.

Bohr. You think that so long as the mathematics works out, the sense doesn't matter.

Heisenberg. Mathematics *is* sense! That's what sense is! (65)

Copenhagen, of course, is written in plain language—difficult but plain language. And in the course of its fiction, especially in this, the third draft, Frayn's characters reflect on what Bohr has called the “philosophical implications” (25) of their scientific endeavors.

Heisenberg has shown the world a strange truth – that we can never know everything about the location of a particle, “because we can't observe it without introducing some new element into the situation,” say, “a piece of light.” (67) He speaks of shattering the objective universe around us because “you have no absolutely determinate situation in the world, which among other things lays waste to the idea of causality, the whole foundation of science.” (68) Bohr's Complementarity, he points out, mitigates that situation.

In fact, Bohr sees a remarkably sanguine side of it all: “We put man back at the centre of the universe.” (71) Starting anew with Einstein, measurement becomes a human act (Bohr again), “carried out . . . from the one particular viewpoint of a possible observer.” (71) And then came the Copenhagen years – when “we discover that there is no precisely determinable objective universe” (71-72), yes, but that the universe as a series of approximations comes to us “Only through the understanding lodged inside the human head.” (72)

Does this viewpoint of understanding lodged in the human head undo Heisenberg's plain language which excludes us from ever knowing everything about the location of the particles we observe? Does Bohr's rethinking of man's position at the center of the universe invest man

with power and control? And how does it change our understanding when Margrethe pulls us abruptly back to the fact that the “one bit of the universe that [that human head] cannot see” (72) is its self.

Things fall apart more violently when Margrethe insists that “everything *is* personal,” no longer personal in the sense of a disinterested scientific observer, whose mind is the locus of understanding (72), but personal as in “confusion and rage and jealousy and tears and no one knowing what things mean.” (73) Impossible to know from what viewpoint one should be observing. Perhaps, she suggests, it was professional greed, that drove not only Heisenberg but even her dear husband to strategically accept one another’s doctrines (74). Perhaps science, from a certain point of view to which the play repeatedly returns, is, after all, war, as in Heisenberg’s wish to “bomb” Schrödinger in a “war” (73) over wave mechanics.

Bohr calls for one more draft, the fourth (86): the familiar gravel, front door, bell pull. This draft will not last long. Though shorter by far, it is a replay of the initial version, which it cites, touching down on phrases from pages 13, 14, 15, suddenly 30. Intermittent glimpses and not always in order. Frayn’s narrative itself now behaves like photons colliding with electrons of the play’s earlier scene. And how does that resituate the audience observing/reading this? No track, no path. In between we hear the repeated reminders from each of the characters, the insistence that they can see only the others, but not themselves. A badly scratched phonograph record, skipping from topic to topic, with a missing sense of self in each speech. Thus Heisenberg: “Two thousand million people in the world and the one who has to decide their fate is the only one who’s always hidden from me.” (87)

The text brings us finally to the familiar, practiced query: “Does one as a physicist have the moral right . . .” (88), the search for ethics that will once again come to disaster. Margrethe describes the moments. “The flying particle wanders the darkness, no one knows where. . . . The great collision. . . . And even as the moment of collision begins it’s over. . . . Already they’re [Bohr and Heisenberg] flying away from each other into the darkness again.” (88)

And yet, Bohr will propose a thought experiment that might change everything. It is no longer a question of what happened in the past, but a decision, a choice. Surely it seems offered as a ray of hope.

Bohr. Let’s suppose for a moment that I don’t go flying off into the night. Let’s see what happens if instead I remember the paternal role I’m supposed to play. If I stop, and control my anger, and turn to him. (88-89)

How to account for the proposal that he might have controlled his anger, in a play in which “control” has proven so elusive? What if, Bohr

asks, they were to return to the calculation and what if Heisenberg were this time to do the calculation that would make clear that it was just possible, after all, to extract enough U-235 to make a bomb? The thought experiment, however, does not result in a happy ending. This is because Bohr seems to understand it as a necessary corollary, that had Heisenberg calculated, had he realized that a bomb might in fact be made more easily than he had previously dreamed, a “very terrible new world [would begin] to take shape. . .” (89) But why? Why assume that Heisenberg would have used that knowledge to give Hitler the bomb? Nothing in the play made that the necessary or even obvious conclusion of this thought experiment.³⁰ Bohr substitutes paternal love for particle collision, puts it in place of international strife: he wishes to take control instead of behaving like an indifferent, deflected particle, “flying off into the night.” (88-89) How does that bring us to this pessimistic conclusion? Why does imagining the utopian combination of human control and familial love produce the worst outcome possible: a “very terrible new world” (89) placing nuclear bombs in the hands of a homicidal maniac? Laying waste to the idea of causality, which Heisenberg announced as collateral damage of uncertainty, seems to extend to the world of thought.

What has, however, also happened here in this final thought experiment is that Bohr (or Frayn) has switched registers. He wishes to put aside “flying off into the night” (88-89) like a particle. Suddenly Bohr is a human being and one with a familial role, a familial role in the form of love, rather than rage, say, or jealousy (73). The morally laudable choice of love does not align with that choice’s outcome.

In *Copenhagen* we can never be sure how to understand the human. Is it a sub-atomic particle, an electron, a photon, presumably, then, with no will, no control, no capacity for decision? Is it an individual? Is it a self “at the centre of the universe”? (Bohr, 71) and, if so, if “measurement is not an impersonal event [but] a human act” (Bohr, 71) is it in control, able to decide? Is it a locus of violent narcissistic desires and thus combative in scientific research? Is it a member of a family? Is it a friend among friends, a neighbor among neighbors, a citizen of a (warring) country, or a citizen, rather, of the world? And how could those irreconcilable moral obligations that Heisenberg speaks of (77) direct us to any particular one choice among these?

At the close of the play, when they have together sorted out that Heisenberg, in Bohr’s words, “never managed to contribute to the death

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30 It is only in Bohr’s mind and in Bohr’s words that the “terrible new world” takes shape. Several readers have pointed to stage effects in the production of the play that have supported and generalized the voice of a single character into the necessary outcome. Nick Ruddick writes of “the third of only three sound effects in the Broadway production” (Ruddick 2001, p. 425) and he cites Thomas Powers in his May 2000 article in the *New York Review of Books* who speaks of “a roar and rumbling that shakes the gut of every playgoer with stunning intensity.” This is a production choice which transforms the bomb going off in Bohr’s head into an inescapable effect of Heisenberg making the calculation. It is not the foregone conclusion of the thought experiment.

of one single solitary person” (91), he proposes a “quantum ethics” (92) in which there would be a place in heaven for both himself and a fanatical Nazi. Those ethics are embedded in the narrative of a story of Heisenberg’s own telling. The war is over. He makes his way through Germany to his family, on foot, past rubble, past lost and starving others on the road even more desperate than he is. He encounters an SS officer, who, calling him a deserter, reaches for his holster to pull out his gun. But Heisenberg does some fast skiing.

And suddenly I’m thinking very quickly and clearly – it’s like ski-ing, or that night . . . in Faelled Park [when Heisenberg did uncertainty]. What comes into my mind . . . is the pack of American cigarettes I’ve got in my pocket. And already it’s in my hand – I’m holding it out to him. . . . I wait while he stands there looking at it, trying to make it out, trying to think. . . . There are two simple words in large print on the pack: Lucky Strike. He closes the holster, and takes the cigarettes instead. . . . (92-93)

What is the “quantum ethics” that guarantees a place in heaven for the SS officer? Is he really to be forgiven? Or, is this possible only if we judge him “purely on the external effects of [his] actions”?,³¹ the way in which we measure the activity of particles. Or is the critical issue that Heisenberg has managed to thwart the murder almost committed? Would that be because of the physicist’s quick thinking that reaches a controlled, logical, and efficacious decision? Fast skiing, after all, earlier in the play, had always been about “Decisions mak[ing] themselves” (25) when you are coming downhill at great speeds. “The swerve itself [is] the decision.” (26) So isn’t it rather, just as the story tells it, merely a “Lucky Strike.” “Lucky Strike” is, after all, written “in large print.” (93) Not a question of scientific ingenuity, not a matter of loving one’s fellow man, not a matter of control, not a question of general good over nationalism. It’s an ethics of freak chance, the inverse of an efficacious bombing. It’s not an ethics to be proposed as a method – since there is no method. It’s an ethics of blind contingency, which is say, it’s not an ethics.³² Nothing makes this clearer than the return of the tiller slamming over once again just a few lines later. “And over goes the tiller once again. . . . So near, so near! So slight a thing!” (93)

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31 Frayn 2002, p. 4

32 In the name of historical facts, Jonothan Logan (Logan 2000) makes a very convincing case for a far less sympathetic view of Heisenberg than *Copenhagen* might seem to suggest. Historical points taken. Still, the passage about “quantum ethics” and others complicate the theatrical piece, less in the name of history than in the name of literature.

The passage on “quantum ethics,” it should go without saying, gives us no overriding ethics of the play *Copenhagen*. This is theater. It is just “one particular viewpoint of a possible,” in this case ironic, observer/character (71).³³ The play comes to us as a bewildering onslaught of drafts that cannot simply be bundled as different answers to the questions: why did Heisenberg come to Copenhagen and what actually transpired there? They come at us, rather, exploding with a multitude of unsolved problems that make those questions unanswerable. What kind of plain language can we use to speak? What is a human being? Are control and decision possible? Why does an intentionally moral choice not result in a morally satisfying outcome? Is there any correlation between the behavior of atomic particles and human behavior, even though the science of the uncertainty principle is only applicable to the world of atomic particles? And then, there are the far more unfathomable questions that have nothing to do with recuperating that historical past. How is it possible that human intellect is capable of reasoning its way “with such astonishing delicacy and precision into the tiny world of the atom” (76)? And, given that mastery, how could human knowledge develop a force so powerful it can easily destroy the entire world, all the while having no effective knowledge as to how to control it, physically, politically. Where does this leave us? Hard to say. *Copenhagen* suggests we are at once the center and the blind spot of the universe. In the last lines of Frayn’s work Margrethe speaks of our inevitably “ruined and dishonoured and beloved world” (94), to which Heisenberg responds by locating us still “in this most precious meanwhile.” (94)

* * *

As chance would have it, just here, just as I am completing the first draft of my essay in this most precious meanwhile, Niels Bohr and Werner Heisenberg are replaced by two others who are bound to hold our attention. This is the theater of war.

Vladimir Putin, President of Russia, is invading and bombing Ukraine with indiscriminate brutality. Longtime a foreign intelligence officer for the KGB, he is good at plain language and at making things up as he goes along.

Ukraine has a president too, Volodymyr Zelensky. Before his election to office, he played a courageous president of Ukraine on TV, elected by chance. Before that he was a comedian. He is no longer funny, but he is a courageous president of Ukraine.

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33 Reed Way Dasenbrook speaks about this, though not in relation to the quantum elegy passage. He warns of conflating “what the character Heisenberg says in *Copenhagen* with what Frayn intends us to take away from the play. . . . [W]e cannot assume that Heisenberg is Frayn’s spokesman. . . .” It’s an error that some of the more outraged critics of Frayn make. Dasenbrook 2004, p. 222

Western Europe and its allies? They threaten to retaliate with radical financial assaults including the disengagement of Russia from SWIFT: they call this the “nuclear option.”³⁴ I read in wonder that anyone would make such a careless choice of language.

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³⁴ <https://fortune.com/2022/02/24/swift-sanction-russia-invade-ukraine/>

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