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"THREE QUARKS FOR MUSTER MARK":
QUANTUM WORDPLAY AND NUCLEAR DISCOURSE
IN RUSSELL HOBAN'S *RIDDLEY WALKER*

Jeffrey Porter

In *Physics and Philosophy* (1958), Werner Heisenberg raised a deceptively simple question about the role of language in modern science. Heisenberg, one of the founders of quantum theory, asked, How might we understand nuclear physics when we cannot speak about the atom in *ordinary* language? As Heisenberg explained it, this was a new riddle. In the past, when the conventions of language and the conditions of science had always matched, no such problem existed. The scientific concepts of the last century, for instance, were perfectly congruous with the normal use of language, which worked equally well for the scientist, engineer, and layperson alike as a medium of understanding. This use of language may have been founded upon incorrect notions of space and time, as it turns out, but these categories guaranteed the presumed objectivity of ordinary discourse. In return, ordinary language seemed to provide science with a reliable degree of efficacy in describing nature and calculating the results of experiments. Science and language, in short, enjoyed a reciprocity which appeared to assure the normal function of both.

When quantum theory emerged in science, however, a new problem arose from the simple fact that no language existed in which physicists could speak about the structure of the atom. What scientists found was that the atom behaved bizarrely, following random patterns which were entirely unpredictable and could not be explained by classical physics. How could science describe the orbit of an electron in "normal" language, for instance, when that orbit violated all our concepts concerning location and momentum? Theorists could not even determine whether an electron was a particle or a wave. The only thing we do know, Heisenberg explained, is that our common notions do

not apply to quantum events, and consequently we cannot speak about atoms in the unambiguous language of normal discourse (177–78).

How then should one speak about the new physics? Heisenberg himself, who in many ways anticipates the postmodern critique of language, proposed two possible solutions. On the one hand, physics could search for a purely mathematical language that conforms to the peculiar habits of quantum events. This possibility would satisfy the formalists, for it would offer one way to determine an unambiguous relation between mathematical symbols and the measurements they support. Heisenberg admits, however, that the scientist must still communicate with nonphysicists who ask for an explanation in normal language. In this respect, the physicist would be right back where he started. The other possibility proposed by Heisenberg lies in the opposite direction. Quantum theory could borrow the language of poetry. Unlike normal discourse, which is usually thought to rely upon a one-to-one correspondence between words and meaning, the language of poetry thrives on a different ratio, on ambiguity and suggestion. Heisenberg recommends the poetic function—the “vague and unsystematic use of the language” (179)—because there is no way of really *knowing* in the classical sense what words like “momentum” and “wave” mean when applied to quantum events. For Heisenberg, poetic discourse would be more consistent with quantum theory, where vagueness, paradox, and uncertainty hold. It would be more consistent, that is to say, with Niels Bohr’s concept of complementarity and Heisenberg’s own indeterminacy principle, two ideas lying at the center of quantum physics.

If Heisenberg wanted evidence of a need for quantum rhetoric, for an anomalous language which might match the conditions of the subatomic world, he did not have far to look. The notorious conundrums of postmodern science, including the duplicity of light, “Schrödinger’s cat,” the idea of noncausal correlations, and the notion of multiple worlds, require a language of paradox often evoking descriptions that resemble the pages of *Alice in Wonderland*. Here was proof that physics could not rely upon ordinary discourse to describe its findings.

Needless to say, the modern physicist is not the only one interested in “weird” language. A more radical answer to Heisenberg’s riddle can be found in contemporary fiction—in particular, in the work of writers who reinvent language in the future in order to challenge the conditions of normal discourse in the present. George Orwell’s *Newspeak* in 1984 and Aldous Huxley’s biotechnics in *Brave New World* come imme-

diately to mind. But neither book treats the idea of a reinvented language as completely as do more recent works, such as William S. Burroughs's *Naked Lunch* (1959), Anthony Burgess's *Clockwork Orange* (1962), Stanislaw Lem's *The Futurological Congress* (1974), Russell Hoban's *Riddley Walker* (1980), and Ursula K. LeGuin's *Always Coming Home* (1985). Each work constructs what M. A. K. Halliday has called an "antilanguage," an alternative and anomalous speech which operates by utilizing elements excluded from language by normal discourse (164ff.).¹ Much like Lewis Carroll's Alice books or James Joyce's *Finnegans Wake*, prototypes of fictive antilanguage, these works rely chiefly on slang, neologism, nonsense, wordplay, onomatopoeia, homophony, paronomasia, homonymy, catachresis, and other tropes traditionally held in contempt by normative critics for playing on the slippery side of the signifier. By suspending realist notions of meaning and by breaking the common rules of discourse, these stories project verbal counterrealities wherein the values and norms of official language are criticized and ultimately disrupted.

A book about life after the bomb, Hoban's *Riddley Walker* calls attention to itself principally as a novel exploring the relation between science and language. Hoban's polyglot novel offers a radical example of antilanguage that is noteworthy largely because it derives from the primary story of the new physics—radioactive decay. Brought close to ruin by nuclear disaster, Hoban's postatomic characters are devastated by chronic disorder and loss in a radioactive world, a condition which is matched in language by the mutation of speech. For postatomic humanity, life after the bomb is agony, but for language, ironically, contamination is a remarkably inventive process. As Joyce demonstrated in *Finnegans Wake* in 1938—the same year physicists announced they had successfully split the atom—the mutation of language lies at the very heart of meaning.² With the exception of *Finnegans Wake*, no work has gone so far as *Riddley Walker* toward

¹As Russell Fowler explains, the verbal habits of linguistic subcultures often function subversively by inverting, and sometimes negating, the semantics of the prevailing order of discourse, facilitating thereby an "alternative social and conceptual reality for their speakers" (146–47). Linguistic subcultures thus provide, as Halliday writes, a "distorted reflection of the structure of the particular society from which it derives" (167).

²In an essay on *Finnegans Wake*, Jacques Derrida notes how Joyce's unusual novel subjects "each atom of writing to fission in order to overload the unconscious with the whole memory of man: mythologies, religion, philosophies, sciences, psychoanalysis, literatures" ("Two Words" 149). With the fission of words, Joyce lets loose the polyglossia subversively inherent in all languages.

shaping an idea of quantum language as originally glimpsed by Heisenberg. For Hoban, however, to speak the language of the atom is to speak the language of pun, which does not reveal the structure of the atom so much as criticize the forces which exploit it.

When published in 1980, *Riddley Walker* immediately captured a cult following in America and drew broad critical acclaim from reviewers as a haunting and fiercely imagined fable of postatomic life in England. The story tells of a culture which has lapsed into Neolithic ways some twenty-five hundred years after a nuclear war. The characters in this novel stumble through a stark wasteland marked by mud and ruin, foraging for game, digging up the debris of a dead civilization, and huddling together in ramshackle camps called “forms.” Beyond these roam killer dog packs. What little culture survives in such a world, where writing has virtually disappeared, is kept alive by the tribal “tel woman” (female shaman), the “connexion man” (poet/priest), and traveling puppeteers who transmit the oral history, myths, rhymes, and riddles describing the “1 Big 1” (World War III) and the “Bad Time” which followed. The narrative itself is unquestionably intriguing, but what has beguiled readers most is the astonishing language of *Riddley Walker*. The neobarbaric language is as remote, bizarre, and forbidding as the reinvented speech of Burroughs’s *Naked Lunch* or Burgess’s *Clockwork Orange*. Comprised of archaisms, computer jargon, substandard English, cockney slang, and odd neologisms, the fragmentary and hybrid speech of *Riddley Walker* evokes a powerful image of mutation and decomposition, demonstrating how meaning survives its own distortions.

The author of *Riddley Walker*, Russell Hoban, is an American by birth but has lived since 1969 in England, where he has published six novels. Before moving to London, Hoban wrote over fifty children’s books and, until the appearance of *Riddley Walker*, was probably better known for these efforts than for his subsequent work. Since his move, Hoban has written adult fiction which has earned growing respect from critics and readers alike—*The Lion of Boaz-Jachin and Jachin-Boaz* (1973), *Kleinzeit* (1974), *Turtle Diary* (1975), *Pilgermann* (1983), and *The Medusa Frequency* (1988). In many respects, Hoban’s middle novel, *Riddley Walker*, brings to a head what had only been implicit in earlier novels, namely that language knows things people do not. Hoban invents a postatomic world in order to develop this idea in *Riddley Walker*, where he shows that language, which is permeable and open to expansion and absorption, is essentially intelli-

gent. It is here, on the outer reaches of symbolism, that Hoban's displaced persons try to find what it means to carry on.

As many readers have noted, *Riddley Walker* bears obvious comparison to Walter Miller's classic postatomic story, *A Canticle For Leibowitz* (1959). For both authors, human survival is primarily a hermeneutic problem. To rise out of the misery that darkens their lives, postatomic men must interpret the vestiges of a vanished culture, but the traces are little more than riddles. This is, no doubt, an important development in nuclear fiction, distinguishing the stories of Miller and Hoban from the more popular fables of the 1950s. In both Miller's and Hoban's novels, the entire archive of civilized men and women lies buried beneath muck and rubble. The traces of civilization which do exist are inscrutable and only remind the postatomic mind of its inferiority. "O what we ben! And what we come to!" cries Riddley after seeing the shiny remains of a power plant (100). In *A Canticle for Leibowitz*, a young monk spends the better part of his life copying an original manuscript he believes to embody religious significance, but which turns out to be the blueprints of a bomb shelter.

In both stories, characters try to rescue surviving texts and rediscover lost meanings, but the effort to do so, to find what is lost, is at best an ironic adventure. Against all odds, the monks of the Abbey of Leibowitz maintain a library in the middle of nowhere, amidst social and political chaos, where they attempt to restore and copy fragmentary manuscripts preserved in their Memorabilia dating back to the great Flame Deluge. While their effort is indispensable, their work becomes increasingly hazardous since the Memorabilia remain inscrutable. Copying manuscripts is not enough—they must also interpret them, and this becomes unavoidably problematic, for knowledge has lost its innocence. Within the Memorabilia lie the fragments of subatomic theory, and these texts are eventually (and perhaps inevitably) found by opportunistic scholars. The monks, like children with a loaded pistol, do not know what they keep. The novel ends with the revival of nuclear technology and World War IV.

The world of *Riddley Walker* suffers a similar fate. Postatomic humanity is haunted by the power of the 1 Big 1, and after centuries of condemning the "cleverness" of Bad Time, progressive factions begin hankering for "teckernogical" revival. Goodparley, the Pry Mincer, is full of enthusiasm: "Weve got to work the E qwations and the low cations weve got to comb the nations" (143), he says, in order to have "them boats in the air which they callit them space craf and them picters on the wind which that were viddydo and going out beyont

the sarvering gallack seas” (199). The regime dreams of restoring the cleverness of a dead culture, and in its ignorance believes that reinventing explosives will bring back the magical wonders of Good Time. By the end of the novel, after a tragicomic scramble for power, post-atomic man manages to detonate the “1st big bang since Bad Time” (209), but the blast does not quite measure up to the 1 Big 1 described in tribal lore. The State has rediscovered gunpowder, ironically, which Riddley calls the “1 Littl 1,” and though it is a great distance from the “new clear fizzics” of long ago, the novel ends with the dark promise of a never-ending cycle of ignorance and destruction.

In a way, both stories are fatalistic. History is a vicious circle, and there seems to be no way out. “Brothers,” says Dom Zerchi at the end of Miller’s novel, “Are we helpless? Are we doomed to do it again and again and again? . . . Are we doomed to it, Lord, chained to the pendulum of our own mad clockwork, helpless to halt its swing?” (255). As long as his wisdom does not illuminate his knowledge, man will remain bound to a wheel of fire. If nuclear war will not transform man, Miller concludes, nothing else will. As Miller sees it, human intellect is cursed—there can be no way out of this jinx short of a *deus ex machina*.

Hoban’s concern in *Riddley Walker* is far less metaphysical than Miller’s. There is much mythologizing in the novel concerning the nuclear holocaust, and many characters in the story see mutation as a religious problem, but Hoban’s interest in the idea of a postatomic world is more linguistic than anything else. Twenty-five hundred years before the time of Riddley Walker our world destroyed itself. That which survived did so at great cost. Human life, now deformed and degenerate, has changed dreadfully. Nothing has escaped mutation, not even language. Like the atom, language too has come apart, split explosively by history, and has lost its semiotic stability. Set free, the signs of Riddley’s world split and recombine to form new meanings. The peculiar spell of *Riddley Walker* concerns the possibility that, in a world where everything has been mutated, including speech, language turns into wordplay. Puns, metaphors, and riddles abound in the novel and reveal a rhetorical vitality whose inexhaustible meaning exceeds both the understanding and control of postatomic man.

Before the question of language is addressed in greater detail, a few things need to be said concerning Riddley and his unusual world. *Riddley Walker* is set in what is now called East Kent. Although we are far into the future, England is still very much a postnuclear wasteland. Contaminated cities smolder in decay, dismal rains never cease,

infants are born dead. Various relics from our time—forsaken machine parts and the crumbling walls of Canterbury Cathedral—remind the characters that what has come to be is a world of loss. There are few settlements, and what shelters do exist are largely the makeshift dwellings of seminomadic clans. Riddley's world is in the midst of change, undergoing the transition from a hunting and gathering society to a primitively centralized culture ruled by the Ram. Riddley lives on a "form," a kind of Neolithic farm or commune surrounded by a fence and ruled by "hevvys" (big fellows) like Fister Crunchman and Chalker Marchman, whose brawniness is celebrated by their names. The forms do not carry on much farming, however, since they are commanded by the Pry Mincer to excavate industrial rubbish buried in the muck from the time of great "cleverness." The Ram has recently shown interest in the "teckernological progers" of the past, even though such magic is forbidden in their tribal myths, and is in mad pursuit of "Salt 4" (sulfur), which is mistakenly thought to be the essential "greedy mint" (ingredient) of the 1 Big 1.

Riddley, the boy narrator, is the son of a "connexion man," a tribal shaman of sorts, and has just come of age. Since the story turns largely on the education of its narrator, in Riddley's voice are concentrated the subtle changes of heart and thought felt by a sensitive mind trying to come to terms with a very eerie world. As he says at the beginning of the story:

On my naming day when I come 12 I gone front spear and kilt a wyld boar he parbly ben the las wyld pig on the Bundel Downs any how there hadnt ben none for a long time befor him nor I aint looking to see none agen. . . . He done the reqwyrnt he ternt and stood and clattert his teef and made his rush and there we wer then. Him on 1 end of the spear kicking his life out and me on the other end watching him dy. I said, "Your tern now my tern later." (1)

Riddley, as one reviewer put it, is Huck Finn after the bomb. His story is that of a young boy growing up in an old world growing down. As Riddley acknowledges to the dying boar, everything comes undone in its turn, especially in a world undergoing radioactive decay. When his father dies in a digging accident early in the novel, Riddley inherits his tribal duties. As connexion man, Riddley's father was responsible for interpreting the government-sponsored puppet shows based on the Eusa legend, an allegory of nuclear war, which function as the primary texts of Riddley's society. In an oral culture that is predominantly illiterate, these shows have become the only vehicle for transmitting

ethical, religious, and political doctrine. The job of the connexion man is to keep in “memberment” the oral scripture of the tribe in order to put things together whenever the traveling puppet show stops in. Riddley’s first connexion, however, is not very popular (it is somewhat ominous: “Eusas head is dreaming us”), and Riddley begins to feel more and more isolated from his fellows by his own wit. “Youre myndy dont you see,” Fister Crunchman warns Riddley. “You ben learnt to read and write and all ways thinking on things. . . . Dont think too much youwl grow hair on the in side of your head” (64–65). The ties that keep people together are not very strong here, and soon Riddley bolts over the fence and carries on alone.

Being “dog frendy,” Riddley survives outside the form thanks to a nearby pack of canines who look after him, share their meat, and lead him to another twelve-year-old, Lissener, imprisoned underground by the Mincery. As Lissener explains, he is a member of the Eusa folk, mutant descendants of twentieth-century technocrats, and identifies his ancestors as the “Puter Leat” (computer elite) believed to possess in their collective memory the science lost since the holocaust. Every twelfth year the Mincery brings the Eusa folk together, hoping to capture the lost secrets of long ago. The bizarre spectacle is concluded by the ritual beheading of the “Ardship of Cambry,” a mutant serving as scapegoat. The current Ardship, Lissener, intends to outsmart the Mincery by gathering with other Eusa folk and executing a coup, which he does, turning both Goodparley and Orfing out of office. Riddley is caught in the middle of this struggle, between the Mincery and the Eusa folk, who both desire the same end, the 1 Big 1. As the political interests in the novel take shape, it becomes clear that Riddley’s survival depends on his ability to understand what people smarter than he did not understand long ago—the nature of power.

As any summary of the novel is likely to show, the language of *Riddley Walker* is quite enchanting. The peculiar dialect spoken by the characters—a mishmash of speech types, jargon, and pidgin—is probably just as significant as the action itself, if not more so. “Now weare coming to the curse roads of it Erny,” says Goodparley—“now weare getting down to terpitation” (41). “Scatter my datter that cernly is intersting,” Mr. Clevver says to Eusa (48). “It realy glitcht my cool how he said that,” says Riddley. “He dint even have no parper face on the front of his head. Him the Puter Leat” (95). The peculiarity of this language is not hard to single out. What is most obvious is

that Hoban has defamiliarized the speech of his characters by blurring language boundaries, mixing registers, diffusing syntax, altering phonetic patterns, and relexicalizing words. Terms from Big Science, such as “data,” “glitch,” and “print-out,” are leveled through demotic usage: “Scatter my *datter*” (an expletive meaning “damn me”); “It realy *glitcht* my cool” (meaning he was “pissed off”); and “I *pirntowt* we bes not go the straites way” (meaning “it seemed to me”). There are numerous phonetic distortions. “Breathing” becomes *breaving*, “prime minister” turns into *pry mincer*, and “decontamination” winds up *decon terminations*. And new words rise up, relexicalized from onomatopoeic associations and from old roots: *rumpa* for “violence,” *arga warga* for “death,” *juicing* for “intercourse,” *nexters* for “associates,” and *hevvys* for brawny types. As Hoban himself has explained, he was trying to “corrupt the language in what seemed to be a natural way” (qtd. in Maynor and Patteson 20). “I started writing it in straight English and it just began to drift. The characters began to say words that didn’t exist in English, and their English began to drift into a vernacular. Then I saw that what was really happening was the real linguistic process that *does* happen. Speech always encapsulates a place and a time and a world-view. And their speech would naturally do the same. They wouldn’t be talking BBC English” (“Interview” 14).

The linguistic transformation of Riddley’s world evokes a powerful image of loss and ruin, and Hoban’s characters are woefully aware of this. “Riddley we aint as good as them befor us. Weve come way way down from what they ben time back way back,” laments Goodparley (125). The setting of the story, the harsh and dismal wasteland that Kent has become, does much to convey the eeriness of this remotely forsaken time. But the altered shape of future speech evokes an even profounder sense of the unfamiliar and the unknown, introducing the reader to a people whose universe is hauntingly unlike our own, even though they share the vestiges of our discourse. The locus of strangeness in Hoban’s postatomic world is language itself, which, like the world around it, has been transformed by universal decay.

Mutation is, in fact, the working metaphor in *Riddley Walker*. The world has been poisoned by radioactive decay, and words as well as people are no longer what they once were. This analogy is supported by the possibility that the word, like enriched uranium, is fissile material. Just as atomic nuclei fissioned long ago in a nuclear catastrophe, words have also split in two and, by altering their form, have changed their meaning. There are numerous examples of linguistic fission in *Riddley Walker*: *curse roads* (crossroads), *inner fearents*

(interference), *comb the nations* (combinations), *gallack seas* (galaxies), *arper sit* (opposite), *tac ticks* (tactics), *axel rating* (accelerating), *party cools* (particles), *many cools* (molecules), *suching waytion* (situation), *some poasyum* (symposium), *Saul and Peter* (saltpeter), *soar vivers* (survivors), *O Zoan* (ozone), *catwl twis* (catalyst), *res and due* (residue), *new clear* (nuclear), *nebyul eye* (nebulae), *greedy mint* (ingredient), *trants mission* (transmission), *spare the mending* (experiment) — and so on. Even a short list of word-splitting will indicate that fission is not only a powerful idea in the story but a formative linguistic process as well. Many of Hoban's word transformations are in fact puns, such as *do it over* (→ Dover/cycle of destruction), which possess a fallout that often goes over the head of the punner. Folks who live against the odds are called *soar vivers*, when faced with adversity one comes to the *curse roads* of life, and the Archbishop of Canterbury, who is beheaded every twelfth year, is called the *Ardship* (hardship). By the end of the novel, after Granser has mixed the "greedy mints" of the 1 Little 1, it appears likely that Riddley's world will indeed "do it over." In this story, language, it would seem, knows more than its users. As Goodparley notes, "Words! Theywl move things you know theywl do things. Theywl fetch. Put a name to some thing and youre beckoning" (122).

In Hoban's mind, wordplay is a result of the spontaneous decay of language. Meaning has burst outward uncontrollably like neutrons in a chain reaction, forming new and incongruous wholes, moving away from discursive constraints that once ordered their understanding. These changes do not diminish speech, however. Many of the mutations are, in fact, quite meaningful and indicate how language assimilates a broken world, adapting to its discontinuities, reshaping both itself and its users, mingling the mangled, finding relationships where least expected. Contamination is, as Walter Redfern has written, a primary fact in the life of language (89–91). In this respect, decomposition is a radically inventive condition in *Riddley Walker*. Words morphologically alike but different in sense get their meanings crossed, resulting in semantic corruptions that deepen their import. When Riddley calls inhaling *breaving*, for instance, we are asked by wordplay to recombine "grieving," "breathing," and "bereavement" into an anomalous whole, even though we know perfectly well that these words share only an arbitrary phonetic similarity. "Breathing" has been contaminated by a lexical transformation in which broken phonemes from remote paradigms have permeated its sign. The result is quite ironic. From our privileged point of view, we know that Riddley is not

punning; he has simply made a mistake. And yet the mistake is meaningful, for the mutation has doubled, if not trebled, the significance of the word, forming a kind of enthymeme. *Breaving* condenses three ideas into one: living is grieving (owing to what has been lost). In other words, life is a vale of tears. Riddley may have got it wrong, technically speaking at any rate, but language gets it right. Linguistic mistakes such as these are inescapable in this world. The “barms” that have brought on Bad Time have created a lexical meltdown in which words, cut off from their original meanings, are put together like debris by the odd sort of *bricolage* Claude Lévi-Strauss in *The Savage Mind* found characteristic of “primitive” thought. Fragments of subatomic “fizzics,” computer jargon, and chemistry are assembled into apocryphal texts that become the locus of allegory and mythology. When Goodparley interprets a bit of writing from the past—a fragment of art historical description—his imagination runs wild, turning this irretrievable text into a secret recipe for atomic power:

Them 2 littl boys theyre what they call ‘catwl twis’ which is what you put in to quicken on your episodes. Right thru that part of it Eusa hes whats lef after the takings hes having his res and due. Finely after the brazing boal you get your *four souls* which is your 4 salts gether. Man and wife and littl childer coming back to gether for the las time thats your new clear family it aint the 1 you startit with its the finement of it in to shyning gether to the 1 Big 1. (129)

Goodparley has only the vaguest idea of what “catalyst” or “residue” once meant, and so “nuclear family” turns out to be literally that—irradiated kinsfolk. No doubt Goodparley’s blunders are amusing. The point, however, is not how stupid he is. What is perhaps more interesting involves the reader’s role in the postatomic text, in particular the recognition of paronomasia and what this understanding entails.

The linguistic mistakes made by Riddley’s people obviously highlight their misconception of our time. But the irony cuts both ways. For readers in the nuclear present, these mistakes betray something more serious. In order to correct the mistakes of Hoban’s characters, readers must submit to paronomasia, to postatomic wordplay, which often implicates them in the nuclear crime that brought Riddley’s world so low. Through the action of punning, the privileged position of the reader—that is, the faulty consciousness of Riddley’s past—turns out to be the focus of irony. In Riddley’s world, for example, *plomercy* means “diplomacy.” Its mutated form, which includes the word “mercy,” constitutes a rather wry reflection on political history,

combining rhetorically what apparently was in effect divided: foreign policy and human sympathy. Much of the force of this pun lies in the irony that the similarity between diplomacy and mercy should remain hidden and be accessible only by means of wordplay. As we know only too well, the power of deterrence relies upon bilateral terrorism, an absurdity that leaves very little room for human compassion. The pun therefore manages to retrieve, as Freud would say, what had been rejected or lost.

A like-minded pun occurs when Granser, a “chard coal burner” and shaman, prepares to reinvent gunpowder. “Now comes the las of the mixing which Ive got to say the words.” Riddley asks if he might observe this curious event, but Granser prefers privacy: “O no I aint saying them words wylst youre lissening them the fissional seakerts of the act aint they. You bes go off a littl way” (193). Granser unfortunately blows himself up. The strange phrase *fissional seakerts* is the giveaway, of course. A familiar occupational phrase has been corrupted by confusing the nuclear word “fission” with its phonetic neighbor, “professional” (it is likely that this pun also mocks the British “Official Secrecy Act”). In much the same way, “secret” has mutated to *seakerts*, which carries the double meaning of covertness and quest. Professional secrets, a respectable phrase in our own vocabulary, turns into an ironic euphemism for power grabbing, an act that is nothing if not self-destructive.

There are more puns of this sort, all of which seem to function in much the same way, as a critique of nuclear consciousness. While interrogating one of his subordinates, hoping to find the whereabouts of “the yellorboy stoan the Salt 4” (sulfur), which is mistaken for the secret behind the 1 Big 1, Goodparley says, “No and for a true fack you aint my littl pink eyed frend you aint no kynd of a mover nor happener thats jus what I come plaining of this long time innit. ‘Tryl narrer,’ you tol me. ‘Thats the way to do it which wewl do it in the new working,’ you said. ‘Spare the mending and tryl narrer’” (119). There are several mutations here, but perhaps the most interesting is *spare the mending*—a corruption of “experiment.” Again, the mistake is quite meaningful. Much like “professional secrets,” “experiment” is a positive term in the current order of discourse, a neutral word free of ethical or political connotations. In its mutated form, however, where its meaning is doubled, the word acquires a guilty conscience, as it were. The moral of the pun is straightforward—nothing has been spared by nuclear science. In a world poisoned by plutonium 239, with a half-life of twenty-four thousand years, there simply is no mending.

I could bring forth further evidence of this kind. For example, Riddley's word for memory is *memberment*, which condenses two terms (remember and dismemberment) in its altered form. The mutation suggests an interesting paradox: to remember in this world is to forfeit something. The pun reminds the reader of the principal irony of *Riddley Walker*, namely that postatomic man's only possession is an agonizing sense of what has been lost. Many of the puns in Hoban's novel derive, in fact, from a belief that life has been betrayed by technology. In these instances, a positive term from science or technology acquires an ethically negative sense by mutation. Through punning a neutral word is transformed into a dyslogistic one. Such happens in *masheans* (machines), for example, which is a pun on destroying time (mashing eons), or in *fews* (fuse), which projects the likely outcome of a detonation in human terms. And finally there is *O Zoan* (ozone), which is simply, but poignantly, the collective scream of postatomic humanity (O Life!). In a way, language answers the nuclear betrayal with its own kind of double-cross.

Kenneth Burke would call such rhetorical events as these "perspective by incongruity," a mode of understanding wherein meanings usually pertaining to one context are transferred to another (*Permanence* 119). In the novel, for instance, Goodparley names one of the elements of gunpowder *Saul and Peter* (saltpeter), and in his odd way manages to mingle the science of munitions with New Testament dignitaries, an oxymoron which throws together two incompatible meanings: salvation and explosion. To see gunpowder this way, from the viewpoint of the New Testament, is to add an ethical and ontological dimension to a term that is ordinarily toneless. Here, perspective by incongruity compels the reader to link gunpowder with doom and damnation and thereby renders the term, which prior to its decomposition enjoyed a false innocence, quite problematic. As Burke explains, perspective by incongruity is a method for understanding matters by verbal "atom cracking." By splitting meanings from their customary usage, one frees them for application elsewhere. Because such a method is likely to bare semantic relationships our rational vocabulary necessarily ignores, such as the moral telos of explosives, it has the potential to reorder our customary categories. In this way, Burke concludes, perspective by incongruity can "remoralize" a problem by "accurately naming a situation already demoralized by inaccuracy" (*Attitudes* 309).

While such puns as *soar viviers*, *greedy mints*, *curse roads*, *memberment*, *Pry Mincer*, *Ardship*, *breaving*, *spare the mending*, or *O Zoan* are less the work of wit than of misunderstanding, they are very smart

mistakes. Clearly language knows things its users do not, as though it had a mind of its own. What many of these puns have in common is their capacity to remoralize by irony “the stupor of science before radium,” as Henry Adams wrote (qtd. in Mumford 232). In Hoban’s polyglot novel, the postatomic pun redefines the text of annihilation by creating an oxymoronic alternative to the language of the bomb, thus restoring to language what was omitted by an earlier atomic world: the qualitative relations of human existence. Since this is a project beyond the limits of postatomic humanity, which does not remember the age of absolute weapons and is at the mercy of a recycled language, we must assign to words themselves the power of memory which keeps the ironies of human ignorance alive. In the postlapsarian world after the blast, language carries in its collective memory the displaced conscience of a lost technology. As Heidegger would say, “language speaks” (124).

Within the current order of discourse, the interests of the “pure” scientist and the not-so-pure technocrat are sometimes imperceptible, and the pragmatic dimension of their expression often remains undetermined. “Nukespeak” is an obvious case of rarefaction. For example, the point of nuclear explosion — “ground zero” — possesses an algebraic purity which attenuates the grotesque image of mass death. Likewise, the death zones which encircle ground zero in blast profiles by the Office of Technology Assessment are called psi circles (pounds per square inch). The idea is to render the prospect of detonation as abstract as possible, for obvious reasons. So conceived, the bomb is merely another datum in our information environment. It is an inviolable (rather than an intolerable) fact. The implications of this have not gone unremarked. The predominance of positivist models of discourse, those which separate value from fact, conceals the motivated ground which unavoidably supports all acts of expression. We know this only too well. We know that so-called positive vocabularies often serve euphemistic functions, making the unacceptable somehow respectable. The Department of Defense does not remark upon melting eyeballs when arguing for “optimizing” payloads and delivery systems, nor does the Nuclear Regulatory Commission care to explain high-level waste, such as plutonium-contaminated debris, when announcing a nuclear “incident.”

Much of what takes place within public discourse is demoralizing, in Burke’s sense, if only because so many arguments on behalf of the unacceptable are disguised as value-free statements. It is not merely

political discourse which defends, as Orwell charged, the indefensible — much official writing participates in euphemism in one way or another. Writing in degree zero has triumphed as the style of valid discourse, and removing the signature of a responsible agent is merely rudimentary. What is excluded by our technocentric psychosis, above all, is the qualitative dimension of experience — the human values we ordinarily assign to names. Meant as a purely mathematical symbol, “ground zero” does not tell us anything about the dreadfulness of a nuclear explosion, as if this were beside the point. On the other hand, it does not require much mischief to glimpse incidental wordplay. Ground zero, in one sense, is the calculable point of impact of a nuclear warhead; in another, of course, ground zero represents a postatomic head count and, at least in that regard, speaks of annihilation. The qualitative sense — massive death — is therefore smuggled into the sign by way of ambiguity, which cannot be scientifically (or congressionally) controlled. No doubt the Atomic Energy Commission did not intentionally write black humor into its efforts to analyze the demography of a ground-level nuclear blast. The AEC was not known for its wit. The double meaning is fortuitous, a haphazard side effect of the unstable nature of language.

Under the sign of the nuclear what cannot be said cannot, at least officially, be thought. It is not owing to any outrage against our sensibilities that the intolerable becomes unthinkable, but rather because it is excluded by our vocabularies and our protocols. In any discursive formation, as Foucault explains (216), there will be forbidden speech. There will be words that cannot be stated, ideas which must remain unsaid. The acronyms of defense (NORAD, MIRV, MARV, SAM, SWERVE, SAC) are ritual reminders of what may and may not be uttered. In the case of atomic weapons, the compression of symbolism is so severe that the average word user cannot interpret nuclear jargon. When asked to identify a fairly common term, such as “Triad,” respondents to a questionnaire guessed far and wide. Some imagined “Triad” was related to Roman Catholic theology; others thought it was a drug for colds, coughs, and headaches. One participant mistook “Triad” for a newfangled mode of sex. Likewise, respondents defined the acronym “MAD” as a comic magazine or mothers against drunks. “Window of Vulnerability” was thought to mean an uninsured home or peep show (Gyi 141).

If we are permitted to speak and think of the nuclear only in a narrowly restricted code, a code which does not recognize people-related consequences, what then happens to the human side of nuclear

thought? Can it be willed away? Of course it cannot; however, it can be effectively forgotten. Since the first testing of an atomic explosion, the human scale of the nuclear has remained off-limits. Like bombed-out Hiroshima, the image of vast suffering and death has become a grim perplexity which survives only outside the order of discourse, beyond the selective memory of the nation, in jokes, songs, stories, poems, paintings, cartoons – on the far side, where various symbolic energies, such as play and nonsense, take refuge from the rule of *techne*. Indeed, nuclear amnesia is not unlike other forms of repression. In many ways, Freud’s account of the symbolism of dreams and jokes describes how the order of discourse creates a semiotic underworld by effectively preventing the appearance of prohibited meanings. As Freud understood, outlawed thought often outwits censorship by disguising itself as something else, and it does so in ways that are identical to linguistic operations. In his book on jokes, Freud explains that many of these techniques, such as nonsense, ellipsis, metaphor, paronomasia (or *Klangwitz*), are in fact types of wordplay, and by virtue of their inherent double-dealing elude the mental obstacles in the way of the forbidden (45–47). The repressed can only manifest itself ambiguously, as trope, in order to conceal its “subsidiary” content, its outcast meaning, from the exclusive rule of normal discourse.³

Following Freud, recent theory has shown that puns are by nature disruptive. As Jonathan Culler notes, the pun is a good example of the instability of linguistic systems, for its power to produce meaning in violation of codified relations calls attention to the arbitrary nature of signs (3). In this way, wordplay always reminds us of the inherent duplicity of language, which, by undermining the explicit, complicates the whole process of signification.⁴ Wordplay, in other words, can

³Anticipating Lacan, Emile Benveniste wrote several years ago that the content of the repressed can be released only in symbols. Toward this end “the unconscious uses a veritable ‘rhetoric’ which, like style, has its ‘figures’” often supplied by “the old catalogue of tropes” (75).

⁴“The pun has this power,” Derek Attridge explains, “because it undermines the basis on which our assumptions about the communicative efficacy of language rest: in Saussure’s terms, that for each signifier there is an inseparable signified, the two mutually interdependent like two sides of a sheet of paper. . . . The pun, however, is not just an ambiguity that has crept into an utterance unawares, to embarrass or amuse before being dismissed; it is ambiguity unashamed of itself, and this characteristic is what makes it more than just an inconvenience. The context of a pun, instead of being designed to suppress latent ambiguity, is deliberately constructed to *enforce* ambiguity, to render impossible the choice between meanings, to leave the reader or hearer endlessly oscillating in semantic space” (189–90).

disrupt the normative function of language much the way *Witz*, as Freud describes it, interrupts consciousness. It does so by abusing the categorical boundaries that keep words safely apart; when those boundaries are violated for any length of time the forbidden side of things breaks loose. In the topsy-turvy universe of Lewis Carroll's Alice, for instance, where wordplay describes a world of never-ending non-sense, the discourse of madness prevails over the speech of reason. Alice may appeal to common sense, she may invoke the rule of correspondence whereby words refer to objects, but to no avail. No one else in Wonderland shares her reasonable assumption that language is in conjunction with things. "When I use a word," Humpty Dumpty explains, "it means just what I choose it to mean — neither more nor less" (269).

James Joyce's *Finnegans Wake* takes Carroll's project even further. In this notorious book, every conceivable linguistic taboo is broken owing to tropological misrule. Declaring war on language, Joyce pushes words well beyond their breaking point, often parodying the coded stipulations that allow them to function instrumentally as bearers of transparent meaning (see Heath 57–58). In the oxymoronic *funferall* (12) or in the scatological *analists* (95), for instance, Joyce typically forces together flagrantly incongruous meanings (joy/sorrow and thought/defecation). In each case, the pun holds its opposite meanings simultaneously, compelling the reader to see double, to reside in two worlds at once — one foot in the library, the other in the latrine. The ambiguity thus provoked confounds the nominal relations among words, creating new configurations of meaning that resist formalization, forcing readers to *recode* — rather than *decode* — the text.⁵

Not surprisingly, postmodern thought has seen in wordplay an alternative to the instrumentalist concept of language, arriving at a position anticipated by Heisenberg thirty years ago. Following the lead of Derrida, whose own obscurity is in principle modeled on paronomasia, critics wonder what would happen to our view of language should we come to see wordplay not as a minor prank or anomaly but as a central fact of meaning. "What happens if we try to put the practice of punning at the center of thinking about language?" asks Culler. "Do we get a new understanding of language, and what would it entail?" (12). If we look to the work of such ludic writers as Lewis Carroll, James Joyce, Thomas Pynchon, John Barth, Russell Hoban,

⁵Umberto Eco describes the additional meaning provoked by punning as "a valence not yet saturated by culture." As such, it constitutes the place where new codes are born and where old codes are disrupted (87).

and Don DeLillo, the answer seems to be that we would be faced with a nonlinear notion of language that reversed orthodox priorities, favoring equivocation over predictability and nonidentity over identity, dedicated less to cause than to effect – a notion, in other words, which was nonrepresentational and rested on the assumption that language itself is intelligent.⁶ Existing well outside the normal rules of discourse, the result would be something on the order of quantum rhetoric, a “pluri-dimensional” language, in Derrida’s words (*Grammatology* 86), where the free play of double meaning would be favored in conformity with the emerging ontology of the new physics. In the indeterminate universe of quantum theory, where an electron can behave like both a particle and a wave, ambiguity, as Heisenberg noted, is a perfectly valid form for thought to take.

This model of language, needless to say, would have its foes. A philosophy of language based on tropology would oppose the “atomistic” notion of language which holds that – at least this is what Adam, our first father, believed – words are discrete instruments for naming discrete objects. There is much weight behind this tradition. The triumph of the nuclear in our time reflects the irresistible power of naming the universe, all the way down the line from the largest animal to the smallest imaginable particle of matter, from the hippopotamus to the quark. Throughout, the instrumentality of language has been essential to the work of appropriation. Without its characteristic mode of naming – without its diverse catalogues, inventories, and typologies – classical science could not have pursued nature as a measurable and coherent force. That the privilege of naming should in the long run, however, engineer a tool capable of annihilating all things, including their names, is certainly ironic. It suggests that somewhere along the way something got misnamed.

Even a quick glance at the official vocabulary of the Atomic Energy Commission reveals that the business of naming – or rather misnaming – is a calculated act. The technocrats who oversaw the political management of atomic energy in the fifties and sixties were anxious to find ways to pacify public alarm in the face of the growing menace

⁶Linking poststructuralism with the new physics, Gregory Ulmer takes the pun as a principle of a new paradigm of thought. “Thinking, in Einstein’s universe, as Bachelard stated, requires a new logic that breaks with all absolutes, whether Newtonian or Hegelian, but especially a logic that frees itself from the identity principle (the principle of noncontradiction and the excluded middle) of Aristotelian logic. The basic feature of this non-Aristotelian logic . . . would be a three-valued operation, including, in addition to the usual ‘true’ and ‘false’ values, a value labeled ‘absurd’” (179).

of the bomb. Their solution was to invent an auxiliary language wherein the idea of the nuclear could be stripped of its expressive possibilities. “The reason why so many of us have been thinking that the radiation is worse than it is,” wrote Richard Gerstell in his 1950 paperback *How to Survive an Atomic Bomb*, “is because there’s been so much *loose talk* about the atomic bomb and the rays it makes. We’ve been scared by those two words—‘radiation’ and ‘radioactivity.’ It’s time we all stopped jumping when we hear them” (qtd. in Hilgartner 225). Determined to replace scary words with what it called “palatable synonyms” (Hilgartner 78), the Atomic Energy Commission spent long hours re-examining its vocabulary, looking for terms which would support the epic future it foresaw in nuclear power. Calling the atom bomb a “gadget,” naming the hydrogen-bomb tests in the South Pacific “Operation Sunshine,” describing the destruction of millions of people as “megadeaths,” or redefining radioactivity as “hot dust” obviously takes the sting out of the realities so named. People do not jump when they read or hear about sunshine units, REMs, black rain, nuclear salvos, or surgical strikes. As Derrida has noted, the nuclear is in many respects a fabulously textual phenomenon (“No Apocalypse” 23).

In Riddley Walker’s culture, the Eusa story (the mythical version of the nuclear holocaust) is designed to prevent the return of science and its perceived misdeeds by casting “cleverness” as a moral crime against humanity. According to legend, Eusa, a technocrat (or *noing man*—expert/negator), works for Mr. Clevver, a devilish bloke who orders Eusa to prepare for war. “We keap fytyin aul thees Warrs,” he reasons; “wy doan we jus du 1 Big 1.” “Wayr du I fyn that 1 Big 1?” asks Eusa. “Yu mus fyn the littl Shynin Man the Addom he runs in the wud,” Mr. Clevver answers (30). When Eusa finds the Littl Addom Man he pulls him apart by his outstretched arms “lyk he wuz a chikken” (32). The Littl Addom, torn in two, bursts into shining waves spreading in circles, humming with a high sound. “Then every thing gone black. Nothing only nite for years on end” (19). From that point on Bad Time begins, and everything that was once whole comes apart. The chief pun in this myth (*Addom*→atom/Adam) suggests that what for science in the past was simply a problem of know-how—nuclear fission—becomes for postatomic man an ontological challenge that must, like original sin, be faced by all humanity from one generation to the next.

The crux of this belief rests on what Riddley’s people call the “Master Chaynjis.” After the bombs have fallen, Eusa is told by the Shynin Addom that, since he let loose on the world the secrets of the

atom, he must now suffer himself “the Nos. uv thay Master Chaynjis” (35). “Now yu mus go thru them aul,” says the Littl Man. “Yuv got aul thay Master Chaynjis in frun uv yu. Yuv got them aul tu go thru.” “Wy cant yu leav me aloan,” Eusa asks. “The Littl Man sed, Eusa wear 2 ½s uv 1 thing yu & me. I cant leav yu aloan no moren yu cud leav me aloan. I nevver cum lukin for yu did I Eusa. . . . Yu let thay Chaynjis owt & now yuv got to go on thru them” (35–36).

What Riddley’s people call the Master Changes in the Eusa legend no doubt refers to the fate of an atom undergoing radioactive decay as a result of induced fission. One of the intriguing facts of atomic physics involves the bewildering transformations of matter that trigger and follow a nuclear explosion. Many of these metamorphoses depend on the transfer or escape of neutrons and electrons. The fission of each atom of uranium 235, for instance, one of the principal fuels in a nuclear warhead, will result in pairs of new nuclei belonging to different elements. Strontium 90, cesium 137, and iodine 131 are fission products absent prior to detonation but which appear in large quantities after the splitting of atoms of U-235 and Pu-239. They are products of the bizarre nuclear alchemy that takes place in the conversion of matter into energy. What makes this process so metamorphic is the fact that many radioactive isotopes have decay products, called “daughters,” which are also radioactive. In this case, radioactive nuclide *A* decays into unstable nuclide *B*, and nuclide *B* then decays into *C* which is also radioactive, and so on. In many instances, radioactive isotopes will follow a definable transformation series, decaying through a sequence of alpha and beta emissions until a stable nucleus is formed. Uranium 235, for instance, winds up as stable lead 207 only after a complicated sequence of decay, in between which there are eleven transmutations involving eight different elements: uranium 235→thorium→protactinium→actinium→radium→radon→polonium→astatine→bismuth→lead. As such, the logic of decay is largely a numbers game, a fact accurately retained in the notion of the Master Changes. In alpha decay, for example, a helium nucleus (composed of two protons and two neutrons) is discharged, lowering the atomic number (number of protons) of the “parent” nucleus by two units and its mass (number of neutrons and protons) by four. Whenever the atomic number of an atom changes, its identity is altered as well. Uranium 235 has an atomic number of 92; as a result of beta decay, it is transmuted into thorium with an atomic number of 90.

The Nos. of the Master Chaynjis is an ingenious expression of this complicated process of disintegration. As applied to humans (and

not just to atoms) the idea of the Master Changes adds a peculiar twist to the riddle of life after the bomb. Not only does it contain a pun on universal ruin (*nos*→numbers/negations) but underscores the fact that radioactive decay is, above all, a process of transformation. According to the myth of Eusa, the survivors of the bomb must go through such a process themselves, whether as a kind of atonement for the crime of nuclear war or, as the Shynin Addom suggests, simply to find out who they are: “Woan yu pleas tel me how menne Chaynjis thayr are? The Littl Man sed, As menne as reqwyrd. Eusa sed, Reqwyrd by wut? The Littl Man sed, Reqwyrd by the idear uv yu. Eusa sed, Wut is the idear uv me? The Littl Man sed, That we doan no til yuv gon thru aul yur Chaynjis” (36). This is, naturally, perplexing to Eusa. In order to see the idea of himself, he will have to suffer through a series of changes that will presumably alter his identity. What these changes are and where they lead no one knows for sure, because people are still enduring them.

In *Riddley Walker*, radioactive decay has become a metaphor for human existence. Inscribed in its myths, dreams, and, above all, in its language, the metaphor of atomic decay turns Riddley’s world into an “isotope” of our own, reminding us how “fissile” our nuclear culture and language are. As part of the quantum rhetoric of Riddley’s story, the metaphors and puns of postatomic man remind us that language is deeply implicated in the way we relate to our world. Using words to divide the universe into discrete entities leaves man demoralized by his efforts to master reality, especially when his misnomers conceal the relations among these parts. Those driven by such habits cannot, as the physicist David Bohm writes, do other than attempt “to break themselves and the world into pieces” (15). Such an inheritance may seem nothing more than a curse, and for Riddley Walker and his people that surely is the case. But Riddley is not left empty-handed. Language abides, even when the world crumbles, and this fact contains its own significance. Where the identities of things continually decompose, the world, as Joyce wrote in *Finnegans Wake*, “is, was, and will be writing its own wrunes forever” (19). This is Riddley’s wisdom in the end, and it is left for the reader to understand how the rubble of one age is the riddle of another.

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