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Who's Controlling My Rocket? – Order and Disorder of Guidance in American Imaginary Rocketry

Science fiction describes travel in a space rocket as a simultaneously orderly and disorderly act: the chaos of fiery power and extraordinary speed is subjected to the discipline and form of a rocket's streamlined structure and the mathematically defined trajectory. It is no wonder, then, that when making the first feature about the Communist space quest, the Soviet filmmakers called it *Taming the Fire* (Wade "Taming the Fire"). In American literary rocketry, this order-disorder opposition lends itself to a paradigmatic reading, as exemplified by Professor Andrzej Kopcewicz's article on different American literary machines. Kopcewicz compares the uses of the machine in *The Education of Henry Adams*, Frank Stockton's *The Great Stone of Sardis*, and Thomas Pynchon's *Gravity's Rainbow*, treating these texts as "a compound, self-reflective text" (137). The paradigmatic reading presented here will differ in the choice of texts, but it will retain two important literary landmarks of American machine imagery mentioned by Kopcewicz: Hermann Melville's *Moby Dick* and Pynchon's *Gravity's Rainbow*. The temporal and paradigmatic frame encompassing these two texts is the same here as in Kopcewicz's article, but the present discussion follows a different thread connecting the texts, namely the theme of control over the machine. Specifically, this discussion focuses on the degree of control necessary to build a machine and make it fly safely as well as the degree of individual initiative and freedom necessary to achieve this. The control vs. initiative antinomy lead to many tensions in the imaginary American engineering, tensions which were probably most conspicuous in the field of science fiction rocketry. The choice of texts for this article runs back to "The Mast-Head" episode in *Moby Dick* and then proceeds to Garret Serviss's *Columbus of Space* from the formative period of science fiction and Robert Bloch's "Strange Flight of Richard Clayton" from the Golden Age. Subsequently, the discussion shifts to the post-war period, represented by Cordwainer Smith's "Mark Elf," a continuation of the final flight in *Gravity's Rainbow*, and by James Tiptree Jr.'s "Houston, Houston, Do You Read?," where the notions of control and initiative are manifestly related to gender.

The already "high density" of "literary criticism per unit of text" in the case of Melville's encyclopedic narrative grows even higher in the case of "The Mast-Head," the

thirty-fifth chapter. The reason for this has to do with the seminal discussion of the episode in Leo Marx's *The Machine in the Garden*, where the mast-head standers, hovering above "the sublime uneventfulness" (Melville 152), become symbols of the American Adam's ambivalent wobbling between culture and wilderness. By dint of the late twentieth-century imagination men perched on the top of long tapering structures become astronauts, who can be in turn regarded as the modern mast-head standers, while their tiny capsules become the unlikely avatars of the elusive pastoral ideal of American civilization. Of course, the science-fiction aficionado, who reads *Moby Dick*, will not miss Melville's description of Captain Sleet's crow-nests, the cozy little compartments mounted on top of the masts/rockets. Those nests, even in their small details, resemble the interiors of space capsules:

Being fixed on the summit of the mast, you ascend into it through a little trap-hatch in the bottom. On the after side, or side next the stern of the ship, is a comfortable seat, with a locker underneath for umbrellas, comforters, and coats. In front is a leather rack, in which to keep your speaking trumpet, pipe, telescope, and other nautical conveniences. When Captain Sleet in person stood his mast-head in this crow's-nest of his, he tells us that he always had a rifle with him (also fixed in the rack), together with a powder flask and shot, for the purpose of popping off the stray narwhales, or vagrant sea unicorns infesting those waters; for you cannot successfully shoot at them from the deck owing to the resistance of the water, but to shoot down upon them is a very different thing. Now, it was plainly a labor of love for Captain Sleet to describe, as he does, all the little detailed conveniences of his crow's-nest; but though he so enlarges upon many of these, and though he treats us to a very scientific account of his experiments in this crow's-nest, with a small compass he kept there for the purpose of counteracting the errors resulting from what is called the 'local attraction' of all binnacle magnets; an error ascribable to the horizontal vicinity of the iron in the ship's planks, and in the Glacier's case, perhaps, to there having been so many broken-down blacksmiths among her crew; I say, that though the Captain is very discreet and scientific here, yet, for all his learned 'binnacle deviations,' 'azimuth compass observations,' and 'approximate errors,' he knows very well, Captain Sleet, that he was not so much immersed in those profound magnetic meditations, as to fail being attracted occasionally towards that well replenished little case-bottle, so nicely tucked in on one side of his crow's nest, within easy reach of his hand. (154-155)

96 Captain Sleet's capsule would pass unnoticed in every science fiction text written between the early period of the genre (inaugurated by Edgar Allan Poe's "The Unparal-

leed Adventure of Hans Pfaal”) and the 1950s, when the nest would need only a few adjustments to fit the engineering complex. The crow’s nest is equipped with the same scientific kit that sufficed for celestial navigation in early science fiction, stressing the essential link between science and white man’s survival in the universe, which is clearly indicated in the genre’s name. The fact that the inventor of the nest is a father figure (Melville compares the inventor to a father who names his child) is also significant for future rocket designs. Captain Sleet’s design is a realization of a benevolent, protective power of a parent. Of course, Melville’s warning to all “Panttheists” – and its interpretation by Leo Marx – is valid for America’s fictional astronauts, as it is perhaps for the real ones too. The mast-head, just like the space capsule, is the *locus* of encounter between the ultimate pioneering experience and the wilderness.

The obvious links between science fiction and the myths of Western pioneers have been discussed by many authors, including E. F. Bleiler, who tracked different self-conscious analogies between the fictional space pioneers and the less fictional Western ones in the fiction of Robert Heinlein, one of the founders of modern science fiction (251-260). This article explores the question of how much science, order, organization, and culture an author will allow to intervene between the pioneer and the wilderness, and how much of this intervention is indeed necessary to keep the pioneer. A short, twenty-first-century articulation of this question is: “who’s gonna ride your rocket?” and “will it have windows?”

For early science fiction writers, there was no doubt that the capsule was, like Sleet’s crow-nest in *Moby Dick*, manned by a captain, who controlled his ship even though he was perched on the top of its mast. When in an attempt to emulate Jules Verne, Garret Serviss wrote *The Columbus of Space* in 1893 and re-introduced space travel to American middle-brow audiences about fifty years after Poe, his capsule was, accordingly, very similar to Captain Sleet’s crow’s nest: there are leather racks with instruments and “comforters,” there are guns and pistols (automatic ones), but most importantly there is a bevy of sporting American gentlemen, who smoke cigars all the time and whose leader controls the spacecraft single-handedly and without any difficulty. Serviss’s rocket is somewhere at an initial stage of the historical process whereby literary manned space travel evolves from the disorderly flights piloted by pioneers, like Hans Pfaal’s balloon on its way to the moon, to the ordered vehicles controlled from the ground by armies of organized engineers like V2 in Pynchon’s novel.

It thus comes as no surprise that the walls of the early capsules are thin enough to allow close contact with the wilderness of cosmos, whereas the thick walls of more advanced fictional vehicles leave the astronaut blind to and unconscious of the horrible spaces toward or through which he is flying. Characteristically, the early space pioneers,

like Pfaal and like Serviss's gentlemen, leave the earth unnoticed by other people. This is because they run away from the constraints of culture, not unlike Natty Bumppo; their flights signify furtive and secret affairs. As the literary technology of space flight progresses, the launchings of spacecraft begin to attract crowds of spectators, and later the attention of politicians and industrial potentates. With the evolution of the genre, the rockets begin to be controlled from the ground, where powerful men give orders, but some rockets continue to be piloted by the heroes, especially in comic strips of the Buck Rogers or Flash Gordon type, which leads to the hypothesis that the heroes navigate the vehicles constructed for low-brow audiences in the same manner the pioneers would ride horses, whereas the rockets constructed with greater literary sophistication are controlled from the ground and direct the reader's attention to the problems larger than horse-riding. Several examples from the history of science fiction will show how order, associated with the ground control, is opposed to the disorderly desire to move freely in the universe.

The early space pioneers are industrious and inventive men, because only such men would face the perils of the wilderness that the pioneers of science fiction had in store for them. To use Melville's metaphor again, at the top of an early spacecraft "There is Napoleon; who, upon the top of the column of Vendome, stands with arms folded, some one hundred and fifty feet in the air; careless, now, who rules the decks below; whether Louis Philippe, Louis Blanc, or Louis the Devil" (152). The most important trait of these gifted space travelers is their independence from society: if they do not, like Pfaal, run away from the constraints of earthly order and discipline, at least they do not have to, contrary to the later astronauts, conform to the discipline of training before the flight.

Usually, the oppressive order of culture is not necessary for a safe flight and can thus be left behind. Therefore the early space flights resemble the happy and triumphant trips of Cooper's Leatherstocking, especially those trips that come before and after the essential plots of the saga's novels, when he no longer has to reckon with the civilized characters, their wars, their cultural goals and norms. The brilliant, independent, and unmarried gentlemen of *Columbus of Space* are free to explore the universe in (and along) their own way, and their exploration offers the opportunity for a close, virtually sensual contact with the perils of space.

The intimations of how this freedom was to be limited in later science fiction can be found already in Verne's *From the Earth to the Moon* (1865), where the first American astronauts (invented in France) do not control their flight, because there are no controlling devices in their capsule; it flies like a bullet shot from a cannon, since it *is* a bullet shot from a cannon. A later idle astronaut sits in the rocket launched in March 1939 by Robert Bloch in *Amazing Science Fiction Stories*. Bloch's text incidentally appeared in

the same issue with Isaac Asimov's debut story, "Marooned off Vesta." Decades later, in 1979, Asimov admitted that "Bob's story was the only one in that issue which, in my eyes, was better than mine" (Asimov and Greenberg 25). Bob's story was entitled "The Strange Flight of Richard Clayton," and it was published in the first of the "golden years" of *Amazing Stories*.

Richard Clayton is confined to a small control room of his rocket, bound for a ten-year trip to Mars, but the controls are accidentally smashed during the start. The start is observed by swarming crowds, which "would leave for home and forget" (27), but there are still no government agencies involved, and the home order is represented only by the pilot's friend. The flight is controlled automatically, so it continues safely, but with the destroyed controls, Clayton faces a nightmare of a scientific, machine-like prison:

It would take ten years to reach Mars; ten years to return.... A thousand miles an hour – not an imaginative 'speed of light' journey, but a slow, grim voyage, scientifically accurate. The panels were set, and Clayton had no need to guide the vessel. It was automatic.

'But now what?' Clayton said, staring at the shattered glass. He had lost touch with the outer world. He would be unable to read his progress on the board, unable to judge time and distance and direction. He would sit here for ten, twenty years – all alone in a tiny cabin. There had been no room for books or paper or games to amuse him. He was a prisoner in the black void of space. (27)

Clayton is not only a prisoner of the order of culture, represented by the womb of the tiny cabin, but also a prisoner of the "dark voids" of disorder behind its windowless walls. As one might expect, he gradually slips into the psychological wilderness of mental disorder, like the Western pioneers, who went mad in the estates, cabins and caverns built by Charles Brockden Brown and his followers. "This was awful. If he lost track of Time he might soon lose consciousness of identity itself. He would go mad here in the spaceship as it plunged through the void of planets beyond" (29). Clayton's inner struggle to preserve sanity constitutes a substantial part of the plot, but at one point a long dream sequence shows his close filial affinity to the Leatherstocking; he breaks off the technological order of the rocket and makes his natural runaway into the dreamy wilderness of Mars:

Now the ship landed, and Clayton had opened the door. He broke the seals and stepped out. He bounded lightly on the purple grass. His body felt free, buoyant. There was fresh air, and the sunlight seemed stronger, more intense, although clouds veiled the glowing globe.

Far away in stood the forests, the green forests with the purple growth of the lushly-rearing trees. Clayton left the ship and approached the cool grove. The first tree had boughs that bent to the ground in two limbs. (30)

The runaway into the wilderness, however, turns out to be a dream, and Clayton, a prisoner of the machine, sinks deeper and deeper into madness with every long year of his voyage. What in Garret Serviss's time was a sort of Western stage coach, or a comfortable crow's nest, in 1939 becomes, probably for the first time, a dark cavern of madness, or, to return to the *Pequod* again, a life-preserving coffin.

Outside of science fiction, the best known follower of Richard Clayton is, arguably, the boy Gottfried, who flies in Pynchon's *Gravity's Rainbow*, curled like a fetus in a tiny, coffin-like compartment of the V2 missile with the serial number 00000. During the flight Gottfried is entirely at the mercy of the powers which shaped and then guided him, behaviorally, to his ultimate destiny. He is, thus, an ultimate product of the organized order of civilization, and the launch is not a disorderly breakaway of the early space pioneers, but a regular ascent along a pre-calculated trajectory. Some critics, however, pointed to his residual blood-link with the rebellious kind of Leatherstocking (Cawelti 159). This link will be further discussed after determining what happened during and after Gottfried's final flight.

Surprising as it may seem, an insight into the circumstances of Gottfried's flight is possible. Three children, like Gottfried, fly German V2 rockets, and do so in an equally blind and helpless way, in Corwainer Smith's fiction written in the 1950s. Smith, or Paul Myron Anthony Linebarger, whose stories are borderline cases situated on the cusp of science fiction and mythic folktale, sends three little girls, tucked in three automatic missiles, up to the Earth's orbit, and then brings them back in his short stories "Mark Elf" and "Queen of the Afternoon." The starts of the girls' missiles actually precede that of the nr 00000 V2 rocket, because in Cordwainer Smith's dreamy world they were launched from a Nazi pocket of defense in the Czech town of Pardubice early in April 1945. It is also worth mentioning that "Mark Elf" was written in 1957, sixteen years before *Gravity's Rainbow*. Like Gottfried, the girls are completely at the mercy of an organization, the waning German military and scientific order, represented by their father, who launches them into space so that they can avoid rape and murder at the hands of Soviet soldiery:

She had left the screaming uproar of Hitler Germany as it fell down to ruins in its Bohemian outposts. She had obeyed her father, the Ritter vom Acht, as he passed her and her sisters into missiles which had been designed as personnel and supply carriers for the First German National Moon Base.

He and his medical brother, Professor Doctor Joachim vom Acht, had harnessed the girls securely in their missiles.

Their uncle the Doctor had given them shots.

Karla had gone first, then Juli, and then Charlotta. (38)

The daughters of the German scientist, brave girls indeed, are thus less unlikely sisters of Gottfried and of the Leatherstocking than one might think. Captain Sleet, the inventor of the crow's nest, was a father figure, and Smith shows again that the relationship between the pioneer and the order which sends him, or her, into space is that between a parent and a child. However, despite all the technological constraints, the child is an embodiment of the disorderly, exploratory spirit of the mast-head stander.

Smith's story opens when the girls return to the Earth after having orbited around the Earth for the ghastly 16,000 years, during which they neither controlled their rockets, nor experienced the black voids outside, since they were asleep, in an unspecified state of suspended animation. Back home, they discover an Earth shattered by the centuries of atomic wars and the human civilization declining into contemplative stupor. In the mythic world of Cordwainer Smith's fiction, the destiny of the agents of disorder is to regenerate the orderly culture and to inspire it with the vibrant, ancient spirit. In other words, the orderly and organized world of the parents becomes dull and self-destructive without the energizing influence of disorder, borne by their rebellious children. Smith's story might seem too simple to be considered a predecessor of *Gravity's Rainbow*, but the complexity of its magnificent, dreamlike imagery deserves attention, even if it cannot be conveyed in a summary necessitated by the paradigmatic reading.

Obviously, the vision of the morbid, oppressive capsules in rockets guided by the orderly culture from the ground provoked a vigorous response from the imaginative engineers, that is science fiction writers who wanted their characters to actually pilot the rockets. The most outstanding short stories with such a focus and intention include "Houston, Houston, Do You Read" (1974), which placed science fiction, as Robert Silverberg phrased it, "near the center of intelligent writing about the role of women and the sexual revolution" (582). Alice B. Sheldon writing under the pseudonym James Tiptree, Jr, or, less frequently, Raccoona Sheldon, sent three men around the sun, and not only let them independently fly their tiny capsule, but also let them reveal their disorderly, violent, and potentially destructive passions. Of the three astronauts, named Doc, Bud, and Dave, two belong to the grim world of the patriarchal West: Bud is a brutal cowboy, and Dave the captain is a religious patriarch. Tiptree suggests that there is a link between their navigational prowess and aggressive, destructive virility. In her story, piloting a spacecraft becomes a gender issue, and the benevolent force of the ground

control becomes a symbol of the feminine, maternal order, which the astronauts wish to reject.

Thus, the history of piloting American imaginary rockets begins with Melville's mast-head episode and oscillates, like the Pequod's standers, between a free flight accompanied by the direct experience of the wild cosmic space, and a flight guided from the Earth, with the constrained, orderly trajectory, and the pilot protectively shielded from any contact with the wilderness. The free flight is an expression of the disorderly, subversive, and pioneering spirit, whereas the guided one is the product of an oppressive social order. The relation between order and disorder in American imaginary rocketry can be related to different American myths, delineated in Leslie Fiedler's mythopoetic *Love and Death in American Novel*: the Western experience in Cooper's novels, the rebellion of children against parents (or submission tantamount to failure), the conflict between nature and culture, and the male rebellion against the caring, feminine social order.

The echoes of these American mythical conflicts resound in the texts describing the actual rockets, published as part of a soul-searching campaign, launched by the American engineers and space scientists who tried to re-establish the American program of manned space flight after the Columbia disaster in 2002. Some commentators asked why an unbelievable amount of 150 billion dollars had been spent on an unreliable space shuttle, an imperfect realization of a dream about an airliner flying into the space. In the wake of the Columbia disaster, the rocket scientist Jeff Bell listed the apparent technological drawbacks of the "fulfilled dream": the inefficient loading room arrangement, unstable aerodynamics, unnecessarily big windows, potentially dangerous landing gear, and inconvenient seating structure for the crew. Yet those flaws were unavoidable in the case of a vehicle which would fly and land like an airplane. The shuttle's pilots, says Bell, would be most comfortable sitting with their backs forward on re-entry, which is standard in most spacecraft designs. This, however, "isn't done because it would prevent the pilots from looking out the windshield and pretending that they, not computers, are flying the vehicle" (Bell, 2003). The reasons why American astronauts must pretend they fly the airplane are perhaps as culture specific as the reasons why Yang Liwei, the first Chinese astronaut, had to take 300 kilos of rice to the orbit with him (he sat with his back forward). It is possible to argue that the design was an attempt to bridge the gap between space travel and its descriptions in science fiction, especially in the science fiction of the 1940s, which allegedly inspired the first generation of the NASA scientists, engineers, and administrators. Buck Rogers, and with him Flash Gordon, and the host of *Astounding* and *Amazing* astronauts, did actually fly their ships (Wade, 2004). Indeed, in the early days of the American space program, manual control was discouraged, as it often led to trouble, for example during Carpenter's insubordinate manual re-entry during the flight of Mercury 7. Scott Carpenter, the Mercury

project astronaut, coined the phrase “man-in-the-can” to describe the conditions of space flights in the 1960s (Hansen 76). When Carpenter and his fellow astronauts demanded windows in order not to sit in a sealed can, they acted like the fictional agents of disorder and paved the way for the space shuttle. The elaborate design of the shuttle was an expression of the virtual liberation from the tyranny of the machine; it was arguably an attempt to pretend that people can actually fly their ships.

More generally, an attempt to send men into the space as subjective agents who can act independently and who are confronted with nature, can be seen as a return to Melville’s vision. It turns out, however, that it is not the independent agents who fly the ship. Rockets are flown in (near) perfect accord with the laws of nature, but in total disregard of the subjects whose presence in the ship is a pretence. What is at stake is a game of independent agency (pilots), a game shaped by cultural myths, in which passengers only act out the roles of pilots. Considerable amounts of money have been spent on the development and perpetuation of this game. Perhaps the capsules are not the only places where this game is played. Writers like Melville and Pynchon suggest that it is perhaps played on the ground too, in cheaper, but equally absurd ways.

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