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Botanophobia: Fear of Plants in the Atomic Age

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INTRODUCTION

Recent histories of American Studies stress its roots in Cold War geopolitics, with attention to the role of the United States in the establishment of propagandistic American Studies programs abroad, but they tend to overlook a critique of the nation that is evident in American Studies work from the outset. Histories are constructed stories about the past shaped by the choice of events the teller determines to be relevant. Histories of our field have not typically considered the bombing of the Japanese cities of Hiroshima and Nagasaki during World War II as affecting the development of American Studies. Yet, there was arguably no more momentous event in the 1940s, the decade that witnessed the significant institutionalization of the field in American universities, than the dropping of those bombs. On August 7, the very day President Harry S. Truman officially introduced the American public to the atom

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bomb, calling it, "a harnessing of the basic power of the universe," many journalists expressed their horror and dismay, lamenting, in the words of one, that "Americans" had become "synonymous with destruction."[1] That sentiment motivated Wallace Shawn, managing editor of *The New Yorker*, to send war correspondent and Pulitzer Prize-winning novelist John Hersey to Hiroshima to document the human suffering that America's use of the bomb had perpetrated on a civilian population. On August 31, 1946, the journal known for its urbanity and sophistication devoted an entire issue to Hersey's account—the only time in its history to do so.

Hersey's narrative asked Americans to consider their own and certainly their nation's accountability for the decision to deploy a weapon that not only devastated two cities and their surroundings, but could also have ended the world along with the war. It is tempting to think of this account as a work of American Studies. While such accountability was not the central argument of the early classics in the field, which sought mainly to distinguish a uniquely "American" culture from its imperial progenitor, England, the coincidence of the institutionalization of the field with the emergence of the United States as one of the two pre-eminent global powers in what can only be described as a dangerously explosive world, is registered in these works as well. In that sense, their concerns resonate with those of the critical journalists; they are evident, for example, in the exploration of the destructive consequences of the early nation's mythic relationship to the land by such figures as Henry Nash Smith, Perry Miller, R. W. B. Lewis, and Leo Marx. "Nature's nation," as Perry Miller called it, has always registered ambivalence about its own tenuous roots—or suspicion of its lack thereof. In what follows, I will not be looking primarily at American Studies, but my analysis of a popular cultural phenomenon that I see as a reaction to atomic warfare comes out of the critical perspective it offers.

I am deeply honored by your invitation to address the annual meeting of the Japanese Association for American Studies. I am humbled when I consider that I am speaking to you a year after the tragic events of the Tōhoku earthquake and tsunami and the Fukushima Daiichi nuclear disaster, which summoned painful memories of the atomic devastation. And I am grateful that our field has brought us together. It is precisely into the connections between natural and manmade disaster and between warfare and environmental devastation that I believe an American Studies approach can offer important insight. Those connections will be the topic of my talk tonight. It is worth remembering that both the American Studies Association and the Japanese Association for American Studies were founded in 1951, in the aftermath of war, following events of planetary significance: the

bombing of Hiroshima and Nagasaki. I am arguing that those bombings were a defining moment both for world politics and the relationship of humanity to the earth as an entity, and for the creation of American Studies as a field that emerged to explain "America" to the world and especially to itself. Contemporary critiques of American Studies stress the narrowness of the national frame and encourage scholars in the field to think "transnationally" or "globally." If, however, we think about World War II and the dropping of the atom bombs in particular as a defining moment not just for the United States, but also for American Studies, we might begin to understand the ways in which American Studies has always been planetary, and to consider how the field has imparted the tools and methods for the very analyses represented by these recent calls. I am drawing on these tools as I consider, in what follows, the evidence and consequences of what I call "botanophobia": the fear of plants in the atomic age.

I.

Among the many horrifying effects of nuclear warfare, the proliferation of plant life does not seem as though it would rank high on the list. Yet, when Hersey interviewed the six survivors of the bombing of Hiroshima whose accounts would form the basis of *Hiroshima*, one of the survivors, Miss Sasaki, remembered being especially disturbed by precisely that. Carried through the city en route from one hospital to another several weeks after the event, the wounded clerk was "horrified and amazed" by the destruction that she had been unable to imagine. But "there was something she noticed about it that particularly gave her the creeps. Over everything—up through the wreckage of the city, in gutters, along the riverbanks, tangled among tiles and tin roofing, climbing on charred tree trunks—was a blanket of fresh, vivid, lush, optimistic green; the verdancy rose even from the foundations of ruined houses. Weeds already hid the ashes, and wild flowers were in bloom among the city's bones."[2] The contrast between the unthinkable destruction of life in one form and the clear evidence of its continuity in another, which Hersey captures in the phrase "optimistic green," disturbed her in its uncanniness.

Hersey's editorializing inheres in his word choice: the "vivid, lush, optimistic green" *blankets* the wreckage, and the weeds *hide* the ashes and "bloom among the city's bones." He continues:

> The bomb had not only left the underground organs of plants intact; it

> had stimulated them. Everywhere were bluets and Spanish bayonets, goosefoot, morning glories and day lilies, the hairy-fruited bean, purslane and clotbur and sesame and panic grass and feverfew. Especially in a circle at the center, sickle senna grew in extraordinary regeneration, not only standing among the charred remnants of the same plant but pushing up in new places, among bricks and through cracks in the asphalt. It actually seemed as if a load of sickle-senna seed had been dropped along with the bomb. (69–70)

In this final chapter, the survivors recall their efforts to make sense of the incomprehensible destruction—the blast that turned people into their shadows—giving rise to stories, like Hersey's own, that mixed "fancy and precise details" (73). Miss Sasaki's memory of the vision that "gave her the creeps" occasions Hersey's lavish botanical catalogue, a list that very briefly disrupts his journalistic account of the horrible aftereffects of the bomb: the nausea, fatigue, fevers, hemorrhages, hair loss. The narrator seems to get lost in the lushness of his description, as though the verdant landscape has lulled him into a moment of forgetfulness.

It is easy for the reader to be lulled as well into forgetting that Hersey is reporting someone else's account of this vision, since he was in Moscow, not Hiroshima, at the time of the bombing. And it is difficult to imagine that Miss Sasaki, who was suffering from fever and terrible pain at the time that she was being moved through the city between hospitals, would have noticed exactly which plants were blanketing the ruins, even if she had such detailed botanical knowledge. Moreover, many of the plants in Hersey's catalogue are not native to Japan and were not likely to have been in bloom among the bricks and bones of Hiroshima. The list represents a mix of technical botanical terms and more generic names, of weeds and blossoms, native and alien species. The apparent precision of the details threatens to mask the fancy. The catalogue reminds us that what may seem most factual and objective may be precisely where the journalist reveals himself as a storyteller and interpreter.

Hersey never loses sight in his account of the fact that the devastation on which he is reporting was perpetrated by the United States government against Japanese civilians, but the implications of this passage widen the culpability to planetary proportions. The insight was evident in the United States even in the earliest days following the August 7 announcement of the bombing of Hiroshima, in the response, as I have noted, of several journalists. While Truman justified the new war craft to the American public,

proclaiming, "the force from which the sun draws its powers has been loosed against those who brought war to the Far East," the *Times* military editor, Hanson Baldwin, who had won a Pulitzer Prize for his coverage of the early years of the war, was considerably less sanguine. In the same issue, he chastened, "Yesterday man unleashed the atom to destroy man, and another chapter in human history opened, a chapter in which the weird, the strange, the horrible becomes the trite and the obvious. Yesterday we clinched victory in the Pacific, but we sowed the whirlwind." Lamenting, "much of our bombing throughout the war—like the enemy's—has been directed against cities, and hence against civilians," Baldwin explains that it is the particular efficacy, hence devastation, of American bombs that has turned "Americans" into "a synonym for destruction," an equation intensified by the use of "a new weapon of unknowable effects which may bring us victory quickly but which will sow the seeds of hate more widely than ever. We may yet," he forecast, "reap the whirlwind."

In the days following the dropping of the bombs, when Hersey's subjects were suffering the earliest effects of radiation sickness, other prominent American journalists echoed Baldwin's warning. Edward R. Murrow mourned, "Seldom if ever has a war ended leaving the victors with such a sense of uncertainty and fear, with such a realization that the future is obscure and that survival is not assured," and Norman Cousins noted the tempering of any elation at the apparent end of the war by the emergence of "a primitive fear, the fear of the unknown, the fear of forces man can neither channel nor comprehend."[3] It was not, he explained, a new fear; it was rather "the fear of irrational death. But overnight it has become intensified, magnified. It has burst out of the subconscious and into the conscious, filling the mind with primordial apprehensions."[4] And an editorial in *Christian Century* magazine described "a spell of dark foreboding over the spirit of humanity" that had been cast by the bomb.[5]

It is tempting to read the botanical catalogue in *Hiroshima* allegorically. Many of the plants in the list are North American species, some of them notoriously invasive. A Japanese survivor of the bombing could well note their resonance with the American troops stationed in the city, and throughout Japan, to supervise the surrender and maintain control in the aftermath of the bombing. But the horror of the scene pierces the allegory, showing a glimpse into the potential future of humankind in the atomic age. The contrast between the devastated fauna and infrastructure of the city and the thriving flora enacts Nature's indifference to human achievement and survival. Miss Sasaki's response to the "optimistic green" bears witness to

the anguish of the insight that, as the molecular biologist Joshua Lederberg would explain in another context, "Nature is far from benign; at least it has no special sentiment for the welfare of the human versus other species . . . the survival of the human species is not a preordained evolutionary program."[6] The particular uncanny sensation Miss Sasaki (ostensibly) reports suggests a tacit acknowledgment of that indifference, as the plants turn the destroyed structures into classic ruins—perhaps even a mockery of human achievement. Hersey's description manifests generic confusion when a pastoral landscape metamorphoses into the setting of a horror film of biblical proportions, as though the destruction changed the terms of storytelling itself. The potential future glimpsed in this scene forecasts a postapocalyptic world in which the meek truly inherit the earth.

Although not yet quite marking the end of the world, this apocalypse is revelatory in the green optimism of its accelerated growth. Complementing the national conflicts of World War II was another imminent conflagration. Humankind was evidently at war with its surroundings. "Ever since man learned to master it to such an extent that the destruction of all organic life on earth with man-made instruments has become conceivable and technically possible," the philosopher Hannah Arendt would observe, "he has been alienated from nature." Atomic warfare for her was merely the amplification of that mastery: "Ever since a deeper knowledge of natural processes instilled serious doubts about the existence of natural laws at all, nature itself has assumed a sinister aspect."[7] In the magnifying glass of the rubble of this mastery, Hersey displayed that alienation and its consequences. Nature turns gradually and subtly sinister in this passage, as the blanket—vivid, lush, optimistic—slowly overwhelms; leaves push through cracks, turning ruination into ruins, life into the memory (and mockery) of death, until sickle senna seeds are virtually indistinguishable from the bomb itself.

"The disease of reason," wrote the philosopher Max Horkheimer in 1947, as the long-term consequences of atomic warfare were beginning to emerge, "is that reason is born from man's urge to dominate nature."[8] The futuristic timeline of *Hiroshima*'s verdure shows what vegetation might become in the absence of Nature's sworn foe. Unchecked by a human presence, vegetation proliferates. But Miss Sasaki's creepy sensation signals that the generic metamorphosis from pastoral to horror has already begun. The sinister turn inflects the (potentially contaminated) plants with a hint of (human) aggression.

Whether Hersey intended to stage this all-too-human transformation of indifference into enmity—of, that is, the return of the repressed—or whether

he unwittingly performed it, the scene foretells a prominent theme of science fiction horror novels and films that proliferated, like the vegetation in the scene, in the wake of the war. The premise of such works as *The Thing from Another World, The Day of the Triffids,* and *Invasion of the Body Snatchers* may seem absurd to narrate, but the numerous incarnations of these works bespeak an endurance that is the result of more than camp. The intelligent vegetation that threatens humanity in these works suggests a widespread grappling with the relationship between the human and its environment in the postwar world that had broad implications not only for the development of the environmental movement, fueled by Rachel Carson's 1962 *Silent Spring*, but also for American science and politics—and for American Studies.

II.

It is easy to chuckle at the plots of such films as *The Thing from Another World* (1951), about a military unit's battle with what one of the characters in the film dubs "an intellectual carrot," or *Invasion of the Body Snatchers* (1956), in which giant seedpods threaten the human race. But as American Studies has taught us, the recurrence of a particular theme in popular cultural forms registers and fosters widespread concerns and yields insight into the preoccupations of a particular moment. What may seem absurd in retrospect was very much intended to be—and characteristically experienced as—horror, if contemporary reviews of the films are any indication. These works turn assumptions that might be buried in the metaphors of scientific publications or perhaps offered as passing suggestions in journalism into full-blown scenarios that amplify those conventions. The stories in these films and the fiction on which they were based extend the implications of Hersey's botanical catalogue. What may seem absurd now is precisely what offers insight into a formative, although largely obscured, set of concerns about the nature of the human and its relationship to its surroundings in the postwar period.

The Thing from Another World begins with a prominent scientist's summoning a military unit to his experimental station at the North Pole to investigate what seems to be an unidentified flying object. Discovering a mysterious flying machine buried in the ice, the unit follows "standard operating procedure" and blasts the area with thermite. Despite the ice, the machine catches fire and burns, but the occupant survives, and the unit brings it back to the station. Escaping from its frozen prison, the creature

flees into the night, where it is attacked by sled dogs, two of whom it kills, losing an arm in the process. Led by the stereotypical postwar man of science, Dr. Carrington, the scientists discover that the creature, which appears humanoid, is in fact "porous unconnected vegetable growth," which is to say, walking vegetable matter.[9]

In response to the surprise of the military personnel, Carrington explains that the mind should not in fact "boggle" if they really know anything about either evolution or the flora of their own planet. He quickly surmises that while animal life evolved to be the dominant form on the Earth, the creature is clearly from a planet on which vegetation took the evolutionary lead. Here Carrington underscores the arbitrary nature of the human as he puts into popular terms the implications of evolutionary insights that had been broadly circulating since the previous decade. The "evolutionary synthesis," as it came to be called, referred to a collaboration of geneticists and natural historians that offered an explanation for the mechanism of Darwin's concept of natural selection. An outgrowth of the emerging field of population genetics, this concept showed how a single "mistake" in the copying of genetic material could, over several generations, alter the genetic characteristics of a population, and, eventually, produce an entirely new species. It showed, in other words, the inevitability of change and the role of chance in the process. And it challenged any human pretentions to teleology. While the evolutionary synthesis preceded the bombing of Hiroshima, the use of atomic weapons significantly accelerated research in human genetics; in turn, alternative evolutionary possibilities in an increasingly populated cosmos fueled the emerging genre of science fiction and its hybrid, science fiction horror. The "intellectual carrot" challenged human evolutionary hubris.

Carrington, whose appearance and mannerisms hint at his Mephistophelian characteristics, is the classic postwar man of science, whose quest for knowledge has tempered his humanity. Scientists' role in the creation of the atomic bomb in particular generated a pervasive unease about the perceived lack of humanistic considerations in the sciences extending to a lack of faith in the constraints of humanity itself in 1950s America. "The bomb dropped on Hiroshima was doubtless heard by human ears for hundreds of miles around," intoned an editorialist in the *New York Times* shortly after Truman's announcement, "but morally it was heard around the world." It is not human malevolence so much as short-sightedness that concerns this writer, who muses, "Today men can only think haphazardly of a few of its possible

consequences: the effect on the war against Japan, the effect on the future of all warfare, the peacetime applications to power and economic creation, the scientific and political revolution that it must bring." And the writer wonders whether or not "mankind" can "grow up quickly enough to win the race between civilization and disaster."[10]

One of Carrington's colleagues offers a quick botany lesson, assuring the astonished journalist, who worries about his readership's ability to believe what they have encountered, that "intelligence in plants and vegetables is an old story . . . older even than the animal arrogance that has overlooked it." But most revealing is Carrington's excitement about the discovery of seedpods in the creature's severed arm, which signals the "neat and unconfused reproductive technique of vegetation. No pain or pleasure as we know it. No emotions. No heart." The creature, he enthuses, is "our superior, our superior in every way" and will reveal "secrets" of the universe "if we can only communicate with it." His homage to the creature is interrupted when the group notices that the arm is consuming the blood of the dogs that ripped it off and beginning to move. The discovery that "it lives on blood" is also the discovery that it feeds on animal life. The implications of that discovery materialize when two of the scientists are discovered hanging upside down in the greenhouse with their blood drained, as "in a slaughterhouse." Carrington explains that the creature "has the same attitude towards us that we have toward a cabbage field," and one of his colleagues speculates that the creature may well have come to Earth in order to conquer it, to create an army and harvest humans as food for it. The horror expressed in the film is not so much that human beings find themselves at "war" with vegetable matter, as that the botanical creature experiences humanity as nothing more than its food.

Similarly, the seedpods threatening to take over the world in *Invasion of the Body Snatchers* have no enmity for humanity, just the instinct to survive. Jack Finney, author of the novel (originally entitled *The Body Snatchers*), puts the explanation in the mouth of a former botany professor, the aptly named Bernard Budlong, who is Pod Zero (the first human being who is "body snatched" by the pods): the pods have come to earth, he explains, "by pure chance, but having arrived, they have a function to perform. . . . The function of all life, everywhere—to survive."[11] There is no malevolence in what the human beings experience as an attack; rather, "the pods are a parasite on whatever life they encounter. . . . But they are the perfect parasite, capable of far more than clinging to the host. They are completely evolved

life; they have the ability to re-form and reconstitute themselves into perfect duplication, cell for living cell, of any life form they may encounter in whatever conditions that life has suited itself for" (153). The pods take over human bodies when human beings fall asleep; they are exact replicas of the snatched person except for one crucial particular: like the "intellectual carrot," they have no emotions.

The revelation compelled by the pods similarly involves a new conception of the human, but in this case it derives from the new science of information theory rather than evolution. Budlong explains the machination of body snatching in terms that echo the early cyberneticist Norbert Wiener's description of the nature of human beings in *The Human Use of Human Beings*. Wiener labeled the "pattern . . . the touchstone of our personal identity. Our tissues change as we live: the food we eat and the air we breathe become flesh of our flesh and bone of our bone, and the momentary elements of our flesh and bone pass out of our body every day with our excreta. . . . We are not stuff that abides, but patterns that perpetuate themselves."[12] Likewise, Budlong explains to the protagonist of *Body Snatchers* that the human body "contains a pattern" that "is the very foundation of cellular life" (155); since "every cell of [an entire body] emanates waves as individual as fingerprints" (155), the pods can snatch the pattern "during sleep . . . absorb [it] like static electricity, from one body to another" (155-56).

The seedpods of these science fiction horror stories draw out the implications of Hersey's botanical catalogue; they are most disturbing in their indifference to humanity, in their treating human beings as sustenance rather than intelligent foes. And both stories manifest the response that is also implicit in the Hersey passage when they transform the sentient plant life into a willful enemy. While the creature in *The Thing* is described as humanoid, there is no significant character development; its visual association with the creature in *Frankenstein* and its wordless raging in its rare appearances renders it monstrous from the outset and throughout the film. Carrington's insistence that it is, as he puts it, "a stranger in a strange land" and a superior life form, entitled to respect and capable of communication with human beings, is never supported with evidence and is definitively belied when the roaring creature swipes him aside in its determination to destroy the human beings in the penultimate scene. The creature's electrocution at the end of that scene cements its association with Frankenstein's creature. The creature in *The Thing from Another World* might well be capable of superior technology (the spaceship), but it has the

diplomatic skills of a vegetable—and not an intellectual one. The pod people, by contrast, are capable of communication, but they nonetheless manifest the same contempt for their human prey. They are cunning and willful and, while not monstrous in appearance, their coldness—described in the novel through their tone of voice and the absence of a "special look" in their eyes and manifested in the film through tone and look as a chilling automatism—renders them "monstrous" by association with the characteristics of villainy in this period: the chilling automatism evident in cinematic depictions of Communists and Nazis.

It is surprising that Carrington, who works to protect the creature throughout *The Thing from Another World*, describes a "war" between the creature and the human species, but his language is revelatory. The novels and films bespeak a deeply adversarial relationship between humankind and nature in which botanical aggression comes to justify the human domination over nature that Horkheimer called the "disease of reason." The botanical turn to the vicious, that is, justifies the domination that the insights evident in Horkheimer's comment and, although more implicitly, Hersey's botanical catalogue call into question.

III.

Beginning her 1958 study of *The Human Condition* with the launching of Sputnik the year before—an event she calls "second in importance to no other, not even the splitting of the atom"—Arendt remarks on the oddness of the general reaction: not, as she might have expected, joy at this human achievement, but "relief about" what one reporter called "the first 'step toward escape from men's imprisonment to earth.'"[13] That feeling, she observes, had been "commonplace for some time. . . . What is new is only that one of this country's most respectable newspapers finally brought to its front page what up to then had been buried in the highly non-respectable literature of science fiction (to which, unfortunately, nobody yet has paid the attention it deserves as a vehicle of mass sentiments and mass desires)" (2). While Arendt describes "the first atomic explosions" (6) as a break with the past—an initiation of a new political modernity—the project of *The Human Condition* is to tease out the implications of humankind's alienation from nature to which she had alluded nearly a decade earlier in *The Origins of Totalitarianism*. "The purpose of the historical analysis," she explains, "is to trace back modern world alienation, its twofold flight from the earth into the universe and from the world into the self, to its origins, in order to

arrive at an understanding of the nature of society as it had developed and presented itself at the very moment when it was overcome by the advent of a new and yet unknown age" (6). And she dates those origins from what she calls "an Archimedean standpoint," the term she gives to the cosmic conceptualization of the planet. The imagined view of the Earth from the cosmos has the effect, she argues, of "alienating man from his immediate earthly surroundings" and, consequently, of allowing human beings to imagine their survival after the destruction of the planet. The resulting "world-alienation," she argues, "and not self-alienation, as Marx thought, has been the hallmark of the modern age."

Implicit in this alienation is a disavowed identification with living organisms, a refusal, that is, of an ecological point of view in which human beings are part of a planetary ecosystem. In the world-alienation, Arendt suggestively identifies a human wish for immortality that requires human beings to dissociate themselves from the flora and fauna, which mark the inevitability of death—of the individual and of the species. In the life cycles that are fundamental to living organisms, human beings see the certainty of their own mortality—the inevitable finitude of individuals and species alike—and, Arendt suggests, they rebel. Nothing better records that rebellion, the hopes and fears associated with the wish and the disavowal it prompts, than science fiction. If human beings are plant food in *The Thing from Another World* and hosts for parasitic seedpods in *Invasion of the Body Snatchers*, the barren landscape of *Forbidden Planet* (1956) shows the consequences of disavowed wishes. In this film, scientists sent to discover the fate of an earlier group of colonizers discover that their predecessors have devastated a once Edenic planet. Having designed a machine that can gratify human wishes, they fail to take into account the destructive impulses of the unconscious. The fate of the planet—and of all but the two remaining survivors, a scientist in the Carrington (and Prospero) mold and his daughter—reflects the consequences of which Arendt warns. "If it should turn out to be true that knowledge (in the modern sense of know-how) and thought have parted company for good," she cautions, "then we would indeed become the helpless slaves, not so much of our machines as of our know-how, thoughtless creatures at the mercy of every gadget which is technically possible, no matter how murderous it is" (3).

It is, then, not surprising that the alien vegetation of these stories eventually metamorphoses into sinister antagonists—"an inhuman enemy," laments Miles, the sole survivor of the pod invasion in *Body Snatchers*, "bent on my destruction."[14] And it makes sense, as well, that greenhouses—

spaces of human cultivation of flora—should be uncanny sites of destruction. The greenhouse is where the scientists in *The Thing* find their colleagues hanging upside down, drained of their blood, and where the four central characters of *Body Snatchers* discover the pods. Director Don Siegel uses greenhouse plants to frame the characters in the shot that captures their first glimpse of the pods, as though the plants are closing in on their human cultivators. The greenhouse scenes subtly suggest the control over nature that cultivation taken to its extreme implies, especially in the context of such works as the 1951 novel *The Day of the Triffids*, which gives literal meaning to invasive species when the possibly bioengineered triffids declare war on humankind. The multiple novelistic and cinematic retellings of all of these stories evince a widespread and continuing fascination with this theme.

But if the dangerous greenhouse hints at the botanical antagonism that human beings may be cultivating along with their plants, cultivation can also suggest a continuum that extends from plants to their human cultivators. The brilliant but evil scientist who brainwashes a US combat unit in Richard Condon's 1959 novel, *The Manchurian Candidate*, chooses a ladies' garden club in New Jersey as the hallucinatory setting for the unit, which is actually sitting on the stage of a theater in Manchuria while the scientist, Yen Lo, demonstrates the new science for an audience of military and civilian leaders from China and the Soviet Union. Although the substance of the hallucination Yen Lo produces might seem incidental to the plot of the novel, the brilliant 1962 cinematic adaptation, directed by John Frankenheimer, suggests a connection between the two lectures. While Yen Lo explains that the form of extreme "conditioning" that had recently been dubbed "brainwashing" is nothing more than an extension of the normal processes of social conditioning to which everyone is subject, Mrs. Henry Whittaker delivers a lecture on "Fun with Hydrangeas." An ornamental plant noted for its beauty and for (if ingested) its potential toxicity, and (if smoked) its hallucinatory quality, the hydrangea is not unlike Ellie Iselin, the beautiful but deadly mother of the primary subject of Yen Lo's experiment, Raymond Shaw, whom he "conditions" to become an unwitting assassin, the center of an elaborate plot to overthrow the US government. The camera pans the room repeatedly, randomly exchanging Mrs. Henry Whittaker (whose name invokes the famous Communist-turned-informant Whittaker Chambers) and Yen Lo, the ladies in the audience and the Communist dignitaries, and the lectures on the cultivation of plants and the conditioning of human beings in the process. If human beings are at war

with their botanical surroundings, it is, as Arendt and numerous science fiction writers make clear, a violence that threatens nothing more than the human species itself: herbicide become homicide.

Hersey's botanical catalogue suggests as much, and it was the explicit and powerful message of another ground-breaking *New Yorker* article turned best-selling book in 1962, the biologist Rachel Carson's *Silent Spring*. The work that is often touted for its role in launching—or at least widely popularizing—the contemporary environmental movement in the United States chronicles how the development of chemical weapons during and between the world wars led to a "war on nature" in the form of pesticides and herbicides. "This pollution," writes Carson, initiates "a chain of evil . . . not only in the world that must support life but in living tissues" that is "for the most part irreversible." Carson begins with an enchanted landscape: "There once was a town in the heart of America where all life seemed to live in harmony with its surroundings" until "a strange blight crept over the area and everything began to change."[15] An "evil spell" appeared to have settled on the town; the animals and people suffer from "mysterious maladies," and "everywhere was a shadow of death." A "strange stillness" settles on the land. . . . It was a spring without voices" (2). The tone begins to shift with the disenchanting conclusion that "no witchcraft, no enemy action had silenced the rebirth of new life in this stricken world. The people had done it themselves" (3).

Fairy tale shades into science fiction as Carson discloses the past of her "Fable for Tomorrow" to be the reader's ominous future, a "grim specter [that] has crept upon us almost unnoticed" (3): a silent spring devoid of the song of birds. Like the "noiseless flash" in the title of Hersey's first chapter, silence heralds unspeakable destruction. In the mirror of the tale, as in the proliferating vegetation of *Hiroshima*, readers glimpse the world following their own extinction. And, as in Hersey's work, the apocalyptic moment is revelatory: it manifests humankind's ongoing war with nature.

As in her opening tale, Carson turns to the literary in *Silent Spring* to dramatize the strange and horrifying transformations human beings are enacting in this war. Invoking Medea's magical poisonous robe that causes its wearer to suffer an especially painful death, she describes the "death-by-indirection" of "systemic insecticides" (32). The "extraordinary properties" of these chemicals

> convert plants or animals into a sort of Medea's robe by making them actually poisonous. . . . The world of systemic insecticides is a weird

> world, surpassing the imaginings of the brothers Grimm—perhaps most closely akin to the cartoon world of Charles Addams. It is a world where the enchanted forest of the fairy tales has become the poisonous forest in which an insect that chews a leaf or sucks the sap of a plant is doomed. It is a world where a flea bites a dog, and dies because the dog's blood has been made poisonous, where an insect may die from vapors emanating from a plant it has never touched, where a bee may carry poisonous nectar back to its hive and presently produce poisonous honey. (32–33)

If Hersey's proliferating plants mock the hubris of human endeavor, Carson's poisonous forest marks it as destructive and ultimately doomed. Nathaniel Hawthorne foretold this world in his description of Dr. Rappaccini, whose belief that "all medicinal virtues are comprised within . . . vegetable poisons" leads him not only to cultivate a luxuriant but deadly garden, but also to turn his beautiful daughter poisonous.[16] In Carson, as in Hawthorne, the quest for knowledge and control at once bespeaks and creates a fear of life.

"This sudden silencing of the song of the birds," writes Carson, "this obliteration of the color and beauty and interest they lend to our world have come about swiftly, insidiously, and unnoticed by those whose communities are as yet unaffected" (103). Like the pod invasion in *Body Snatchers*, the takeover is systemic but gradual, silent, and unperceived. Carson is particularly horrified by what it portends: "chemicals are the sinister and little-recognized partners of radiation in changing the very nature of the world—the very nature of its life" (6). Humankind is colonizing the future. The chemicals are finding their way not only into the blood, tissue, and bones of living human beings, but also into "mother's milk, and probably into the tissues of the unborn child" (16)—into the circulatory systems of people and of the planet. They "have the power to strike directly at the chromosomes," threatening "our genetic heritage, a possession that has come down to us through some two billion years of evolution and selection of living protoplasm, a possession that is ours for the moment only, until we must pass it on to generations to come" (216). Carson, who was battling breast cancer while writing *Silent Spring*, turns especially dramatic in her description of how our very cells turn against us in the present, as exposure alters cell division, turning it "alien and destructive" (230). As individuals and as a species, we are mortgaging our future for "a sproutless potato or a mosquitoless patio" (216).

Carson does not suggest that human beings should make no effort to control their surroundings; rather, she advocates for biological rather than chemical solutions, which requires a deeper understanding of the "web of life" in which human beings exist. The anxious insight registered in *The Thing, Body Snatchers*, and other science fiction, however, is implicit in Carson's analysis: human beings are not only part of the food chain, but they may not be at its top. Or deserve to be. "The question" she poses "is whether any civilization can wage relentless war on life without destroying itself, and without losing the right to be called civilized" (99). Or its presumed place in the food chain. Ironically, the very war they are waging seems to be giving the evolutionary advantage to the ostensibly lower-order organisms. Temporally, insects, with their rapid generations, are mutating sufficiently quickly to develop resistance to the toxins that are not only failing to hit their marks but are turning back on the marksmen. Carson's observations illustrate Arendt's formulation: the dangerous desire to escape the earth, which is to say to escape individual death, is leading to the death of the species. Again, the haunting irony of Hersey's flora: Darwin goes biblical as the survival of the fittest means the meek inherit the earth.

The war on nature perverts reproduction, turning it into the source of fear rather than assurance of a future. The seedpods in both *The Thing* and *Body Snatchers* manifest the uncanny implications of Hersey's proliferating flora. Yen Lo conjures Mrs. Whittaker and the matronly ladies of the garden club, as he uses Raymond's mother, as part of his deadly plot to transform a human being into a weapon that can unknowingly destroy even what he most loves. The poet Theodore Roethke's 1948 collection, *The Lost Son and Other Poems*, illustrates how widespread this idea was in the transformation of a greenhouse into a haunted house. Although this son of commercial greenhouse owners described the greenhouse as his poetic "symbol for the whole of life, a womb, a heaven-on-earth," the vegetation that is the focus of this poetry repeatedly terrifies the child. Orchids, for example, "Adder-mouthed," drift "down from their mossy cradles: / Soft luminescent fingers, / Lips neither dead nor alive, / Loose ghostly mouths / Breathing." And a poem entitled "The Weed Puller" finds the poet "Hacking at black hairy roots,— / . . . With everything blooming above [him], / Lilies, pale-pink cyclamen, roses, / Whole fields lovely and inviolate,— / . . . down in that fetor of weeds, / Crawling on all fours, / Alive, in a slippery grave."[17] Like the reader of Carson's opening tale, he has become his own ghost as cultivation shades imperceptibly into destruction.

IV.

As knowledge of the mutagenic properties of chemicals and radiation made humanity's future uncertain, turning wombs into spaces of dangerous transmission if not graves outright, science fiction increasingly recorded the transformation of vegetation into invasive species in the most literal sense. The mutated giant ants of Gordon Douglas's 1954 *Them!* and Ishirō Honda's mutated sea creature in his incomparable 1954 *Godzilla* are two of the best-known science fictional treatments of the effects of radiation on the insect and amphibious worlds. But the power of the transformative effect of the war on both flora and humanity is perhaps nowhere more powerfully depicted than Honda's 1963 *Matango*, known in English as *Matango, Fungus of Terror* and also as *Attack of the Mushroom People*. Based on a short story by the early twentieth-century English writer William Hope Hodgson, *Matango* chronicles the fate of the passengers of a yacht marooned on an island filled with mushrooms that turn most of them into mushroom people. The resonances with *Lucky Dragon 5* and the mushroom cloud are obvious, but the film differs from other films premised on atomic mutations, such as *Them!* and *Godzilla*, in its emphasis on metamorphosis rather than war and destruction. It is in that sense more like the pods of *The Body Snatchers* and other aliens that take over their human hosts, including Robert Heinlein's 1951 *The Puppet Masters*, William Cameron Menzies' 1953 film *Invaders from Mars*, or Philip K. Dick's 1954 short story "The Father-Thing." But the surviving protagonist actually wonders if he should have stayed on the island with his converted love and muses on the similarities between human beings and the mushroom people: both, it seems, are invasive species. Unlike those earlier works, *Matango* is not a cautionary tale about the loss of humanity but a grim recalibration of what humanity actually is.

The poet and novelist James Dickey similarly meditates on that metamorphosis, but with a twist, in his 1963 poem "Kudzu." The arresting opening of the poem maps geopolitics onto botanical bullying: "Japan invades. Far Eastern vines / Run from the clay banks they are / Supposed to keep from eroding." Nature fights back, as the poem dramatizes the consequences of human interference in the web of life. The kudzu runs amok, escaping the river banks where it has been planted to do humanity's bidding and coiling "Up telephone poles, / Which rear, half out of leafage / As though they would shriek, / Like things smothered by their own / Green, mindless, unkillable ghosts." It creeps into the pasture and up to the home,

where ". . . you sleep like the dead. / Silence has grown Oriental / And you cannot step upon the ground" because it disappears beneath the kudzu where snakes hide.[18] The poem ends with a pyrrhic victory and an uncanny transformation: the snakes rooted out and the vines withering, but at a great cost. Powerful and destructive, the vines are also metamorphic; their power transforms as it courses through the bodies of the humans—"It was as though you had / A green sword twined among / The veins of your growing right arm"—until disrupted by the destruction of the field.

The metamorphosis identifies the humans with the kudzu, ambiguously casting them as invasive species and part of the web of life, diminishing themselves as they destroy the field. The opening of the poem summons the planetary war marked by the dropping of the atom bomb, as it satirizes the racialized nativist sentiments that were commonly invoked through botany: it was not unusual for mid-twentieth-century gardening magazines to describe the proliferation of plants native to other countries, such as kudzu or honeysuckle, as invasions, and, conversely, to advocate the cultivation of native plants. Yet, Dickey is also writing against the backdrop of the use, from 1962 through 1971, of herbicides and defoliants to expose the hiding places and destroy the food supply of "enemy" troops, which David Zierler dubs the "herbicidal warfare" of Vietnam.[19] His invocation of the pervasive botanical nativism shows how the fear of life implicit in the fear of plants inflects geopolitics, resulting in the "world-alienation"—the potentially planetary devastation—that Arendt had forecast.

I have been suggesting that botanophobia manifests a human unwillingness to accept the lessons of evolution: the mutability and the ultimate finitude of all living things as they circulate through a web of life. For Arendt, that unwillingness had put the species on a course of planetary destruction. By the end of the 1960s that destruction seemed imminent. Race riots and anticolonial violence worldwide showed the broad dissatisfaction with contemporary social hierarchies and the geopolitics that maintained them. Nuclear proliferation and environmental exhaustion suggested the world could end at any time either in a bang or a whimper. America's involvement in Vietnam helped to crystallize the connections among the different forms of violence and disregard for human and nonhuman life. Structural analyses began to emerge.

At a widely publicized gathering of clergy opposed to America's involvement in the Vietnam War at New York's Riverside Church, the Civil Rights leader Martin Luther King, Jr. highlighted the connections among racism and poverty at home and colonial and ecological violence abroad.

"They watch as we poison their water, as we kill a million acres of their crops," he intoned. "They must weep as the bulldozers roar through their areas preparing to destroy the precious trees. . . . So far we may have killed a million of them, mostly children." The American soldiers, disproportionately representing the nation's poor, watch too, King laments, and the distinction between them blurs, as he condemns the injustice "of burning human beings with napalm, of filling our nation's homes with orphans and widows, of injecting poisonous drugs of hate into the veins of people normally humane, of sending men home from bloody battlefields physically handicapped and psychologically deranged."[20] In 1967, King could not have known that the soldiers on both sides would also bring home the effects of Agent Orange and the other toxins in their very blood and genes—that in the most literal way, the war had injected its poisons into their very futures. Although he would not live to learn how herbicidal warfare in Vietnam would literalize his metaphors, the connections he drew anticipated the insights that the Black Power activist Stokely Carmichael would call "institutional racism" and the Norwegian sociologist and peace activist Johan Galtung would dub "structural violence." Such analyses showed how social and geopolitical institutions and structures intrinsically perpetuated social inequities, making certain populations considerably more susceptible to hardships than others. They illustrated how those inequities were reflected in access to health care, education, and employment opportunities and in increased susceptibility to environmental hazards and natural disasters.

It is less far from Hersey's botanical catalogue to America's "herbicidal warfare" in Vietnam than might at first appear. In chronicling the routes and "roots" that connect them, I have been drawing on the insights that came out of this historical moment, as American "involvement" in Vietnam escalated into full-fledged war. It was a moment of transformation for American culture and American Studies. It was a moment, observed the Black Power activist Eldridge Cleaver, when the white race lost its heroes and students of American Studies began to fashion new histories that better explained their lived realities: the demonstrable differences across populations—defined by such attributes as race, gender, and class—in life expectancy, infant mortality, and exposure to toxins and pollutants; the differences in access to resources, health care, and educational opportunity. They learned to understand these differences as expressions of continuing institutional racism and structural violence, to accept their own accountability as social beings and recognize it as a mandate for change. Against the backdrop of total war and environmental exhaustion, these analyses began to shift the

emphasis in the field from the nation to the planet, the citizen to the human. I have been attempting to show the work that remains for us and for future generations of students in our field to accomplish: the full integration of environmental and social justice into a multifaceted, multivocal critique of American culture as it now is, in its descent from the imperial heights of the immediate postwar era into its changing role in a new world system—a role we must help to define. The growth of American Studies in the wake of Hiroshima and Nagasaki has written a mandate for justice, for a method of investigation rooted in compassion and accountability, for an acceptance of the human as an element of an ever-evolving planet so that we might imagine, contra world-alienation, a way of writing and thinking that the state of the very air, water, earth and all that lives on, above, or beneath it begs us to develop.

NOTES

This is a slightly revised version of the Presidential Lecture I delivered as American Studies Association president at the 46th annual meeting of the JAAS held on June 2 and 3, 2012, at Nagoya University.

[1] "Text of Statement by Truman, Stimson on Development of the Atomic Bomb," *New York Times* (7 August 1945), 4, and Hanson W. Baldwin, "The Atomic Weapon," *New York Times* (7 August 1945), 10.

[2] John Hersey, *Hiroshima* (New York: Vintage Books, 1985 [1946]), 69. Future references are to this edition.

[3] Edward R. Murrow, radio broadcast, August 12, 1945, *In Search of Light: The Broadcasts of Edward R. Murrow*, 1938–1961 (New York: Knopf, 1961), 102.

[4] Norman Cousins, "Modern Man Is Obsolete," *Saturday Review* (August 18, 1945), 8.

[5] "Man and the Atom," *Christian Century* (August 22, 1945), 951.

[6] Joshua Lederberg, "Viruses and Humankind: Intracellular Symbiosis and Evolutionary Competition," *in Emerging Viruses*, ed. Stephen S. Morse (New York: Oxford University Press, 1993), 3–9, quote at 8.

[7] Hannah Arendt, *The Origins of Totalitarianism* (New York: Harcourt Brace Jovanovich, 1973 [1948]), 298.

[8] Max Horkheimer, *The Eclipse of Reason* (New York: Continuum, 1974 [1947]), 176.

[9] *The Thing from Another World*, dir. Christian Nyby (and Howard Hawks) (1951; Burbank, CA: Turner Entertainment Co and Warner Bros. Entertainment, Inc., 2003). DVD. The discussion of the "intellectual carrot" is in chapter 14; the slaughterhouse line and the cabbage field quotation are in chapter 17.

[10] "Heard Round the World," *New York Times* (August 7, 1945), 22.

[11] Jack Finney, *The Body Snatchers* (New York: Dell, 1955), 152. Future references are to this edition.

[12] Norbert Wiener, *The Human Uses of Human Beings: Cybernetics and Society*

(Garden City, NY: Doubleday Anchor, 1954 [1950]), 96.

[13] Hannah Arendt, *The Human Condition*, 2nd ed. (Chicago: University of Chicago Press, 1998 [1958]), 1. Future references are to this edition.

[14] *Invasion of the Body Snatchers*, dir. Don Siegel (1956; Santa Monica, CA: Artisan Entertainment, Inc.). DVD, chapter 23.

[15] Rachel Carson, *Silent Spring* (Boston: Houghton Mifflin, 2002 [1962]), 1–2. Future references are to this edition.

[16] Nathaniel Hawthorne, "Rappaccini's Daughter," *Nathaniel Hawthorne: Tales and Sketches* (New York: Library of America, 1982), 975–1005, quote at 982.

[17] Theodore Roethke, "Orchids" and "The Weed Killer," *The Collected Poems of Theodore Roethke* (New York: Doubleday Anchor, 1975), 37.

[18] James Dickey, "Kudzu," *The Complete Poems of James Dickey*, ed. Ward Briggs (Columbia: University of South Carolina Press, 2013), 224–26.

[19] David Zierler, *The Invention of Ecocide: Agent Orange, Vietnam, and the Scientists Who Changed the Way We Think about the Environment* (Athens: University of Georgia Press, 2011).

[20] Martin Luther King, Jr. "Beyond Vietnam—A Time to Break Silence," speech delivered April 4, 1967, *American Rhetoric Online Speech Bank*, http://www.americanrhetoric.com/speeches/mlkatimetobreaksilence.htm.