



The Apocalyptic Herbarium

Mourning and Transformation in Anselm Kiefer's *Secret of the Ferns*

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Abstract Anselm Kiefer's monumental *Secret of the Ferns* (2007) redirects the artist's apocalyptic sensibility, honed in response to the Holocaust, to the slow violence of extinction. The installation adopts a foundational practice of early modern natural history: the herbarium's preservation and presentation of dried, pressed plant specimens. It also mobilizes the symbolic associations of ferns, which Kiefer calls "the first plants" but which are reimagined in the gallery space as the last plants in a postapocalyptic future. The framed specimens hang in a massive hall, with two abandoned concrete bunkers spewing out coal in the center—an allusion to ferns as the source of fossil fuels. Coal appears again in the enigmatic charcoal inscriptions on the frames that allude to ferns' rich associations with rituals of magic and transformation. The overall mood is of a temporality at the end of time, a proleptic elegy that anticipates the extinction of even the most common and resilient plants, and the human cultures associated with them. Transmuted from mnemonic device to vehicle of commemoration, Kiefer's apocalyptic herbarium elicits grief and mourning—but also, perhaps, what Judith Butler has called "the transformative effect of loss."

Keywords climate change, plants, extinction, Anthropocene, ecological grief

Anselm Kiefer's *Secret of the Ferns* (2007) in the Margulies Collection (Miami, Florida) offers a monumental engagement with the ecological catastrophe unfolding in the Anthropocene. A German artist born in 1945, Kiefer has grappled throughout his career with the legacy of the Holocaust. In a body of work that encompasses vast landscapes of scorched earth, colossal books with wings of lead, and installations composed of recycled detritus from demolition sites Kiefer's art bears complex witness to national myth and historical trauma. Those haunting overtones are also present here, since the installation takes its name from a poem by Paul Celan, whose meditations on the Holocaust are an enduring point of reference for Kiefer. Yet *Secret of the Ferns* takes the artist's apocalyptic sensibility in a different direction: the slow violence of extinction. The term "slow violence" is Rob Nixon's and its juxtaposition of lulling pace and violent impact captures a

fundamental challenge in responding to environmental disaster. The slow violence of climate change, pollution, and accelerated extinctions poses a problem of representation: “How can we convert into image and narrative the disasters that are slow moving and long in the making, disasters that are anonymous and that star nobody?”¹

Drawing any sort of analogy between the impossibility of representing the monstrosity of the Holocaust and the challenge of depicting the present-day environmental catastrophe will strike many readers as ethically and aesthetically dubious.² But Kiefer’s art is no stranger to this equivocal territory and his borrowing of a title by Celan for *Secret of the Ferns* demands interpretation. Celan was a Romanian Jew and Holocaust survivor. His poetry, published in German, is one of the twentieth century’s most distilled indictments of the inhumanity of the Nazi death machine. Celan’s perhaps best-known poem, “Death Fugue,” combines imagery of the concentration camps with reference to two women—the golden-haired Margarete, from Goethe’s *Faust*, and the ashen-haired Shulamith, from the Old Testament *Song of Songs*. Kiefer has created numerous works on the theme of women’s hair from Celan’s “Death Fugue,” including “Your Golden Hair, Margarete” (1980) and “Sulamith” (1983). Celan’s “The Secret of the Ferns” has distinct similarities with “Death Fugue,” including references to the drinking of bitter black liquids, death, and hair.³ However, in his *Secret of the Ferns* Kiefer picks up a different thread in Celan’s poem: the imagery of ferns, shadows, and green leaves imbued with mystery and dread. I suggest that while the visitor of Kiefer’s installation may be ignorant of the semantic universe of Celan’s poetry, the use of dried ferns is nevertheless designed to conjure up a postapocalyptic sensibility, the visitation of a place in the aftermath of catastrophe, perhaps even the extinction not only of plant life but also of human life.

If Kiefer’s *Secret of the Ferns* is a reflection on the slow violence of extinction, the artist’s choice of plants is counterintuitive. Barring certain long-lived and majestic-looking trees, plants are among the least visible victims of environmental destruction. There are many factors, rooted both in culture and cognition, why plants make a limited call on our attention. Many of us live in societies far removed from the plant sources of the food, fuel, and raw materials that sustain us. The expanding grip of monoculture reduces living organisms to units managed at scale. The human perceptual apparatus has evolved to prioritize movement and detect threats; the seemingly immobile and nonpredatory nature of plants therefore relegates them to the environmental background as “greenery.” Lacking a face, plants also appear to us to lack intention and agency: a long

1. Nixon, *Slow Violence*, 3.

2. On Kiefer’s art in relation to the impossibility of representation after the Holocaust, see Saltzman, *Anselm Kiefer and Art after Auschwitz*; and Kaplan, *Unwanted Beauty*.

3. The ashen hair of Shulamith in “Death Fugue” alludes to the murder of Jewish women in the camps; the conjunction of “black pillow” and “heavy hair” in “The Secret of the Ferns” also evokes, in the context of Celan’s poetry, the grotesque instrumentalization of the body parts of the murdered. A link between ferns and women’s hair in Celan’s “The Secret of the Ferns” may be the *Frauenhaarfarn* or maidenhair fern, *Adiantum capilluveneris*. Celan, *Poems*, 10–11.



Figure 1. View of Anselm Kiefer, *Geheimnis der Farne* (*Secret of the Ferns*). Collection Martin Z. Margulies, Miami. 2007. All copyright remains with the artist.

tradition within Western metaphysics has placed them near the bottom of the chain of being. Plants are deemed less charismatic than animals in the rhetoric of conservation, among other reasons because they cannot be rendered familiar to us in the anthropomorphic terms that we often bring to our emotional and ethical engagement with other living organisms. This overdetermined tendency to neglect the importance of plants has been described by two educators and biologists, James Wandersee and Elizabeth Schussler, as “plant blindness.”⁴ Yet obliviousness to plants is far from universal, as attested by numerous human societies that display deep and discriminating familiarity with plants.⁵ While for many of us this kind of intimate, local knowledge is unattainable, art can refresh our perception, defamiliarize that which has become mundane or invisible, and restore to plants some of their complex significance.⁶

4. On the perceptual challenges, see Wandersee and Schussler, “Plant Blindness”; and Hallé, *In Praise of Plants*. On zoocentrism/anthropocentrism, see Plumwood, *Mastery of Nature*; Marder, *Plant-Thinking*; and Hall, *Plants as Persons*. On the implications for plant conservation, see Balding and Williams, “Plant Blindness.” For a critique of the term “plant blindness,” see Parsley, “Plant Awareness Disparity.”

5. To give one example, Harold C. Conklin recorded more than 1,600 specific plants identified by the Hanunóo in the Philippines. I am grateful to Michael R. Dove for this insight.

6. After completing this article I came across Giovanni Aloi’s introduction to a volume on the botanical emergence in contemporary art, which discusses art as an antidote to “plant blindness.” Aloi, *Why Look at Plants*, 1–35.

Secret of the Ferns (fig. 1) takes up the challenge of representing the slow violence of extinction by drawing on the visual practices of natural history and the cultural associations of a plant tied to the magic of invisibility. Kiefer's mode of presentation references the herbarium, a core practice of early modern natural history that continues to underpin our modern scientific understanding of plants. At the same time, his display of ferns as framed herbarium specimens belongs to a tradition of contemporary art assemblages that engage with the content and display methods of natural history collections to explore the imaginative manipulation and transformation of both natural and artificial materials.⁷ Kiefer's reimagining of the herbarium is reinforced by the framing of the ferns behind glass, encasing them in an aesthetic of the vitrine that renders them untouchable and at the same time ennobles and elevates them. As we will see, his practice accomplishes an interweaving of scientific and social meanings and fosters connections and correspondences.

The herbarium's origins lie in the first half of the sixteenth century when plants were the early and primary focus of new techniques of observation, description, and visualization that anchor our modern understanding of the natural world.⁸ Early modern herbals and botanical illustrations drew on the invention of printing and the availability of cheaper paper to disseminate the ancient, and later the rapidly growing new knowledge of plants. The myriad plant specimens brought to Europe as part of the colonial enterprise presented an organizational and epistemological challenge, necessitating new technologies of preservation and description. These technologies addressed the information overload by reducing organisms to a few elements (name, date, dried specimen, or image) that lent themselves to archiving and exchange, aided memory, and facilitated remote witnessing by those unable to experience plants in their natural habitat.⁹ With sight elevated as the privileged sense for gathering information about the natural world, images and two-dimensional herbarium specimens became a crucial vehicle for recording and transmitting knowledge, decontextualizing organisms from their natural environments, and rendering them stable and inert.¹⁰

While Kiefer's visual assemblage draws on the historically specific practice of the herbarium his use of ferns ties the installation to deep time, the present, and future. Among the oldest groups of plants in existence ferns have a fossil record dating back to the middle Devonian period (393–83 million years ago) and perhaps even earlier.¹¹ They became one of the dominant groups during the Carboniferous (approximately 360–300 million years ago), the geological period named after the deposits left behind by innumerable individuals of the group sinking into anoxic swamps and fossilizing into coal.

7. Putnam, *Art and Artifact*.

8. Ogilvie, *Science of Describing*; Thiers, *Herbarium*.

9. Latour, *Science in Action*; Müller-Wille and Charmantier, "Natural History and Information Overload."

10. Saunders, *Picturing Plants*, 85.

11. Taylor, Krings, and Krings, *Paleobotany*; Kenrick and Crane, *The Origin and Early Diversification of Land Plants*; Ranker and Haufler, *Biology and Evolution of Ferns*.

Ferns are thus emblematic of longevity and resilience: some present-day species date back 60 or more million years, and the group is the most diverse after the flowering plants that emerged during the Cretaceous (145 million years ago). Ferns are living fossils that embody deep geological time.

But if ferns are, as Kiefer proposes in the text accompanying *Secret of the Ferns*, “the first plants,” the installation hints that they may also be the last. As a buried source of the modern age’s coal and oil reserves, ferns furnished the fossil fuels that precipitate global warming. They therefore acquire an additional layer of significance in the Anthropocene, the era when human activity (not least the large-scale use of fossil fuels) is impacting the earth’s life systems, altering the climate and precipitating extinctions.¹² The re-presentation of the dried specimens as framed aesthetic objects in a gallery suggests a process of memorialization in a monumental herbarium turned museum. *Secret of the Ferns*, I propose, hints at a future time when even the most common and resilient plants will have been rendered extinct through human activity. However, as will be discussed below, the installation also draws on the ferns’ symbolic associations in plant lore to add a layer of mystery and transformation. Partly because of their complex and—for the longest time—unfathomable reproduction, ferns have long been associated with magic and healing. The secret of the ferns is loss, grief, but also the possibility of transformation and redemption.

Disaster in the Anthropocene

Secret of the Ferns (Fig. 2) consists of forty-eight frames of identical dimensions (190 × 140 cm) that hang in two double rows facing each other in a large hall. In the middle stand two concrete structures. The frames display mostly desiccated ferns (*Polypodium californium*) but occasionally other plants as well: a palm branch, a blackberry bush, roses, sunflowers, mistletoe, and tomato. Other materials include cotton fabric, plywood, metal, glass, clay, plaster, and color. Between the two rows of specimens stand the concrete structures that resemble bunkers. Their brutalist appearance bears the marks of decay, as though they have been exposed to the elements. The impression is of buildings and dried specimens alike filed away in a vast archive. An overall mood of catastrophe suggests that they are the material record of an extinct culture’s vain survivalist fantasies.

The installation’s original context was a massive 2007 Kiefer exhibition in Paris’s newly renovated Grand Palais. Kiefer was the first artist invited to fill the colossal space, launching a series aptly named Monumenta. Kiefer’s inaugural exhibition, *Sternenfall*, *Chute d’étoiles* (“Falling Stars”), filled the space with two half-ruined concrete towers composed of stacked bunkers and surrounded by rubble and the detritus left behind by some unnamed disaster. The glass dome of the Grand Palais framed the sky, creating a microcosm within which Kiefer staged his landscape of catastrophe. The space was dotted by

12. Schneiderman, “Naming the Anthropocene”; Kress and Stine, *Living in the Anthropocene*.



Figure 2. View of Anselm Kiefer, *Geheimnis der Farne* (*Secret of the Ferns*). Collection Martin Z. Margulies, Miami. 2007. All copyright remains with the artist.

seven rectangular houses or galleries, each about fifteen meters high and featuring a different installation, all enclosed under the vast dome. Tell-tale signs such as a tiny submarine lying among the rubble suggested the aftermath of widespread destruction. The original installation of *Secret of the Ferns* in one of the houses featured all forty-eight frames hung in four rows on a huge wall along with two single-story bunkers.¹³

The presence of the bunkers and surrounding detritus in *Chute d'étoiles* bespoke an aesthetic of the ruin suffused with “the deeply elegiac tone that accompanies Kiefer’s monumental work.” Lisa Saltzman has tied this aesthetic to “the historically specific architecture of Nazism . . . the architecture of doom.”¹⁴ Critics noted that the towers in the 2007 exhibition evoked the Nazi bunkers built along the Atlantic Ocean.¹⁵ These associations are muted in the transposition of *Secret of the Ferns* from its original site in the Grand Palais to the space of the Margulies gallery—although not entirely lost, as evinced by the continuing reference to Celan’s poem. Rather, in the Margulies the ferns surround the bunkers on both sides in a self-sufficient whole. Instead of the detritus of war, coal is scattered on the floor. The product of the transmutation of ferns and other

13. See Dagen, *Anselm Kiefer*. Kiefer designed the version of the installation at the Margulies Collection at the Warehouse specifically for that site, as the ceiling was a little lower than the gallery at the Grand Palais.

14. Saltzman, *Anselm Kiefer and Art after Auschwitz*, 86.

15. Hell, “Twin Towers,” 86.

plants, coal is a reminder of the fossil fuels driving the ongoing environmental disaster. The new site of *Secret of the Ferns* brings out the connection between ferns, coal, and the human-driven climate change and massive species extinction of the Anthropocene.

This impression is reinforced by the inscription in charcoal above the gaping entrance of the first structure as one enters the room: “Karbon” and above, in German, the phrase “Kohle für zwei weitere Jahrtausende” (“Coal for another two millennia”). “Karbon” in German refers to the Carboniferous, the geological era that produced the coal deposits for which it is named. The phrase “Coal for another two millennia” appears in one of Kiefer’s first “books” (composed of bound photographs on woodchip paper mixed with emulsion, coal, linseed oil, and ferric oxide) from 1974, and Nan Rosenthal suggests it has “the ring of a slogan from the Third Reich.”¹⁶ Several decades later the phrase reappears in *Secret of the Ferns*. In this new context, and in dialogue with the dried and framed specimens of the plants from which coal originates, the phrase takes on a differently sinister ring—now in relation to environmental disaster. Not only is there not enough coal to burn for another two millennia, but a fraction of that timespan would suffice, science tells us, to threaten human existence on the planet and reduce most species to extinction through the continuing burning of fossil fuels. In the postapocalyptic mood of the installation the arrogant confidence in the span of two millennia strikes the viewer as ironic, for whoever the former inhabitants of these abandoned structures may have been, they ran out of time. Charcoal spills out of the bunker’s cavity, a reminder of the path that led to this desolation. The second, two-story structure holds a few dried fern fronds hanging at eye level on either side of the entrance. Are they a feeble attempt at decoration by some long-expired denizen? A mockery of vegetal resilience known to find a foothold in the smallest crack? The affect of extinction is everywhere.

In the Herbarium

The display of the ferns as framed herbarium sheets—flattened, dried, and devoid of color—contributes to the effect of the installation as an environment drained of life. Converted from three-dimensional living organisms to two-dimensional specimens, the ferns have become inert matter. Walking around the exhibition the viewer is immersed in the herbarium, the bound sheets opening up into a space—an illusion enhanced by the height of the frames. Kiefer’s installation realizes the collector’s and curator’s desire to reduce the living thing to something inert and stable that can be analyzed and systematized (Fig. 3). In the words of Maura Flannery, “the vitality has left the plant, but the important taxonomic information is still there.”¹⁷

While the practice of pressing and preserving plants has no inventor or date of origin, the herbarium as an aide to scientific observation dates to the sixteenth century, a time when increased travel and exploration led to a vast increase of specimens

16. The work is Kiefer’s 182-page book of 1974, titled *Das deutsche Volksgesicht. Kohle für 2000 Jahre* (“The Face of the German People: Coal for 2,000 years”). Rosenthal, *Anselm Kiefer*, 116.

17. Flannery, “Plant Collections Online,” 3.



Figure 3. Panel 14 of Anselm Kiefer, *Geheimnis der Farnen* (Secret of the Ferns). Collection Martin Z. Margulies, Miami. 2007. All copyright remains with the artist.

previously unknown to Europeans.¹⁸ Given the difficulty of transporting living plants the herbarium facilitated the process of identification, naming, and thus claiming elements of the natural world. As a mnemonic and pedagogical tool the early herbarium served to preserve and condense experiences in the field, rendering them portable and transferable—but at a loss.¹⁹ While the herbarium’s mode of preservation privileges the two-dimensional shape of the pressed plant it cannot capture fully its overall appearance, nor can it preserve important qualities such as smell or color. The herbarium thus encapsulates the visual emphasis of the new natural history, focused on identification and taxonomy at the expense of other considerations. This information loss worried distinguished early botanists such as Carolus Clusius who thought that, at best, this new practice could only provide a pale supplement to first-hand experience of the plant’s habit of growth, environment, and sensory properties.

The first writer to give instructions in print for the creation of herbaria, Adriaan van de Spiegel, likened them to *hortos hyemales* or “winter gardens . . . books in which plants glued to sheets of paper are preserved,” which supplemented or even replaced the experience of plants in their native habitat or across the seasons.²⁰ This feeling of a perpetual winter garden permeates *Secret of the Ferns*, whose plants are colorless, odorless, drained of all vitality. Many of the frames stage the dried specimens in new habitats inimical to growth through the addition of elements such as clay and color pigment. Several are “planted” on sparse mounds of desiccated clay. Some are illuminated by a wan sun, low on the horizon. Some frames include seedpods that appear carbonized, forever unable to sprout (Fig. 4). This process of cauterization goes back to the earliest works by Kiefer, whose oeuvre returns time and again to the incinerated book and some of whose earliest landscapes double as battlegrounds reduced to ashes; but whereas in those landscapes the high horizon plays with abstraction, here the plant takes center stage, blown up and towering over the viewer. The cracked clay suggests that the act of transplanting the dried specimens from the herbarium sheet back to the more familiar environment of the landscape painting is doomed to failure. The lifecycle of these plants is frozen in time, their habitat is the clinical space of the museum. The artificial ecosystem of the gallery delimits our experience, confined to the visual at the expense of the other senses and restricting even our visual perception of the plants to two dimensions drained of most color and all movement. In rendering visible the “secret history” of ferns, Kiefer’s art simultaneously interrogates the visual technologies that mediate our engagement with the natural world and limit certain kinds of knowledge or insight.

Invented to preserve organisms from the passage of time herbaria themselves change over time. Today the world’s collections hold more than 380 million specimens and continue to grow, as scientists race against time to document more unknown or

18. Thiers, *Herbaria*; Saint-Lager, *Histoire des herbiers*.

19. Ogilvie, *Science of Describing*, 169; Foucault, *The Order of Things*, 132–34.

20. Ogilvie, *Science of Describing*, 172.



Figure 4. Panel 33 of Anselm Kiefer, *Geheimnis der Farn* (*Secret of the Ferns*). Collection Martin Z. Margulies, Miami. 2007. All copyright remains with the artist.

endangered species.²¹ In the course of their 450-year history herbaria have acquired new significance and value, including most recently as documents of species extinction and biodiversity loss.²² While still vital to the taxonomist they have become—thanks to massive digitization efforts—precious resources for modeling the future impact of climate change, conducting present conservation assessments, and opening windows into past ecosystems. Created as a supplement for direct experience they may now double as “biocultural” resources that enable us to reconstruct previous interactions between human communities and their environment.²³ The rich temporality of these natural history collections stems from their function as time capsules that also inform the present and future.²⁴ These different temporal layers are also interwoven into *Secret of the Ferns*. While ferns remain common their display as herbarium specimens suggests their future memorialization: it is precisely because of their longevity and resilience that their anticipated extinction imbues the installation with pathos and nostalgia.

Inscription

Kiefer’s preoccupation with ferns has intriguing cultural precedents: ferns have had their moment as objects of avid collecting and display. Long overlooked by botanists, in the nineteenth century they were celebrated because they were flowerless; their delicate fronds were thought to invite more discerning appreciation than vulgar, gaudy flowers. The Victorian pteridomania, or fern craze, lasted decades and spurred many a collecting trip by train, the construction of backyard rockeries, and sales of glass terraria for the drawing room. The author of one popular guide to ferns described them as “objects of exquisite elegance.”²⁵ In addition to their aesthetic appeal ferns were imbued with moral significance as the suppliers of the coal that fueled the Industrial Revolution. Margaret Plues (1828–1901), author of popular books on ferns, wrote that they “throw a glowing light upon God’s fatherly care in turning the ruins of immature nature into a blessed provision for the creature of His special favour—man. . . . Marvellous that the vegetation of a past age, when man was yet the dust of the earth, should be stored up for his use in the deep bowels of the rocks!”²⁶ This ironic providentialism of the conversion of past vegetation into fuel survived into twentieth-century textbooks of economic botany that celebrated “the innumerable members of the group that lived in past ages [and] have left us an invaluable legacy in the form of coal.”²⁷ The Victorian interest in ferns became a collecting craze that decimated many fern populations; they were transplanted to gardens, grown under glass, or preserved in herbaria and framed as aesthetic

21. Thiers, “The World’s Herbaria,” 1.

22. Heberling et al, “Herbarium Specimens as Exaptations.”

23. On herbaria as biocultural assets, see Cowell et al, “Historic Herbarium Specimens.”

24. Flannery, “Plant Collections Online,” 6; Soltis, “Digitization of Herbaria Enables Novel Research.”

25. Moore, *Popular History of British Ferns*, 1. On pteridomania, see Allen, *Victorian Fern Craze*.

26. Plues, *Rambles in Search of Flowerless Plants*, 10, 14.

27. Good, *Plants and Human Economics*, 164.

objects. Thomas Moore's *Popular History of British Ferns* explained that they are "amongst the best of all plants for preservation in . . . an herbarium" as a result of their elegant appearance and resistance to insect attacks.²⁸ Popular manuals gave instructions on how to dry and preserve them on herbarium sheets while printed books came with blank pages for the inclusion of dried specimens by the owner.

Kiefer's installation refers to symbolic associations of ferns that date back even earlier than the Victorian pteridomania. Every aspect of *Secret of the Ferns* would appear to follow a death principle by means of which the living plant is turned to coal or sterile specimen. Yet one way in which the specimens are activated, turning from inert objects to "actants" that play on the viewer's imagination and emotion, are the inscriptions on the herbarium frames.²⁹ Traditionally herbarium sheets would record in handwritten text the name of the plant as well as the place and time where it was collected. The inscriptions on Kiefer's plants differ in drawing from an esoteric but resonant repository of meanings. These offer a clue to the "secret" of ferns via their rich cultural associations, a reminder that human communities have woven their rituals and marked important transitions in close entanglement with plants. "There are many stories and folktales about plants having memories," Kiefer suggests in the installation's wall text at the Margulies. The inscriptions reactivate those cultural memories and remind us of the healing and protective properties of plants.

The most numerous inscriptions read "La nuit de Saint Jean," "Johannis Nacht," "Saint Jean" (Fig. 5) and "Nacht Saint Jean." An earlier work by Kiefer from 1987–91, *Johannisnacht (Midsummer Night)*, offers some clues to the significance of St. John's eve.³⁰ It features a dried fern frond rising against a background of lead in a glazed steel frame with a pale orange sun on the horizon and a row of singed matches at the bottom. *Johannisnacht* or Saint John's eve closely coincides with the summer solstice, the longest day of the year. In the catalog note accompanying this work in the 2005 exhibition *Heaven and Earth* Kiefer explains that "Johannisnacht is a special night in which fields are set on fire and religion bares its roots in ancient mystical acts." Across Europe, in the British Isles, Spain, Germany, Russia, and beyond, midsummer night fused pagan and Christian rituals that included bonfires, water, and the collection of plants with apotropaic and healing properties. Ferns featured prominently in the associated lore, while the sun and singed matches in *Johannisnacht* allude to the light and fire associations of the summer solstice. In pre-Christian times this was a time of raucous merrymaking "celebrated by the Druids as the wedding of heaven and earth." In Christian cultures *Johannisnacht* marks the birth of Saint John the Baptist who prefigures Christ's coming.

28. Moore, *Popular History of British Ferns*, 37.

29. The concept of the "actant" in Latour, *Politics of Nature* and Bennett, *Vibrant Matter*, acknowledges the action of nonhuman things or organisms on humans and/or their environment without attributing to them agency or intention as we traditionally understand them. Here, however, the "actant" includes human intervention: language.

30. See also Ronte, "Thinking in Pictures, 55–56.



Figure 5. Panel 27 of Anselm Kiefer, *Geheimnis der Farn* (Secret of the Ferns). Collection Martin Z. Margulies, Miami. 2007. All copyright remains with the artist.

These layers of pagan and Christian associations infuse the works with the themes of transition, death, and renewal. Kiefer emphasizes the occult side of ferns, their life in the shadows and hence their strange presence at rituals that celebrate light: “But they are complex in relation to Christian symbols of light. They grow in the shade. On the evening of Johannisnacht, the devil goes out into the fields and spreads fern seeds. This creates a certain chaos. Ferns remind us that we also need the darkness.”³¹

A series of Kiefer’s drawings from the eighties with the titles *Midsummer Night* or *Johannisnacht* also references the tradition of collecting fern spores the night before the summer solstice and features dried ferns.³² Midsummer was a time when evil spirits were thought to be particularly active and plants such as bracken (a fern) were thought to exercise a protective influence on those who knew how to collect and deploy them. They were hung over windows, doors, and icons to keep evil spirits away—they were also used to predict the future or to heal and beautify.³³ These powerful human interactions with plants are a long-standing source of inspiration for Kiefer. In his use of other iconic plants, such as the sunflower and the poppy, Kiefer often ventures outside the more obvious sphere of utility encompassed by horticulture and agriculture. The result is a defamiliarization of our interactions with plants, removing them from the extractivist framework in which they function as fungible natural resources and imbuing them with symbolic meaning.

The seeds of ferns were “fabulously invisible.”³⁴ Until the nineteenth century the reproduction of ferns was a mystery. Carl Linnaeus classified ferns in the category of Cryptogamia (“hidden marriage”). Nowadays we know that ferns antedate the flowering plants by many millions of years and reproduce by means of spores rather than seeds. It was John Lindsay, a surgeon and amateur botanist working in Jamaica in the 1780s, who made experiments with what he called “fern dust” and observed the gametophyte state of the ferns’ life cycle. He sent what he thought were “fern seeds” to Sir Joseph Banks, long-time president of the Royal Society and honorary director of the botanic garden at Kew. A paper on Lindsay’s experiences of growing ferns was read by Banks to the Linnaean Society in 1794.³⁵ Lindsay still believed that the spores were seeds. The plant’s reproductive cycle was not fully explained until the middle of the nineteenth century: in 1848 by the Polish count and amateur botanist Michael Jérôme Leszczyc-Suminski and in 1851 by the brilliant self-taught botanist Wilhelm Hofmeister, who became professor of botany and director of the botanical garden at Heidelberg.³⁶

31. Kiefer, *Heaven and Earth*, 90.

32. www.metmuseum.org/art/collection/search/486557 (accessed February 19, 2020).

33. On the search for the invisible fern seed on St. John’s Eve, see Corne, “Ferns”; and Wile May, “Economic Uses and Associated Folklore of Ferns.” On other plants associated with St. John’s Eve, see Vickery, “Folklore of Hypericum”; Hobbs, “St. John’s Wort”; and Howes, “Gallegan Folklore.”

34. Moore, *Popular History of British Ferns*, 8.

35. Lindsay, “Account of the Germination of Ferns.”

36. Benedict, “The Most Fundamental Discovery”; Kaplan and Cooke, “The Genius of Wilhelm Hofmeister.”

As a result of the mystery of their reproduction ferns were associated with magic. It was thought that fern seed must be invisible “and that of bracken in particular was believed to confer [invisibility] . . . on anyone who managed to collect it.”³⁷ Once a year on the 23rd of June, the night before Midsummer’s Day, the bracken was thought to put forth at dusk a small blue flower that quickly disappeared—the seed ripened quickly and fell at midnight. The Eve of St. John is therefore also the night for “watching the fern” to collect the seed that confers knowledge, treasure, or invisibility. The flower’s seed, it was believed, could be collected by stacking twelve pewter plates beneath a frond at midnight. It would fall through the first eleven plates and accumulate on the last one. But to obtain the magic seed one had to be particularly vigilant as fairies were thought to be especially active on Midsummer Eve and seize the seeds as they fell.³⁸ The root of the bracken, cut across, was also thought to display the figure of an oak tree, and to foretell matters of special interest to the investigator who was able to read it correctly. Kiefer’s references to “Johannis Nacht” and “Saint Jean” thus provide a clue to ferns’ rich cultural associations. The secret history of ferns resisted visual observation and representation, while their invisible “seed” fueled fantasies of invisibility. At the same time plant lore associated ferns with the ability to access what is not immediately apparent or visible: the gift of insight.

The protective or apotropaic properties ascribed to ferns extended beyond the summer solstice: the German mystic Hildegard von Bingen wrote that the fern protected against thunder, lightning, hail, dark magic, and demonic incantations. The house that held a fern or the person who carried one was protected from these and other dangers. According to the medieval doctrine of signatures, whereby the form of a plant resembled the part of the body for which it provided a cure, ferns had healing properties: spleenwort for the spleen, maidenhair for baldness. Some of the most cryptic inscriptions in *Secret of the Ferns* allude to these healing properties of plants that have been the focus of intense human interest for millennia. Indeed, it is only with the emergence of natural history in the early modern period that knowledge about plants becomes gradually dissociated from their (assumed) medicinal properties and focuses on morphology and taxonomy—botany diverging from medicine. The inscriptions “COSMOS” and “DEMIAN” on one of the frames likely refer to the saints Cosmas and Damian, known as *ἀνάργητοι* (“incorruptible”) because they practiced their healing skills without compensation. They are patrons of medicine and pharmacy, having gained a reputation as miraculous healers after their martyrdom in the 4th century AD. Both in Western and Byzantine iconography they are often depicted holding drug jars, mortars and pestles, prescription scrolls, and medicinal plants.³⁹ At the same time “cosmos” alludes to the relationship between

37. Whittingham, *Fern Craze*, 40.

38. Corne, “Ferns”; Friend, *Flowers and Flower Lore*; Baker, *Discovering the Folklore of Plants*.

39. On the saints Cosmas and Damian, see De Voragine, Duffy, and Granger, *The Golden Legend*, 582–84; and David-Danel, *Iconographie des Saints Médecins*, 201–6.

microcosm and macrocosm that is a recurrent theme in Kiefer's work. Confronted with dead plants we are nevertheless invited to imagine them as potentially life-giving agents of healing and transformation.

Alchemy

"Ferns are very important," Kiefer has observed with reference to *Johannisnacht* (Midsummer Night). "The first trees were ferns. They are primal. Charcoal and oil are made out of ferns that existed at the beginning of life. . . . Like forests, ferns may contain secret knowledge."⁴⁰ The reference to the ferns' transformation into charcoal and oil, along with the possibility of primal and secret knowledge, connects *Secret of the Ferns* to the theme of alchemical transformation central to Kiefer's art. Lead, that key metal of alchemy, is the most important material in his oeuvre, partly because of the alchemical tradition of its transformation into gold. However, in *Secret of the Ferns*, I suggest that the key material that ties together the different aspects of the installation is coal/charcoal: it encompasses the once-living plants, now present as herbarium specimens and coal; the impact of human activity on the environment through the burning of fossil fuels and the menace of extinction; and the transformative effect of art, hinted in the charcoal inscriptions. Coal signals both the intractable presence of the material world and the questioning of that intractable materiality through language, as in the ironic inscription "coal for another two millennia." In *Secret of the Ferns* coal is simultaneously the raw material of art, a clue to its interpretation through the inscriptions, and a synecdoche for the human exploitation and destructive domination of nature.⁴¹

This multivalence of coal is indicative of Kiefer's broader preoccupation with the transmutation of the material into the spiritual: a process ultimately not fully knowable but framed as secret or occult knowledge. Alchemy entered Kiefer's practice in the 1980s as a metaphor for his artistic process and a context for his use of materials—especially lead—rather than an explicit source of iconography. The theme of transformation is essential to Kiefer's turn toward alchemy: "I simply accelerate the transformation which is already inherent in things."⁴² One of the frames in *Secret of the Ferns* bears the inscriptions "Rubedo," "Albedo," and "Nigrdo," referring to three stages of alchemy. Another clue is provided by Kiefer's self-identification with the seventeenth-century figure of Robert Fludd, a follower of Paracelsus who is remembered for his opposition to Robert Boyle and defense of the occultist approach in the study of nature. Combining alchemy with numerology, musicology, and Cabala, Fludd was convinced that the purifying and transformative processes of alchemy corresponded to the transformative power of spiritual redemption. He conveyed the relationship of microcosm to macrocosm through the suggestion that every plant on earth had its equivalent star in the heavens. Book,

40. Kiefer, *Heaven and Earth*, 90.

41. On the multivalent signification inherent in the materiality of Kiefer's work, see Meier, "Anselm Kiefer."

42. Arasse, *Anselm Kiefer*, 237.

lead, plants, and stars come together in another of Kiefer's works, *The Secret Life of Plants* (2001). The association between plants and stars is also behind *Every Plant Has His Related Star in the Sky* (2001), which features plaster-coated dried plants on lead. Another book, *Für Robert Fludd (For Robert Fludd)* (1996), makes the association between plants and stars explicit by combining fields of poppies and starry skies made of paint and lead. If the herbarium is at the root of a knowledge tradition that is confident in the ability to visualize and hence delimit, parse, and understand the natural world, alchemy throws us back to the possibility of knowledge that is both holistic and inaccessible, hiding beyond plain sight but requiring an understanding of how seemingly disparate elements are connected.

The alchemical concept of the seed offers another link between ideal and material nature: "it explained biology in terms of processes that were invisible, and therefore occult."⁴³ The Paracelsian tradition conceived of *semina* as the fundamental immaterial principle: dimensionless, invisible, and understood from the observation of its effects. This concept of the seed is particularly attractive to Kiefer, who seeks to unite the symbolism of nature with its material representation. The fern's seed was similarly "invisible," undetected yet inferred from the reality of the plant's propagation, an apt symbol of alchemical *semina*.

The coexistence of alchemical references and herbarium specimens in Kiefer's installation has a historical antecedent in the early modern cabinet of curiosities as a site of collecting, interpretation, and display. The cabinet of curiosities gave way to the modern museum, on the one hand, and scientific taxonomy, on the other: at its origin, however, it sought to encompass the world.⁴⁴ Its ambition to capture what is most characteristic of nature was premised on a correspondence between the microcosm and the macrocosm, "a view of the collection as a theater of the world," sometimes conveyed by means of astrological or other occultist references. The cabinet's encyclopedic scope and cosmic symbolism carried an "inner or esoteric meaning" that was the "reserve of the initiated."⁴⁵ The cabinet of curiosities thus gave symbolic expression to the book of nature and promised a key to the decipherment of its hidden correspondences. Cabinets of curiosities were often found in close proximity to botanical gardens and spaces devoted to alchemical practices. The German courts of the mid- and late sixteenth century were sites where alchemical and occultist endeavors were promoted side by side with activities more neatly aligned with our framework of scientific investigation. These spaces gradually diverged as different modes of cognition—the holistic Paracelsian tradition and the empiricism of the new natural history—parted ways. Practices such as

43. Shakelford, "Seeds with a Mechanical Purpose," 33.

44. On cabinets of curiosities as sites organized according to multiple taxonomies that combined knowledge production with wonder and curiosity, see Marrache-Gouraud, "Du nouveau sur la licorne"; Boutroue, "Le cabinet d'Ulisse Aldrovandi"; and Lugli, "Inquiry as Collection."

45. Kaufmann, *The Mastery of Nature*, 183.

the herbarium, with its emphasis on field observation and its aftermath (the careful recording, preservation, and study of specimens), gradually became divorced from the multiple taxonomies and symbolic associations of the cabinet of curiosities.⁴⁶ But the specialization of scientific practices also purged the specimens of the symbolic associations and local forms of knowledge that had made them an inextricable, living part of human cultures. This prehistory of what has come to be called (and contested) as the Scientific Revolution, with its mix of esoteric and exoteric practices and interests, is a dynamic period of knowledge formation and the reconceptualization of nature on which Kiefer draws for his own intellectual and aesthetic explorations.⁴⁷ In the space of the installation modes of presentation and cognition that diverged during what we have come to call the Scientific Revolution are brought back together in a productive tension.

Transformation

In the crucible of Kiefer's art different sources of inspiration, imagery, and material crystallize into a recurrent set of preoccupations: memory, loss, and transformation. I have argued that ferns are a powerful nexus for conveying the slow violence of extinction: their longevity and resilience makes the prospect of their vanishing all the more haunting, reinforced by their cultural associations and the longtime mystery of their reproduction and rendered ironic by their role in the fossil fuel economy that powers global warming. Ultimately their presence in Kiefer's apocalyptic herbarium immerses the viewer in deep time, experienced from a future vantage point of extinction captured in the space of the archive and the museum. The spectacular nature of Kiefer's installation creates a theater of memory that exerts a powerful impression on the viewer. The monumental, framed herbarium sheets surrounding the enclosed, deserted bunkers under a relentless clinical light create a peculiar environment that loosens "our customary cognitive moorings in the objective world."⁴⁸ Kiefer's play with scale makes the viewer feel both smaller and larger than everyday experience, while the empty bunkers exude an aura of absence and desolation, even in the presence of other visitors. The inscriptions conjure up past associations, rituals, and meanings but, given the absence of any semblance of life, the effect is haunting. The experience holds the potential to propel the visitor into a vision of extinction of plants and humans alike. Projected thus into a future of absence and loss the viewer may even feel like the uncanny possessor of the fern seed: an intimation of death as the perverse version of the invisibility sought after in the midsummer plant lore.

46. On the "separation . . . of two orders of knowledge henceforward to be considered different," see Foucault, *The Order of Things*, 125–65.

47. For a broader discussion of contemporary artists whose installations show affinities with the cabinet of curiosities as a site where "the traditional categories and hierarchies were abolished and history, memory, science and myth are reunited," see Putnam, *Art and Artifact*, esp. 24–31.

48. Crowther, *Theory of the Art Object*, 70.

This feeling of invisibility signals an awareness that extinction lies in our future, that we are included in the memorialization that is taking place through the resources of the herbarium and the museum. Although the frames resemble herbaria sheets they are not humble reference materials relegated to the cabinet or drawer. Rather, the archive has been relocated to the museum and transmuted into art. With no living plants left to be classified with reference to the work of past naturalists and scientists, this exhibit hints, the herbarium sheet is no longer an aid to identification but a rare or even unique specimen of an organism that has vanished. Without a living referent it has become the thing itself, or all that remains, consecrated in the museum as the locus of cultural memory. The act of remembering in Kiefer is also a work of mourning.⁴⁹ *Secret of the Ferns* is a prophetic elegy mourning the expected future loss of the living species and the diverse forms of knowledge associated with them. The extinction of species implies the extinction of the human cultures that interacted with them—symbolized by the dead plants in the frames and the empty buildings in the center. And because the space/time of the installation is both that of a distant past and an apocalyptic future, the work of mourning is also one of self-mourning, the visitors registering their own (future) absence from the scene.

If the herbarium started as an aide to memory, the installation transforms it into a vehicle for memorialization. If grief is necessary for the possibility of ecological renewal, and if grief is “born . . . out of a vision of absence,” Kiefer’s use of the herbarium as a supplement to the lived experience of the plant incites that vision.⁵⁰ The mood emanating from the dead plants and empty bunkers is one of mourning and melancholia. “Human nostalgia for lost species can live on within the displays of natural history museums.”⁵¹ Loss does not have to have taken place to be lamented: climate change makes possible, perhaps necessary, the “anticipatory grieving for losses expected to come . . . based on the experience of other losses.”⁵² Not only mourning in anticipation of the extinction of so many life forms but also the human rituals and ways of life with which they are entangled, and in the fullness of time, humans themselves. The work of mourning for other species is thus an expression of kinship that also creates a space for humans to “mourn the demise of our own species.”⁵³ Yet there is something more at work here: through their reintegration into a landscape and their investment with meaning through inscriptions the plants in Kiefer’s herbarium recover some of the properties, associations, and cultural significance they had lost. For the viewer this effort at connection feeds the nostalgic sense of a temporality at the end of time,⁵⁴ infusing the dead with meaning even while lamenting their loss and offering a powerful response to Nixon’s call to capture the slow violence of extinction.

49. The herbarium may therefore be another, so far unexamined, element in the “art of memory” that permeates Kiefer’s work. On the “art of memory” in Kiefer, see Arasse, *Anselm Kiefer*, 79.

50. Burton-Christie, “The Gift of Tears,” 38.

51. Garlick and Symons, “Geographies of Extinction.”

52. Cunsolo, “Climate Change as the Work of Mourning,” 140.

53. Braun, “Environment as Kinship,” 84.

54. I am grateful to Anatole Tchikine for this suggestion.

What does it mean to mourn something while it is still alive? What does it mean for the viewer of *Secret of the Ferns* to be included in the process of memorialization and to inhabit the archive of plant-human interactions? The deep ecology movement posits the preservation of the diverse lives on earth as the ground of a new ethics and politics. Extinction entails “the death of the processual currents of the *longue durée* and deep biological rivers that constitute a species.”⁵⁵ For the loss to be mourned it needs to be represented. Yet the presence of alchemy also hints at the productive effect of placing loss in a monumental visual register. In the words of Judith Butler, “one mourns when one accepts that by the loss one undergoes one will be changed, possibly forever. Perhaps mourning has to do with agreeing to undergo a transformation (perhaps one should say submitting to transformation) the full result of which one cannot know in advance. There is losing, as we know, but there is also the transformative effect of loss.”⁵⁶ *Secret of the Ferns* exemplifies the promise and challenge of bringing together the resources of art and the archive to represent the slow violence of extinction. In taking up this representational challenge it holds the viewer suspended between memory and presence, the threat of invisibility and the gift of insight and transformation.

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Acknowledgments

I am grateful to Katja Kwastek and two anonymous reviewers for their valuable comments. I am also thankful to the Martin Z. Margulies Collection at the Warehouse and Associate Curator Jeanie Ambrosio for sharing helpful documentation about the installation.

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55. Jones, Rigby, and Williams, “Everyday Ecocide,” 391.

56. Butler, *Precarious Life*, 22.

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