

Now We Are Become Forest

Susanne Kriemann

Images pp. 292–293

I note from the Karlsruhe Nuclide Chart:

4.46 billion years uranium-238

24.1 days thorium-234

46.69 hours protactinium-234

245,500 years uranium-234

75,400 years thorium-230

1,599 years radium-226

3.82 days radon-222

3.04 minutes polonium-216

27 minutes lead-214

19.9 minutes bismuth-214

0.16 milliseconds polonium-210

lead-206.

Stable.

I become we, we turn into uranium,
we hide in mycelia, near oaks and beeches,
the nightjars tire because of our radiation.

Carved out of the mountain, we become pitchblende
leached to yellowcake,
left behind as heavy metals,
we nest in the abandoned landscapes,
in false chamomile, wild carrot, ox tongue.

In search of another narrative,
words turn into radiation.
Susanne and Wilhelm hear us
as we move into the moss of those woods, where the bird bath decays,
yet is used by the woodpeckers.
as half a gram of plutonium we disappear in Graben-Neudorf
and almost cause the situation at platform 3 to derail.
The Nuclear Research Center breeds us.

We splash around in stirred atomic soup,
abide in the coquilles
and guzzle on the energy bills of our descendants.
Until we're leaden, outlasting a million times over.

1 Wilhelm Knobloch is a forester and Germany's "oldest" environmental activist, born in 1924.

2 Newspaper article: "Baumschäden durch Reaktorkühltürme im Hardtwald," (July 18, 1975), Landesarchiv Baden-Württemberg, Sammlung Knobloch, Wilhelm, Findbuch S Umweltschutz no. 405

fig.1
Slide no. 1–56, mag. II,
pos. 5, "Maple leaves left
slightly damaged, right
healthy," May 1978,
photographer:
Wilhelm Knobloch



fig. 2
Slide no. 1–55, mag. II,
pos. 4, "Leaves of German oak,
left severely damaged from the
vicinity of cooling tower MZFR,
centre slightly damaged, right
healthy," May 1978,
photographer:
Wilhelm Knobloch



fig. 3
Slide no. 1–52, mag. II. pos. 1,
"Wilhelm Knobloch in front of
the house wall of the forester's
lodge Theodor-Heuss-Allee,
holding a dead and (on the
right) healthy pine branch in
his hand, from the surround-
ings of MZFR," May 1978,
photographer: unknown

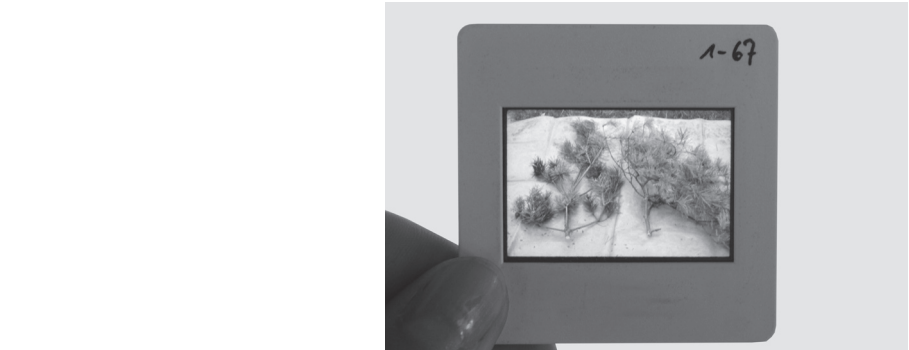


fig. 4
Slide no. 1–67, mag. II,
pos. 16, "Pine branches healthy
on the left, damaged on the
right by MZFR cooling towers,"
May 1978, photographer of
slide: Wilhelm Knobloch;
photographer: Isabel Motz,
2021



3 "A bay is a noun only if water is dead. When bay is a noun, it is defined by humans, trapped between its shores and contained by the word. But the verb *wikwegamaa*—to be a bay—releases the water from bondage and lets it live. 'To be a bay' holds the wonder that, for this moment, the living water has decided to shelter itself between these shores, conversing with cedar roots and flock of

In 1965 Wilhelm notes: "Maple leaves, still fine on the left side, dead on the right side due to radiation,"¹ and thus creates a future archive for the peripheral stages of nuclear research. "A collection of harmed and dying pine, oak, beech, maple and gorse branches from the ecologically damaged area of Karlsruhe's Hardtwald forest were presented as evidence. Such a bouquet of evidence was also given to Minister Eberle when he tried to convince the residents of Kaiserturm of the innocuousness of nuclear reactors in mid-June that year."²



The pleas and bouquets accompany the ominous narratives around nuclear research. From there, they hand their irradiating sprigs and branches over to the pros and cons. In a ceremony of secret detouring, the woods, water and radioactivity converge.

As I write, I seek advice in Robin Wall Kimmerer's³ book and transfer: *being-forest* harbors the marvel that soil, lichen, water and air have decided to become beeches, maple and gorse—somewhere between Leopoldshafen and

baby mergansers. Because it could do otherwise—become a stream or an ocean or a waterfall, and there are verbs for that, too. (...) this is the language that lets us speak of what wells up all around us." Robin Wall Kimmerer, *Braiding Sweetgrass* (2012), Minneapolis: Milkweed Editions, p. 55

4 "Scientists and the authorities call the mass of 60,000 liters of nitric acid 'Atomsuppe' (atomic soup), which contains 16 kg of plutonium and 500 kg of uranium. The English description is highly active waste concentrate. It has a radiation of one trillion becquerel, about half the radio-activity that was released at Chernobyl. The liquid constantly needs to be stirred. If the soup gets too hot and burns, it explodes. Via pipes it runs from the tanks into a kiln in a concrete block. At tempera- tures of up to 1200 degrees, the nitric acid evaporates, the nuclear waste is vitrified with borosilicate glass. Subsequently, it is poured into coquilles—casts made of premium steel. Bernd Dörries, "Atomsuppe im Glas," in: *Süddeutsche Zeitung* (17.05.2010) <https://www.sueddeutsche.de/wissen/wiederaufbereitungsanlage-karlsruhe-atomsuppe-im-glas-1.93204>

5 The history of colonialism offers an illustrative, tangible example of how the production of knowledge (e.g. in the form of cartography) often goes hand in hand with the expansion of technological and political-military control. [...] Distinct from this mode of conquering the world technologically and politically, at least in analytical terms, is a fourth dimension of making world controllable, namely by making it *useful*, pressing it into service. Here the point is not simply to bring the world under our control, but to make it into an instrument for our own purposes. This also means shaping, designing, producing world." Hartmut Rosa, *The Uncontrollability of the World* (2018), transl. by James C. Wagner, Cambridge/Medford: Polity Press, 2020, pp. 15–16.

6 Wilhelm quotes the mayor Max Borell, who in 1956, when the first trees were felled, said the following: "To me, the nuclear reactor is like a forest fire that runs rampant and eventually becomes inextin- guishable." Otto Figlesthler, founder of the Hardtwalfreunde, describes the nuclear facility in the Hardtwald forest as "a cancerous tumor, which constantly grows metastases." Landesarchiv Baden-Würt- temberg, Sammlung Knobloch, Wilhelm, Findbuch S Umweltschutz, no. 405

fig. 5
Clumps of wild carrot, false camomile, ox tongue, harvested on the Gessen-meadow on Sept. 6, 2016 during fieldwork with geologists and biologists from the Friedrich Schiller University Jena; photo: Studio Susanne Kriemann, 2016

Eggenstein. "Since it also could have been different" It could have turned into a wasteland, a steppe or an exclusion zone of a radius of 20 km around the spent nuclear fuel rods, the Castor containers and the atomic soup⁴ in the glass coquilles.

In 1957 a photographer sits in a plane, his camera is loaded with a black-and-white film. The photo of the Hardtwald forest, captured from above, pauses whatever was previously going on. Micro and macro dissolve. Leaves, needles and branches become a challenge for legibility. We as spectators can no longer make out the ant species we named, the inhabitants in the treetops as well as those of the trunks are missing in the image; the distance fails to capture the reality of these *being-forest*. A bleak rectangle is placed directly in the middle of this photographed forest. Within it: A circular pit dug deep into the ground, therein—subsequently—the reactor. The image documents the first dimension of exploita- tion of the Hardtwald forest in Karlsruhe for the purpose of nuclear research.⁵ Wilhelm cycled around this area on an almost daily basis. He measured, collected, copied and disseminated, while the baldness spread from 20 hectares⁶ to 156 hectares in the midst of the forest.⁷

I become we, we become forest.

Mycorrhizae assist us with the heavy metals in soil and groundwater. At some point however, we, forest, turn away. As wood ants, facts do not appeal to us, we comprehend the atomic age via our mandibles, cords and glands. Radon disseminates and the fatigue⁸ conveyed therein is contrary to our way of life that renders the forest soil nutritious. If there is word of nuclear waste repositories, which should safely store for thousands of years what is instable, we refuse our lifeworld-creating collaboration, we with- draw, and leave you to your destiny, and will not come back.

Not just for the anti-nuclear activists, who are framed as minorities and legally excluded, not just for the forests and their inhabitants, no. At any time and place, in which text, cloud or tsunami soever, through countless sensors comes into focus: despite ongoing climate change, despite the expansion of contami- nated areas, the narratives of atomic progress are still in place.⁹ The slow violence¹⁰ of the so-called collateral damage, which accompanies the promise of never-ending energy, is hard to grasp from photos. The disenchanted wood ants disappear hand in hand with the oak-woods and their embedded cultural heritage. Firewood, dead wood, shipping wood, stumps, particle board. In the charred woods the birds sing of great heat, aridity and solitude. Less oaks, beeches, pines, everywhere, since 1945. Less large-blue butterflies, more radiation.¹¹





In June 2017 I go for a walk with geologists and miners in the so-called post-mining landscapes, shaped by the uranium mining of Wismut SDAG and Wismut GmbH.¹² We see gentle hills, a golf course, some shy slag-heap sheep. Only a mining-experienced eye can see the traces of what takes on new forms in the ground-water, in the eroding soil, in the plants and the trees, in humans and in pipes over the next hundred, the next thousands of years. The Geiger counter helps us to see. I collect bushy weeds and dry them. Traces of caesium-137, aluminium, lead, nickel, zinc, lanthanum, quicksilver, gadolinium and uranium were detected in the plants.¹³ A material archive, trapped in being-alive.

Pitchblende, yellow cake, nuclear power plant.

The 210,000 images from the archive of the KfK acutely plead for a reference of the atomic enthusiasm elucidated here; into a global perspective. What was the air like in the research reactor? What did the irradiated strawberries taste like, or did no one eat them, because one was able to choose. How still was the wind in the Hardtwald forest when contaminated water was dumped into the Hirschgraben? Did the desiccated bee or the dissected scorpion want to be remembered as scale indicators for a microchip?

We cannot make that juggled time undone.¹⁴ We can imagine, what might have happened, if the research had been embedded in a narrative of the commons and not in the project of expanding scopes of influence. On July 16, 1945, Oppenheimer—with belated regret—became death, the destroyer of worlds.¹⁵ And thus, the research at the time did not lead to a prolongation of life, but to the expansion of an insidious decease. The gambling of the traumatized military officers, politicians and scientists and the concurrent exclusion of women, indigenous people, people of color, queer, rivers, rock formations, flora and fauna as agents with a subjective legal status functions as an index of these radioactive narrations into eternity.

In disbelief, we see facts deferred, consequences ignored and more nuclear power plants brought into operation.¹⁶ *We, being-forest, being-uranium, being-human*, have become involuntary witnesses to the global risk-bearing community of the 21st century and are making ourselves heard.

Since “Radiation is like an animal, an invisible monster, that turns and alters. One never knows, what it will do next with the animals and plants. It may disappear, crawl away into the ground or become even more devious. The only thing one can be certain of: it behaves slightly differently every year and does things one does not expect. For thousands of years this monster will linger here.”¹⁷

7 “The GfK clears 10,000 protected trees for an embankment under the pretext of security measures. Initially planned as an area of 33 hectares, subsequently 43 hectares of park and woodland was closed to the population and wildlife by the embankment. The 300 m long and 15 m wide area is secretly and hastily being fenced in, with no information for the press and the residents. Forest is being cleared for parking spaces, even though there is enough wasteland. The area is used as a parking lot for a while, then they construct new buildings there.” Newspaper article: “Brutale Hardtwald Zerstörung in vollem Gange,” (Nov. 17, 1977), Landesarchiv Baden-Württemberg, Sammlung Knobloch, Wilhelm, Findbuch S Umweltschutz no. 405

fig. 6
Aerial photograph of the Ronneburg branch (Beerwalde), Beerwalde overburden 1999/2000, copyright Wismut Archive, in: *Ge(ssenwiese) K(anigsberg)*. *Library for Radioactive Afterlife* (2020), Susanne Kriemann (ed.), Leipzig: Spector Books

8 Following Lutz Seiler’s text “Das Territorium der Müdigkeit,” *P(ech)B(lende)*. *Library for Radioactive Afterlife* (2016), Susanne Kriemann (ed.), Leipzig: Spector Books, pp. 193–207

9 “The problem with this now proverbial talk of the ‘risk society’ (a term coined by sociologist Ulrich Beck), however, is that we have long since become accustomed to it. Yes, even worse: We perceive very tangible dangers and already occurred disturbances such as the extinction of species and climate change, global pollution and nuclear contamination ‘only’ as risks, i.e. as events whose occurrence is not probable, but also not completely excluded. This, however, is a misperception: we do not live in a world risk society, but in a global danger community in which the destruction of nature has long been realized.” (translation by author). Jens Kersten, “Nature as a Legal Subject. Für eine ökologische Revolution des Rechts,” in: *Aus Politik und Zeitgeschichte* 11/2020, p. 27 ff.

10 The expression “slow violence” is impressively described in Rob Nixon’s *Slow Violence and the Environmentalism of the Poor* (Cambridge (MA): Harvard University Press, 2011). On the details of such slow violence that people in Belarus and Ukraine suffered after Chernobyl in 1986, I read Swetlana Alexijewitsch’s *Eine Chronik der Zukunft* (Berlin: Berlin Verlag, 1997) and Susan Boos’ *Beherrschtes Entsetzen. Das Leben in der Ukraine zehn Jahre nach Tschernobyl* (Zürich: WoZ im Rotpunkt-verlag, 1997).

11 “For scientists, Gossamer-winged butterflies act as something like bio-indicators. If they get ill, it indicates that something is wrong with the entire ecosystem.” Judith Hartl, “Schmetterlinge mit verkrüppeltem Erbgut,” *DW Akademie* (August 16, 2012). <https://www.dw.com/de/schmetterlinge-mit-verkr%C3%BCp-peltem-erbgut/a-16168620>

12 Since 1991 the regions in Saxony and Thuringia that were harmed by uranium mining are being refurbished. Hitherto, the federal company entrusted with this

Susanne Kriemann

task has spent around 6.8 million euros of state money. The major project “Sanierung der Wismut-Hinterlassenschaften” has reached a new stage after nearly thirty years. In the next ten years, the rehabilitation work on each site will be completed. The long-term obligations remain.

13 Katja Nebelung, “Auswirkung der Restkontamination renaturierter Bergbaufolgeflächen in Ostthüringen auf Schwermetallaufnahme (Boden-Pflanze) und Sukzession im Hinblick auf Nachnutzung” (2017), unpublished doctoral thesis, Chemisch-Geowissenschaftliche Fakultät der Friedrich-Schiller-Universität Jena.

14 “There was strong protest that this decision was stubbornly taken against the will of the citizens. [...] The people had unanimously decided against the construction in the Hardtwald forest, and the local council aligned itself with the will of the community without making any statement.” Newspaper article: “Das Stafforter ‘Nein’ zum Atomreaktor,” (Dec. 27, 1956), Landesarchiv Baden-Württemberg, Sammlung Wilhelm Knobloch, Findbuch S Umweltschutz no. 405

15 When J. Robert Oppenheimer witnessed the detonation, known as “trinity,” on July 16, 1945, he thought of a Sanskrit passage that even today is still one of the most quoted statements on nuclear weapon explosions: “Now I become death, the destroyer of worlds.” Oppenheimer echoed this self-translated quote in the TV documentary *The Decision to Drop the Bomb* in 1965: “We knew the world would not be the same. A few people laughed, a few people cried, most people were silent. I remembered a line from the Hindu scripture, the Bhagavad Gita. Vishnu is trying to persuade the Prince, that he should do his duty and to impress him takes on his multi-armed form and says: ‘Now, I am become Death, the destroyer of worlds.’ I suppose we all thought that one way or another.”

fig. 7
Slide no. 1–65, mag. II, pos. 14, “Trees filter radioactivity,” 1970s, photographer: Wilhelm Knobloch

16 On November 22, 2020, the Belarusian dictator Alexander Lukashenko opened the nuclear power plant Ostrovets with the descriptive address of Energo-block 2. There is strong opposition to the opening of nuclear power plants in Belarus, since 23 % of the country is still suffering from the lasting and not yet mapped consequences of the explosion in Energy Block 4 of the atomic plant W.I. Lenin in Chernobyl.

17 Susan Boos, “20 Jahre Schweigen,” *WoZ*, (April 27, 2006), <https://www.woz.ch/0617/tschernobyl/20-jahre-schweigen>

18 Landesarchiv Baden-Württemberg, Sammlung Wilhelm Knobloch, Findbuch S Umweltschutz no. 405

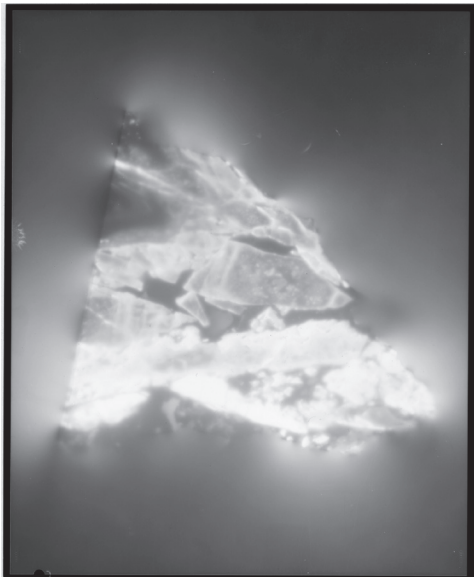
fig. 8
Slide no. 1–90, mag. II, pos. 39, “Aerial view of cooling towers of MZFR, with damaged forest, and already felled trees at the bottom right of path,” photographer unknown, 1970s

Now We Are Become Forest

“Pine, chopped down, rotten stump, left stump since it is popular with toads.”¹⁸

In 1972 Karlsruhe ordered plutonium from their American colleagues, Wilhelm recalls: On January 30, 1972 a catastrophe almost occurred at the train station in Graben-Neudorf. The plutonium was delivered on a passenger train; a steel canister, about half a meter high. No one at the local train station knew what this package contained. The dolly accidentally toppled during loading. The barrel rolled into the path of an express train that was just arriving from Mannheim at that very moment. A search party from the Nuclear Research Center (KfK) got there three-quarters of an hour later. They put on protective suits and searched meter per meter with the Geiger counter. The canister contained half a gram of plutonium; the most toxic substance on the planet. Doses in the milligram are lethal. Eventually it was found—undamaged—on platform 3.¹⁹ Chance had a hand in this, a lucky escape. The SPD Member of Parliament Karl Bechert: “There are disaster management plans in case of emergency at the Karlsruhe Nuclear Research Center on the Rhein. It would enclose the population within a radius of 10 to 20 km. This means that they are not permitted to leave the area. Karlsruhe is about 10 km away from the KfK.”²⁰





19 *Wilhelm Knobloch und das Atomzeitalter*, directed by Gerold Hofmann, 1998 (German: Zeit TV), DVD. Landesarchiv Baden-Württemberg, Sammlung Wilhelm Knobloch

20 Ibid.

21 “They are nearly extinct in the area around Chernobyl” according to Winfried Eisenberg (radiation specialist at the International Physicians for the Prevention of Nuclear War). “Across generations, they have extraordinary small heads and a very little success of breeding.” *DW Akademie*, (August 16, 2012). <https://www.dw.com/de/schmetterlinge-mit-verkr%C3%BCp-peltem-erbgut/a-16168620>

fig. 9
Axel Hiller/Susanne Kriemann, Autoradiography of pitchblende sample 10411, Hartenstein Collection, Wismut GmbH, in: *Ge(ssenwiese) K(anigsberg)*. *Library for Radioactive Afterlife* (2020), Susanne Kriemann (ed.), Leipzig: Spector Books

22 “In the wake of 3/11, Japan plunged from an advanced and well-managed consumerist society to an ominous epicenter of planetary radiation and ideological implosion.” Sabu Kohso, “Fangs Hiding in the Green: Between Revolution and Disaster, The World and The Earth,” D. de Roulet, A. Waldmann, S. Federici, G. Caffentzis & S. Kohso (eds.), Fukushima Mon Amour (2011), Brooklyn (NYC): Autonomedia Verlag.

23 “Despite the concerns, the GSF ordered the storage of radioactive substances in the Asse mine on November 18, 1966. The request was approved by Landkreis Wolfenbüttel after only four months. On April 4, 1967, the KfK was the first to deliver nuclear waste.” Reimar Paul, “Asse II ohne Eignungsprüfung,” *taz*, (August 9, 2008). <https://taz.de/Kernforschungszentrum-machte-Druck/!5176126/> “Unidentified inventory: it is not exactly clear, what kind of waste is stored at Asse II. The documentation is incomplete and was, partly, not done properly at the time. In August 2019, the Federal Environment Ministry had to announce that rather than the initial 9 kg of plutonium at least 28 kg were being stored. The measured values of tritium were also a lot higher than what can be concluded from the declared inventory.” <https://www.atommuellreport.de/daten/detail/asse-ii.html> “For civil society and the communal representation, Christiane Jagau criticized the current procedure. ‘A totally inadequate building that cannot comply with atomic law. An atomic plant without an emergency plan, this is unique worldwide’, she said. Jagau described the history of the mine from 1900 on and called its commissioning illegal, ‘salt has been quarried way beyond its limits and the structure is too instable’.” <https://www.bundestag.de/dokumente/textarchiv/2020/kw17-pa-umwelt-asse-688010>

24 <https://www.dw.com/de/atom-m%C3%BCllager-asse-eine-strahlenderbschaft/a-47414498> wurden zu schwach’, sagte sie.” <https://www.bundestag.de/dokumente/textarchiv/2020/kw17-pa-umwelt-asse-688010>

A forest, tree bark is cracking. A bead of water falls. Branches waving. Hairgrass, slender cudweed. A bead drops into water. Radioactivity leaks. From my doorstep, I cross the street, wander along the windblown sandy soil into a part of the forest in Hardt. Along with the kids and my sister, we are there looking for mushrooms. Woodlarks are singing. Back at home, I take a sample from the sole of my shoes and listen to the various rhythms of the capricorn beetle and caesium-137. How lovely April 25, 1986 was. Swallows.²¹ What should never have happened in our time, is still happening.²² In Karatschai, in Chernobyl, in Fukushima Daiichi. The nuclear research waste from Karlsruhe will soon drown in Asse,²³ since the recovery operations only begin in 2033.²⁴

While writing and researching this, I feel anger. Similar to the self-heating mix with the bizarre name LAVA, which had to be stirred constantly and cooled in Karlsruhe for 25 years, my anger is equally persistent. Today and in thousands of years. Half-life period in maelstrom. Is the gestalt of *being-nuclear research* Marie Curie’s undead leg? Are the deformed wings of the gossamer-winged butterflies that no longer flutter over the fields in Fukushima or the brown gorse in Leopoldshafen indicative of how *being-nuclear research* has become tangible for us?

From today’s perspective informed by climate change I view the images of this archive. I see how the petrified hands of nuclear scientists clap at the sight of explosions. I have no words. The dryness in my mouth merges with invisible yet largely detectable nuclides and isotopes, that have been shaping our experience of the world since the dawn of the atomic age. This disturbing dryness cannot be extinguished. I become we and we become forest, and with every degree of global warming we, together with the nuclear fuel rods join in the unquenchable rut, roaring against the overexploitation of our earth.

Susanne Kriemann (*1972) lives in Berlin and Karlsruhe. She is an artist, professor for fine art photography at the Karlsruhe University of Arts and Design (HfG) and cofounder of the artists’ initiative ABA Berlin. Kriemann explores photography in the context of social history and ecology. Her practice comprises field research, archival research and experiments with technology and materials. She has exhibited internationally, i.a. at the The Wattis Institute, San Francisco, Kunsthalle Wien, Townhouse Gallery, Cairo, Power Station of Art, Shanghai, Stedelijk Museum, Amsterdam, and at the Museum für Kunst und Gewerbe Hamburg. She has published seventeen artist books since 1998.