Radiation ethics and the gothic epistemology of modern technological risk

Ghosts, measurement, and praxis

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abstract

When it comes to addressing (the ethics of) contemporary technological risks such as radiation risks and other environmental health risks, there is often a gap between, on the one hand, scientific, expert and managerial approaches to risk and, on the other hand, perceptions and emotions by the general public. This talk understands this gap in the context of a tension in modern culture between a gothic-romantic epistemology centered on fear, invisibility, and the unknown, and a scientific epistemology that responds to this with measurement, instruments that make things visible and transparent, and aims at complete knowledge. Then it is argued that we can only move beyond this modern dialectic (1) if we consider ways in which this dialectic is already overcome within science, citizenship, and art, and (2) if we can bring the experience of technological risk closer to technological praxis, in which risk is more directly related to persons' and communities' technological activities and technologically mediated engagement with their environment, thus reducing risk alienation. It is concluded that for this purpose we need to re-think and re-design technologies in a way that gives people a more direct, practical, and engaged relation to their environment through the technology, and therefore more ownership of, and hence responsibility for, the risks related to the technology. This would also lead to a re-distribution of expertise and power in society. Finally, it is suggested that meetings between scientific-technological research, artistic research, and philosophical reflection can help to reveal how we deal with technologies and risk today, and explore new avenues for relating differently to technologies and to the environment.

introduction

- Problems raised in this paper
  - given different ethics and epistemologies experts versus public etc. in modern thinking,
    - how to move beyond modern dialectic, how to connect science/tech and art?
  - given modern risk alienation,
    - how to decrease distance to technology and technological risk,?

introduction

- Approach
  - Philosophy: epistemology and philosophy of culture: thinking about knowledge in modernity
    - Gothic
      - Gothic and technology?
      - Gothic and radiation???

My forthcoming book (MIT Press)

- Romanticism and technology (incl. gothic)

The visible and the invisible

Radiation: not (always) visible, so science and art makes it visible

- science: measurement technologies
- art: feeling

Risk

- science: calculation, numbers, statistics
- experience of risk by the public:
  - something might happen, but we don't know when; fear
  - something has happened, there are still traces of radiation and of people, something and somebody is still there; fear

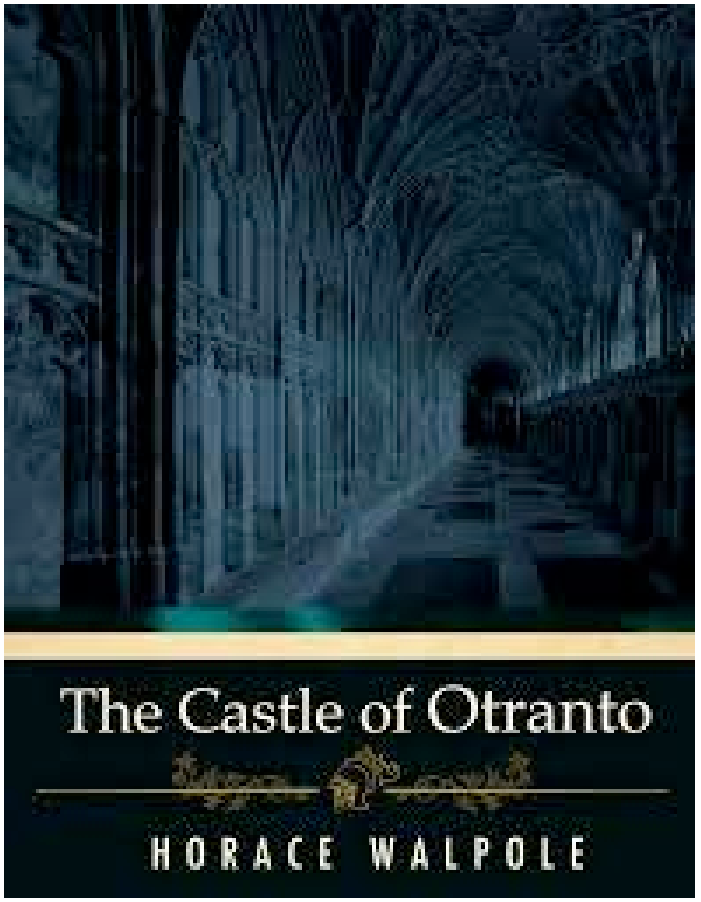
Gothic images of radiation: the danger

Gothic images of radiation: risk

Ghost villages after nuclear disaster

Gothic fear: history of Romanticism and gothic

- History, from the gothic novel until today
- Early 19th century: Novalis's Romantic philosophy: accept unknown, less control, the mystery
- Heidegger in the 20th century about the fearful, about something that is approaching…



Response science

Risk (e.g. radiation risk)

- Measure it
- Control it
- Calculate it
- Manage it
- Study it
- Explain it (also to the public, the “stakeholders”, etc.

Problem 1
the modern dialectic; dualist thinking

- Enlightenment versus Romanticism
  - rationality and empiricism versus feeling and intuition
  - science and measurement versus Romantic feeling and intuition
- science versus culture
- technology versus human
- experts versus citizens

-> influences debate about technological risk, e.g. radiation risk

Problem 2
modern risk alienation

- Place of production far away from place of use/consumption
- Stakeholders but little knowledge and control of the risks
  - Certainly no DIRECT knowledge of the risks
  - no OWNERSHIP of the risks
  - Lack of CONTROL and empowerment

How to go beyond modern way of coping with risk?

- Argument 1: about bridging modern gap science/tech – culture/citizens
- Argument 2: about bridging modern risk distance

Argument 1: ways dialectic has already (been) overcome

- Beyond dialectic
  - Science/tech/…:
    - Radiation history, **history** of science and technology: place for the gothic
    - Latour and STS: what really happens in laboratory
    - **art** & science? Art plays active role in defining reality, utopia, activism, etc.
  - Culture/citizens/…
    - **Citizens** doing their own radiation measurements
    - Politics is increasingly about science & technology (see again Latour), and citizens also argue about radiation etc.
    - Art as a way to cope with disaster, or to promote nuclear science

A bridge: scientific modesty

- What science can learn from Romantic and Gothic epistemology: give a place to the unknown and uncertain, we can’t know everything, let things reveal themselves -> better science

A bridge: the history of science and technology

- X-rays
  - the invisible
  - gothic: death

History: science and the supernatural

History of science/technology and ghosts

- Telephone: hearing voices over a distance
- Radio: sending invisible messages through the invisible ether
- Tel, radio, and recording technology: hearing voice of someone who is not physically present, who may be death…
- **X-rays**: could thoughts be transferred by means of invisible rays? And what else is this than *the image of death itself* ?

X-ray of a hand

X-rays

- Spooky, ghostly images
- Wilhelm Röntgen: “I have seen my death!”
- Photography: revealing the invisible… and ghostly images sometimes appeared when they re-used their plates

Ghostly photographs / ghosts in photographs

Violin hand x-ray

Another bridge: art

- How art shapes the meaning and reality of nuclear technology

Photography and the real

Sculpture and utopia

Art and activism

Art and promotion of nuclear

Atomic Insights

Using art to communicate about nuclear energy – PopAtomic Ted Talk

January 26, 2012 By Rod Adams

Suzy Hobbs Baker is the founder and director of PopAtomic Studios. She is a professional, talented artist and the daughter of a nuclear engineer. She recently gave a TEDx talk titled Art & Nuclear Energy.

Art and nuclear anxiety

Nuclear Anxiety

Nuclear Anxiety instantly gathers the global discussions taking place on social networks about Nuclear energy. Available under the form of a web mashup and of an iPhone application, Nuclear Anxiety allows you to see in realtime the worries, fears and doubts of people worldwide about the energetic future of the world.

access NuclearAnxiety here:http://nuclearanxiety.artisopensource.net

Art and measurement

Japanese Artist Uses Radiation's Effects to Show Contamination Spread

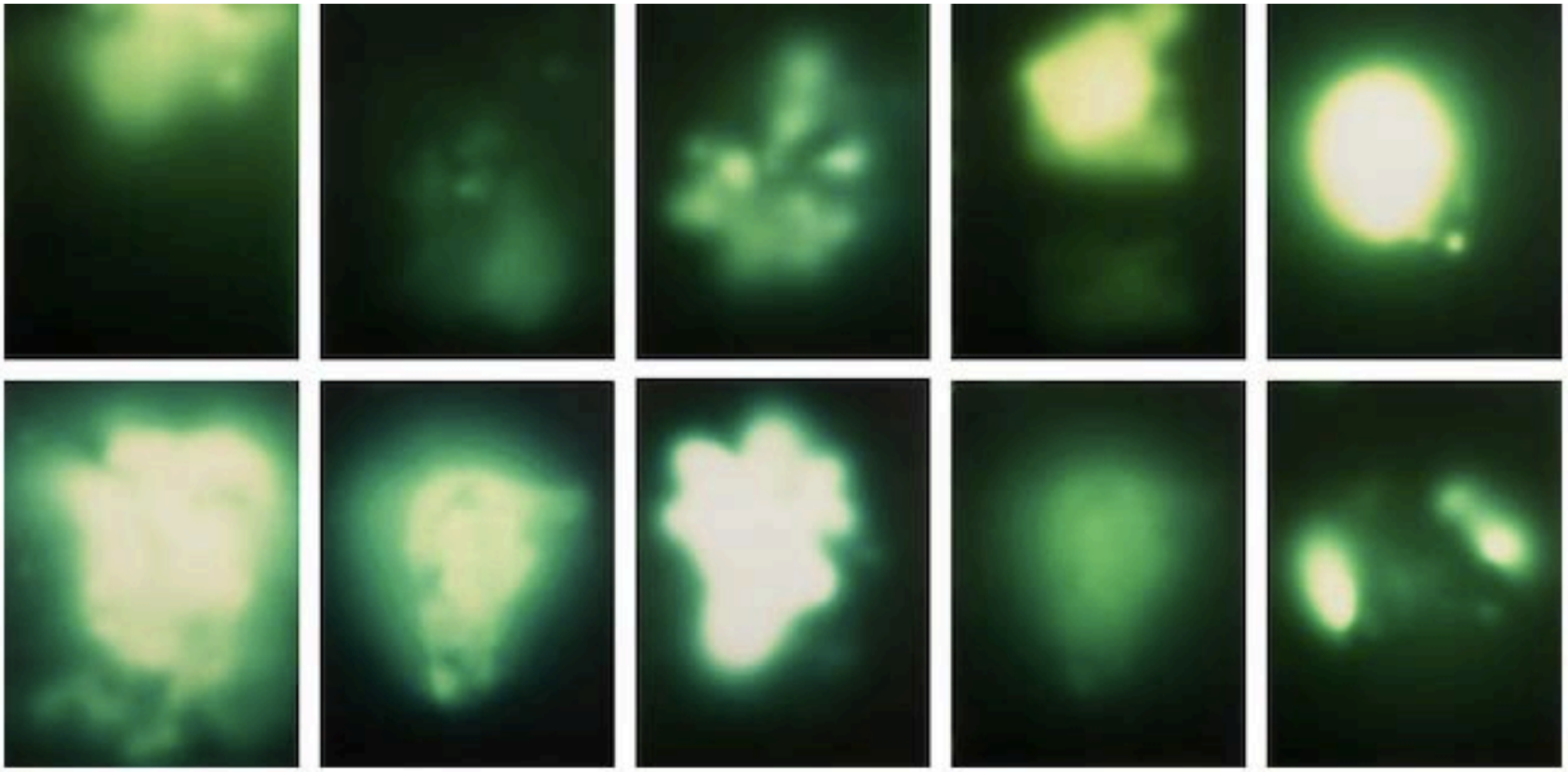
NTDTV

Subscribe 118,970

1,553 views

Nuclear aesthetics

Art *with* radiation



Sigmar Polke, Ohne Titel, Executed in 1992. 10 cibachrome prints. Images courtesy Bortolami x Green Tea Gallery

The radioactive art exhibition you can’t see

In honor of the fourth anniversary of the Fukushima Daiichi Nuclear disaster that devastated the region, Japanese art collective Chim↑Pom created a group exhibition inside three buildings within the Fukushima exclusion zone. “Because of the radioactive contamination in the area, people will not be able to visit the exhibit. In this way it will serve as a monument to the disaster, and its ongoing consequences," says Franco Mattes.

And yet another bridge…: citizens' science

- Doing your own measurements

Citizen measurements after Fukushima

Movement of Citizens' radioactivity Measuring Station

Since the release of radioactive materials had been reported by media, citizens' groups started measuring the air radiation level in different parts of Fukushima Prefecture. It was the first time in Japanese history that the general public took to the streets with Geiger counters. Citizens concerned for internal exposure of radiation started measuring food items such as rice and vegetables,too, with becquerel monitors that they managed to purchase or donated.

In Fukushima city, Citizens' Radioactivity Measuring Station (CRMS) was established in July 2011. Equipped with various instruments and competent staff, CRMS accepts citizens' requests for measuring radioactivity in air, food, internal exposure, etc. and provide information on internal and external exposure to radiation to the citizens.

Also in other cities and towns in Fukushima prefecture, local citizens established radioactivity measuring stations with support of donors including individuals. At present, there are at least 26 such stations established by citizens in Fukushima prefecture. (list) Some of them are members of CRMS network and receive training from CRMS.

The movement of Citizens' Radioactivity Measuring Station has been spread to the other areas in the country including Tokyo and west part of Japan.

Following to these citizen's movement, Fukushima prefectural administration started measurement of food items brought by citizens for free since November 2011.

It was a big achievement of citizens that they moved local administrations.

Argument 2: more engaged relation to environment, tech, and risk

- More engaged relation
  - See also my previous talk here about modern risk alienation
- May require redesign of technologies, new technologies
- Requires involvement of art(ists) to explore different possibilities (e.g. of sustainable living, energy production)

Problem with nuclear risk

- Radiation etc.
- Deeper problem: risk alienation
  - Because of the nature of the technology, we're far removed from it, we're alienated from this way of energy production
  - Search for better ways of doing things, we need different technologies/art/practices
    - What kind of **knowledge** do we need?

Poiesis and *praxis*

- Aristotle on activities and types of knowledge:
  - *theoria*
  - *poiesis* (making)
  - *praxis* (doing)

Poiesis and *praxis*

- Making > make it yourself
  - Heidegger
    - See also my talks on the poetics of innovation (Shenyang, Vienna)
- Doing > do it yourself
  - Marx: changing society
  - MacIntyre about practices:

"By a practice I am going to mean any coherent and complex form of socially established cooperative human activity through which goods internal to that form of activity are realized in the course of trying to achieve those standards of excellence which are appropriate to, and partially definitive of, that form of activity, with the result that human powers to achieve excellence, and human conceptions of the ends and goods involved, are systematically extended." (*After Virtue*)

Nuclear tech: make it “closer”

- How to re-design (nuclear) energy technology in ways that lead to “closer” ways of making (*poiesis*)?
  - Your own making, our own making: making within community
    - Risk also closer to our making, not “them”
- How to integrate (nuclear) technology into praxis
  - understood as “practices” (MacIntyre): having their own internal goal and value, aimed at excellence?
    - Risk also closer to practices
  - understood as changing society (Marx)?
    - Risk and societal change

“stakeholders”? Smart grid? Empowerment?

- Beyond engaging stakeholders, too distant
  - Presupposes disownership; centralized energy production, and then distance to consumers, stakeholders, etc. needs to be bridged
  - Participating in decisions about energy production (somewhere else) versus participating in energy production (here)
- Smart grid and then engaging end-users?
  - No, the problem is with being (merely) users
- Empowerment through doing it yourself
  - Micro scale energy production
  - Integrated with lifeworld of persons and with community

Examples of mall scale energy production: solar, wind

Also interesting for developing countries, e.g. in Africa: better than diesel generator; power to the people?

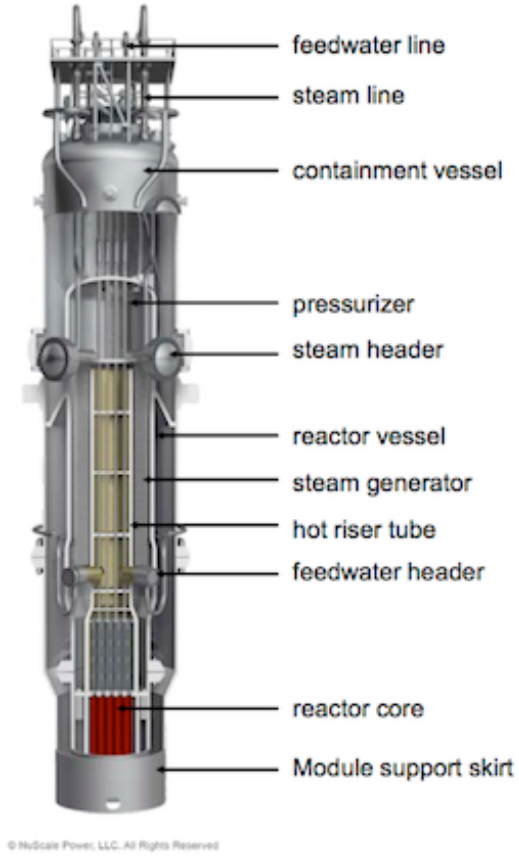
Implications for risk

- Local risk
- Ownership of risk
- Responsibility for risk and for dealing with risk
- No risk alienation
- Direct experience of risk

- My own measurement, control
- I know more about what's going on, since it's my tech, so less mystery
  - Acceptance of limited knowledge of risk, or even embracing risk? (gothic epistemology)

Implications for nuclear energy production?

- Local production, scale of home or community?
  - Not possible, see current ways of production, distribution and use
    - Centralized
    - Distance
  - Possible?
    - **New technologies???**
      - Small modular reactors (SMRs)? Scale better, but many other similar problems?



Conclusions

- Overcome gap science – culture
  - Contemporary art and history of science can help to see that there are different possibilities, different ways of creating knowledge, different ways of conceiving of science and technology
- Overcome distance to energy production
  - Practical solutions needed, more direct experience and knowledge
  - **New technologies**; maybe also (in combination with) **art** which is getting increasingly more practical, liaises with science etc.

Art and science

- Trying out sustainable ways of living, green and smart city, …


DANGER
RADIATION

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