

## processes in science

Markus Penz, November 2019, BRCP Potsdam meeting

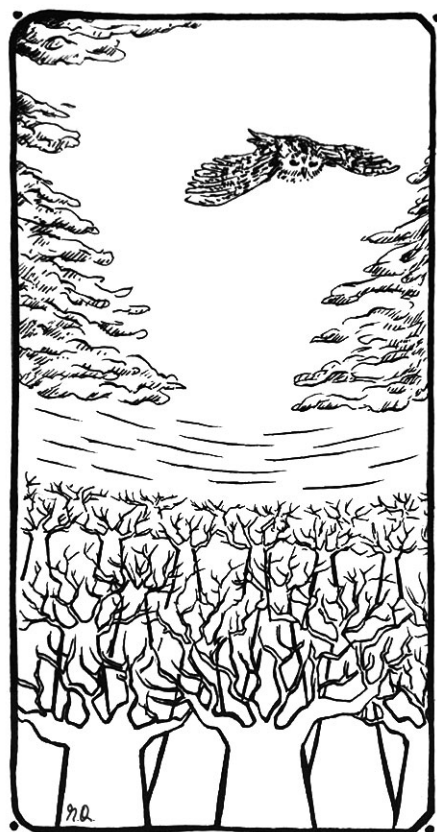
This text is a *condensate* of previous notes and fitting written material in order to stimulate and inspire, not to explain or convince. All terms you are unacquainted with just skip, arbitrarily replace them, or take them up for later discussion.

It was argued that Enlightenment, after fighting back the myths of the dark ages, fell itself under the epistemological spell of the existence of universal truth (Horkheimer/Adorno). Natural sciences succumb particularly to this age-old myth: that there is a well-defined scientific *process* of observation and computation that leads to objective knowledge. “There is only one myth: that of a science purified from all myths.” (Serres)

Present-day mythological science allows us to grasp a reality that by far exceeds the mortal senses, staring right back into the origin of the universe, putting our mind into black holes, or entering the innards of atoms. The innermost secrets of the cosmos are re-written as an abstract but exact representation. Other (sensible) forms of knowledge are humiliated, feelings and emotions scorned. The scientific method is, according to Kant, “a violence which reason unleashes upon the sensibility with a view to extending its own domain and letting sensibility look out beyond itself into the infinite, which is an abyss for it.” ‘Truth’ is equated to the ‘scientific system’, but any reification (objectification) means oblivion, because substantial information from within the *process* are lost. This means loss in *meaning*.

Convert Wittgenstein’s formula “the meaning of a word is its use in the language” into “the meaning of a scientific concept is its use in scientific practice”. Now take ‘electron’ as a scientific concept and see how its realness melts away. It is *nothing* outside its scientific or technological context but the vague idea people on the street have of it. Indeed most physical effects only reveal themselves in the sealed-off environment of a specialized lab. Yet following the usage of a concept maps out a long trajectory through published and unpublished papers, successful and unsuccessful experiments, modern and outdated technology, and its respective implementation in different theories. The concept has *many natures* within *one culture*. Those natures show a certain family resemblance but are not the same ‘thing’ (*Thing*, the germanic tribal assembly, describes a debate instead of something settled). They are *what is the case*, where ‘case’ is a legal act that has no final judgment, they can be *categorized*, from *katēgoros* = ‘accuser’, and adhere to ‘evidence’ and ‘facts’, from *factum* = what *is made*.

Von Guericke staged his demonstration with the Magdeburg hemispheres in front of the imperial assembly (Reichstag) including the emperor himself, thus uniting all legal power before him. Boyle followed legal procedure too and invited witnesses to testify over his vacuum experiments. In the next step the witnesses are de-humanized, replaced by reliable instruments, making the facts objective (because they live in a realm of only objects) safeguarded by a *ceteris paribus* (all other things held constant) that forbids any intervention. The proliferation of scientific fact is a positive feedback-loop, where knowledge leads to new technology that in turn aids the expansion of the included knowledge. (The Standard Model is then the instruction manual for the CERN, not a general theory of matter in the universe.)



*The owl of Minerva spreads its wings to leave the grim forest of academia.*

The modern constitution following Latour: The natural laws are universally valid, still nature can be mobilized to meet our demands. Culture is man-made and we give social laws to ourselves, still the subjects are subsumed by society. Those two poles must be kept separated!

The embedding of research objects into a net of scientific and technological practice and social discourse, between the poles of nature/culture, object/subject, universal/constructed, gives them the status of ‘quasi-objects’ (Latour, Serres), hybrids, queer lifeforms (Barad). Including all layers establishes a more direct connection (*not* representation) between what affects us and what we believe. The way for ethical agnosticism, “I am just doing research”, is then blocked. A *grand unification* can be aspired in culture instead of nature: capturing all intellectual streams and erecting theoretical aqueducts (de Sousa Santos) to steer them into one ocean of global discourse. Using the full power of many vocabularies unleashes an intellectual overdrive that accesses the full spectrum of cultural production. Collective cognition accelerates in the form of an *uninhibited synthesis* (Land). Scientists are *morphisms*, the mediators at the cross-overs between the poles.

A pluralistic and kaleidoscopic science would select its content by rules following pragmatic and aesthetic concerns, extends its reach into all directions that are deemed interesting, acknowledges only an anarchism of methods (Feyerabend), evokes spontaneity, creativity, and conviviality. Taken together with the ethical consequence, the new sciences have the chance of attachment to actual and pressing problems, transforming themselves into something that Illich called *Tools for Conviviality*. This does not mean sliding into irrationality, since “science is rational not because it has a *foundation*, but because it is a self-correcting enterprise.” (Sellars)

Science would be a means for the fantastic, re-mythologizing life (like art for the *Situationist International*). Science as well as art populate the world with the wondrous, complex, dazzling; instead of depleting it of marvels. No boundaries must exist between natural sciences, humanities, arts, politics. Finally, what we perceive in the world can keep its dignity, does not have to conform only to our schemes and theories, will not be re-presented, re-produced, and such re-pressed. The phenomena can, like Benjamin expressed it, keep their ‘*Aura*’.

Practical suggestions:

- Practice scientific storytelling, keep a research diary, and do not limit yourself to dry facts but note all ideas and influences. This might give results a different meaning—or tell you why they are meaningless.
- Study the net / *bricolage* (art, Lévi-Strauss) / *assemblage* (Deleuze–Guattari) of scientist–archive–lab–particle. Its ‘nature’ is its disposition (*dispositive*) for affects, i.e., what it *can do*, and thus lies entirely in the *process*.
- Write down your scientific avowal (your epistemology) and act accordingly. Don’t exchange the means for the ends.
- Use partisan techniques: artistic research, scientific intervention.