

# Earth Code workshop

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## Earth code



Material and symbolic structures/language. What does the earth have to do with language or code? (literally as base for technology, esoteric computing eg. fluidics, slime mould, signals and communications basis, as landscape/geomancy, other approaches- psychogeophysics?)

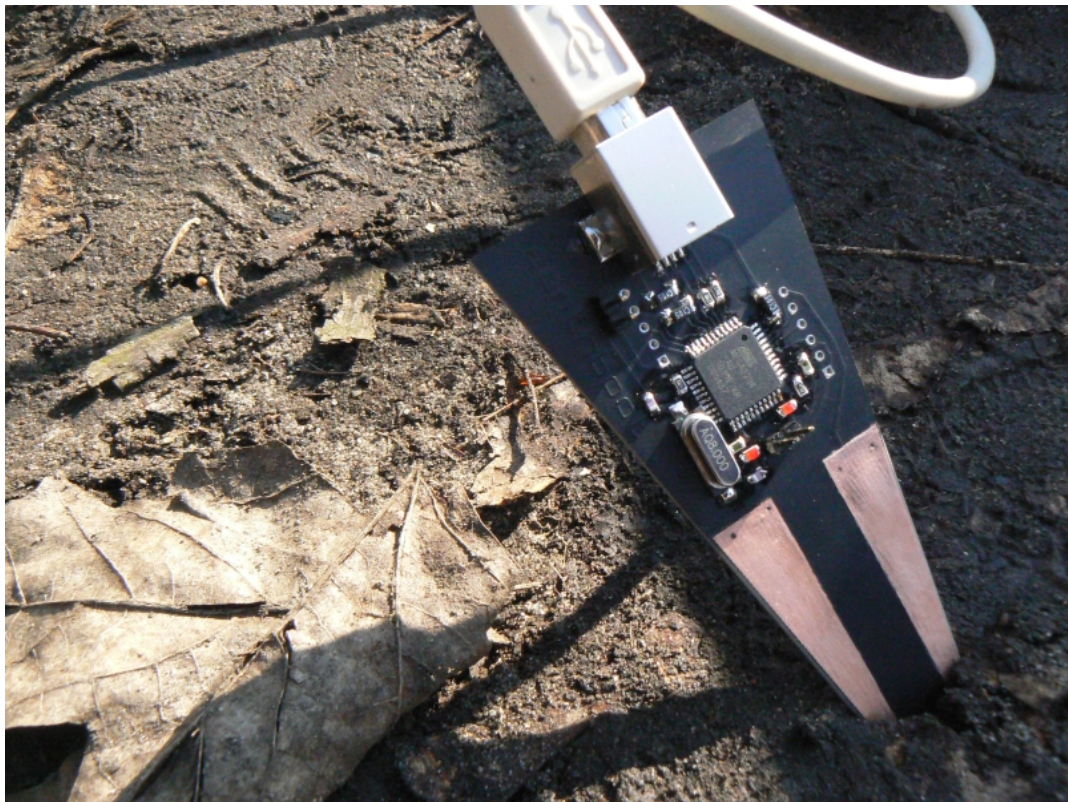
How can the earth as a process be tempted to compose software?

What signals can be transduced from the earth, using equipment of the earth, revealing hidden process and how can these signals be exposed and converted to brute code?

Finally, how can a dark interpreter, a shadow substrate be constructed as an experimental situation, enabling earthy instructions to recode that same landscape?

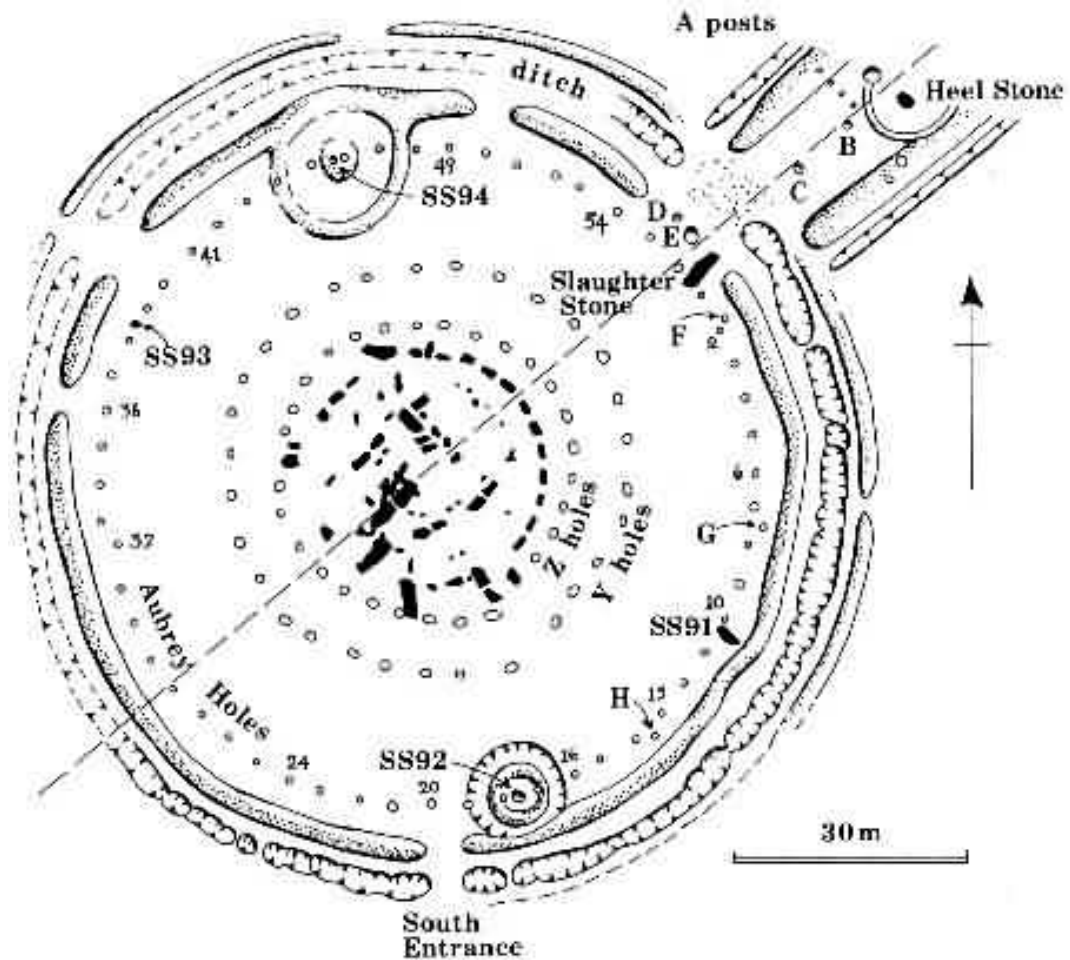
How to put the earth in (feedback circuit) circuit?

## **earthboot**



```
(shell-command "mplayer -vo xv /root/misc/videos/ebnovoice.mp4")
```

earth computer

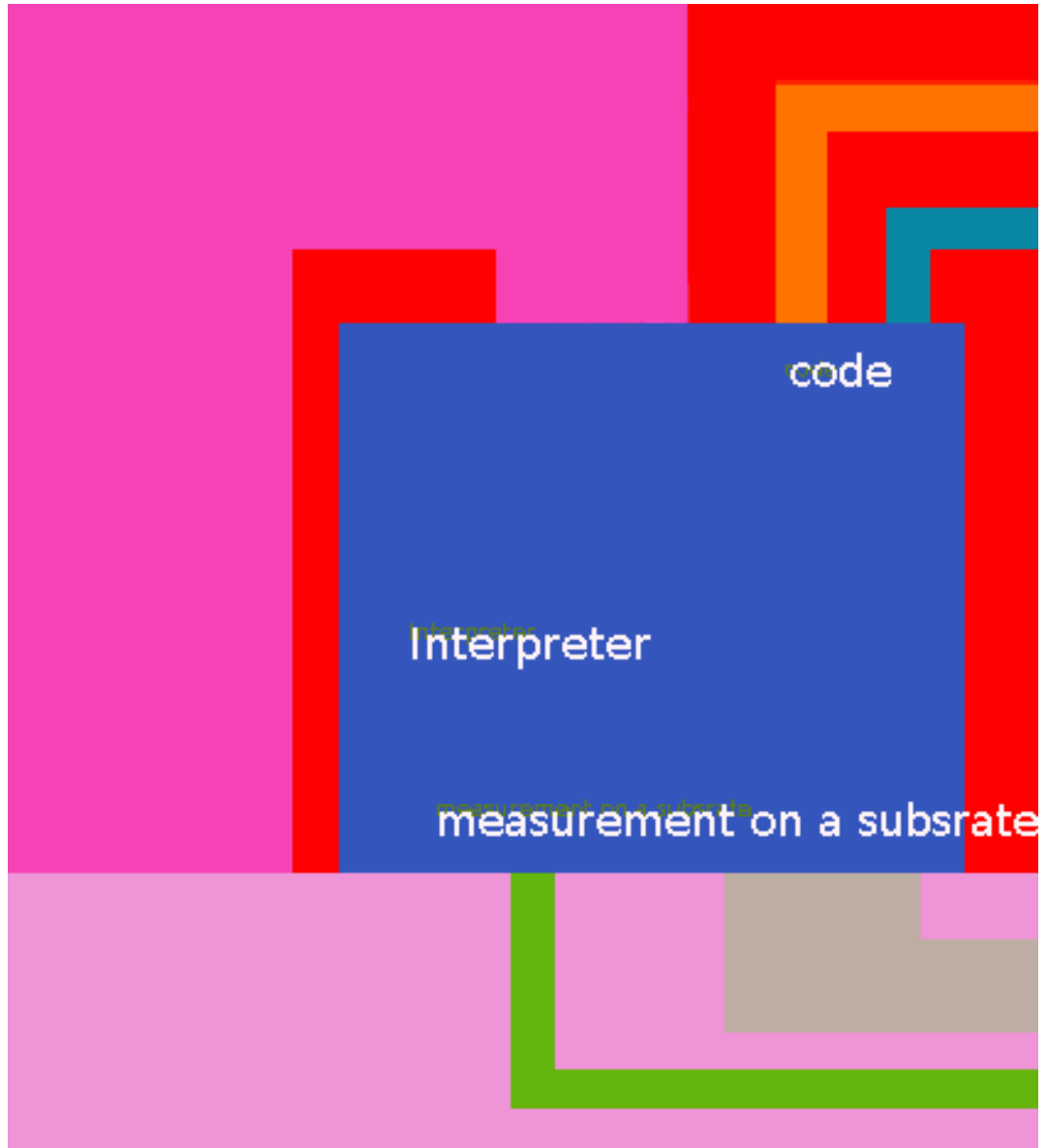


The shapes of the chasms themselves become “verbal roots” that spell out the difference between darkness and light. Poe ends his mental maze with the sentence “I have graven it within the hills and my vengeance upon the dust within the rock.”

[A Sedimentation of the Mind. Robert Smithson. 1966.]

The central conceit is the use of the earth itself as a dirty, irrational computational device. An attempt will be made to reproduce common components, such as memory, power supply, and CPU with earth-based elements; a form of computational land art.

## earth interpreter - diagram and feedback



Feedback/bootstrapping.

Experiments in electroculture as provoking a feedback example - that the measurement of electrical impulses in plants could feedback to their own electro-



culturing... plants talk to themselves.

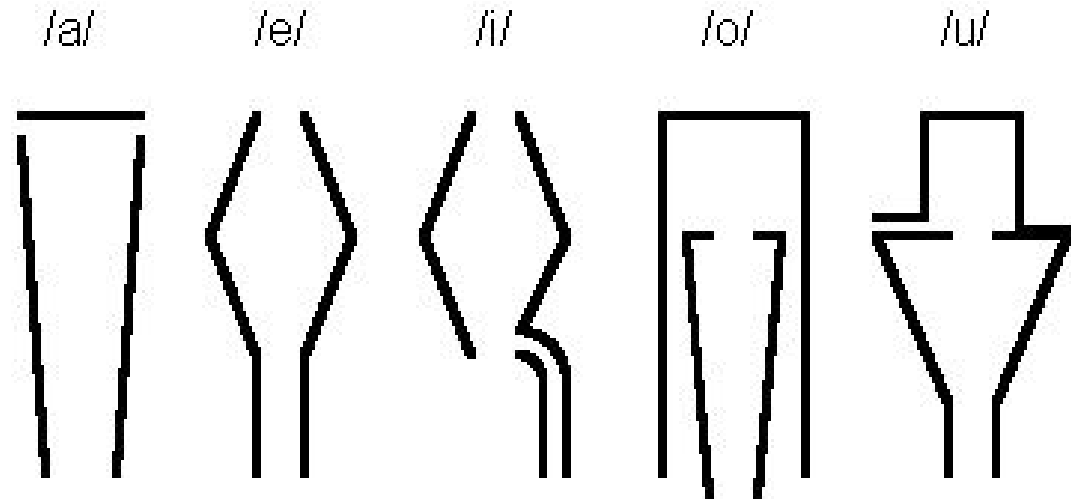
Some kind of feedback loop which involves the laying down of a barrier, of a metal, of conductive mineral. bootstrapping a geological process (eg. lightning field) = any alteration to the landscape.

A small area of the forest is set aside, and cleared of large trees, plants and undergrowth, yet carefully maintaining any remaining mycelium. Copper and zinc posts are driven into the ground approximating some kind of grid structure, tapping telluric currents and acting as simple antennae pooling stray electromagnetic emissions or even lightning strikes into the earth. An elaborate machinery is installed, to transform nitrates and minerals from the earth into acids, and to extract silver and other precious metals from the earth. Mixed with collected rain water, resulting solutions and waste products from the extraction process are sprayed and leached out across the area. Shafts of light penetrating the edges of the cleared area equally code this embedded landscape.

### fluid logic

../gates/smallgate2.jpeg

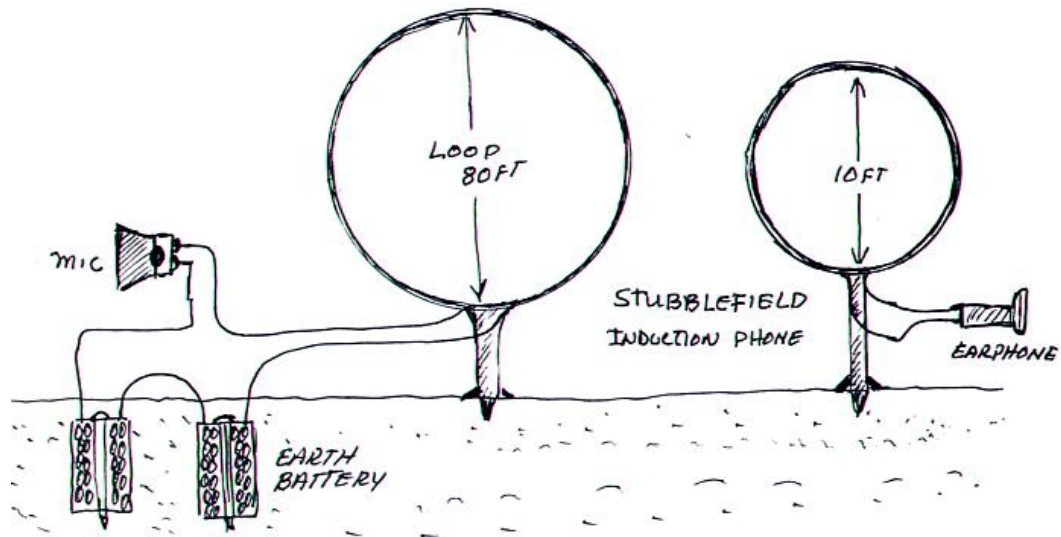
### earth voice/feedback



formant/earth vocalisation (routing hollows, wind, furnace or as electronics)

<http://www.phon.ucl.ac.uk/home/mark/vowels/>

earth talks to itself



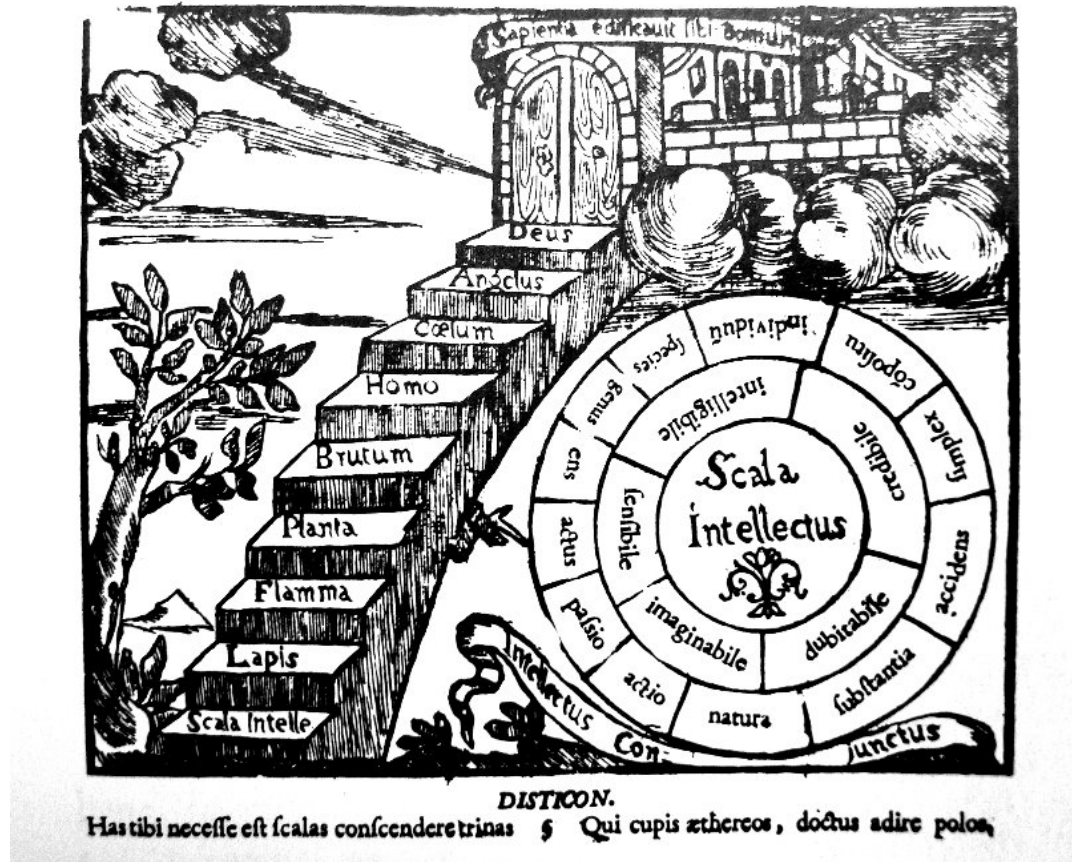
feedback

earth speech device (Erdsprechgeraet) - Barkhausen, Stubblefield induction phone: <http://www.icehouse.net/john1/stubblefield.html> but earth communicating with earth - seismic or geophonic feedback

earth diagrams, lullian, gps-geomancy

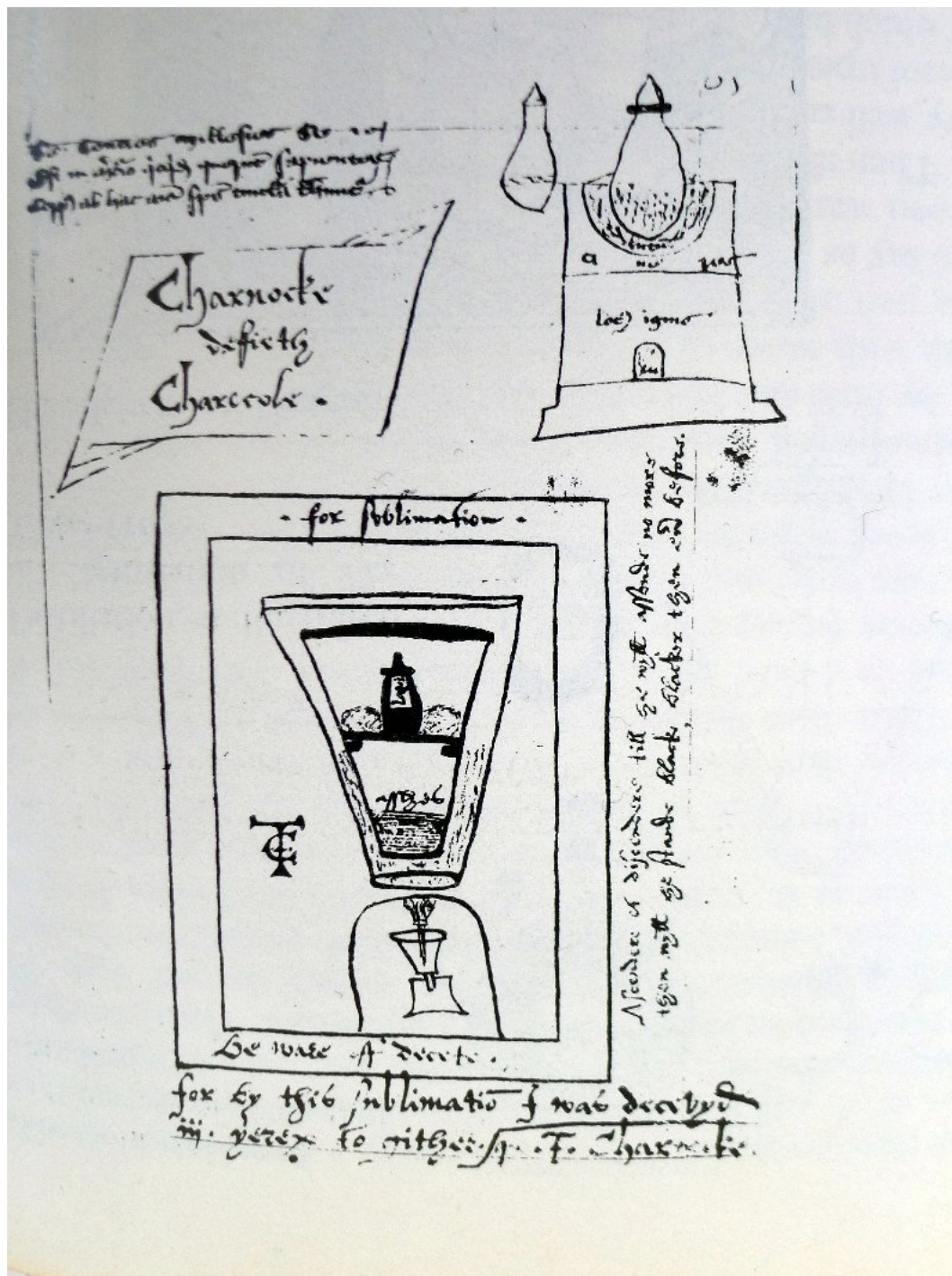
'figures' dealt with predestination, fate, and free-will, truth and falsity. The following is a specific instance of the way in which these were combined. When the rational soul is troubled and uncertain in the circle of predestination, because the chambers of ignorance and merit, science and fault, mingle together, it forms a third figure representing doubt.





What is geomancy? Earth divination (earth spirit), earth circuit.

actions and alchemy



furnace -earth voice fire

jar in jar as primitive slow distillery/earth alembic

algorithmic furnace/lullian earth geomantics

## schedule

### Day one

Presentation

555 glove making

fluid logic/questions/discussion

#### **Field trip:**

Wormcode/poetry/recital and gpsgeomancy

`python quantum.py`

`python gpsgeomancy.py |tee first_try_geo`

earth radio glove concert thermite/silicon (10sand/11alum/12sulfur)

possible directions/earth amp\_or\_logic/questions/discussion

## Possibilities/later notes

/root/projects/earthcode/earthcode-paris/salt peterplant300.jpg

Bootstrapping (a feedback mechanism) according to which inter-related processes, transformations and flows steer and escalate!

- of water and (bio-)chemistry (plastic sheeting, channels, pits, funnels)
- of electricity (flows, storage and generation) (antennae, conduction, geology, magnetic field, buckler capacitance, static, earth battery, solar energetic conversion)
- of biochemical/material change (heat, drying, additions and re-arrangements of materials eg. pyrites, changes due to exposure, bacteria)
- of mechanical change (logic gates in the landscape)
- of flora and fauna (remediation)
- of other forms of energetic manipulation (orgone energy)
- of display/consciousness (Persinger, galvanometer, multimeter, sound and vision, chemical analysis eg. thin layer chromatography)

Borrowing from historical mining techniques such as heap leaching which attempt such a bootstrapping on the landscape:

natural - rainwater (weak carbonic acid) percolation & precipitation (eg. iron oxide, calcium sulphate, ferrous sulphate)(along with enzyme/cyanobacteria activity) - eg. pyrites/copper sulphide minerals piled in open air and left exposed over months to rain/air provokes oxidation and dissolution of copper.

Salpeter beds, composting, bio-heap leaching, any human action on the landscape.

## **Stack, Frame, Heap notes**

### **transductions/energetic transformations**

1] telluric earth battery: zinc, iron/copper electrodes (eg. Bain: 1 metre 1 volt) - northern electrode deeper than southern increases current. the deeper the site, the more the current.

2] harnessing photonic energy (crude embedded solar panels - cuprous oxide), photosynthesis, bioluminescence, radiotrophic fungi.

3] kinetic-piezoelectric (wind, movement of animals)

5] atmospheric/EM energy - antenna, conductor for lightning, above ground voltage differentials

6] environmental peltier (thermo-electric) - magnetic field generation & temperature differentials - ore layers (eg. manganese silicate) combined earth (telluric) batteries thermo-emf ('cold/hot spots') - orig. peltier was bismuth/antimony and copper wires & make small rock ore versionings & add [cyano]bacteria (growth/species differentials according to temps?)

[and where to put storage of resources/energy or memory? also some kind of system of feedback/self-steering?]

### **substrate transformations**

processes/elements stacked as layers/heaped together

1] bio-chelation or phytoremediation - using plants (Indian mustard, hemp, pigweed, alpine pennycress) to chelate/sequester heavy metals see <http://www.pcbfab.com/waste-treatment/> & <https://en.wikipedia.org/wiki/Phytoremediation> - stored in roots/stems/leaves or neutralized/vapours - see also: phytomining and hyperaccumulators (Uranium-sunflowers?) - any cross-ref. with the indole crowd - not as test meant more species-wise (eg. amanita muscaria) (measure non-external changes.) like strain, stain, fermentation

phytoforensics

4] accelerated weathering (rainwater channeling, pooling, steeping)(plastic suspended funnel over ground/ground sheet in depression)

2] bio-sump (construction in low/under earth w. filtration stuff sit layered

7] flows are manipulated through insertion of layers (plastic, semi-permeable), the etching of channels (miming the processor) between layers and distinct processes, the establishment of borders/containment