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A kerosene summer dress

ABSTRACT

This article combines situational analysis with situationists dérive to weave a seemingly disjointed series of historical tableaux, materialities, marginalia, combustion and corporeal techniques in embryology, chemistry, geology, synthetics and magic. The double locus structuring this constellation is Hilde Proescholdt (1898–1924), a gifted German experimental biologist; and Abraham Gesner (1797–1864), Canadian physician, geologist and inventor of kerosene. Following Adele Clark’s SA research programme, I attend to situational maps recurring the experimental repertoires Gesner and Proescholdt with the material, social and artefactual historicities they envired. Through dérive, I narrate by displacement, cutting along the bias, rather than with the historical fabric. My aim is to contribute media ethology as variation on Robert Logan’s call for a broad spectrum media ecology that is agnostic to stable distinctions between content and container. I pay special appropriation to the signalling dynamics of the Spemann-Mangold organizer as an active media or, in complimentary phenomenal guise, Marshall McLuhan’s characterization of acoustic space as ‘all centres and no margins’. Proceeding through double-locus and double-method appropriates what Proescholdt’s supervisor, Hans Spemann, would have cautioned us against as bad magic by co-inducing interference between primary and the implanted organizing centres. Within the chapter, media ethology contributes a complex sum of SA+ dérive as a symmetrical mappings and non-obligate appropriations across inquiry and technique in the arts and the sciences. My discussion more broadly offers to enter debates on the relative merits and stakes for performative knowledge production and communication through the nexuses of art, science and technology studies.

KEYWORDS

biomedia
Abraham Gesner
Hilde Proescholdt
Spemann-Mangold
organizer
magic
petrol
coal
synthetics

INTRODUCTION

Nkisi is a Kikongo word usually translated into English as ‘fetish’. MacGaffey sieved that etiolated signification by instead schematizing *minkisi* as constituting a poetics of astonishment, displacement and rebus. Heusch alternatively suggested that a *nkisi* contained the ‘spirits of the dead metonymically trapped in a metaphorical trap’ (1981: 182).

A SPECULATIVE NON-FICTION

In 1921, the gifted biologist Hilde Pröescholdt (1898–1924) conducted a series of experiments on amphibian embryos that confirmed the existence of an ‘organizer’ posited by her graduate advisor, Hans Spemann, to induce the fates of surrounding cells. The so called ‘Spemann organizer’ would award him a Nobel Prize in Medicine in 1935. Ironically, what Spemann dubbed as ‘organization centre’ operates more in complimentary phenomenal guise similar to Marshall McLuhan’s characterization of acoustic space as ‘having its centers everywhere and margins nowhere’ (Findlay-White and Logan 2016). Alan Turing (1952) proposed a model, later dubbed LALI, for *local activation, lateral inhibition*, and proving characterize the Spemann–Organizer as a self-enhancement through an inhibition of inhibition (Meinhardt 2012).

The current article imagines an inside-out *nkisi* to generate a constellation of biological pattern, petroleum and plastics by defining Hilde Pröescholdt (1898–1924) and Abraham Gesner (1797–1864), father of the petroleum industry as a double locus. I splice Möbius points of contact to enable a constellation of historical tableaux, materiality, marginalia and techniques spanning experimental embryology, chemistry, geology, industrial synthetics, kerosene and practical magic. In addition to our *inside-out nkisi*, I combine situational analysis with Situationists *dérive* to narrate by displacement, cutting along the bias, rather than with the historical fabric. I pay special appropriation to the signalling dynamics of the Spemann–Mangold organizer as an active media.

A BIO FOR MEDIA

In ‘The biological foundation of media ecology’ (2007), Logan asked why media ecologists rarely attend to biological, or even ecological dimensions in analysing media? His viewpoint addresses media as emergent phenomena that, like organisms, ‘propagate their organization and interact with each other like living biotic agents in an ecological system’ (2007: 5). In this view one can extend (Christiansen 1994) to treat media as *nonobligate symbionts* conferring selective advantage onto human hosts. By looking beyond biological metaphors, Logan rather convincingly argued for embracing the breadth that Marshall McLuhan originally envisioned for media ecology as agnostic to either content or container, while attentive to reentrance where context matters.

A CONCEPT BEGINS TO DIG

This hollow ball of a 100 or so cells seeks to embed itself into the uterine linings of its mother’s womb. In turn, her hormones soften and swell the cavity. Some of the hollows cells merely burrow into the squashy tissue. Others look inwards to self-organization, and thus to congeal space as such. After nearly six days of burrowing/involuting, the mass/hollow has disappeared into the uterine lining, and the wound it inscribed has healed. In *protostome*

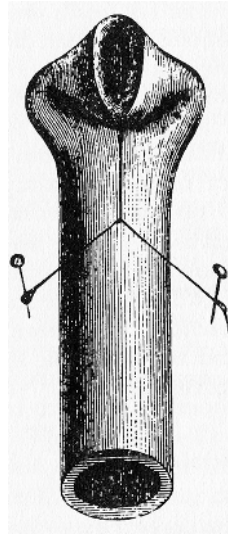


Figure 1: Wilhelm His, Sr; Chick Brain Compared to Folded Rubber Tube (in Gould 1977). Public domain, modified by G. Wetzler.

development, the blastopore becomes the animal's mouth; with *deuterostome* development, the animal's anus. Besides the natural doubling of 'a mouth for eating and speaking' both are the natural doublings of first and second mouths (logical OR plus ordered implication), as well as, the nested combination of Deuterostomia (from the Greek: mouth second) and Deuteronomy (second book of the law). In virtue of a misfired signifier (the Book of Deuteronomy is in fact the fifth book of the law), the latter carries its own possible constellation of portmanteaus: epiboly, ingression, invagination, delamination, involution and polar proliferation.

ENTWICKLUNGSMECHANIK

Glassy embryos of bisected sea urchins, headless green-tentacled Hydra verging on regeneration, frogs and newts amphibian embryos made to yield substrate for explantation. Spring 1921: Hilde Pröescholdt is at work in the lab. She arrived at University of Freiburg in Germany one year ago as a Ph.D. candidate to study under the eminent experimental biologist, Hans Spemann. After persistent failures, Pröescholdt achieves a result that would tunnel its way into the postscript of her advisor's foundational 1921 paper conceiving the inductive power of the so called, 'Organizer'.

A LOCK OF NATURAL FIBER

Spemann, the consummate bricoleur working in miniature fastens a lasso from a tress of his baby's hair, binding a noose on the jelly around a newts first fold, tightening until a distinction is manifest. He repeats with variation sometimes obtaining two complete embryos. Under more attenuated constrictions, fused embryos emerge. Spemann manipulates and compounds constriction planes discovering that dorsal/ventral constrictions enabled a completely formed dorsal side embryo while its ventral complement terminates only in

a piece of belly. Repertoires of dorsal constrictions produce complex spatial forms like notochord (a rod shaped mass of vacuolated cells along the nerve chord), somites (paired masses of mesoderm eventually forming the vertebral column), neural tissue as well as head primordia. Ventral portions alternatively form skin and undifferentiated mesenchyme, kidney tubules and blood. None of which participate in forming corporeal axis.

Not without its say in matters (of the) sublime, monster science also hollowed into Francis Bacon's three fold striation of natural history into freedom, error and bond,

so that a good division we might make would be a history of births, a history of prodigious births, and a history of the arts, the last of which we have also often called the Mechanical and the Experimental art.

Bacon perhaps wants to collect a natural catalogue of aberrant objects. Perhaps we'd rather insist to manifest the aberrant as an errant experiment with prodigious result.

LOCKS OF SYNTHETIC FIBRE

1912

Vinyl chloride (VCM) is a colourless gas stored in a liquid form prone to flash evaporation. It is a known carcinogenic with a mildly sweet odour. VCM is a chemical intermediate. When polymerized and spun, it forms polyvinyl chloride fibers (PVC) that store negative electricity when rubbed. PVC undergarments are said to relieve rheumatism pain, as well as, cause its symptoms. It resists chemical agents and water absorption, providing thermal and electrical insulation.

1935

Nylon is a thermoplastic with a high melting point, compact modularity and contingent pliability first synthesized from petrochemicals, becoming the preferred material for women's stockings. During the Second World War, nylon replaced Japanese silk in manufacturing parachutes, and is considered an excellent substrate for printing US currency. When subjected to fire, nylon behaves similarly to PVC: while it resists ignition, Nylon is reactive to temperature, prone to melt when heated.

1953

DuPont Corp's Textile Engineering Lab investigates methods for a burn resistant polymer with aromatic base structure. Condensation polymerization enabled its commercialization through amide solvents into an amenable to bond in crystalline, 'honeycomb' skein.

DRILLING, BONDING, COOKING, CRACKING

Abraham Gesner (b. 2 May 1797) was a failed horse-trader who survived two shipwrecks between his birthplace of Nova Scotia and the West Indies. At 27 he marries a physician's daughter, and becomes a country doctor feeding a habit with saddlebags full of crystallized rock. His first monograph, *Remarks on the Geology and Mineralogy of Nova Scotia*, is later published with funds

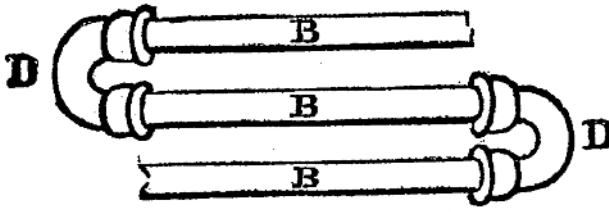


Figure 2: Superheated Steam Apparatus, adapted from Gesner (1865: 86).

flowing through a broader interest to transform its contents into commercial exploit. Now named Provincial Geologist of New Brunswick, he continues to produce detailed geological surveys of the region. He collects and stuffs local life eventually opening the territory's first natural history museum. This nexus of naturalism and extraction helps spur industries of coal and other petrol. 1843 marks Abraham's return to Nova Scotia where he sets to work on the manufacture of an artificial lamp oil.

MATTER OUT OF PLACE

Sir Frazer makes the following remarks concerning Contagious Magic: 'is a material medium of some sort which, like the ether of modern physics, is assumed to unite distant objects and to convey impressions from one to the other' (1922: 43). Frazer goes on to describe the most familiar example of Contagious Magic as the assumption that some magical sympathy exists between a person and any severed portion of the their body. Among several cases, Frazer describes the belief of several peoples who consider the navel-string and the placenta as the newborns double. As such, appropriate handling of the doubles must be ensured insofar one/s double continues to enact influence even from a distance. Frazer is not ambiguous in his interpretation of the actual efficacy of magic. 'In short, magic is a spurious system of natural law, as well as a fallacious guide of contact; it is a false science as well as an abortive art' (1922: 13). He considers that like modern science, magic is an attempt to explain how 'things can physically affect each other through a space which appears to be empty' (1922: 14).

ABLATE, CONVOLVE, DIVINE

Unable to repeat Tremley's inside-out Hydra, Pröescholdt pleads Spemann for an – other assignment. The latter obliged with a challenge to exploit heteroplastic manipulation by excising a section of *Triturus cristatus* (Great Crested Newt) and inoculating into undifferentiated tissue of *Triturus taeniatus* (Common Newt). Her task is to reveal the handedness of the so-called 'organizing centre' by soliciting the dorsal enfolding of a weakly pigmented salamander gastrula to incur on the ventral gulf of a strongly pigmented salamander. The environ thus truncated along an empty niche to practice life. Distilled from hundreds of unsuccessful attempts, Pröescholdt manifests a constellation of five experiments by complexing a third environment, *T. alpestris* (Alpine Newt), as an intermediate/host. Among these, the bulk of neural tissue was derived from the host. The educed morphology contained not one

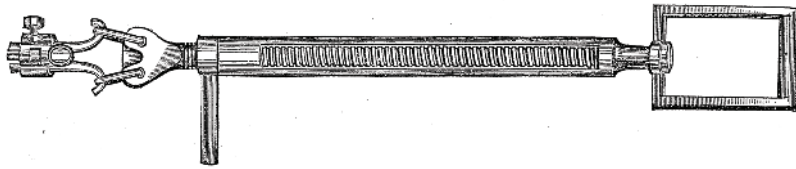


Figure 3: Modified Oil Well Tools, adapted from Gesner (1865: 30).

newt but two, a beginning with two heads, two tails, two neural tubes, two sets of muscles, two notochords, and two guts. They were conjoined twin-newts, fused belly to belly.

DIALECTICS OF COPY/SUBSTANCE, MIMESIS/CONTAGION

'It is not the wax that I am scorching [but] the liver, heart, and spleen of So-and-so that I scorch' (Taussig 2007: 253). The migrating tissue seduces the passive, indifferent materiality of a host to become fate, an affective double to its potential effect, to yield worked matter. Spemann christens the resulting conjoint of matter and noumena discovered through his student's work as a relation of materiality and position. The beauty of Pröescholt's experimental series was in rendering inductive force – the conatus of pattern to emerge from destabilizing potentials. She concatenated five acts to carry the matter in, with the forth distilling two with use of a third species of newt, *Triton alpestris*. Her fifth act was merely to diffuse time by allowing her specimens to practice life before fixing and sectioning.

In magical res, can also signal an interstitial fate, catalysing centres and diffusing margin. Like witchery, it enfolds through series of signalling centres, rules of contagion and antithetical action at a distance. This network of inhibition and suggestion is however not without limit. Subsequent biologists discovered that mesodermal cells on the blastopore edge were a source of signal that deteriorated as a function of distance becoming fainter and fainter. The organizers dissipation is nonetheless part of its signalling dynamics perceived by receiving cells as a spatial cue in its relativity to estimated origin. Alan Turing's lesser known theory of chemical morphogenesis would open a vantage onto the organizer's place in a denser assemblage of actants and diffusers. 'I transplanted a young optic vesicle beneath some belly ectoderm': Richard M. Eakin performing Hans Spemann in *Great Scientists Speak Again*, 1975 by The Regents of the University of California (1986).

1818, West Indies. On a failed horse-trading expedition Abraham collects a sample of bitumen from Trinidad's 'Pitch Lake', and cooks the first batch of a novel illuminating oil. This substance is suboptimal. As raw material it is impractical to come by, and emits an offensive odour when burned.

1852, Albert County, New Brunswick. Abraham visits a newly discovered bituminous mineral drawn from a vertically injected vein along the Petitcodiac that is environed by 'rock neither roof, floor, under clay, nor stratum of stigmata' distinguishing coal. Dubbed 'Albert coal', this vein of asphaltum would elude Abraham as the sole provenance of the Crown.

1854, New York, NY. Eagle Hazard, a shipping corporation established by operating a line for cotton trade between New York and Mobile, Alabama, issues a circular announcing the 'Formation of a Company to Work the Combined Patent Rights (for the state of New York) of Dr Abraham, of Halifax,



Figure 4: Modified Oil Well Tools, adapted from Gesner (1865: 30).

N.S., and the Right Hon. The Earl of Dundonald, of Middlesex, England'. The pamphlet describes a material dubbed 'Asphalte Rock', an 'entirely new article of commerce as found in Inexhaustible quantities in the Province of New Brunswick', having conchoidal fracture, leaving fingers unsoiled and void those properties known to constitute coal. The document alludes to a peculiar method for extracting fluids from a 'full and constant supply of the Rock', and 'requiring few hands and no complex machinery'. The patent's balance was given to careful description of a distilling and treating processes. The fluid is first induced through dry distillation, and always in a closed retort. It is then further cut with sulphuric acid to sieve undesirable content, and again purified now with freshly calcified lime for absorbing residual water and neutralizing its acid. Depending on method of distillation, Abraham's rock will educe a solvent for India rubber, petroleum substrate for transportation, engine grease, and above all, an illuminating oil that is both smokeless and odourless enabling an incandescence of unmatched hue.

Little is known about Pröscholdt's life outside the laboratory. She married the most senior student in Spemanns lab, a suspected Nazi and identified as the co-author of Spemanns 1921 paper. Pröscholdt, now Mangold, bore a child with the former. She also enjoyed reading the poetry of Rainer Maria Rilke, attended Edmund Husserl's lectures and decorated her at with Expressionist prints.

WORKED MATTER, CURDLED MATERIALITY AND IRREDUCIBLE HAZARDRY

The burning behaviour of a synthetic fibre is influenced by a number of parameters: Inherent physical properties in respective fibre manifest distinct melting transitions, and may be compared with their chemically related transitions of pyrolysis and ignition, as well as, the onset of flash combustion. Other factors include the nature of the igniting source and the time of its impingement, the

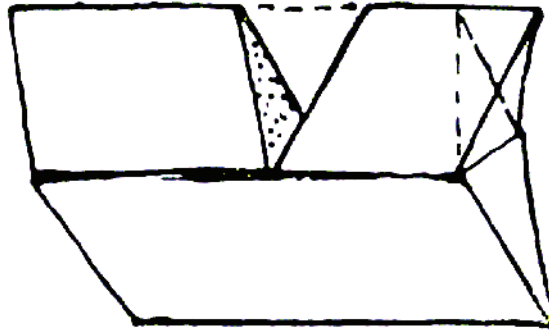


Figure 5: Calcite twinning, adapted from Przibram (1926).

fabric orientation and point of ignition, the ambient temperature and relative humidity, the velocity of the air, as well as fabric structural variables (e.g., low fabric area density values increases flammability). Combustion behaviour is a complex sum of inherent composition and chance encounters. To enumerate all possible physical morphologies and every possible point of contact is to expose an intrinsic burning property of a given fibre to the indeterminacy of its ignition event.

The paraffin, or Kerosene, stove first appeared in 1892, patented to a Swede as the 'Sootless Kerosene Stove'. The stove's design marketed so well that manufactures all over the world copied the basic burner design. In the United States it was called the Coleman, the Metacel in Australia, Hipolito in Portugal, the Meva in Czechoslovakia and the Petromax in Germany.

COUP EN BIAS

Around the same time that Pröescholdt, now Frau Mangold, transplanted living substance, Madeleine Vionnett introduced her 'coup en bias' by transversely cutting through the warp and weft. Her designs challenged rigid conventions of her day to 'flow like water' (Mahe 2015) by cutting along the bias, inducing fluidity against the grain, and along the collar. With scientific rigour, Vionnett set loose fabric from corsets and stays – dresses notoriously difficult to remove quickly (such as in the case of catching fire).

HISTOLOGIC/SYNTHETIC/BULKY HYSTERESIS

Marcel Mauss and Henri Hubert tell us that,

Both individuals and objects are theoretically linked to a seemingly limitless number of sympathetic associations. The chain is so perfectly linked and the continuity such that, in order to produce a desired effect, it is really unimportant whether magical rites are performed on any one rather than another of the connections.

(1972: 65–66)

They tell us further, 'It is the image of the thing to be displaced that runs along the sympathetic chain'. Pröescholdt ignites a chain of synthetic history and natural magic by displacing matter betwixt unformed newts. The now migrated organizer enacts the host as substance and yield a double void/

mass. Spemann the bricoleur conduces theoretical induction to matter, and is awarded the Nobel Prize in 1934. Gesner the alchemist urges matter and reads flame, cooking substance anew, yielding a novel naphtha that migrates into the Petromax. Frazer the Mind-Reader dismisses (other) magicians who 'never analyzes the mental processes on which his practice is based, never reflects on the abstract principles involved in his action' (1922: 13). Frazer instead distils 'theory magic' by sieving practice practical magic, ordaining 'the philosophic student to draw out the few simple threads of which the tangled skein is composed; to disengage the abstract principles from their concrete applications; in short to discern the spurious science behind the bastard art' (Frazer 1922: 12). He thus acts on things from a distance through theory as magic.

And, Hilde the Heretic. But, why? Because her magic was especially bad art by displacing signalling-matter through heteroplastic incantations of orders beyond the pale of reasonable magic?

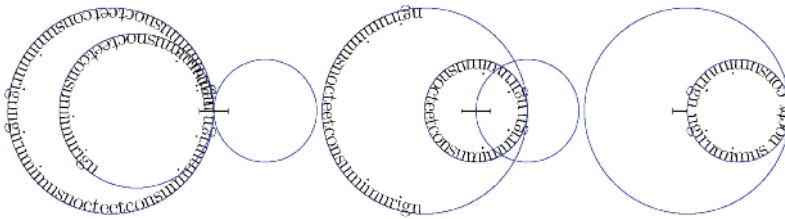


Figure 6: Rendering of the Latin palindrome, *We Go into a Circle at Night and Are Consumed by Fire*, by the author, G. Wetzler (2018).

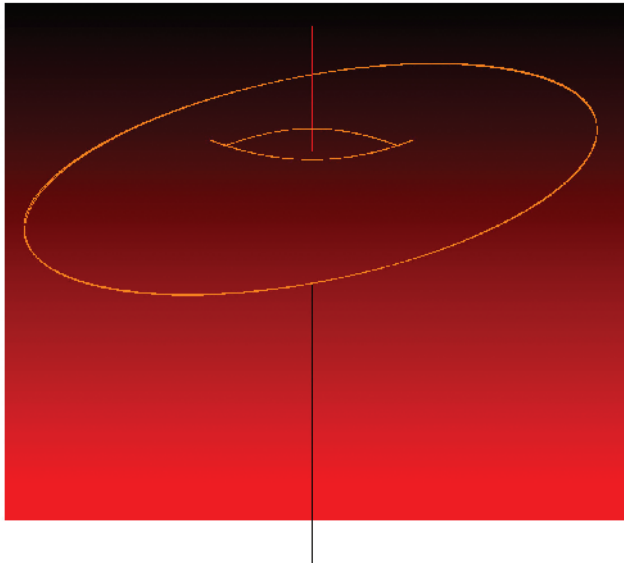


Figure 7: Three-dimensional interpretation of C. S. Peirce's sign of illation generated by the author G. Wetzler (2018) and adapted from Kauffman (2001).

WE GO IN(TO) A CIRCLE AT NIGHT AND ARE CONSUMED BY FIRE

Frazer was not dealt his due. False magic doesn't necessarily make for bad theory. Thus, the use of abstract principles as workable matter can make for good theory, and that's theory magic. The question then is whether here, history is a magician, or that history is magical material?

Sartre described the to and fro of objects/worked matter as alienation transferring interiority to exteriority. Human praxis becomes other when it transforms from event into thing. But for Sartre, matter, or Being, always appears as meaning. Materiality 'is indissolubly linked to the meanings engraved in it by praxis' (1922: 180). Matter is, therefore, always synthetic. He goes on, 'If he (man) could encounter pure matter in experience, he would have to be either a god or a stone' (1922: 182). Let us neutralize Sartre's words in a retort. One needn't be a stone to experience twice – worked matter as pure matter. Our encounter with Hilde *illates* this. Sartre detracts a sentence later, 'Man lives in a universe where the future is a thing, where the idea is an object and where the violence of matter is the midwife of History' (1922: 181). For the incantation to 'produce the effect' (theory magic), one need only cut Sartre (one metre) short, cutting the matter down.

Spemann cautioned against bad magic enacted through co-induction:

Interferences between the two organization centers, the primary one and the implanted secondary one, are complications that should be avoided for the time being, as far as possible. Once the analysis has progressed, valuable information concerning the finer details of the mode of action of the centers can be expected of them.

(Spemann and Mangold 1924: 34)

Lest we forget the cut we began, besides the natural doubling of first and second mouths (with Deuteronomy the fifth mouth of the Law) is the *port-menteau*, a mouth for eating and speaking – lies an ingress inducing a closed circle into an open torus.

1924, Berlin. Hilde Mangold, née Pröescholdt, is heating milk for her baby when the kerosene stove burst into flames.

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