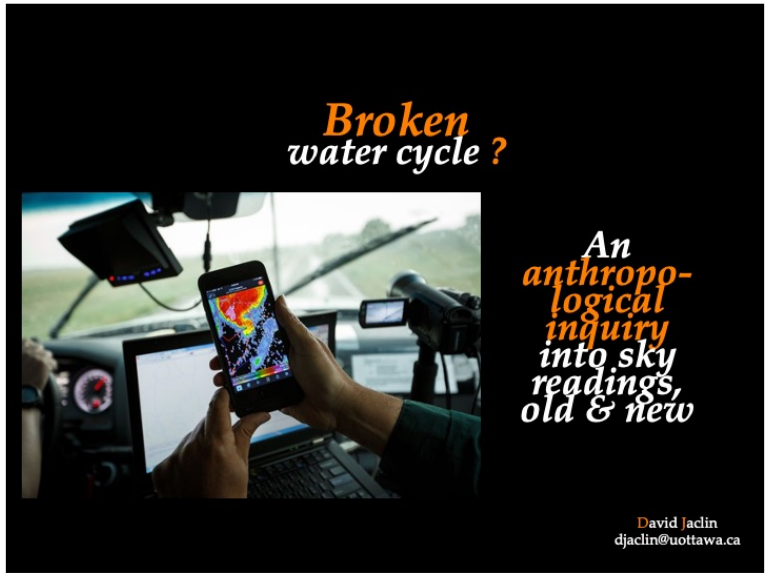
Is climate change weather out of place?

Dirt, as we know from the famous phrase, is "matter out of place," a definition that, Douglas states, implies two important conditions: "**a set of ordered relations and a contravention of that order**" (Douglas 1966: 44)


Broken
water cycle ?
An
anthropo-
logical
inquiry
into sky
readings,
old & new
David Jaclin
djaclin@uottawa.ca

First, a **story** (with its ethnographical empiricism, its theoretical articulation and its methodological problematization)

Second, a **paradox**, a sort of Koan borrowed to the Sorite School, but updated to fit some of our contemporary most saillant individuative force – I will talk about ethnography and its multidudes – multi-species multi-sited and multi-medias unfoldings

Third, a **proposition**, which is both political and poetic, anthropological and aesthetic : the animal medium.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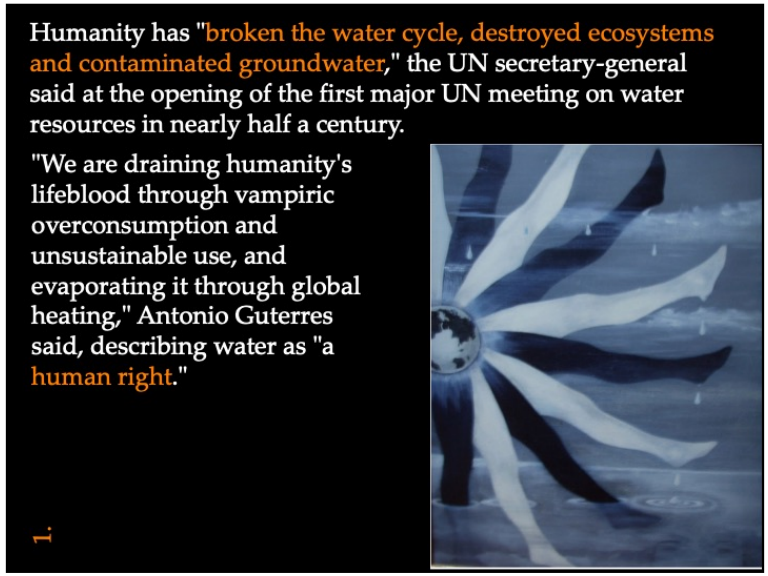


Please excuse the play on word :

BREAKING NEWS…

March 05, 2023,

"We've broken the water cycle, destroyed ecosystems and contaminated groundwater," **Antonio Guterres** said at the three-day summit in New York, which gathers some 6,500 participants including a dozen heads of state and government.

"We are draining humanity's lifeblood through vampiric overconsumption and unsustainable use, and evaporating it through global heating," Guterres told the conference.

Once again, humanity seems to have broken something. This time, something big, something

that we even might not thought possible to break… The water cycle.

I have been researching water for a few years now.

Interested in how humans relate to it, depict it, live with it (or whithout it).

Historically interested in HUMANS, anthropology has slowly started to include all that is not human but do make humanity viable, possible, desirable.

I did 15 years of research on animals, and their commerce – legal, illegal, for food, fun or research. Looking at how non-human animals where forced into the dominion, but also at how this rollercoastery relationship has allowed new forms of life (and new life forms) to emerge.

Now, I am picking an interest in elements. Especially water. Trying to see what is happening right now with the social construct.

When did water started to exist? A delicate question… For which you need a concept of map and

territory.

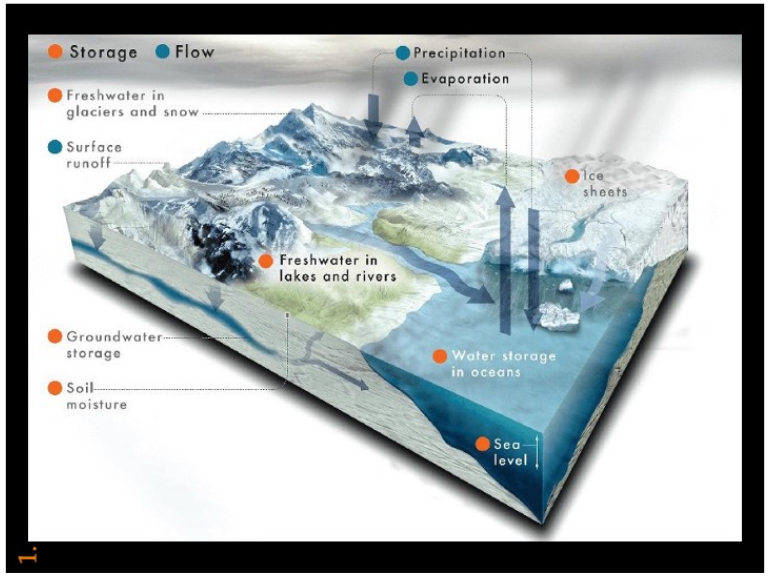
Positivist way of looking at things (encyclopedia Britannica and rain making) or the performativist way of following words, believes…

We speak to our phones as if they were real.

Holographic power of the human mind (and its best second in chief – technology).

So I decided to start with an ethnographic document – the water cycle diagram…

It started with an interest in western depiction of the water cycle - DIAGRAMS



When taught in elementary school, our planetary water cycle is often depicted in a neat geophysical circulatory way.

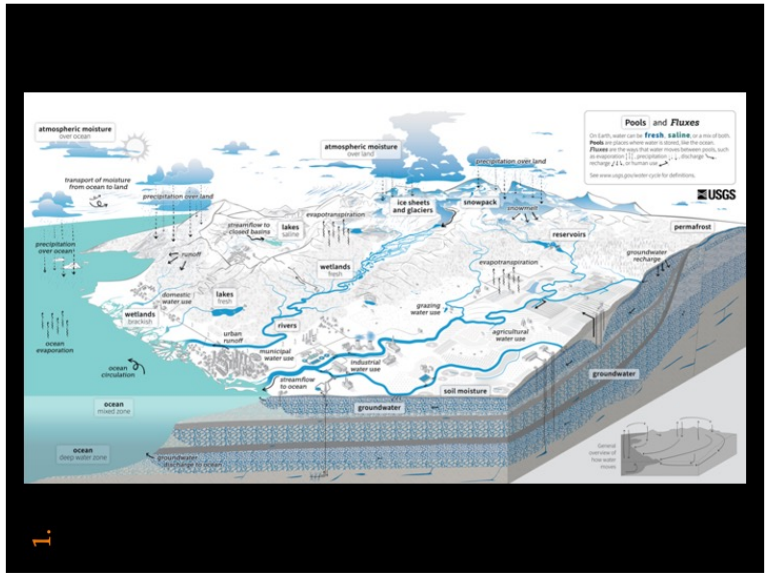
With the support of tidy graphics, it usually figures serrated mountain elevations, luxurious valleys, large sweating oceans and small blue underground pools. Plump arrows induce a feeling of movement, from cartoonish clouds to gently sloped grounds through icy crusts and expansive oceans. When updated for the 21st century, these heuristic graphics might even include a tiny urban setting, nestled on a coastal area or in a valley, where water actually meets human activities, often swathed in concrete.

As a present and future technofossil, concrete ushers in—perhaps like no other anthropogenic signature—contemporary ideas of urban progress and civilisational feat. It provides solid grounds (and floors) for the performance of social life and the containment of elemental ones (think canals, dams and other aqueducts for water). At the same time, concrete networks level and suffocate the rhythmic growth of organic life below. They prevent the percolation of life-sustaining

rain into the absorptive soil over larger and larger parts of the Earth's surface. As such, concrete is regarded by many as a contender for the golden spike, a definitive stratigraphic marker for our now infamous Anthropocene.

Concrete is rigid and immobile. Water is supple and moving. Their enmeshment shapes agriculture, industries, economies and politics. It also reshuffles ecologies.

With such an enmeshment in mind, between a state of knowledge accumulated over centuries (our hydraulic cycle) and the unpredictability of both our atmospheric and political climates, my research project aims to better grasp how human forces affect and effect planetary water revolutions.



Because of its spongiform chemical qualities, water carries - along its multiple circulations in both time and space - everything left behind by several industrial revolutions and other anthropic activities. While isotopes reveal change in locales, water now carries plastic and pollutants of various sorts. Because the most persistent work of erosion and sediment displacement can be regarded as the oldest form of globalisation, water is a unique *medium* for grasping both the state and the movement of life on earth, especially human ones.

Building on a multisited ethnography, I have been revisiting the main loci of water activity portrayed in our canonical hydraulic cycle by attuning to solid, liquid and gaseous states. I follow ice, rain, and clouds as they meet people, infrastructure, and cosmologies. In Quebec, flash-melting snow in an abandoned iron mine revealed aquifers that bore new traces of life *(3)*. In California, expansive atmospheric rivers and erratic weather patterns clash with urban sprawl, the real estate economy and insurance policies. Here, the proposed fieldwork in Taïwan is geared towards clouds, their tracking and grounding, their seeding and monitoring.

Following the work of climate scientists at Academia Sinica, I am interested in better understanding how climate science (and its creative modelling) is now able to grasp atmospheric change, providing new tools to anticipate typhoons' uneven behaviours (and the chain reactions of socio-ecological consequences) while offering robust data to help political decision-making processes avert catastrophes such as severe droughts.

The main methodological tools I will be using for this research is participant observation and visual anthropology. Starting with short and open ended interviews, I would like to follow scientists both on their office and fieldwork activities. I am particularly interested in sensors and how monitoring is operated from the ground. I would love to travel the island following a river (possibly the Tamsui River, from its source all the way down the delta), looking at how human infrastructure accompany the original vein. With the help of sound and video recording, I hope to convey the dedicated work scientists are doing, as well as their inner motivation and personal relationship to water (the intend outcome of the research is a book chapter and an ethnographic film).

Because of its insularity, its unique bio-geo-morphology, its historical and anthropological diversity, Taiwan is a key site where to study our novel anthropogenic climate ecologies and their dissipative water (re)cycling. In that respect, the work of the *Anthropogenic Climate Change Center* is exemplary. It's research on typhoons and natural disaster simulation, for instance, proves a milestone for our current understanding of the complex anthropic dimensions of climate change. Both because those changes are certainly amplified by humans, but also because humans are the ones actually producing new knowledge on what has been understood for centuries as a mostly cosmological issue.

Since anthropology is interested in how human groups organise their place and space on earth (and, sometimes, under the clouds), and by putting the human back into the water cycle, I hope to provide historical and cultural insights to the ancient practice of reading the skies.

Between heaven and earth.

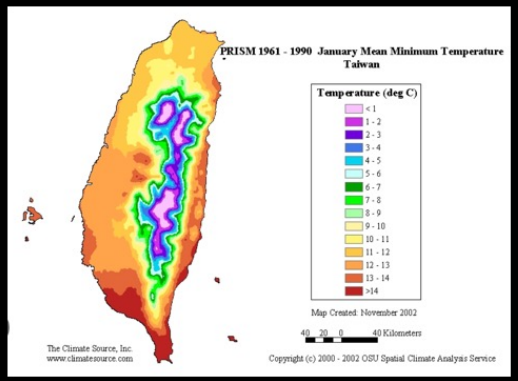
Rainmaking: any process of increasing the amount of precipitation discharged from a cloud. Primitive methods, such as rain dances or the throwing of pebbles into water, fail to produce rain. However, modern techniques of cloud seeding, such as efforts to coax precipitation from supercooled clouds (clouds containing liquid water droplets at temperatures below 0 ° C) with frozen carbon dioxide or silver iodide, as well as from warmer clouds (clouds containing liquid water droplets at temperatures above 0 ° C) with calcium chloride, offer some possibility of increasing rainfall amounts.

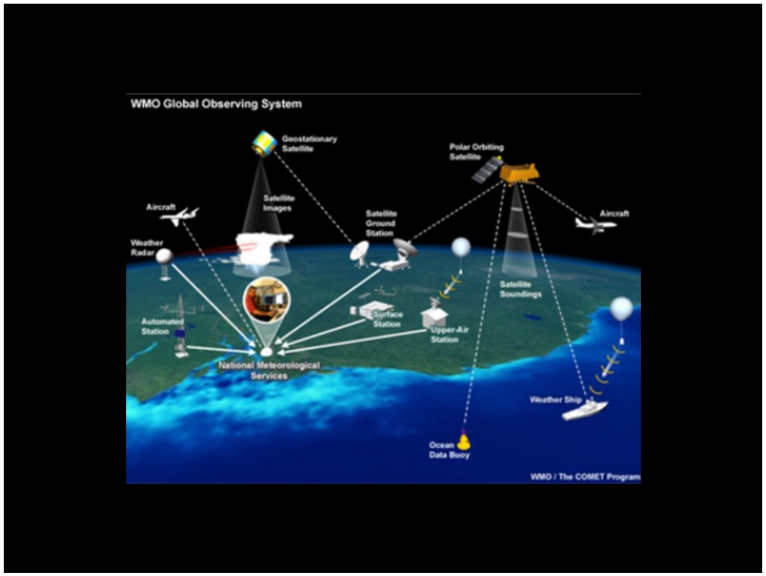
Encyclopedia Britannica

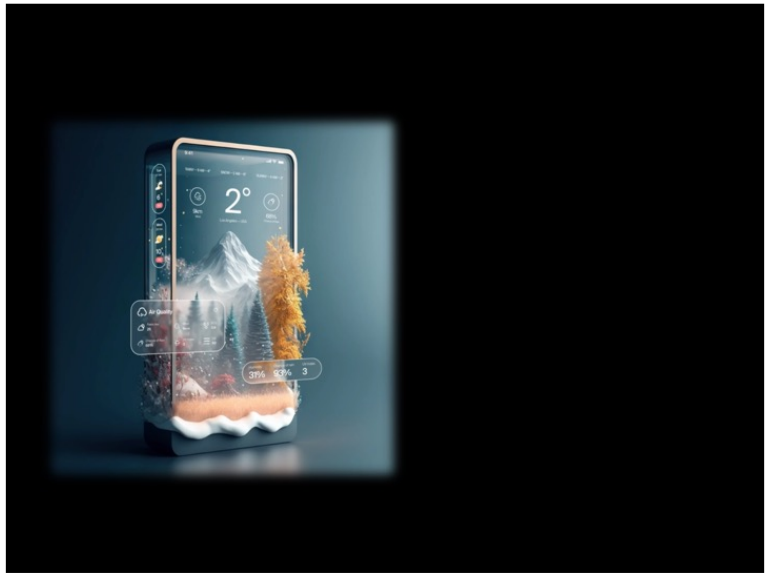
"These actions in which we now engage do not denote what those actions *for which they stand* would denote"

G. Bateson,
Steps for an ecology of Ming
(a theory of play and fantasy)

How something that we didn't see before now enters the scope of our vision?




WMO Global Observing System
Geostationary Satellite
Polar Orbiting Satellite
Aircraft
Satellite Images
Satellite Ground Station
Aircraft
Weather Radar
Satellite Soundings
Automated Station
Surface Station
Upper-Air Station
National Meteorological Services
Weather Ship
Ocean Data Buoy
WMO / The COMET Program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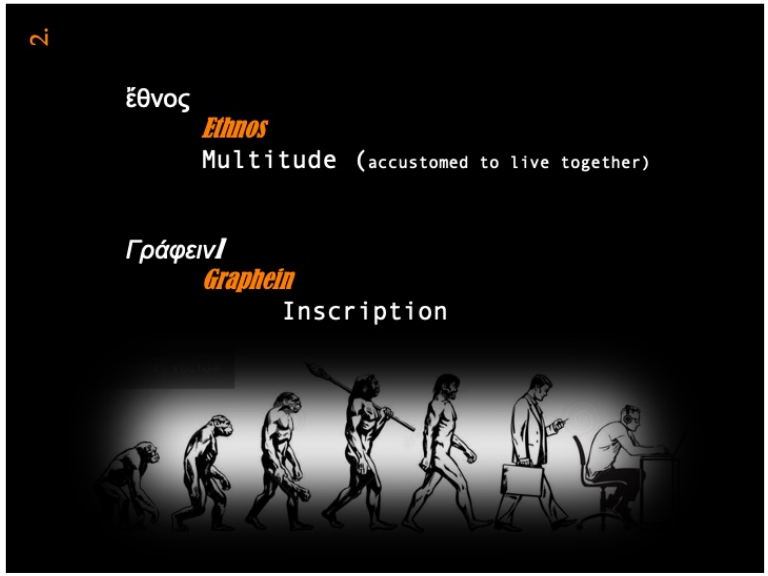


There is a lot of ethnography in academia today (Ingold – enough with ethnography) it is a sort of cure for many thought process and their proposition, it reacts to this idea (a little bit overrated if I may say so, that theory and practice are two different things, of different nature, wheras, to me and many other multi- people, it is more of an intensification potential, where theoretical propositon can intensify empirical findings – and vice versa).

So, there are a lot of ethnographical stuff pitched around, here and there. What I wanted to do, is precise a little bit more what I mean (and follow) when I say ethnography and how such conceptualization (or research practice) informs my work as a animal studies scholar and a media theorist.

Ethnos refers to a number of entities accustomed to live together -> with whom entities are we living together and are we forming a community, a tribe or a society?

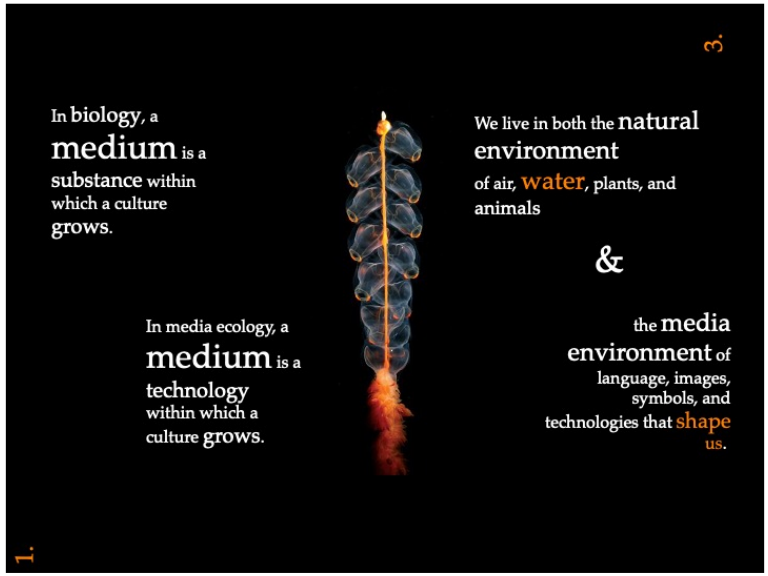
Animals (from food to fun through science), plants (are not tea or, soy and coffee plants? They

are ingested by the ton on a daily basis), machines (I ride the train to arrive here, and I was amazed by the global screen mesmerizing i saw), chemical componds (microplastic in food comes to mind).

For a long time, ethnography was reduced to the study of exotic places and people, while the second part of the 20th century open the study of others to others living in the same societies as the ethnographer (meaning mostly the west). Today, I would like to open one more dimension and integrate to the study of human groups all the non-human with whom and which daily life is shares (spirits, machines, organic matter and chemical traces rank among those companions – Haraway conpanions species).

Again :

Dirt, as we know from the famous phrase, is "matter out of place," a definition that, Douglas states, implies two important conditions: "**a set of ordered relations and a contravention of that order**" (Douglas 1966: 44)


3.
In biology, a medium is a substance within which a culture grows.
In media ecology, a medium is a technology within which a culture grows.
We live in both the natural environment of air, water, plants, and animals
&
the media environment of language, images, symbols, and technologies that shape us.
1.

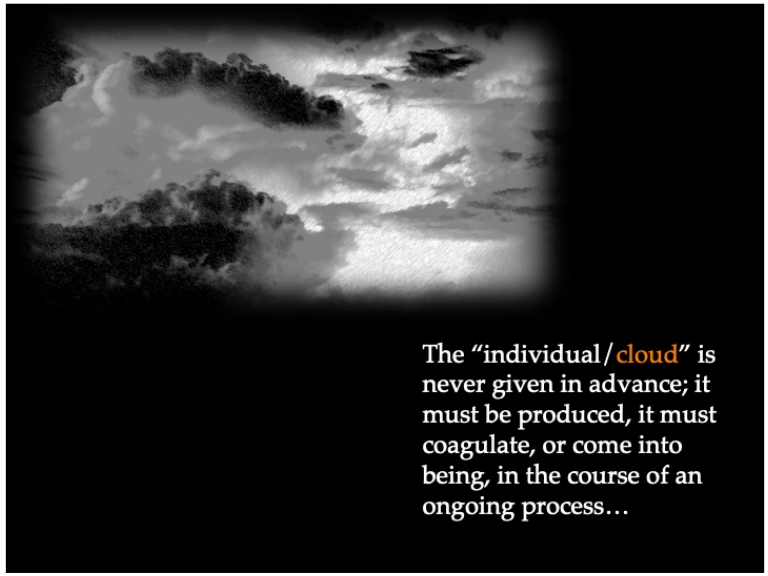
So, if….

It is the business of the future to be dangerous.
(A. N. Whitehead, quoted in
McLuhan and Fiore, 1967, p. 160)

The dilemma in weather modification thus remains. We know that human activities can affect the weather, and we know that seeding will cause some changes to a cloud. However, we still are unable to translate these induced changes into verifiable changes in rainfall, hail fall, and snowfall on the ground, or to employ methods that produce credible, repeatable changes in precipitation. Among the factors that

have contributed to an almost uniform failure to verify seeding effects are such uncertainties as the natural variability of precipitation, the inability to measure these variables with the required accuracy or resolution, the detection of a small induced effect under these conditions, and the need to randomize and replicate experiments.

National Research Council. 2003. *Critical Issues in Weather Modification Research*. Washington, DC: The National Academies Press. https://doi.org/10.17226/10829.



How many clouds to make a sky?

The conceptualization of transduction I found helpfull in my research comes from Simondon. But it is hard to talk about transduction without talking first about individuation.

What is individuation?

Simondon's most basic argument is that the "individual" is never given in advance; it must be produced, it must coagulate, or come into being, in the course of an ongoing process.

This means, first, that there is no "preformation"; the DNA in a just-fertilized egg cell, for instance, does not already determine the nature of the individual who will be produced in the course of nine months of gestation and years of growth after birth. DNA is not just a code, it is also a set of

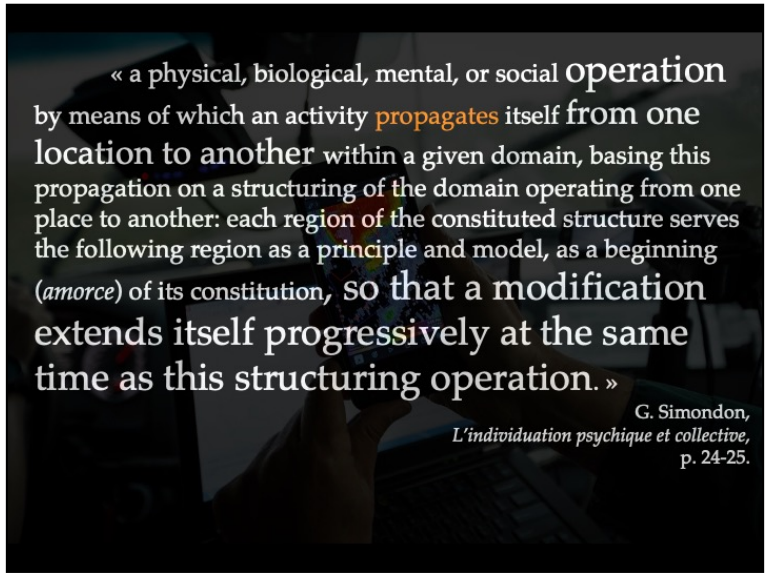
potentials, which can unfold in various directions, and which do not attain form except in the actual process of unfolding.

Everything always starts in the “preindividual” realm. The preindividual is not a state in which identity is lacking — not an undifferentiated chaos — but rather a condition that is “more than a unity and more than an identity”: a state of radical potentiality, of excess or “supersaturation,” rather than one of negativity.

S. Shaviro

http://www.shaviro.com/Blog/?p=471

Clouds are concentrations of **water** droplets and/or ice crystals that are so tiny that they float in the air. Air typically carries water vapor, which will condense into water droplets/ice crystals if the air is cooled because cold air cannot hold as much water vapor as warm air. The cooling of air that leads to clouds can occur in a number of different ways. For example, as air is warmed by the sun it rises, cooling as it does so. When air is forced to rise over hills or mountains it similarly cools and thus clouds may form. Typically, the water vapor that forms clouds condenses around tiny **airborne particles** to make the small water droplets and/or ice crystals. If the water droplets or ice crystals in a cloud become large and heavy enough they fall as **precipitation**.

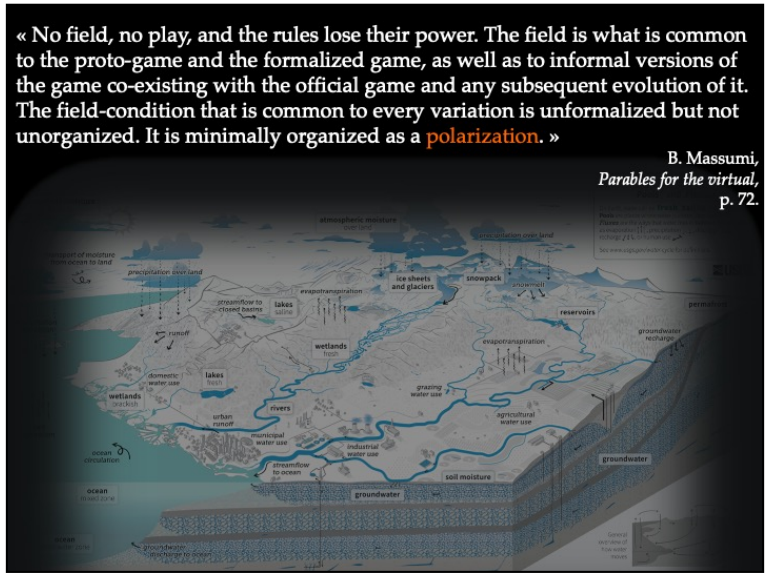


The mechanism driving the process of individuation is what Simondon calls *transduction*.

And he defines this transduction as “a physical, biological, mental, or social operation by means of which an activity propagates itself from one location to another (*de proche en proche*) within a given domain, basing this propagation on a structuring (*structuration*) of the domain operating from one place to another (*de place en place*): each region of the constituted structure serves the following region as a principle and model, as a beginning (*amorce*) of its constitution, so that a modification extends itself progressively at the same time as this structuring operation” (24-25).

The growth of a crystal is the simplest example of the process of transduction, but Simondon develops the concept much further. Ultimately, transduction is any transfer of information through a material medium. It applies to processes of differentiation (between energetic potentials) and crystallization (or temporary stabilization) of all sorts, from the growth of an embryo, to the learning of a concept, to the circulation of clouds.

In order to grasp the powers and complexities of these transductive activities, one needs a quiet robust concept of information.



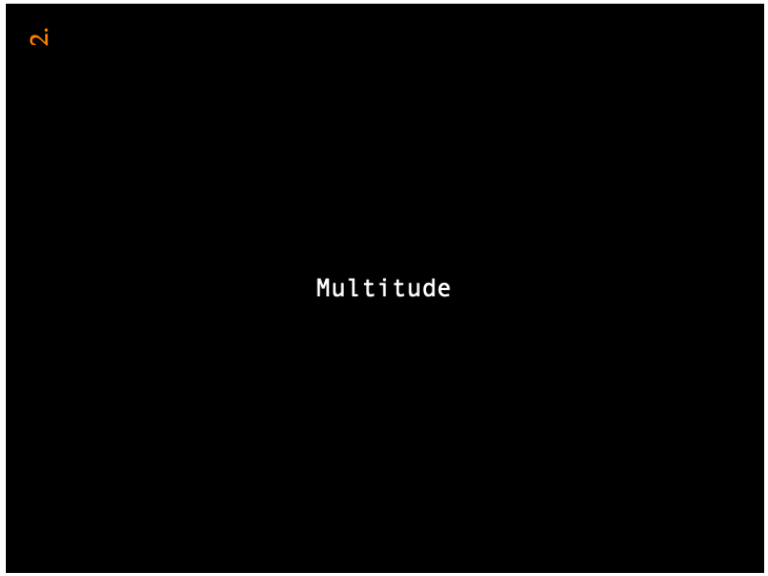
No more conceive of the individuation from the point of view of the individual already existing.

But rather conceiving of the individual from the point of view of his individuation.

Question is no more egg or chicken but the process of laying.

This old question seems to me very well exemplified in the case of cloud seeding.

You can not tell what the egg is exactly, neither the chicken, but you can set your attention and work at understanding how a supposed egg (cloud) is about to be laid by a supposed chicken (weather).



Multi:

médias

sites

species

But before my proposition (the one I annonced as being the third part of my talk, I wanted to stop and reflect a little bit (with everything I said ans not said in mind) to think about relationship. A multitude is not a simple addition of entities, on the contrary, it is the multiplicity of entities that constitutes them.

I will get back to it at the end of my talk, but let say for the moment that I am trying to think about individual (the entities contained in the multitude) from the perspective of their individuation, rather than the contrary (that is to think about individuation processes from the perspective of pre-conceived individuals).

All the animals, I am talking about here, are not pre-existent to the environement they inhabit, this room is not pre-existent to this talk, this talk is making the room, has qualities attached to it.

But let’s go back to the paradox I promised in my introduction.

How many clouds do you need to ’make’ a sky or have rain?

How climate and weather are interacting? If weather is changing a lot, when does that change the climate (and vice-versa)?

There is a quality attached to any climate. Such quality is now at stake…

The question of quality and quantity is central to my work.

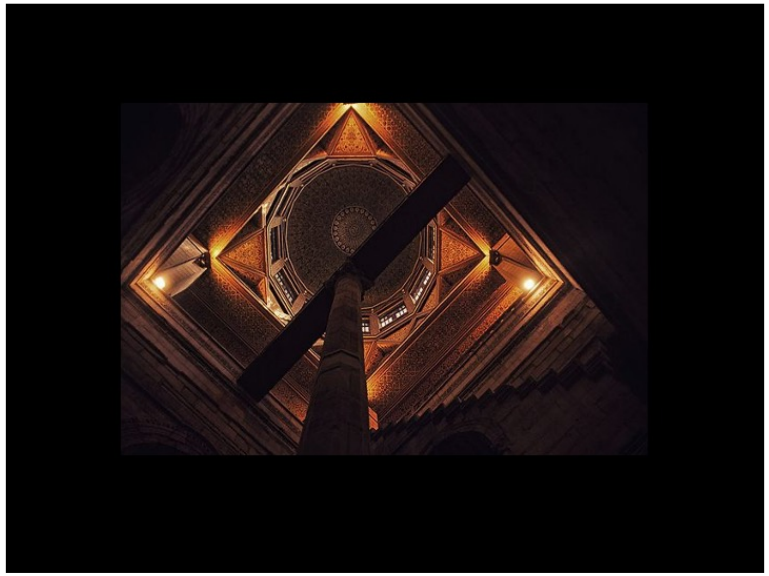
And the productive question that leads my research – how qualities navigate bodies?

Soros from the ancient greek – heap / pile

Take a heap of sand or a pile of rice…

A typical formulation involves a heap of sand, from which grains are individually removed. Under the assumption that removing a single grain does not turn a heap into a non-heap, the paradox is to consider what happens when the process is repeated enough times: is a single remaining grain still a heap? If not, when did it change from a heap to a non-heap

Sorensen, Roy A. (2009). "sorites arguments". In Jaegwon Kim; Sosa, Ernest; Rosenkrantz, Gary S. A Companion to Metaphysics. John Wiley & Sons. p. 565. ISBN 978-1-4051-5298-3.



The Nile played an important role in the historical and the economic life of Egypt. Throughout history, Egypt was an agricultural nation that became the granary of the Mediterranean Basin. The river Nile is one of the most predictable rivers in the world. The rise and fall of the Nile is regular and quite precise with floods that are rarely destructive. After the beginning of the rainy season in Ethiopia, the Nile starts to rise in early June and gradually swells to its maximum by the end of September, when the lands in Egypt are flooded with the appearance of islands. Diodorus Siculus gives a detailed description of this phenomenon:

The rise of the Nile is a phenomenon which appears wonderful enough to those who have witnessed it, but to those who have only heard of it, is quite incredible. While all other rivers begin to fall at the summer solstice (around June 21) and grow steadily lower, this one (Nile) begins to rise at that time and increases so greatly in

volume day

by day that it finally overflows practically all Egypt. . . And since the land is level plain, while the cities and

villages, as well as the farm-houses, lie on artificial mounds, the scene comes to resemble the Cycladic Islands.

(Diodorus, I.36.7–9)

This period of the inundation is also dedicated to festivals and ceremonies such as the account given

by Diodorus:

The masses of people being relived from their labours during the entire time of the inundation turn to recreation,

feasting all the while and enjoying without hindrance every device of pleasure. (Diodorus, I.36.10)

The flood remained quite static for about one month and then subsided more and more until

December or January, when the Nile returned to its original bed. In early June, the river was reduced

to its half of the flood breadth (Said, 1993, p. 96).

Metrology and the Inundation

The Nilometer was invented for recording the annual inundations in Egypt and to control the

floodwater. As the name suggests, the device originates from the area of the Nile in Egypt. The

Nilometer's function was based on the physics principle called "communication vessels." At three

different levels in the Nilometer shaft, three channels were connected to the Nile River (Fig. 1).

During the flood, the water would enter through the channels and fill in the shaft's bottom. If the

were mainly

enclosed in temples where only the priests and the ruling pharaoh could have access to these devices.

The significance of the Nile's floods is associated with Memphis, which is located at the root of the

Delta. Diodorus (1st century BCE), wrote that the kings of Egypt constructed a Niloscope

(Nilometer) at Memphis where administrators were appointed to make accurate measures of how

many cubits or fingers the river (Nile) had risen or when it commenced to fall (Diodorus, I.36.11).

These inundation levels could predict the grain and corn harvest, since the Egyptians kept accurate

records of their observations over a long period of terms (Diodorus, I.36.12).

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« The artist is the person who invents the means to bridge between biological inheritance and the environments created by technological innovation. »
MM.
LoM,
1988,
p. 92.


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