COMPUTING INSTABILITY: NOTATIONAL STATES OF MATTER IN H20

a workshop and zine by MELT

commissioned by counter-n

with texts, experiments and images by

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COMPUTING INSTABILITY: NOTATIONAL STATES OF MATTER IN H20

During *Computing Instability: Notational States of Matter in H20*, we worked with the chemical element H20 through a series of writing exercises. In this workshop we were prompted by pre-determined operations and invented new poetic operations. The workshop took place on July 15th 2021 in a Big Blue Button room at Humboldt University.

Water changes its state of matter within a temperature range of 0 to 100 degrees. Transitions from ice to water to gas can be easily set in motion through the heat of hands, kitchen freezers and cooking. Water itself poses challenges to technological recording practices: cameras that are not specifically protected corrode when put into water, and capturing softwares such as 3D scanners have trouble recognizing the „edges“ of ice cubes and instead scan what they see „through“ the ice. What becomes perceptible when refusing stability and „capturea-bility“? How is instable H20 a material-epistemic witness (Schuppli)?

This workshop was commissioned by counter-n and hosted by the art-design duo MELT (Loren Britton & Isabel Paehr) as part of their ongoing research project The Meltionary. The Meltionary is a growing experimental directory that investigates different materials, metaphors and modes of melting. MELT researches realities gener-ated by climate change, questioning how coloniality, climate change and technological developments are intertwined (Da Silva).
To pursue these questions, MELT boils up insights from chemistry, crip technoscience and trans*feminism to both study and set in motion transformative material-discursive processes.

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ICE CUBE COMPUTER

Ingredients to configure the computer: At least twenty minutes to follow and/or play with the instructions. One to three pieces of paper, a minimum of one ice cube, drawing supplies.

Workings of the computer: The paper is the computer's mainframe. Put an ice cube onto the middle of the paper, and this ice cube will be the processing = melting unit. You can program by writing circularly and outwards from around the edges of the ice cube. Data traces can be understood as puddles of water or smeared writing.

Instructions:

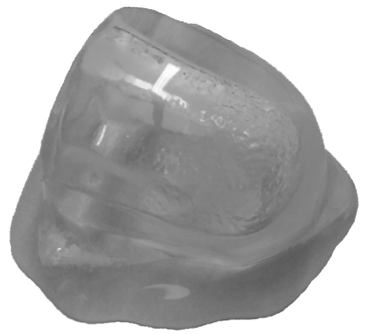
1) Place one ice cube on one piece of paper. Take some time to read through these instructions so that your ice cube has the chance of melting a bit. The ice cube in the middle of your paper is your processing = melting unit. Instability will melt outwards from this unit.

2) Start drawing letter like shapes in a circular way around your ice cube. It is more important to keep your hand moving than to make sense while writing these shapes. Whenever a word, sentence or question relating to computing and instability comes to your mind, transform your abstract shape into these. As a start, you can describe what happens, e. g. smearing letters, losing clarity, but you are welcome to speculate further on what instability means for computation.

3) Sync with your processing = melting unit: This can mean to wait until the water reaches your pen or to escape from the melting ice with your writing. It could also initiate a third operation you invent.

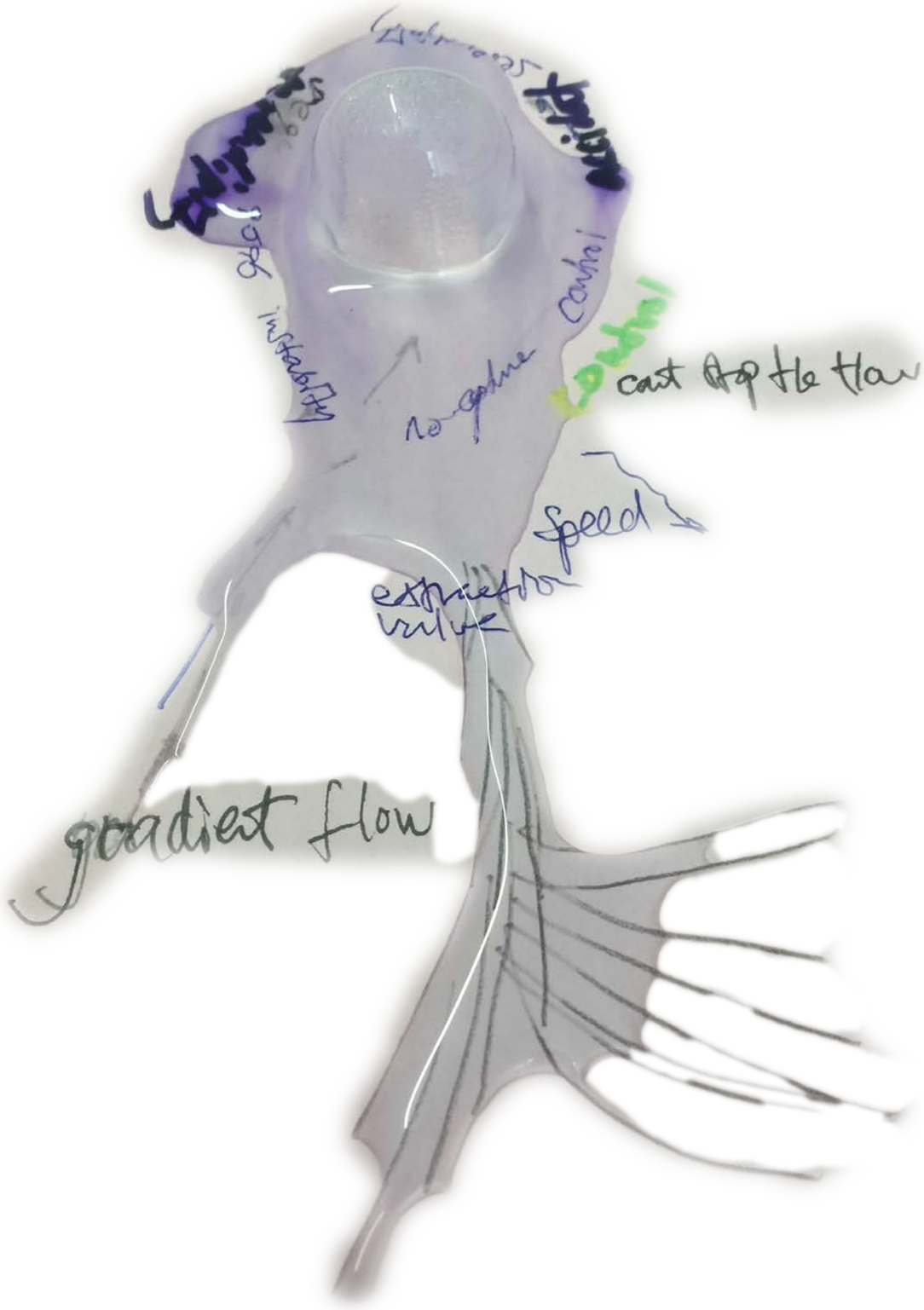
4) Once you have filled your whole paper with shapes and puddles, the processing is done.

5) Experiment with a second or third mainframe = paper. Play with different papers, or fold your papers, or use multiple processing = melting units by placing multiple ice cubes on your paper.



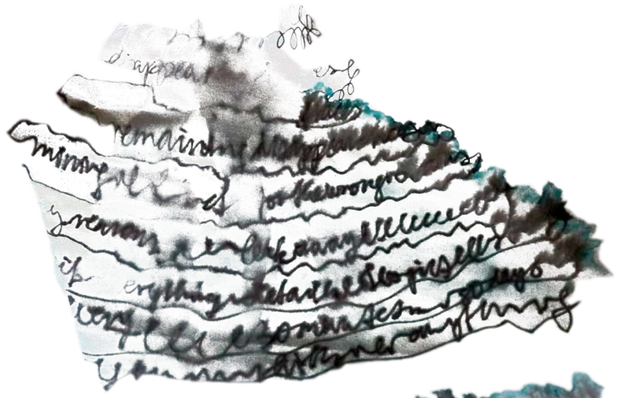
ICE CUBE COMPUTERS

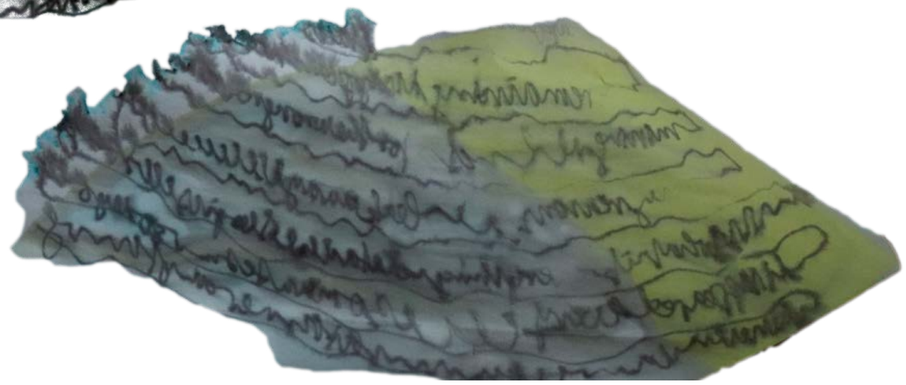
What work do computers perform so that their operations appear stable?

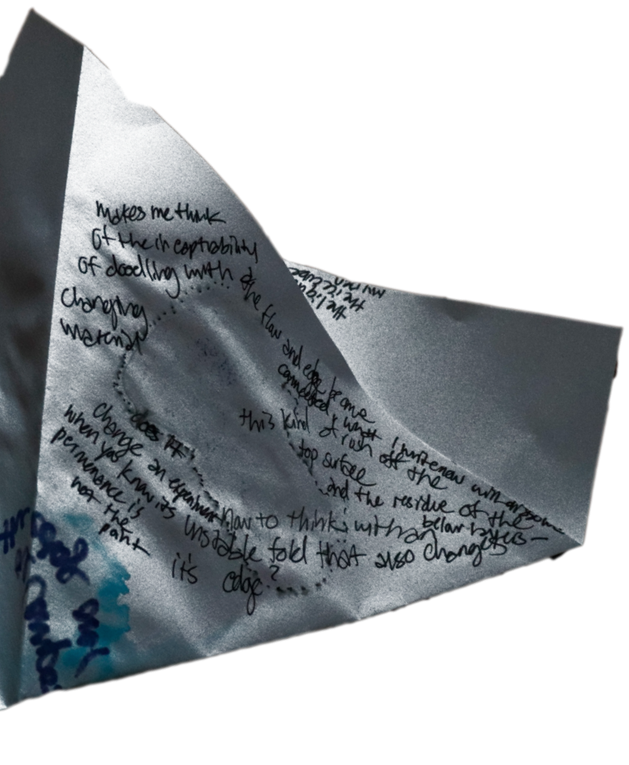

gradient flow

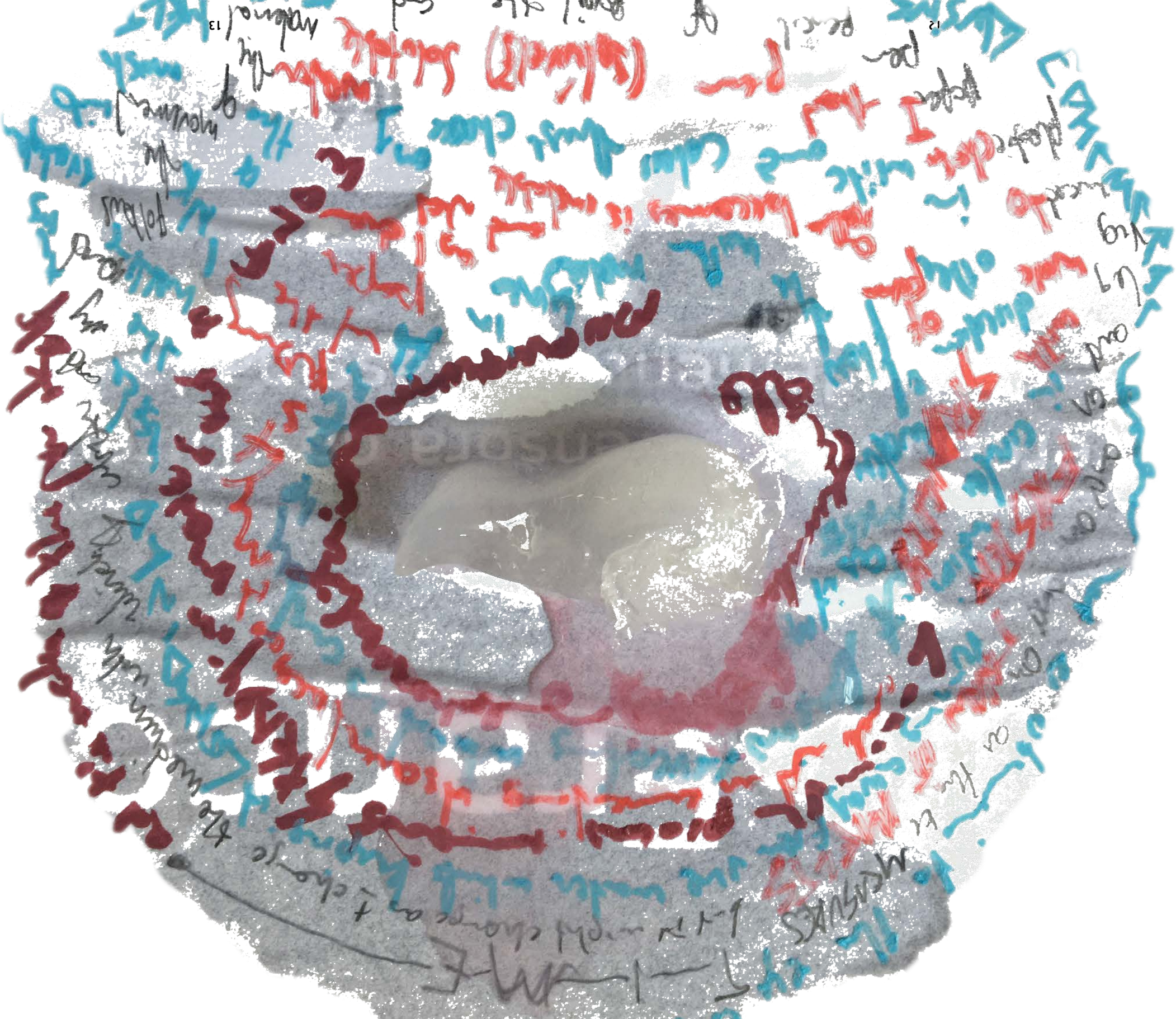

gradient flow

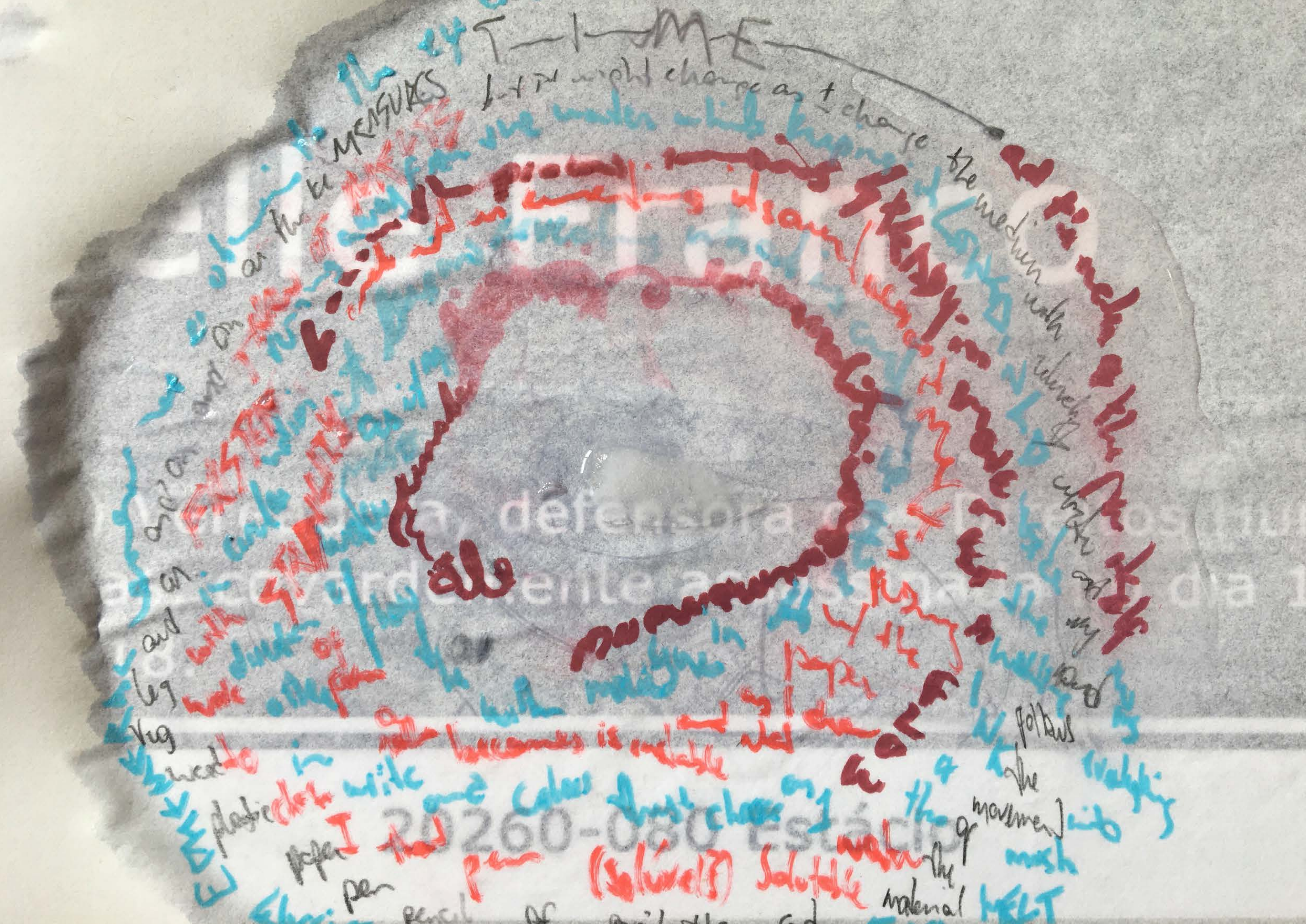
How can capturability be evaded or subverted?










TIME
but the weight changes as t changes
MEASURES
the medium with
follows the movement
the material
plastic
paper
pen
I write
colours
(Solúvel?) Solúble
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defensora
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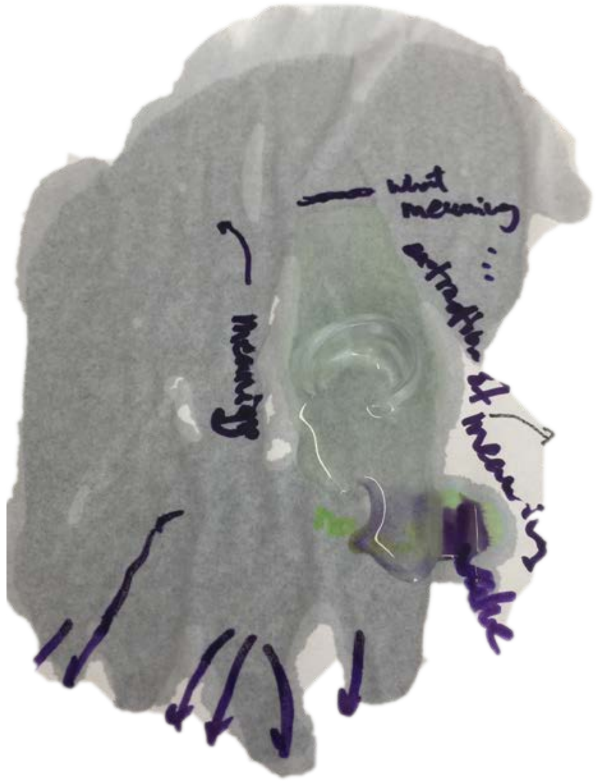
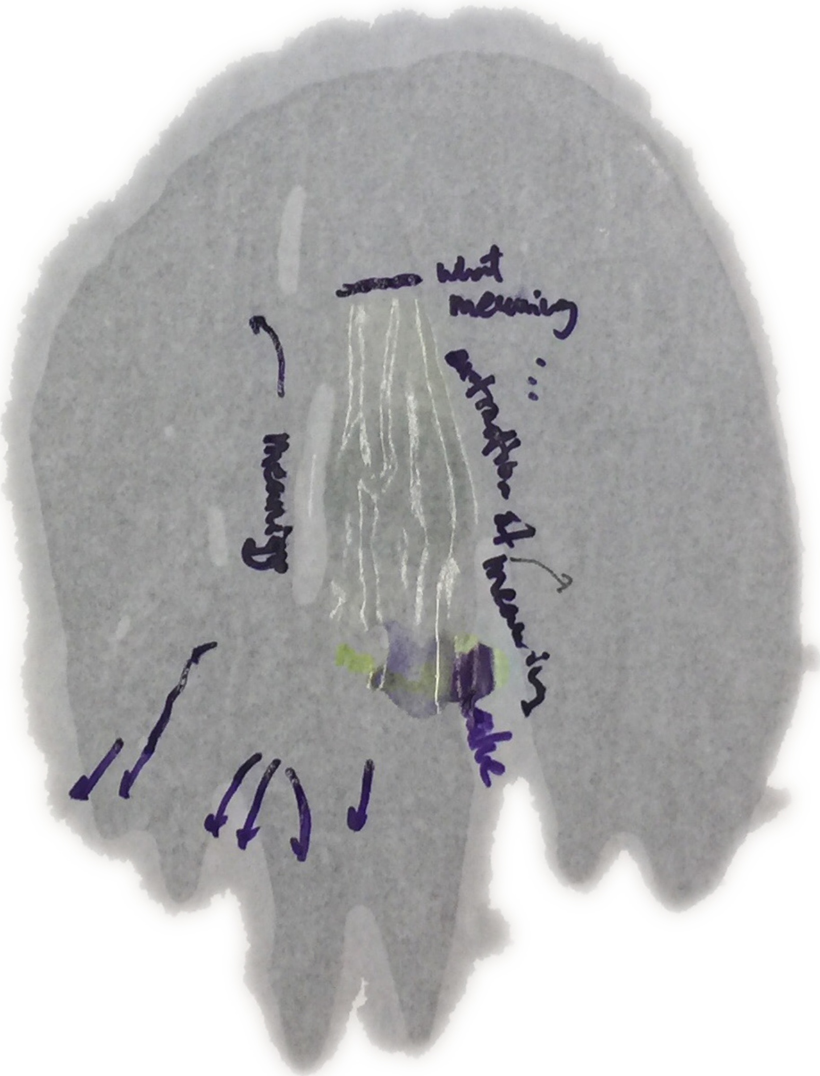
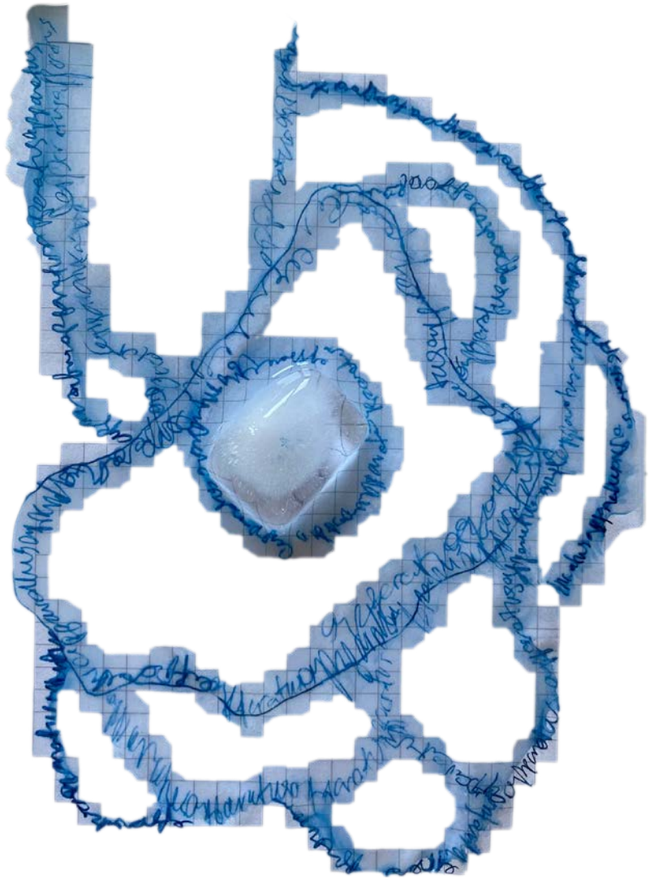
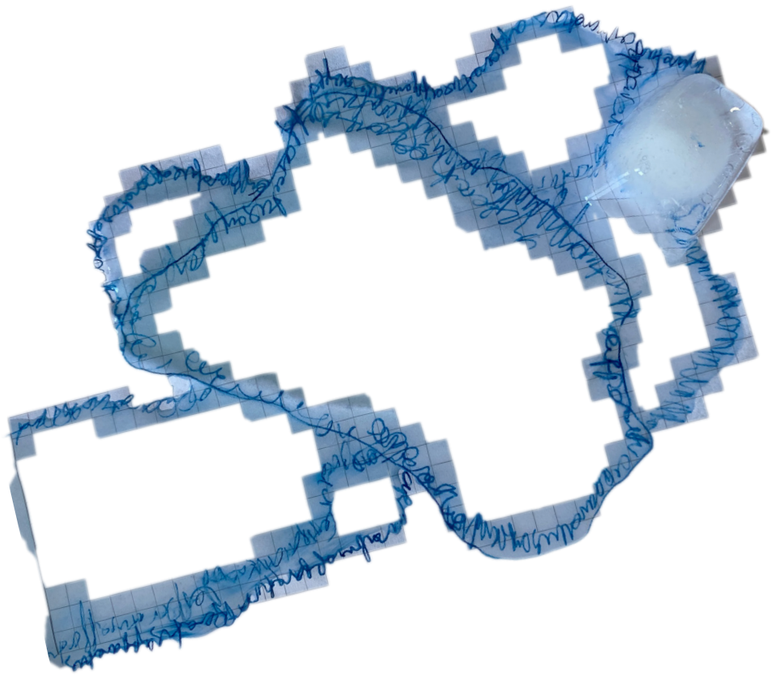
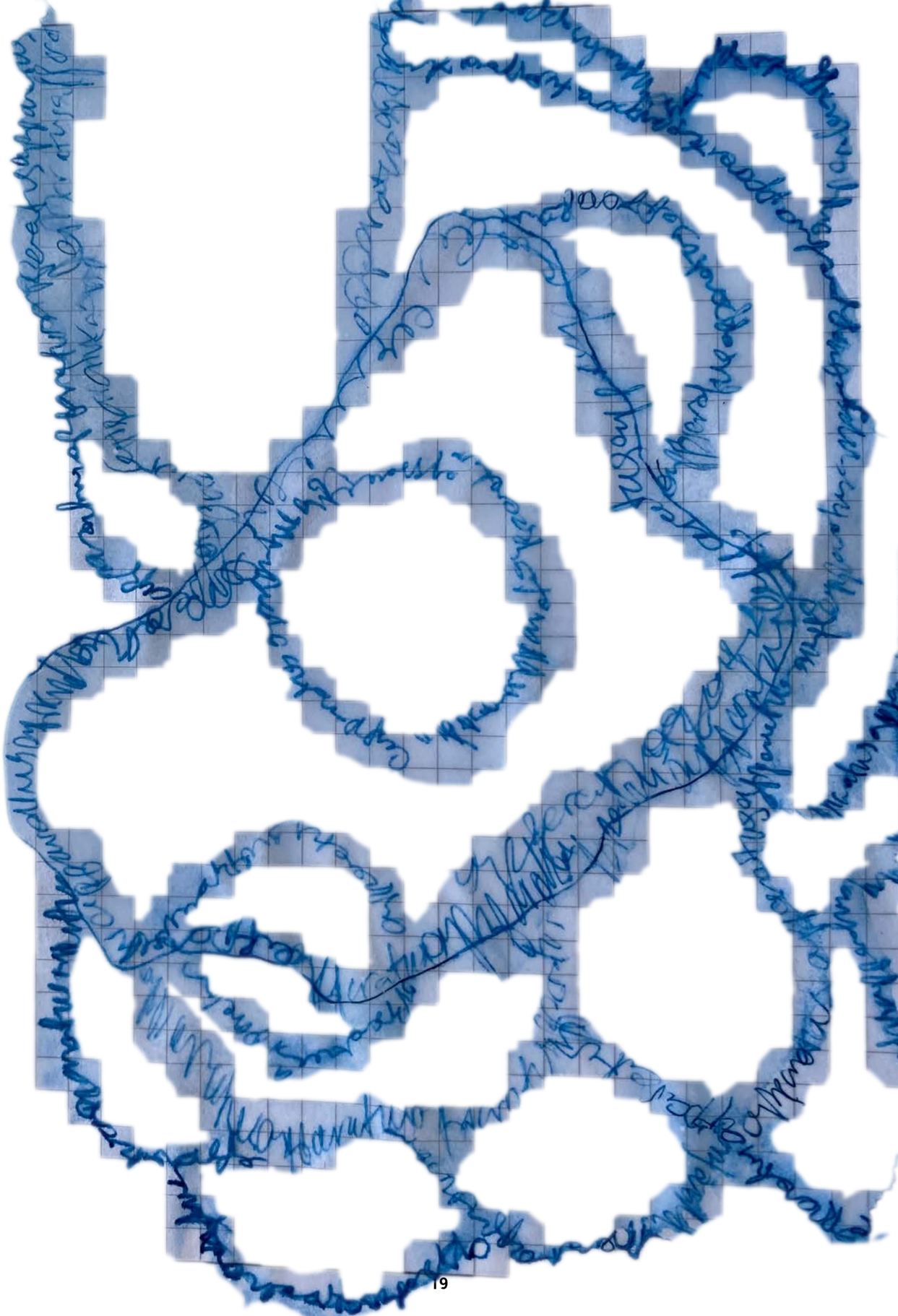
Which materials pose trouble for recording apparatuses?

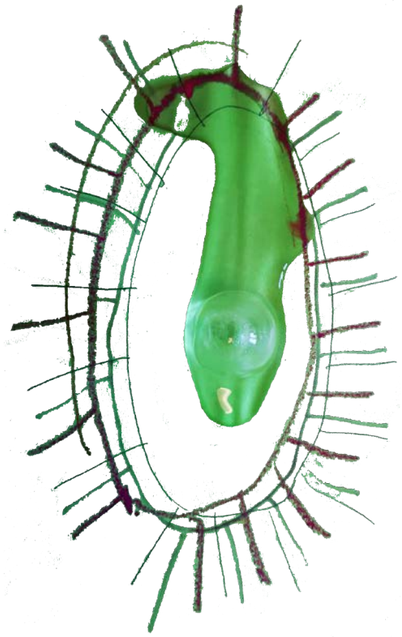


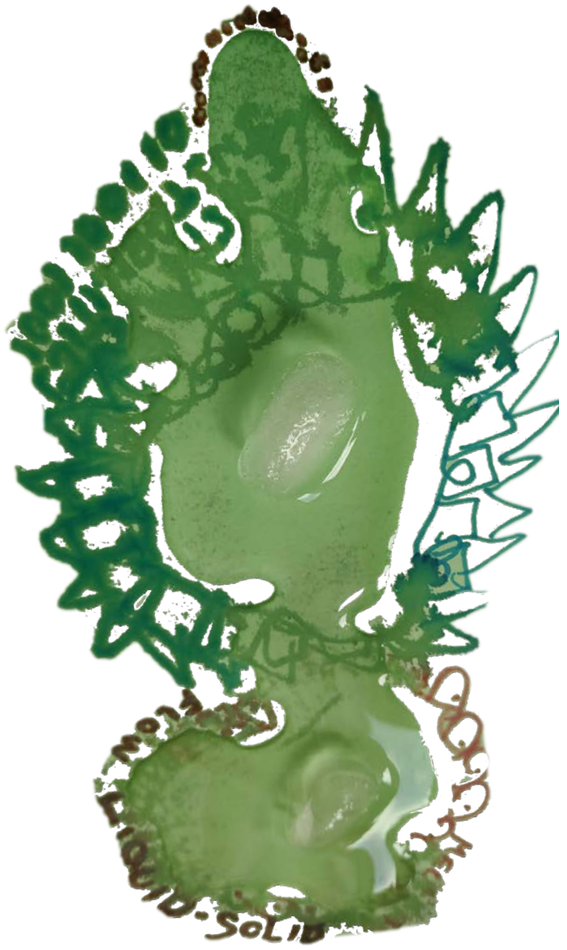


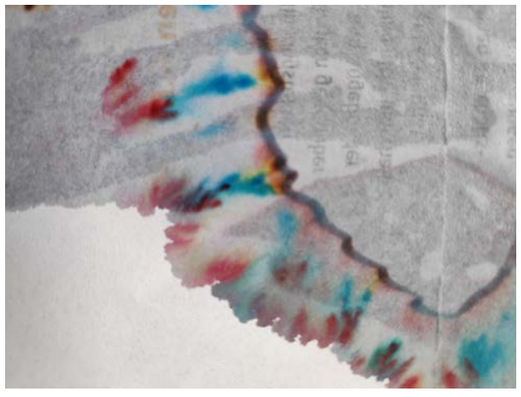




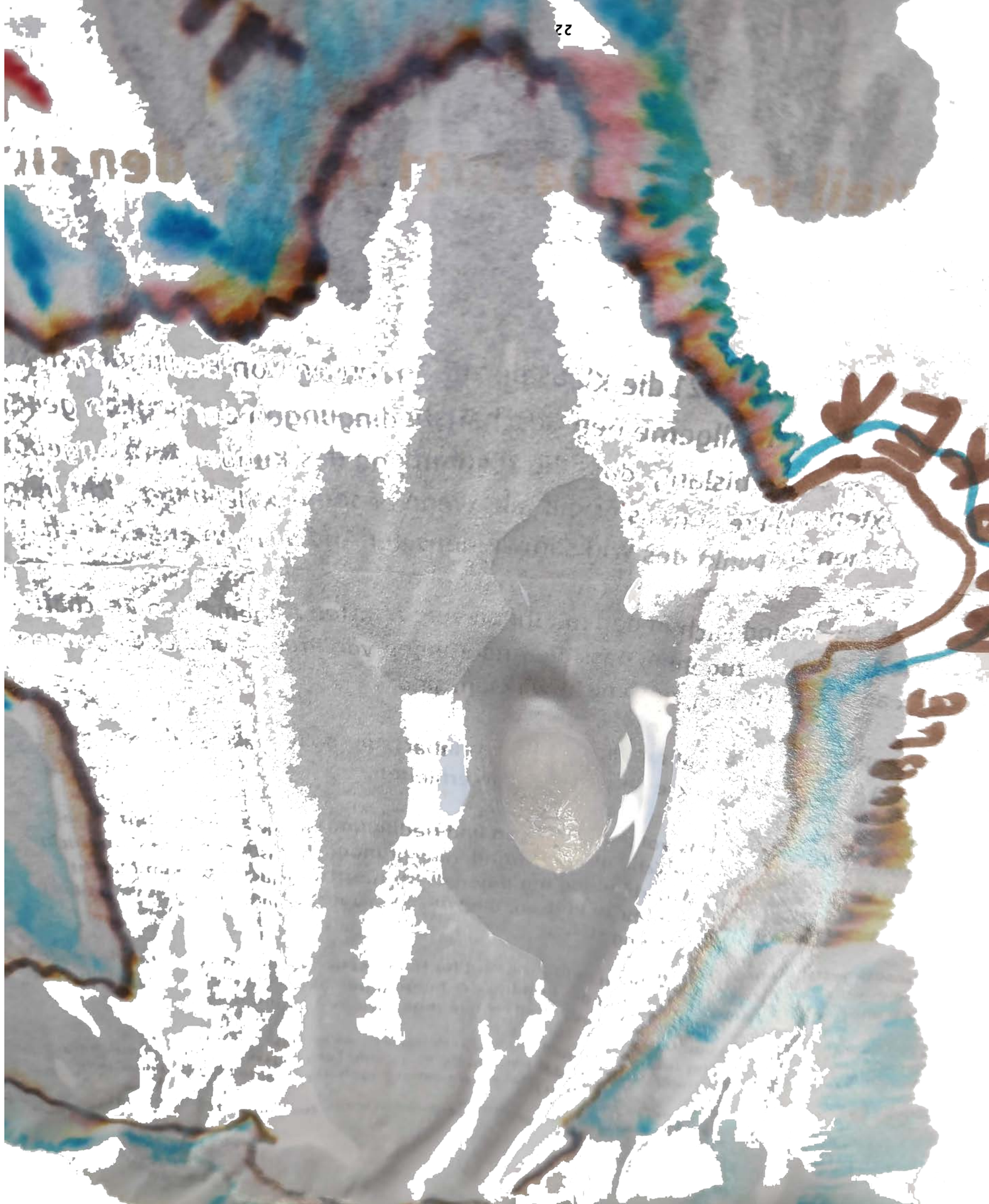








computing on ice:
- Written traces (agency) affect the flow of water
- Wrinkles on the paper (materiality) affect the flow of water
- Traces of different colours get combined (emergence) to get a different printing
-- Jose Cojal Gonzalez



UN/TRACING DATA COMPUTER

Ingredients to configure the computer: At least twenty minutes to follow and/or play with the instructions. A small mirror (it should fit into your freezer/fridge). A phone or camera.

Workings of the computer: This freezer/fridge mirror computer engages a mirror, your breath, your body and a fridge or freezer. We will store data until it evaporates by working with materials that remember temporarily.

Instructions:
1) Take a small mirror and put it in the fridge or freezer depending on size, the colder the better.

2) Brainstorm of what kind of data would you like to record but not permanently.

3) Think through traces and tracings: what does it mean to leave a trace? Who is it accessible to? Why would you want to? Write down on a sheet of paper the traces you will experiment with.

4) After you have decided on your data, decide also if you would like to record your experiment with video or photo documentations, or otherwise.

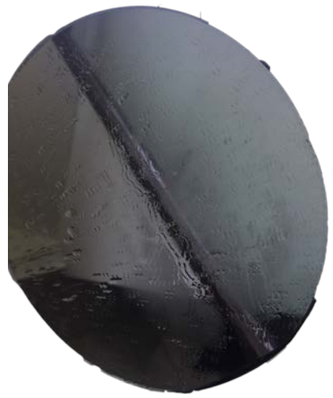
5) Take the mirror out of your fridge and with your finger, a squishy pen or dripping water record your data on the mirror. Write quickly, stop and observe.

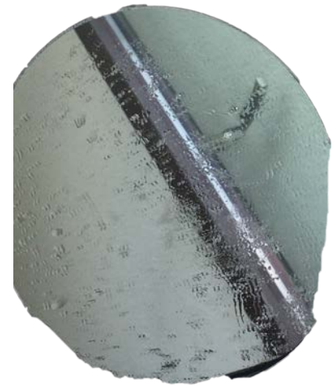
6) If recording, use your recording device to photograph or video the change over time. How does your data evaporate, and what kinds of traces remain?

7) Use your breath to change the surface of the mirror by breathing onto it. Breathe, record (or not) and observe how air and temperature change your data.

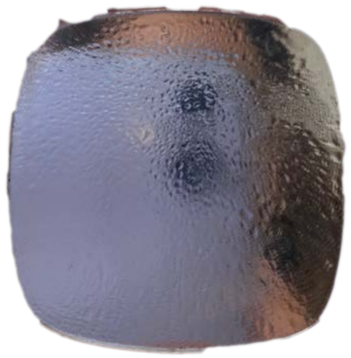
8) After finishing breathing onto this cold surface, change your mode of recording to text. Write down a narrative of this experience, what does this kind of computer do? What doesn‘t it do?

UN/TRACING DATA COMPUTER





ice layer magic board:
- Boundary conditions run the computer: water condenses to get the writeable layer of ice at the surface
- I did not follow the instructions because I was fascinated computing
- Our prints leave a fatty and warm (relative to the ice) print which disappears when water melts but can be revealed again (not 100% clarity) when creating the ice layer again
- Temperature effect: message disappears faster when difference in temperature is larger
-- Jose Cojal Gonzalez



This computer‘s memory is instable or let‘s say temporaly limited. It can only store things for a short time like some minutes or one hour maximum. This depends on its environmental conditions like the temperature of the surface, but also the surroundings and the thickness of the pen. Additing water accelerates the melting and thus erasure process. I first was wondering how I can erase the words, then tried to breath against the surface. I like the effect so much, that I did it too much and then the words were erased and I regretted not having done it more careful.

-- Shintaro Miyazaki

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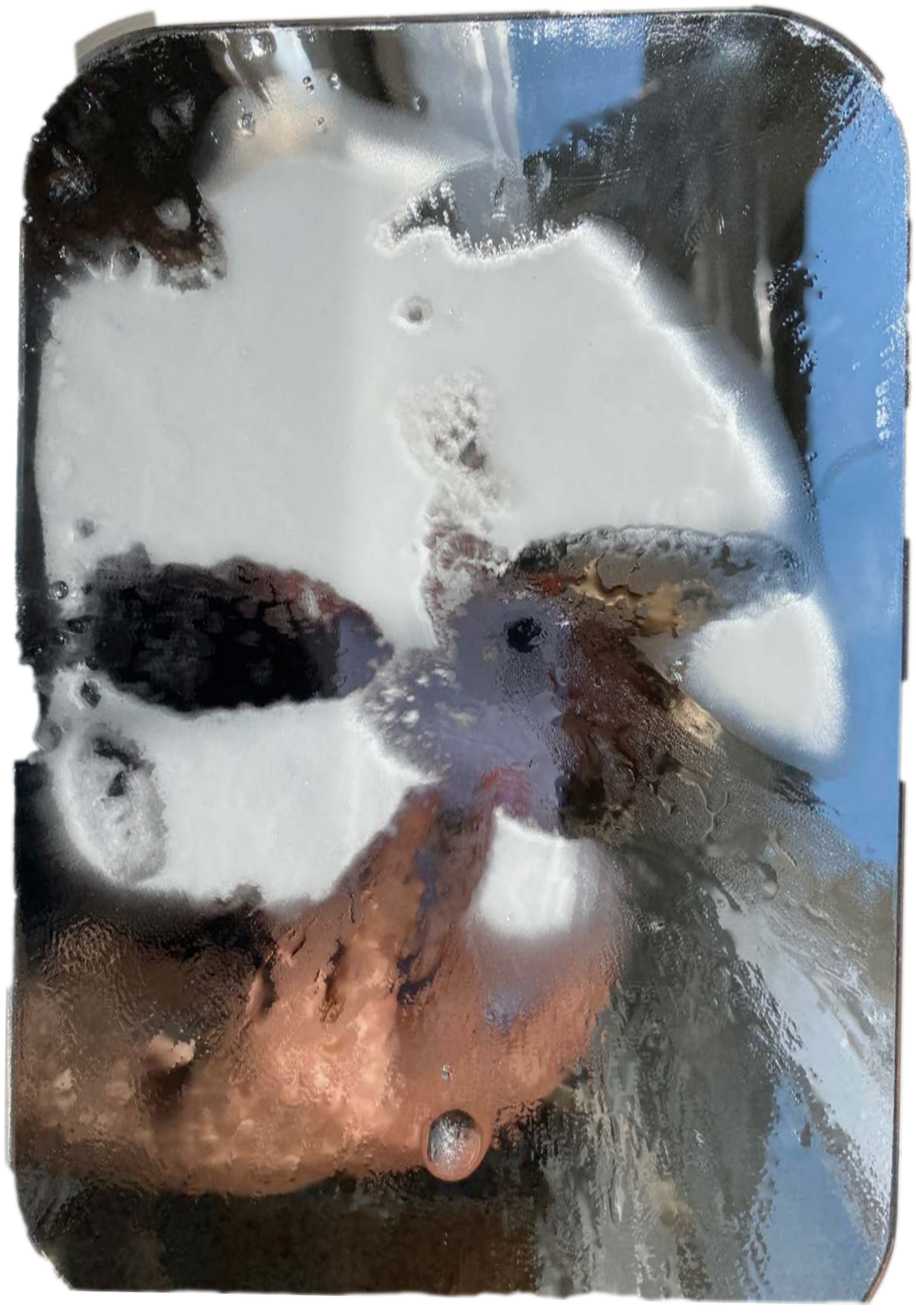
35



UNCERTAIN COMPUTER

Ingredients to configure the computer: At least thirty minutes to follow and/or play with the instructions. Materials and some writing utensils of your choice.

Workings of the computer: This computer engages instable materials around you, for example: boiling water, seeds, food that rots, an interaction that you have little control over like someone ringing your bell or picking up the trash outside, weather conditions, an element such as gallium, sunlight, or any other material/condition that is of quotidian instability.

Instructions:
1) Think about what kind of instable computational apparatus would be of interest to you. What are key questions or motivations? For example, you may want your computational processing to be very slow, irregular or based on events outside of your influence.

2) Choose a material that you feel is suited to process your concepts. For a very slow reimagining of computing, you may want to choose a slowly decaying fruit, or for a very uncontrollable computing you may want to rely on external events.

3) Set up your computing apparatus or arrangement as good as you can. Bring fruit, the weather report or whatever material you choose to your workspace.

4) Observe your computing apparatus or arrangement for some time.

5) Start your writing about how this material transforms computation as is, or what kind of computation it produces and write – depending on feasibility and interests – on, with, next to, or close to this.

6) Write down instructions of how other people can replicate your way of instable computing.

Selena Savić

SOIL COMPUTING

In this short text, I offer an open-ended articulation of an unstable computing apparatus. In the language of technological rationality, apparatus is inadvertently conflated with an object that performs computation. When thinking about unstable computing, I propose first to distance from the concept of an object. A single, ontologically distinguishable entity that can be grasped with a human hand or a human mind, whose figure can be easily extracted from the ground and put to use. The concept of an object lends itself to techno-scientific instrumentalization, to receive instruction from subjects. Even if we concentrate on the withdrawal from the subject position with regards to its object-ness, such ontological turn might backfire, and „provide for the capital-S Subject to come back with a vengeance“ (van der Tuin, 2014). As an act of countering the thought about being alone, we could consider learning about assemblages, the „open ended entanglements of ways of being“ (Tsing, 2015) that take place in computation. Or we could counter counting, by turning to uncountable nouns, such as clouds, sand or soil, for example.

Soil is a borderline living-not living state of matter. Soil is that to which matter decomposes. It computes past life, in the sense that it receives composite inputs of organic matter that transforms into the seemingly homogenous mass. Plants grow from its complex mixture of organic and inorganic matter, water and air. At the same time, we can trace forms and operations of power in alienation of plants from soil, displacement of species, minerals, and people who work on land. Soil writes stories of reproduction. The processing events here are far beyond the influence of any one in particular. Yet as someone observing the soil, I am always influenced by these processes, walking on soil, eating food that grew in it and feeding back leftover foods to soil, to eventually decompose in it myself. What stability is there in these slow processes, and how might we think of them as computation? Below are some instructions on setting up a soil-based computer.

Instructions:
Material: Slowly decaying fruit is a perfect beginning for a soil-computing process. The fruit is laying in an aquarium. There are two snails in the aquarium, and they are of two different kinds. There is some salad, a piece of wood and three stones. There is also a small cocktail umbrella with a shiny red top. The floor of the aquarium is covered with a thin layer of soil.

Setup: The material in the aquarium is put together in a random arrangement. The soil will always land on the bottom, covered by or covering the stones. The piece of wood will be somewhere in between. Soil, stones, and wood are accessible to snails. Then there is salad, it should always be on top and visible to the snails. Snails will find the salad, hide in it and consume it. They will produce solid bodily waste which they will leave around the aquarium randomly.

Observations: Everything happens really slowly here. Slowly in comparison to our capacity to perceive change and preserve attention. Snails will explore the aquarium and search for food. They will slowly move and eat the food. They will sleep in between. Over one day observations, there is visible change in the salad. It slowly decomposes and becomes indistinguishable from soil. Eventually, all of this will turn into the homogenous, granular brown mass or solidify as rocks.

Pedro Oliveira

DURATIONAL COMPUTING

I'm trying to think of something like durational computing, as to whether we can think beyond realtime processes, outside the micro scale of time that it takes to process something. I believe to be a connection between computing decisions and velocity that, when it comes to the management and control of people, obscures while at the same time perpetrates violent acts.

I'm thinking here of the automatization, the computing power that is applied to the border and its tentacles. Durational computing would slow down this process against the promise of sleekness in making a decision (usually against the person being decided upon) not to increase the process of waiting or the bureaucratic limbo, but rather to destroy it altogether, to make it impossibly slow that it does not even begin.

If we zoom into the micro scale of time, we reach something that looks like stasis, but it is not – it keeps moving, not necessarily always forward. We can zoom in into the micro scale of time only to find a drunken gait.

So how can we think of a slow, durational computing that arrests processing altogether? How can we think of a durational computing that is not result-, decision-driving but instead always open to the possibility of change?

Is it possible to think of durational computing outside the space of metaphor? What are the relationships between the poetics of non-time (or at least no time keeping) and the understanding of these poetics as sources (not metaphors) of computing?

What if, for instance, voice samples for recognition were not taken from short sentences being spoken but only after the full reading of a library? If we fed an algorithm with the sound of an incessant screaming, until the voice disappears? How can we use the spectrality of the voice to evade capture, to make computation reveal its unstable nature, and dwell on that instability?

Shintaro Miyazaki

1) Motivations: Non-modernistic, non extractive forms of computing?, computing without measurement?, solidarity-oriented computing, non-dividing forms of measurement, not splitting up

I want my computing device to be powerful, but also open, controllable and changeable. And not expensive (less work needed to produce it)!

2) small eukaryotes on a petri dish. Eukaryotes have called flagellas. For example Rhizaria? Food for them is generated by a culture on the dish. Doing something with metabolism? So work! So extraction!

3) Observing them on microscope, I will drop some rhizaria drops on to the petri dish culture and see how they develop or move. And replicate. I can see them by some special visualization techique.. and I start thinking about their movement (maybe amount) as some sort of value that changes. The room temperature also changes replication rates.

4) I can reading some patterns, depending on where I drop... I am asking myself, whether I could also simulate this all and it would be much easier.

5) very slow oracle like “device”.. but actually not what I wanted to create.. directed computing, but broken?

Jose Cojal Gonzalez

- Drying off of a leaf or a plant: plant need water and minerals and the have channels that transport the solution they need to live from

- Rainy cloud patterns: how human actions affect these patterns

- Moon phases: beyond our influence pretty slow

- Human computer. Actions: say hello to neighbours or people you meet in a park, bar, store and try to record their reaction. Establishing new communication channels, parallel and caring, help to feed the algorithm of this huge computer, increasing the processing capacity and making the computer smart to debug itself.

IMAGE DESCRIPTIONS

1: On the top right quadrant of the page there are two ice blocks stacked on top of each other they are melting and water is pooling under the bottom block. The image is digitally cut out.
4: On the top right quadrant of the page a grayish ice blob is melting, water is pooling underneath it, and there seems to be a hole in it. The image is digitally cut out.
5: On the bottom left quadrant of the page a white/gray ice blob is melting, it seems to have a hint of blue reflected from within it. The image is digitally cut out.
On the bottom right quadrant of the page a dark gray ice blob is melting, and water is pooling around it on the bottom, there is a light reflected in it. The image is digitally cut out.
6: On the top half of the page an ice cube sits on top of a piece of squared paper that is cut out digitally in the avocado-like shape of its melting puddle.
On the bottom right quadrant of the page an ice cube sits on top of a white sheet of paper, words in different colors are written on the paper and they bleed into the water that melts from the ice in different directions.
7: The image fills the whole page. An ice cube sits on top of a piece of paper, and the melted water from it crinkles the paper in three primary directions. On the paper a stylus has made a series of marks that sometimes interact with the water, sometimes not.
8: Two images show the same watery object, on page 8 & 9. On page 8 an ice cube melts and water floats across some writing. The words “gradient flow and speed can be read most clearly.
9: Two images show the same watery object, on page 8 & 9. On page 9 the ice cube has melted completely. The words “gradient flow and speed can be read most clearly.

10: On the top left quadrant of the page there are two ice blocks stacked on top of each other they are melting and water is pooling under the bottom block. The image is digitally cut out.
On the top right quadrant of the page an ice cube sits on a colorful piece of paper with different marker marks getting wet with water as it melts. The edge of the pooling water makes the edge of the digital cut out.
On the bottom left quadrant of the page a piece of paper has shimmering writing on it that has water poured on top.
11: There are three images on this page, stacked top, middle, bottom. The one on top is like writing in a cone-shape that seems like it is nearly washed away. Underneath it in the middle is the same writing with even less clarity. And below is a piece of paper folded in a cone-shape with writing and wet spots in all directions.
12: This is a whole page spread, split in two – left and right sides – are mirrored. A small chunk of ice sits in the middle of the page and 4 different colors of pens circle around the ice that is wetting the page. The writing seems to move like circles around the ice in the middle.
13: This is a whole page spread, split in two – left and right sides – are mirrored. A small chunk of ice sits in the middle of the page and 4 different colors of pens circle around the ice that is wetting the page. The writing seems to move like circles around the ice in the middle.
14: This is a whole page spread, split in two – left and right sides – are mirrored. There is nearly no ice in the middle of the page and 4 different colors of pens circle around the middle of the page: the writing seems to move like circles around the wet middle.
15: This is a whole page spread, split in two – left and right sides – are mirrored. There is nearly no ice in the middle of the page and 4 different colors of pens circle around the middle of the page: the writing seems to move like circles around the wet middle.

16: A watery object floats across and dissolves writing. The violet in the top becomes transparent over time. The words “gradient flow and speed” can be read most clearly.
17: There are two discreet images on this page one on the top and one on the bottom of the page. Both seem to be of the same wet blob. The one on top is full of arrows and edges cut out digitally. The one on the bottom has the same, but also includes some bleeding edges from water over markings.
18: There are two tangles on this page, one on top and one on bottom. The top tangle has an ice block with writing dancing in loops that meander without a pattern from it. The bottom tangle has other meandering loops and a melting ice block. Both have been digitally altered, the surround taken out.
19: Loops of wet writing in meandering loops have been cut out digitally and take up the whole page.
20: There are three images on this page, on the top left, top right and bottom left. The top left has a green wet slime middle with lines extending from an oval that seem to highlight it. The top right is a slug-like meandering with three antennae and wet water and ice pooling. The bottom left has wetted marker concentric circles that make a blurry edge with dry paper.
21: There are two images on this page, on the top right a digital cut out with two ice cubes and pointy doodles around them as they melt. On the bottom left another digital cut out with blobs of wetness and marker drawings meeting the wetness’s edges.
22: The image takes up the entire page, a melting ice cube interacts with marker lines that bleed into different colors as the wetness from the water greets them.
23: The image from the previous page spills over on to this page on the left side, and there is another image in the middle of the page that has a brown, uneven shape that looks maybe like a turtle profile, it is wet with water from a melting ice cube.

25: There are two images on this page on the bottom left and right. The bottom left is like a sun reflected in a mirror, with clouds and scratches on the mirror visible. On the right there is condensation on a mirror and the letters “S” and “E” visible with a phone over the mirror.
26: On the middle of the page there is an image of a mirror with water dropping across it.
27: There are three oval like images showing mirrors with reflections of different angles.
28: On the left side of the page there are three stacked mirror images with different lighting conditions and a finger sometimes writing on the mirror. There is a pencil in all three shots.
29: On this page, there is the same mirror as in the last page with the word “PRESSURE” scratched into it with a fine line. The scratching reveals a warm reflection underneath.
30: There are two halved images of mirrors on this page, mirrored on the next page. The top one shows moist condensation and a reflection of a light, the bottom one shows the blue sky and reflections of houses.
31: There are two halved images of mirrors on this page, mirrored on the previous page. The top one shows moist condensation and a reflection of a light, the bottom one shows the blue sky and reflections of houses.
32: In the middle of the page there is a small mirror with the reflection of a colorful phone, blurry but still legible.
33: The page is full of one image that shows a compact mirror held by a white person’s hand that has condensation on it, written on the mirror’s condensation is the word “DATA”.
34: The page shows one image of a digitally cut out and rounded edged rectangular mirror, it is entirely frozen with water and condensation, no reflection is visible.
35: he page shows one image of a digitally cut out and rounded edged rectangular mirror, the mirror is wet and unfreezing, the reflections look like interior and exterior spaces but are very difficult to understand.