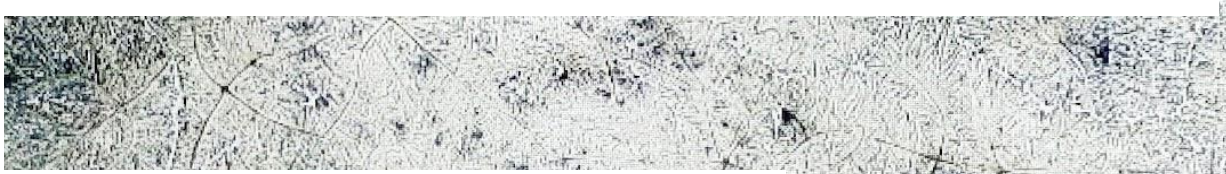
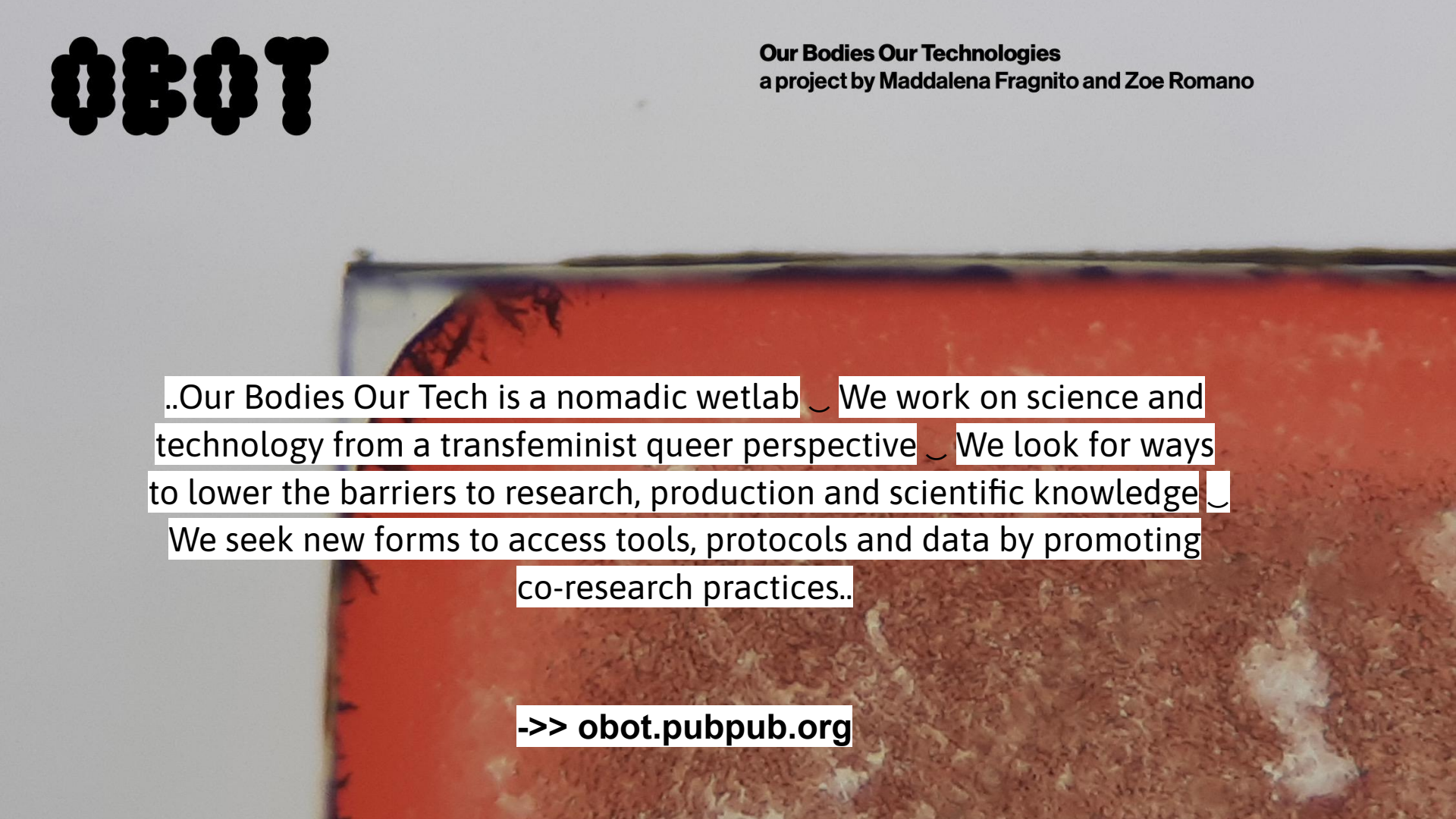
PERTURBANT FLUIDS



By OBOT with Zoe Romano

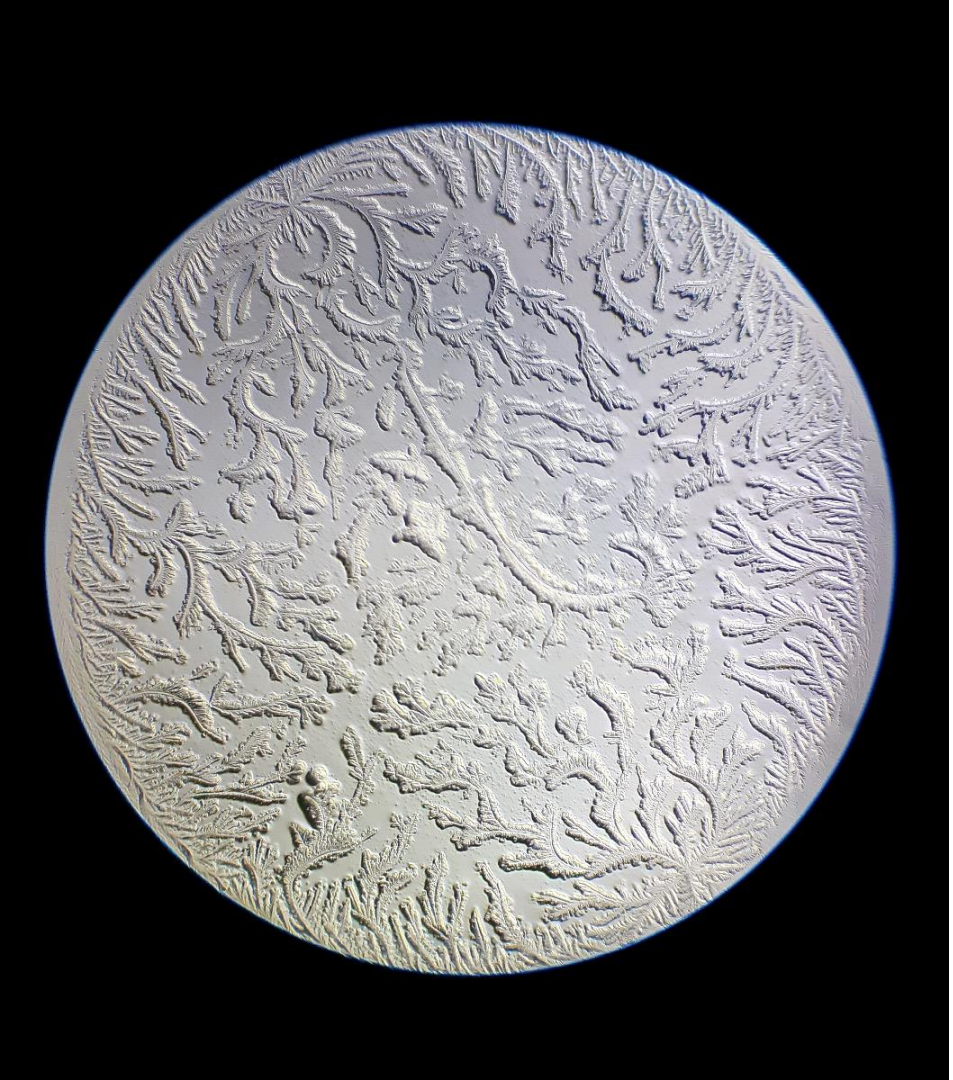
OBOT

Our Bodies Our Technologies
a project by Maddalena Fragnito and Zoe Romano



..Our Bodies Our Tech is a nomadic wetlab ‿ We work on science and technology from a transfeminist queer perspective ‿ We look for ways to lower the barriers to research, production and scientific knowledge ‿ We seek new forms to access tools, protocols and data by promoting co-research practices..

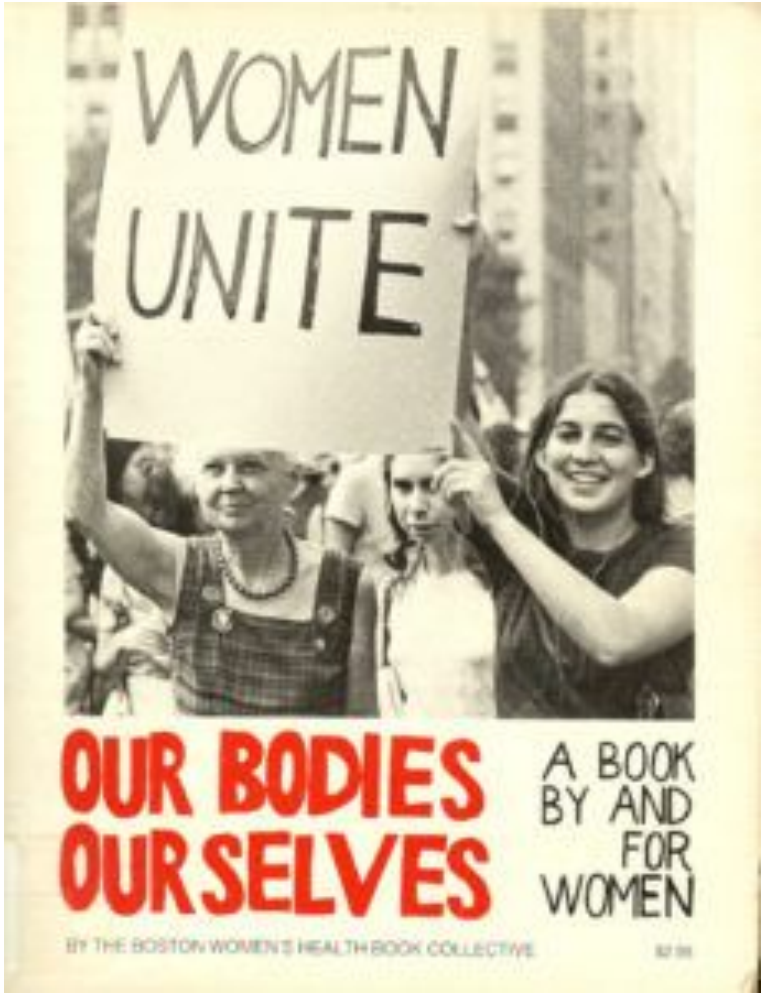
->> obot.pubpub.org



OBOT

We are experimenting with questioning as a collaborative practice of radical pedagogy.

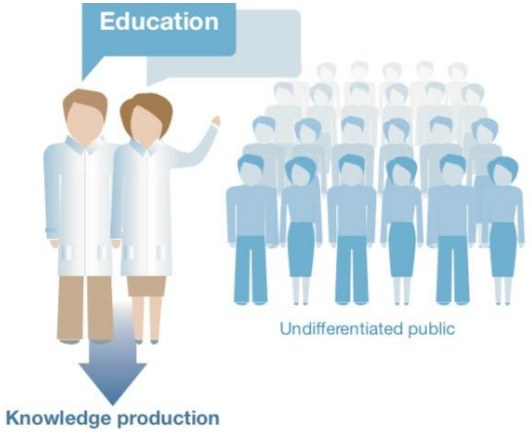
We think research as a collective device for social transformation



"We weren't encouraged to ask questions, but to depend on the so-called experts,"

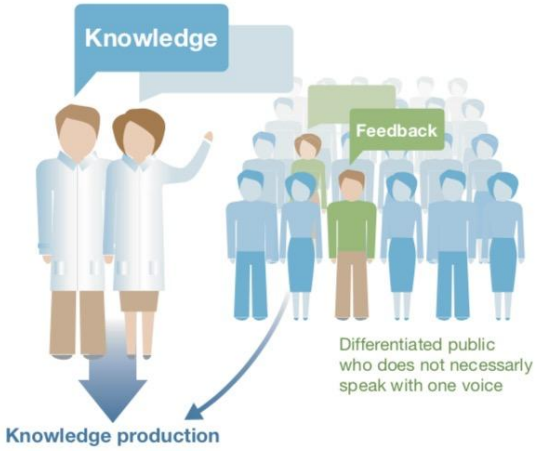
"Not having a say in our own health care frustrated and angered us. We didn't have the information we needed, so we decided to find it on our own."

Nancy Miriam Hawley



DEFICIT MODEL

- Uni-directional discourse
- Knowledge produced by scientists only
- Justification for this position: knowledge deficit of citizens
- Also know as "Public Education Model" [3]



PUBLIC DEBATE MODEL

- Bi-directional discourse
- Reallocation, among citizens and scientists, of the opportunity to speak
- Knowledge is produced by scientists but enriched by citizens' point of view
- Citizens can express their opinions in the public sphere

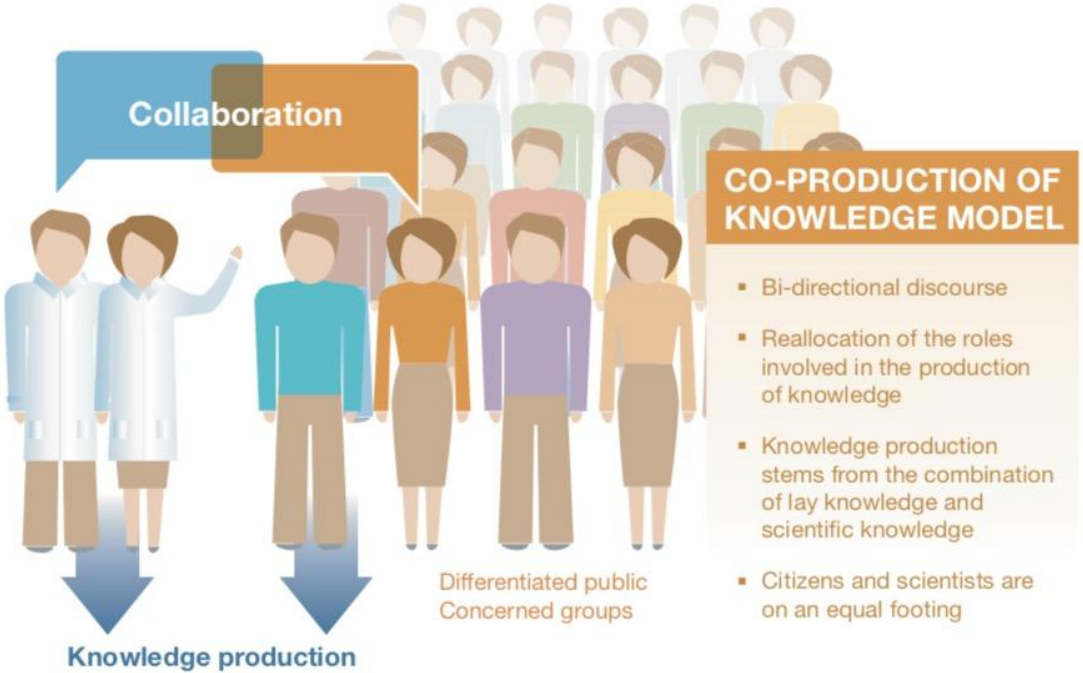
There is a tendency in the scientific community to think that citizens suffer from a **deficit of knowledge** and are incapable of grasping the complexity of science. As such, scientists believe that the public are in need of education.

The 'public debate' model considers that non-scientific **knowledge from citizens is enriching** for the definition of research challenges and the application of scientific knowledge.

Thinking outside the "knowledge deficit" box

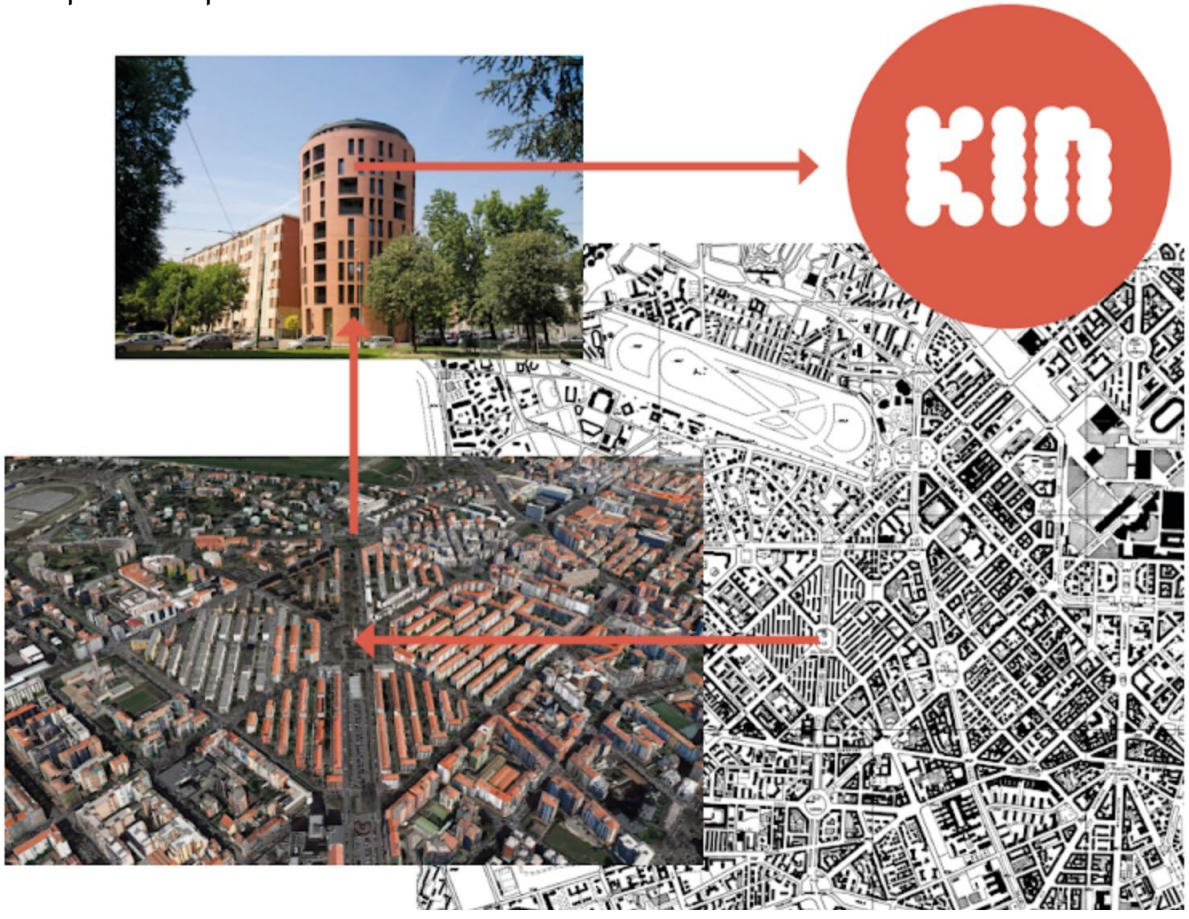
doi: 10.15252/embr.201438590

Situated Knowledge production



The ‘co-production of knowledge’ thinks that citizens have both pertinent experience and competence to participate in defining **social and technological issues** and that they should be involved in forming ‘research collectives’ and producing legitimate knowledge.

2020/2021
space setup in Milan



2020
residency in
Barcelona

biofriction

HANGAR.
ORG
centre/producció/recerca/arts.visuals_

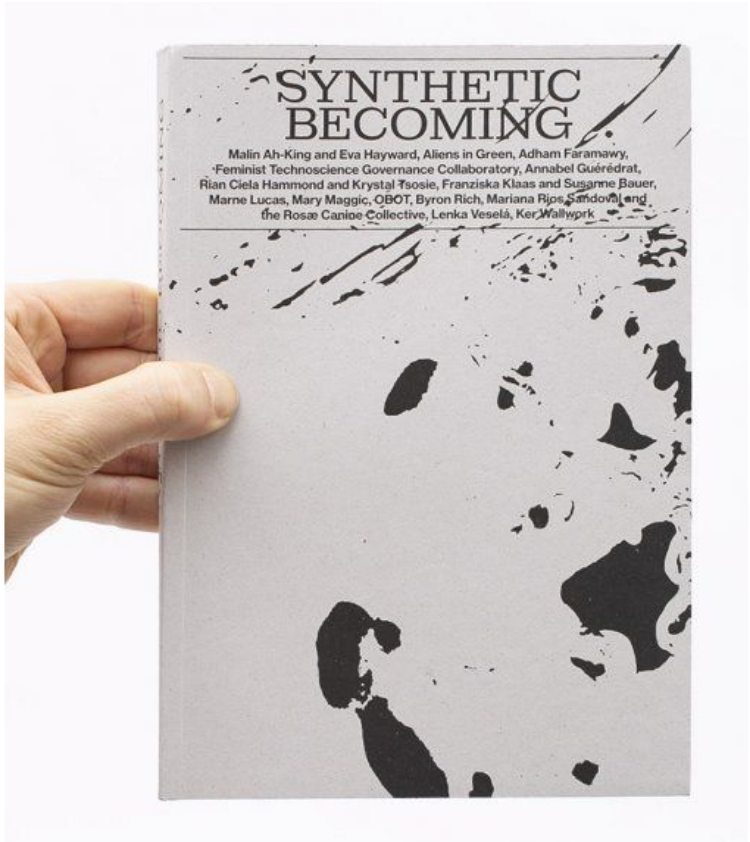
2021
workshop&
exhibition in
Hamburg

MK&G
Museum
für Kunst
& Gewerbe
Hamburg

http://kinlab.it

2021 Catalogue

December 2022 Book



Galerie, FAVU

Brno, Czech Republic

GOSH
Gathering for Open Science Hardware

October 2022 GOSH

GOSH
Gathering for Open Science Hardware

Regional event GOSH

December 2022

Experimental laboratory of sensorial onomomaturgy

Previous work

opencare

2016-2017

- Health & Care
- Prototyping & Pilot
- Mapping & Supporting

DIGITAL SOCIAL INNOVATION

Milan's Makerspace

2018-2019

Opening technologies for smart communities

Empowerment happens when
individuals and collectives can acquire
awareness, skills and opportunities to develop knowledge,
self-sufficiency and achieve inclusion in **decision-making processes**

Fablab e Makerspace: co-costruire l'innovazione fuori dall'accademia

Zoe Romano
WeMake, Milano[1]

DOI: 10.26324/2018RRICNRBOOK15

Mary Anning ha vissuto nella prima metà dell'800, trascorrendo molta parte del suo tempo a raccogliere fossili sulle spiagge di Lyme Regis, in Inghilterra. Le coste di Dorset, la contea di cui fa parte la cittadina, sono parte della Costa Giurassica, chiamata così da quando è diventata sito Unesco patrimonio dell'umanità proprio perché i suoi terreni coprono un periodo storico di circa 185 milioni di anni e sono ricchi di reperti archeologici che hanno contribuito allo sviluppo della paleontologia contemporanea. Mary Anning è da molti considerata la prima *citizen scientist* della storia e le sue vicende, raccontate in un libro intitolato *The Fossil Hunter* (Cacciatrice di fossili), ci mostrano come, nonostante fosse completamente autodidatta e al

A causa delle sue origini non altolocate, della poca istruzione, del genere femminile che rappresentava, e nonostante avesse una grande conoscenza della geologia e dell'anatomia, costruite sul campo nella pratica quotidiana della raccolta dei fossili, non fu mai accettata nel contesto della scienza vittoriana, in una società che ancora non prevedeva il voto né tantomeno la frequentazione universitaria alle donne. Solo quasi cento anni dopo, dal 1904, la Geological Society ha iniziato ad accettare le donne tra i suoi membri.

Bisognerà aspettare altri cento anni ed arrivare fino al 2005 per vedere un cambiamento più radicale, e assistere all'apertura e democratizzazione di tali pratiche nel contesto dei *maker*.

Social tech / Civic tech

Fablab and Makerspace are spaces of activation and transformation where digital manufacturing technologies are socialized, becoming the tools around which different communities interact to build the world we want to inhabit through a collective path between online and offline, creating bridges of virtuous relationship between the world of research and citizens.

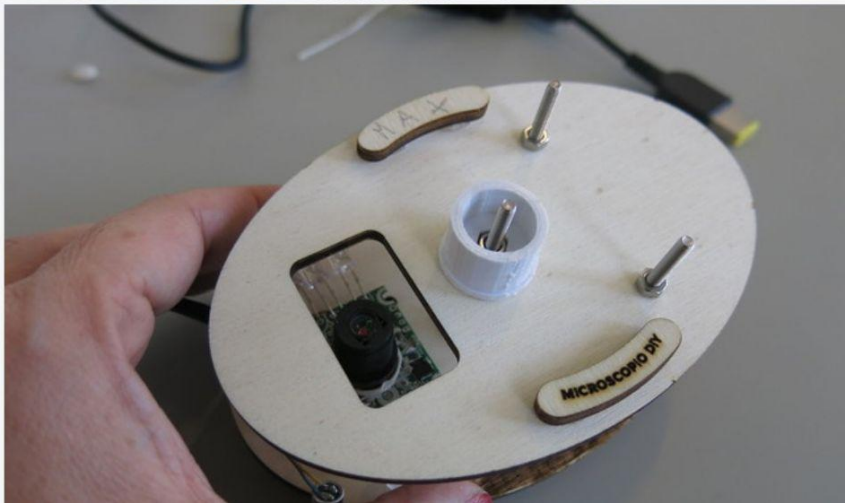
—----

The National Research Council is the largest research council in Italy. As a public organisation, its remit is to support scientific and technological research. Founded in 1923.

Approfondisci
http://doi.irea.cnr.it


crew
Cinquemila

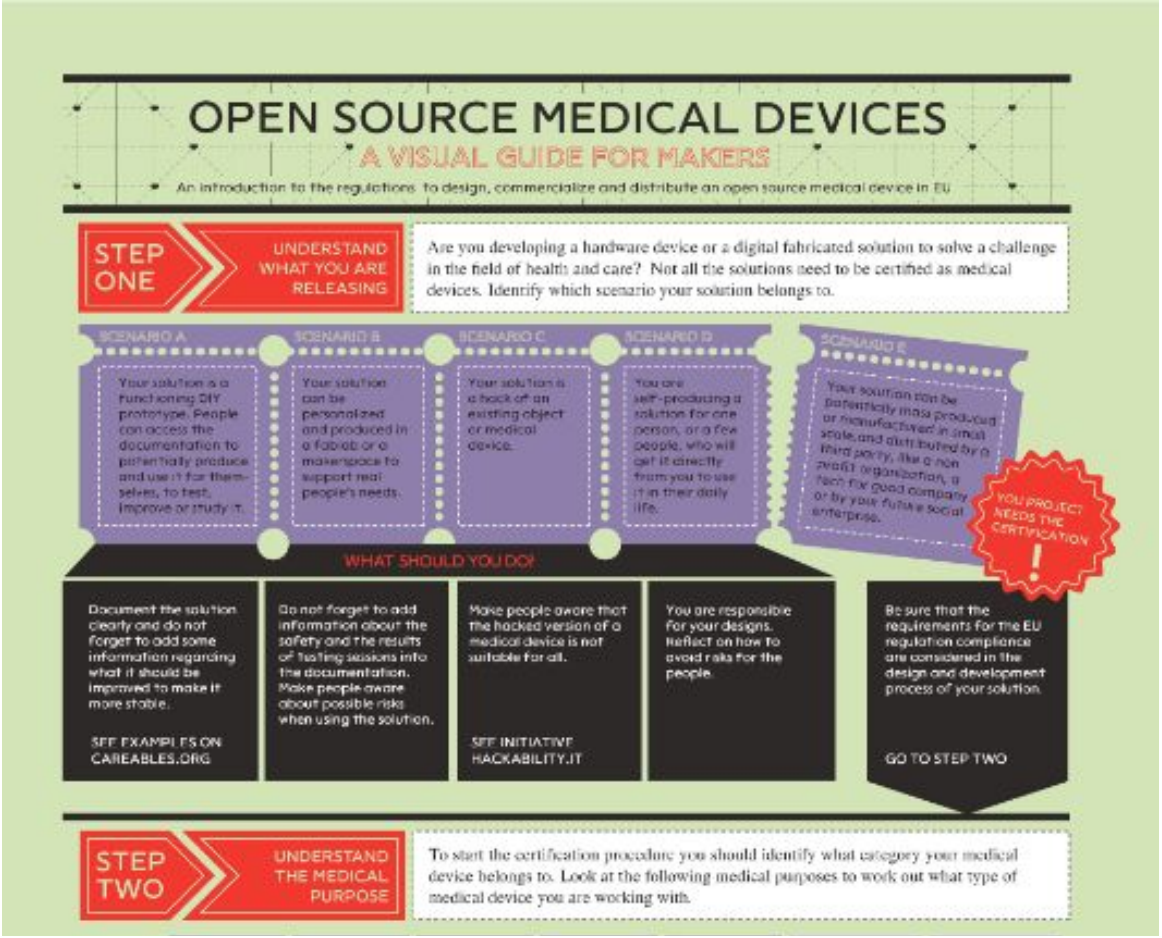

CHIARA


MAX
MICROSCOPIO DIY

Open hardware Lab

http://wemake.cc/digitalsocial/cure-ribelli/

https://wemake.cc/digitalsocial/

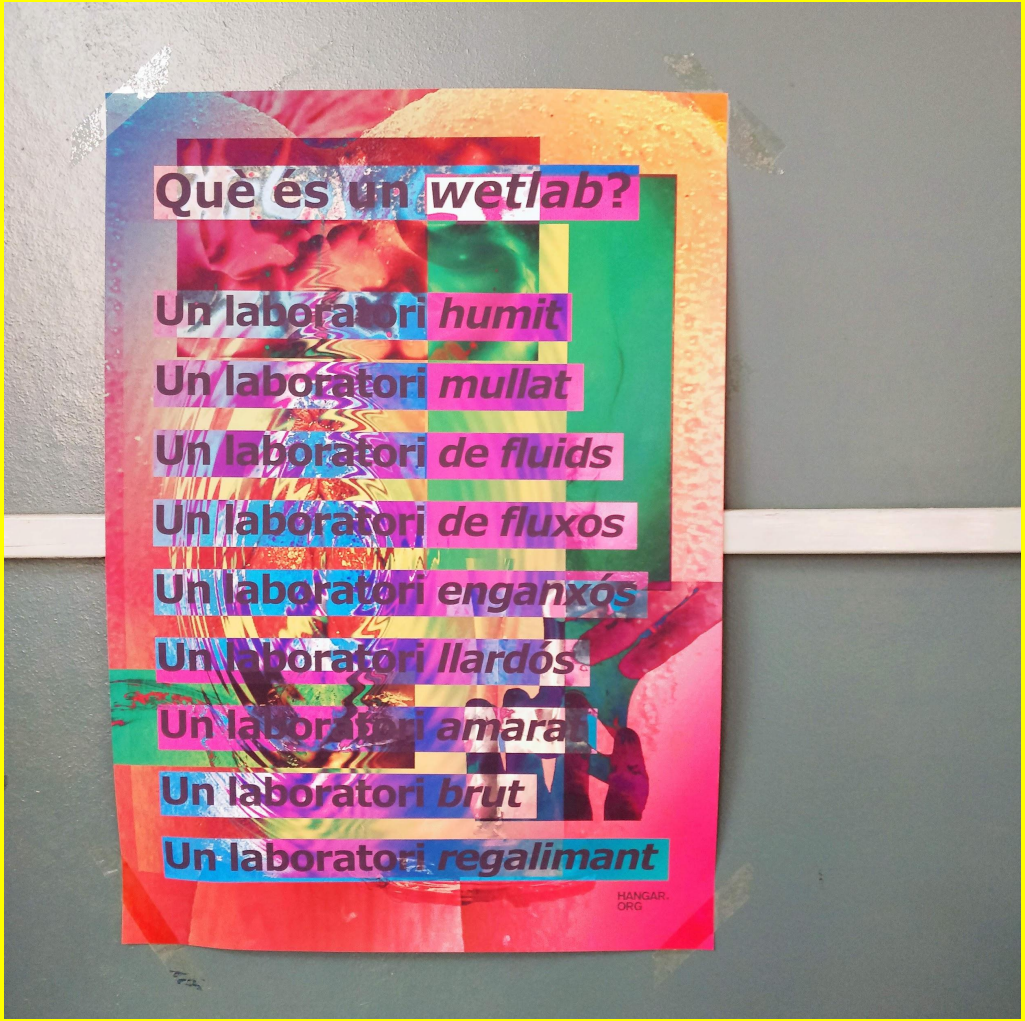


The guide aims to provide communities with easy-to-read documentation that accompanies step-by-step from a prototype of an open care device, to a product that can be compliant with regulations and, therefore, ready to enter the market.

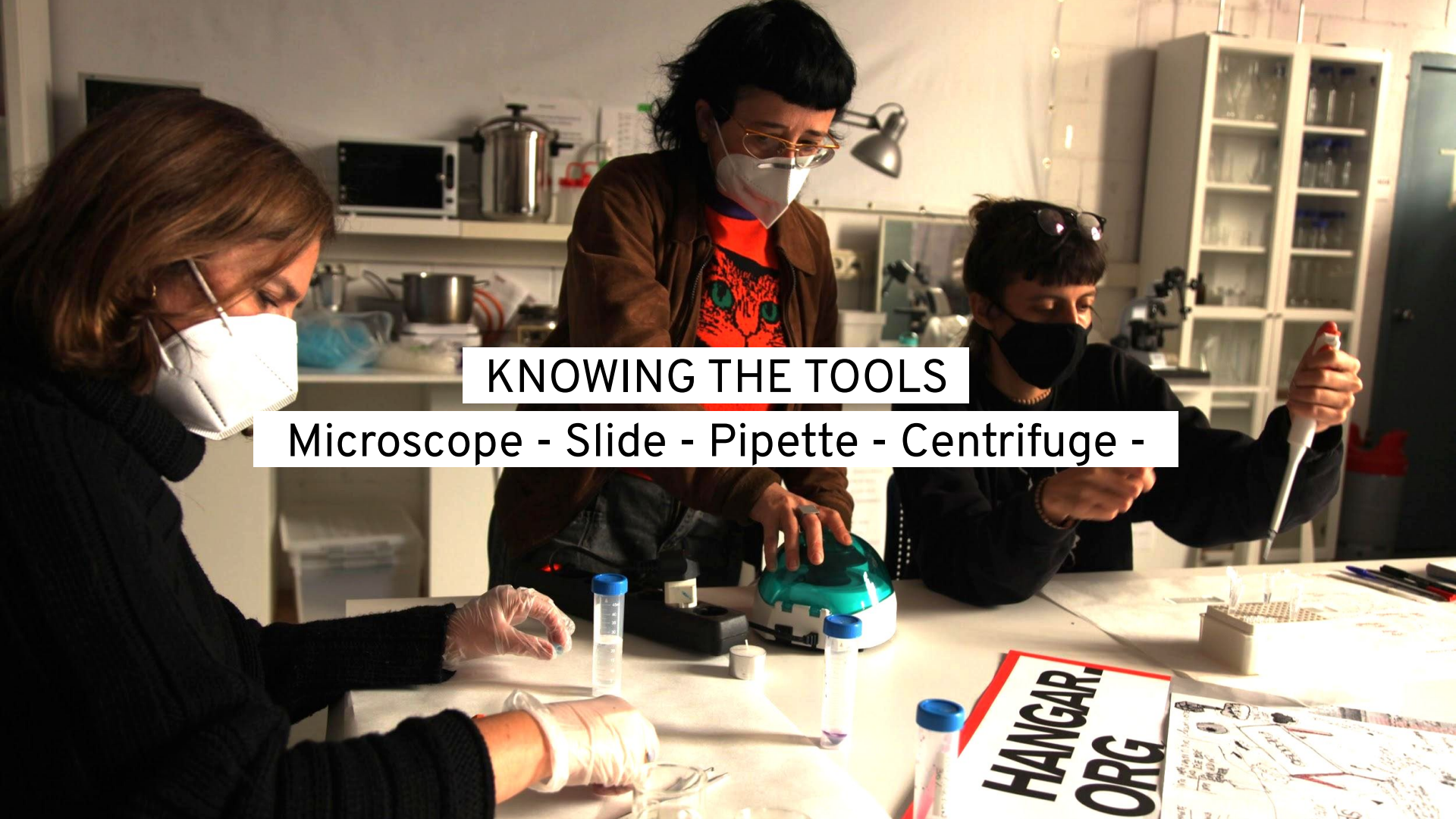
EN and IT

http://wemake.cc/digitalsocial/cure-ribelli/

https://wemake.cc/digitalsocial/

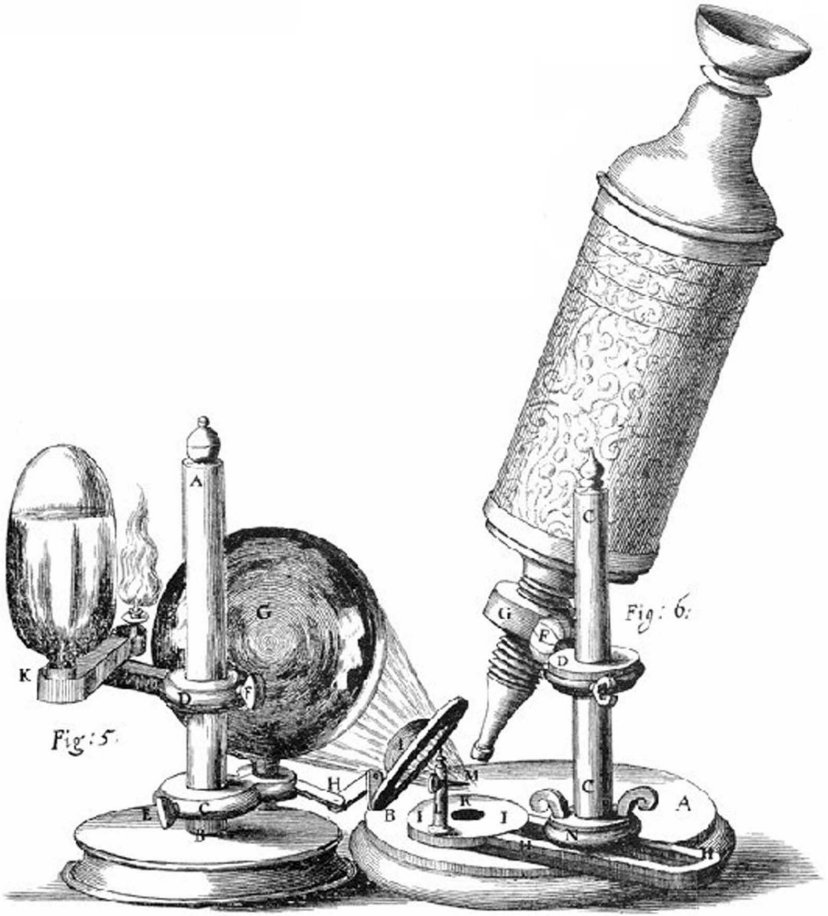


I AM ALREADY WET LAB

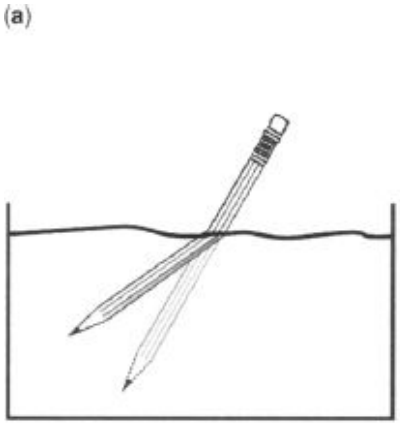

KNOWING THE TOOLS
Microscope - Slide - Pipette - Centrifuge -
HANGAR
ORG

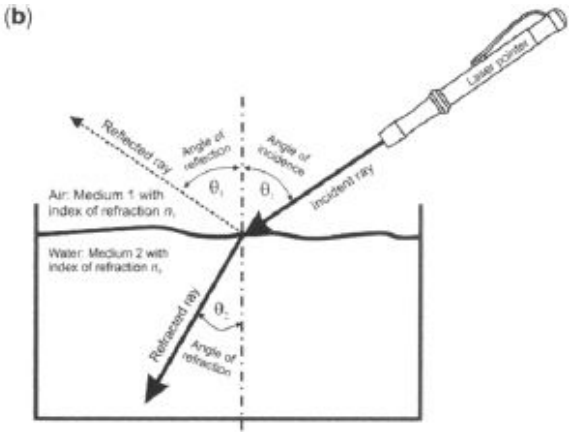
TOOLS

A bit
of history



Tolomeo



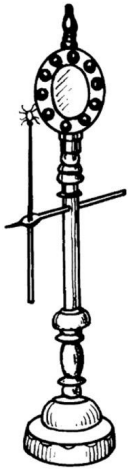


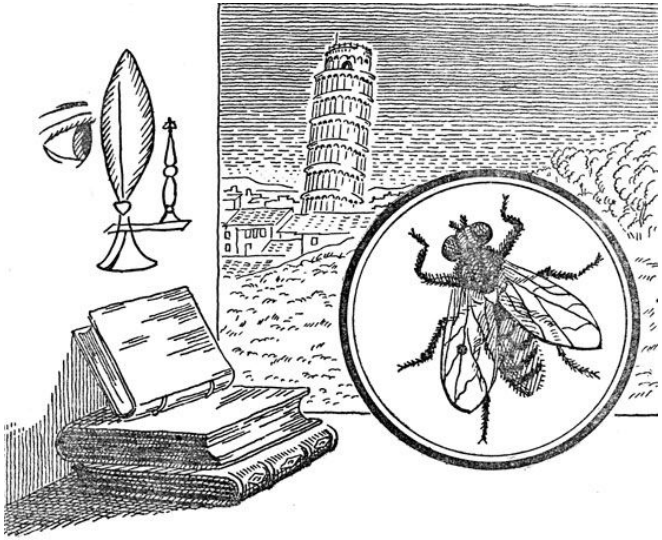
circa 100–165 D.C.

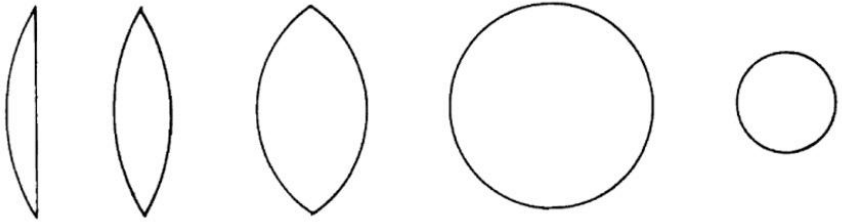
refraction

https://archive.org/stream/lotticadiclaudi00eugegoog#page/n6/mode/2up

Vitra pulicaria and occhiolino







http://brunelleschi.imss.fi.it/esplora/microscopio/indice.html

MICROGRAPHIA:

OR SOME

Physiological Descriptions

OF

MINUTE BODIES

MADE BY

MAGNIFYING GLASSES.

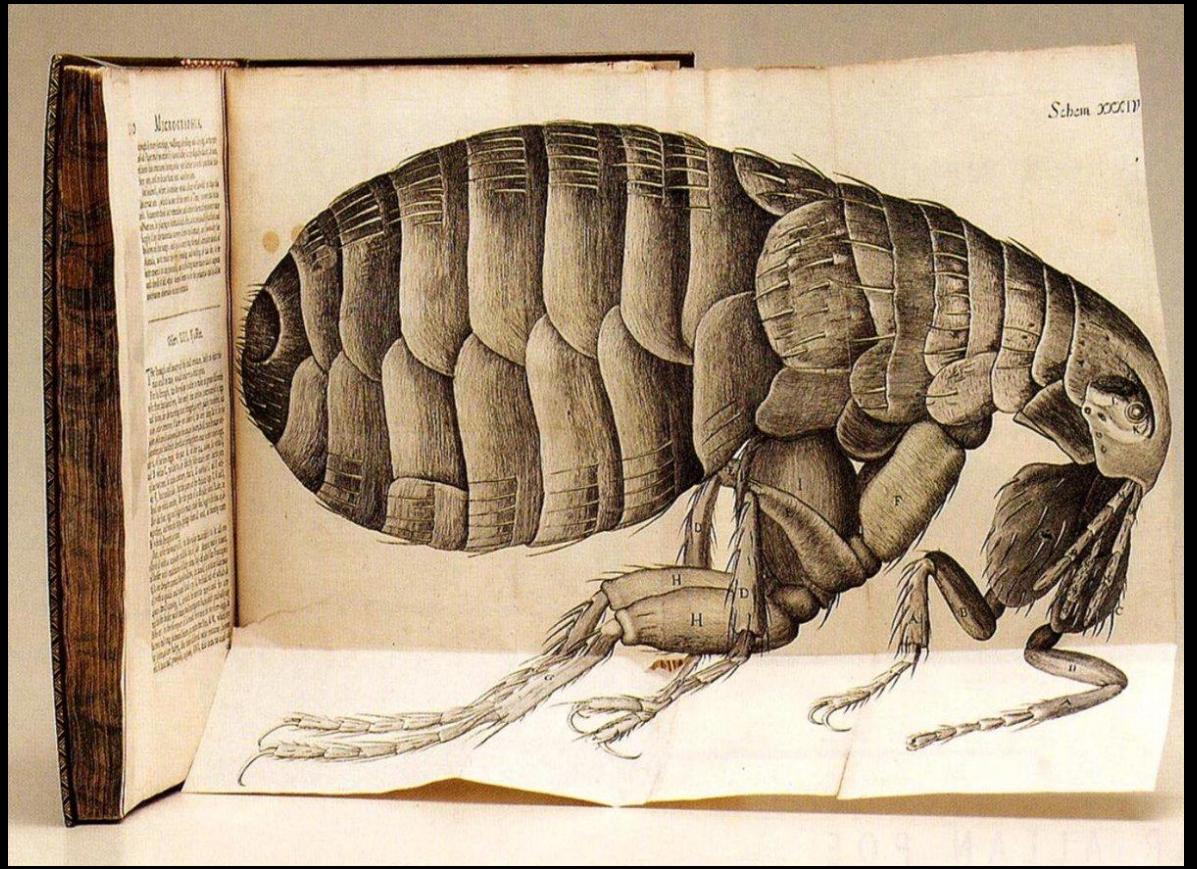
WITH

OBSERVATIONS and INQUIRIES thereupon.

By *R. HOOKE*, Fellow of the ROYAL SOCIETY.

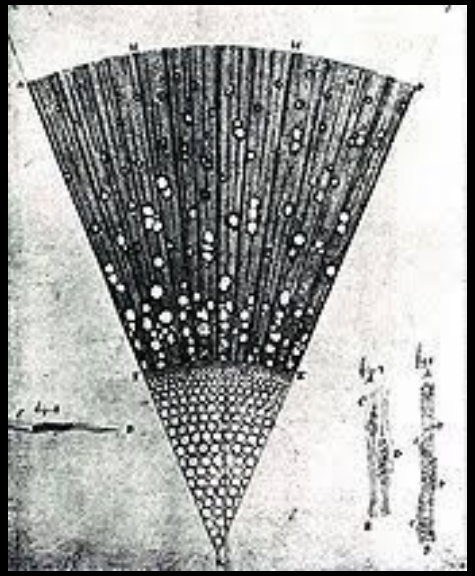
Non possis oculo quantum contendere Linceus,
Non tamen idcirco contemnas Lippus inungi. Horat. Ep. lib. 1.

LONDON, Printed by *Jo. Martyn*, and *Ja. Allestry*, Printers to the ROYAL SOCIETY, and are to be sold at their Shop at the *Bell* in S. *Paul's* Church-yard. M DC LXV.



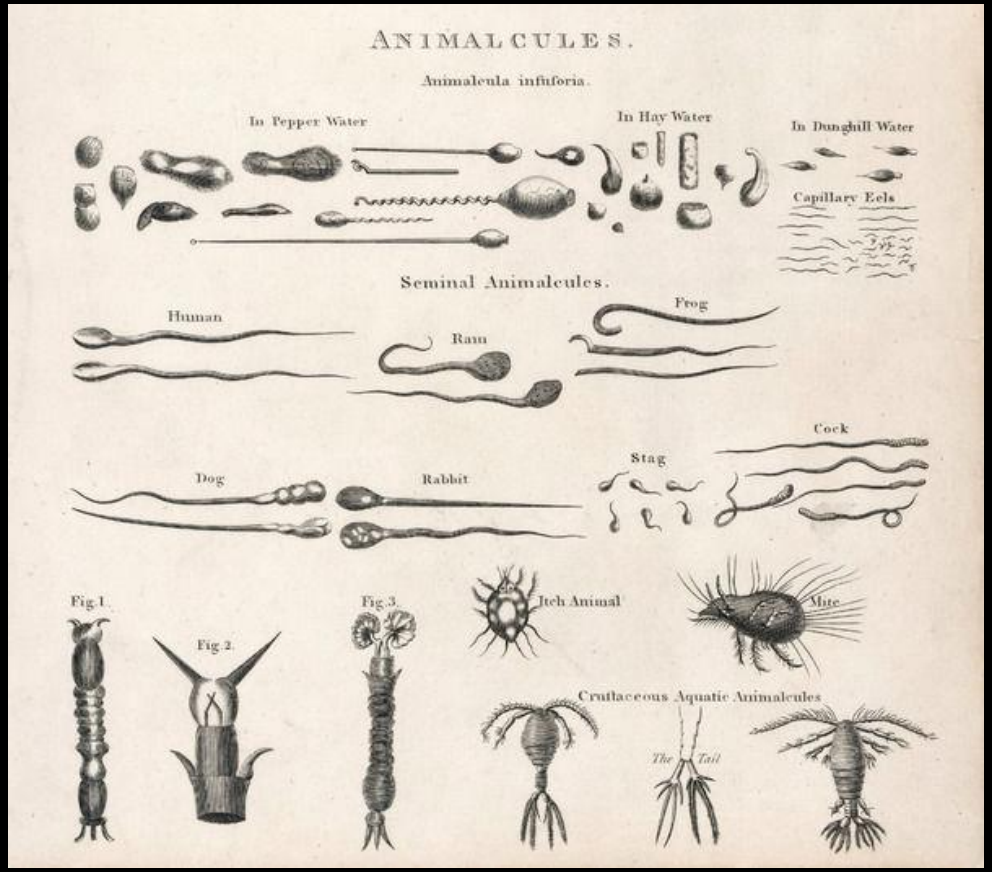
Royal Society Publication 1664
Plague in London 1665
Flea - > Plague 1898

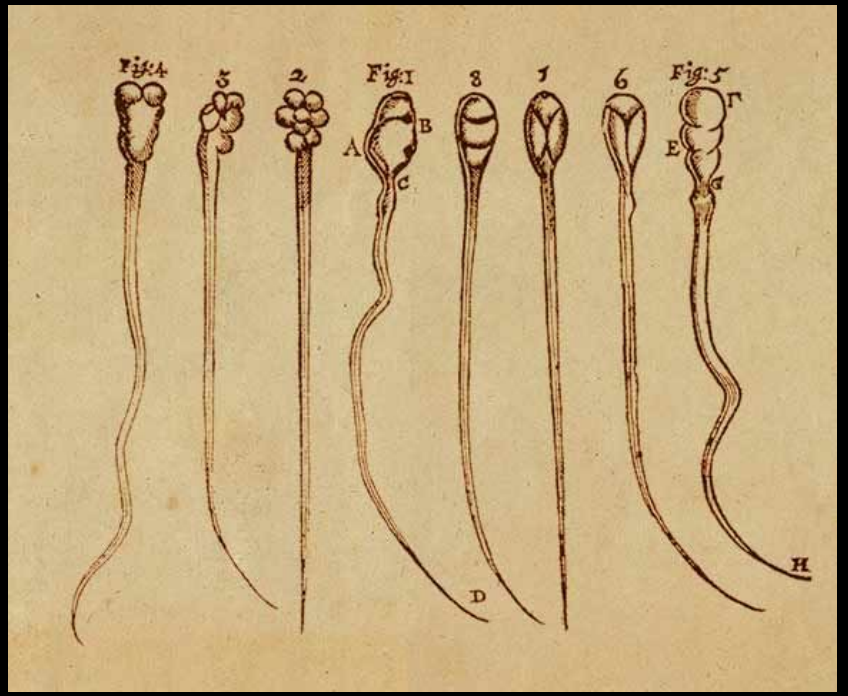
Robert Hooke
1635 - 1703



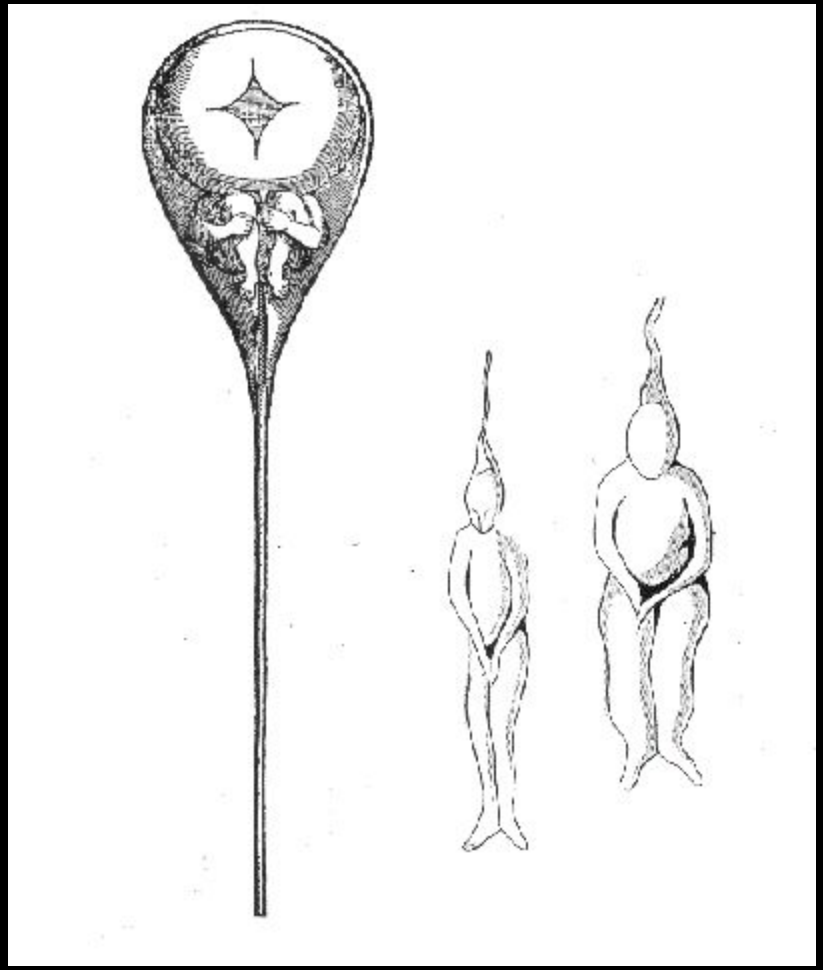
Antoni van Leeuwenhoek

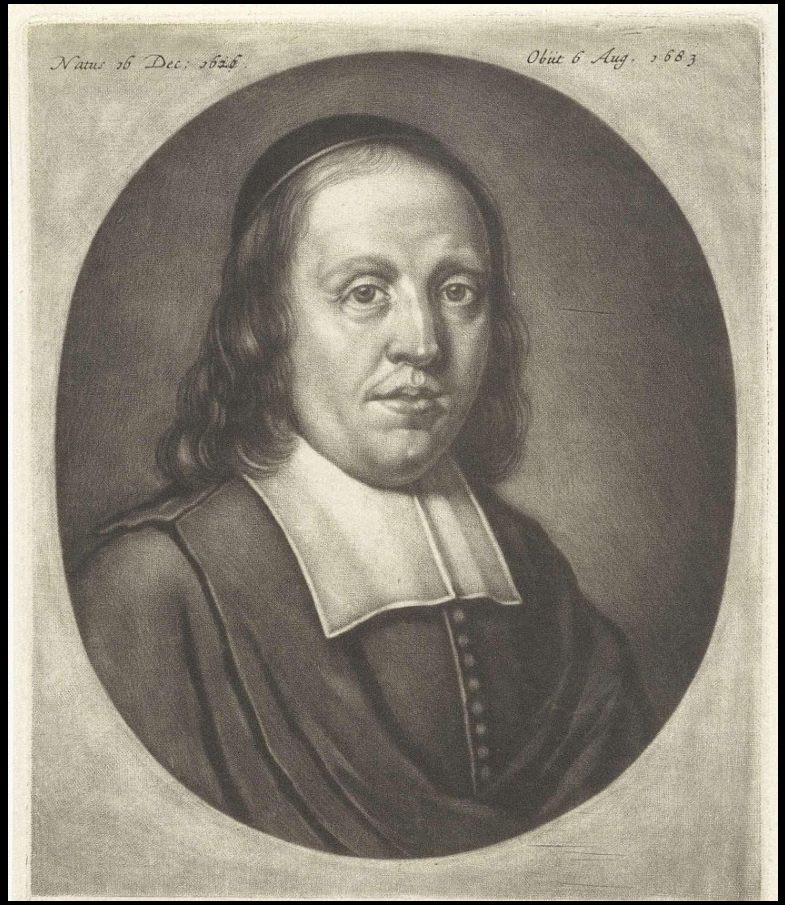
1632 - 1723





Antoni van Leeuwenhoek





Nicolaas Hartsoeker 1656-1725

MARGARET DUTCHESS OF NEWCASTLE.

Coming from a wealthy family, she owned several microscopes and was not shy about criticizing the work of the members of the Royal Society.

She was the first woman to visit the Royal Society and scared them.

“Artificial instruments seemed to distort the very reality they were designed to reveal Cavendish's motivation is important: she was not arguing against scientific enquiry per se; rather, she was deeply troubled by the uncritical enthusiasm for enquiry based on artifice.”

https://royalsocietypublishing.org/doi/10.1098/rsnr.2014.0015

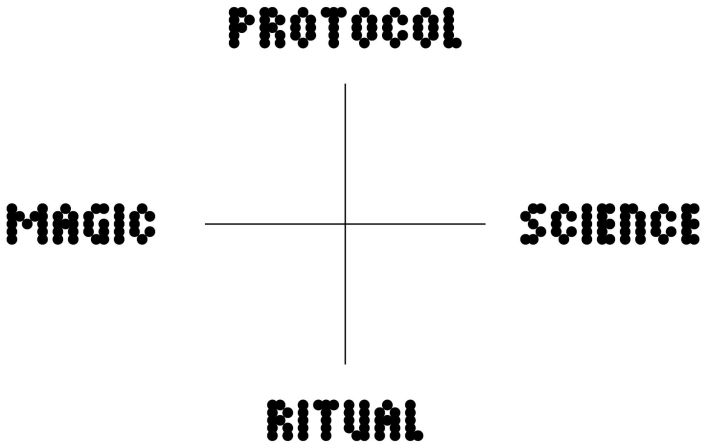
Margaret Cavendish - 1623 - 1673


KNOWING THE PROCESS
Protocols

WHAT IS A PROTOCOL

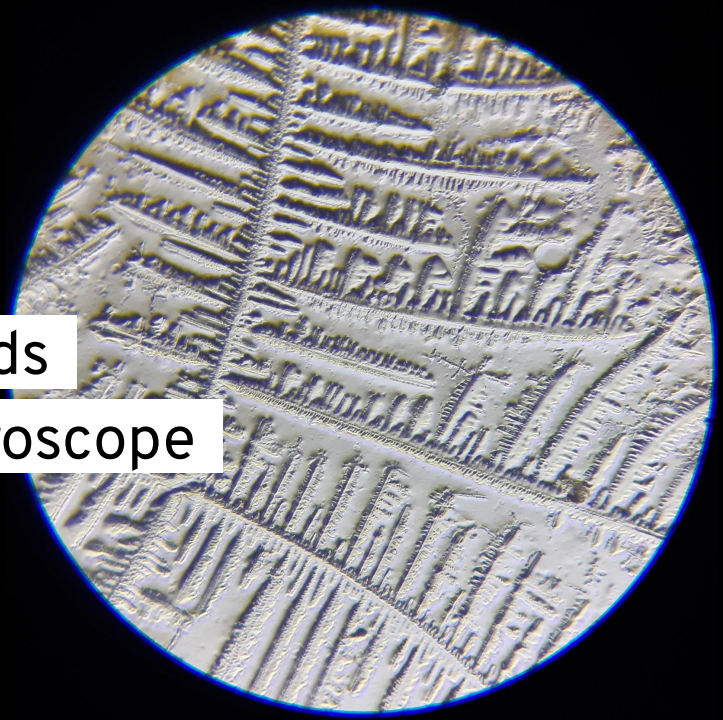
In natural and social science research, a protocol is most commonly a **predefined procedural method** in the design and implementation of an **experiment**.

Protocols are written whenever it is desirable to **standardize a laboratory method** to ensure successful **replication** of results by others in the same laboratory or by other laboratories.



These ancient healers believed that supernatural forces caused disease and that a special priest or medicine man was required to rid those afflicted of these unseen yet potentially lethal forces.

The origins of medicine and magic are entwined.



Perturbant Fluids

Tears under the Microscope


Tears
in the last 200 years

Timeline

1791

The first report on the crystallization in vitro was published by French scientists Antoin-François de Fourcroy and Louis-Nicolas Vauquelin. The solid residue of **desiccated tear** was determined to be cubic crystals with the same properties as sea salt.

1946

150 years later gynecologist **Papanicolaou** rediscovered the same phenomenon in the vaginal and cervix uterine mucus studied a vaginal smear, observed the **fern**ing **phenomenon** in the **cervix mucus**, **and proposed using the arborization pattern to identify the ovulation period**

Timeline

1955

Solé, an Austrian scientist, reported that a little drop of blood serum, cerebrospinal fluid, milk, aqueous humor, or tear, if dried in a normal room environment produces a crystallized picture, which he called a **stagogramm**, from the Greek *stagón* (drop) and *grámma* (picture)

1984

Rolando, from Italy, designed a practical classification of four types of ferning, according to their density

Tears - sampling

1. **Basal** tears are always in our eyes to serve the purpose of lubricating, nourishing and protecting the eyes.

2. **Reflex** tears are those that form to protect our eyes from irritants including wind, smoke, tear gas, etc. They wash away debris when it enters the eyes and help fight bacteria to prevent infections.

3. **Emotional** tears are those that are produced as a result of different types of emotions.

Tears: a cocktail of components

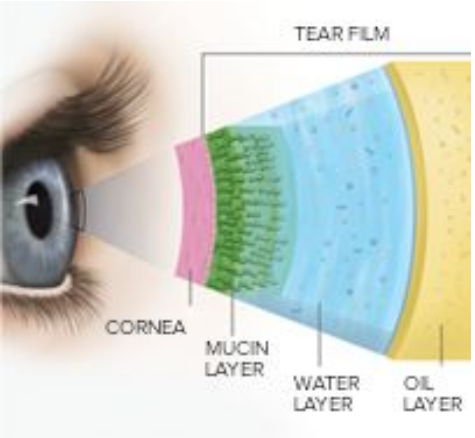
Tear comprises **98.2%** water, the entire focus of tear diagnostics is on the remaining 2%

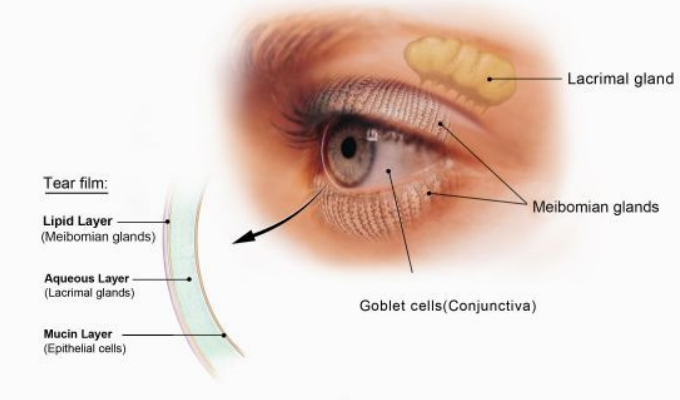
Human tear fluid is a complex mixture containing over **1500** solute proteins, lipids, electrolytes, mucins, metabolites, hormones and foreign substances.

The tear film is a thin fluid layer *3 μm thick* and *3 μl* in volume that covers the outer mucosal surfaces of the eye

Many proteins belong to the immune system, involved in immune response, in inflammatory response; defence against pathogens.

Tears - layers



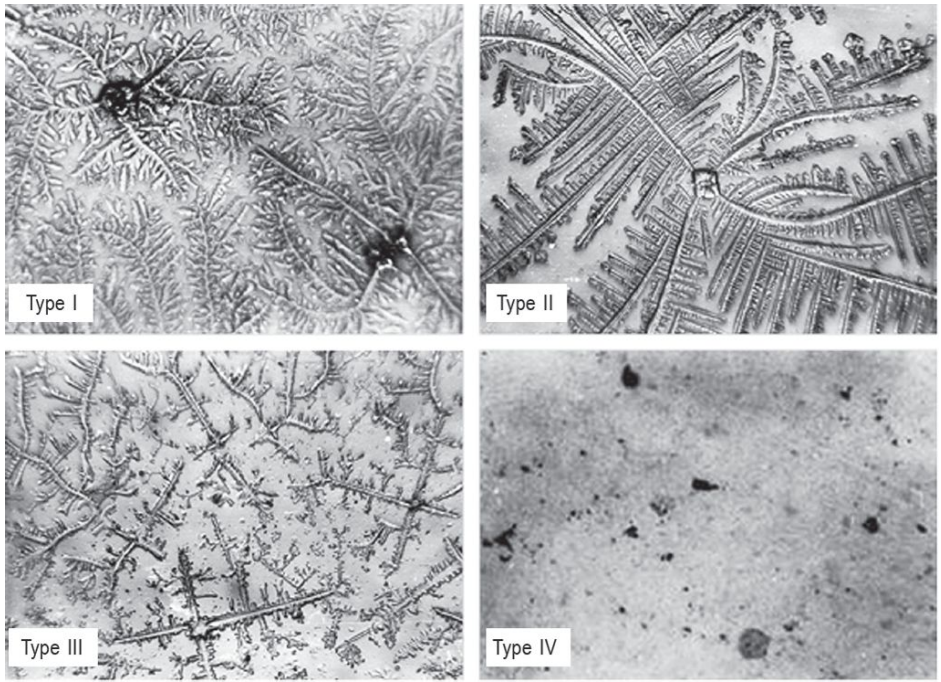


1. **External lipid layer**: The main role of this outermost layer (50–100 nm thick) is to reduce evaporation of our natural tears and keep tears from spilling out of the eye (Melbonian glands).

2. **Middle aqueous layer**: This middle layer is comprised of water and aids in lubricating the eye, washing away particles, preventing infection and providing oxygen and nutrients to the underlying corneal tissue. (Lacrimal Glands)

3 . **Inner mucin layer**: allows the watery layer to spread evenly over the surface of the eye along with acting as an anchor to hold the tear film in place thanks to its hydrophilic glyco-proteins.

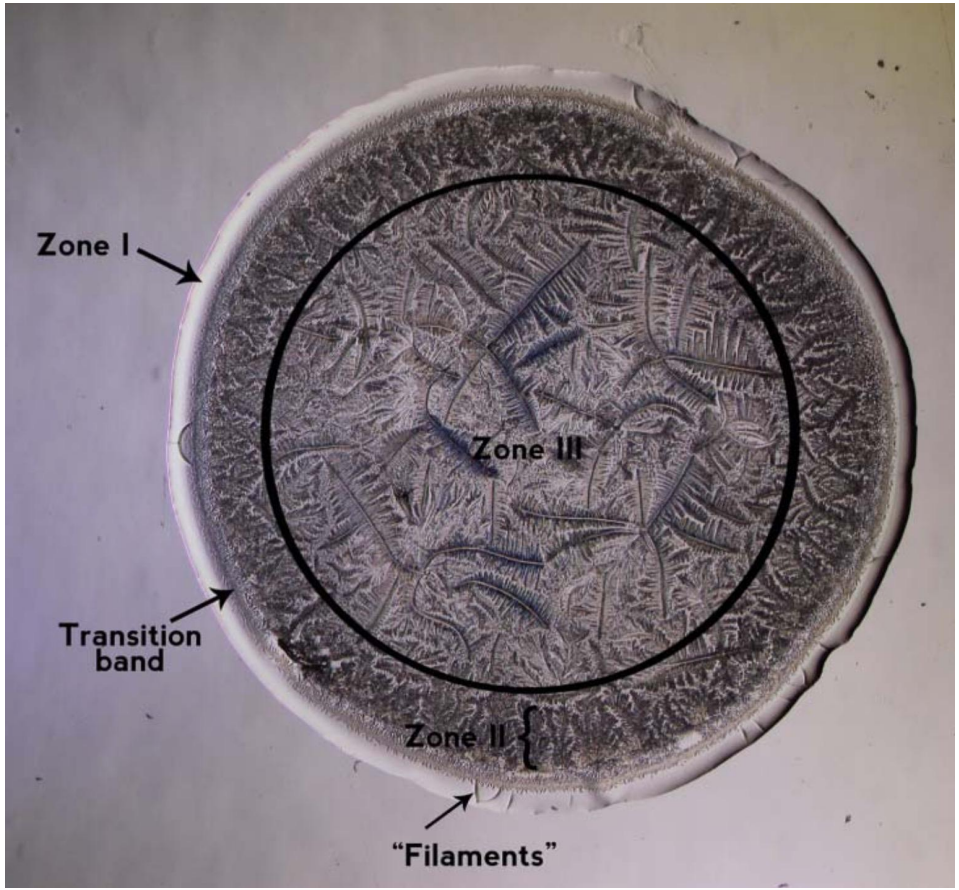
Rolando's Classification



Type I
compact ferning without intermediate spaces;
Type II
noncompact ferning, fewer arborizations, and some spaces among fernings;
Type III
scarce and small fernings, separated by abundant amorphous spaces, including amorphous mucin conglomerates;
Type IV
no fernings or crystallization.

Types I and II are normal. Types III and IV express increasing grades of hypertonicity of tears

Tear's Zones



Tear microdesiccates display 4 distinctive morphological domains

Zone I

it's a lipid-rich structure

Zone II

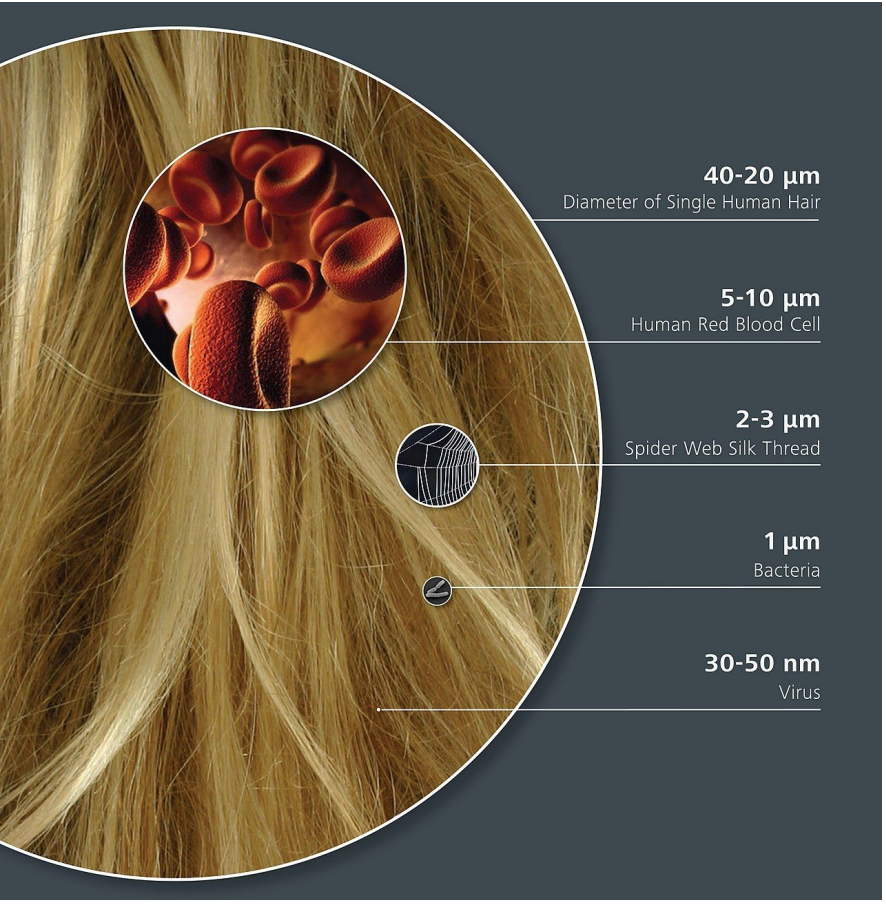
consists of a regular mass of fern-shaped or leaf-shaped crystalloids emerging centripetally from regularly spaced points near zone I

Zone III

the centermost part of the micro-desiccate where fern-like structures differing in robustness, length, and branching can be typically seen

Transition band

Micro measurements



1 µm = 1 micrometer or micron
1mm = 1000 micrometer

1 nm = 1 nanometer
1 nm = 1000 µm

1 µl = 1 microliter
1ml = 1000 microliter

Protocol

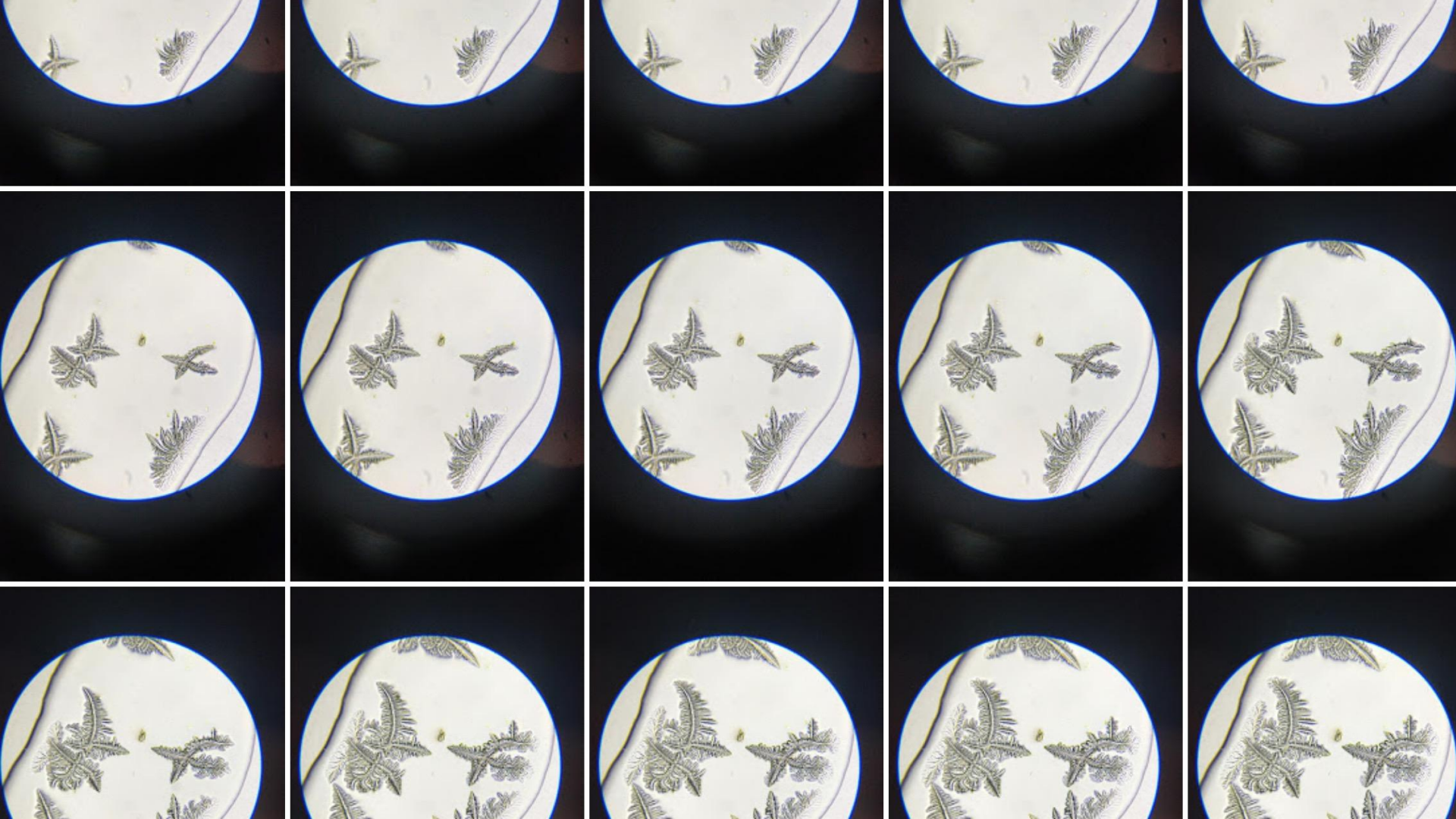
- Step 1- divide in groups and test the use of microscope setting up our mobile phone on 3d printed holder (try to take pictures and use timelapse function - set camera with hi-resolution)

- Step 2 - Collect tear sample
-
- Step 3 - Put 1µl of tear on slide using graduated Pipette

- Step 4 - Record cristallisation with timelapse and take some pictures

- Step 5 - repeat for each member of your group

- Step 6 - compare media and find differences using parameters on Tear Zones and Rolando classification



Instagram

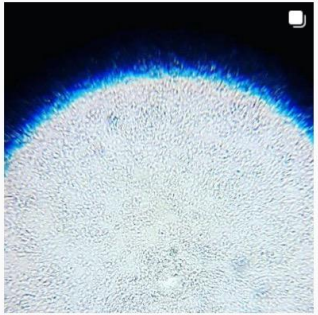
Search

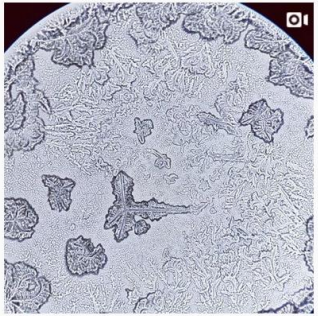
obot Edit Profile

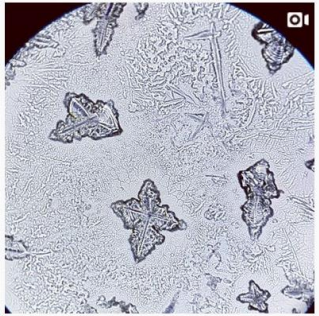
107 posts 137 followers 89 following

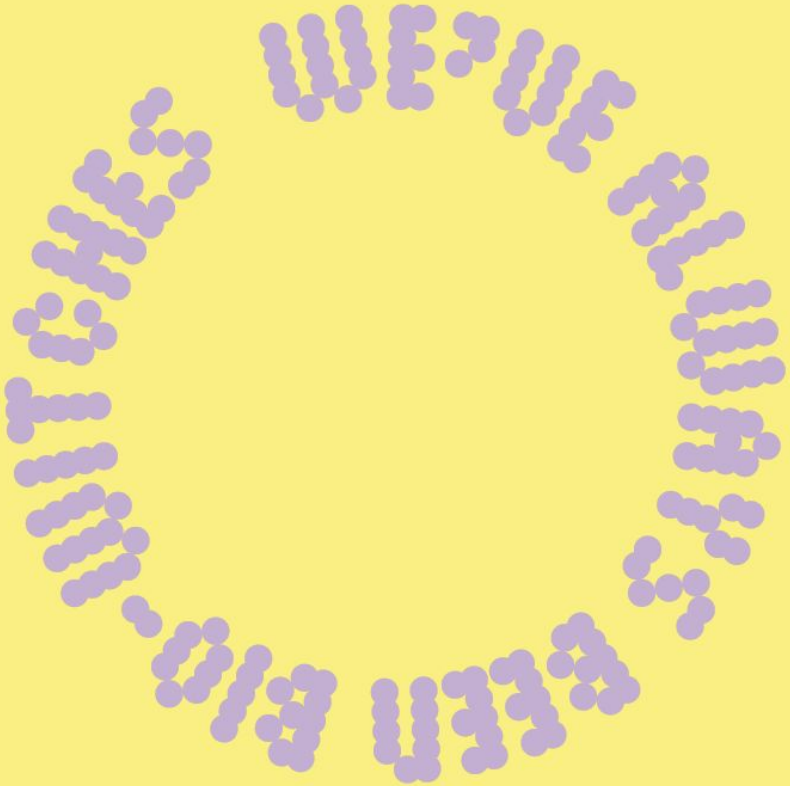
Our Bodies Our Tech
linktr.ee/ourbodiesourtech

POSTS IGTV SAVED TAGGED









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