



COFI



LEARNING FROM
NATURE'S GREATEST COLLABORATORS

WHO CARES ABOUT #MYCOFI ANYWAY?

- **A bit of context: Everything alive on the planet today is due to the positive sum **myconomics** of mycelial networks**
- **Fungi were here long before us, and they'll probably be here long after**
 - **Fungi are the **first responders** after every global catastrophe, making way for new life**
- **Mycelium connects **vast underground networks** of trees, plants, and other life, flowing essential nutrients and messages around entire forests**



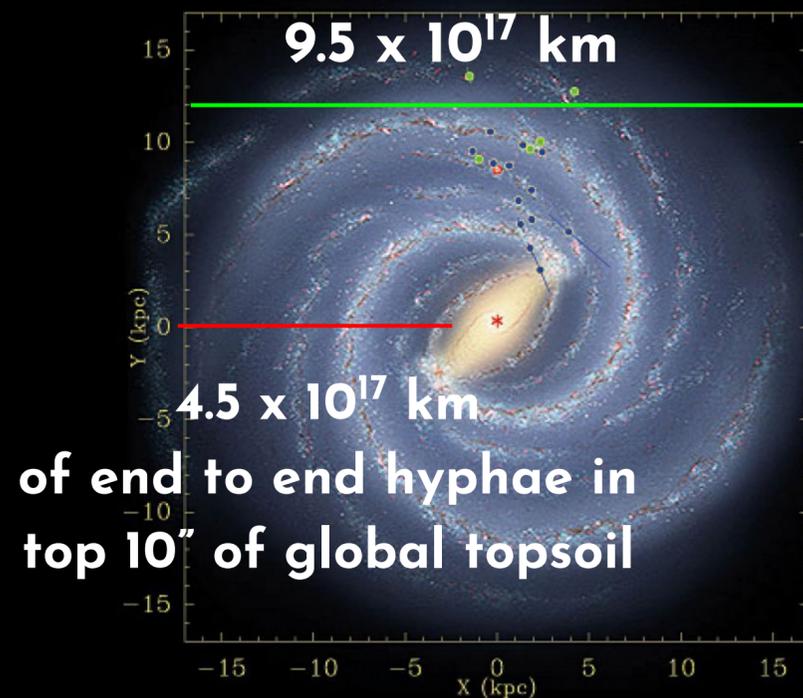
#MYCOFI IS THE ECONOMY OF THE FOREST



- **Fantastic Fungi - Stamets & Schwartzberg**
- **Finding the Mother Tree - Suzanne Simard**

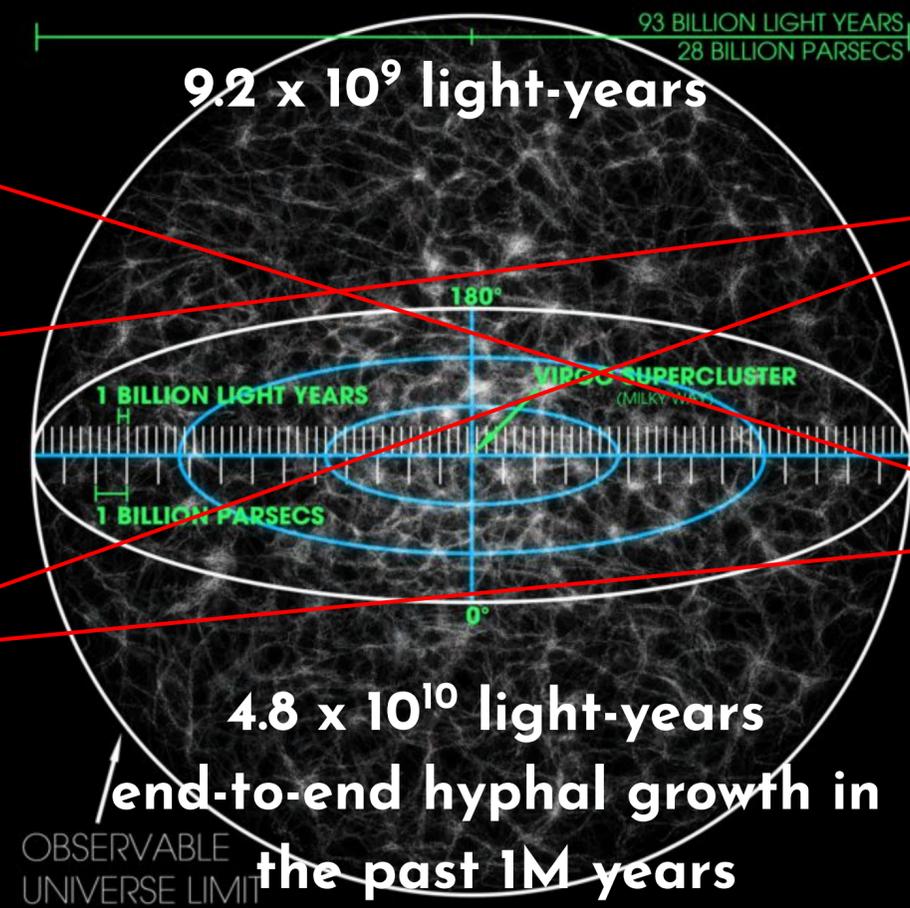
MYCELIA ARE THE MOST PROLIFIC EXPLORERS

- Just the top 10" of global topsoil contains enough hyphal threads to get halfway across our galaxy, if you lined them up end-to-end
- With regrowth & dieback rates between 10-60 times per year, over a million years, cumulative hyphal growth would exceed the diameter of the known universe by over 5 times.



Does that mean mushrooms grow faster than the speed of light?!

WTF? 🍄 🧠



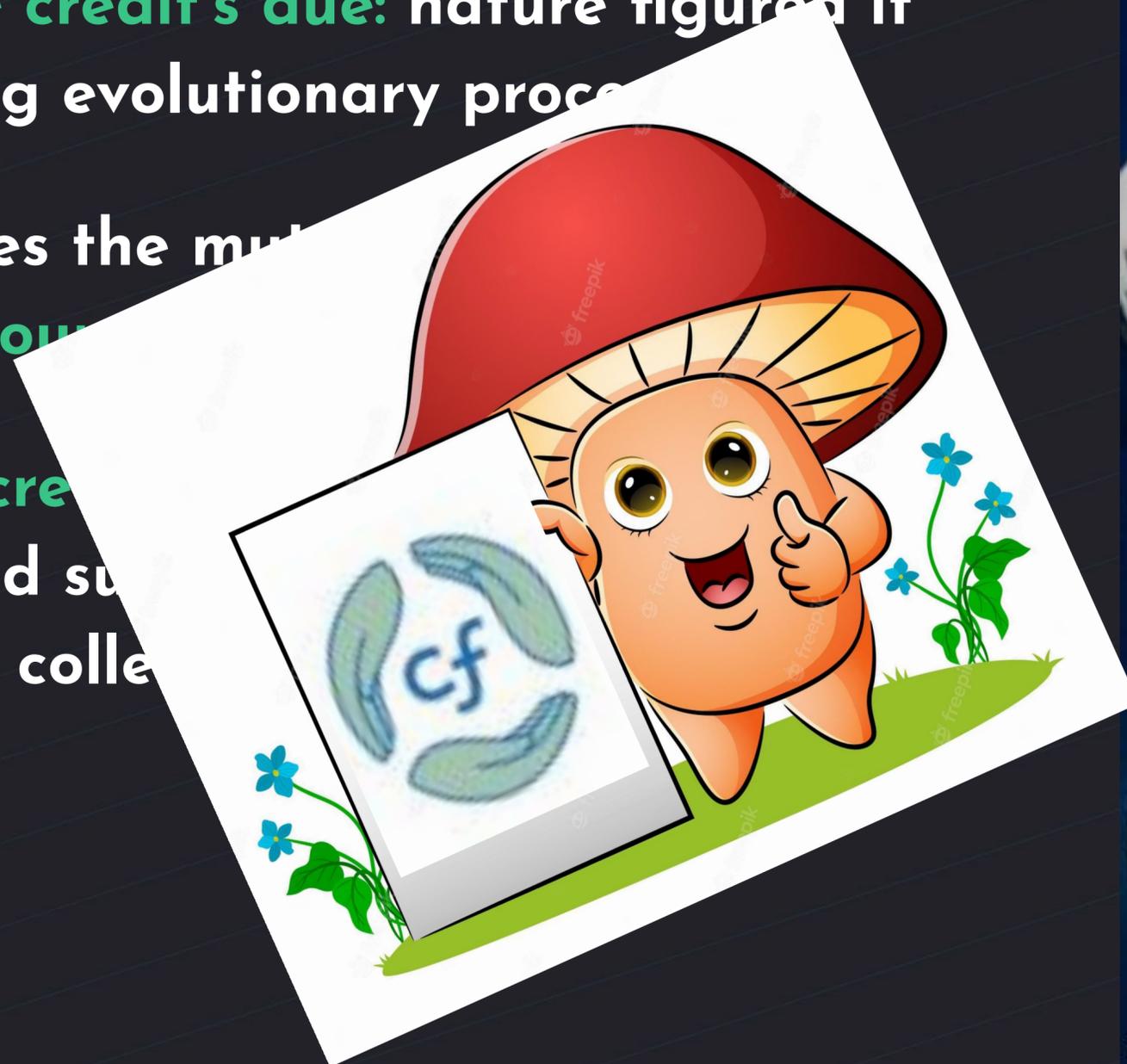
THE ERGODICITY OF ATTENTION

- Time average vs ensemble (space) average
 - Polymaths, assemble!
- 1 hour x 8 billion people = 900,000 years of conscious thought, all occurring every hour
- Imagine what we could do with 900,000 years of directed human effort?



BACK TO OUR ROOTS: #COFI IS #MYCOFI

- **Credit where credit's due:** nature figured it out first using evolutionary processes
- **CoFi emulates the mycelial network**
Mycelial Resource
- **Distributed creation**
way to embed sustainability
autonomy in collective



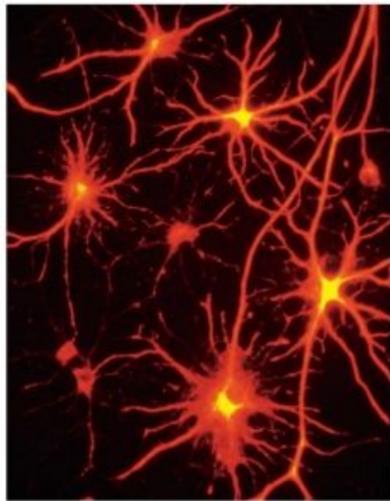
MYCOFI EMPOWERS EDGE-BASED INTELLIGENCE

- Enabling decision making at the 'edges' of the network empowers distributed problem solving
- Distributing credit issuance throughout the network mimics the **subsidiarity of decision making in mycelial networks** by empowering everyone with credit towards their productive capacity



#MYCOFI IS ECONOMIC BIOMIMICRY

4 MYCELIUM RUNNING

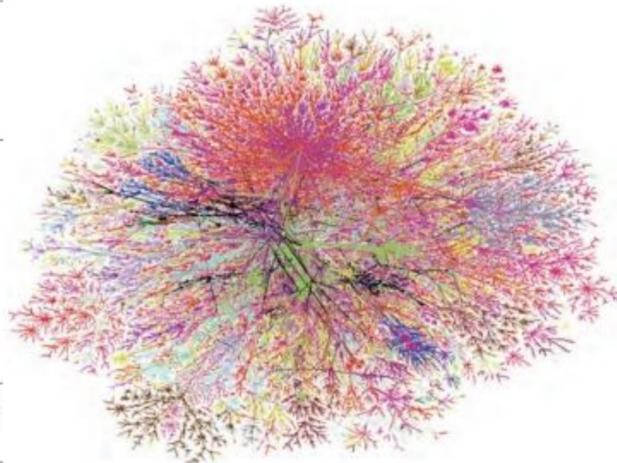


collected in New Jersey—dates from Cretaceous time, 92 to 94 million years ago. Mushrooms evolved their basic forms well before the most distant mammal ancestors of humans.) Mycelium steers the course of ecosystems by favoring successions of species. Ultimately, mycelium prepares its immediate environment for its benefit by growing ecosystems that fuel its food chains.

Ecotheorist James Lovelock, together with Lynn Margulis, came up with the Gaia hypothesis, which postulated that the planet's biosphere intelligently piloted its course to sustain and breed new life. I see mycelium as the living network that manifests the natural intelligence imagined by Gaia theorists. The mycelium is an exposed sentient membrane, aware and responsive to changes in its environment. As hikers, deer, or insects walk across these sensitive filamentous nets, they leave impressions, and mycelia sense and respond to these movements. A complex and resourceful structure for sharing information, mycelium can adapt and evolve through the ever-changing forces of

▲ FIGURE 3

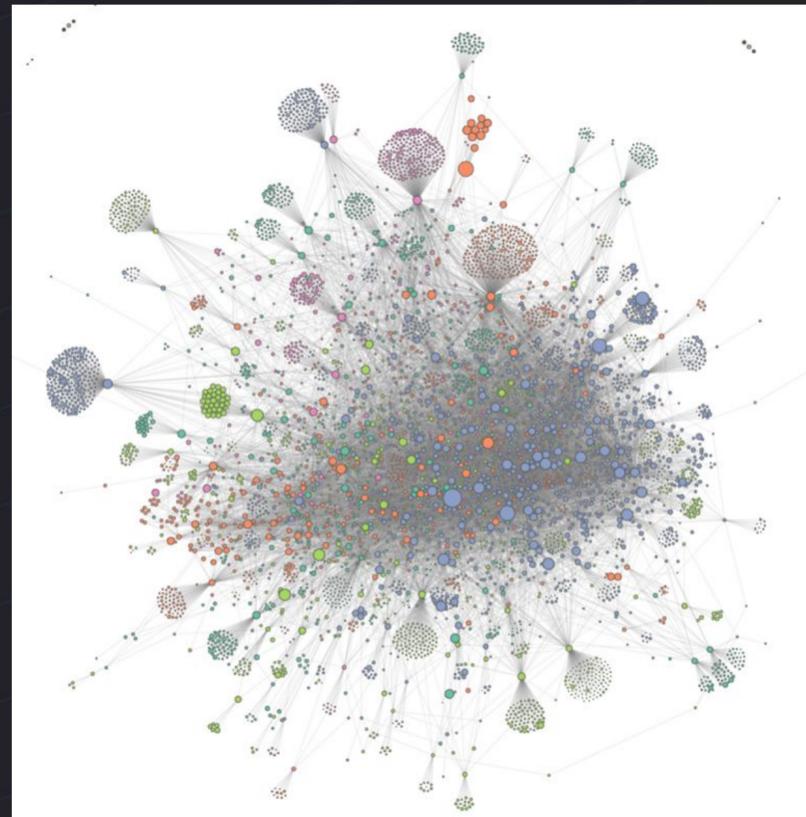
Micrograph of astrocytic brain cells. Networking of neurons creates pathways for distributing information. Mycelial nets share this same architecture.



► FIGURE 4

A diagram of the overlapping information-sharing systems that comprise the Internet.

What natural patterns can we learn & apply (in context) using these new tools?



Similarities between mycelial structure, dark matter & networks (Mycelium Running, Stamets)

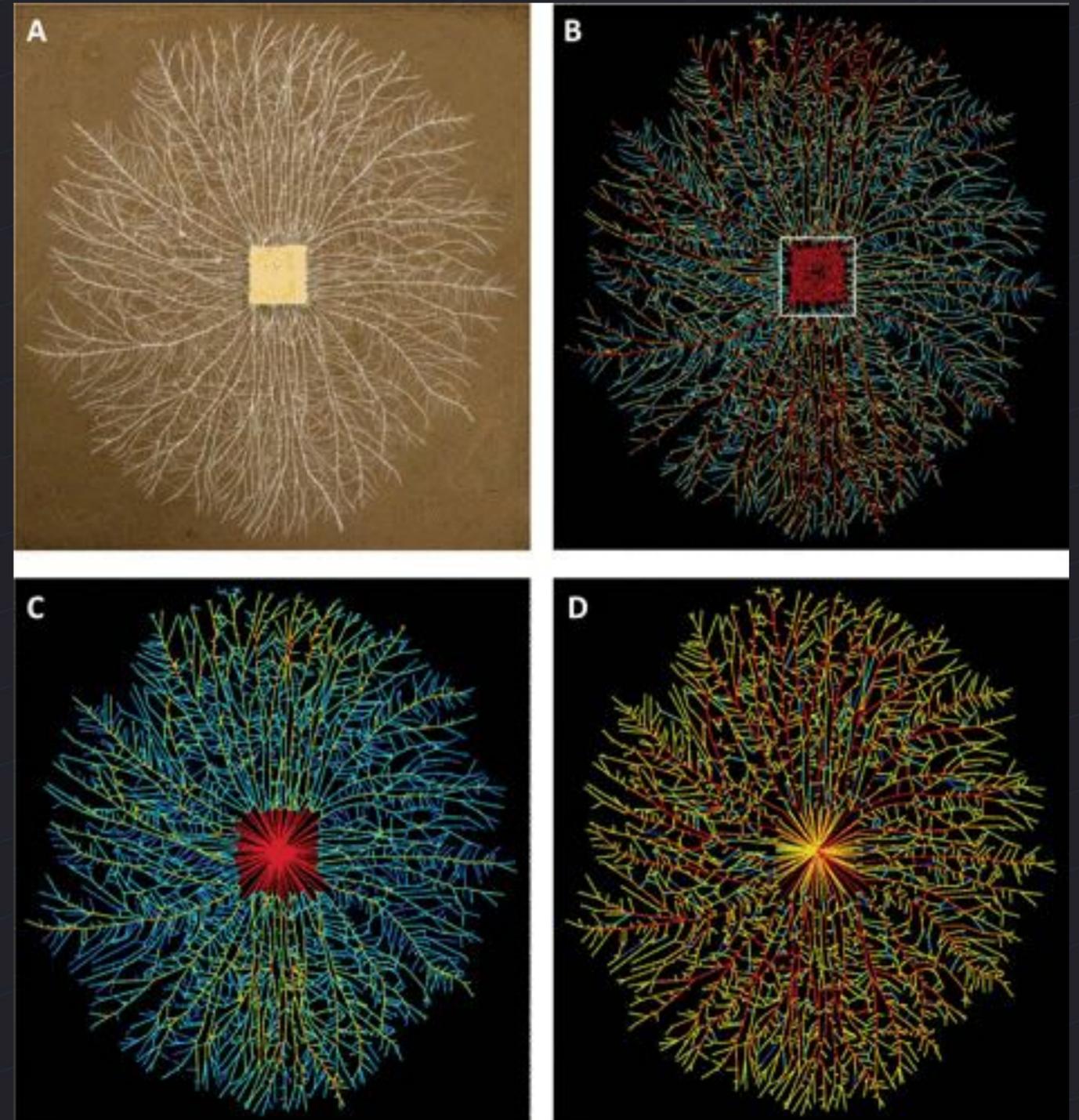
- **Keep in mind:** Biomimicry, like anything, can be misapplied! (Beware 'Appeal to Nature' fallacy)



AS A NETWORK

“Network structure is intimately linked to flows of resources across the network that in turn modify the network architecture itself.

This complex interplay shapes the incredibly plastic behavior of fungi and allows them to cope with patchy, ephemeral resources, competition, damage, and predation in a manner completely different from multicellular plants or animals.”



FUN MUSHROOM FACTS

- Mushrooms are the oldest and the largest living organisms today
 - 10 foot tall mushrooms once ruled the Earth
- Everything you love probably involves fungi in some way
 - Wine, beer, cheese, bread, penicillin, your mother, etc
- They are fluid between up to 20,000 genders + asexual reproduction + horizontal gene transfer
- 90% of plants are connected to a mycelial network (and more productive because of it)



MORE FUN MUSHROOM FACTS

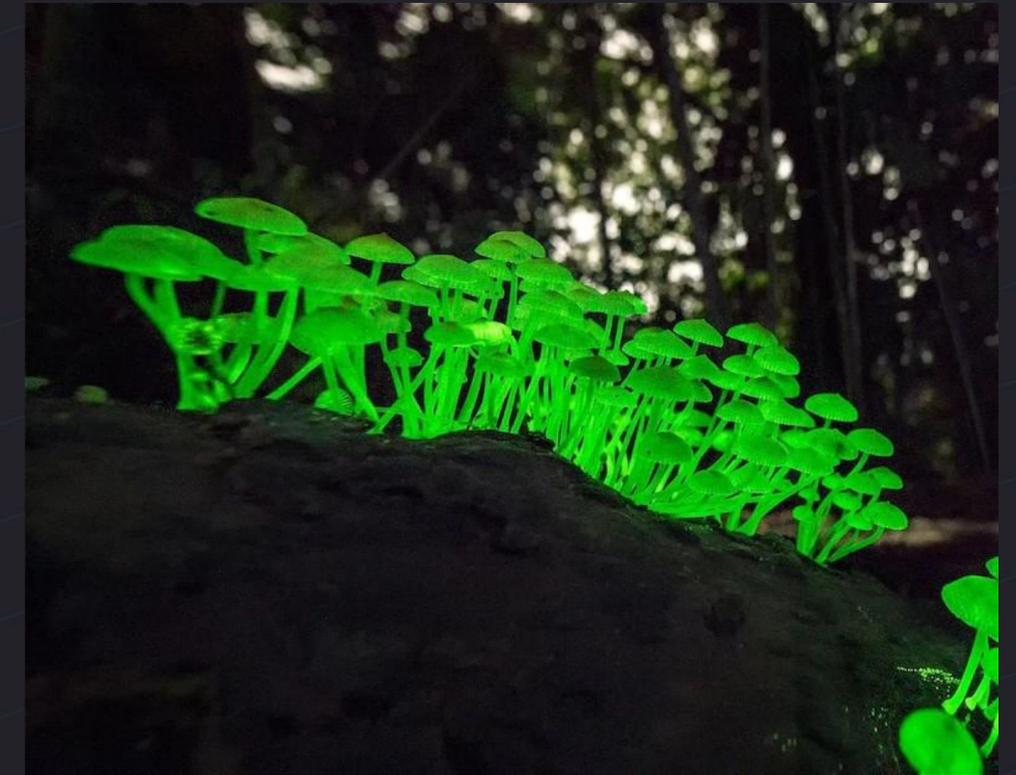
- Mycelia enable intelligent & directed resource sharing among kin
 - Trees send nutrients & messages to their offspring
- Fungi are nature's most effective adapters
 - They can live underwater, in space, in intense heat, even becoming radiotrophic
- Fungi regulate rainfall & other geological processes
 - Spores are a major contributor to cloud formation
- Mycelia synchronize events across organisms
 - Mushrooms can tell time 🍄🕒

Chernobyl news: Fungi discovered in nuclear reactor which EATS radiation



MORE FUN MUSHROOM FACTS

- They may have played a formative role in human brain evolution (Stoned Ape hypothesis)
- Medicinal mushrooms are considered 'adaptogens' due to the adaptive resilience they bring to the human immune system
- They can glow in the dark
- Only ~5% of 200-400 Million species are categorized
- We haven't even scratched the surface of understanding these prolific natural evolutionary algorithms



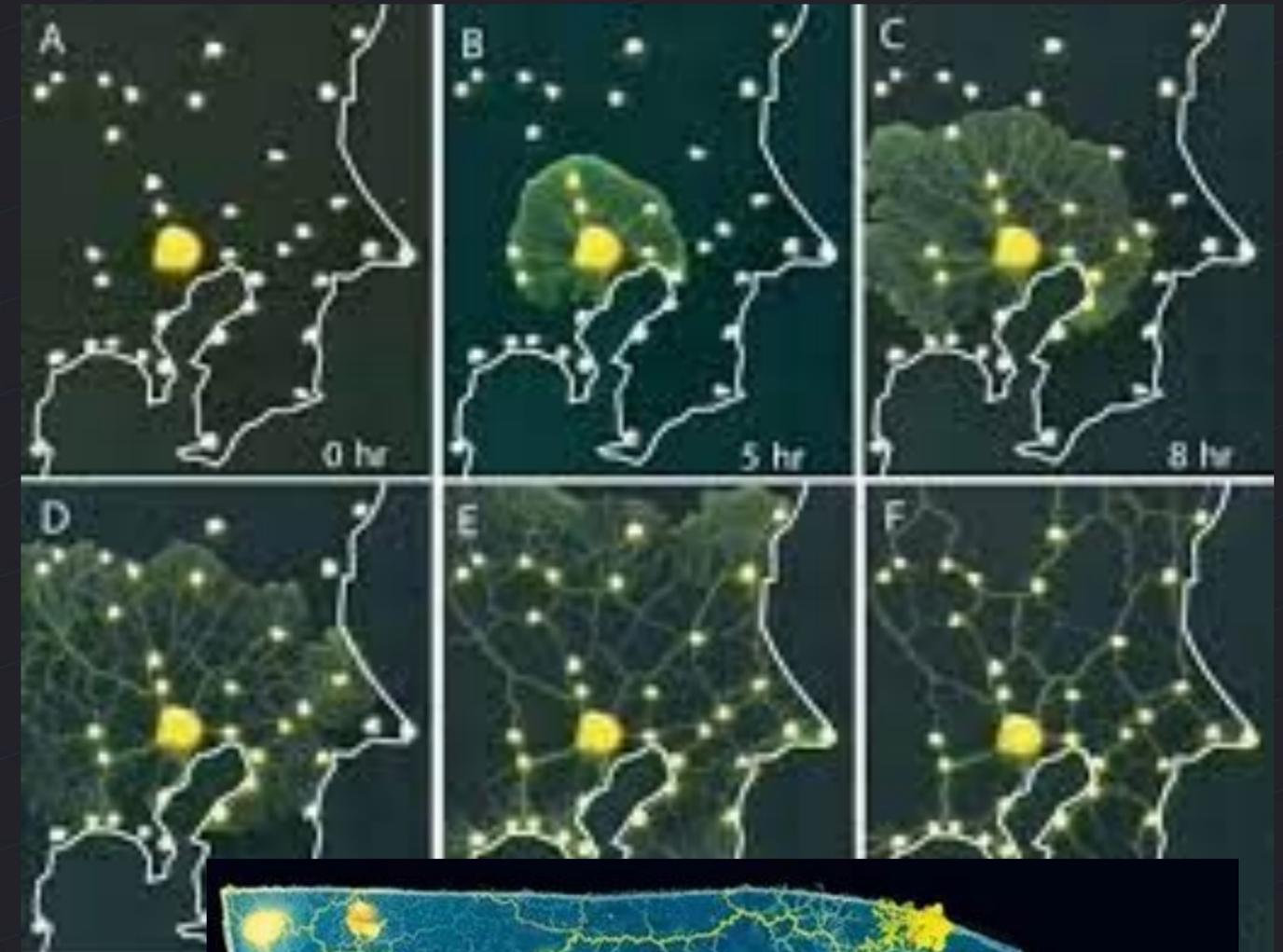
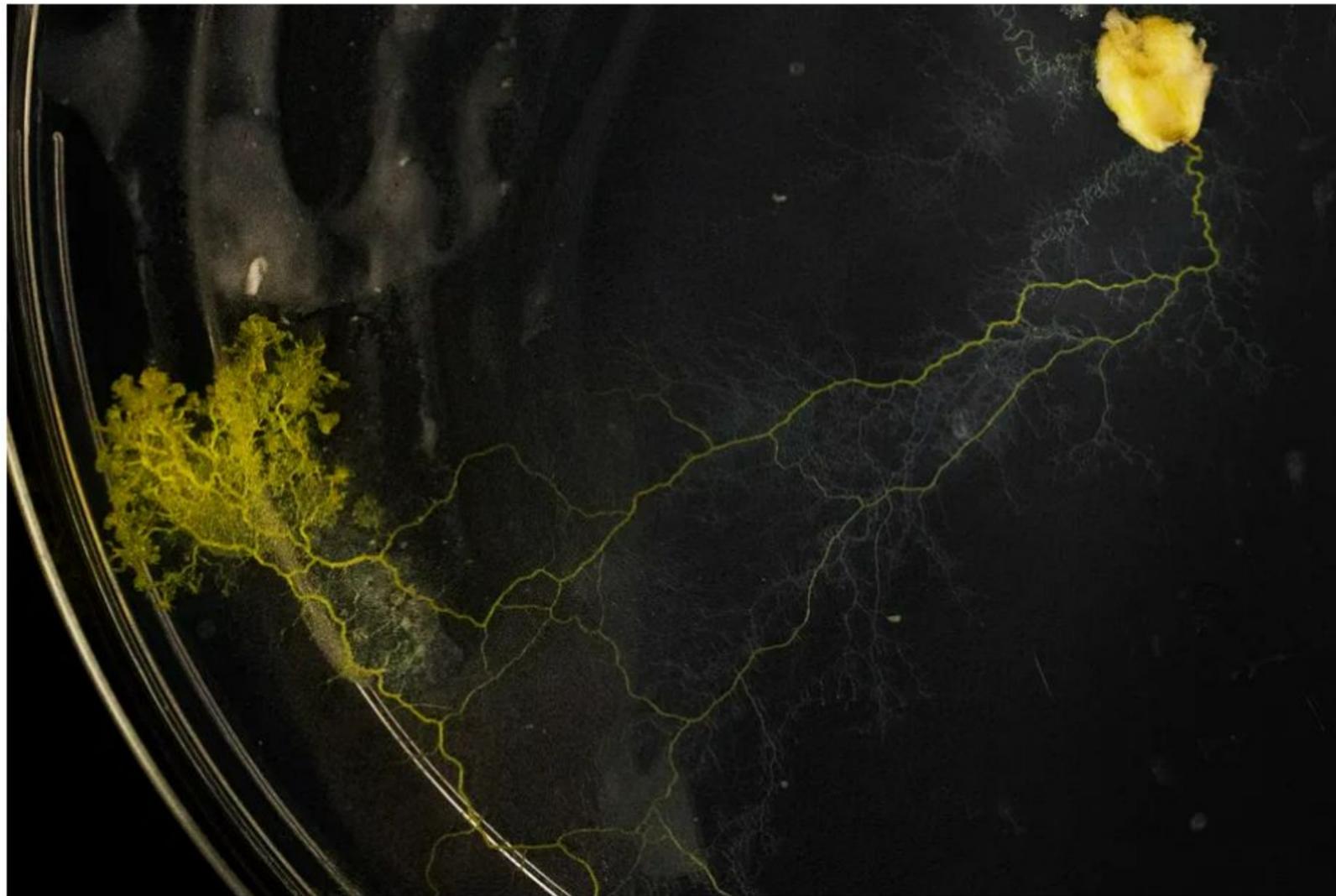
MILF 
Man I Love Fungus

FUNGI PROBABLY HOLD MORE PROFESSORSHIPS THAN YOU

Hampshire College has promoted a brainless slime mold to its faculty. And it's working on border policy.

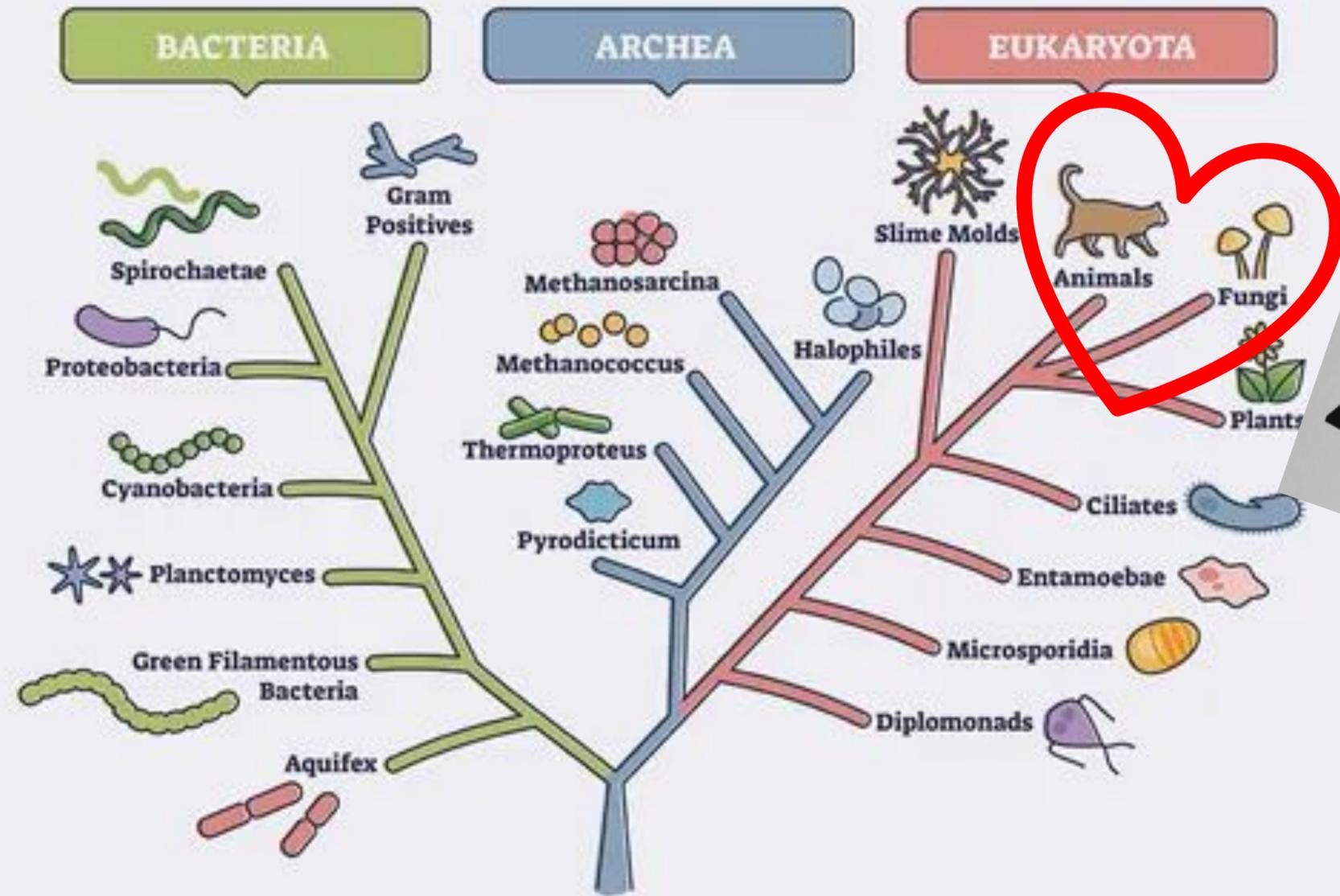
By Brian Resnick | @B_resnick | brian@vox.com | Updated Apr 5, 2018, 5:30pm EDT

f   SHARE



FUNGI ARE OUR ANCESTORS

PHYLOGENETIC TREE



INDIGENOUS CULTURES ALWAYS KNEW THIS

- Traditional rituals often emphasized plant medicines and the resulting **interconnections with nature & each other**
- Christmas (winter solstice) was pretty much a week long festival of the Amanita mushroom, back when holidays were cool
- The suppression of nature's wisdom and indigenous knowledge & traditions are an outcome of exogenous economic imperialism

What happened to doctors?

10,000 BP



- badass wasp mask
- fist full of shrooms
- strong phallic symbolism
- singing, stoned, and exalted
- one with the souls of the ancestors, one with the Gaian spirit of the planet

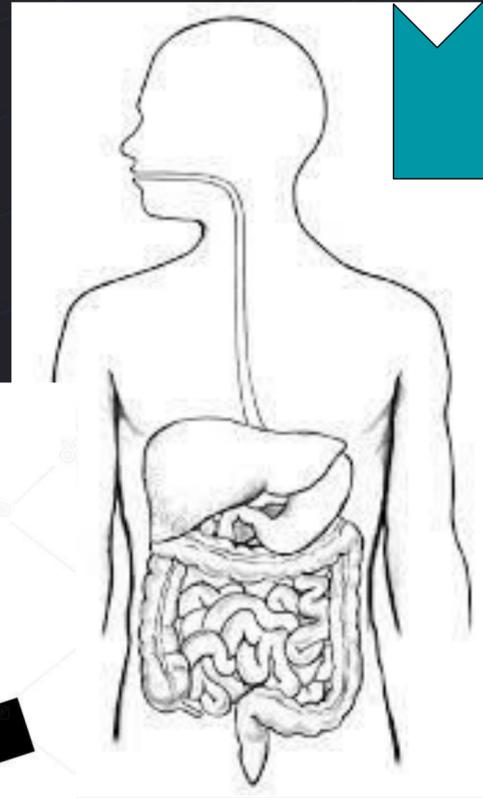
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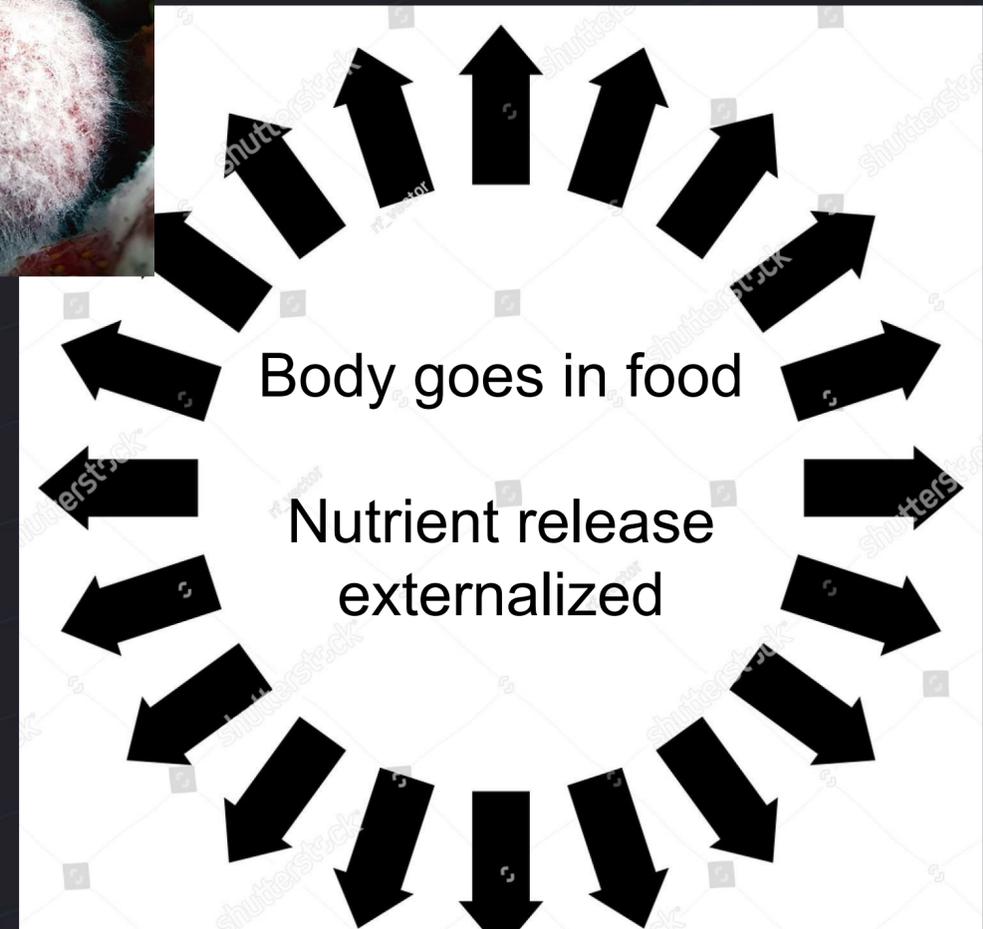
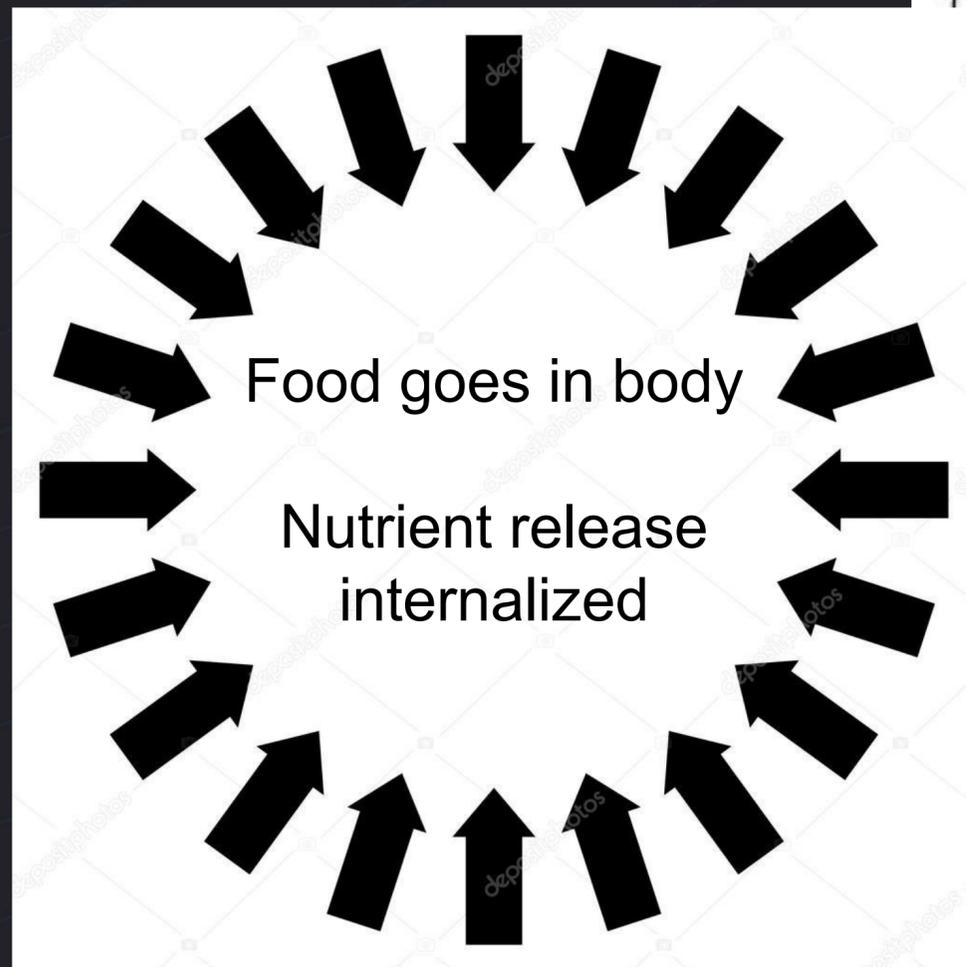
- lame lab coat
- limp steth-sthetho-ear thingy
- scared of apples

EVOLUTIONARY SPLIT: MAMMAL VS MYCELIAL DIGESTION

Corporations?
(Boundaries of
the firm)

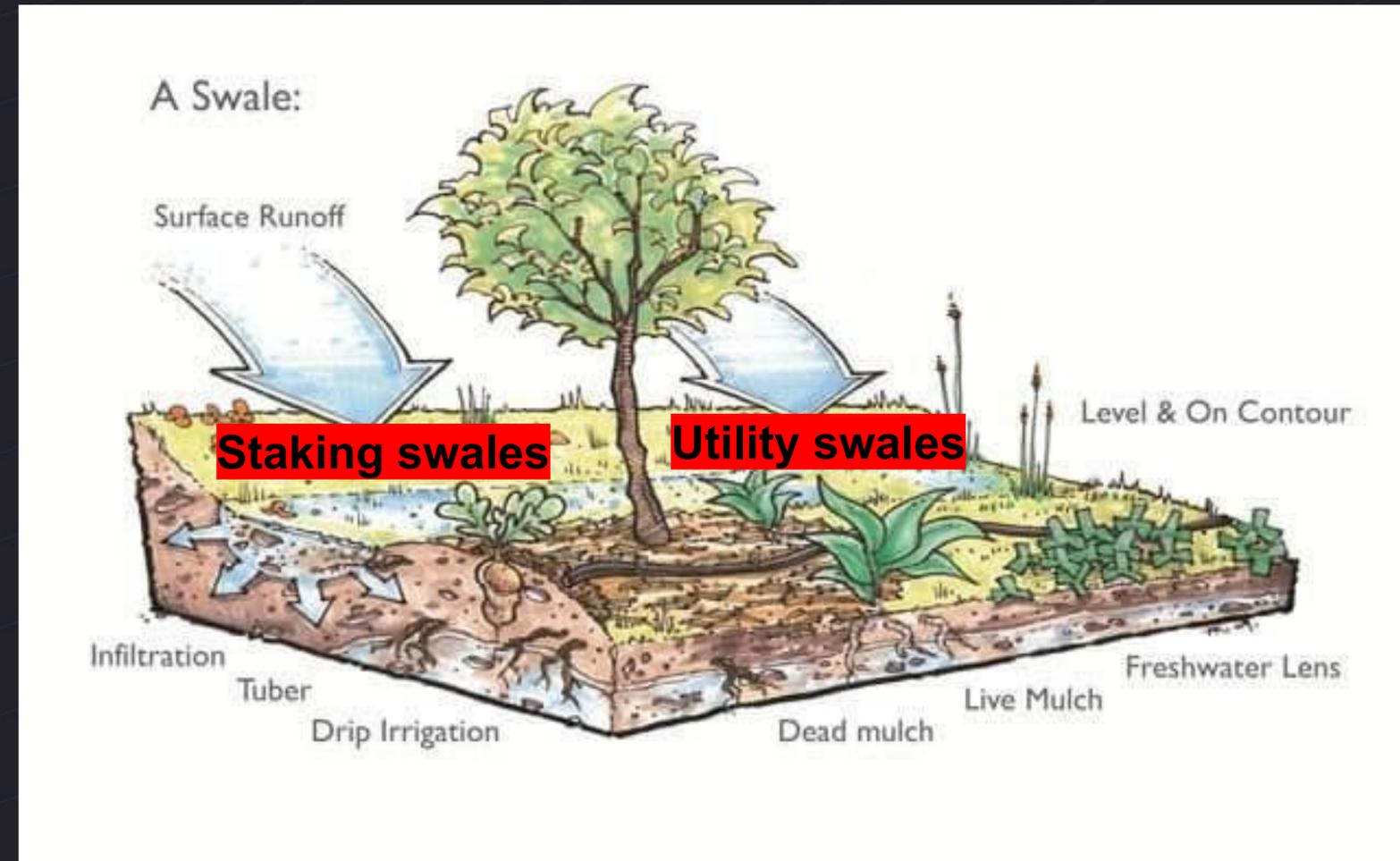


DAOs?
(As open collaboration
networks)



#MYCOFI IS PERMACULTURE ECONOMICS

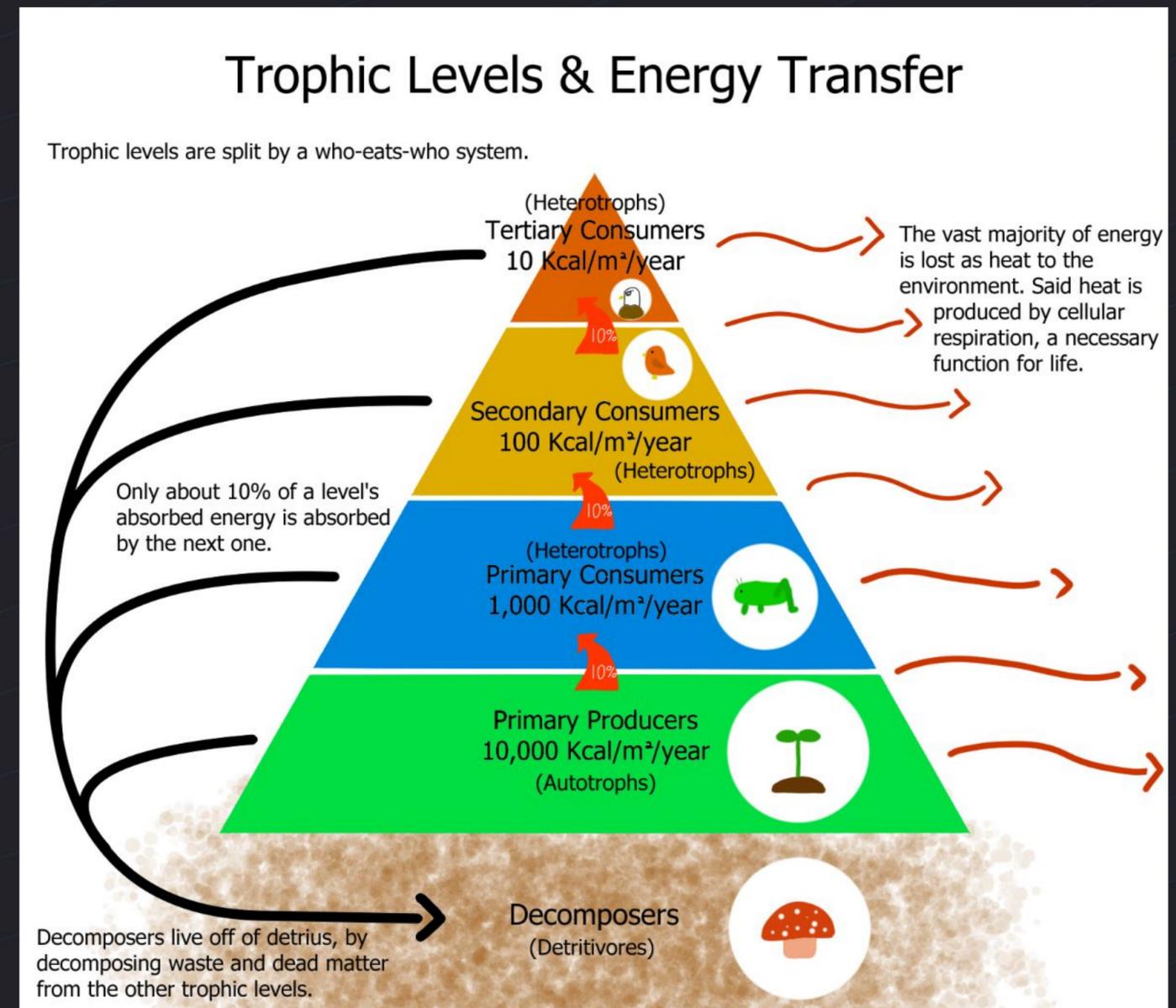
- In permaculture design, 'stacking functions' improve ecosystem efficiency by making multiple uses of the same resources (e.g. water flowing downhill)
- Bonding curves (as semi-automated asset pools) can create tiered pools of stacked assets in endogenous token ecosystems
- These tools enable the dynamic, democratic regulation of value & capital flows



UPCYCLING ENERGY THROUGH TROPHIC FLOWS

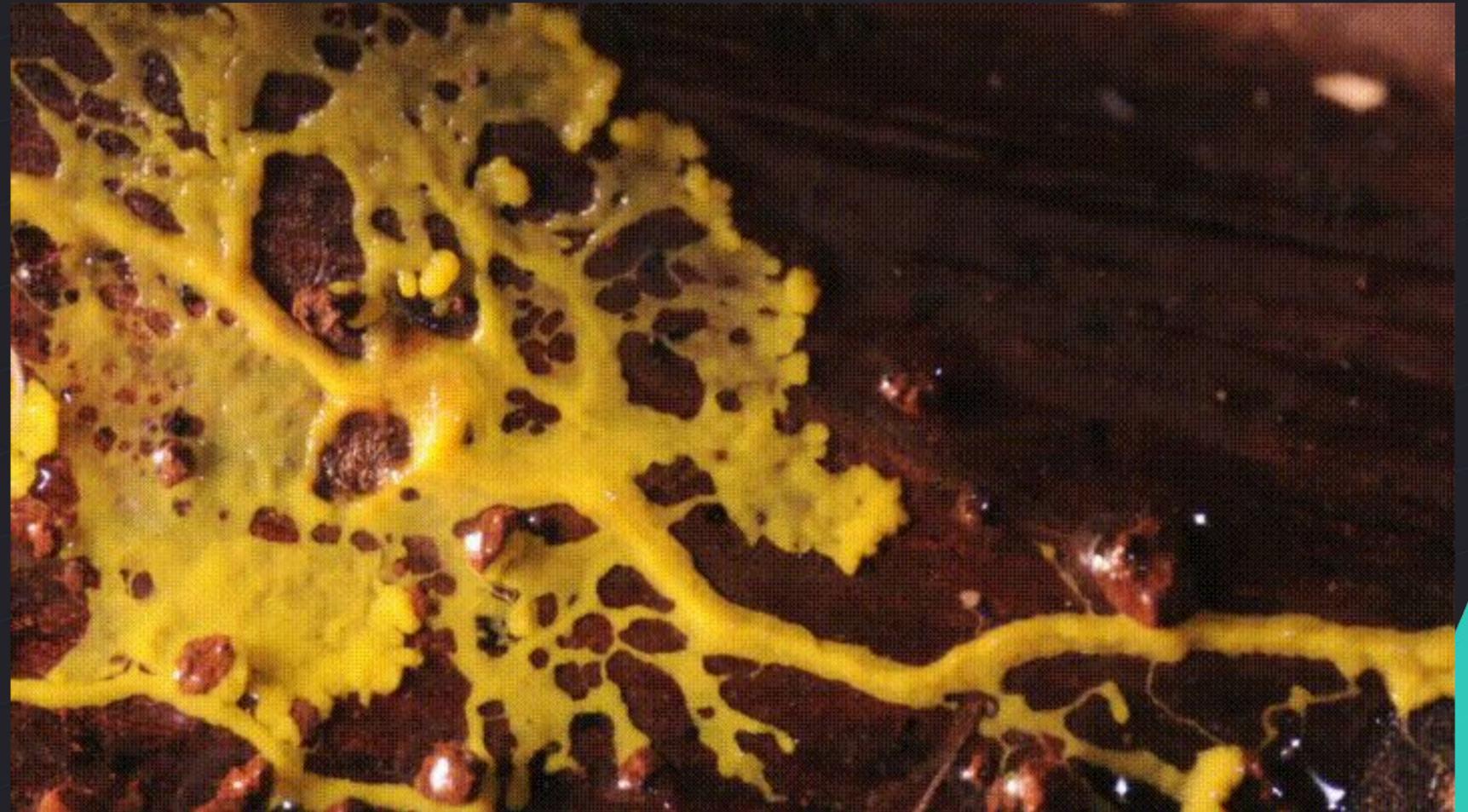
Ecos

- If you haven't watched [The Upward Spiral](#) yet, you should.
- Composing physical layers of 'stacking functions' in permaculture design creates potential for the emergence of complexity (aka new life)
- Composing economic layers of 'stacking functions' could hold potential for the emergence of new complex economic life-forms



#MYCOFI IS ABOUT DISCOVERY MORE THAN "PROGRESS"

- MycoFi invites us to **refocus our collective drive towards "discovery"** instead of profit or even "progress"
- Defining progress requires a value judgement that may not be shared across the network
- What we value changes over time, at different speeds in our collective organism.

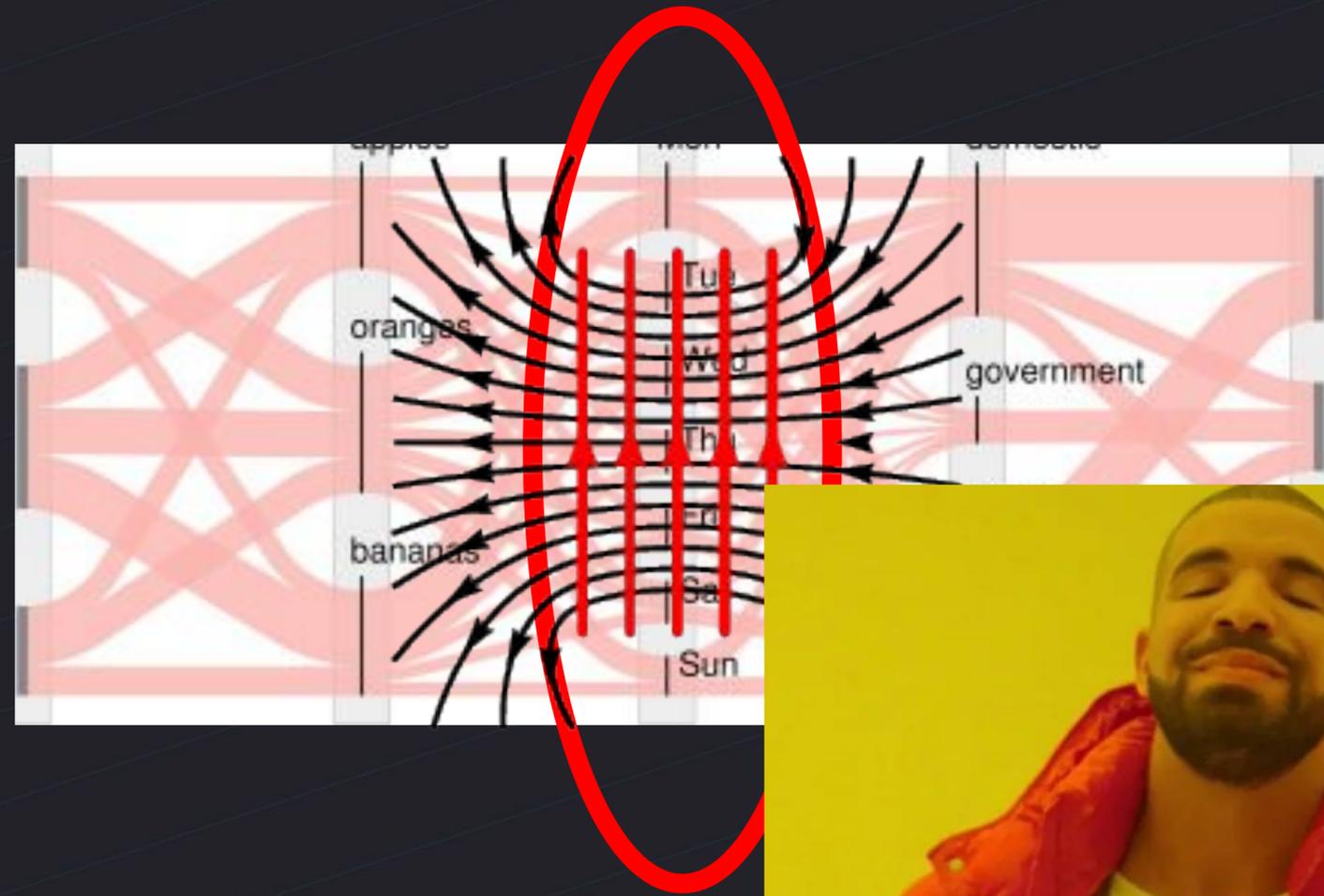


FROM REPRESENTATIVE "DEMOCRACY" TO MYCELIOCRACY

- Tokens allow us to express **'intensity of preference'** rather than just binary yes or no options
- Delegated voting systems could maintain the **proportionality of opinions** that is lacking today
- Web3+ infrastructure allows us to **signal those preferences continuously**, rather than once every 4 years



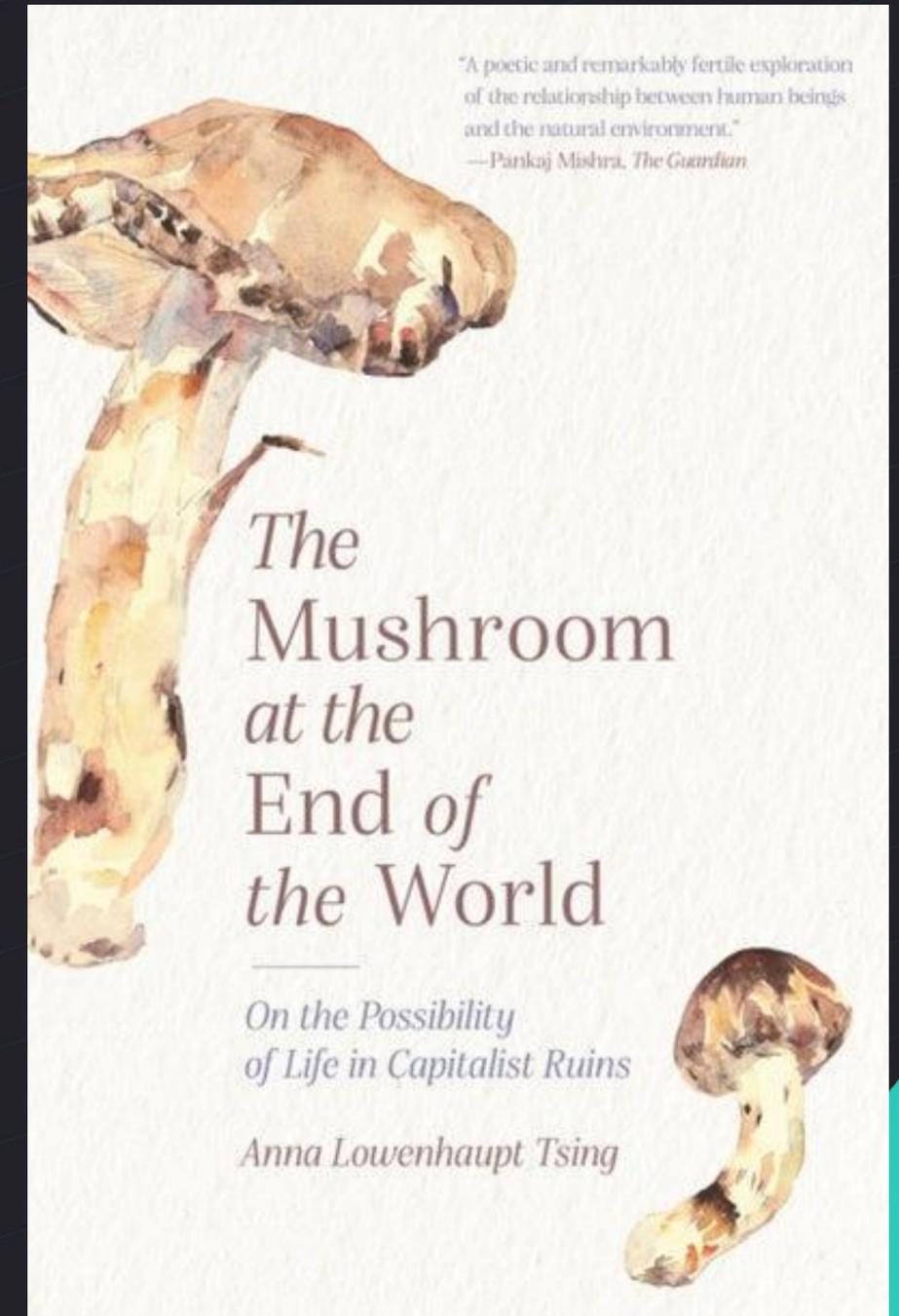
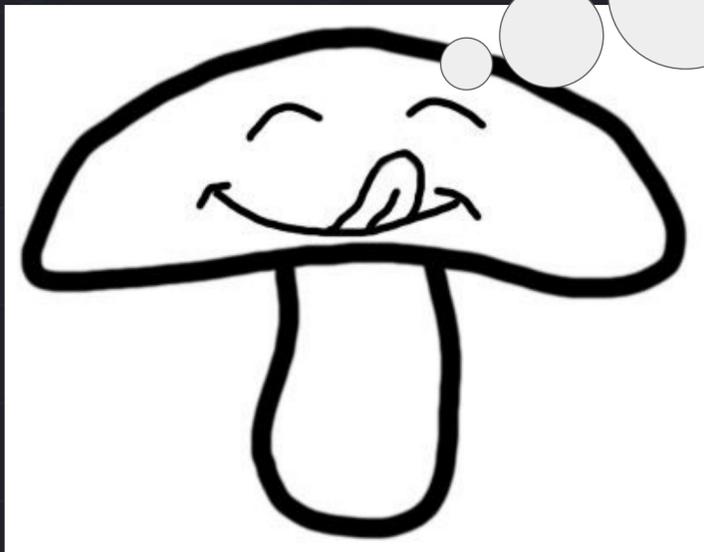
REDEFINING WEALTH FROM HOARDING TO PASS-THRU



POSSIBILITIES FOR LIFE IN POST-CAPITALIST RUINS

- Understanding ecosystem collapse from a mycelial perspective:

"MMMM...THERE'S A LOT OF UNUSED RESOURCES LYING AROUND HERE TO DIGEST & UPCYCLE."



POSSIBILITIES FOR LIFE IN POST-CAPITALIST RUINS

- Mushrooms are first-responders after ecological disasters
- Mushrooms bridge the gap between life and death
- Embracing true ~~dualities~~ pluralities of existence



SAPROPHYTIC COMPOSTING

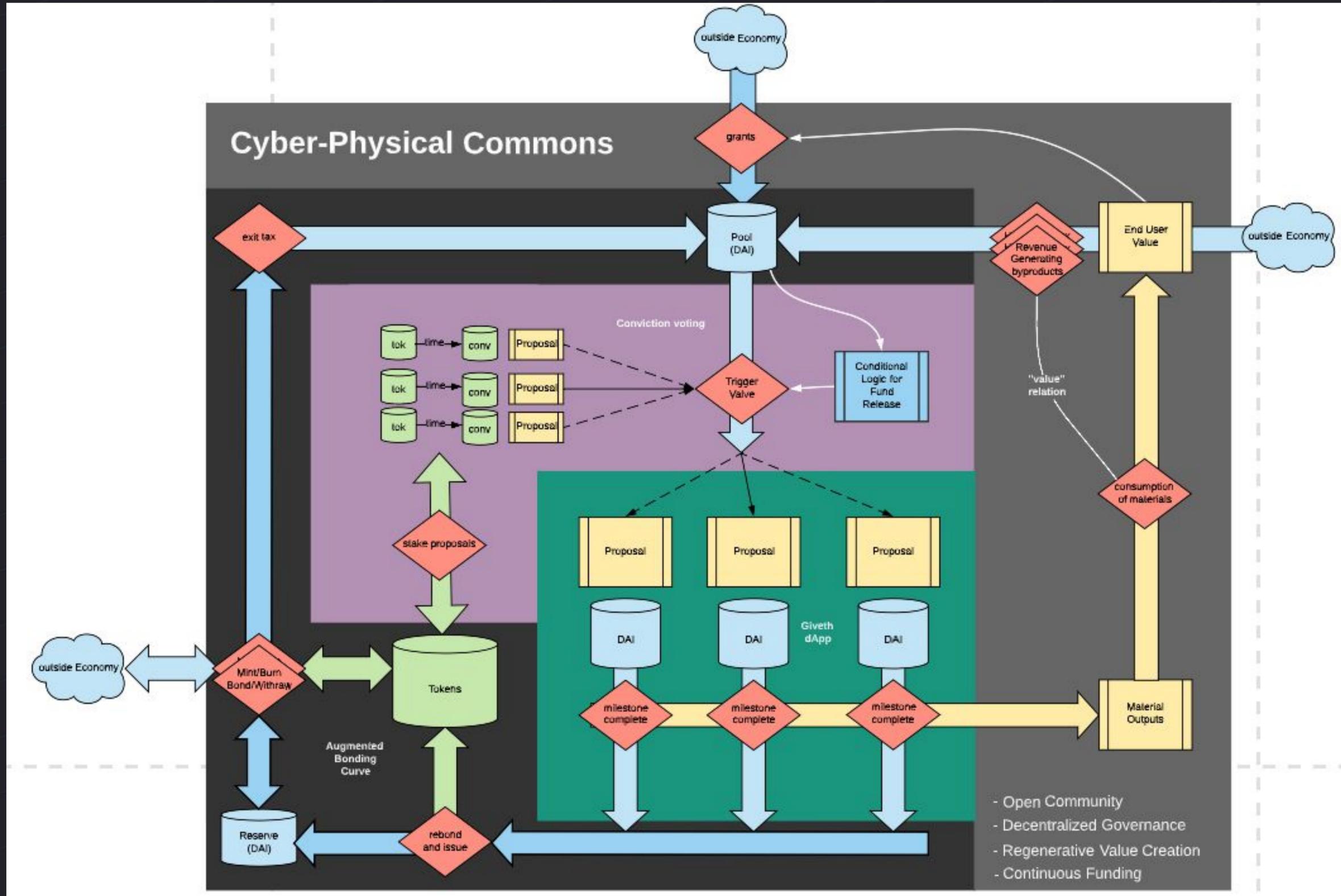
- **Saprophyte:** Any organisms that live off or feed on other dead, decaying or decomposed organic matter
- We need to **compost the underutilized & underrecognized resources** of legacy systems into energy for what is to come using myco-inspired meta-organisms



IDENTIFYING NEEDED FLOWS IN MYCO-ORGANIZATIONS

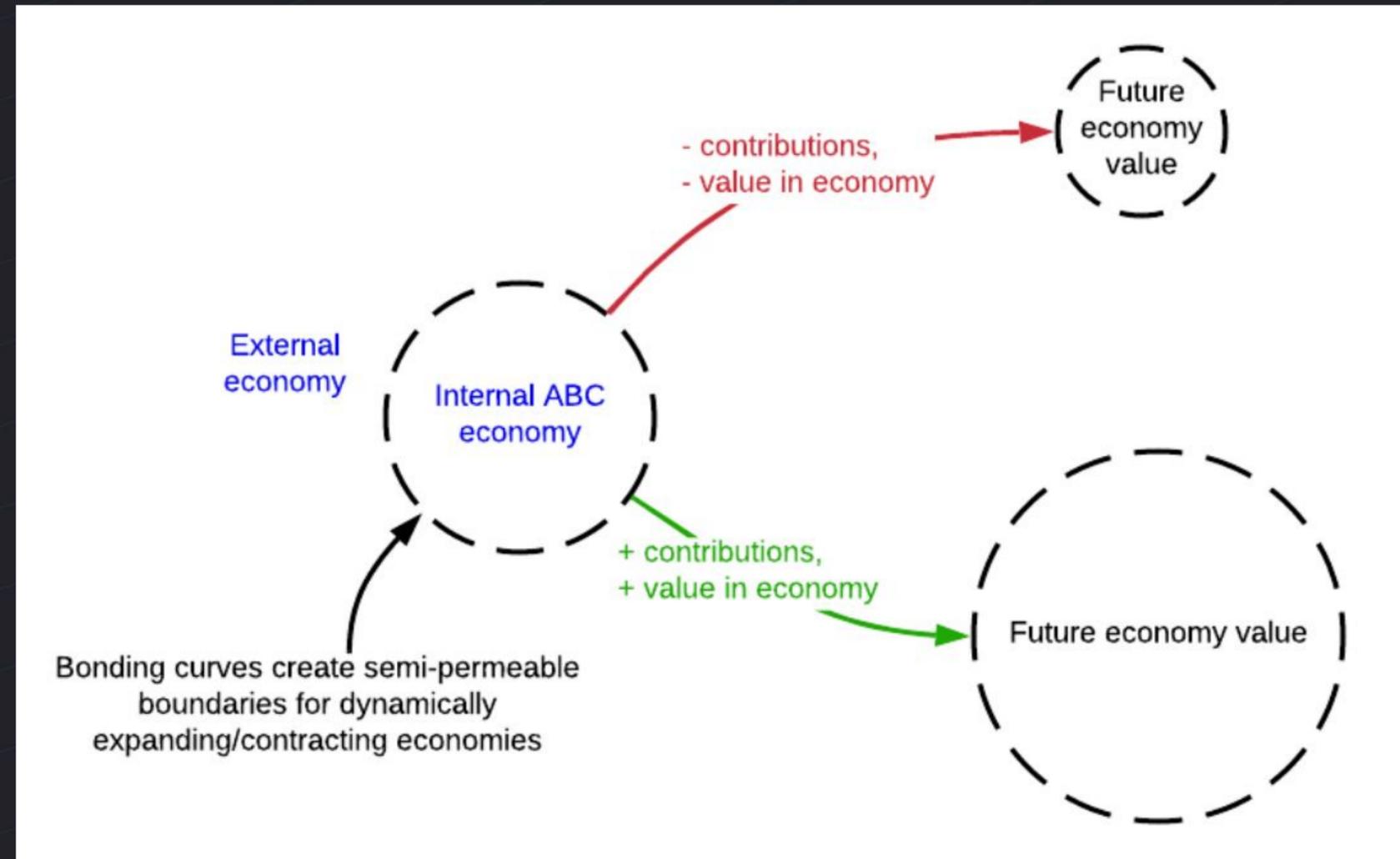
- **Respiratory system** 🌬️
 - “Breathing” dynamic supply expansion & contraction (Bonding Curve)
- **Nervous system** 🧠
 - Responsive governance feedback for responding to needs (Conviction Voting)
- **Circulatory system** 🩸
 - Internal distribution of operating resources (Inverter)
- **Immune system** 🦠
 - Growth of reputation and trust in producing agents (Osmotic Governance)
- **Digestive system** 🍖
 - Consumption of resources and output produced (Actual Work)
- **Muscular system** 💪
 - The availability of credit as “potential energy” of the system to act (Spending capacity)

THE CYBER-PHYSICAL COMMONS AS A MYCO-Organism



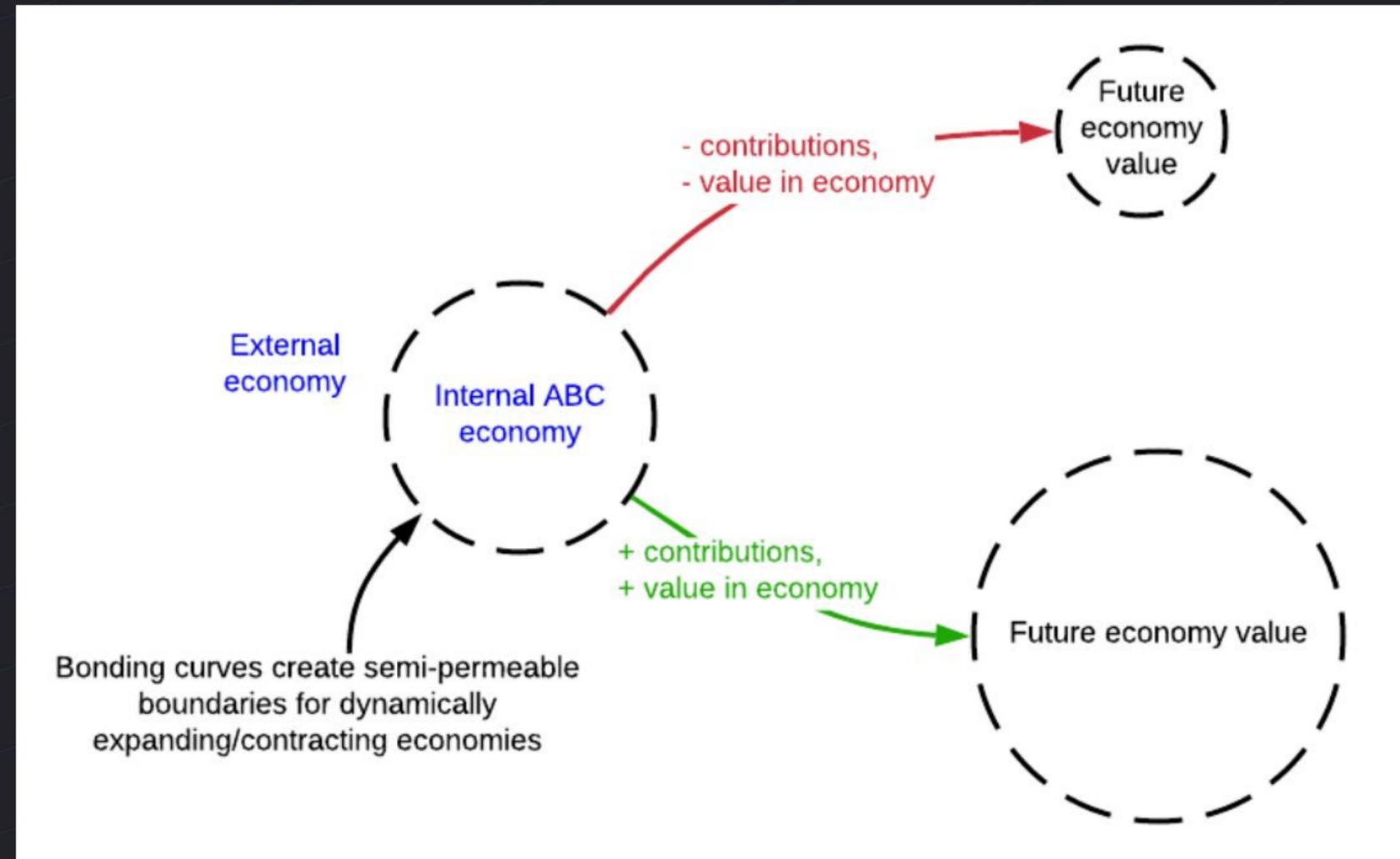
RESPIRATORY: "BREATHING" DYNAMIC CREDIT SUPPLY

- Primary issuance bonding curves can be seen as "supply discovery" mechanisms rather than "price discovery" mechanisms
- Dynamic supply issuance allows organizations to match supply of credits with demand for those credits on an ongoing basis
- Transaction fees from changes in supply feed common pool treasury



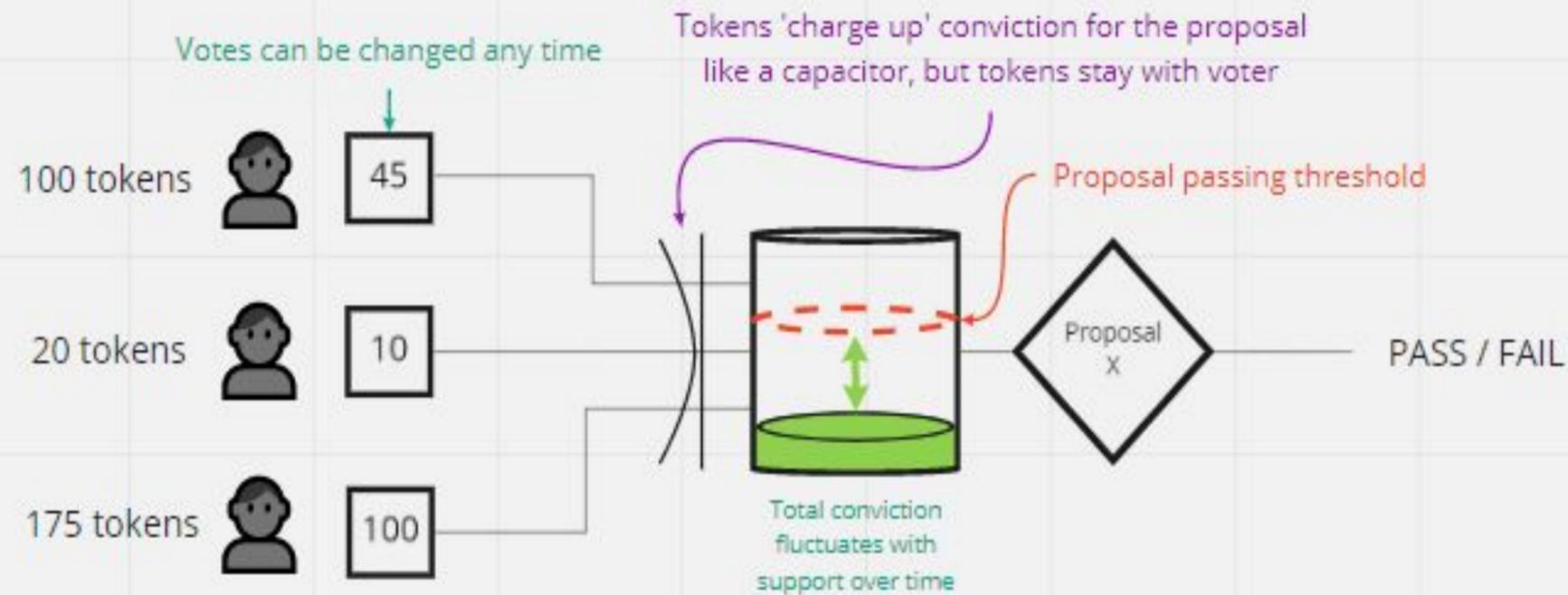
BONDING CURVES FACILITATE MANAGED DEGROWTH

- Bonding curves are not “up-only” tools
- They also allow for **predictable & managed decline** in an economic organism, without risking total collapse (the way most organizations go out of business today)
- Boundary conditions and graceful shutdown can be planned in advance
 - e.g. pro rata liquidation of assets to all stakeholders



NERVOUS: CV AS A NEURAL SIGNALLING TOOL

Real-time preference streaming

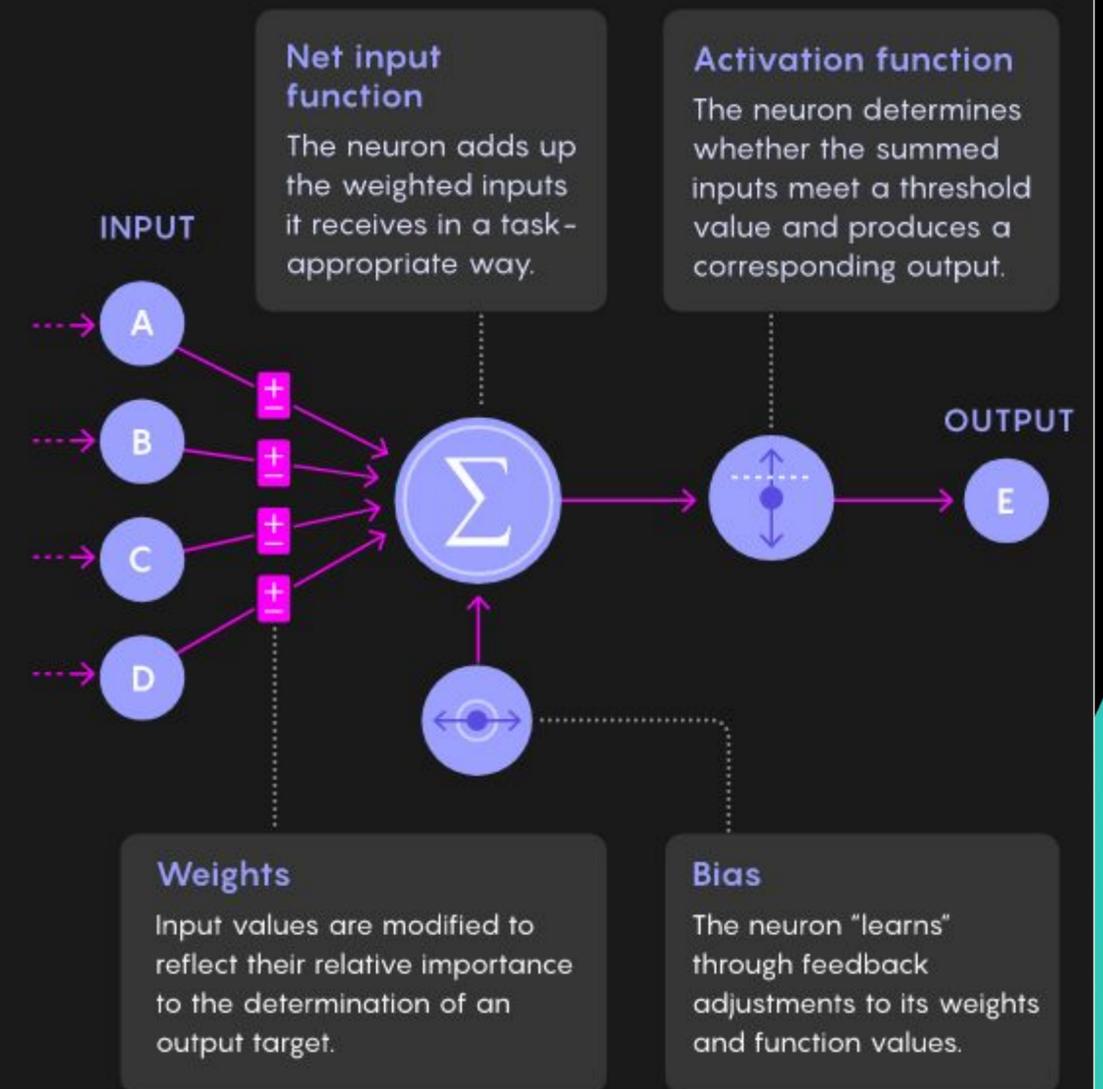


Qualities:

- Allows for continuous dynamic input
- Mitigates last minute vote swings
- Moves from consensus to consent-based decision making

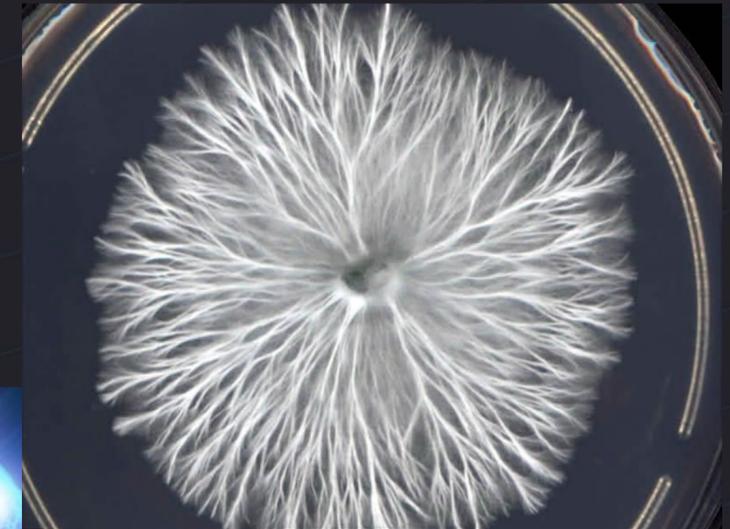
Simulating a Neuron

The interconnected devices in artificial neural networks conceptually resemble living neurons: Inputs from their “synapses” are weighted, tallied and translated into an output value.



EMULATING DISTRIBUTED DECISION MAKING IN NATURE

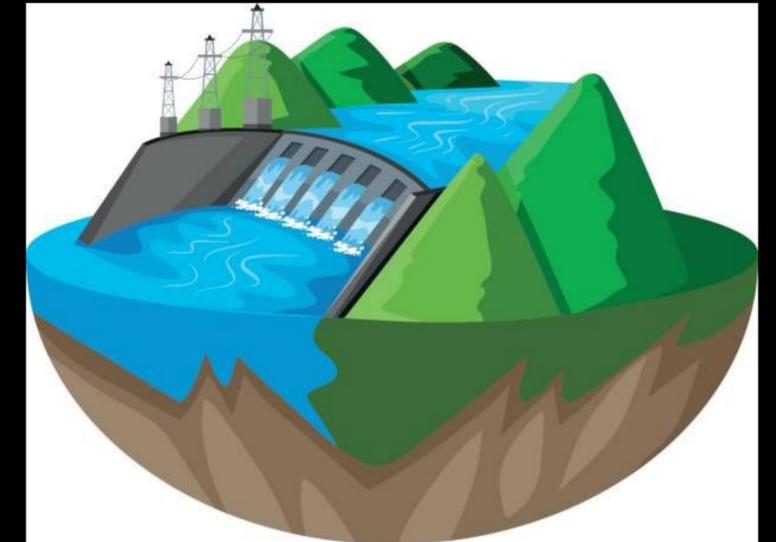
- How can we enable **collective decision-making**?
- Learn from self organizing systems that follow environmental cues
 - *Brain - neuron action potential*
 - *Mycelium - hyphae*
 - *Ant colonies - pheromone trails & TCP/IP*
- These systems use **continuous stigmergic coordination**



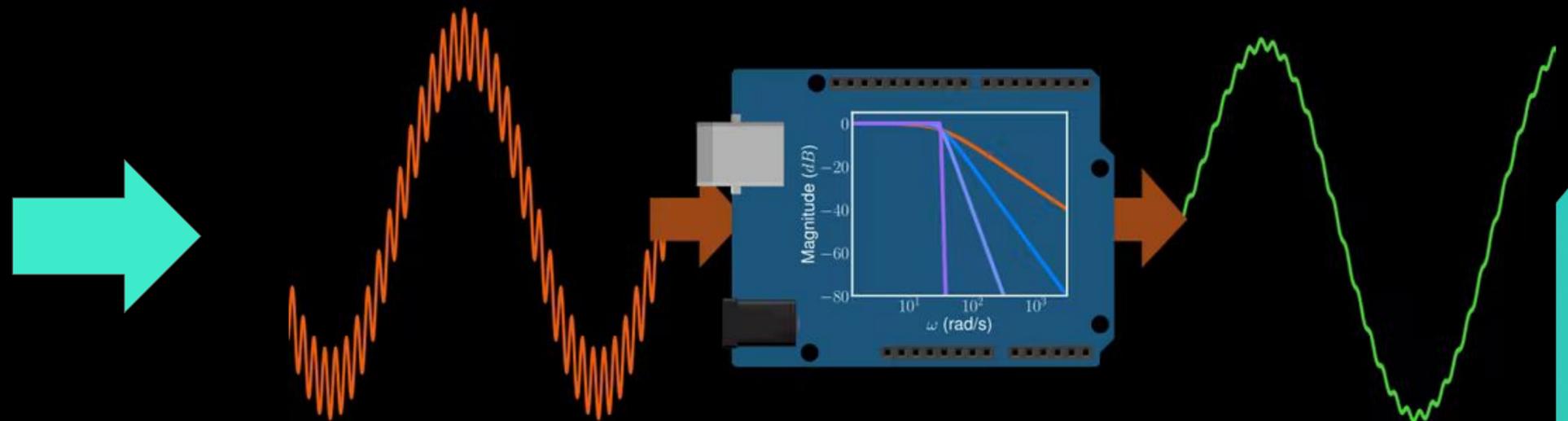
MIMICKING NATURE'S SIGNAL PROCESSING TOOLS

Examining 'Low Pass Filters' in natural systems:

- One of nature's most important signal processing mechanisms is the **INTEGRATOR**
 - Capacitor in electrical system (neuron in brain)
 - Spring in physical systems
 - Mass in biological systems
- Aggregating user preference signals over time



In signal processing, Low Pass Filters effectively dampen high frequency 'noise' to distill low frequency 'signal'



STACKING FNCTS PROVIDE COUNTERVAILING INCENTIVES



- Various stakeholders value different features of the credit, creating potential volatility in token price which accumulates to project treasury.

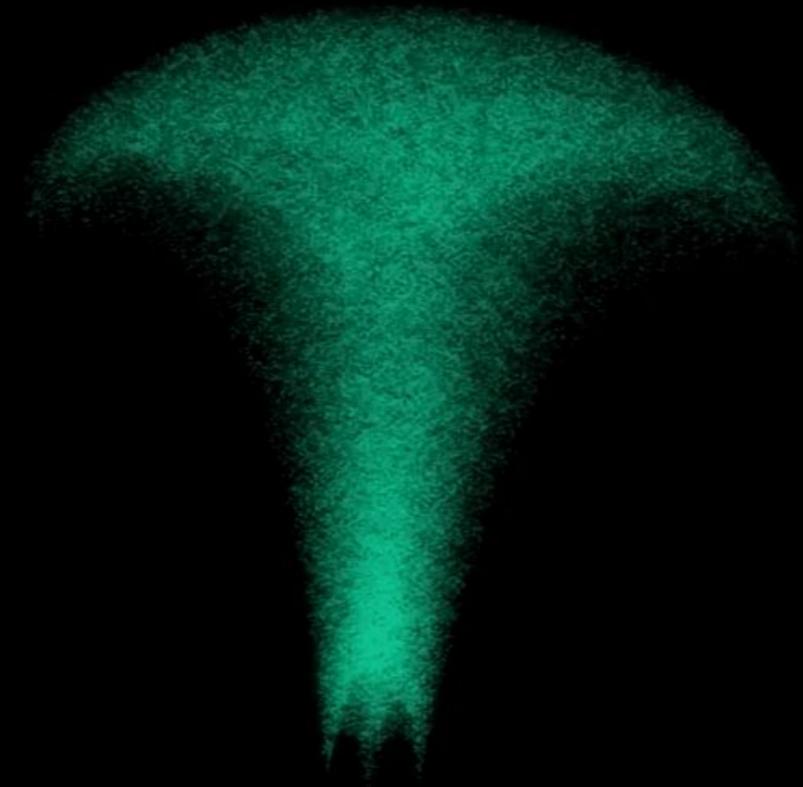
RIGHT-SIZED GROWTH, POWERED BY VOLATILITY

- Or as our friends at ECSA might say: “living in the spread”
- Leveraging cyclical flows & volatility to power forward discovery
- Leaves stigmergic discovery pathways for future exploration



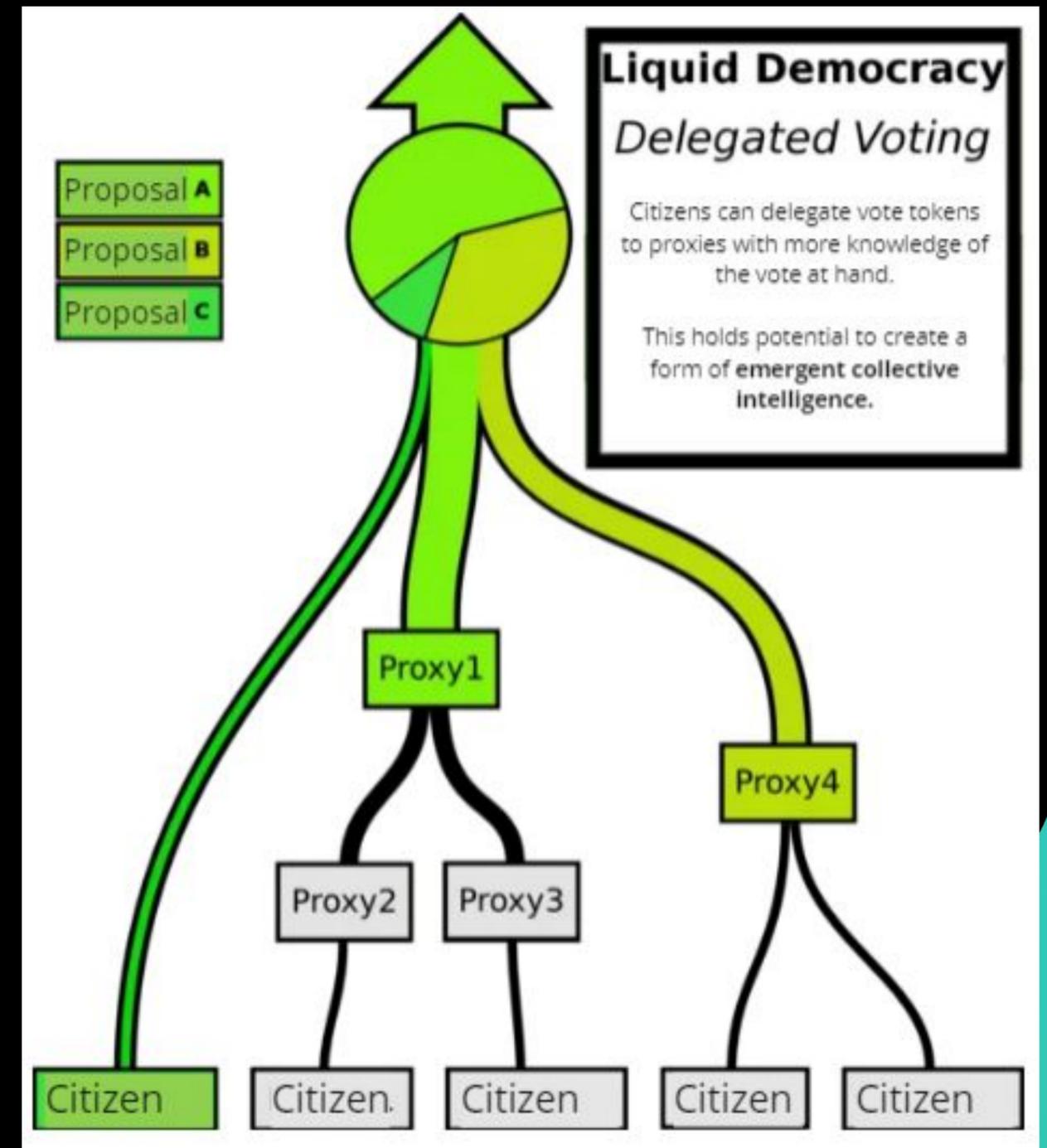
IMMUNITY: CUMULATIVE TRUST DELEGATION OVER TIME

- **Osmotic Governance**
 - **Combines Conviction mechanism & delegated democracy**
 - **Delegate voting weights grow & decay over time**
- **Permitting 'trust' (i.e. decision making weight) to flow around and accumulate with agents in the network based on reputation, expertise, or performance**



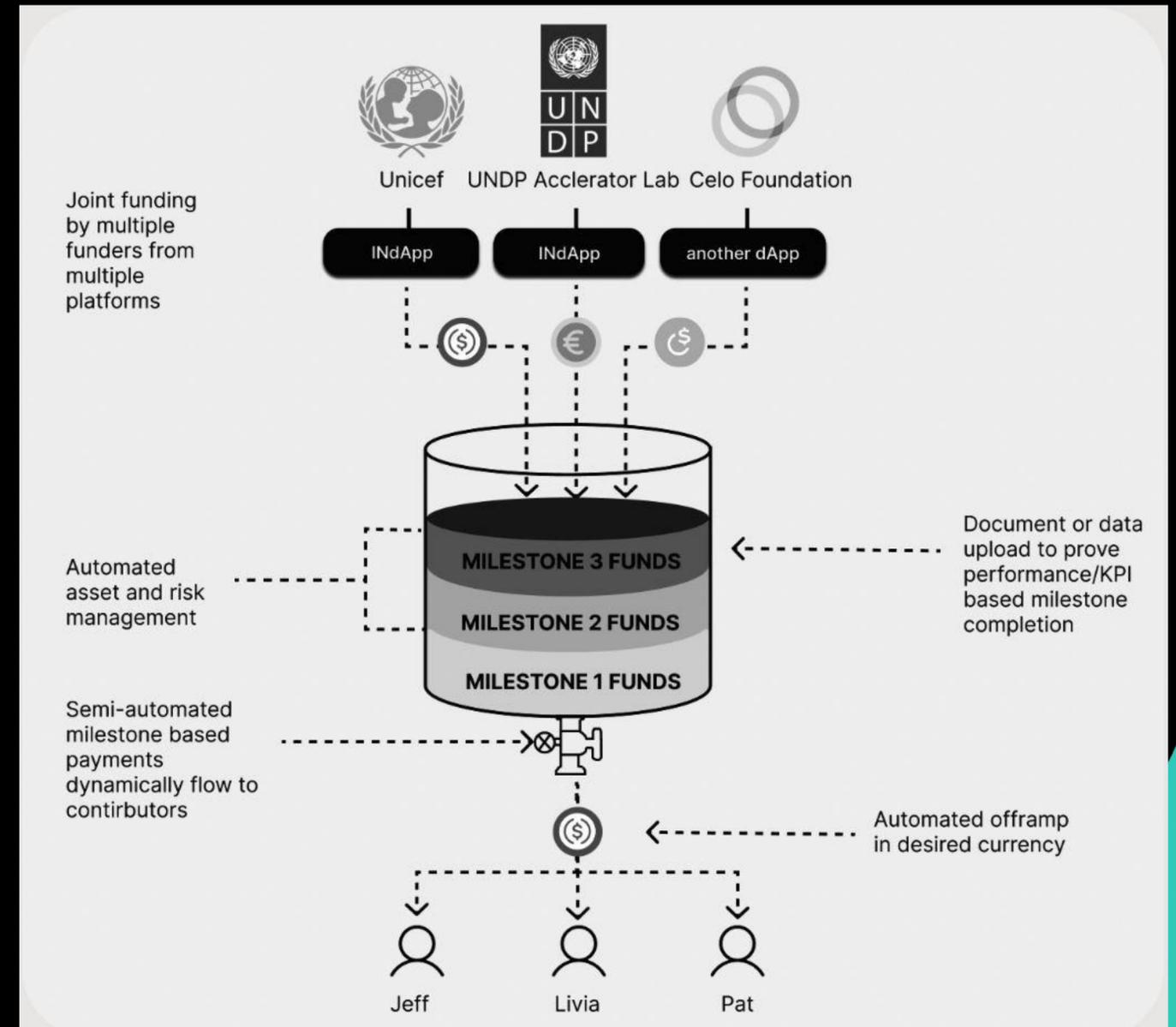
'VISCOSITY' AS A PARAMETER IN FLUID DELEGATIONS

- Different decisions need to be made at different speeds in collective organisms
 - e.g. Bills need to get passed faster than representatives get voted in or out
- Decision-making weight should gain & fade with dynamic feedback, rather than representatives going from 0% to 100% power
- 'Viscosity' as a tunable parameter



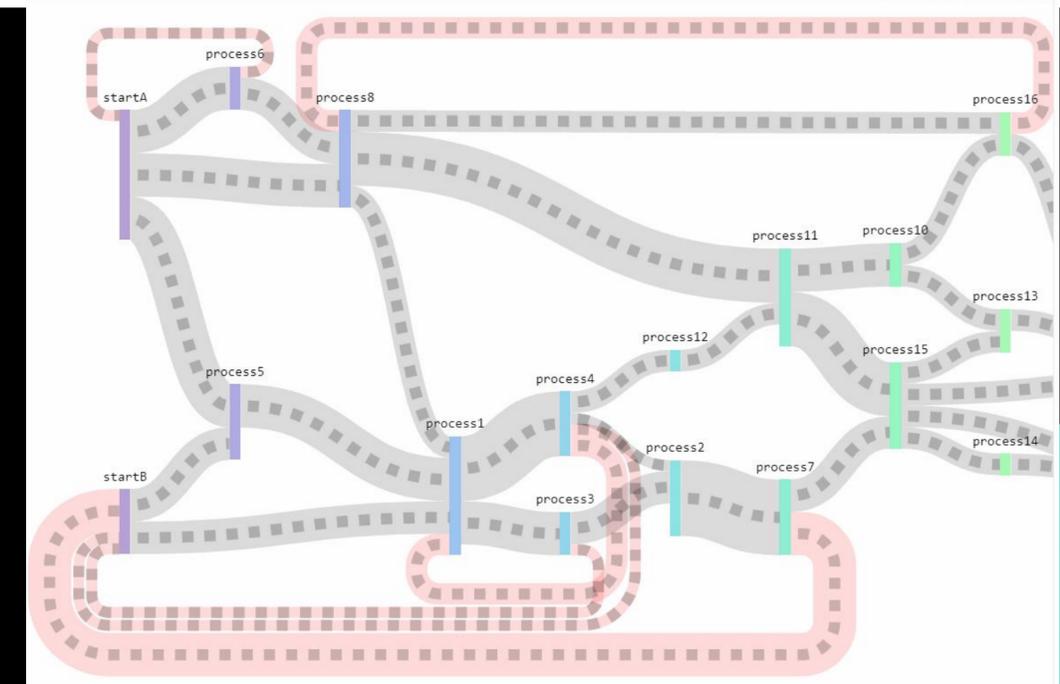
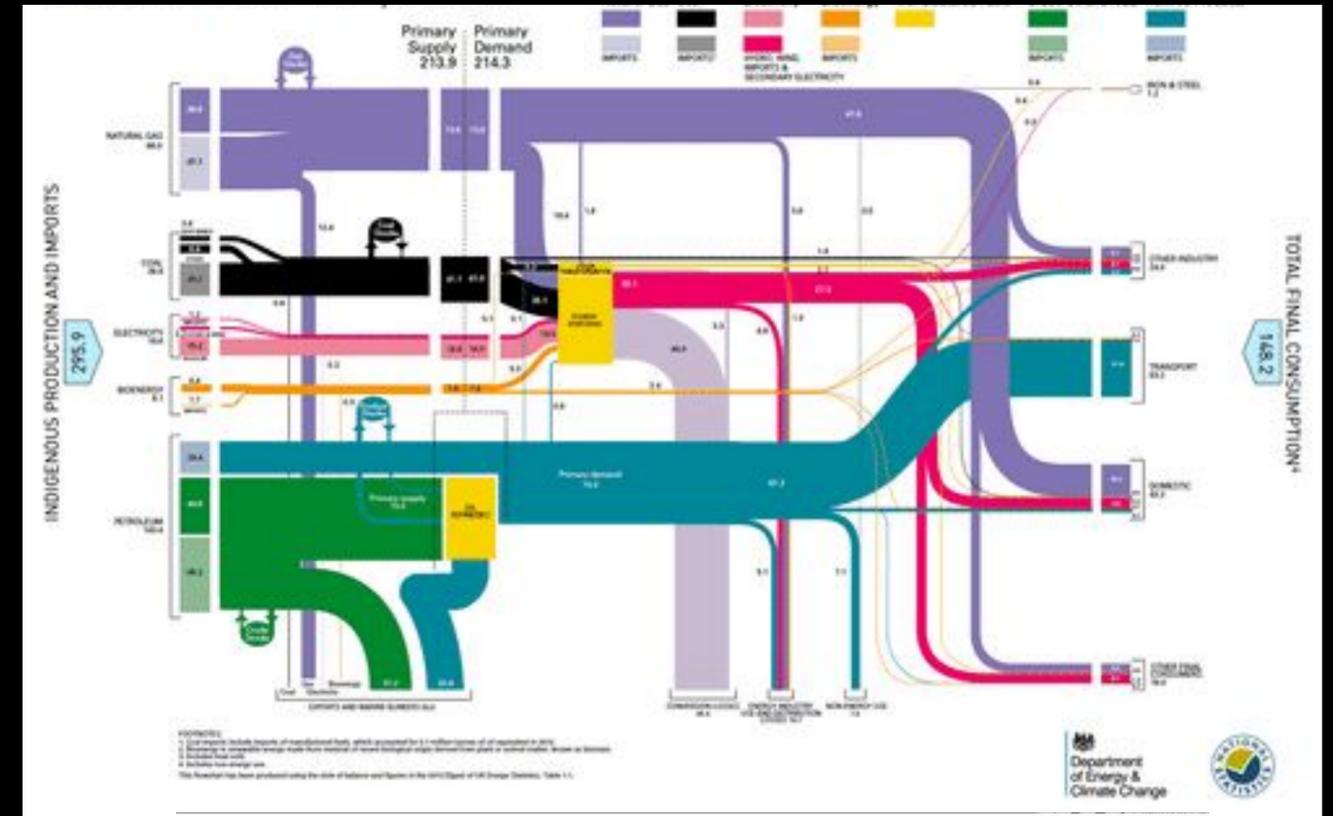
CIRCULATORY: MANAGING INTERNAL RESOURCE FLOWS

- **Inverter protocol** as a tool to aggregate funding from multiple sources and automate streams to productive contributors to reduce operational overhead
- **Continuous internal distribution of resources** throughout the organization is necessary for it to stay healthy



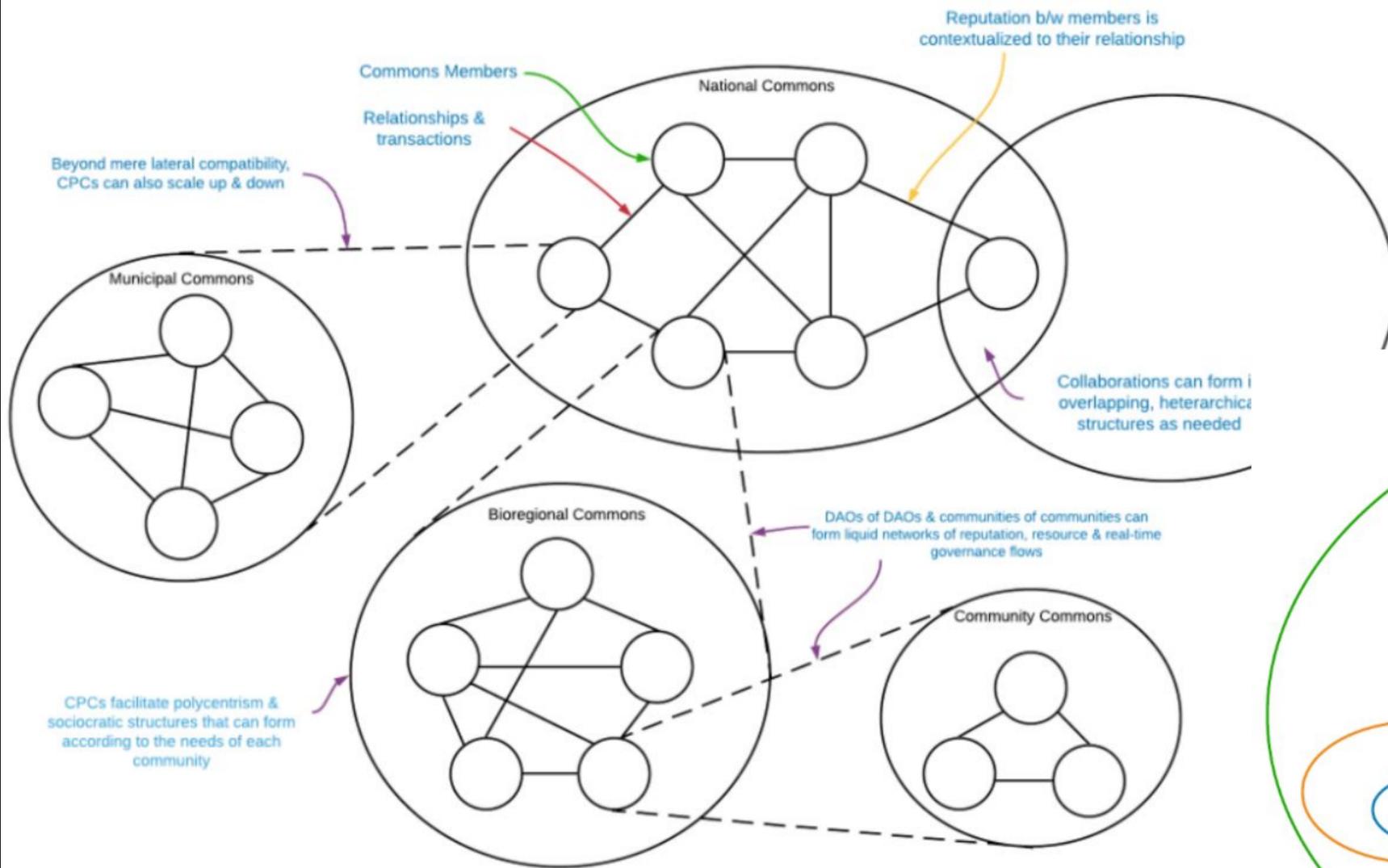
THE RESULT? MORE RESPONSIVE INSTITUTIONAL FORMS

- These days, our problems seem to crop up faster than we can address them
- We need more **fluid & emergent ways to deal with multiple converging crises**
- We need to lower barriers to access for collective crowdfunding. We need better social signal processing tools.
- Relocalizing decisions around delegates & collaborative funding could open new doors for effective **grassroot democracy**



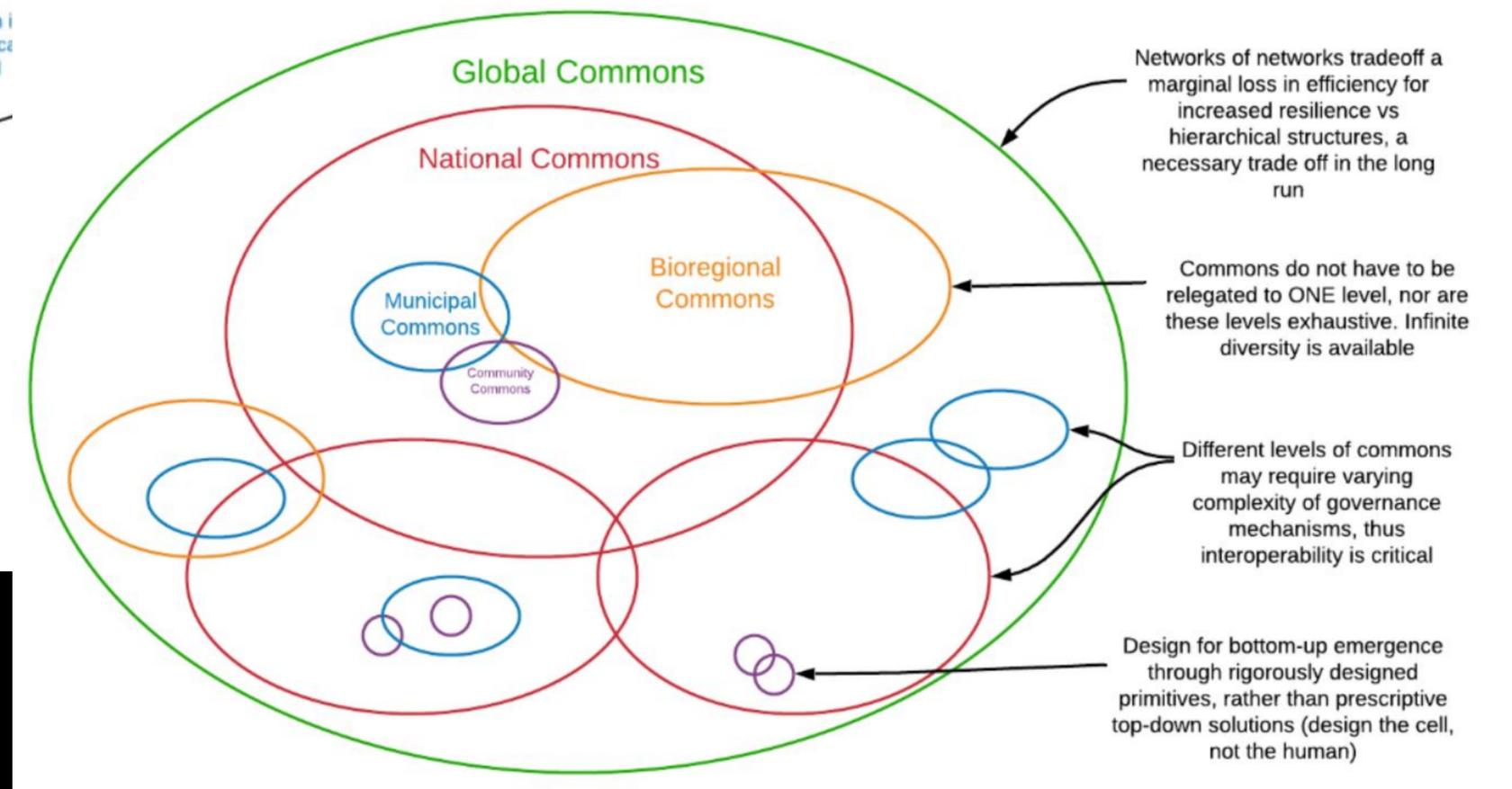
ALIGNING HUMAN & NATURAL SYSTEMS

A Future of Cyber-Physical Commons (CPCs):
Allowing Federated, Polycentric Institutional Interoperability



- Emphasizing the power BETWEEN DAOs rather than within DAOs
- Proportional flow and recognition of values across ecosystems

(Not because it's cool, but because it's evolutionarily tested!)



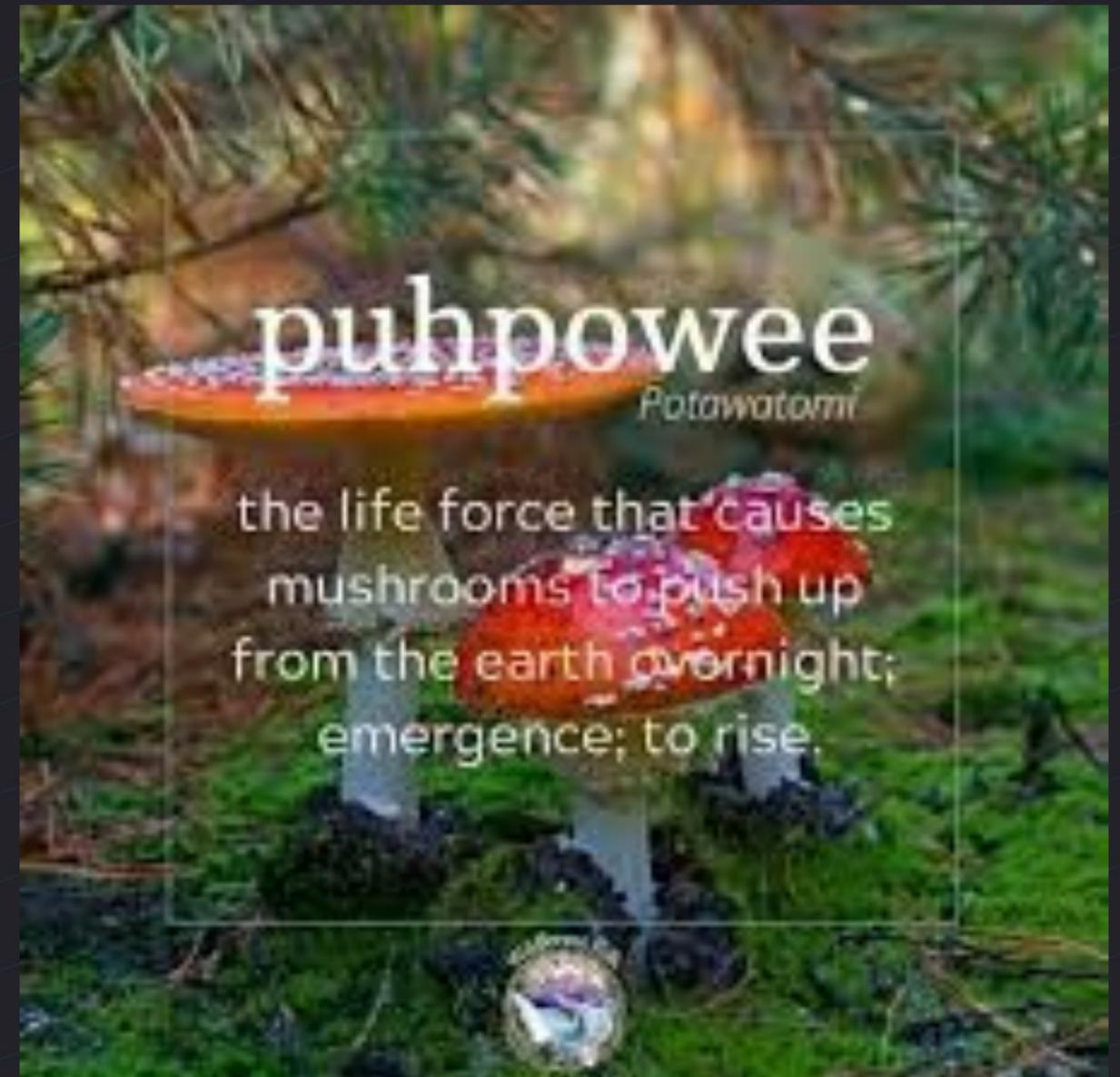
MUSHROOMS ARE PATIENT WITH ECOSYSTEM SUCCESSION

- **Transition path awareness**
 - Centralized credit issuance (yesterday) >> Collective credit issuance (today) >> Individual credit issuance (tomorrow)
- **We aren't 'there' yet.***
 - Compromises are needed in the short term that won't be necessary in the long run
 - Bridges to existing capitalist systems, controlled on-ramps & off-ramps to fiat
 - Until enough goods & services are in endogenous credit systems, people will still need money for stuff
- **Full lifecycle planning** vs “move fast & break things”
 - Ecosystem genesis, bootstrapping, maturity, safety measures, graceful wind-down

*Spoiler alert: There is no 'there' anyway. Discovery over “progress”, remember?

A PARTING THOUGHT ON FLOW & EMERGENCE

- Mycelium spends most of its time **networking, gathering strength out of sight & underground**
- When mycelium fruits into mushrooms, it **emerges in a very short time and with incredible power**, especially for such soft & squishy beings
- There is a Potowatomi word for the force exerted by a mushroom when it fruits...



GO FORTH AND PUHPOWEE

The entrenched structures of ineffective legacy systems may seem difficult to breach...



Until you unlock the power of collaborative finance & networked resource distribution

PUH

POWIE

THE REVOLUTION WILL BE MYCELIAL



Become
ungovernable



DISOBEY

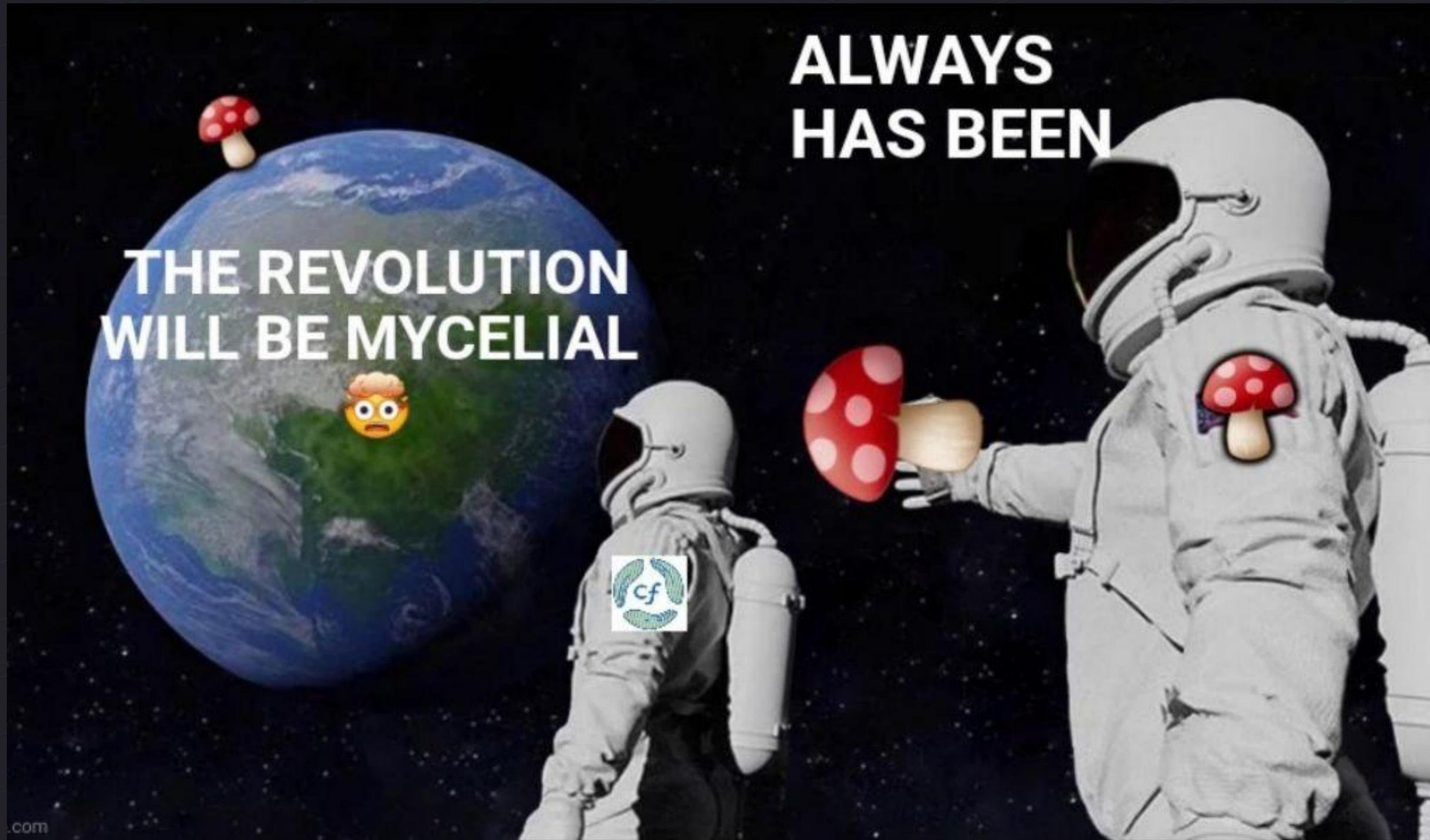
YOU CANNOT KILL ME IN
ANY WAY THAT MATTERS

A simple line drawing of a cluster of purple mushrooms with white stems and gills, growing from a small patch of ground.

MUSHROOMS
AGAINST
CAPITALISM

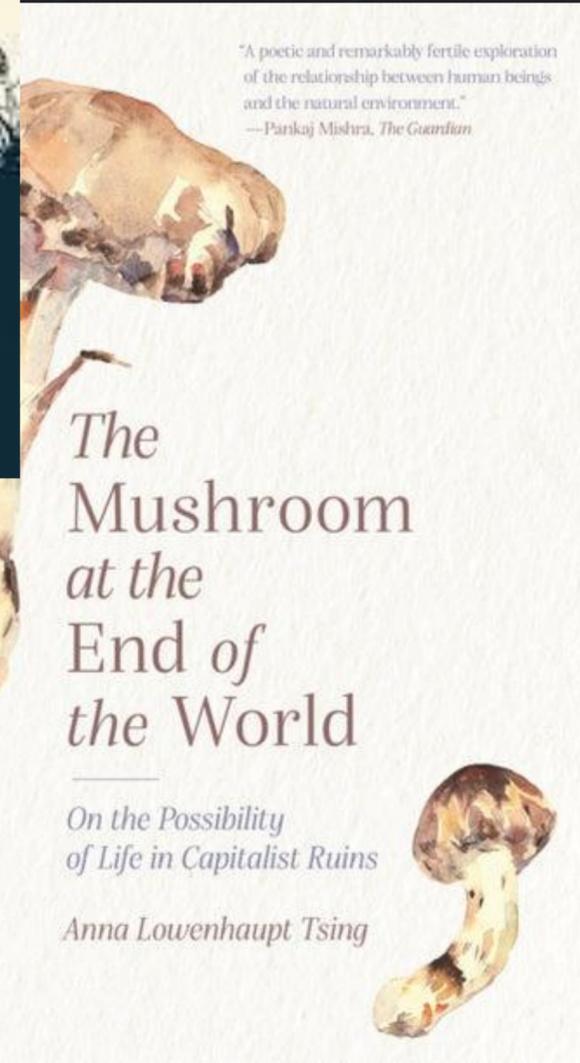
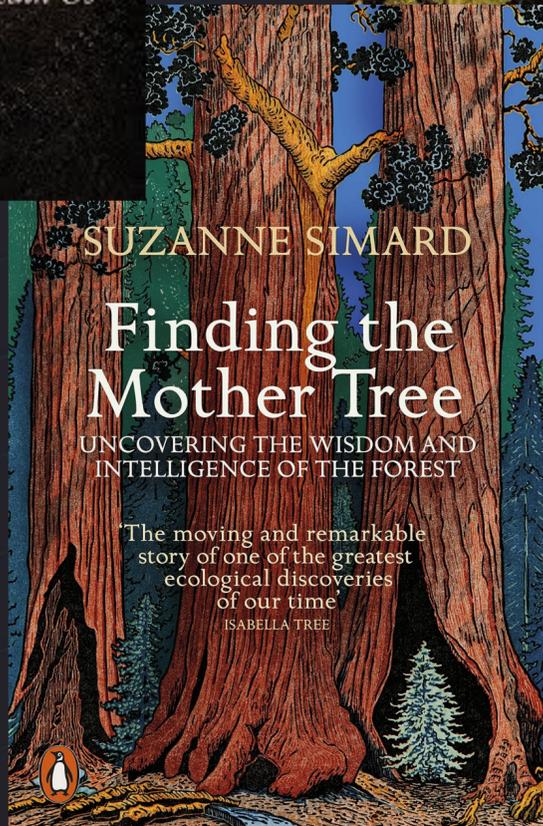
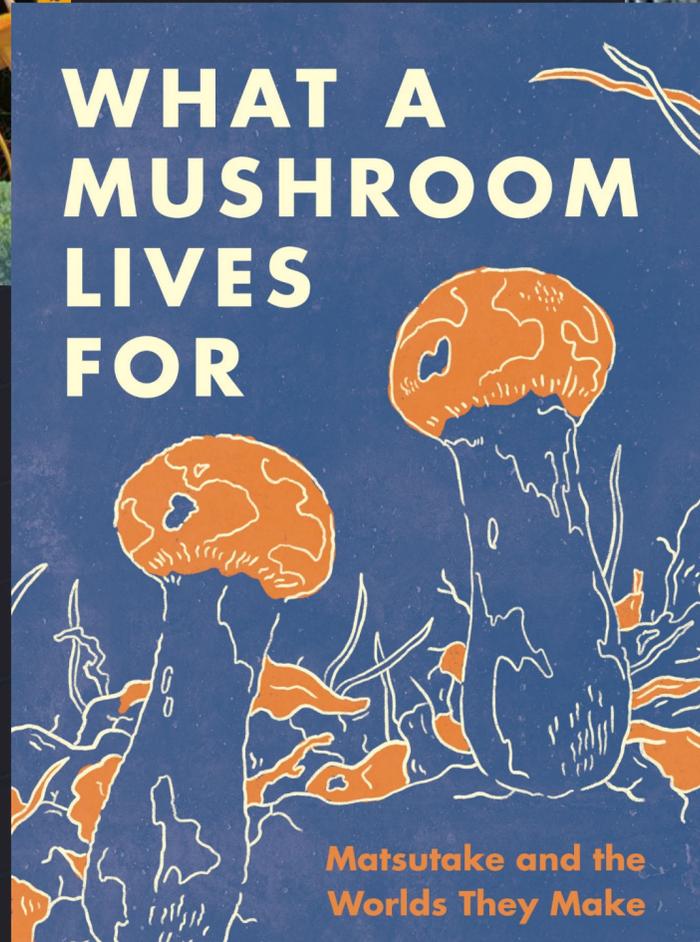
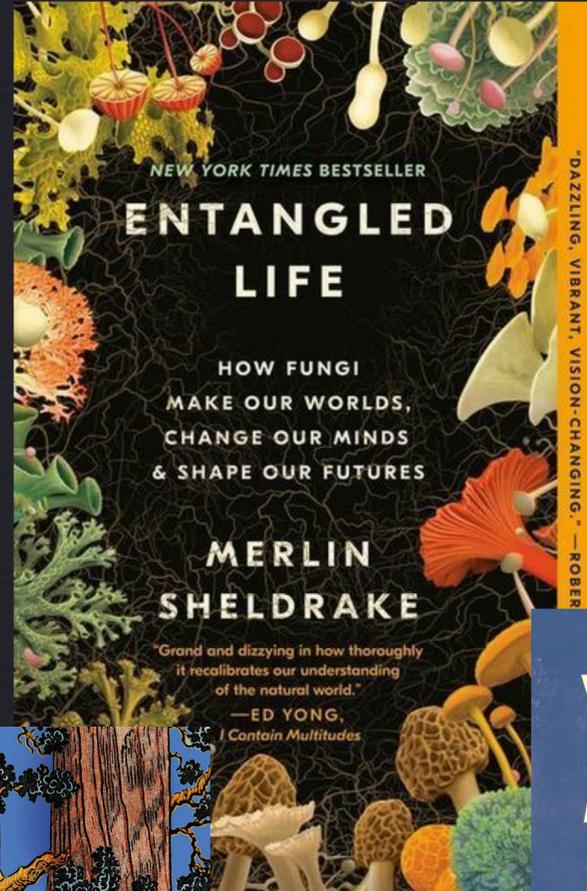
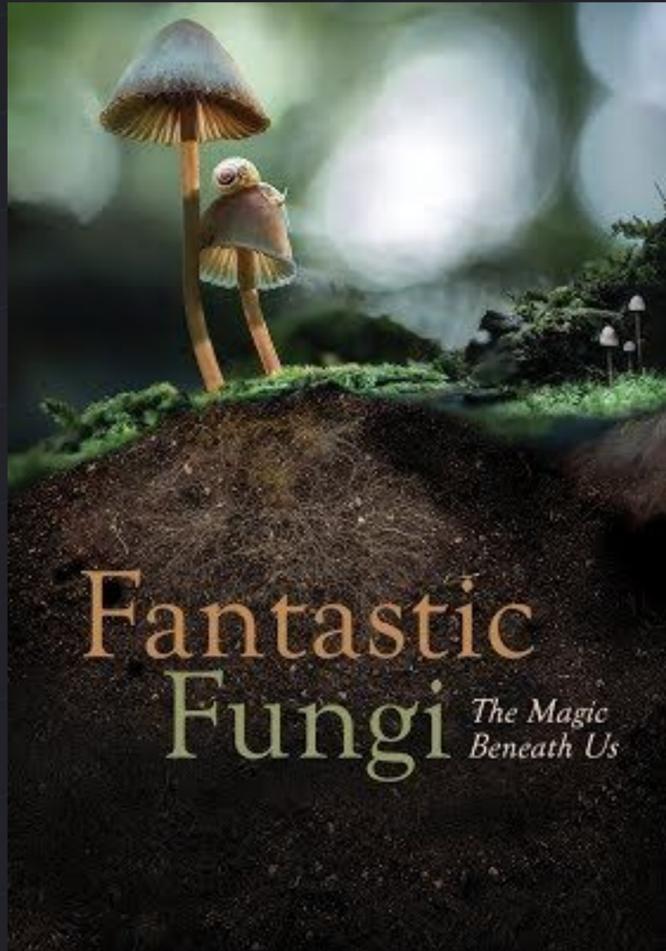


WORTH SAYING TWICE BECAUSE IT'S PROBABLY TRUE



This time in meme form (you're welcome Guilio)

RECOMMENDED #MYCOPUNK READING



SOLARPUNK? LUNARPUNK? HOW ABOUT #MYCOPUNK

Between the dualistic dichotomies of
#Solarpunk and #Lunarpunk...

The pluralistic banner of #Mycopunk is
available for all those who feel more
comfortable with liminal non-ideologies.



ONE DOES NOT SIMPLY

BECOME A #MYCOPUNK

imgflip.com

ONE CAN ONLY COME TO REALIZE

ONE WAS A #MYCOPUNK ALL ALONG

imgflip.com



LET'S GET ROOTED

- #Mycopunk Discord:
<https://discord.gg/D5sSsxZxUz>
- SocialRoots forum:
<https://socialroots.wicked.coop/invitation?q=6d45e7f1606611ed9db292bf29ebef38&k=c13f64>
- Gitbook of collaborative principles:
<https://mycopunks.gitbook.io/mycopunk-principles/>
- Team Human podcast:
<https://www.teamhuman.fm/episodes/238-jeff-emmett>



#MYCOPUNK PRINCIPLES

 REGENERATIVE

 REDISTRIBUTIVE

 NETWORKED

 HUMBLE

 ANTI-FRAGILE

 SNEAKY AF

 FRACTAL

 DYNAMIC

 MUTUALIST

 OPTIMISTIC

 EMERGENT

 UBIQUITOUS

 POLYCENTRIC

<YOUR PRINCIPLE HERE>

<https://mycopunks.gitbook.io/mycopunk-principles/>