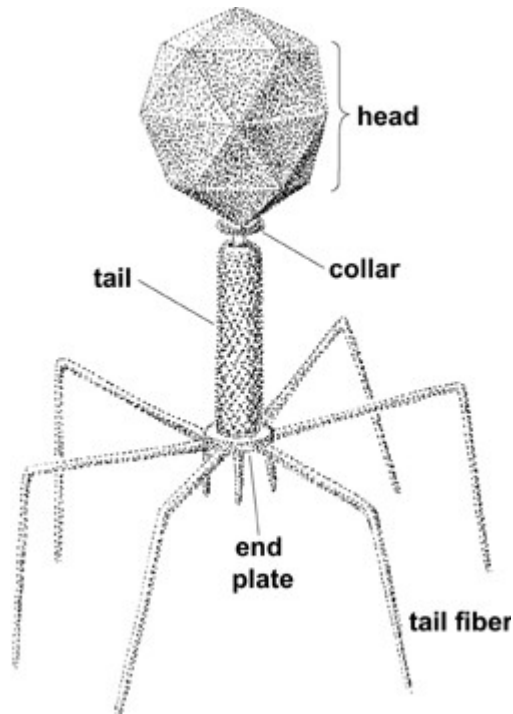


# Bio(idéo)logies

éléments de réflexion pour le biohacker

Emmanuel Ferrand / Free Fermentology Foundation



# Bio(idéo)logies

éléments de réflexion pour le biohacker

- Science du vivant ou sciences de l'ingénieur ?
- Le vivant n'a pas peur de la mort
- Le vivant est vieux de plus de 30000000000 ans
- Le biohacker, ancêtre du hacker
- Manger vivant
- De quoi le biomimétisme est-il le nom ?
- Eco-conservatisme, éco-fascisme.

# Le vivant nouvelle frontière du capitalisme



CRISPR Cas9

# Modern Meadow



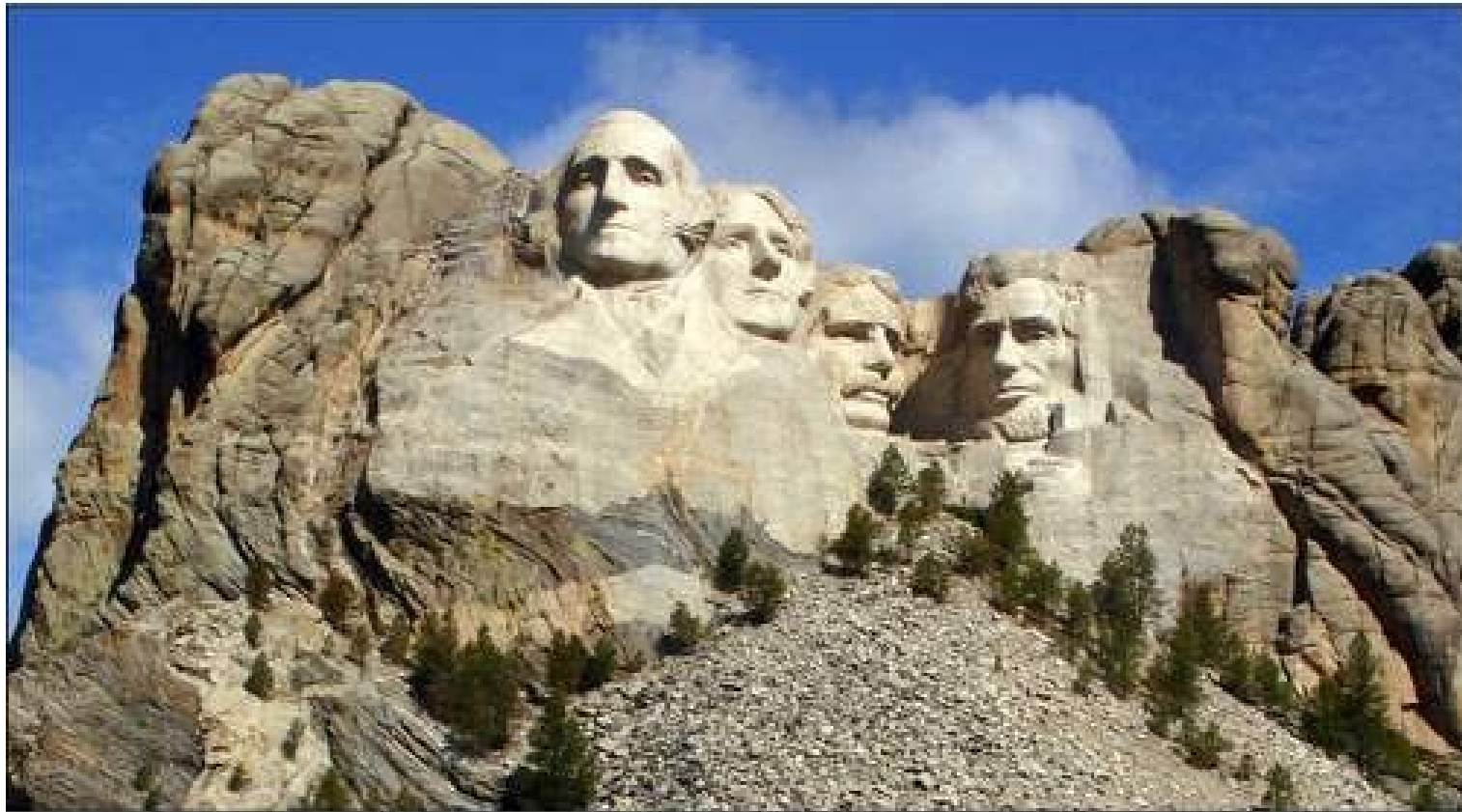
Modern meadow

**We are developing cultured animal products with no animal slaughter and much lower use of land, water, energy and chemicals.**



Illusoire ingénierie du vivant

# INTELLIGENT DESIGN THEORY



***The study of patterns in nature  
that are best explained as the  
result of intelligence***

# Religion vs. Science Update

New theory suggests some dinosaurs couldn't sin ...

Print

## The Excess Democrat

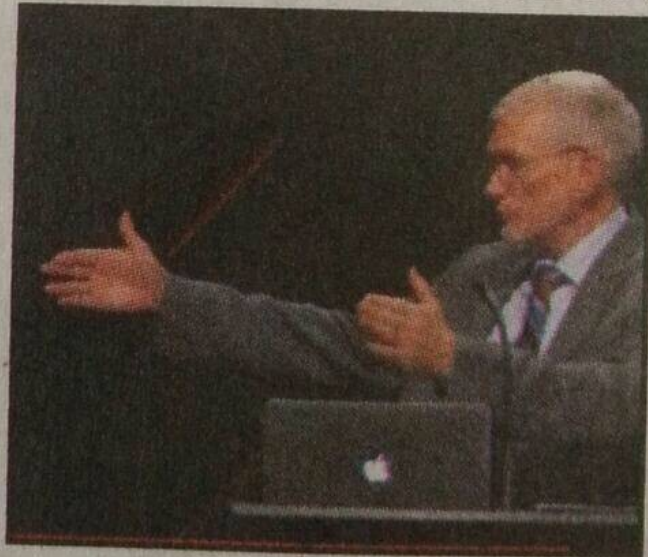
... with  
temperatur  
in the 40s to

BEST NEWSPAPER

Friday, February 14, 2014

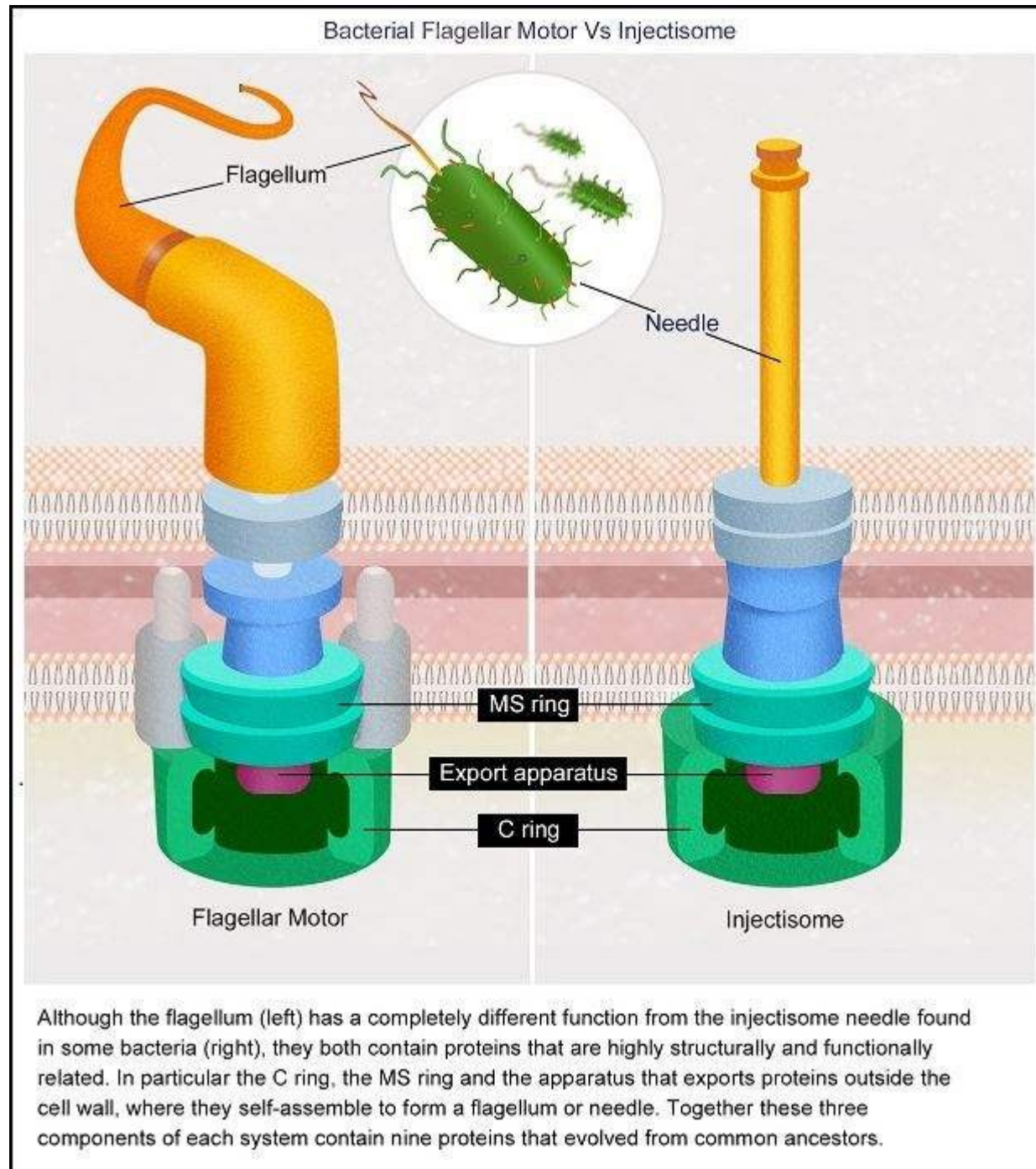
\$1.25

# CREATIONIST: T-REX HAD TINY ARMS SO IT COULDN'T MASTURBATE PROOF OF MORAL INTELLIGENT DESIGN



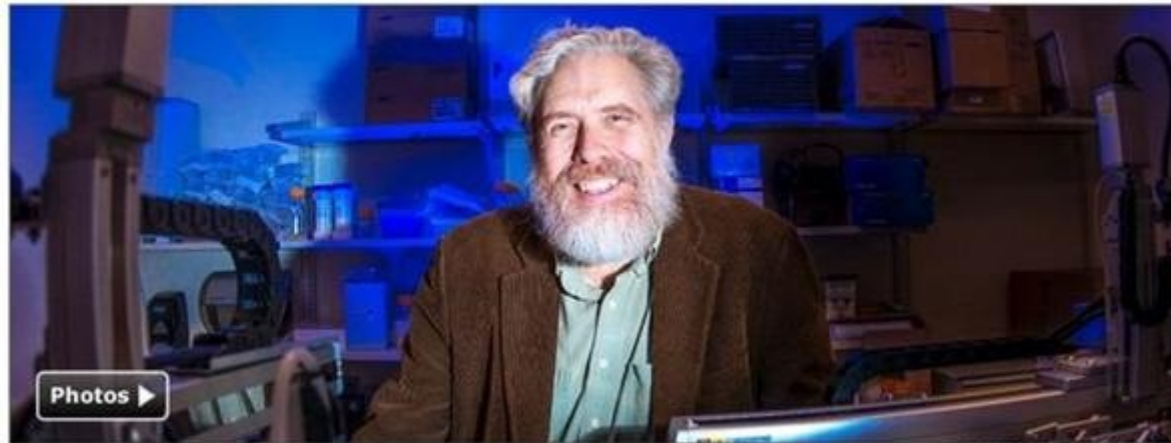
l to [dasmussen@sfchronicle](mailto:dasmussen@sfchronicle).

# Le vivant comme machine et comme usine





**Interview with George Church: Can Neanderthals Be Brought Back from the Dead?**

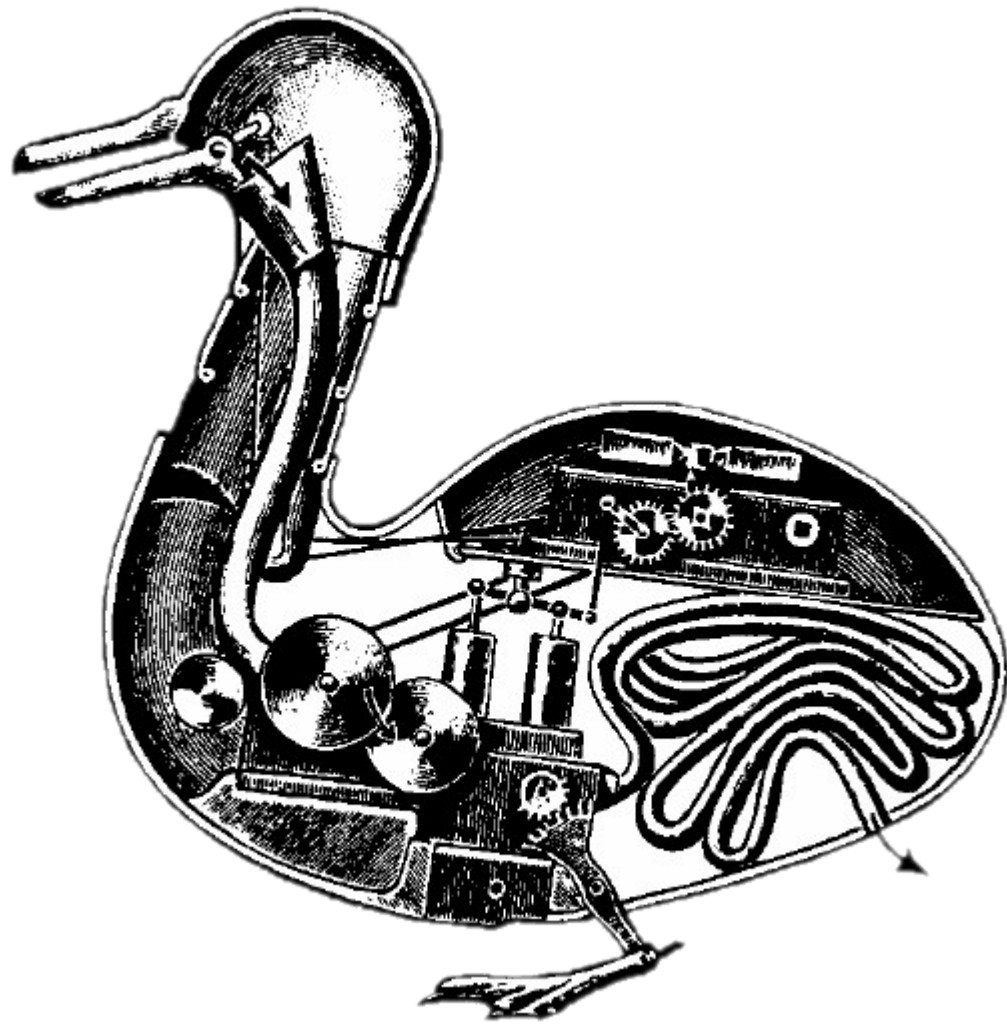


Rick Friedman/ DER SPIEGEL

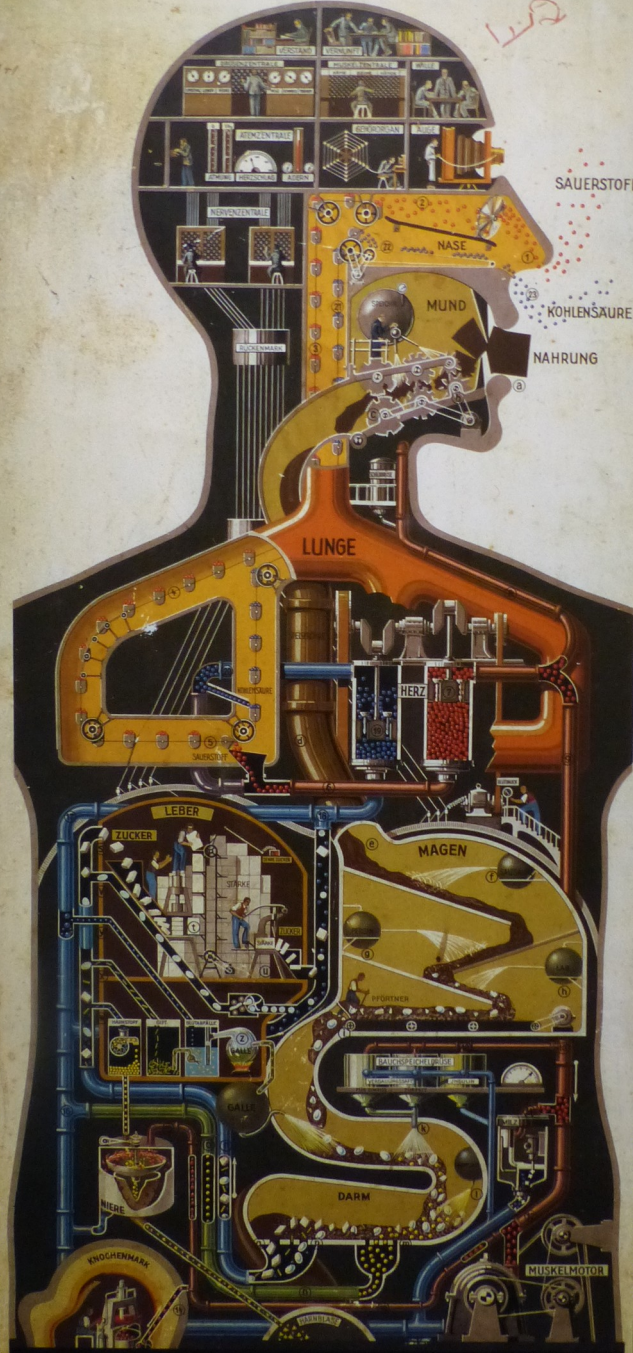
Part 2: Is Church Playing God?

Le vivant et son système d'exploitation

Le cellule comme usine,  
le vivant comme machine



# Der Mensch als Industriepalast



ISBN 3-88474-294-9  
Foto: Frank B. Keller  
© Westfälisches Schulmuseum der Stadt Dortmund

Kletttext

Medizinhistorische Sammlung  
der Ruhr-Universität Bochum





Dr. Laurent Alexandre

**LA  
MORT  
DE LA  
MORT**

Comment la technomédecine  
va bouleverser l'humanité

JClattès

# Systemes complexes en évolution

- Le vivant n'a ni but ni programme.
- Le vivant n'optimise pas.
- Le vivant n'a pas peur de la mort.
- Et pourtant il est très vieux :  $3 \cdot 10^9$  ans...

# Chaos, émergence, équilibres dynamiques



Depuis la soupe prébiotique,  
une perpétuelle évolution.

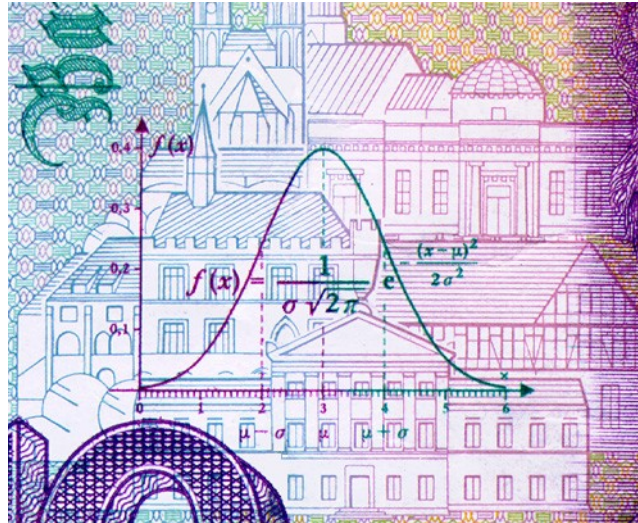


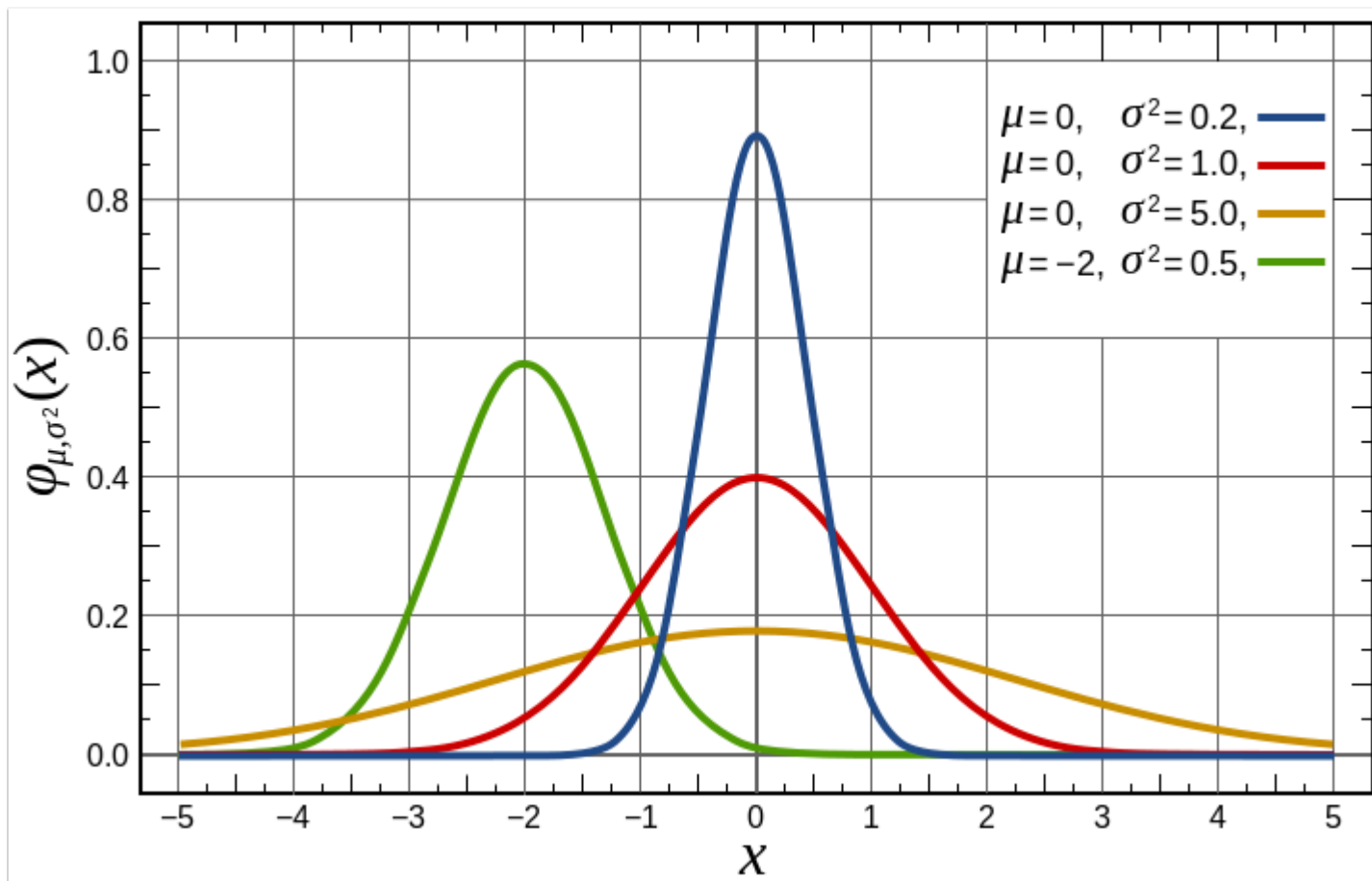


## Paul Stamets et l'internet des champignons

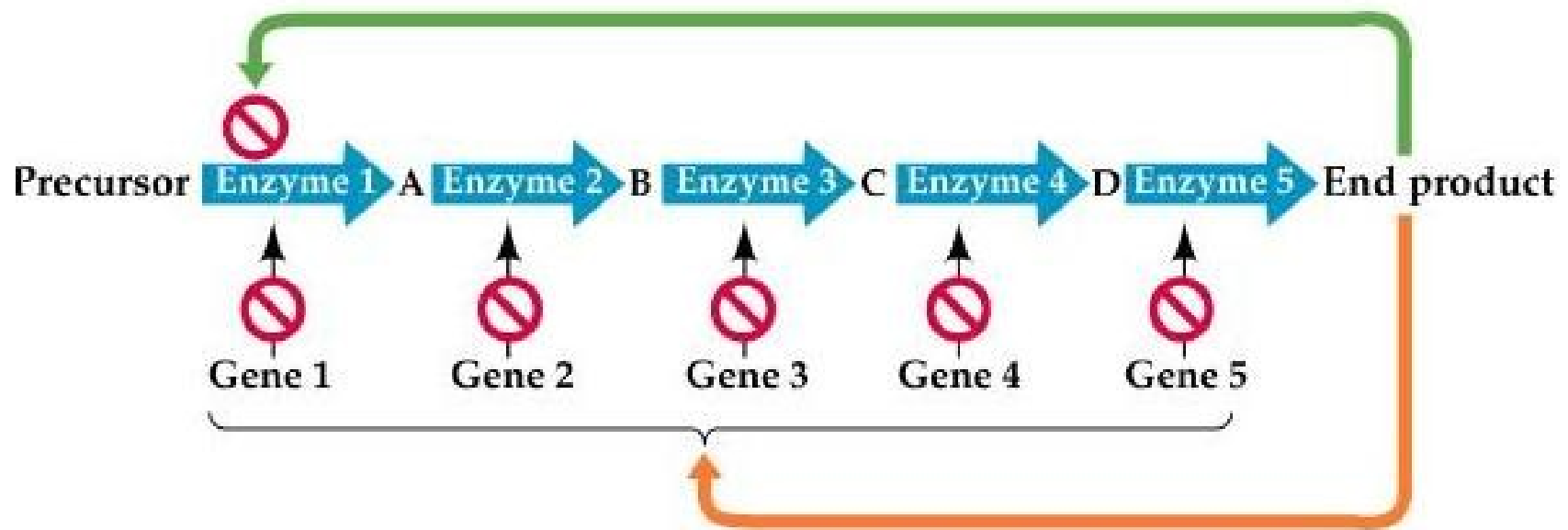






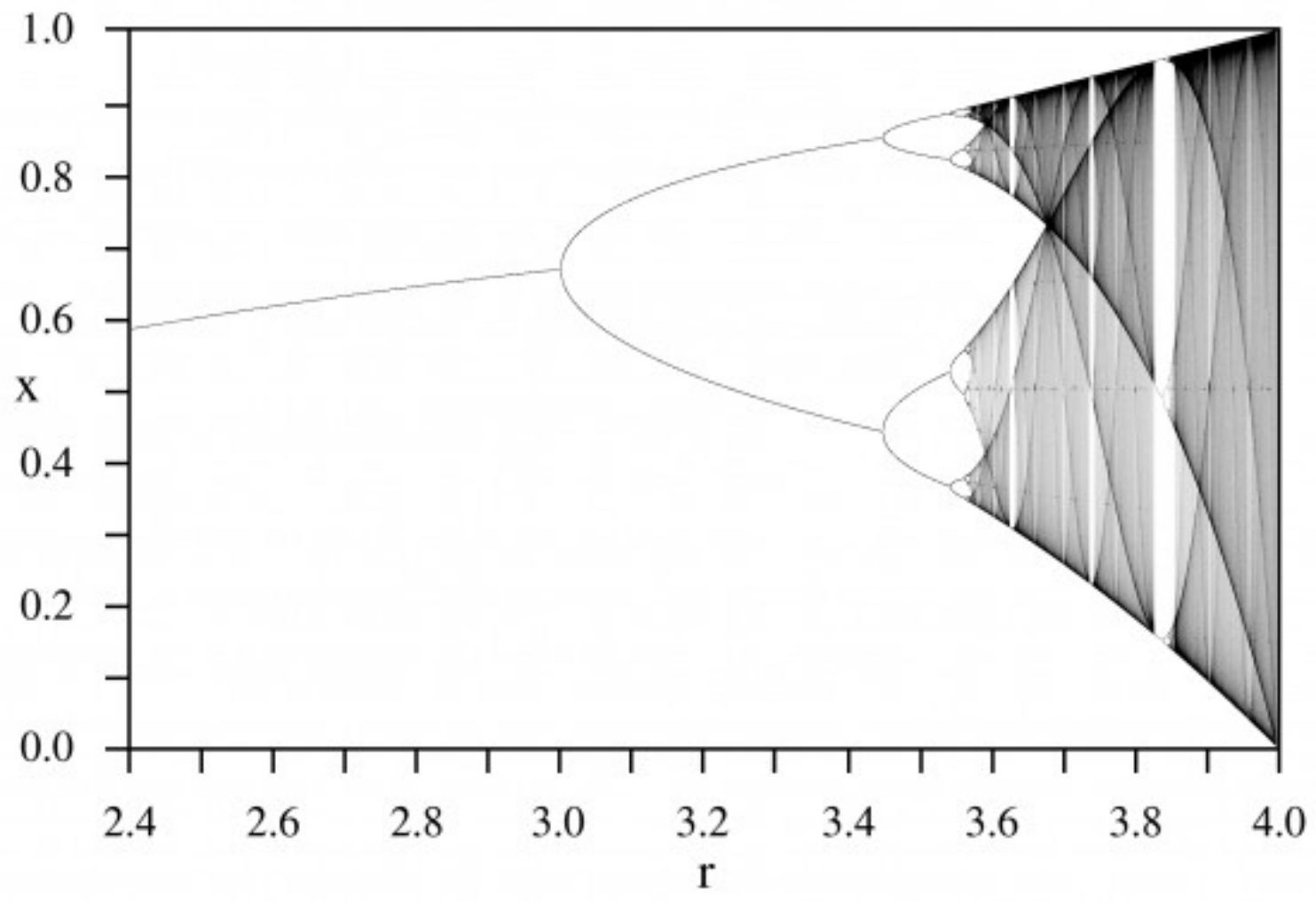


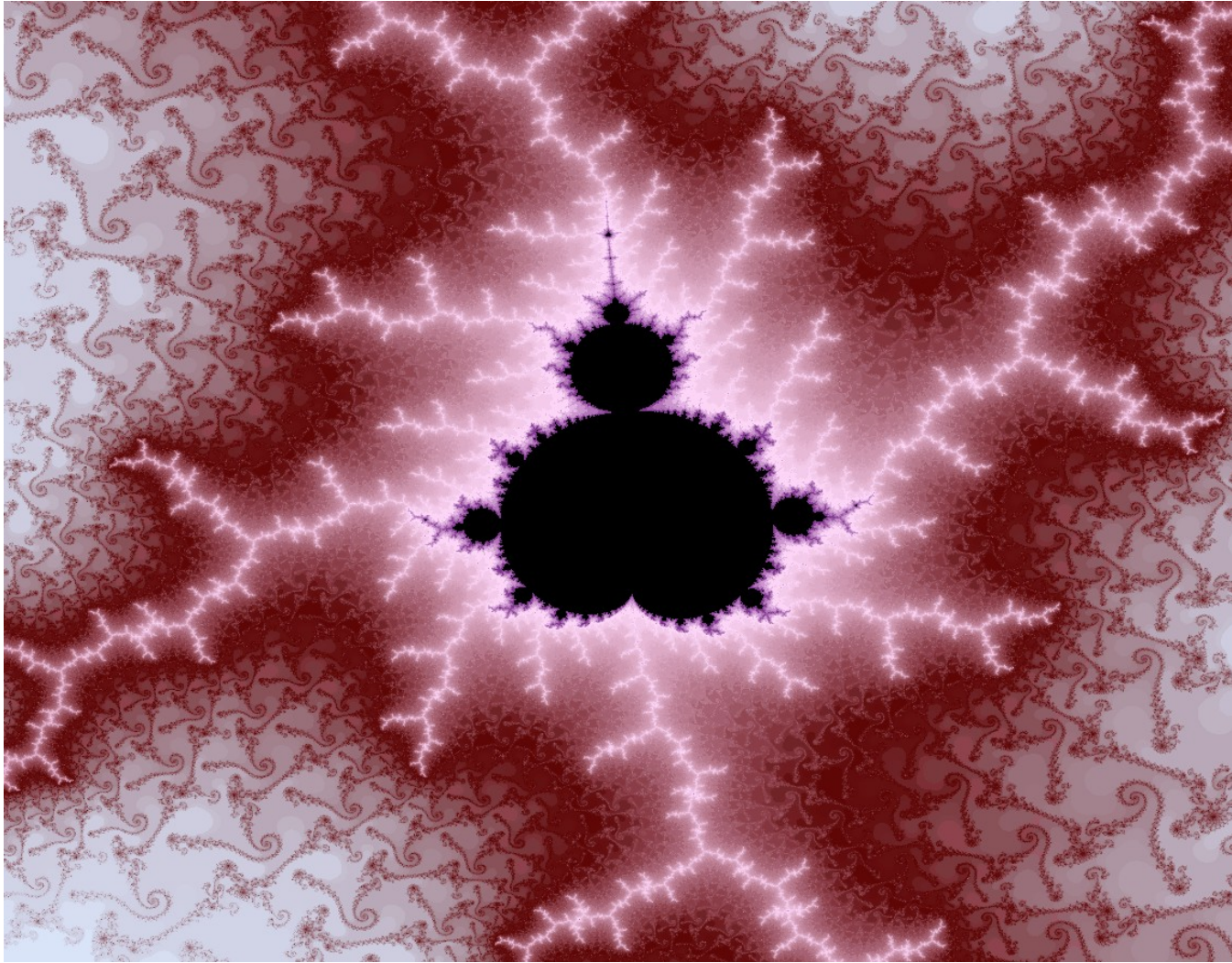
(1) End product inhibits enzyme 1

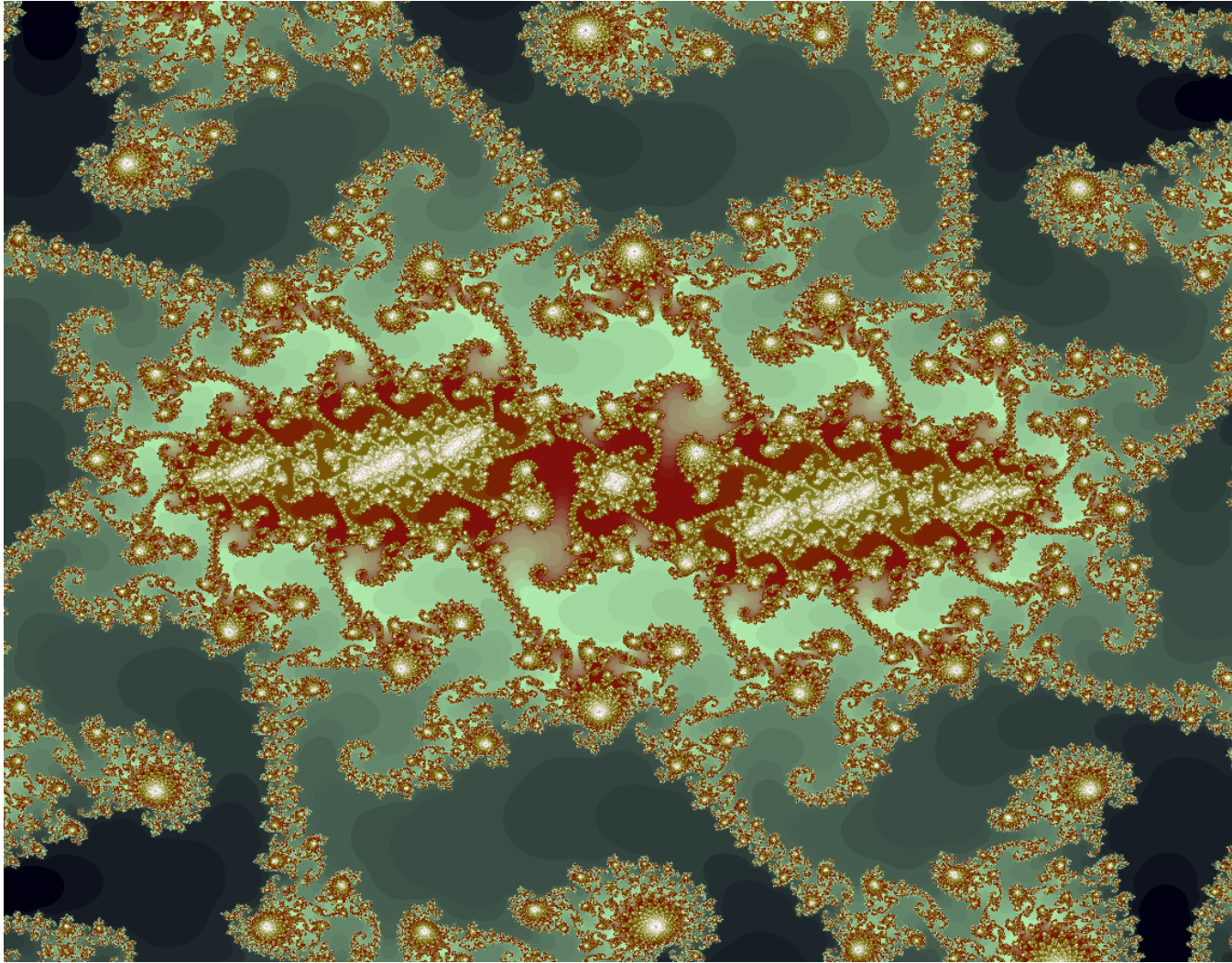


(2) End product blocks gene transcription



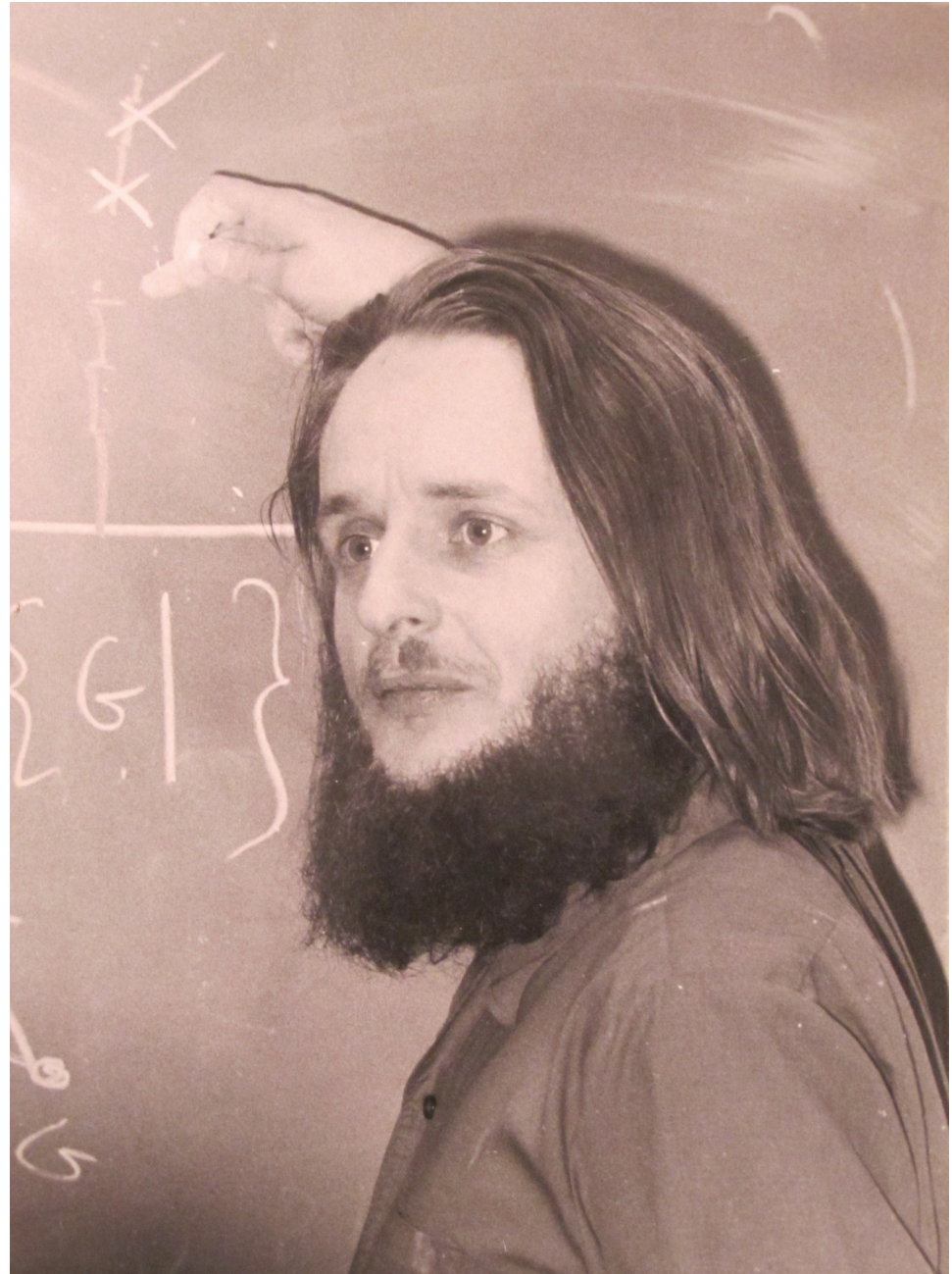
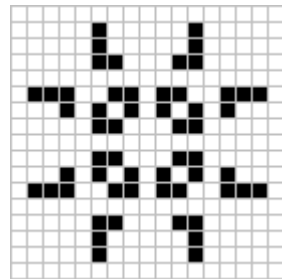
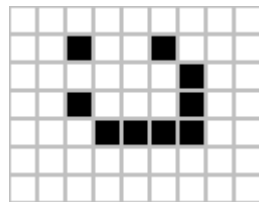
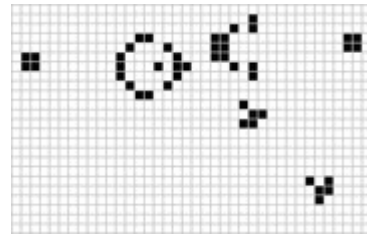
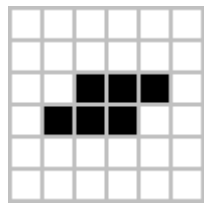
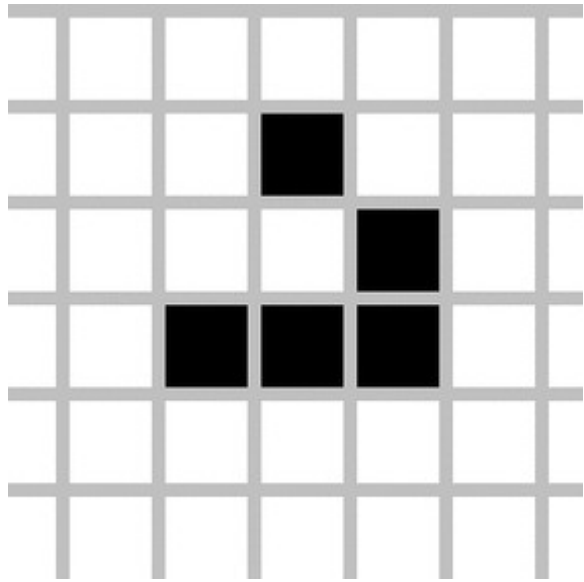


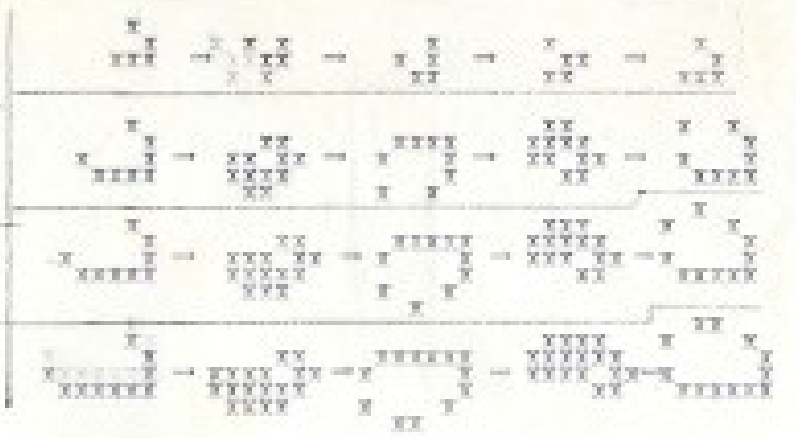
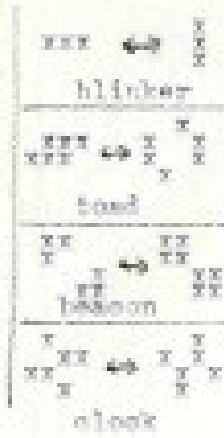




# Le Jeu de la Vie

The game of life, John Horton Conway, 1969





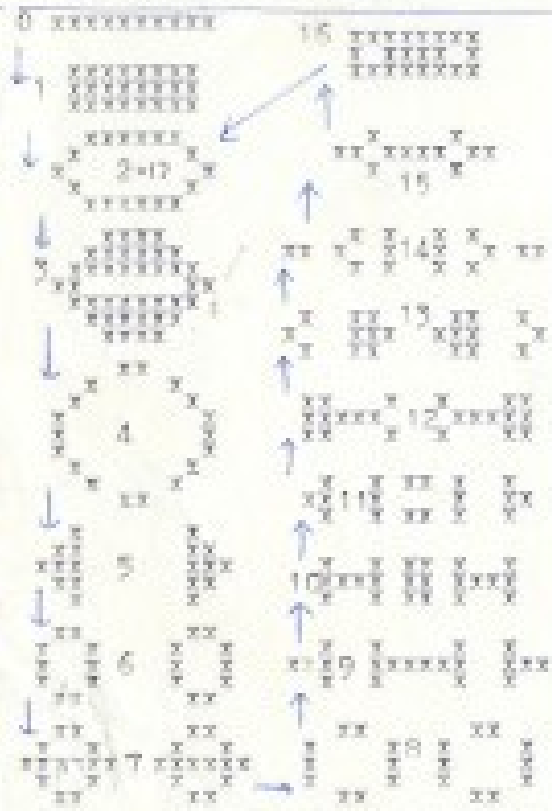
glider  $\frac{1}{4}$

lightweight spaceship  $\frac{1}{4}$

middleweight spaceship  $\frac{1}{4}$

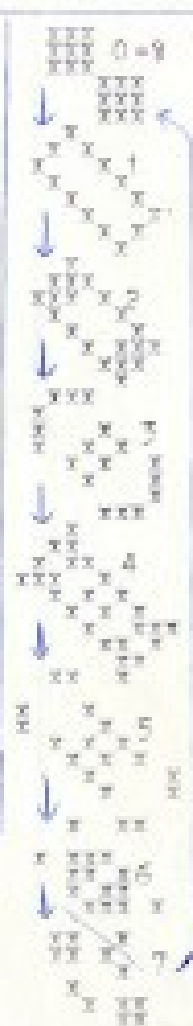
heavyweight spaceship  $\frac{1}{4}$

THE COMMONEST STILL-LIFE

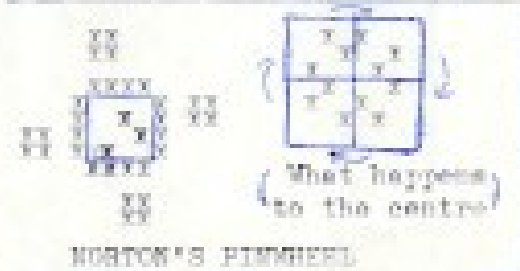
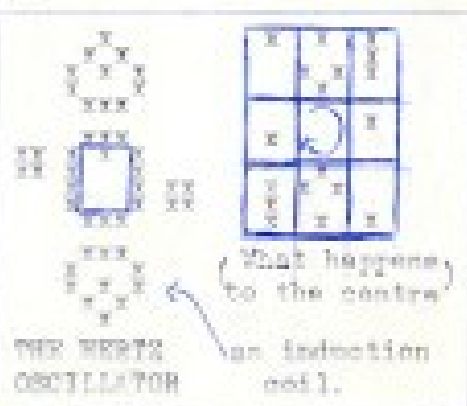


THE PENTA-DIECTAGON (above)  
and the FIGURE-EIGHT (right)

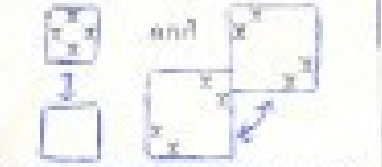
FLIP-FLOPS



ALL KNOWN SPACE-SHIP



The PINGPONG and OSCILLATOR are examples of Norton's 'BILLIARD-TABLE' configurations. Other centres are



3-wall retained by induction-coil  
 4-wall or 5-wall by a block,  
 other walls by 2 or more blocks.



A SURVEY OF LIFE-FORMS

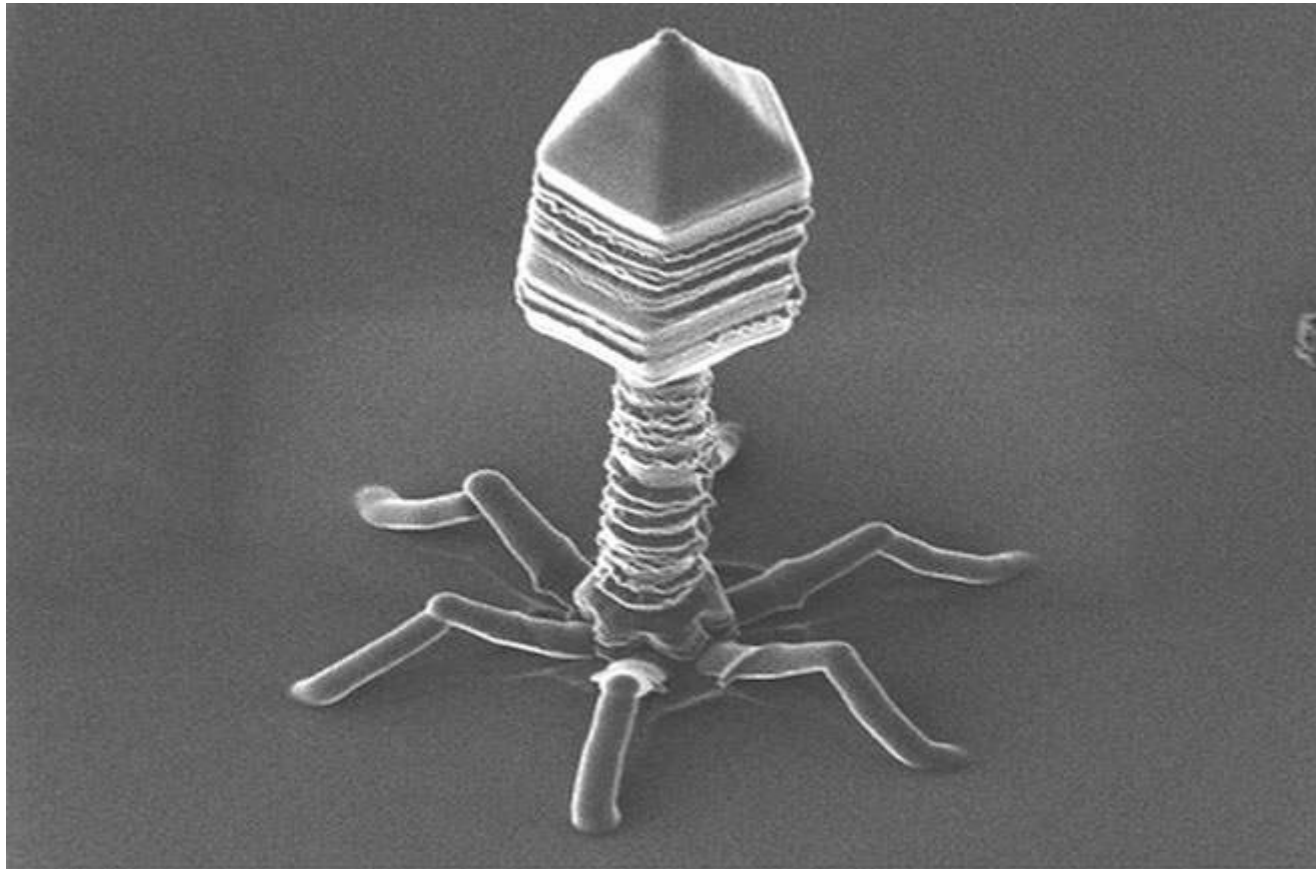
If a population is below the indicated digits at time 0, then it can't include x at time 2. If it did, then all the squares u & v would be there at time 1, and (to get x) all squares u and v would be there at time 0. But then v would be killed off by its 4 neighbours u, a contradiction.

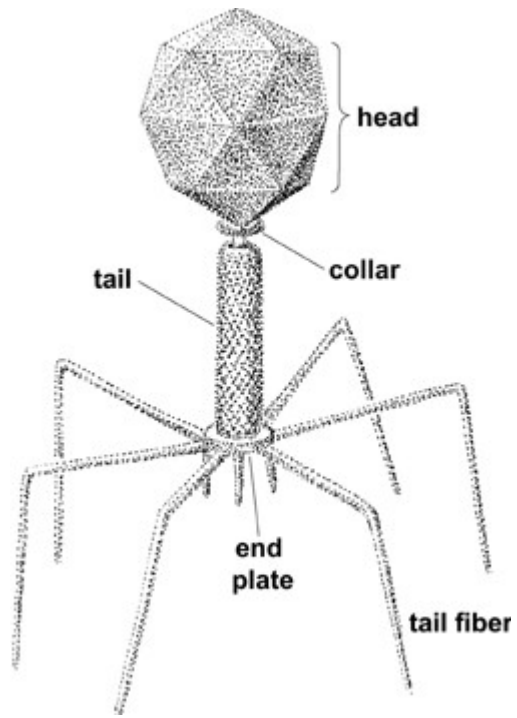
This proves diagonal speed of light-speed-king-speed, is at most 1/4.

As a corollary, an object to the left of the 'V' at time 0 can be at most one place beyond it at time 2. So horizontal speed of finite object  $\leq \frac{1}{4}$ .

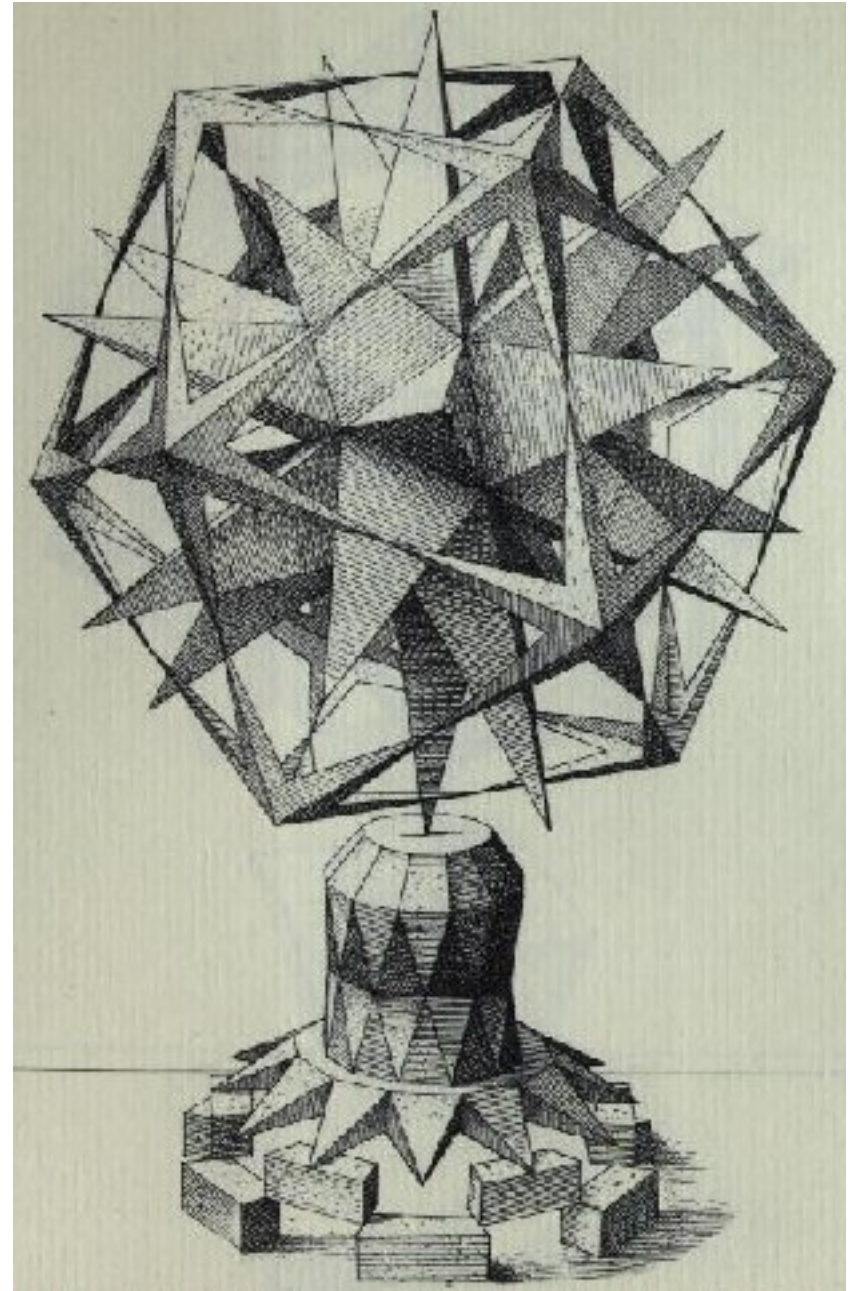
J H Conway 20/7/70

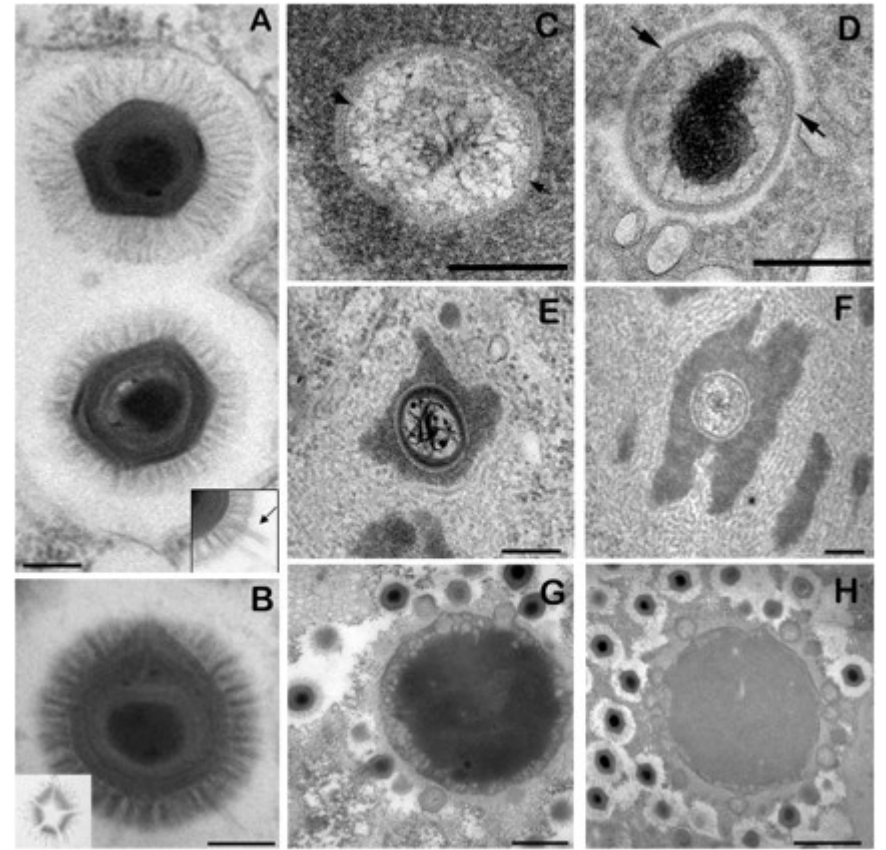
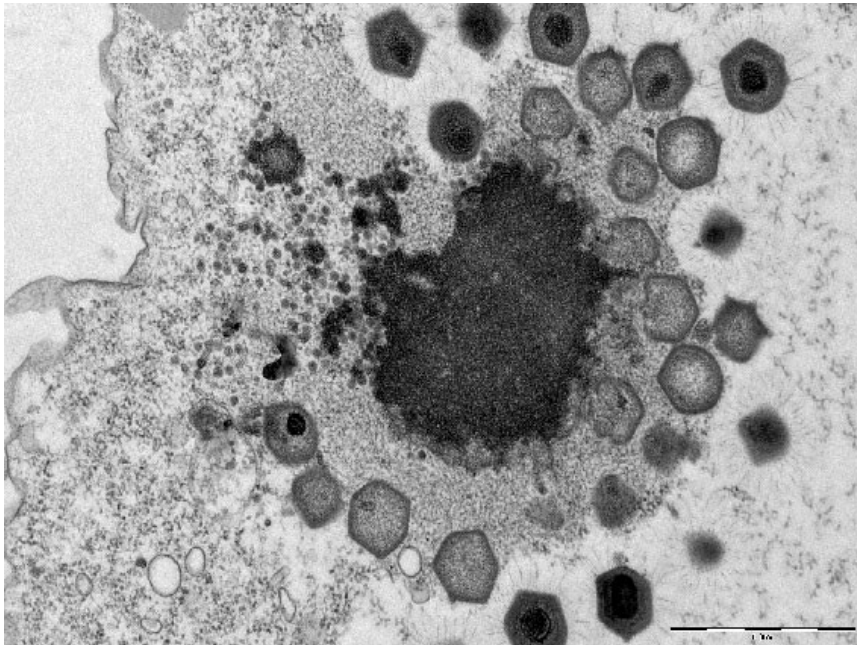
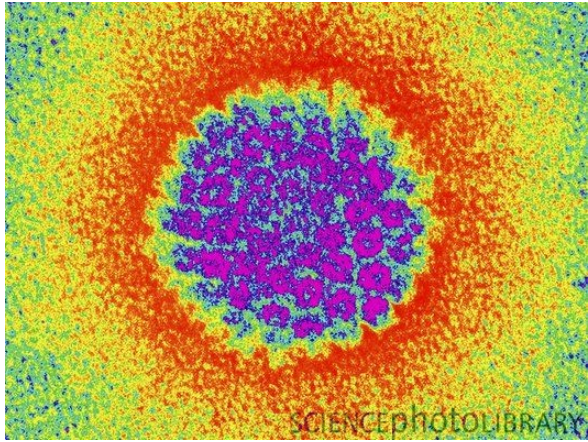
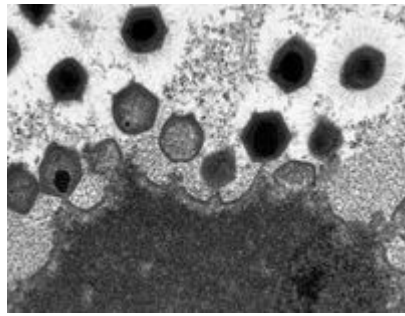
Où sont les frontières du vivant ?





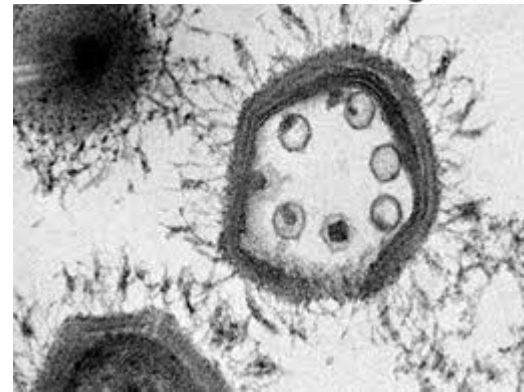
Le domaine du vivant est sans frontière bien définie

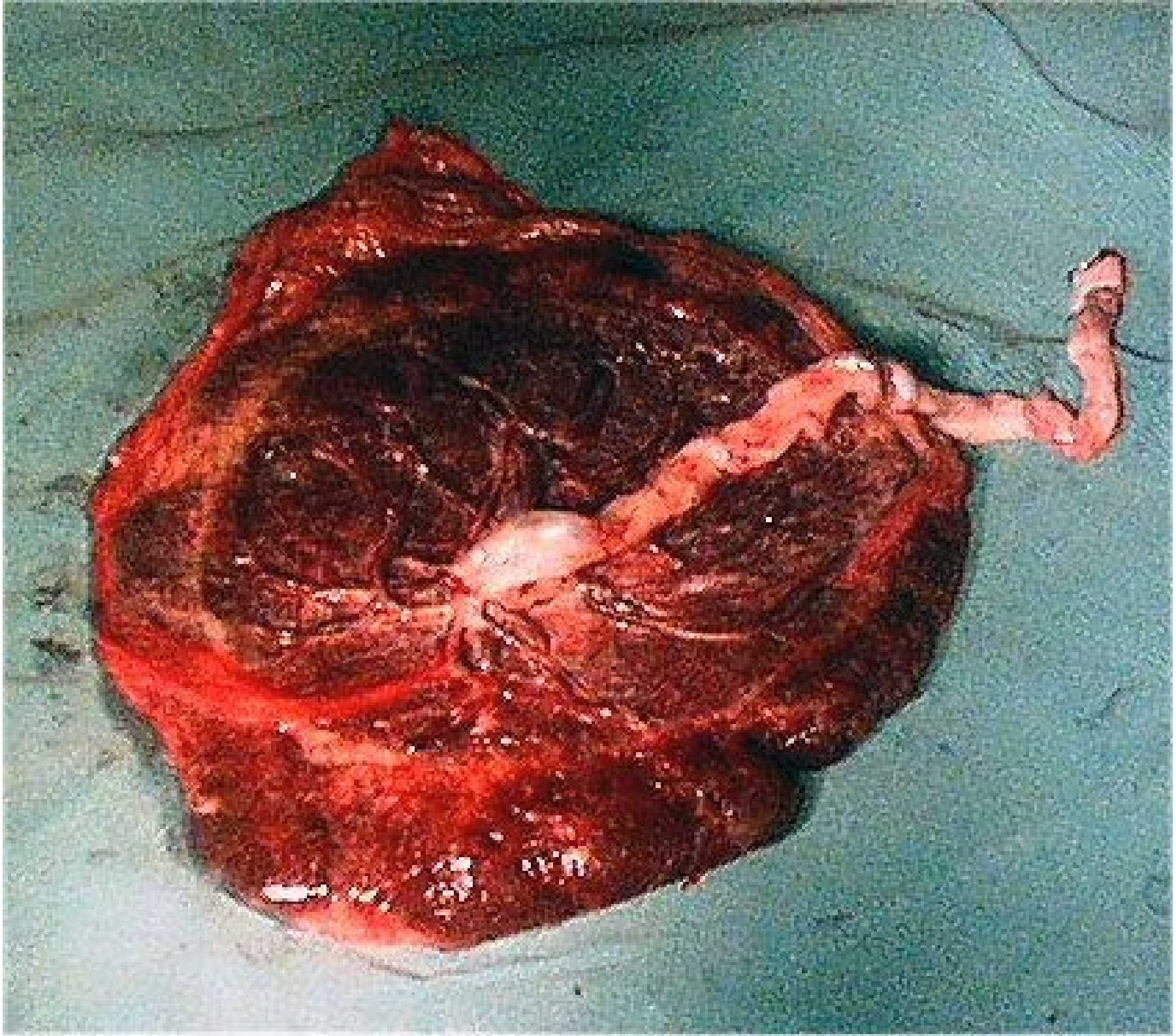




Megavirus

Mimivirus





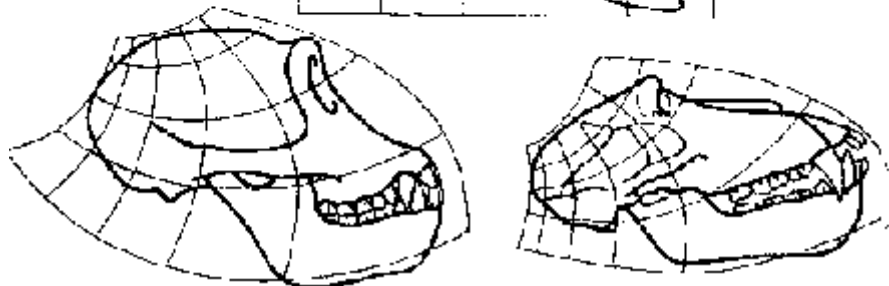
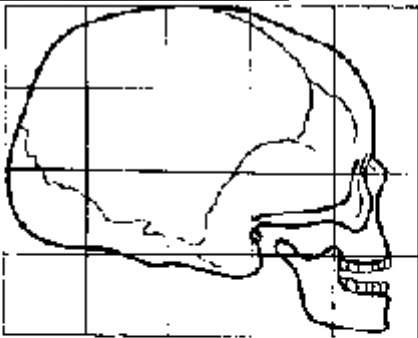
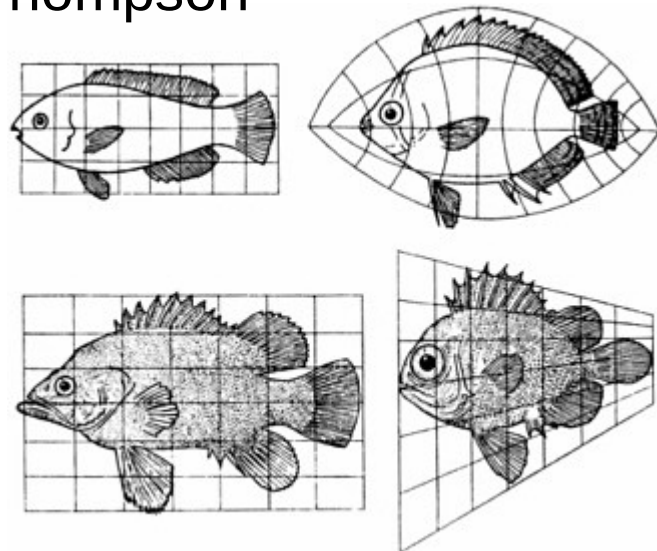
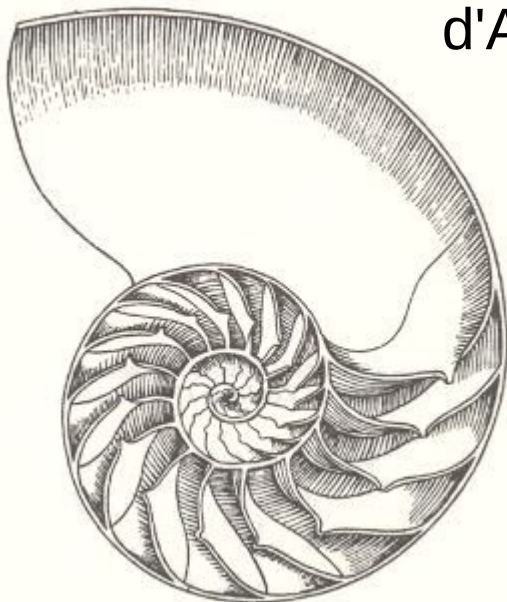
Biomimétisme, biosourçage,  
bioinspiration, bioéconomie.

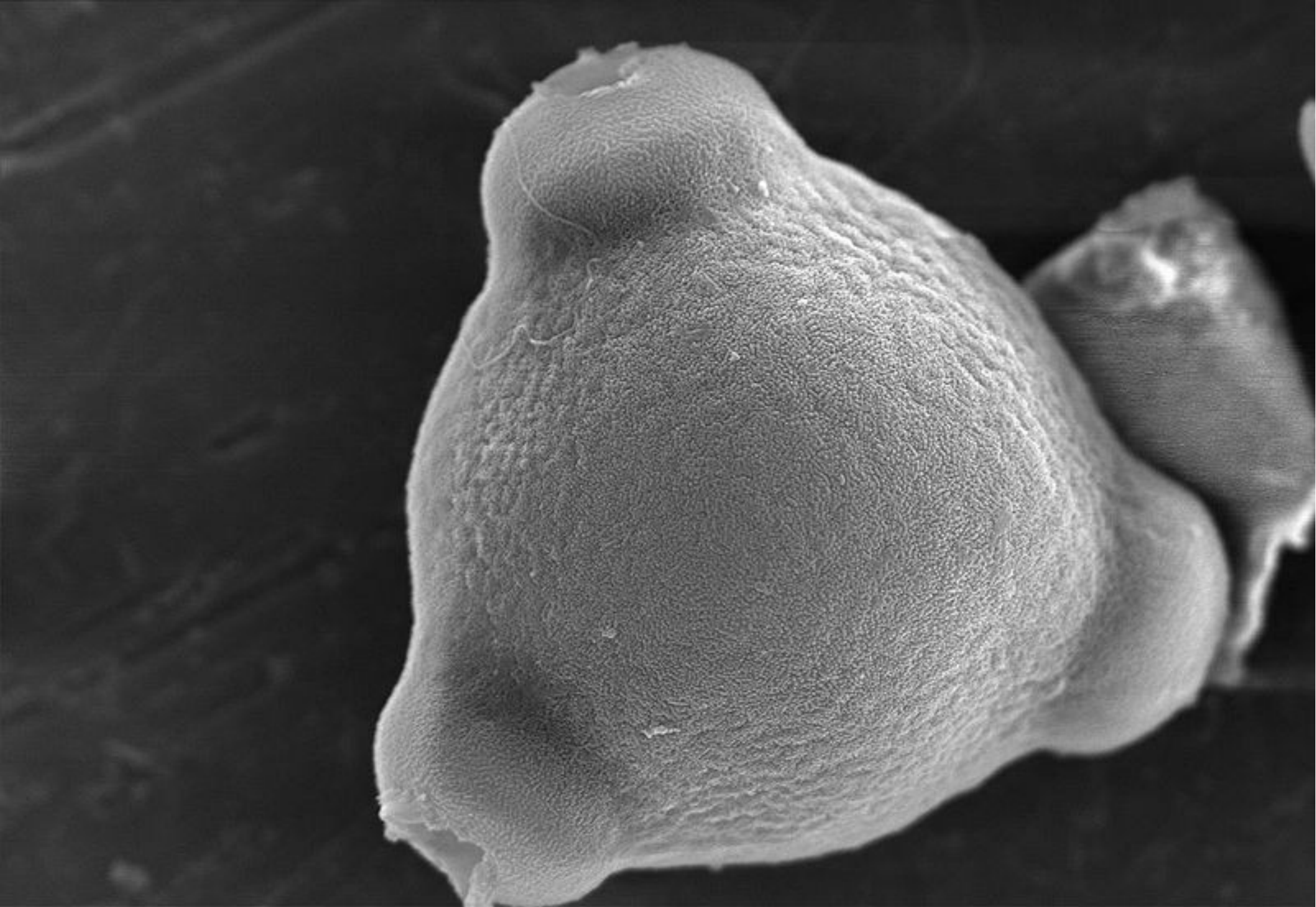






d'Arcy Thompson



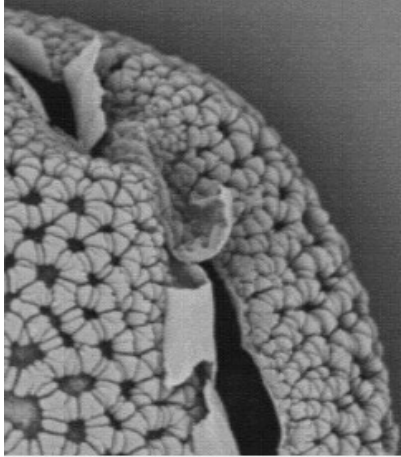
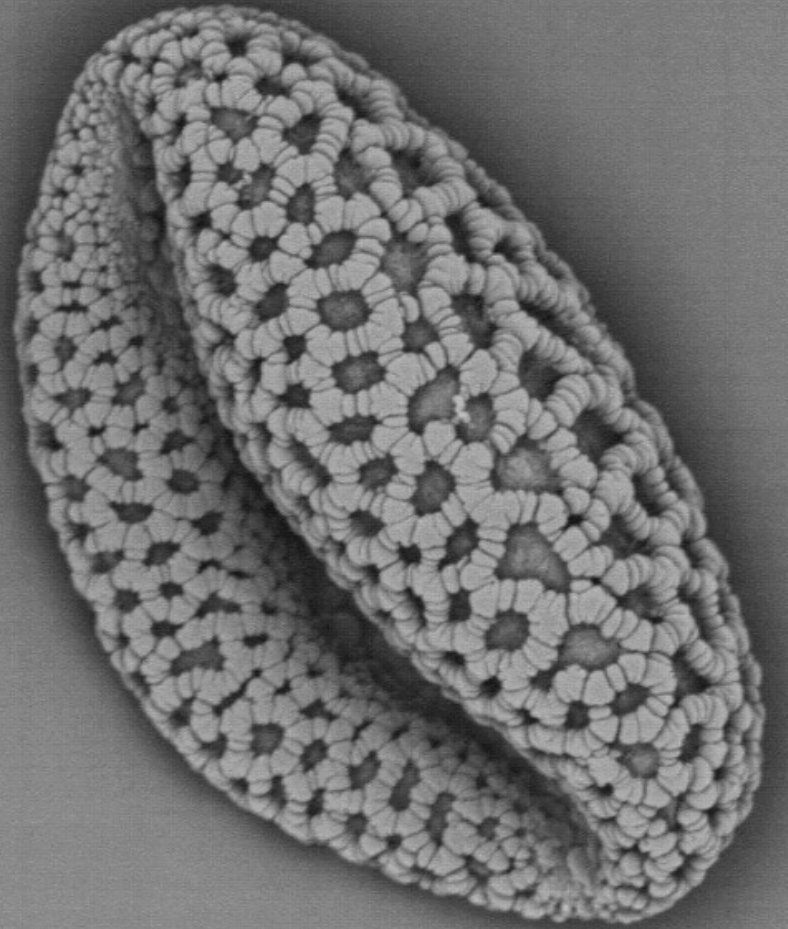
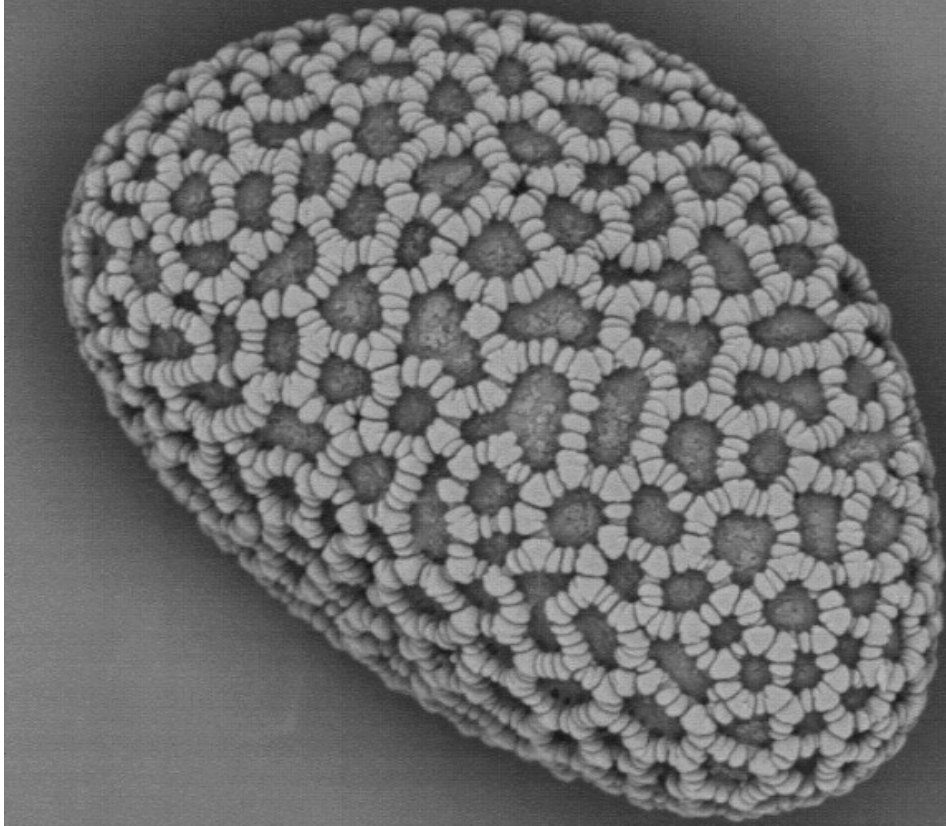


**Epilobium angust1-4**

**MAG: 950 x HV: 15,0 kV WD: 10,0 mm**

**30  $\mu$ m**

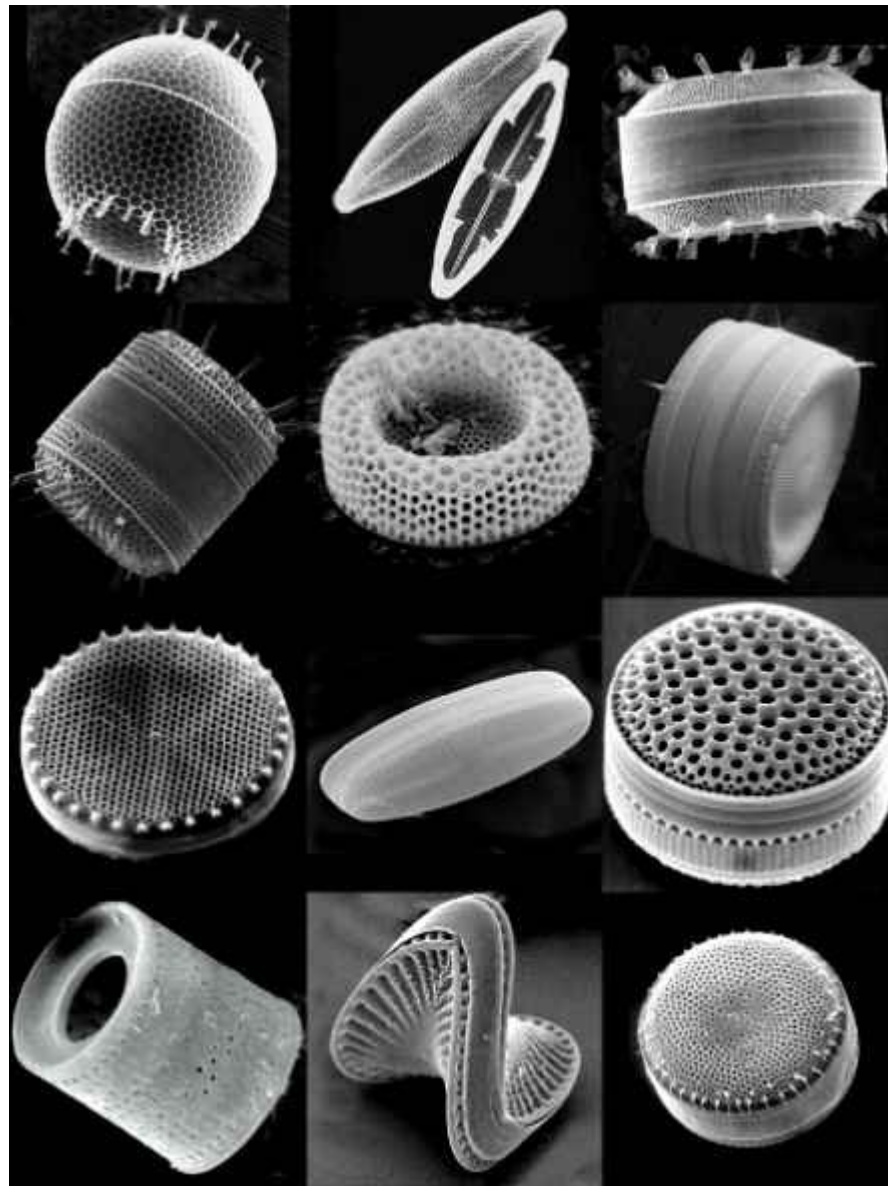




20  $\mu\text{m}$

03LiliaceaePollen

1/11/0 REMF

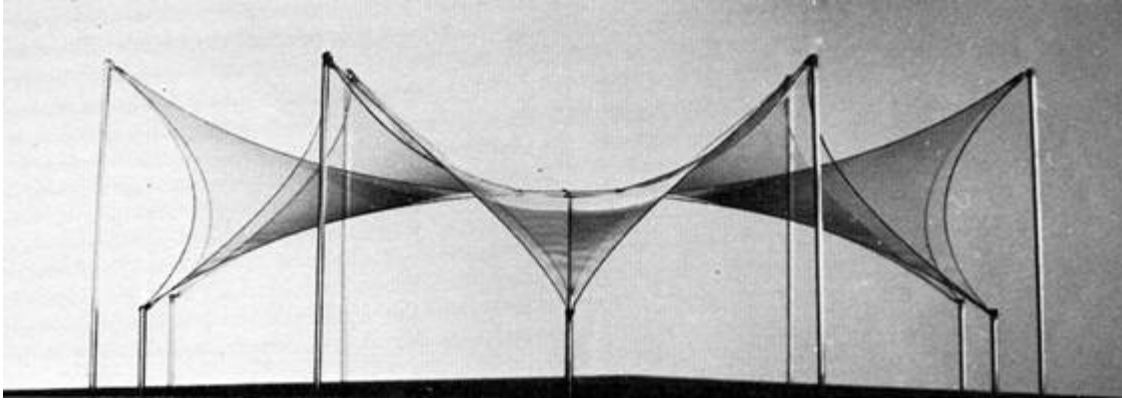


Buckminster Fuller

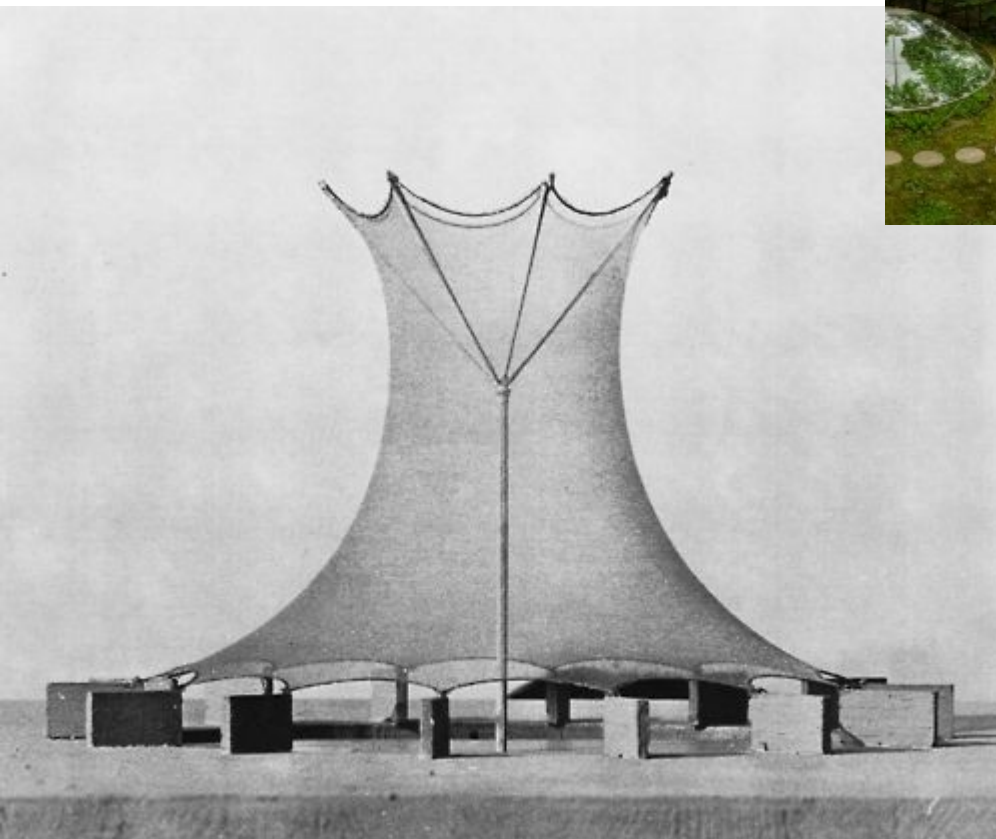




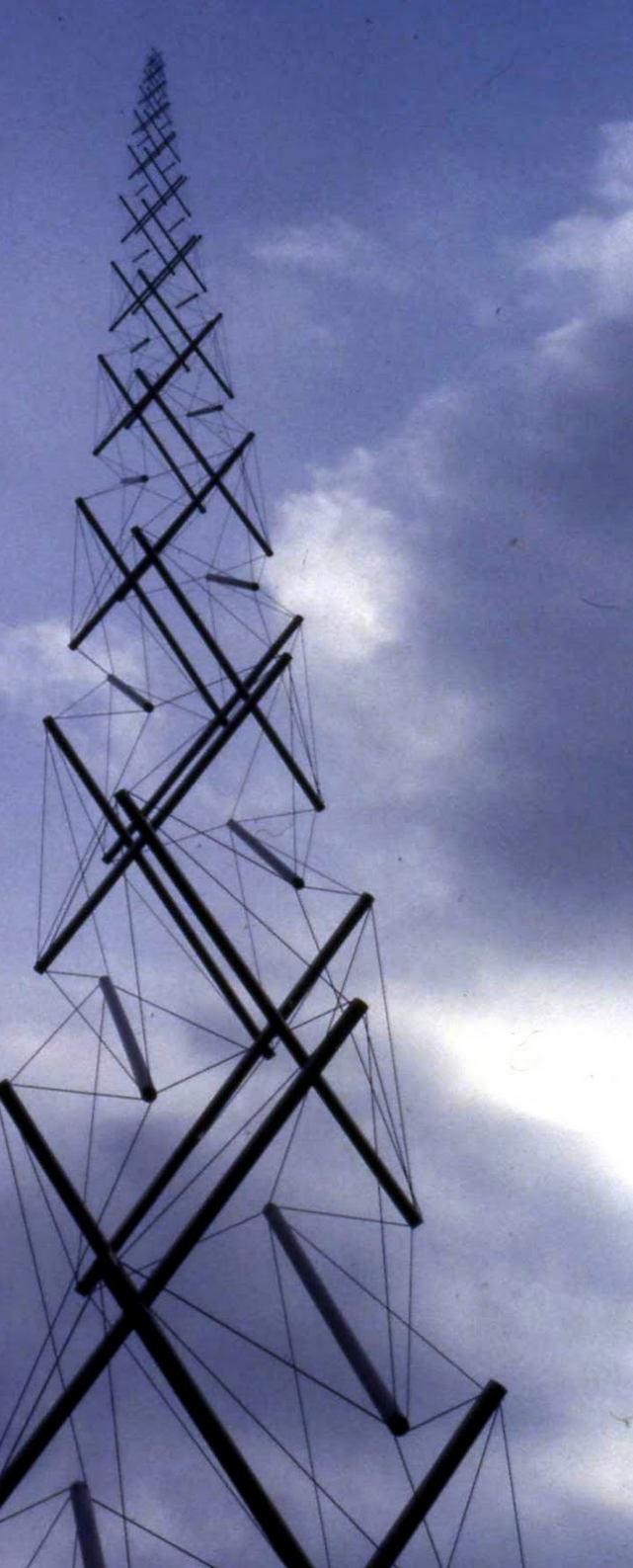




Frei Otto



# Kenneth Snelson



V-X, 1968  
stainless steel  
72 x 120 x 120 in.  
182.9 x 304.8 x 304.8 cm

# Zaha Hadid



Bioart ?

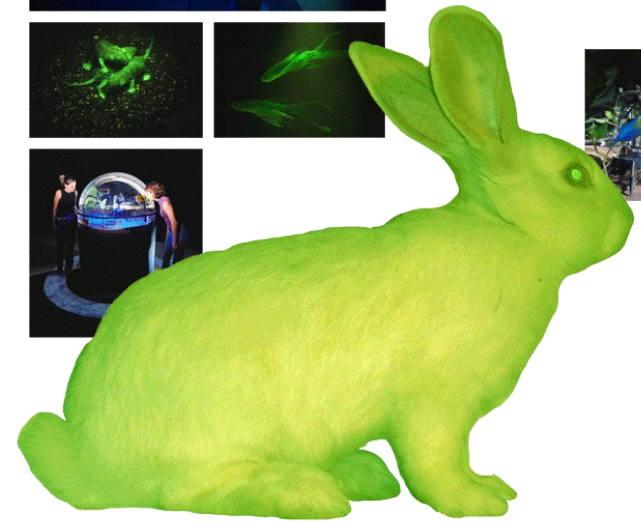
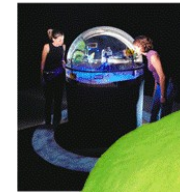
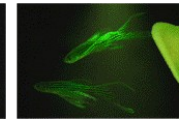
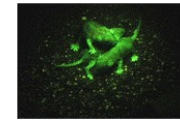
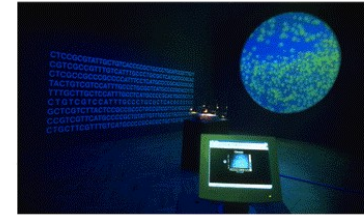


# EDUARDO KAC

## Life Transformation - Art Mutation



Artist's Lecture and book signing  
Wednesday, November 30, 4:30 pm  
Langford Auditorium and  
Exhibition Hall, College of Architecture



Second Livestock Austin Stewart



# Michel Blazy



Bio-positivistes contre  
éco-conservateurs

# Retour à la nature

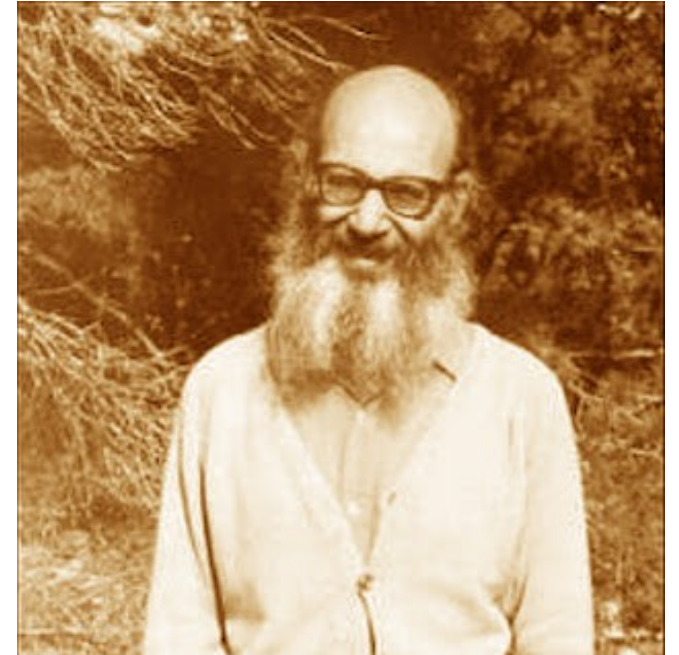
- Le piège de l'éco-fascisme
- Le vivant vivant
- Se réapproprier les corps et leurs humeurs
- La poussière, le poil et l'odeur



« Lorsque vous évoquez cette idée du danger que représente la bombe atomique, et du danger encore plus grand que représente la Technique, je songe à ce qui se développe aujourd'hui sous le nom de biophysique, à ce que, dans un temps prévisible, nous serons en mesure de façonner l'homme, de le construire dans son essence organique même, tel qu'on en a besoin : des hommes adroits et des maladroits, des intelligents et des sots. On va en arriver là. Les possibilités techniques sont aujourd'hui au point »

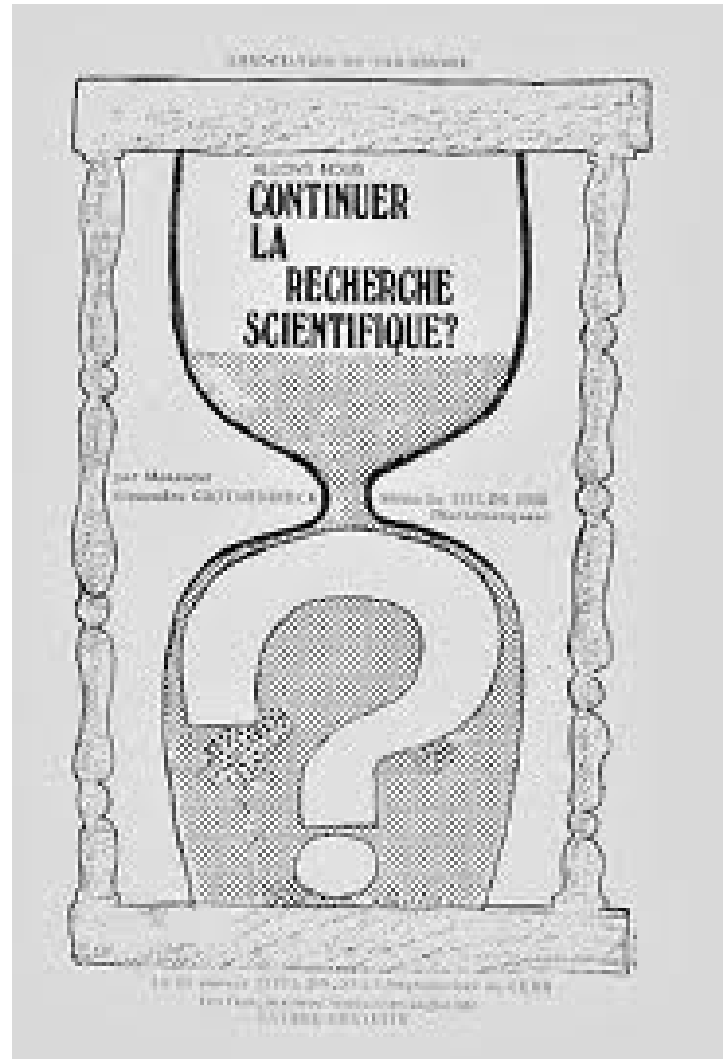
Martin Heidegger, 1969

# Alexandre Grothendieck



# Alexandre Grothendieck

## Survivre et vivre, 1972.





« Que de changements dans la science, dans l'industrie, le commerce et le reste !

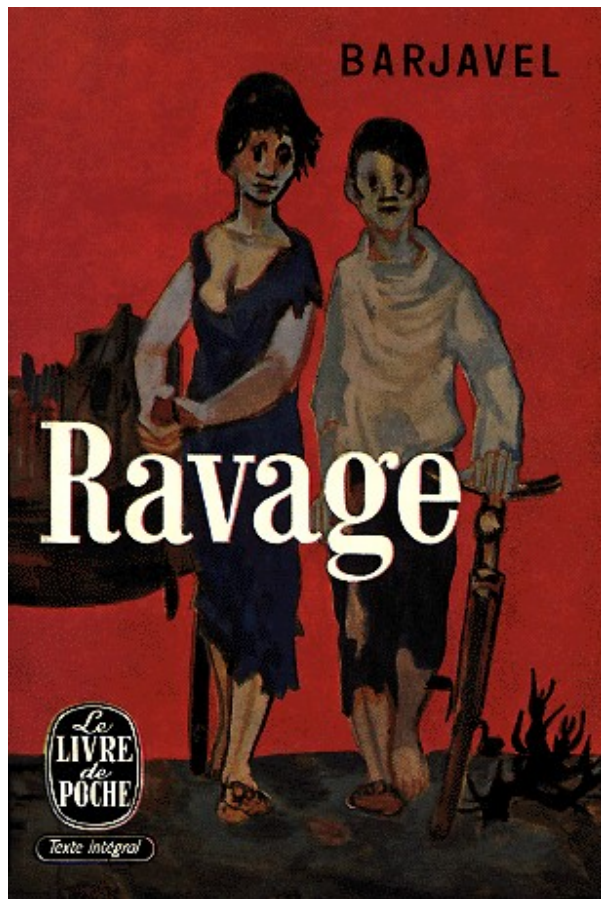
Enfin ! le principe de la machine à vapeur est sur le point d'être oublié !

Ce n'est plus qu'une curiosité de laboratoire qu'on se montre entre savants... C'est le dernier rôle du machinisme meurtrier et abrutissant, la fermeture des dernières grandes usines, la disparition des énormes agglomérations industrielles pompant la vie et dépeuplant les campagnes au profit des noires cités de labour triste, et des usines géantes, dont les inconvénients sans nombre avaient fini par jeter l'épouvante dans tous les esprits non fermés à la réflexion.

Oh ! ces féroces machines si longtemps triomphantes et dominantes, les voici donc à terre !

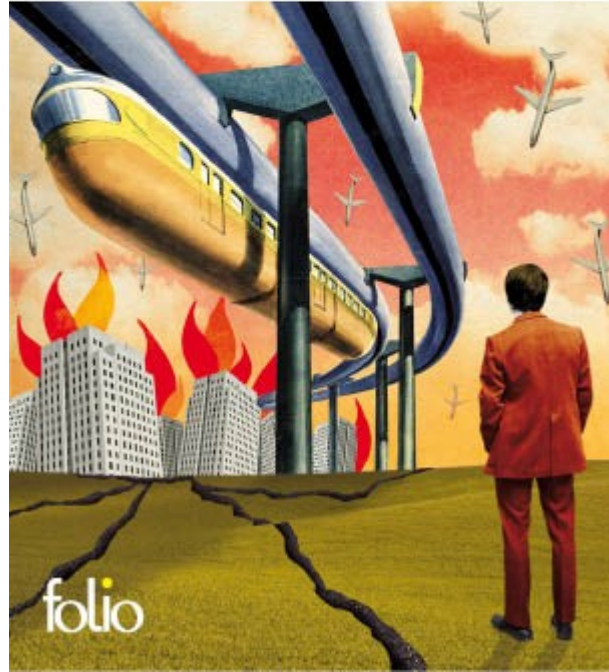
Seuls les économistes et les statisticiens, au coeur sec comme un chiffre, avaient pu les considérer sans frisson, et se féliciter même de leur rendement industriel et financier, sans se soucier de ce que pouvaient représenter de larmes, de misères, de maux sans nombre, les tonnes de produits manufacturés ou les masses d'or affluent aux caisses... »

Albert Robida, « L'horloge des siècles ».



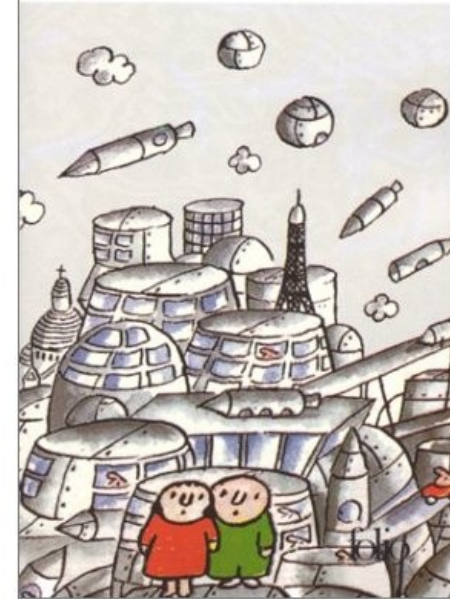
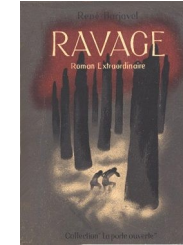
# René Barjavel

## Ravage



# René Barjavel

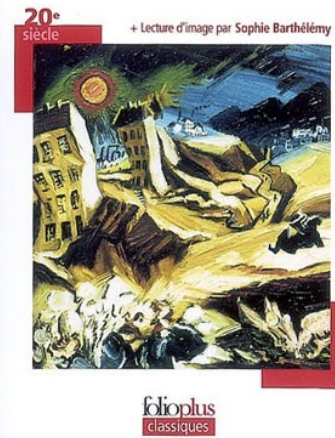
## Ravage



# René Barjavel

## Ravage

Texte intégral  
+ dossier par Marianne Chomienne



RENÉ BARJAVEL

# RAVAGE

roman extraordinaire

*« L'avenir, c'est pas  
une plaisanterie... »*

L.-F. CÉLINE

(Voyage au bout de la nuit.)

LES ÉDITIONS DENOËL

19, rue Amélie, 19

PARIS-VII<sup>e</sup>

# Perspectives on Our Age

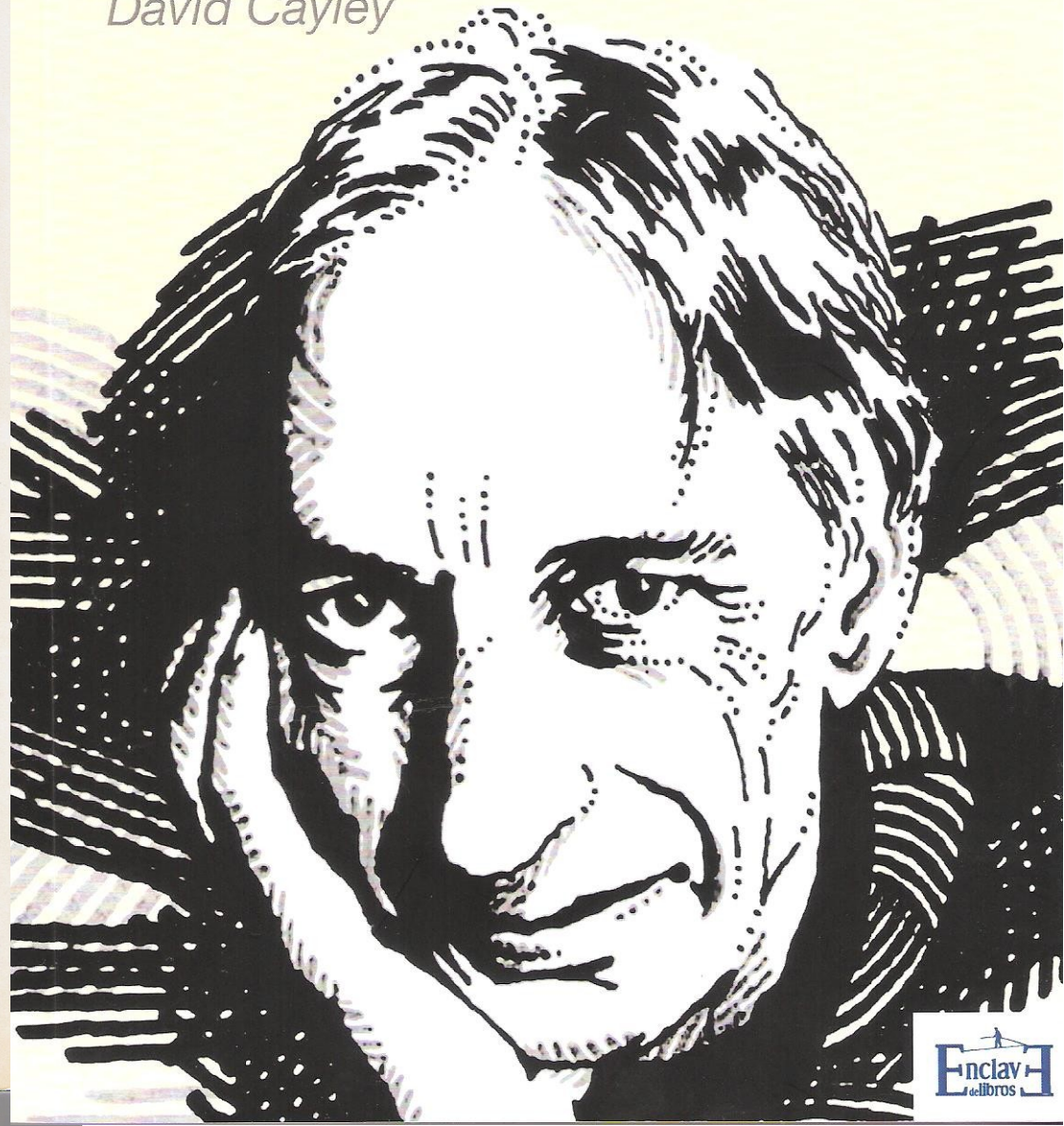


**Jacques Ellul**  
**Speaks**  
**on His Life**  
**and Work**

# CONVERSACIONES CON **IVAN ILLICH**

UN ARQUEÓLOGO DE LA MODERNIDAD

*David Cayley*



# Esprit Hacker, es-tu là ?

- Greewashing, Openwashing, Hackwashing
- Depuis les débuts de l'agriculture, la terre a été un grand hacklab à ciel ouvert. Jusqu'à la normalisation capitaliste agro-industrielle.

LE SONGE

D'UNE NUIT D'ÉTÉ



**CLIMATE IDEATION  
WORKSHOP** *by Climate-KIC*

Venez  
imaginer, concevoir et tester votre  
idée business climat !

25 JUIN 2015

13h30-17h30

UPMC, Paris



Gratuit - Inscription obligatoire :  
<http://goo.gl/forms/cRsLm07N58>

DI 8 JUIN - 20 h - THEATRE DE MENILMONTANT  
du Retrait - 75020 Paris

entree libre et gratuite. Contact : communication.sciences@u-psud.fr - 01 69 15 32

ENVIE D'AGIR POUR

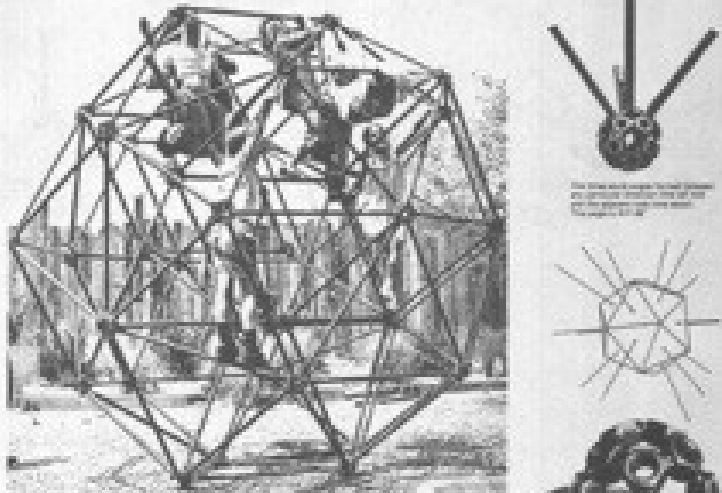
**SAUVER LE  
CLIMAT ?**

REJOINS NOUS, MET EN PRATIQUE ET

**PENSE  
STARTUP**

23-24 mai @HEC <http://climatup.cop21.fr>

# The Whole Earth Catalogue



**THE GEODESIC DOME**

The geodesic dome is a structure of interconnected triangles that forms a spherical or near-spherical shape. It is a type of space frame that is composed of a network of great circles (geodesics) on the surface of a sphere. The structure is strong and lightweight, and it is often used for large-scale construction, such as domes for sports stadiums or space stations.

**CONSTRUCTION**

The dome is constructed by starting with a central point and adding more points around it. The points are connected by straight lines, forming a series of triangles. As more points are added, the structure becomes more spherical. The dome is often made of wood or metal, and it can be covered with a variety of materials, such as canvas or plastic.

**ADVANTAGES**

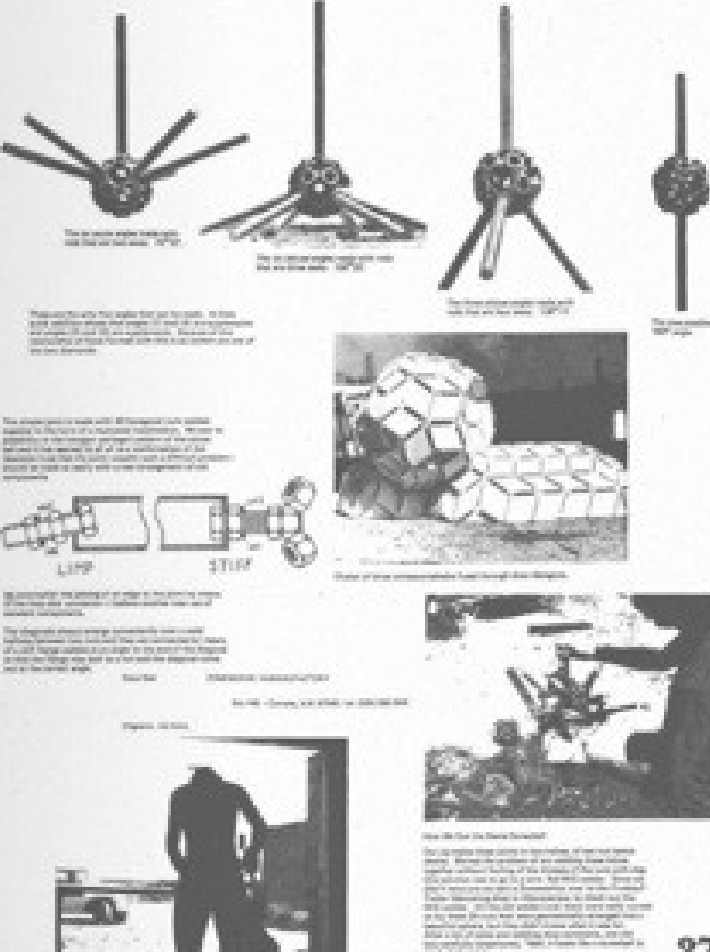
The geodesic dome has several advantages over other types of structures. It is strong and lightweight, and it is easy to construct. It is also a good choice for large-scale construction, as it can cover a large area with a single structure. The dome is also a good choice for space stations, as it can provide a large, open space for living and working.

**DISADVANTAGES**

The geodesic dome has some disadvantages as well. It can be expensive to construct, and it may not be suitable for all climates. The dome is also a good choice for space stations, as it can provide a large, open space for living and working.

**CONCLUSION**

The geodesic dome is a unique and interesting structure that has many uses. It is a good choice for large-scale construction, and it is also a good choice for space stations. The dome is a testament to the power of geometry and the human imagination.



**MECHANICAL DEVICES**

The Whole Earth Catalogue features a variety of mechanical devices designed for practical use. These devices are often simple and easy to construct, and they are often made from recycled materials. The devices are designed to be useful in a variety of situations, from simple household tasks to more complex industrial applications.

**LIFT**

The 'LIFT' device is a simple mechanism that can be used to lift heavy objects. It consists of a central point with several arms extending outwards. The arms are connected to a central hub, and they can be used to lift objects by pulling on the arms. The device is simple and easy to use, and it is a good choice for lifting heavy objects in a variety of situations.

**STAY**

The 'STAY' device is a simple mechanism that can be used to hold objects in place. It consists of a central point with several arms extending outwards. The arms are connected to a central hub, and they can be used to hold objects in place by pulling on the arms. The device is simple and easy to use, and it is a good choice for holding objects in place in a variety of situations.

**CONCLUSION**

The Whole Earth Catalogue is a treasure trove of practical information and ideas. It is a great resource for anyone who is interested in making their own things or improving their life. The catalogue is a testament to the power of the human mind and the human spirit.

# The Long Now











# Neuroswitch

Daejon City Museum of Art,  
Corée du Sud, 2014.

Avec Stéphane Degoutin,  
Guillaume Dumas, Gwenola  
Wagon, Gérard Paresys,...









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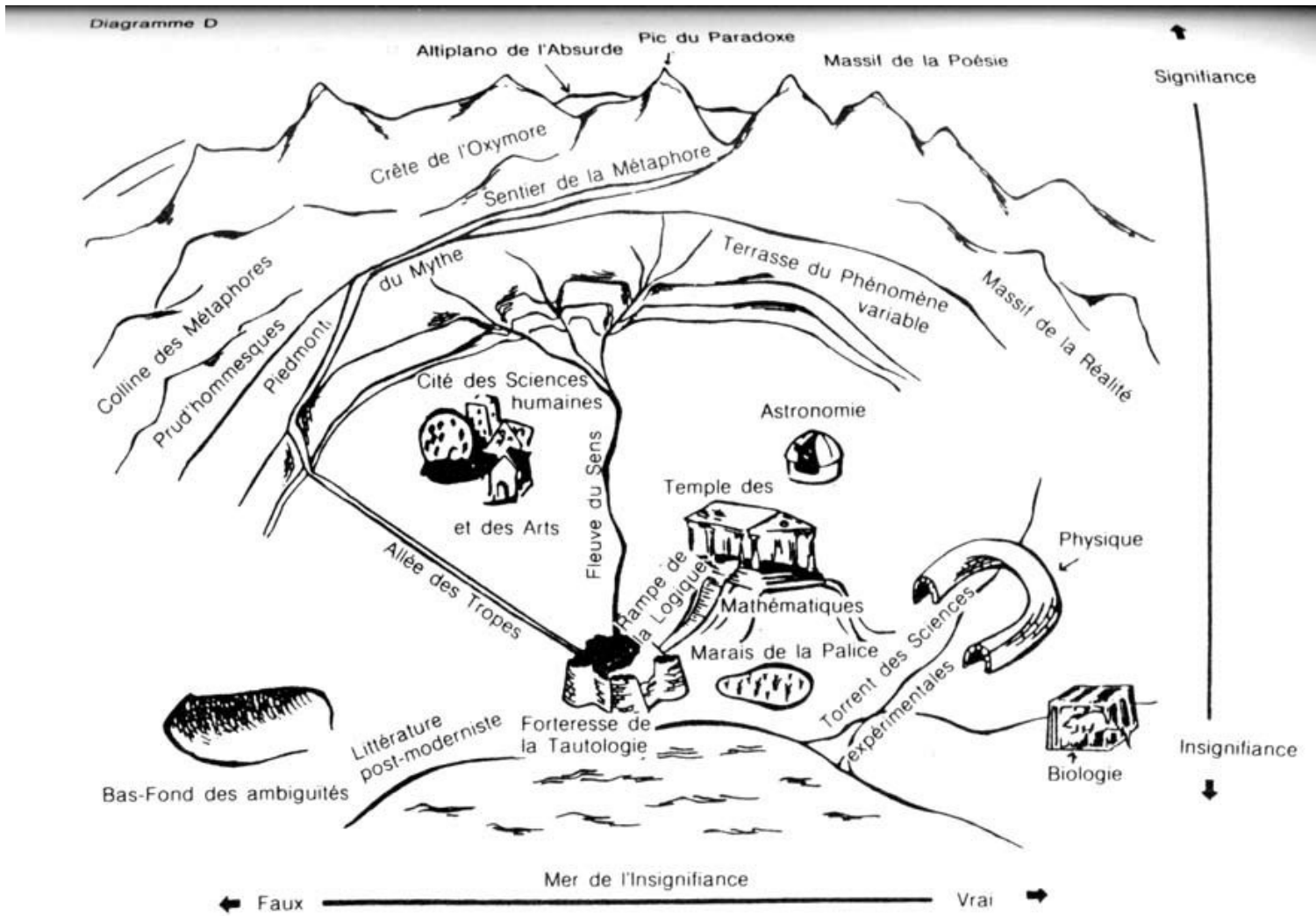




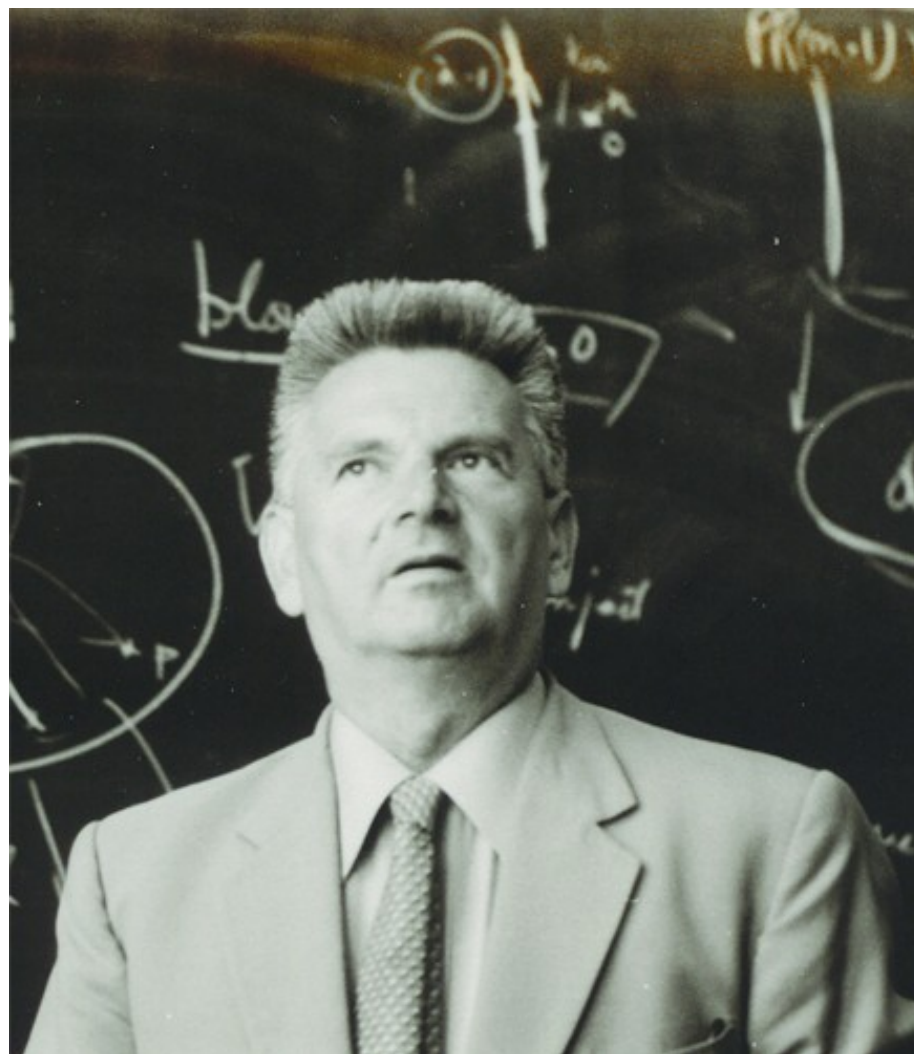
I believe that consciousness is the way information  
feels when being processed.

(Max Tegmark)

[izquotes.com](http://izquotes.com)



René Thom



René Thom



# Théorie des catastrophes

« Tout le monde n'aspire pas à posséder un *smartphone* ni à envoyer des fusées sur les autres planètes. Notre civilisation occidentale est basée sur le matérialisme scientifique. Nous nous efforçons donc d'atteindre un idéal de confort et de bien-être qui se résume généralement à mettre une carte dans une machine pour obtenir des sandwichs lyophilisés en échange. Prenez les aborigènes dont toute la culture tourne autour de la notion de rêve : comparés à eux, qui n'accordons aux rêves qu'une valeur plutôt anecdotique, nous sommes de véritables analphabètes. Le système social et symbolique des aborigènes est d'une telle complexité qu'aucun anthropologue n'est encore parvenu à le décrypter. Il se peut fort, d'ailleurs, qu'il soit déjà trop tard, car les aborigènes n'existent plus qu'en fantômes d'eux-mêmes ».

[Agnès Giard, Libération, 12 mai 2014.](#)