

Being inside

The nation as organism

The Philosophical Society Members weekend

15th August 2020

Gordon Nichols

gordon.nichols@me.com



Experiment 1. Lets do some science based experimental philosophy

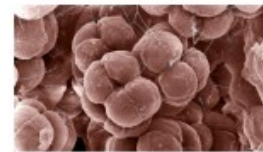
Aims

- Solve the life dilemma
- Investigate the biology and philosophy of nations
- Examine our place in the living world
- Create a new view of the world
- To examine all of human activity
- Provide useful predictions

The biological world includes:

- Genera and species
- Structural physiology
- Biochemistry, cell biology
- Genetics
- Ecological associations
- Evolutionary history
- Taxonomy, phylogeny, classification & nomenclature

Current Consensus Classification



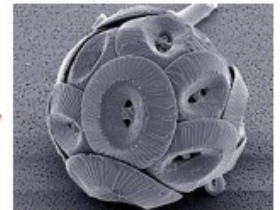
Prokaryota

- Archaea
- Bacteria

Eukaryota

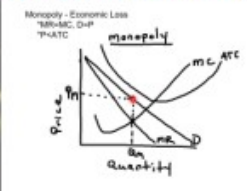
- Protozoa
- Chromista
- Fungi
- Plantae
- Animalia

Viruses

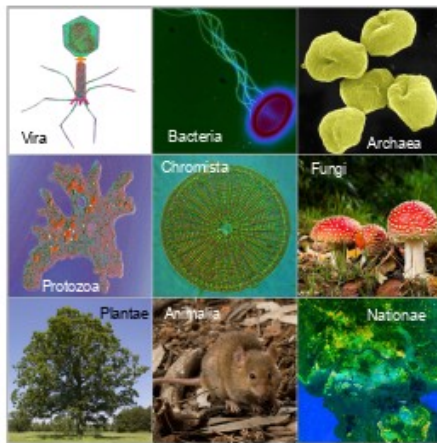
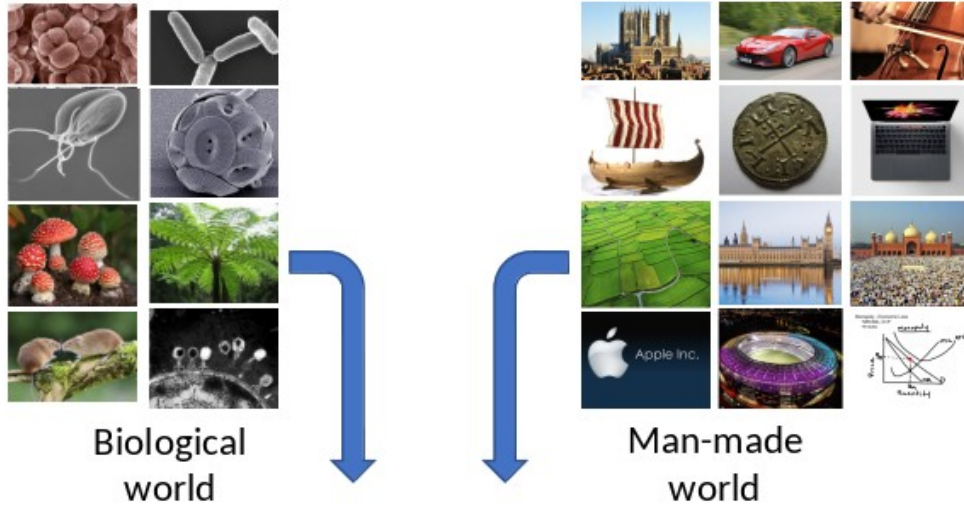


The man-made world includes:

- Buildings and machines
- Culture, science, sports, arts
- History, social sciences, economics, anthropology
- Computers and their viruses
- Agriculture, technology
- Politics, religion
- Organizations



The dilemma:



- There are two modes for examination of living entities
- The biological world involves all recognized organisms and is examined by the biological sciences
- The man-made world is ignored by biologists.
- The biological basis of societies is poorly examined by social and political scientists and historians
- The solution requires the incorporation of nations and organizations into the living world

All 2.3 million species are mapped to a single circle of lineages of all known species on earth

LUCA is the Last Universal Common Ancestor

Viruses are not included in this phylogeny

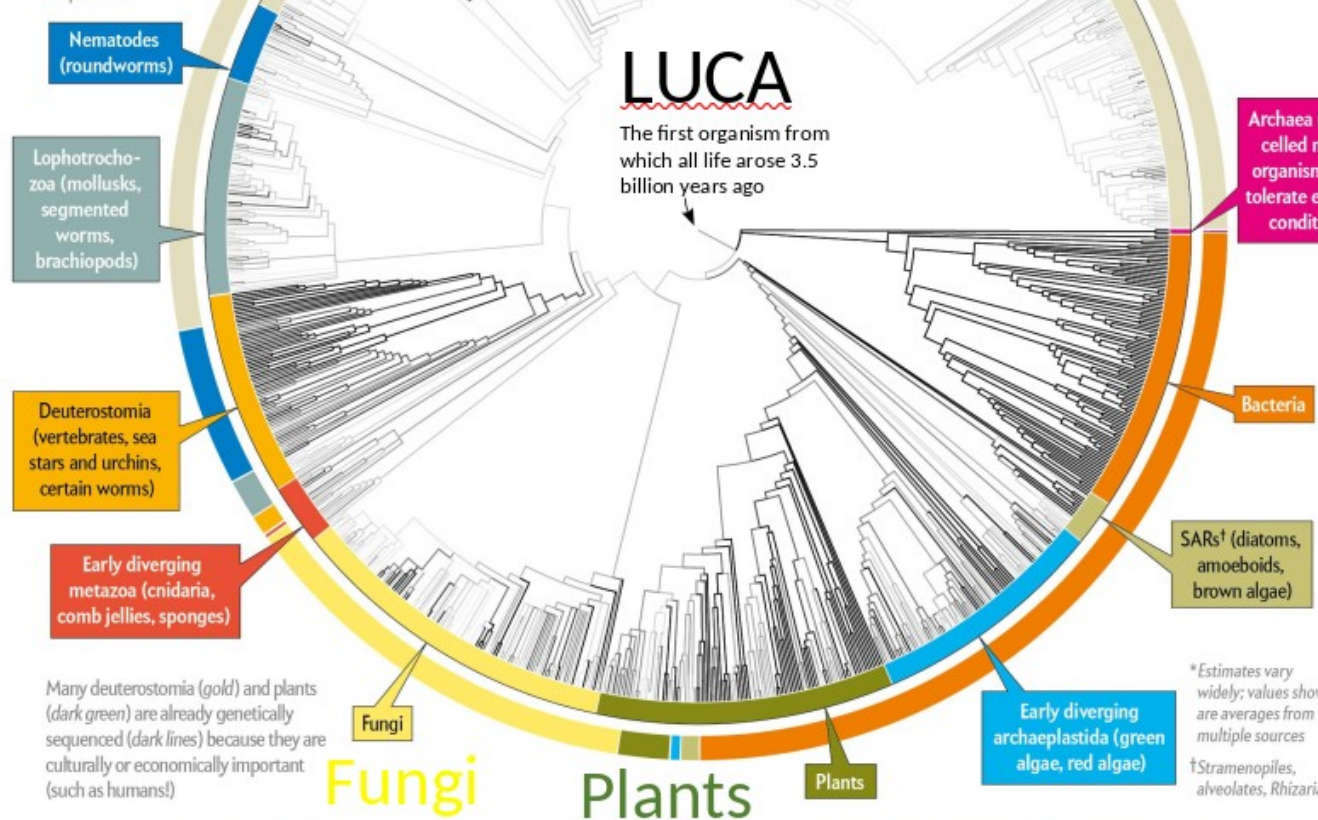
Animals

Primordial life begins at the center and branches out in all directions, leading to the groups of species that exist today (*colored rings*)

Outer ring: Estimated proportion of all species*
 Inner ring: Proportion of the groups named to date

Each black line represents at least 500 descendant species

Dark lines: Many species have been genetically sequenced
 Light lines: Few species have been genetically sequenced



Arthropods (insects, arachnids, crustaceans)

Scientists have identified about one million arthropods (*tan*); millions more remain undescribed

Experts expect that most new species to be discovered will be bacteria (*orange*) and archaea (*magenta*)

Archaea

Archaea (single-celled microorganisms that tolerate extreme conditions)

Bacteria

Chromista

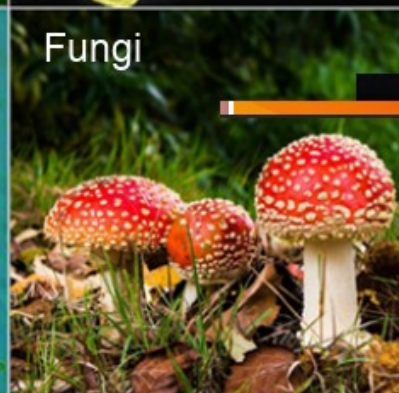
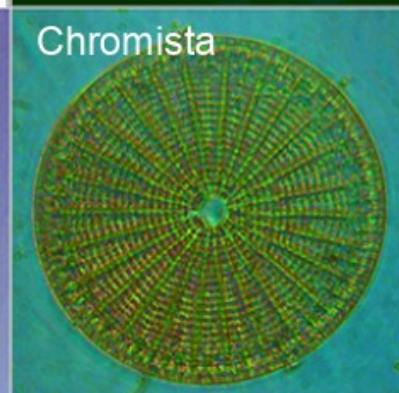
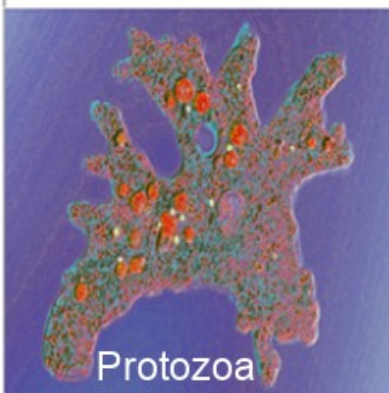
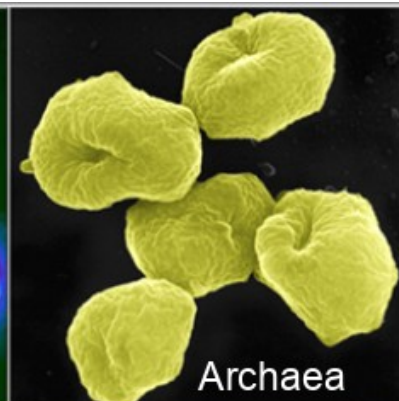
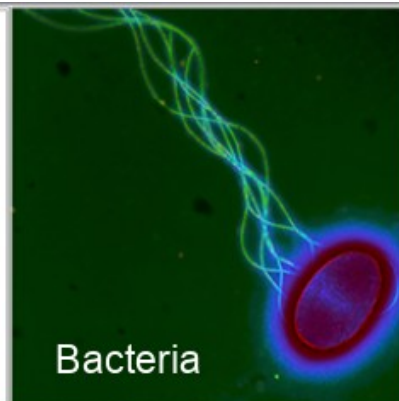
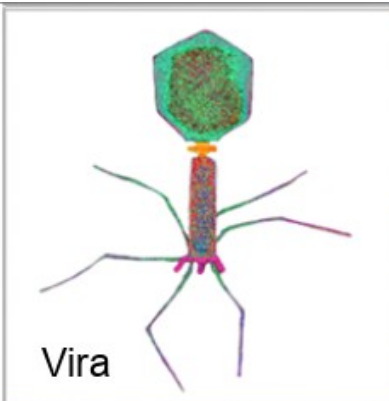
/ Protozoa

Many deuterostomia (*gold*) and plants (*dark green*) are already genetically sequenced (*dark lines*) because they are culturally or economically important (such as humans!)

*Estimates vary widely; values shown are averages from multiple sources
 †Stramenopiles, alveolates, Rhizaria

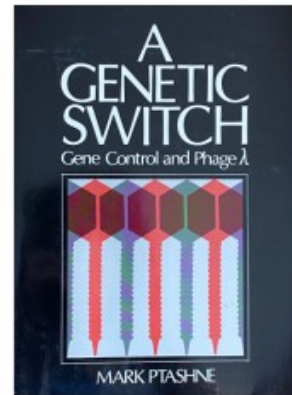
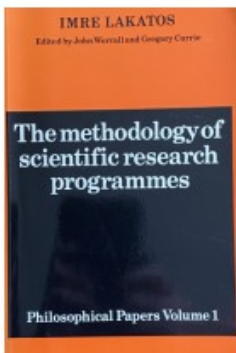
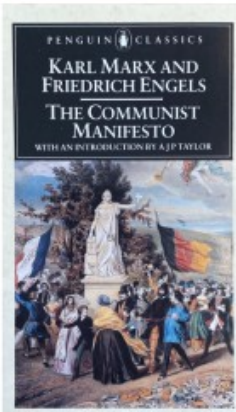
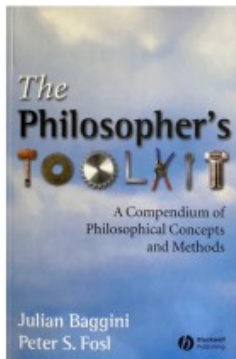
Why re-classify nations?

- To incorporate the man made world into our understanding of all life
- To provide a re-assessment of all organisms
- To examine where we are in the world
- To provide a science based theoretical framework for understanding human activity
- Nine kingdoms



Experiment 2. Methodology

- How do we examine the nations?
- Can we develop testable hypotheses?
- What is analogy and are there alternatives?
- Can we achieve virtual objectivity from inside the nation, or is all subjective?

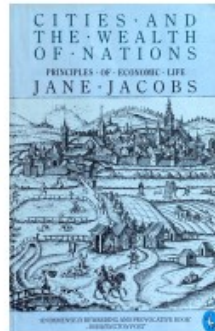
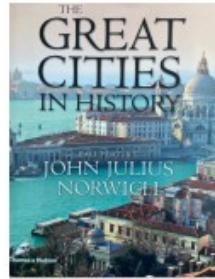


My main methods:

- 1.Outlining ideas and dilemmas
- 2.Descriptive examination of nations and the living world
- 3.Travel (51 countries)
- 4.Thought experiments
- 5.Reading multiple areas
- 6.Hypothesis generation
- 7.Presentation
- 8.Peer review and publication
- 9.Hypothesis testing
- 10.Examine consequences

What are nations?

- Definition
- Are they living?
 - Are they organisms?
 - Are they individuals?
 - Are they populations?
 - Are they imagined communities?
 - Are they members of a species?
 - Are they Darwinian species
- Are they the best unit to choose?
 - Cities, tribes, organisations
- Aristotle - “It follows that the state belongs to a class of objects which exist in nature, and that man is by nature a political animal.”



The first hypothesis:

“Nations are organisms that are directly comparable to all other organisms”

A nation: A community of people or peoples who live in a defined territory and are organised under a single government.

An ethnic race: A group of people who share a common ethnic origin, culture, historical tradition, and, frequently language, whether they have lived together in one territory or have their own government.

A state: A "state" is a polity that maintains a monopoly on the legitimate use of violence (Weber)

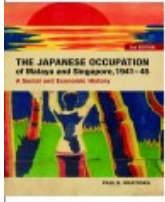
A polity: An identifiable political group of people who have a collective identity, who are organized by some form of institutionalized social relations, and have a capacity to mobilize resources.

Singapore as nation and multimetazoan organism

Boundary



Life cycle



Growth



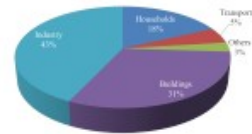
Defence



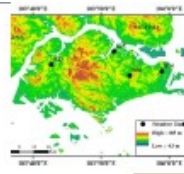
Repair



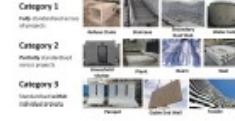
Energy



Perception



Structural components



Language



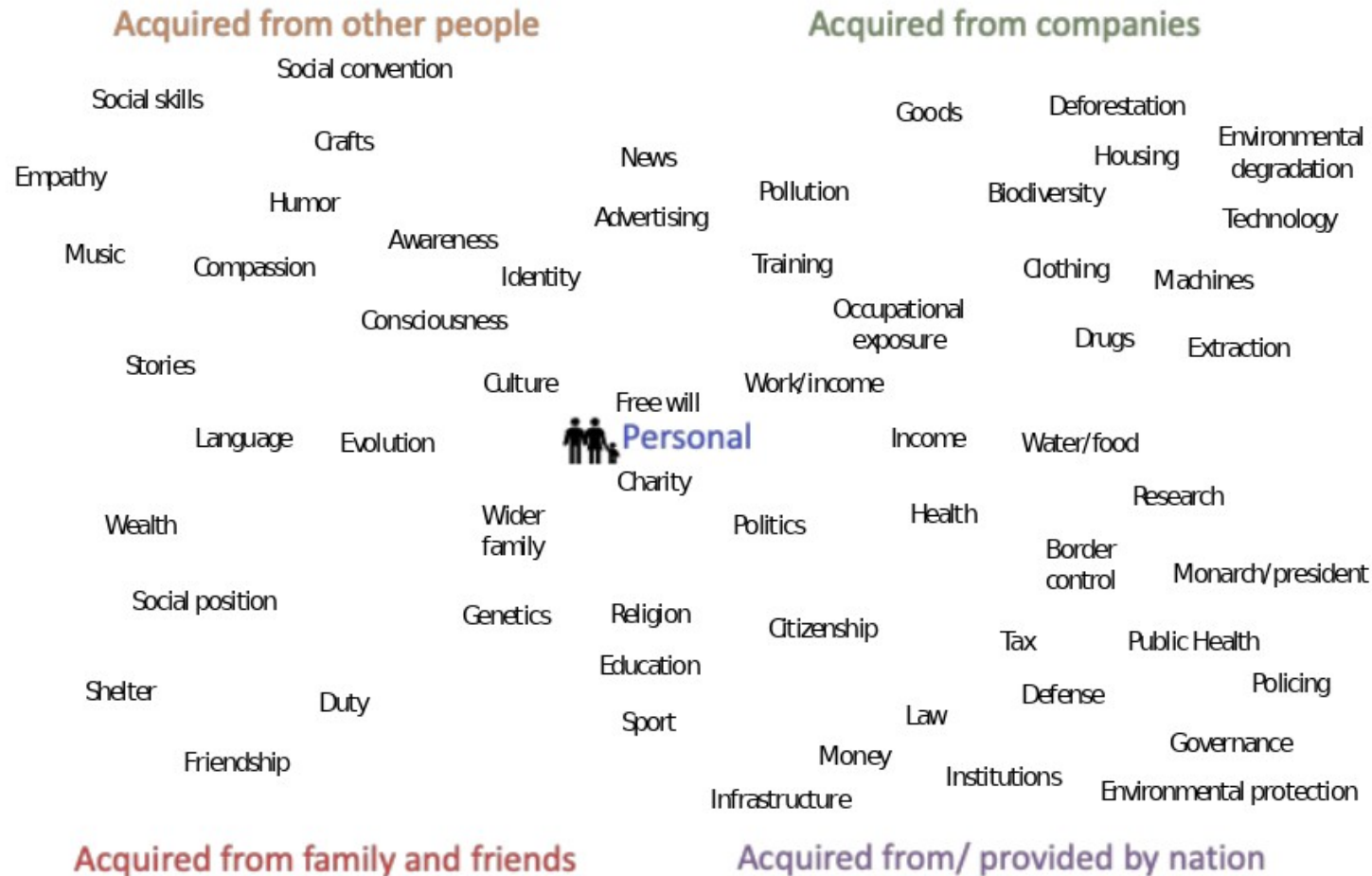
Internal transport



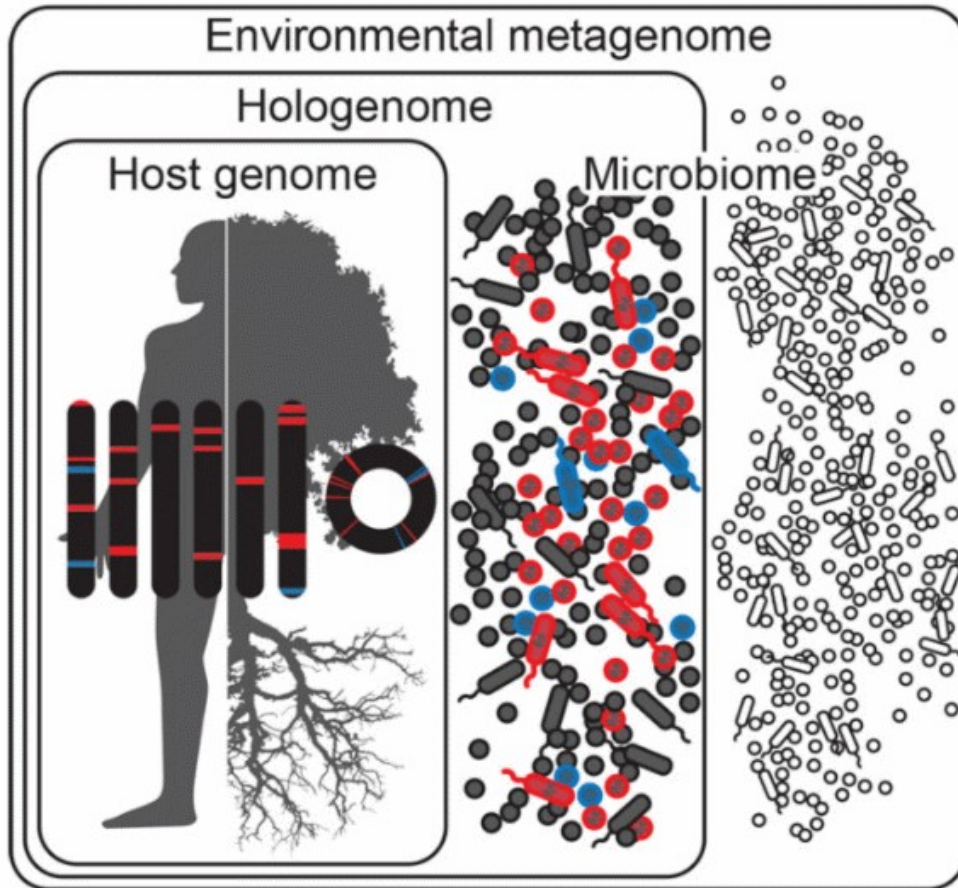
Associated organisms





Figure 3. Elements of people's lives that are influenced by their nation





The holobiont



 Host and symbiont genes that alone and/or together affect a holobiont phenotype

 Coevolved host and symbiont genes that affect a holobiont phenotype

 Host genes and symbionts that do not affect a holobiont phenotype

 Environmental microbes that are not part of the holobiont

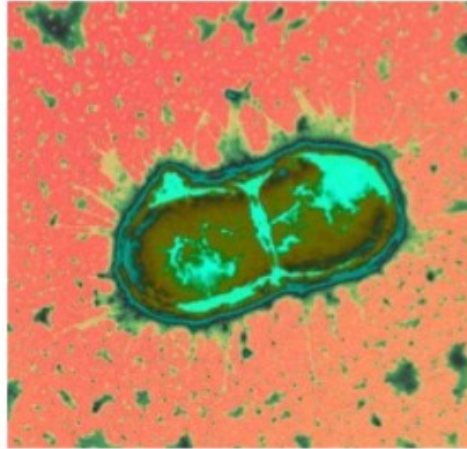
Experiment 3. The four-unit levels of life

Each is an Individual Living League Unit (LILU)

1. Molecular –
Multi-molecular
acellular agent
(virus –
Bacteriophage)



3. Multicellular
– Metazoan
(animal – *Mus
musculus*)



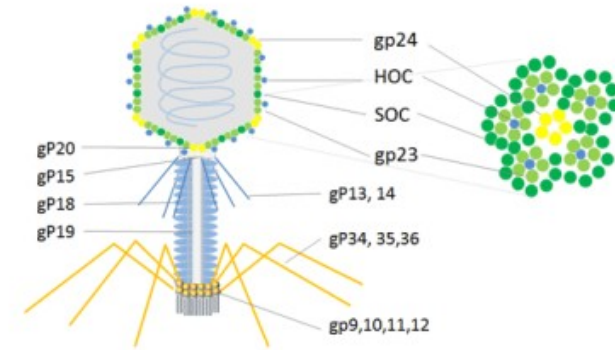
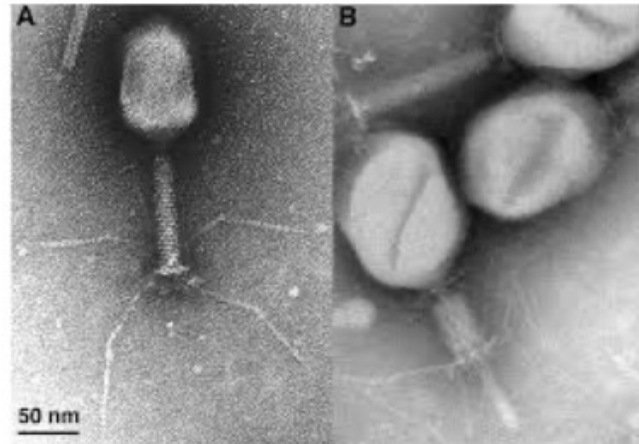
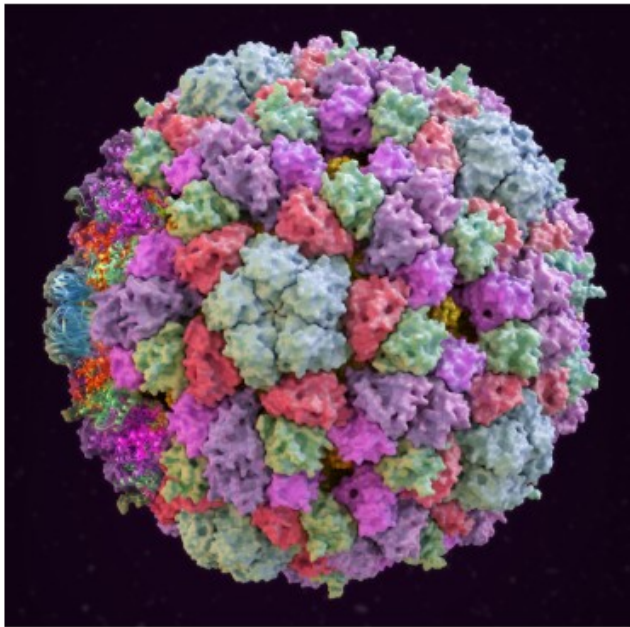
2. Cellular –
Multi-molecular
cell (Prokaryote
– *Escherichia
coli*)



4. National –
Multiple-
metazoan
organism
(human nation -
Singapore)

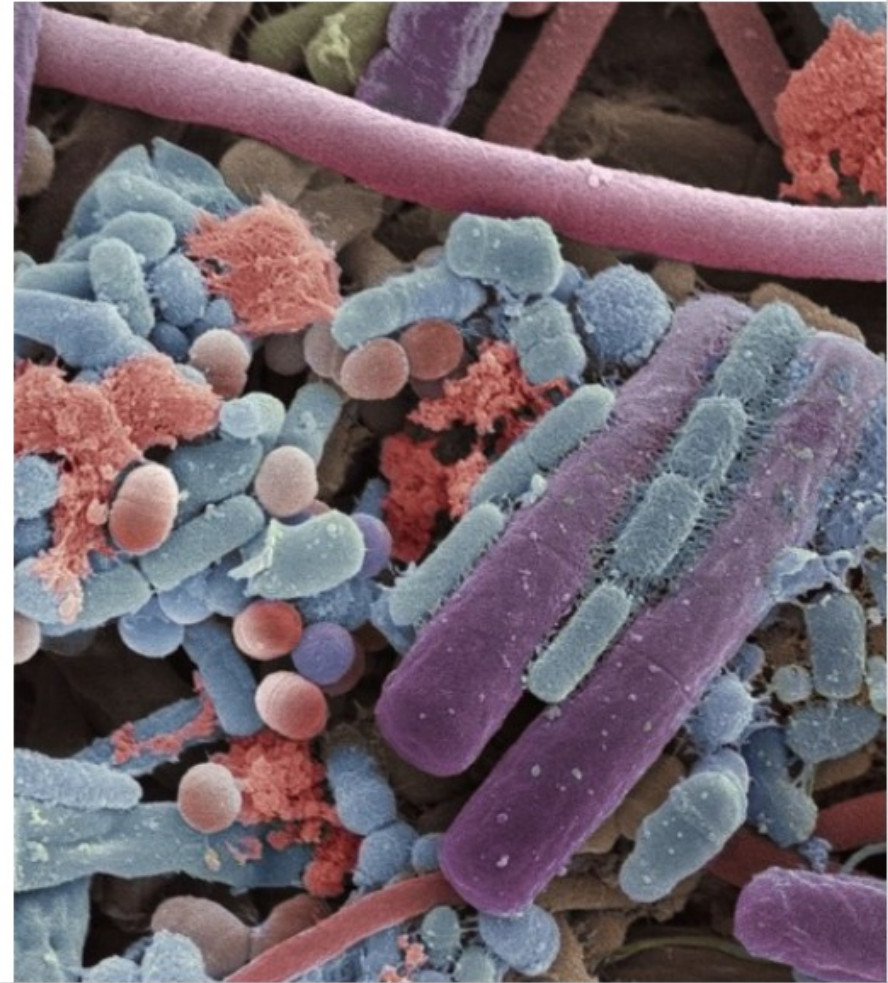
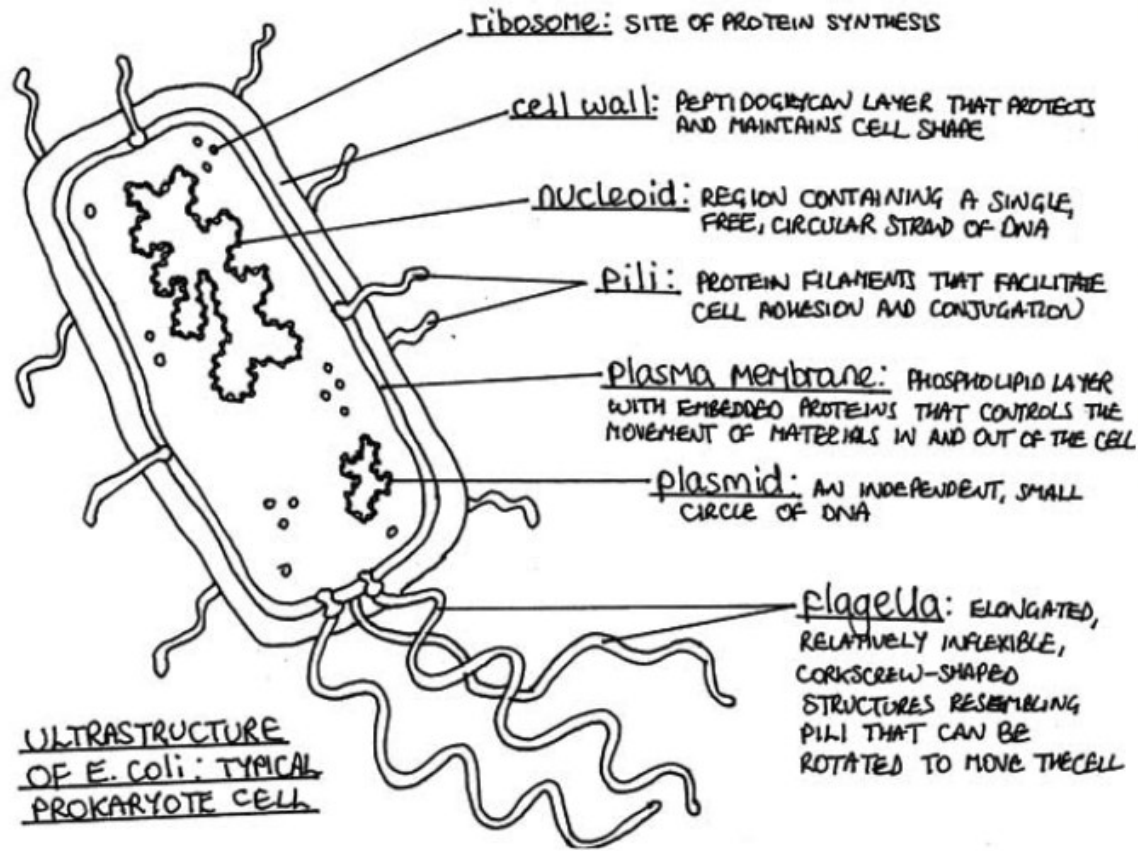
- **Living** – it possesses the features of life
- **Individual** – It acts separately
- **League** – It belongs to a social collection
- **Unit** – While being a self-contained unit, it can also be a component part
- The LILU contains other LILUs

LILU 1. Viruses as molecular machines

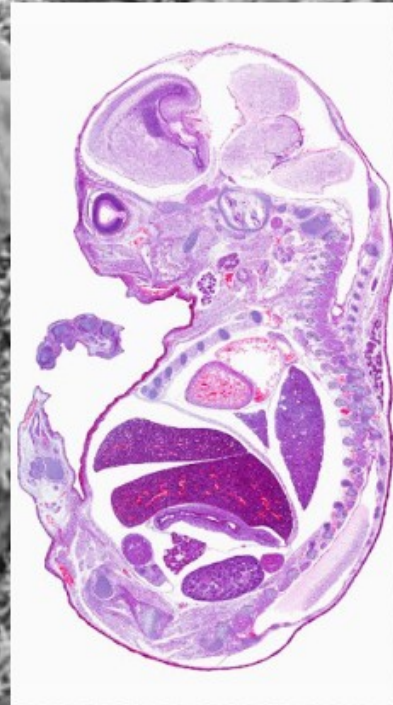
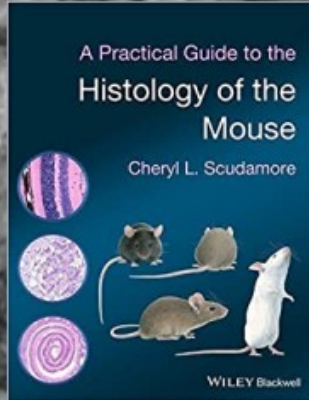


Some viruses contain RNA
and some DNA

LILU 2. Multi molecular cell (bacteria *Escherichia coli*)



L1U 3. Multicellular – Metazoan (animal – *Mus musculus*)



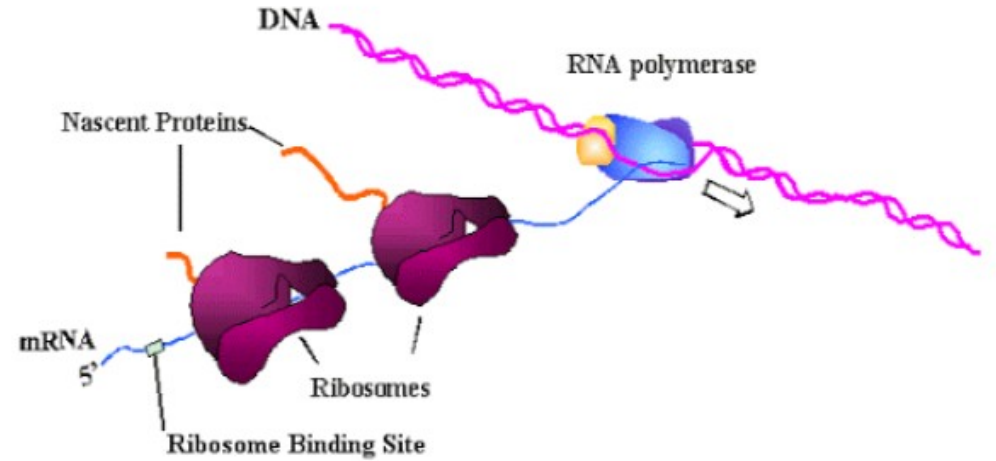
LILU 4. National – Multiple metazoan organism (Human nation – Singapore)



The genetic code

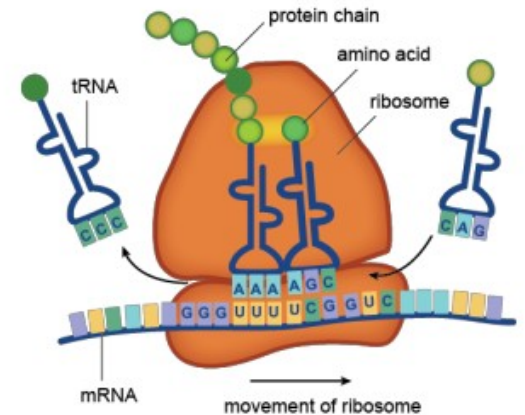
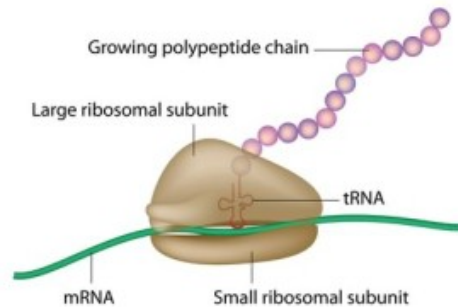
		1st base							
		U		C		A		G	
2nd base	U	UUU	Phenylalanine	UCU	Serine	UAU	Tyrosine	UGU	Cysteine
		UUC	Phenylalanine	UCC	Serine	UAC	Tyrosine	UGC	Cysteine
		UUA	Leucine	UCA	Serine	UAA	Stop	UGA	Stop
		UUG	Leucine	UCG	Serine	UAG	Stop	UGG	Tryptophan
C	CUU	Leucine	CCU	Proline	CAU	Histidine	CGU	Arginine	
	CUC	Leucine	CCC	Proline	CAC	Histidine	CGC	Arginine	
	CUA	Leucine	CCA	Proline	CAA	Glutamine	CGA	Arginine	
	CUG	Leucine	CCG	Proline	CAG	Glutamine	CGG	Arginine	
A	AUU	Isoleucine	ACU	Threonine	AAU	Asparagine	AGU	Serine	
	AUC	Isoleucine	ACC	Threonine	AAC	Asparagine	AGC	Serine	
	AUA	Isoleucine	ACA	Threonine	AAA	Lysine	AGA	Arginine	
	AUG	Methionine (Start)	ACG	Threonine	AAG	Lysine	AGG	Arginine	
G	GUU	Valine	GCU	Alanine	GAU	Aspartic Acid	GGU	Glycine	
	GUC	Valine	GCC	Alanine	GAC	Aspartic Acid	GGC	Glycine	
	GUA	Valine	GCA	Alanine	GAA	Glutamic Acid	GGA	Glycine	
	GUG	Valine	GCG	Alanine	GAG	Glutamic Acid	GGG	Glycine	

Nonpolar, aliphatic Polar, uncharged Aromatic Positively charged Negatively charged

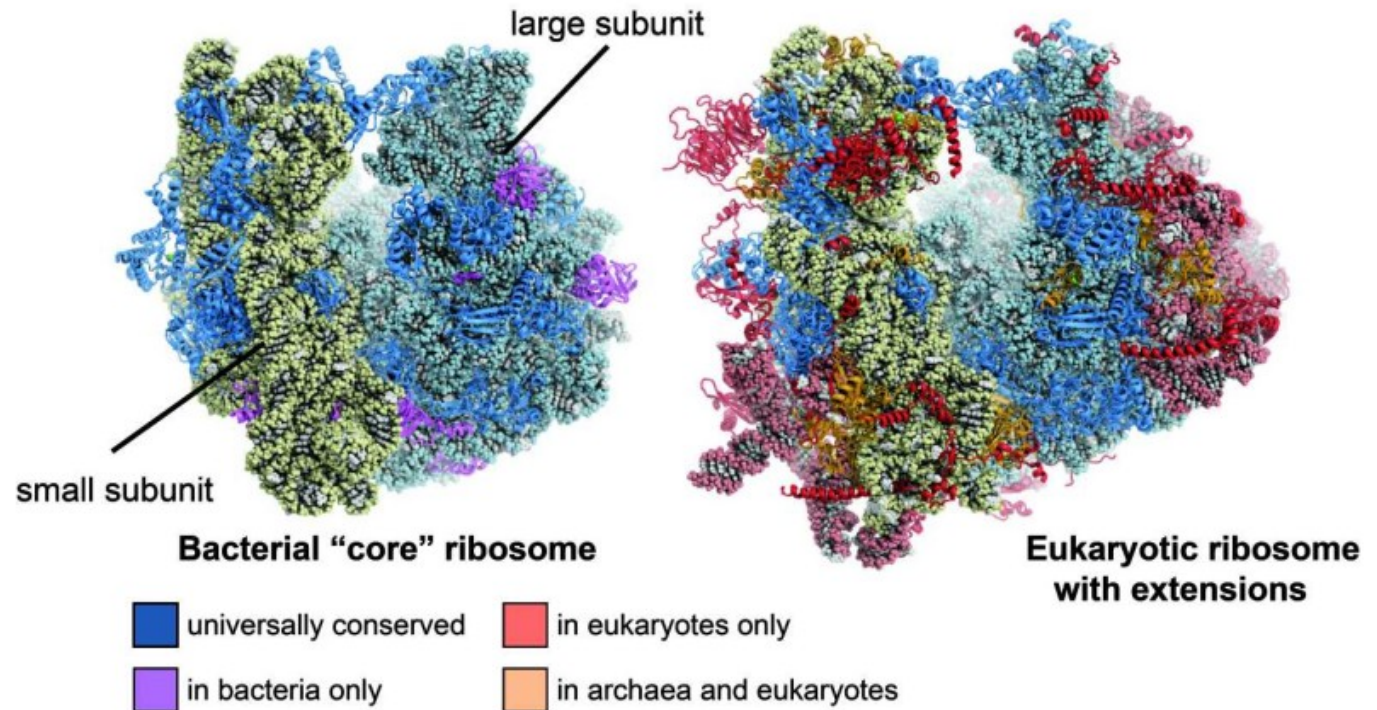
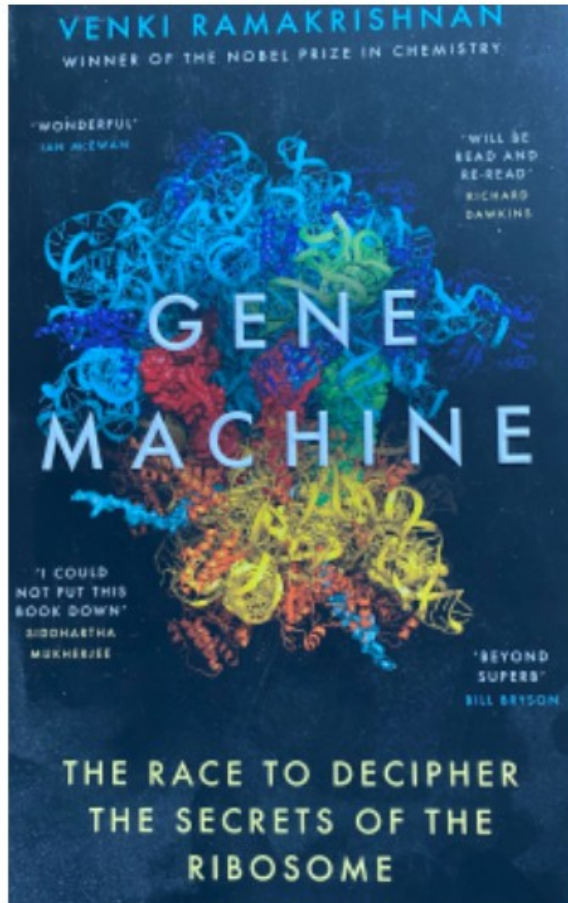


The genetic code requires tRNAs

(humans have 497 nuclear genes encoding cytoplasmic tRNA and 22 mitochondrial tRNA genes)



Ribosomes - Large molecular machines that process information in cells



The components of a nation



People

Farm animals

Agriculture

Countryside

Religion

Buildings

Sport



Industrial company



Law



Wildlife



Money



Politics



Homes



Gardens



Food



Drink



Armed & police forces



Energy sources



Theatre, performance, art, sculpture, music, poetry, fashion

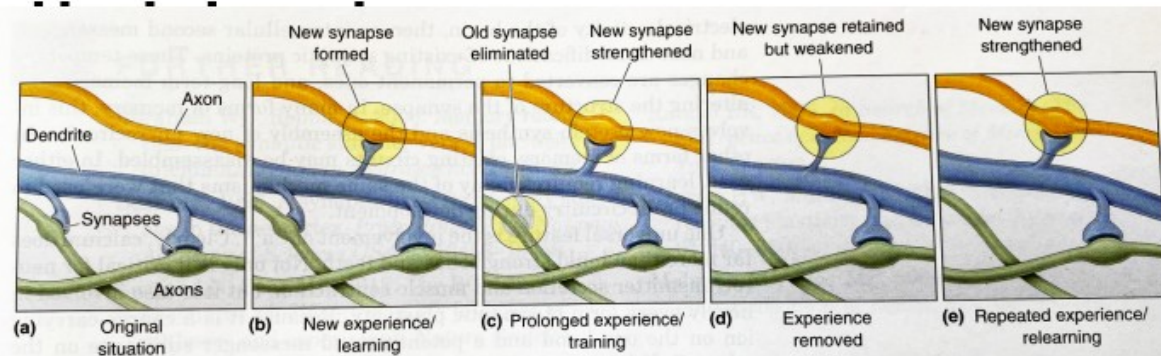
Vehicles

Experiment 4. Funquivalence

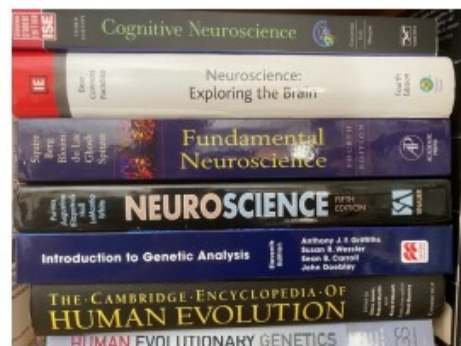
Funquivalent – a new word for a process in living individual league units (LILU) that performs the same functionally equivalent process in other LILUs but has a mechanically different operation. This differs from analogy, metaphor, similar or equivalent in demonstrating organizationally equivalent processes within the living units that operate in a mechanically different way (a kind of isomorphism related to function).

Experiment 5. The social nature of the in

- Our development involves the hardwiring of neural pathways
- Our social interactions create a neural structure within the brain (e.g. language)
- The social networks we have interact with our neural networks to form wider cultural interactions
- We are nodes within national information networks

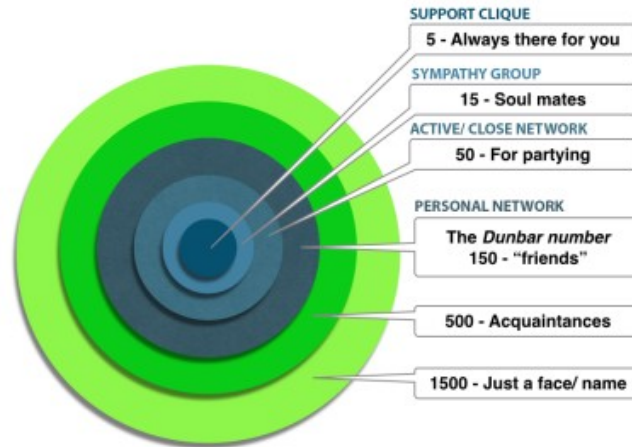
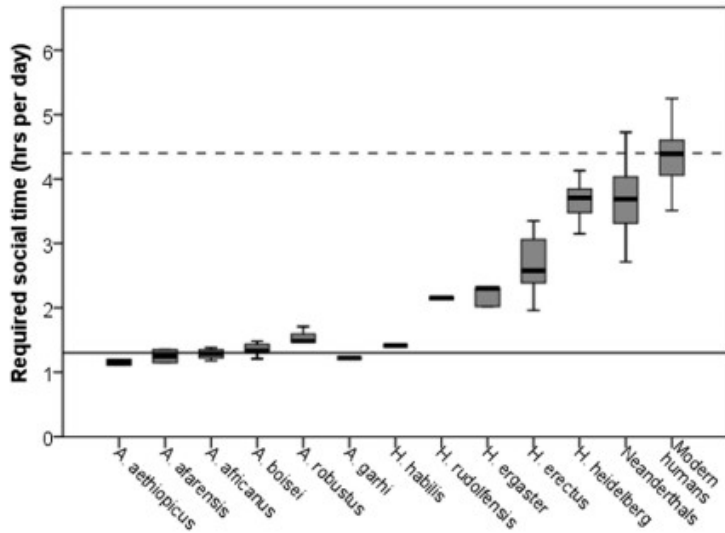


▲ **FIGURE 25.22**
Synaptic remodeling in the cerebral cortex during learning and memory. This illustration summarizes some of the structural changes that have been observed in the neocortex when mice are exposed to new sensory environments that are encoded as memory. (Source: Adapted from Hofer and Bonhoeffer, 2010, Fig. 1.)

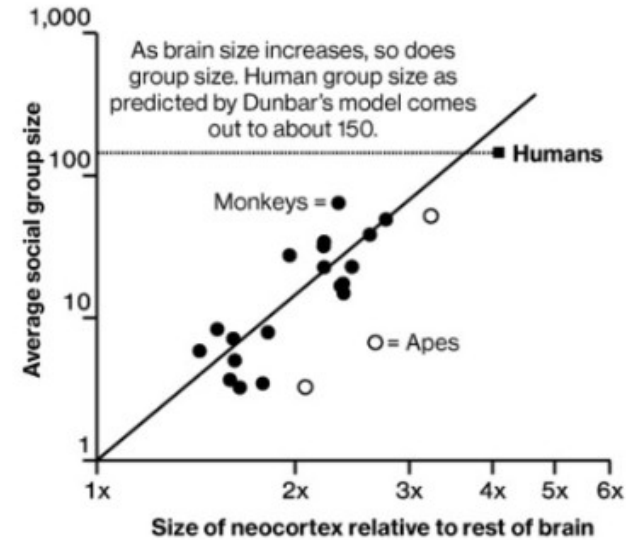


What am I in a national network?

- Can we think of ourselves as information nodes?
- Is our action like (functionally equivalent to) converting what a ribosome is doing with information?
- The information we convey is complex and nuanced.



The Social Cortex

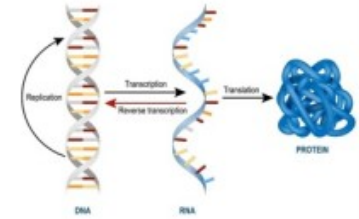


Types of language

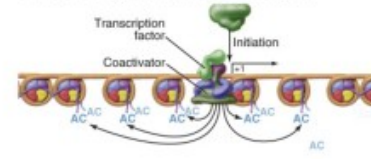
All four language types are aiding development through manipulating detailed information:

1. Nucleic acids code for proteins that build cells
2. Activator and repressor proteins regulate gene expression
3. Cellular development language - Communication between cells regulates the development of multicellular organisms
4. National linguistic language - Language and knowledge regulate national development through reading, writing, speaking, programming and doing

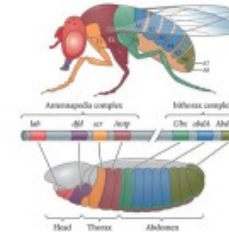
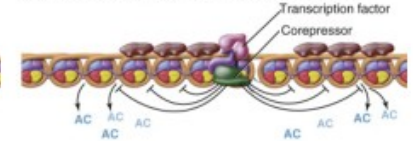
These are all examples of information processing but at the four different LILU levels the mechanisms for doing this are different.



B. Histone acetylation activates transcription



C. Histone deacetylation represses transcription



What is language

- The information system in nations used to create the man-made world.
- There are usually several languages in any one nation. (China has 200)
- Language is used for communicating ideas, emotions and desires by means of symbols.
- Failure to have social contact in early life prevents later acquisition of language skills.
- There are critical periods in childhood where language acquisition is important.



Different elements of language



Hearing



Speaking



Reading



Thinking



Teaching



Telling



Managing



Leading



Legislating



Explaining



Discussing



Writing



Discussing



Gossiping



Intentionality



Preaching

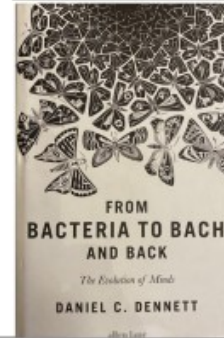


Creating

The meme and the brain - cultural evolution

- Memes are units of cultural inheritance with two parts
- They are copied by our brain and repeated to others
- It's part of our development
- Knowledge and culture are partly derived from copied ideas
- Social activity is important in transmission of ideas
- Blackmore postulates the Selfplex as a meme explanation of the self
- Memes are not popular with scientists and are difficult to define
- Our identity is tied to our social environment

Gene produces phenotype (the protein) that is then selected by evolution
Meme produces phenotype (the idea or action) that is then selected by social interaction



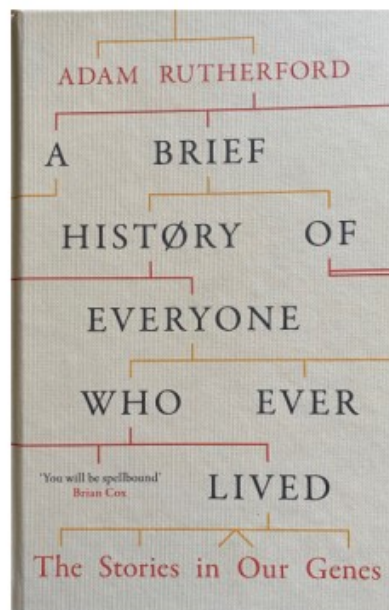
- Shop at Lidl.
- Believe in God.
- Look at this video.

You will get your food cheaper.
You will go to Heaven
You will amuse your friends



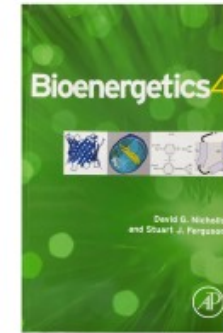
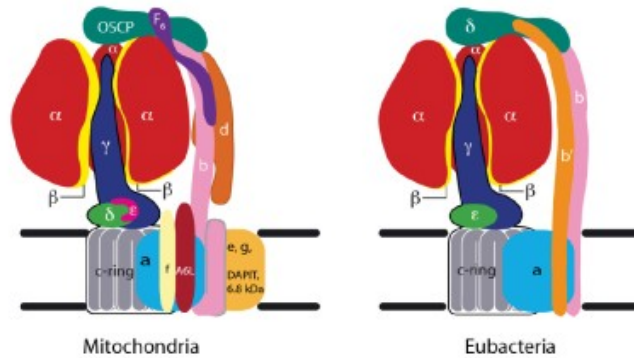
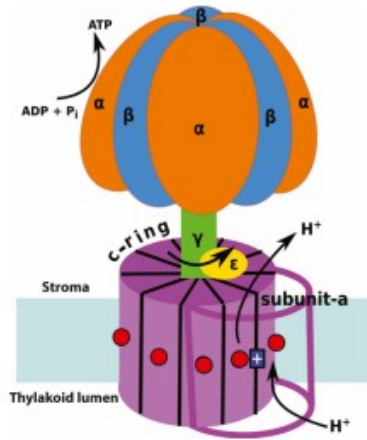
Experiment 8. Behaviour, reproduction and genetics of nations

- What happens with national genetics?
- Has war affected the genetics of nations?
- How is a new nation born?
- Do nations die?
- What is different between ancestral and national genetics?
- Currently no good model of national genetics.



- Nations exchange genetic material (people)
- Growth is through more people and bigger economy
- No sexual differentiation of nations
- Men have moved between countries more than women, through war

Experiment 9. Energy, money, power and work



ATPase motor generating energy across a proton gradient

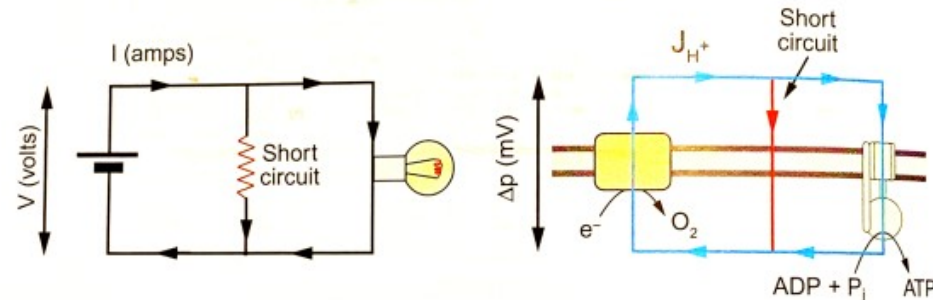
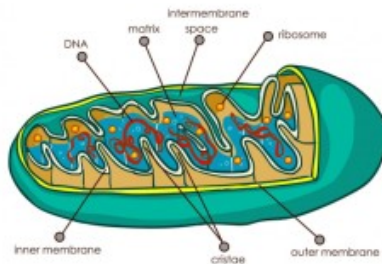
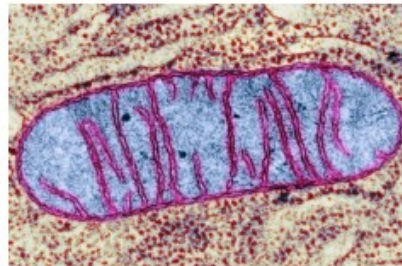


Figure 1.3 Proton circuits and electrical circuits are analogous.

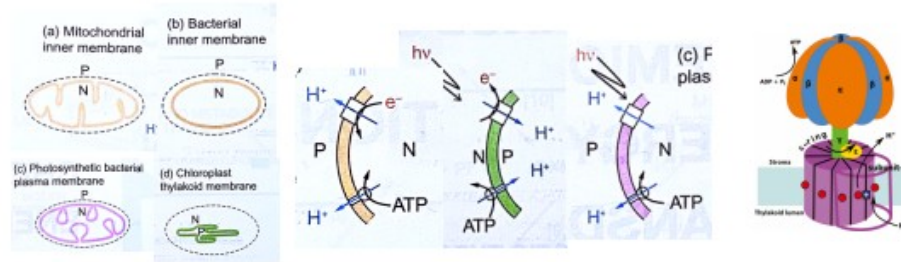
A simple electrical circuit comprising battery and light bulb is analogous to a basic proton circuit. Voltage (Δp equivalent to V), current (J_{H^+} equivalent to I), and conductance $C_M H^+$ (equivalent to electrical conductance, i.e., reciprocal ohms) terms can be derived. Short circuits have similar effects, and more complex circuits with parallel batteries can be devised to mimic the multiple proton pumps in the mitochondrion (Chapter 4).

Types of energy generation

1. Utilisation of host biochemical mechanisms

ATP as phosphate energy source

2. Proton motive force across membranes



3. Utilisation of food or sunlight to generate energy



4. Generation of energy from animals and plants, gravity, fossil fuels, solar, wind, nuclear



Nomenclature – let's do some naming

Natio cultus



Genus - Nation in Latin



Species - Culture in Latin

I will regard all nations, past and present, as individual organisms that each belong to the species Natio cultus

Ordinatio spp.



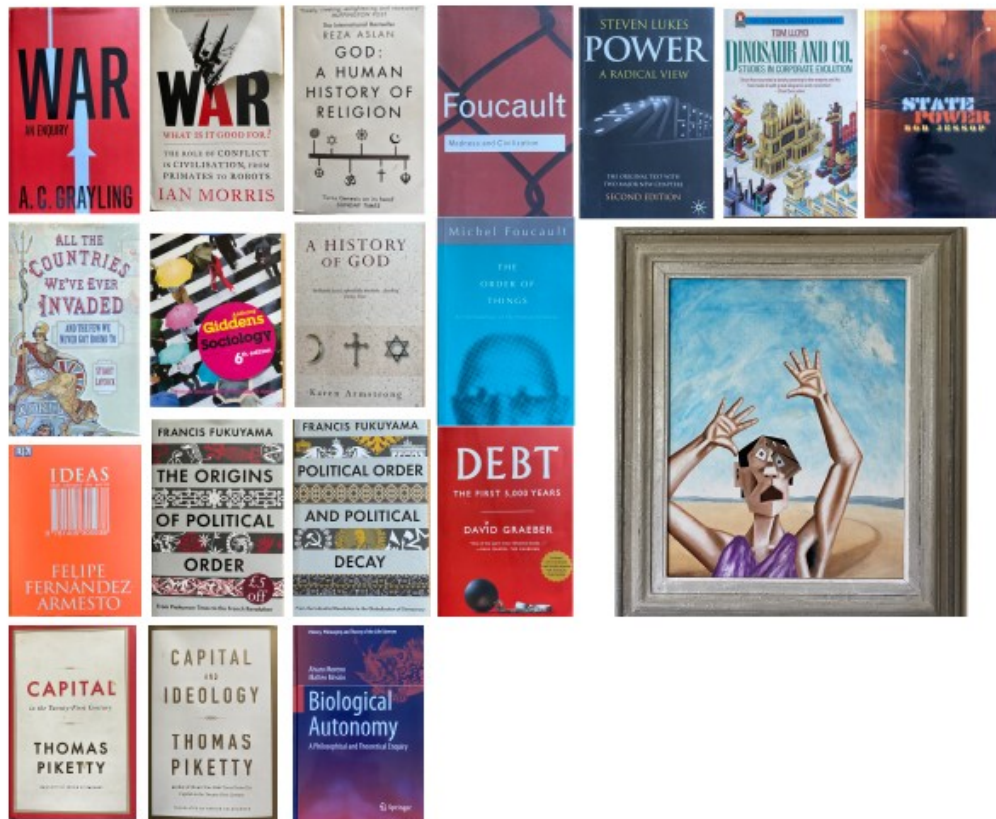
Genus - Order, arrangement, regulation, rule, organization in Latin
Several species

I will regard all organizations, past and present, as individual organisms that each belong to the genus Ordinatio

The genus Ordinatio

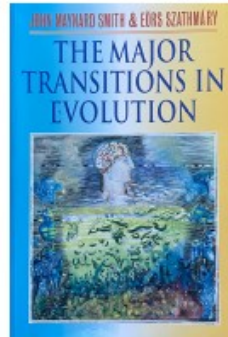
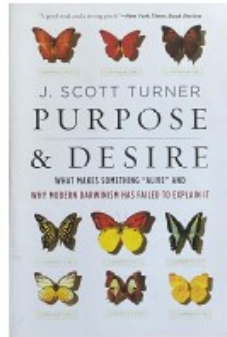
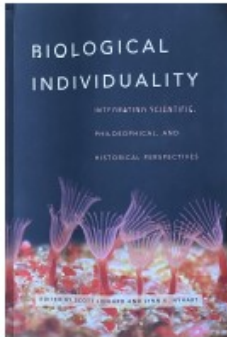
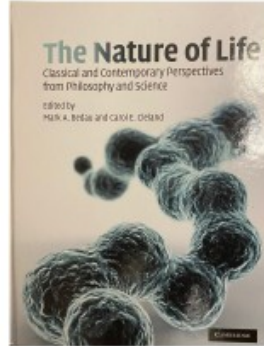
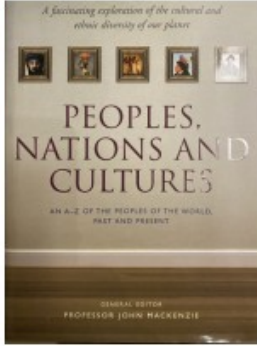
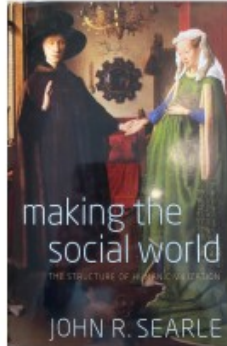
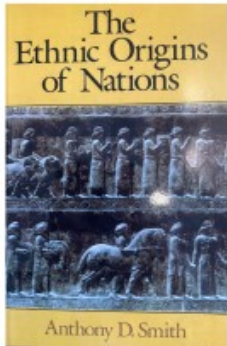
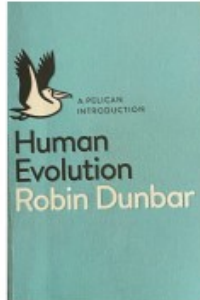
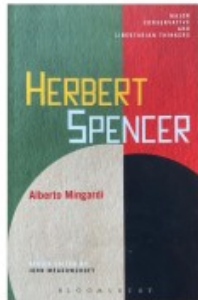
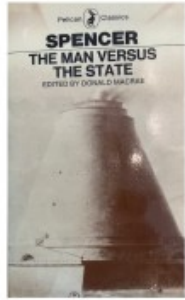
Species	Energy source (money)	Holotype
<i>Ordinatio religious</i> – religious organisations	charity, land, service and property.	The Catholic Church
<i>Ordinatio fabrica</i> - includes manufacturing industries	sale of products or services.	The Apple Corporation.
<i>Ordinatio argentaria</i> - includes banks and other financial institutions	borrowing, lending and use of money to generate more.	The Royal Bank of Scotland
<i>Ordinatio caritas</i> - includes charities	donations or from direct or indirect governmental funding.	Christian Aid
<i>Ordinatio internationalis</i> - International agencies that act to perform functions across nations.	governmental support across many nations	The World Health Organisation
<i>Ordinatio nocens</i> - includes criminal organisations	stealing, extortion, prostitution, narcotics and related crimes.	The Mafia
<i>Ordinatio politica</i> - political parties/groups that to gain controlling power	donations by party or group members who benefit from the party being in power	The Communist party
<i>Ordinatio terror</i> - terrorist organisations	sponsors, client nations or from criminal activity.	Al Qaida
<i>Ordinatio exercitus</i> - armies	sponsors, clients or host nations, from the spoils of conquest or from increased trade.	The Red Army
<i>Ordinatio civilis</i> - governmental organisations that exist totally within the realm of a nation.	direct Government funding	The USEPA
<i>Ordinatio docere</i> Educational organisations such as schools and universities	from parents, the state or donations	Oxford University

Experiment 10. Morality, duty, religion, governance, war



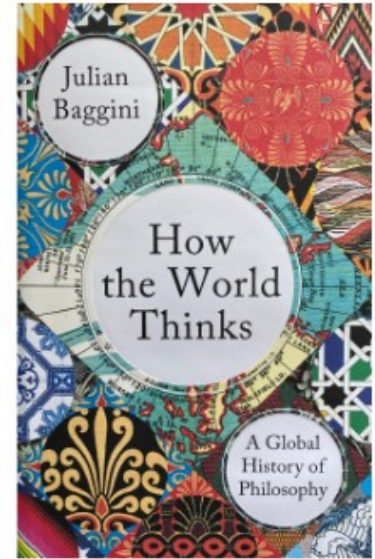
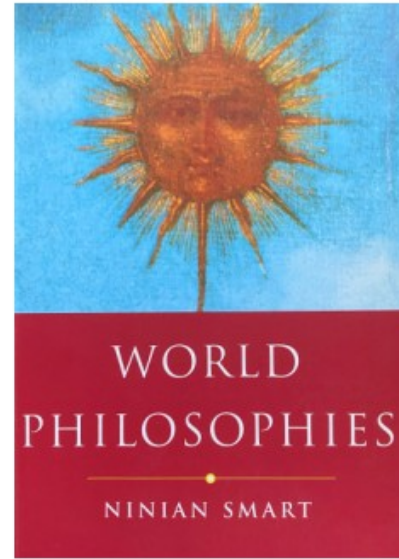
- How do we incorporate religion and war into a classification of the living world?
- God is dead but religions are real things that have functions in society
- Governance requires executive, legislative and judicial functions
- Is war an integral part of nations

Experiment 11. Philosophy of nations



- **Thomas Hobbes** used a description of The Commonwealth to put forward the metaphor that the nation is an organism
- **Herbert Spencer's** description of "The Social Organism" has limitations, but provides useful analogies between nation and organism
- Spencer's ideas contributed to Eugenic ideas that were dangerous and misleading
- German science took up some ugly nationalistic ideas that found a popularity in National Socialism
- There is a reluctance to re-examine the idea of nation as organism because of the Nazi holocaust
- Modern biology provides a means of testing whether such ideas are viable

- Is philosophy national?
- We are inside another organism. What does **Being Inside** mean?
- We have not been conscious of our position. What does this say about our consciousness?
- Does a nation think?
- Can you understand life without understanding modern molecular biology?
- Everyone in a nation has a different perspective, both personally and developmentally.
- New disciplines – Natiobiology, Organisational science, national genetics



What is life?

Features common to all organisms

- **Synthesis**

- Growth
- Reproduction
- Repair
- Structural components
- Growth and differentiation
- From genetic information

- **Metabolism**

- Energy generating reactions
- Energy utilization
- Proton gradients across membranes
- ATPases across gradients
- Complex biochemical pathways
- Unique sets of macromolecules

- **Behaviour**

- Respond to stimuli
- Interact with the environment
- Defense against damage or competition
- Can predate and parasitise
- Perception

- **An information program**

- Use a reproductive language (e.g. DNA, RNA)
- Live in a genetic community (species)
- Use molecules from other organisms
- Use genetic recombination

- **Control**

- Internal control
- Thermodynamic balance
- Complex adaptive organization
- Energy economy
- Internal transport

- **A nested hierarchy of units**

- All life requires cells
- Are bounded physical entities
- Develop as units
- Are self contained
- Are self organizing / regulating
- Compartmentalisation
- Seclusion behind membranes and walls
- Associated (flora and fauna) - holobiont

- **Heredity**

- Evolve by natural selection
- Belong to classes that are defined by common descent
- A common ancestor to all other life
- Historically evolved genetic programs that enable teleonomic processes and activities
- Evolution of higher-level activity
- A highly variable group of unique individuals

- **Adaptability**

- An ability to improvise
- Regeneration
- Responds to change

- **Fundamental properties**

- A life cycle
- Emergent properties
- Autopoiesis (an organism creating itself)
- A genotype and phenotype
- Open thermodynamic systems
- Act as chemical, physical and informational machines
- The important properties are qualitative

