
# Three Philosophical Ideas & Health

Glasgow

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# 3 Philosophical Ideas Pendulum

- The underlying nature of the physical world
  - More chaotic to more orderly and back
  - Most time on this idea
- Our relation to nature
  - As a respectful part of it to being in control of it and back
- Self Identity and social contexts
  - As part of the social context to independent of it and back

# 1. Order and Chaos

- Creation Myths: Order out of chaos
- The Greeks: World of becoming, opinion, uncertainty
- Mediaevals: God’s creation with His mystery.
- Francis Bacon: Unlock nature’s secrets; control it
- Descartes and Newton: The clockwork universe
- Laplace’s demon: One state lets him deduce all
- Poincaré: 3 Body Problem
- Jack Wisdom: Unstable Solar system

# Creation Myths

- Multiple myths with similar configurations
- From chaos to order through divine intervention
- Struggle among many gods
- Creation of world from a state of disorder (tohu va vohu) to a paradise

# Ancient Greece

- Heraclitus: Change
  - Everything is in a state of flux
- Parmenides: Unchange
  - Nothing changes
  - Motion is not even possible
- Plato: Opinion (change) vs Knowledge (unchange)
  - World of becoming vs. world of being
  - Opinion is about the ever-changing world of becoming
  - Knowledge is of the “real” world of being

# Aristotle:

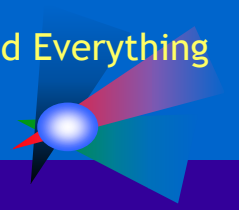
- Underlying Order
- Knowledge of world around us
  - Hierarchy
  - Teleology
  - Geocentricism
  - Four Elements
  - Euclidean Geometry
- Longest Lasting Physical Theory
  - 2000 Years +

# Science and Culture

- "Science too is based on culture and often the important new questions which rejuvenate science come from questioning which emerges from other cultural viewpoints."

# Mediaeval Physics

- Role of Creator Added
  - Order and disorder related to divine will
  - Underlying Divine order not always accessible to us
- New teleological accounts
  - Related to divine objectives
  - E.g. Lessons for humans
- Sources of knowledge
  - Includes divine revelation
    - Scripture
    - Direct contact
    - Esoterica



# Attacks on Aristotle

- From Geocentric to Heliocentric
  - Copernican revolution
- Galileo and Falling Bodies
  - Mind experiments
  - Live experiments
- Attacks on Teleology
  - Towards a mechanical account
- Attacks on Hierarchy
  - Galileo and sunspots

# Francis Bacon: 4 Idols and Method

- Idols of the Tribe
  - deceptive beliefs inherent in human minds
  - a tendency to exaggerate and make connections where there are none
  - Orderliness of the stars has led us to attribute imaginary powers to them
- Idols of the Cave
  - Arise in individual minds and their particular predispositions
  - Psychologists often find psychological explanations everywhere
- Idols of the Marketplace
  - The false significance placed on language
  - Purely linguistic connections lead us to adopt false views about the world.
  - An acorn “Seed of an oak” must somehow “contain” the “oak”
- Idols of the Theatre
  - Philosophical and other academic disciplines that build massive and impenetrable false theories fiercely clung to by academics.
  - E.g. Aristotelian physics
- Method
  - Observation
  - Gathering useful information
  - Application of new scientific principles.

# René Descartes' Mechanical Man

...if the body of man be considered as a kind of machine, so made up and composed of bones, nerves, muscles, veins, blood, and skin, that although there were in it no mind, it would still exhibit the same motions which it at present manifests involuntarily, and therefore without the aid of the mind....

René Descartes
*Meditations,* Book VI

# Isaac Newton's Physical World

- Universal applicability of
  - Euclidean Geometry
  - Calculus
  - Three Laws of Motion
- From corpuscular to astronomical
- Initial steps towards stability of solar system

# Newton-Leibniz: the Solar System

- Two views of order
  - Newton (Clarke): Orderly clockwork system requires intermittent divine intervention to wind and adjust the clock
  - Leibniz: God creates a perfect system that once created requires no further intervention

# Simon Laplace

- Wrote Celestial Mechanics
- Simplified assumptions about the variables in the solar system
- Periodicity of planets over 10,000 years
- He thought he had achieved the elusive analytical solution and proved the stability of the solar system

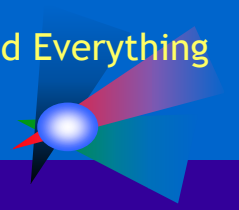
- Meeting with Napoleon

  "God is an unnecessary hypothesis."

# Laplace's Demon

We may regard the present state of the universe as the effect of its past and the cause of its future. An intellect which at any given moment knew all of the forces that animate nature and the mutual positions of the beings that compose it, if this intellect were vast enough to submit the data to analysis, could condense into a single formula the movement of the greatest bodies of the universe and that of the lightest atom; for such an intellect nothing could be uncertain and the future just like the past would be present before its eyes.

Pierre Simon Laplace



# An Aside

- Napoleon appointed Laplace as his minister of the interior
- Fired him after six weeks
- “He tried to reduce the workings of the ministry to a series of predictable infinitesimal events.”
- Lesson: An argument against Taylorism 100 years before it was invented.

# Henri Poincaré

- The general problem was to find a formula that allowed you to deduce the motion and location of any number of bodies with gravitational forces at any time
- Poincaré worked on the three body problem
- He did not solve the three-body problem; in fact, he proved that a simple, general solution did not exist.

# Jack Wisdom

- In 1984 he showed that the spin of Hyperion (a moon of Saturn) is chaotic
- In 1988 using a powerful computer he and Sussman calculated the paths of the outer planets and found chaotic aspects to the path of Pluto

# Jacques Laskar

- In 1989, Jacques Laskar published the results of his numerical integration of the Solar System over 200 million years
- Not full equations of motion,
- Averaged ones like of those used by Laplace but with 150,000 terms.
- Laskar showed that the Earth's orbit (as well as the orbits of all the inner planets) is chaotic
- An error as small as 15 metres in measuring the position of the Earth today would make it impossible to predict where the Earth would be in its orbit in just over 100 million years' time.

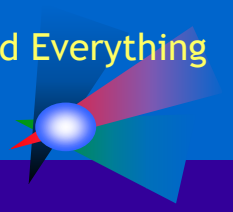
# More information not more certainty

"…..although we may know the initial conditions to an infinite number of decimal points, the future remains impossible to forecast."

Ilya Prigogine

# The New Physics

- What we see and how we explain
  - There are lots non-forecastable phenomena
  - Stock market, weather, the next drip of the faucet
- Heisenberg's Uncertainty Principle
- Complexity Theory
  - Usefulness of uncertainty
  - Instability and stability go together



# 2. Humans & Natural Environment

- Paganism: humans as one element of nature
- Mediaeval notions of the world as creation
- Baconian ideas about “taming” nature for our own ends
- Scientific advance as a solution to problems
- Rachel Carson’s *Silent Spring (1962)*
- Renewed realization about humans as part of Nature
- We must live in sync with nature

# Pagan Relationship with Nature

- Spirits inhabited trees, mountains and rocks.
- Stars in the night sky *were* alive
  - Stars were Gods who could affect them
  - Human affairs linked to motion of stars
  - Astrology a science
  - Temples dedicated to gods in the sky (e.g. the sun, Mercury, Venus, Mars) as late as the sixth century AD
- Continues to today

# Aristotelian Views

- Living things were distinguished from inanimate objects by the fact that they had “souls,”
  - plants had vegetative souls, which enabled them to grow and produce seed
  - animals had appetitive souls - to find their own food and bear young,
  - only humans had a rational soul for the accumulation of knowledge and the possibility of self-conscious moral lives.

# Mediaeval Views

- Humans distinct from the rest of the natural world
- Souls personal, immortal, capable of salvation
- Life after death.
- Humans at the top of a hierarchy of mortal living things created by God. (between animals and angels)
- All of Nature was a divine creation
  - demanded consideration and respect.
- How *creatures* lived was a lessons for humans
  - bestiaries described the exemplary moral lives of animals
  - the land, like people, needed sabbatical rest.

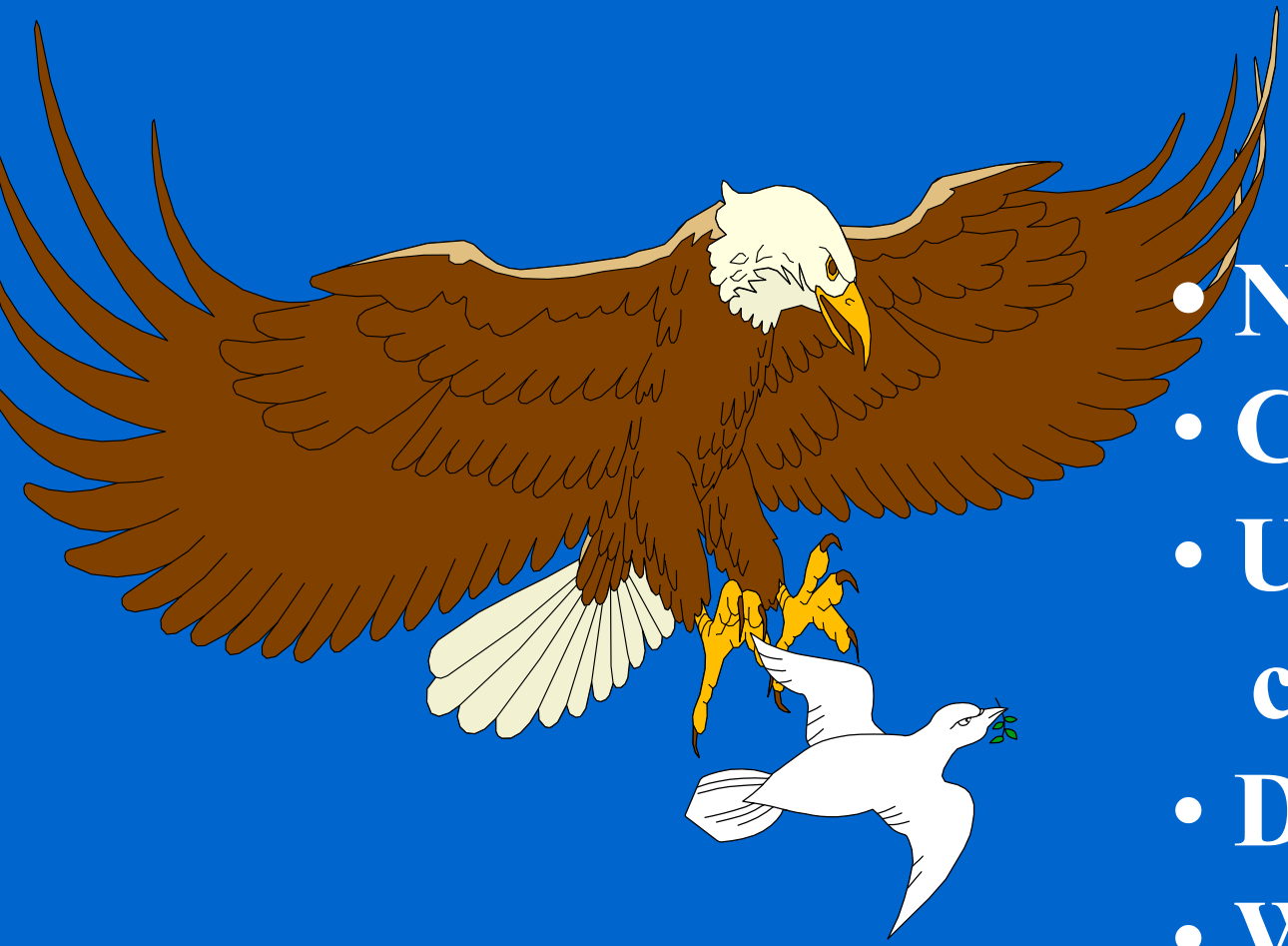
# The Great Chain of Being

# The Gold Sun Lion

# Francis Bacon

- The discovery of luciferous and fructiferous truths, would allow humans to tame nature
- Extract its treasures from it and use nature for our own ends
- We would ultimately, through science gain control over all natural phenomena

# Hobbes: State of nature is a Jungle



- **No rules**
- **Chaotic**
- **Uncontrolled competition**
- **Dangerous**
- **Wild**

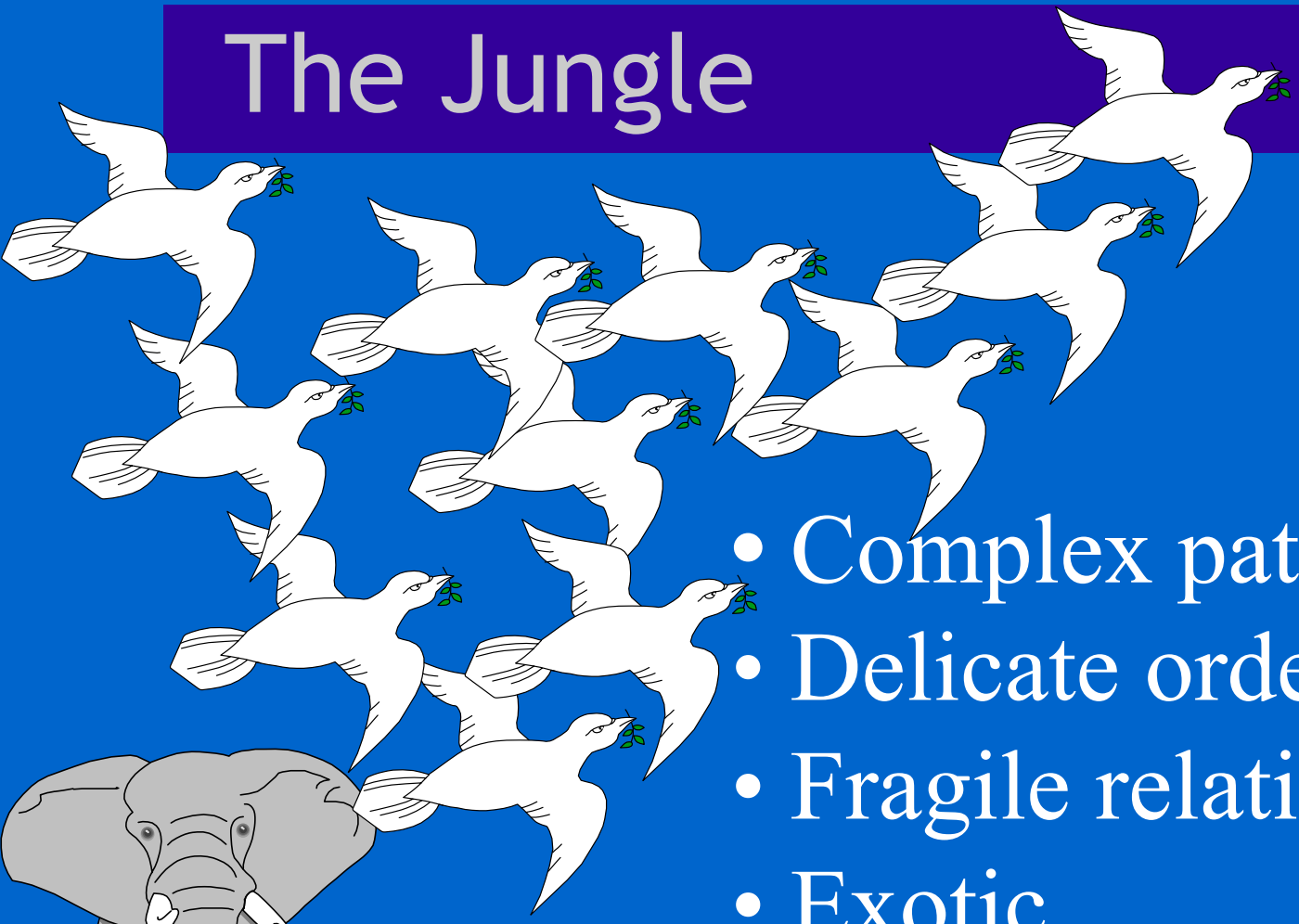
# Nineteenth Century Optimism

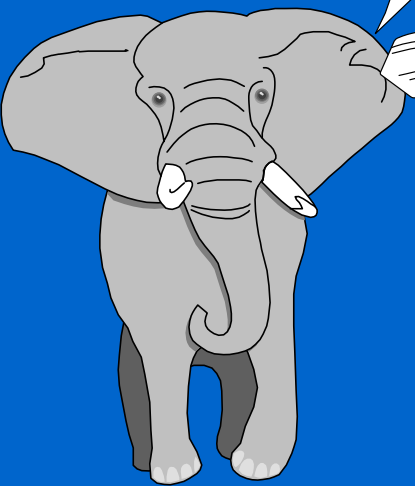
- Science has begun to tame nature
- In the future jungles and swamps would be transformed into plantations and zoological gardens
- More and more animals would be domestic
- The world would be civilized
- Huge engineering projects were begun
- Science would solve and problems that arose

# Rachel Carson: Silent Spring

- Rachel Carson's *Silent Spring (1962)*
- major shift in public attitudes
- Damming rivers, building canals, draining swamps, DDT, fossil fuels led to global warming, reduction of fish stocks and diminishing biodiversity
- No control over nature
- Live in accord with fragile complex nature learn to respect it
- Optimistic views of the future
  - more green spaces, "natural" foods, and solar and wind power,
  - Not personal jet planes, gigantic mechanized cityscapes and fusion based energy.

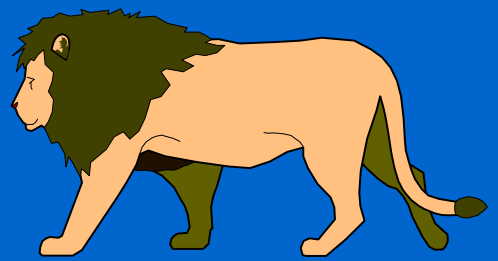
# The Jungle





- Complex patterns
- Delicate order
- Fragile relationships
- Exotic

- Free



# The Pendulum Swings Back

- No rules
- Chaotic
- Uncontrolled
- Dangerous
- Wild

- Complex patterns
- Delicate order
- Fragile relationships
- Exotic
- Free

# 3. Self identity & social contexts

- Primitive societies:
  - Self understood by relationships
- Ancient Greek:
  - Self in Political context
- Mediaeval
  - Self and salvation
- Descartes:
  - Body Mind Distinction
- Recent:
  - Reintegration of individuals and their social (and physical) environment

# Primitive Social Identity

- Individuals identify themselves in terms of their relationships with others.
- A network of relationships determines who she is:
  - daughter of A
  - sister of B
  - cousin of C, D and E
- A sense of self is not distinct from a sense of place in one's kinship group.

# Aristotle

- Identity was political as well as a familial
- the resources, rights and obligations of citizens
- A full citizen has more educational, economic and political resources than others, and the role a citizen plays will determine not only what he does, but who he is.
- a good life depends not only on a person's actions, but also on his political circumstance.

# Mediaeval period

- Self independent of others
- People assumed more responsibility for their actions and their religious salvation.
- Personal identity distinct from one's social, political or familial position

# Renaissance

- The printing press increased individuals' direct access to differing ideas and information
- The Protestant Reformation individuated people even more by creating personal rather than congregational links to religion.

# Descartes' Notion of Self

- Mind and body are distinct substances
- Self became a mental phenomenon
- The awareness of our own essential identity emerges logically from our mental capacities. (I think therefore I am.)
- Direct access to our minds, so we know *who we are but there is a s*truggle to prove the existence of the external world.
- Bodies mindless mechanisms
- We are isolated individual minds.
- Impact on concept of people and place in the world.
  - Locke to modern existentialists.

# Current Views

- Personhood is not isolated from environment
- Arguments against separation of body and mind.
  - G.E. Moore no need to prove external world
  - Gilbert Ryle “ghost in a machine.”
  - Ludwig Wittgenstein: self in “form of life.”
- Self = interaction with immediate & linguistic, social and political environments, & other aspects of the world
- Complex connections between inds and environments supported by psychoanalysis to neuropsychology.

# Three Big Ideas Pendulum

| Idea | Primitive | Ancient | Mediaeval | Modern | Current |
|---|---|---|---|---|---|
| Chaos & Order | Order out of Chaos Myths | Real world is ordered | God knows order | We can know it too | Order & chaos Interact Uncertainty |
| Man & Nature | Part of nature | Man as animal | Respect for creation | Regain mastery | Interact as Part of Nature |
| Self Identity | Kinship location | Role and state | Salvation of the person | Ghost in the machine | Interact as part of development |

# Mesopotamian Ideas of Health

- Linked to the will of the various gods and spirits.
- Disease of an organ linked to chaos as well as action of gods
- *Ashipu* makes offering to a particular god to
  - help the sick person expel the evil spirits
  - regain an improved relationship with the gods of his or her organs
  - regain order
  - to achieve a cure.

# Aristotle

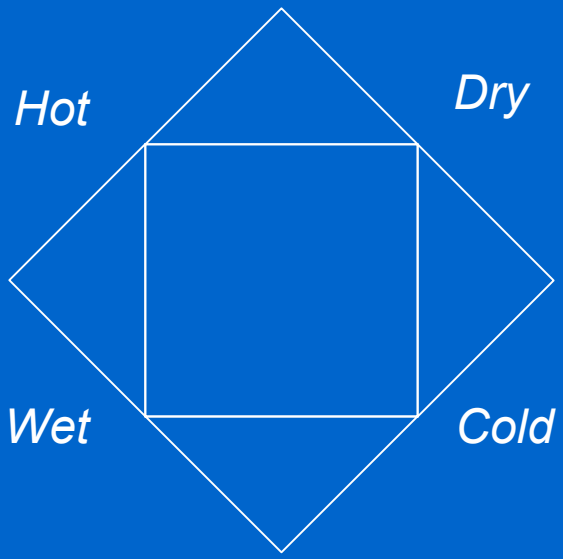
- Final cause
  - Final cause of an acorn is to become an oak tree
  - Final cause of exercise is health.
- Proportionality of elements
  - “if the disproportion of the hot and cold elements is the cause of ill health, their proportion is the cause of health” (Posterior Analytics Book I part 13).
- For Aristotle, medical interventions have health as their final cause, and the rebalancing of the elements as their means.

# Galen

- Longest lasting medical framework (2000 Years)
- Still around: Hot soup for a cold
- Four humours

**Summer**
Fire
Yellow Bile **(Liver)**
Choleric
**Youth**

**Spring**
Air
Blood **(Heart)**
Sanguine
**Childhood**




**Autumn**
Earth
Black Bile **(Spleen)**
Melancholy
**Adulthood**

**Winter**
Water
Phlegm **(Brain)**
Phlegmatic
**Old Age**

# Galen's Humours

- Refer to character and sense of self
- Connected to social and physical environments
- Temperament and physiology interactive,
  - Being angry increases the flow of black bile.
  - More black bile  can make someone angry.
- Illnesses were  "distempers" (Disorders)
- Regimens tempered the humours
- Rebalancing interventions
  - changes in environment
  - adjustments of lifestyle
  - Galenic medications part of the naturopathic medicine cabinet.
  - cupping, purges and bleeds
    - Gwyneth Paltrow

# Mediaeval Health

- Continued Galenic + God's lessons
- Garden of Eden Concept of Health
  - no illness, no aging and no pain. Significantly
- Fall
  - women would feel the pain of childbirth
- Similar to WHO definition
  - "a complete state of physical, mental and social well-being."
- Only by regaining paradise will mankind recover this state.
- WHO account of health may expresses the wish to create  a man-made paradise.

# Paracelsus

- Theopharastus Bombastus von Hohenheim: (1493-1541)
- burned Galen's books in the town square;
- major influence on 17th century scientific practices
- body chemical retort
  - food, liquids and air
  - blood, muscle and various excreta.
- Health: appropriate chemical reactions
- Disease
  - chemical imbalances
  - Poisons
- Cures testable

# Descartes

- “[S]o also the human body may be considered as a machine so built and composed of bones, nerves, muscles, veins, blood and skin that even if there were no mind in it, it would not cease to move in all the ways it does at present when it is not moved under the direction of the will.
- “healthy” machine runs smoothly
- “The preservation of health has always been the principle end of my studies” he hoped to devise “a system of medicine which is founded on infallible demonstrations.”

# Robert Boyle

- "Corpuscular mechanical" account of health
  - atomic and chemical constituents of the human body followed mechanical laws of nature
  - set the research agenda for medicine for the next 300 years.
  - ordered world in which diseases and their causes can be readily identified, and in which pharmaceutical and surgical cures can restore the smooth functioning to the body.

# 18th and 19th Centuries

- Sydenham
  - ID diseases as natural kinds
- Sanitarians
  - Large Scale Public Health
- Germ Theorists
  - Koch, Pasteur and disease causes and cures
- Vision of the future optimistic

# Publicly Funded Health Care: The UK Example

- Boer War
- Dr. G.C.M. McGonigle
  - "We used to think that the millennium in public health would come about by perfect control of hygiene alone…But in recent years the personal side of public health has come back to occupy the minds of sanitarians. [B]ecause of the advance of science the cost of illness [is] beyond the purse of the average person."
- Publicly funded health care would cure and reduce demand
- NHS 1948

# Demand Goes Up

- Success of chem-mech model DEMAND UP
  - better diagnostic techniques, = more illnesses
  - More demand for surgical services
    - replace hips and knees
    - transplant kidneys, hearts and livers
  - Better drugs contribute = more money
- Limitations of chemical-mechanical model
  - some diseases (cancer, diabetes, asthma) no cures
  - Diagnosis and treatment of cancer, more complex.
- Focus on chem-mech worrisome.
- "Researchers are trying to understand an epidemic of shooting deaths by studying the workings of gun triggers."

# Thomas McKeown 1970s

- Major contributors to health beyond medical care and traditional public health.
- Healthy behaviours and the social and physical environment had more influence on health than biological status, or medical interventions.
- Idea of the Health Field and the Lalonde Report
- At first four then numerous influences on health.

# The Health Promotion Path:

## The Lalonde Report: The Health Field Concept

### Environment

"All matters related to health external to the human body and over which the individual has little or no control." Including the physical and social environment.

### Lifestyle

The aggregation of personal decisions, over which the individual has control, affect health. Self-imposed risks created by unhealthy lifestyle choices can be said to contribute to, or cause, illness or death.

### Human Biology

All aspects of health, physical and mental, developed within the human body as a result of organic make-up contribute to health.

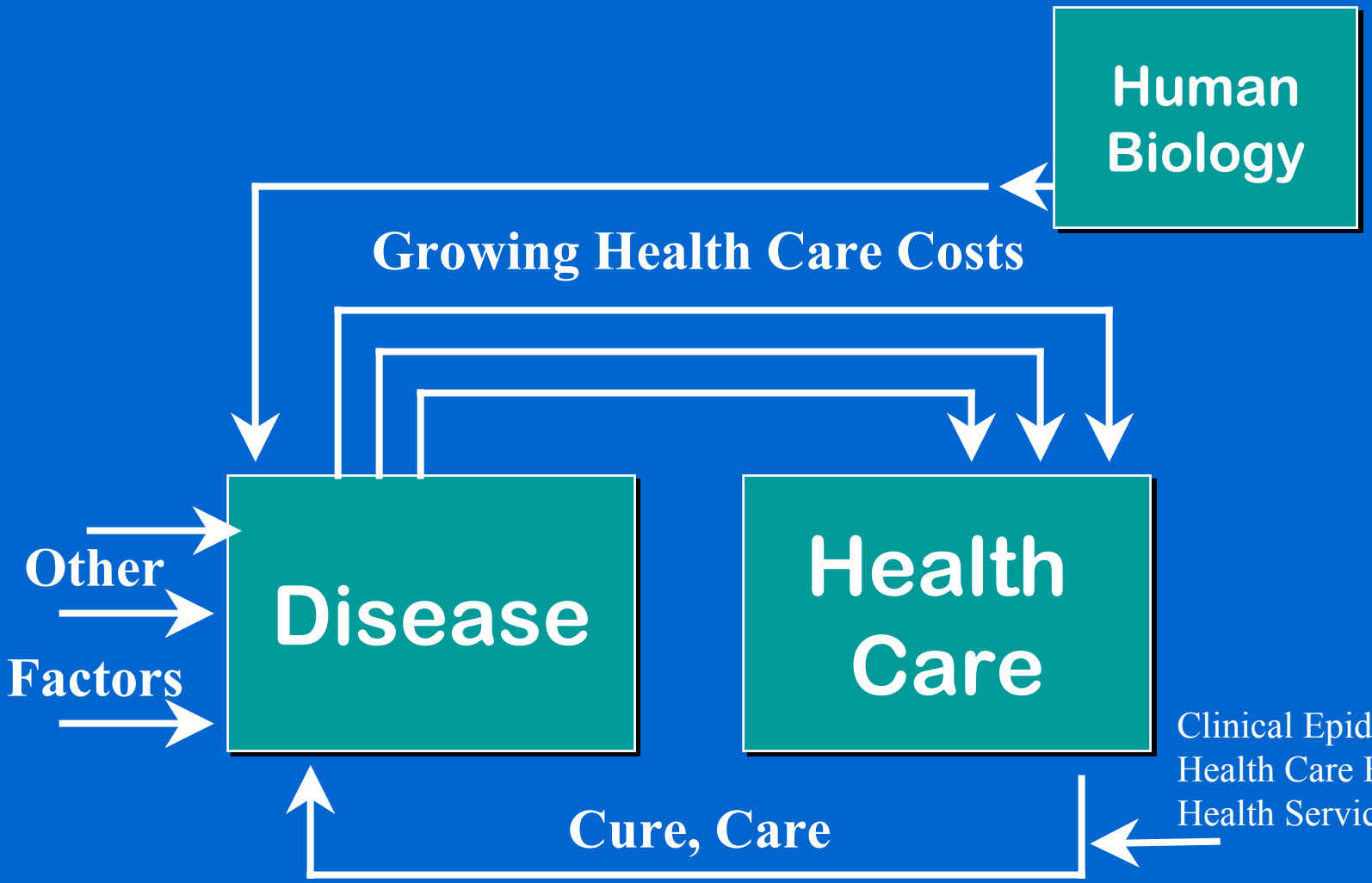
### Health Care Organization

The quantity, quality, arrangement, nature and relationships of people and resources in the provision of health care influence health.

# Black Report (1980+)

- Landmark report on inequalities in health
- Correlated health status with social class
- Recommendations to reducing years of life lost through inequality.
- Meta-analyses multiple determinants
- New Reduction: “control over life”
- Lack of control correlated with cancer, heart disease and Alzheimer’s.

# How Health has Been Understood



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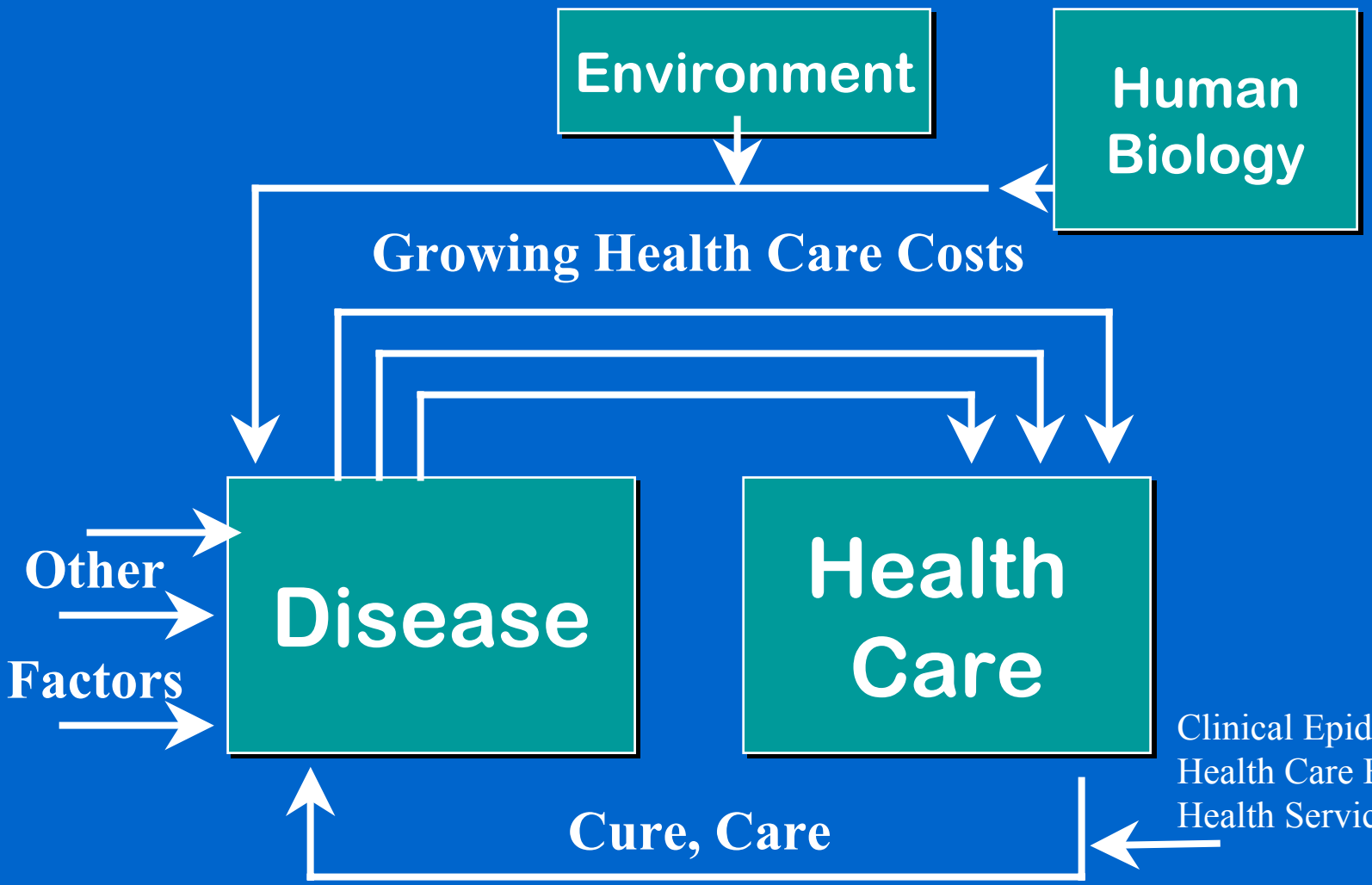

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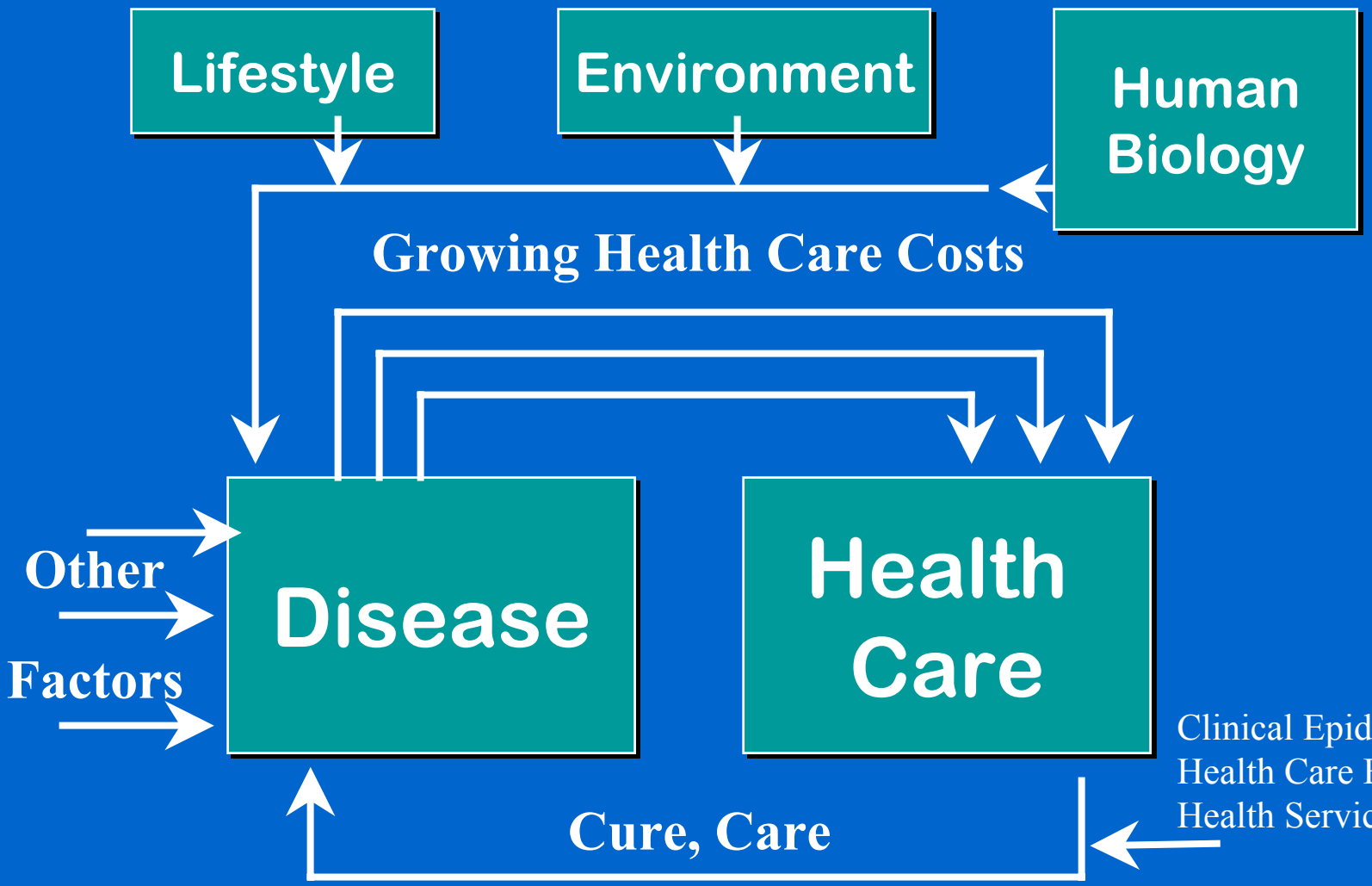
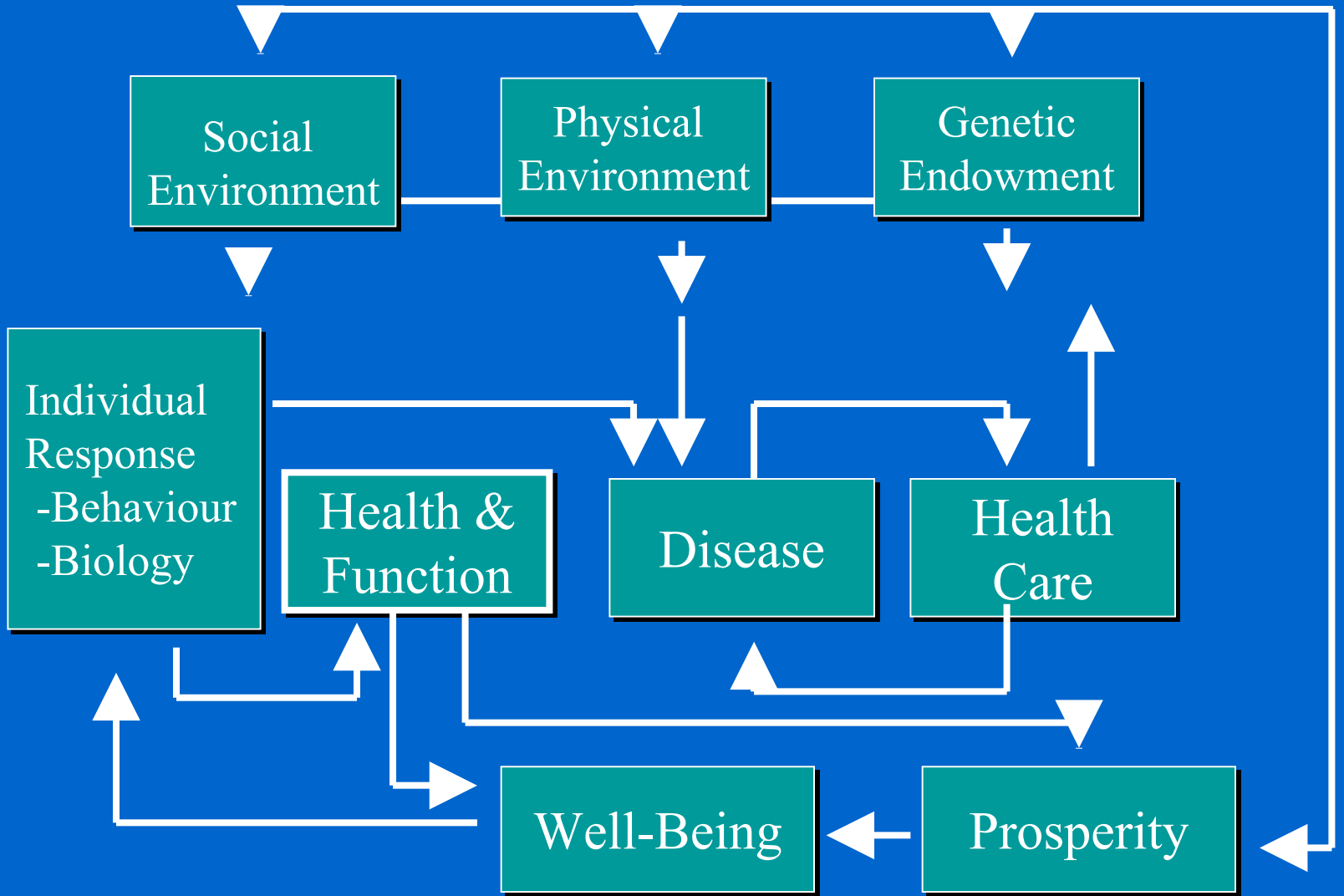


# Feedback loop for human well-being & economic costs



# Four Metaphors for Health

| Metaphor | Health | Medicine |
|---|---|---|
| Four Humours | Balance of Humours | Rebalance through life style, cupping, purging, bleeding |
| Garden of Eden | No Pain, No Sickness, No Aging | Unnecessary |
| Chemical Processor | Proper processing occurs | Add some chemicals, counteract others |
| Machine | Smooth Running | Adjust mechanisms through surgical or chemical intervention |

# Inflamnation

- Influence on diseases
- Healthy response to everyday stress
  - Necessary for normal development
  - Inflammation followed by recovery increases tolerance
- Unhealthy response
  - No recovery before next episode
  - Chronic inflammation increased risk of serious disease
- Differences between developmental and dangerous inflammation may be measurable by stress hormones remaining in body over time

# Inflammation & 3 Ideas

- Order & disorder interactive in “normal” world
  - People confront both in the course of their lives
  - Healthy lives contain periods of order and disorder
  - Constant smooth functioning is not a sign of health
  - No response to “normal” unpredictable disorder
  - “Bounce-back-ability” is distinct from control over one’s life, because we do not have control over when and how episodic disorders might occur.

# Bounce-back-ability

- Connections to resources
  - Genetic structure is a resource for recovery
  - how individual identity develops through interactions with parents, friends and community
  - education, prosperity, good housing,
  - clean air and water, healthy food etc.
  - Access to health care

# Bounce-back-ability Policies

- Interventions which increase and strengthen individuals' resources to accept and respond to disorder in their lives can narrow the health gap between the rich and the poor.
- Other policies have proven less effective.
  - Health education projects widened inequalities
  - Differentially benefit highly resourced to apply knowledge
  - E.g. stop smoking campaigns

# Augmenting Bounce-backability

- Providing people with resources they can use
  - Increase capacity to respond to lifes crises
    - Publicly funded general education
    - Means of increasing economic independence
  - It may be that the results are testable
    - considering the incidence of stress related diseases
    - physiological testing?

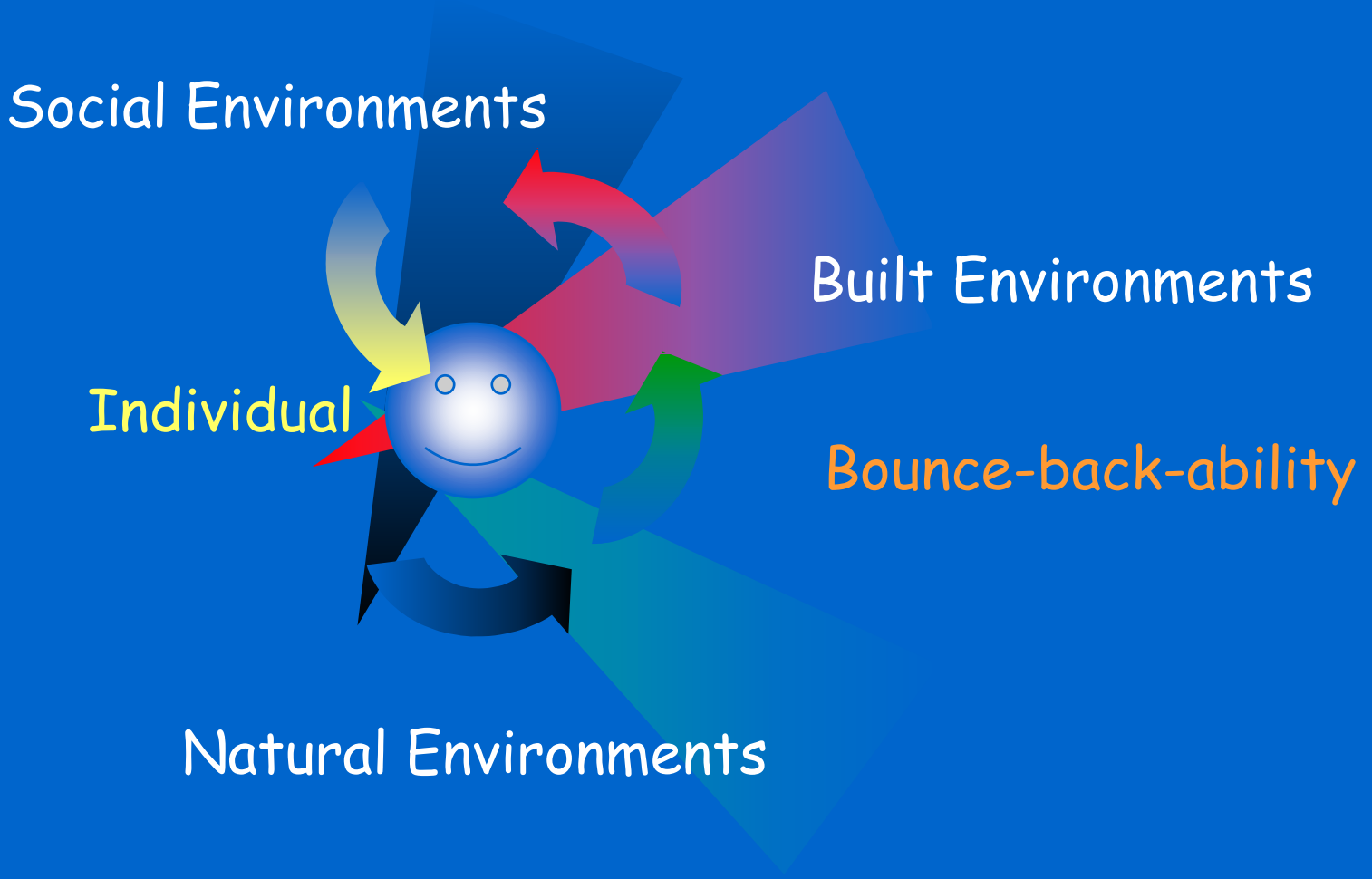
# A new understanding of health

- This is not the only candidate
  - Others include broadening or understanding of the range of meaningful interventions to deal with disease
  - Developing fresh understanding of other areas of development

# Health Concepts: Boxes and Arrows

- Boxes: The individual and the body
  - e.g. clinical medical science
  - the body as mechanism
- Boxes: The environments, natural, built and social inequalities in health
  - McKeown
  - humans as a function of environment
- Arrows: The interactions between individuals and social & physical context
  - e.g. Sociology, Complexity Theory Talcott Parsons, Aaron Antonovsky Ilya Prigogine.
  - The human understood interactively

# Contributions to Health



# A more realistic schema for health