

BIOSOCIAL INTERACTIONS IN MODERNISATION

An introduction to social biology

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Biosocial interactions in modernization

How to understand...	without insight about.....
➤ individualism	➤ Hardy-Weinberg law?
➤ sex and gender	➤ sexual selection?
➤ family structures	➤ mating strategies?
➤ fertility behaviour	➤ 'inclusive fitness' theory ?
➤ social mobility	➤ polygenes ?
➤ racism	➤ ingroup/outgroup syndrome

Biosocial interactions in modernization

- Various approaches or domains of interest possible, e.g.
 - intra-individual ontogenetic development, or
 - **inter-individual variation**
 - Individual
 - Family
 - Population
 - intergenerational
- Various cultural stages can be considered:
 - Environment of evolutionary adaptedness (EEA)
 - Agrarian era
 - **Modernization**

Biosocial interactions in modernization

Sources of biological variation



Evolutionary background



Specific problems in modernization

Sources of biological variation

- Individual variation
- Age variation
- Sexual variation
- Family variation
- Reproductive variation
- Social variation
- Racial variation
- Intergenerational variation

Biosocial interactions in modernization

➤ 1. Introductory lectures

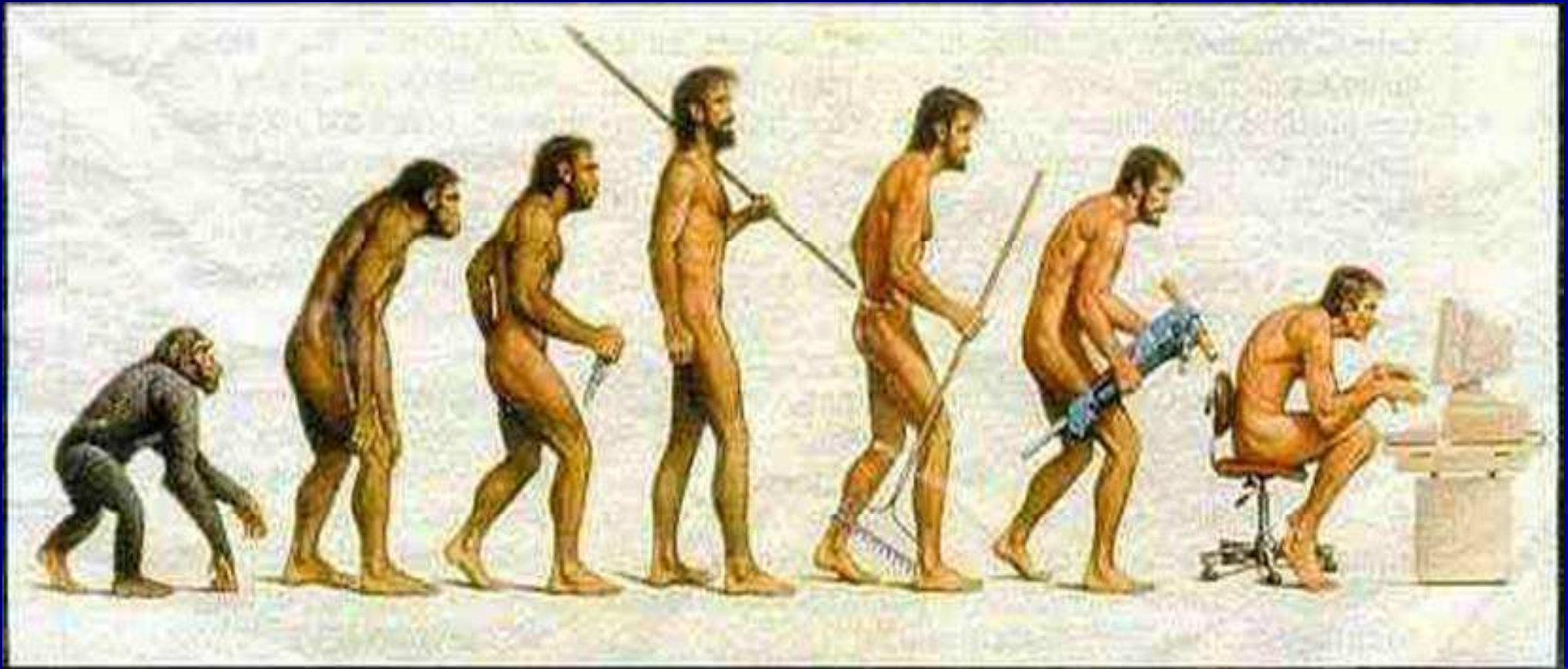
- 1.1. Biosocial co-evolution of the hominids
- 1.2. Biosocial interactions in modern society

Biosocial interactions in modernization

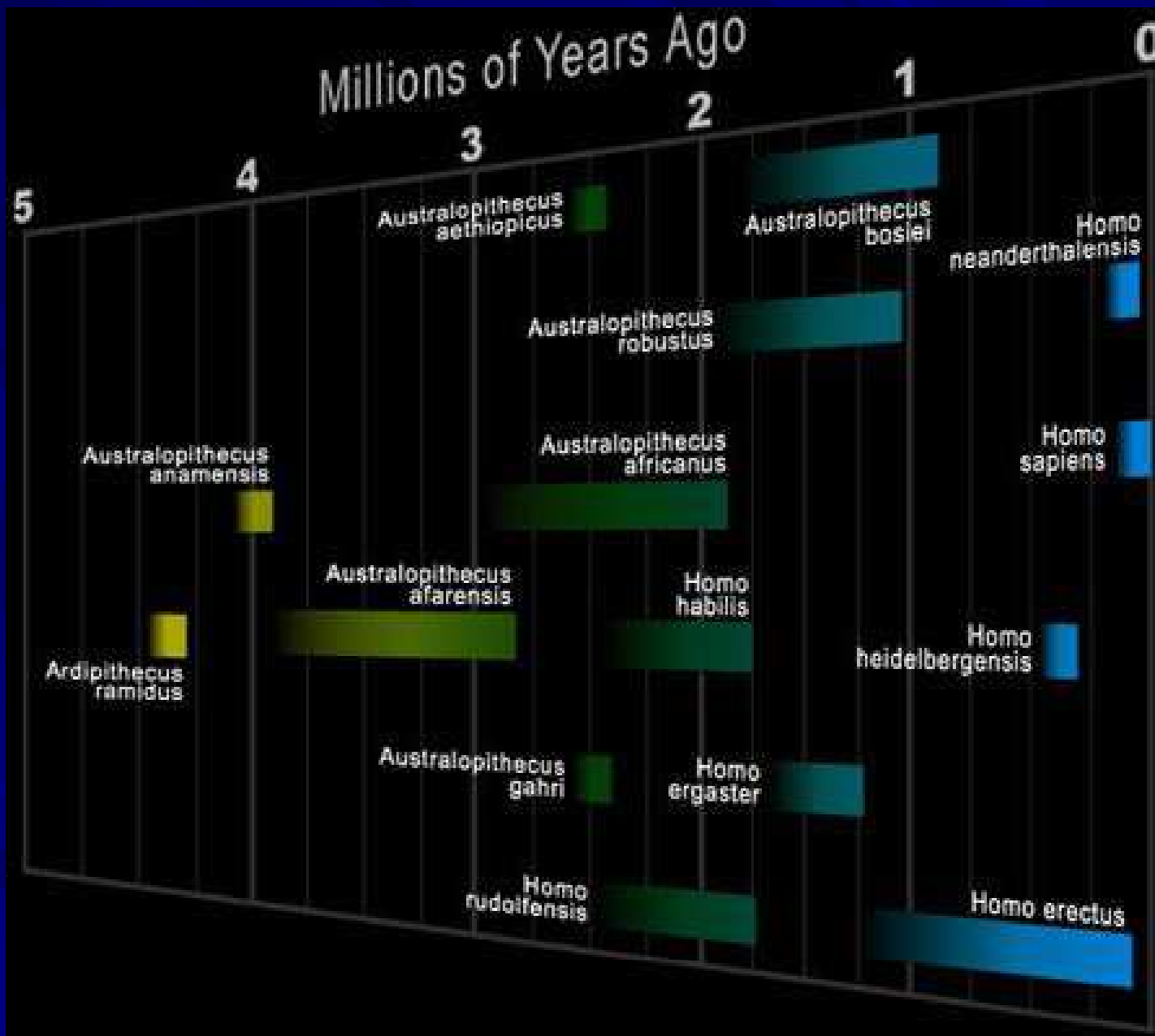
1. Introductory lecture

1.1. Biosocial co-evolution of the hominids

Biosocial co-evolution of the hominids



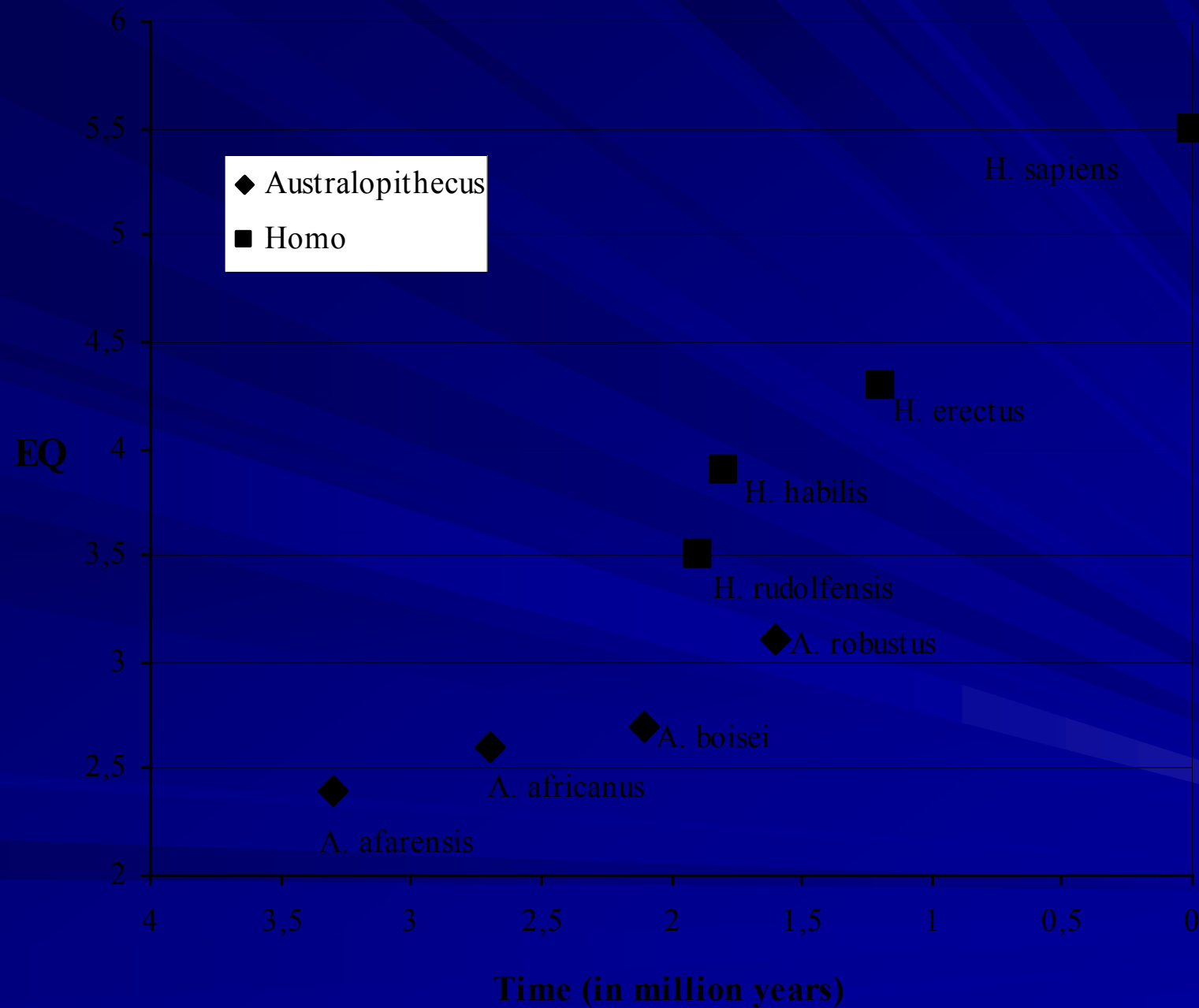
Biosocial co-evolution of the hominids



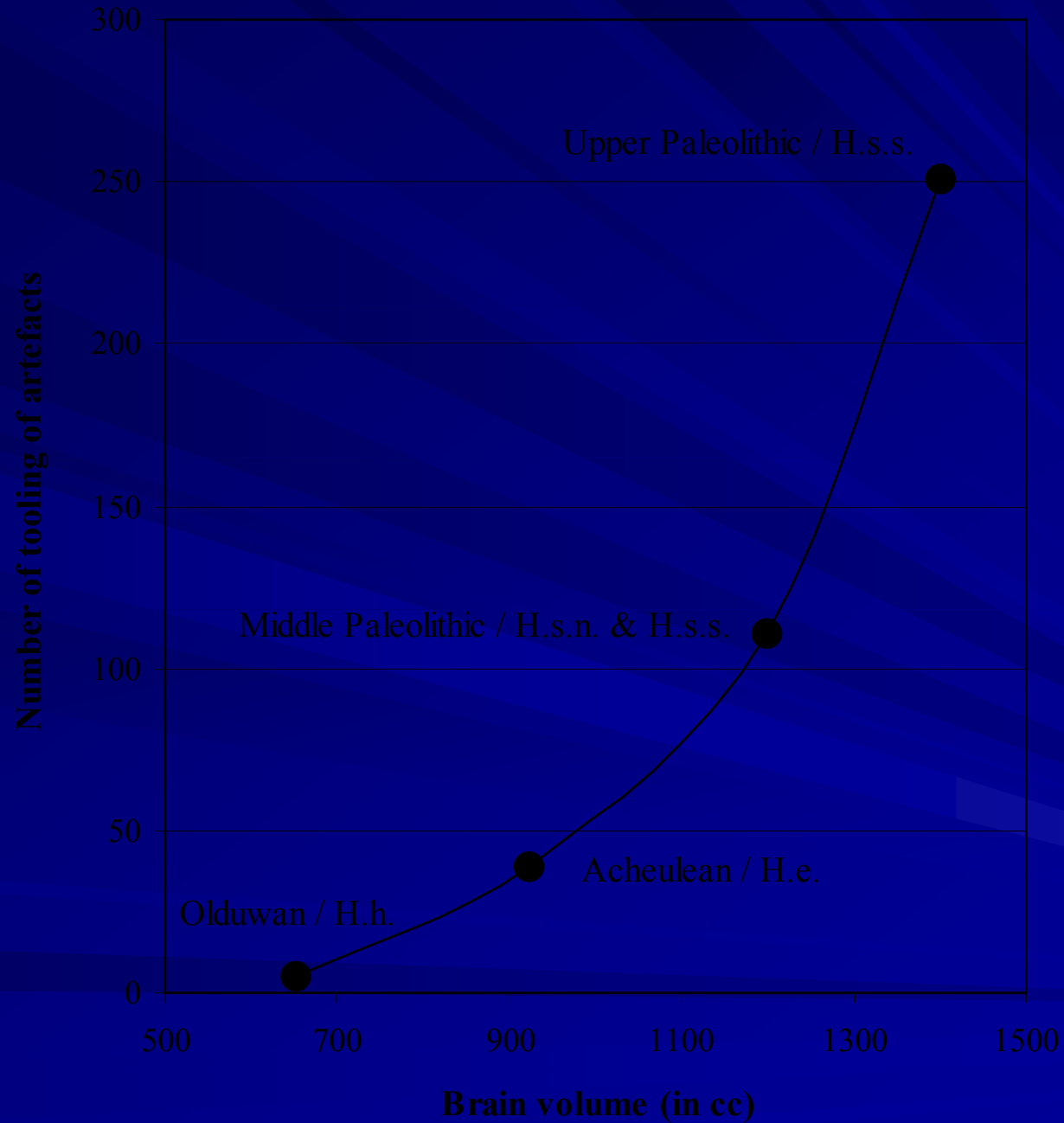
Biosocial co-evolution of the hominids



Biosocial co-evolution of the hominids



Biosocial co-evolution of the hominids



Biosocial co-evolution of the hominids

Hominization process:

Bipedalism



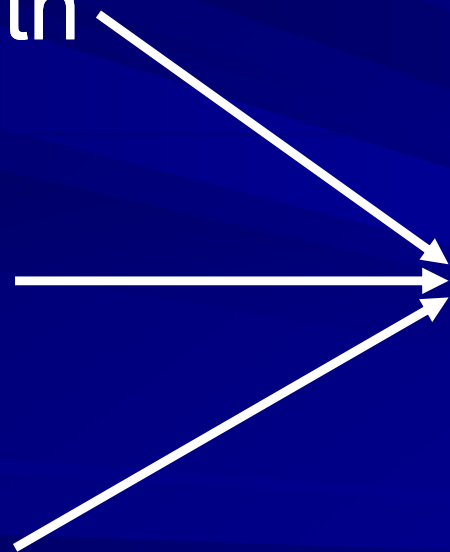
Brain growth



Culture



Groupism

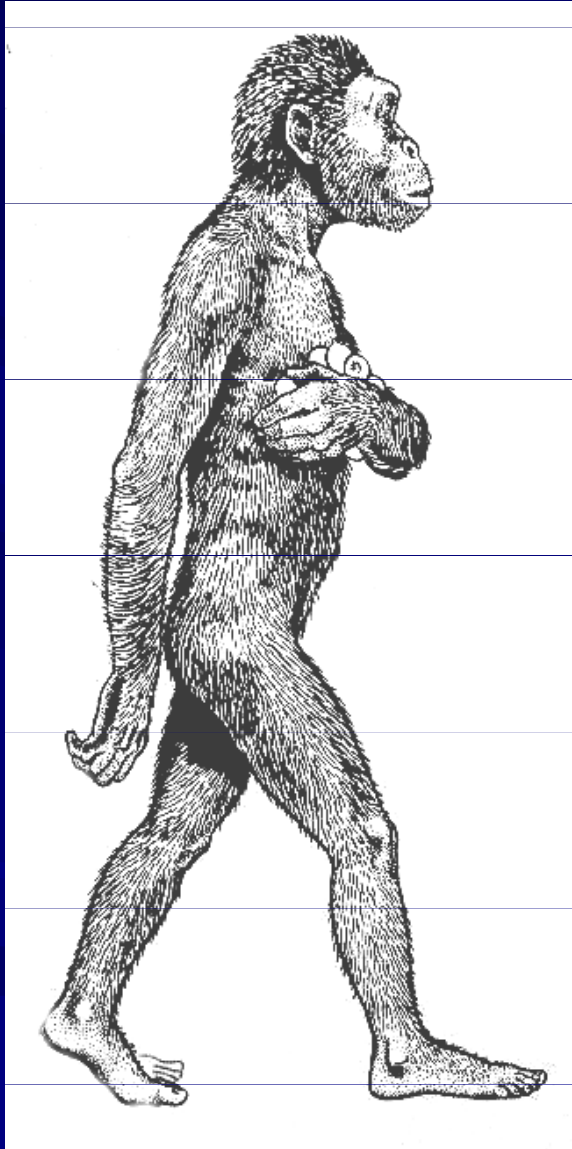


bio-cultural coevolution

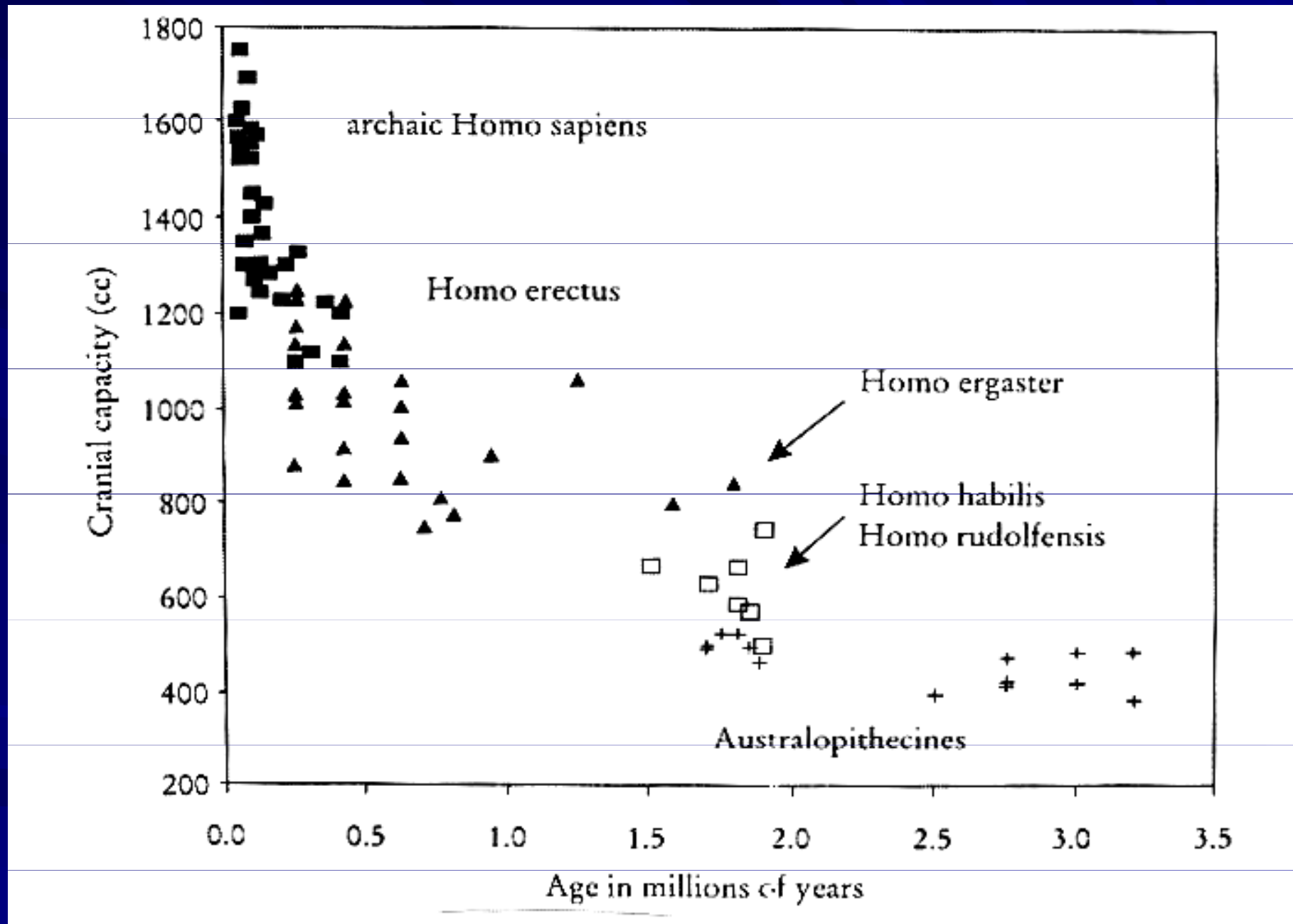
= 'αύτοποίησις'

Australopithecus afarensis

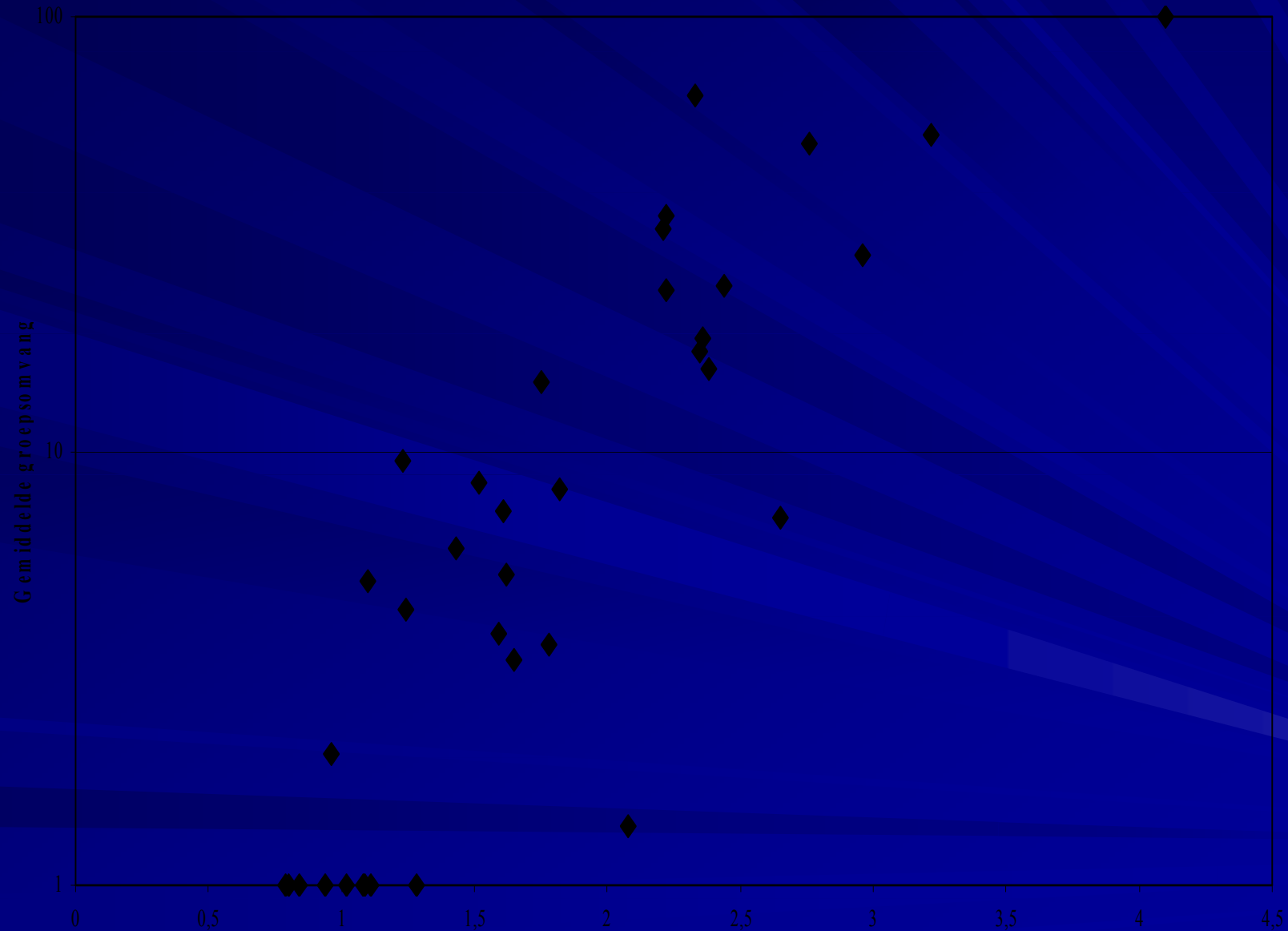
(3.7-2.9 million years)



Cranial capacity in hominid evolution

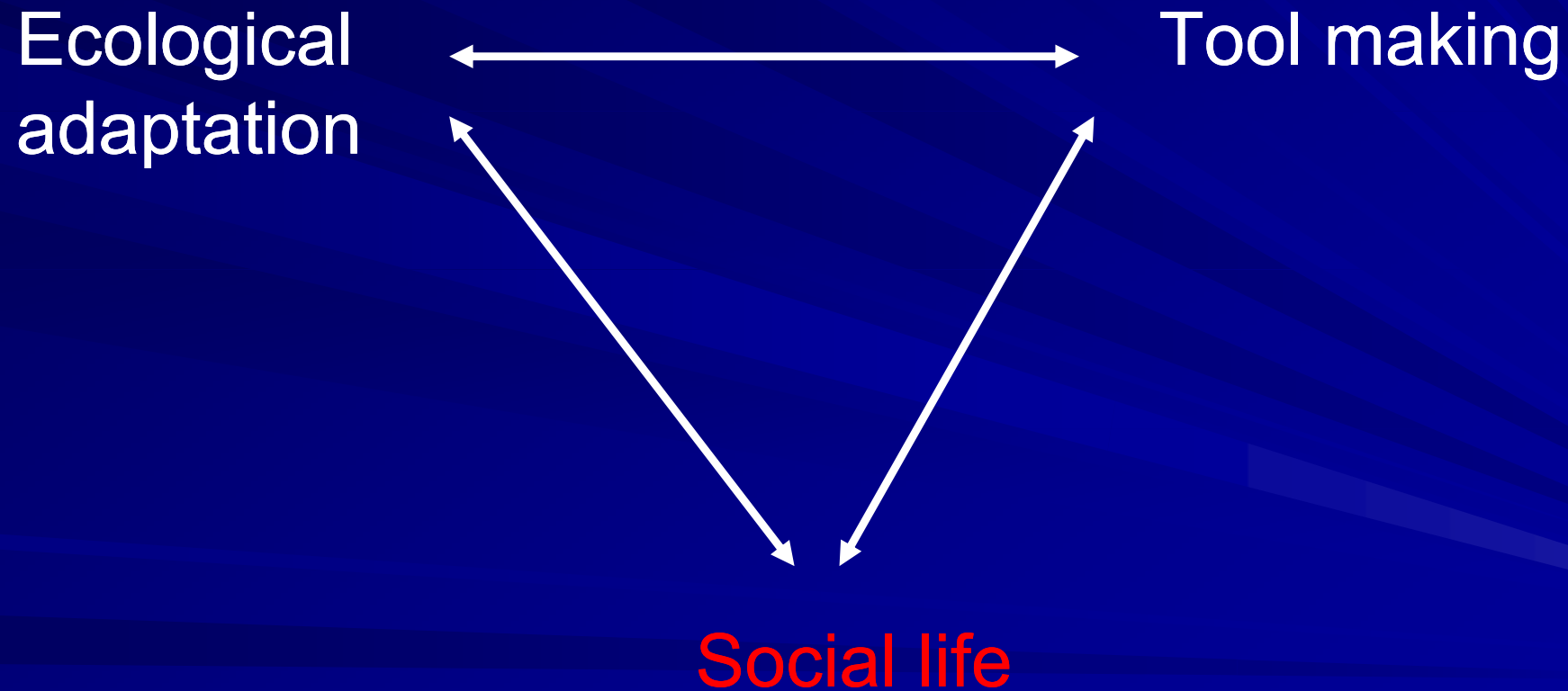


Biosocial co-evolution of the hominids

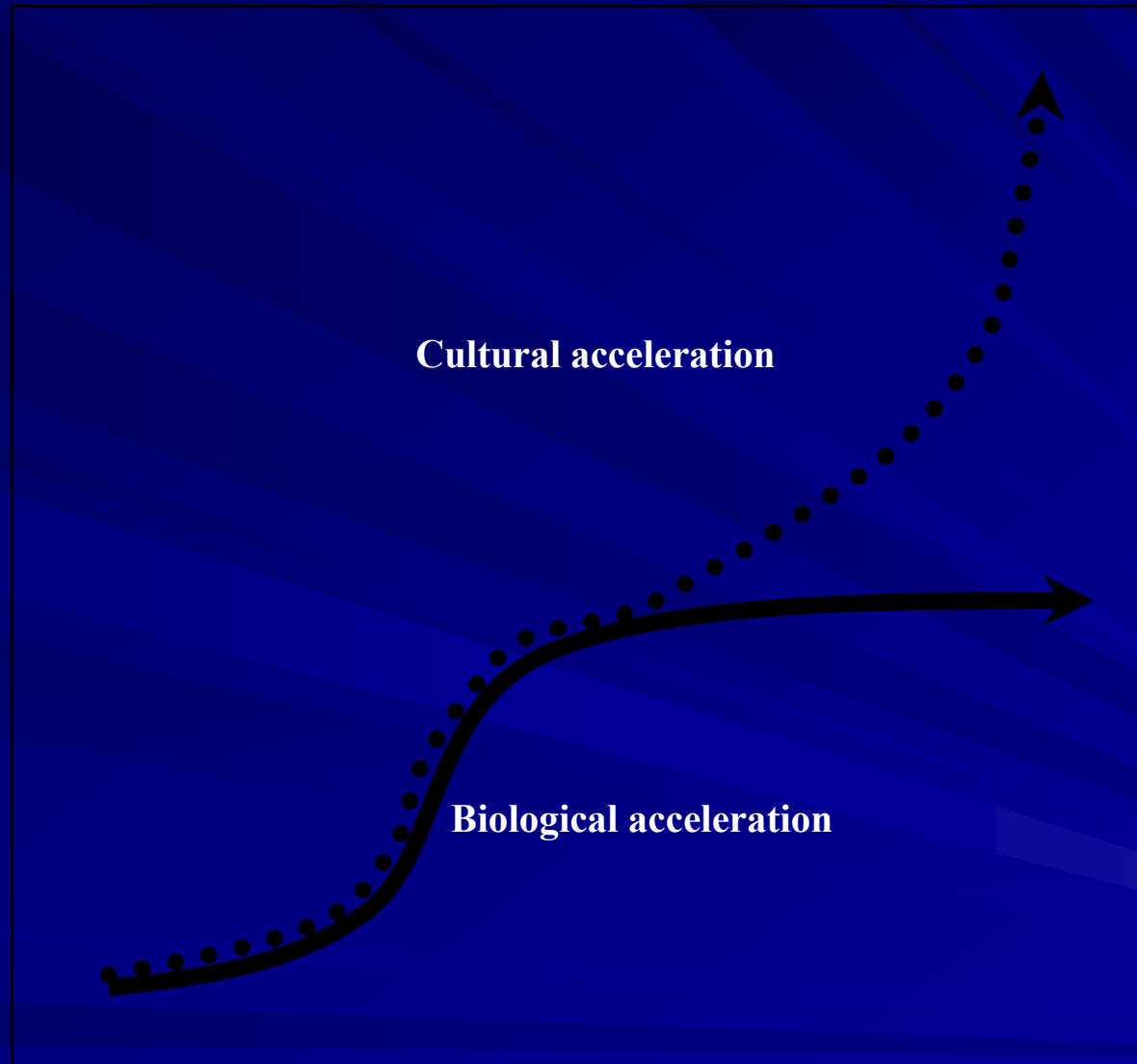


Biosocial co-evolution of the hominids

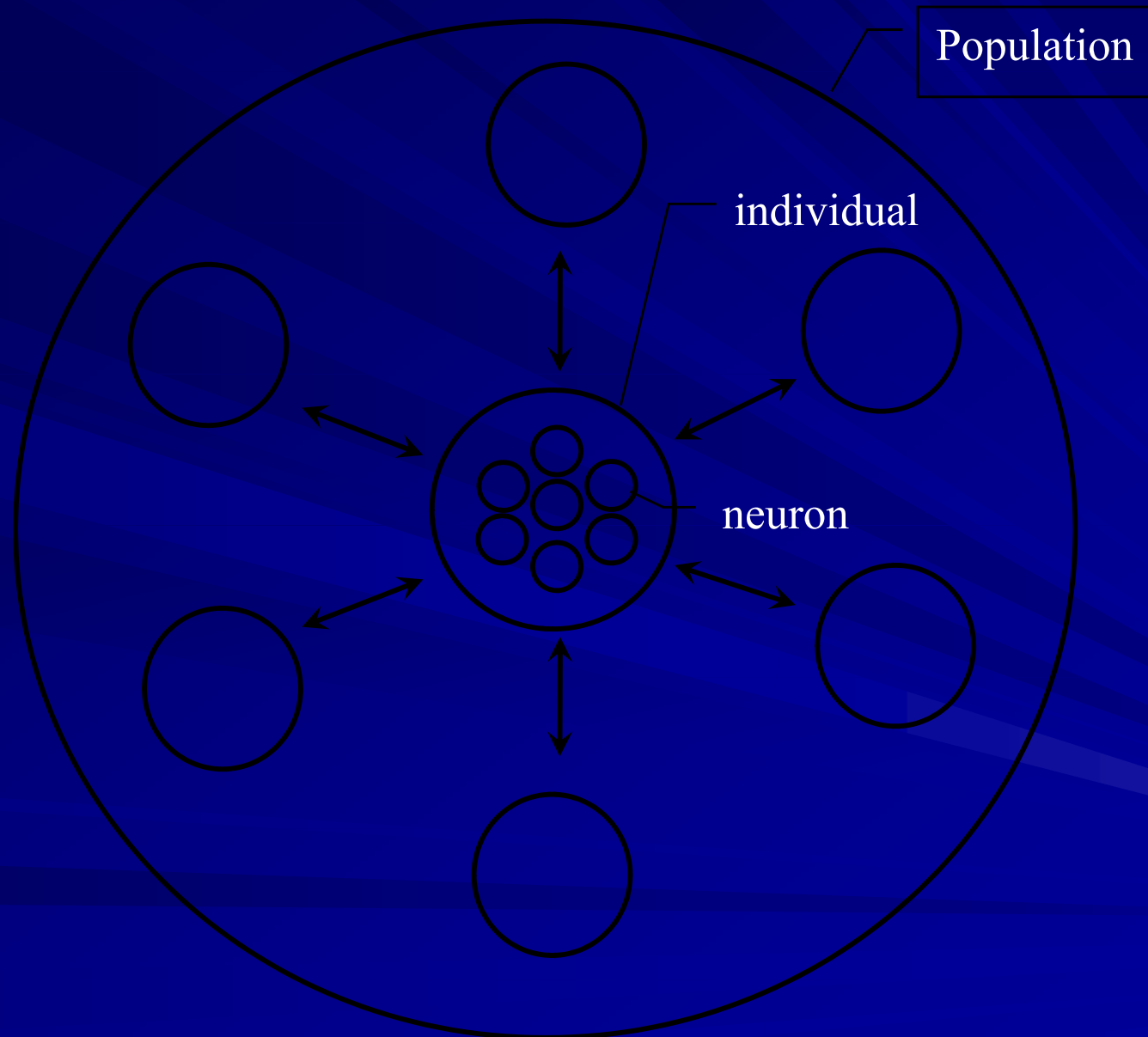
Explanation for encephalisation:



Biosocial co-evolution of the hominids



Biosocial co-evolution of the hominids



Biosocial co-evolution of the hominids



Biosocial co-evolution of the hominids

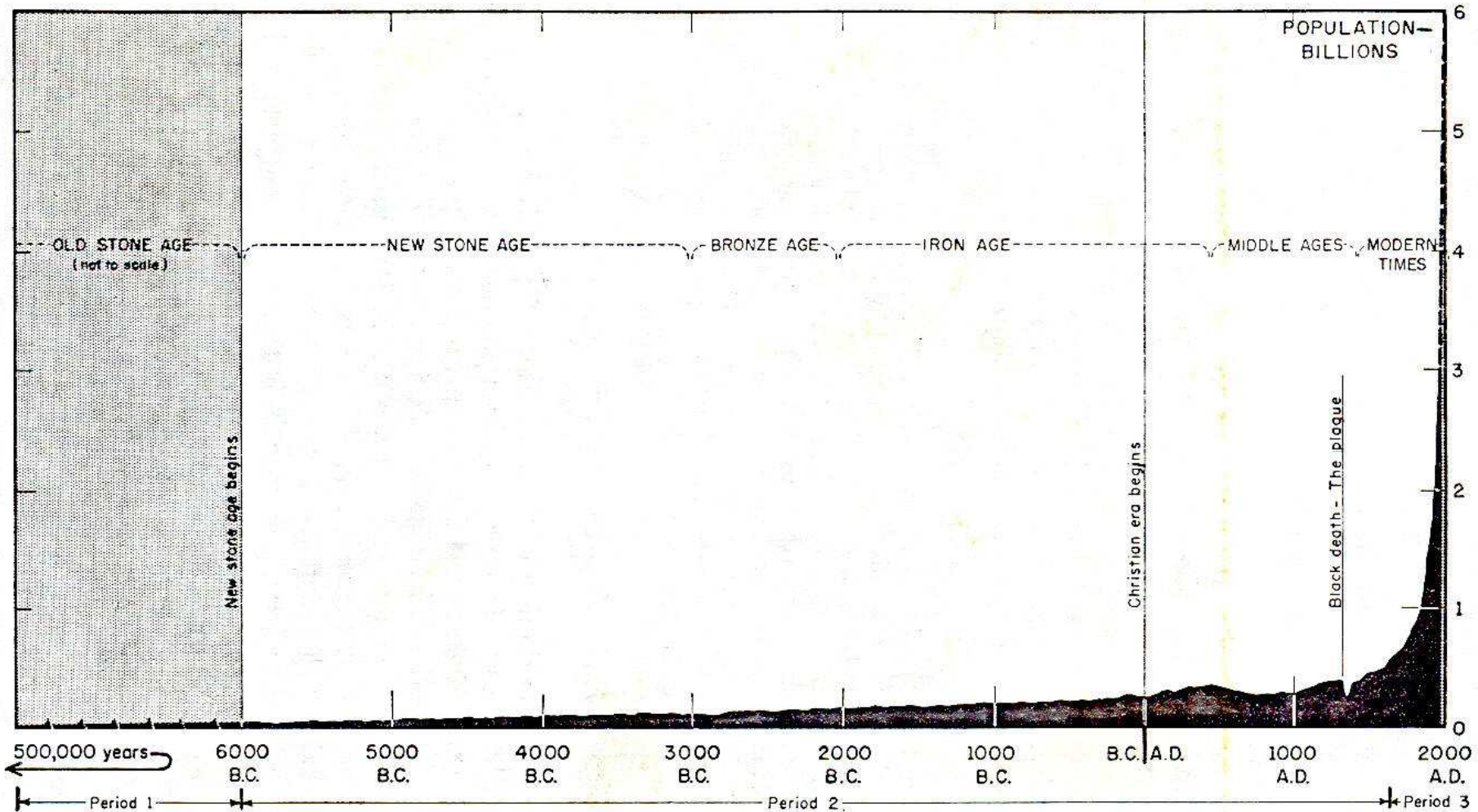


Fig. 1. Growth of Human Numbers. It has taken all the hundreds of thousands of years of man's existence on earth for his numbers to reach three billion. But in only 40 more years population will grow to six billion, if current growth rates remain unchanged. If the Old Stone Age were in scale, its base line would extend 35 feet to the left!

Biosocial interactions in modernization

1. Introductory lectures

1.2. Biosocial interactions in modern society

Social biology:

the study of biosocial interactions

Social biology

Ise Schwidetzky (1950)

Grundzüge der Völkerbiologie.

Stuttgart: Ferdinand Enke Publisher

Teil II: **Sozialbiologie**

Social biology

Schwidetzky (1950):

"...die *Wechselbeziehungen* zwischen der biologischen Beschaffenheit der Menschheit und den Sozialvorgängen".

Social biology

Early developments:

- Biological variation and **social class**
- (Pseudo)-**Social-Darwinism**

Sociobiology:

The study of the (biological) **evolution**
of social behaviour

Sociobiology



Edward O. Wilson (1975):

Sociobiology, The New Synthesis.

Cambridge Mass and London:

The Belknap Press of Harvard University Press.

*"Sociobiology is defined as
the systematic study of the **biological basis**
of **all** social behaviour".*

Sociobiology

The **second Darwinian revolution**

(second half of 20th century)

- inclusive fitness (Hamilton, 1963; 1964)
- kin selection (Maynard Smith, 1964)
- reciprocal altruism (Trivers, 1971)
- parental investment and sexual selection (Trivers, 1972)
- evolutionary stable strategy (Maynard Smith, 1973)
- selfish gene theory (Williams, 1966; Dawkins, 1976)
- evolution of cooperation (Axelrod, 1981)
- etc.



W.D. Hamilton

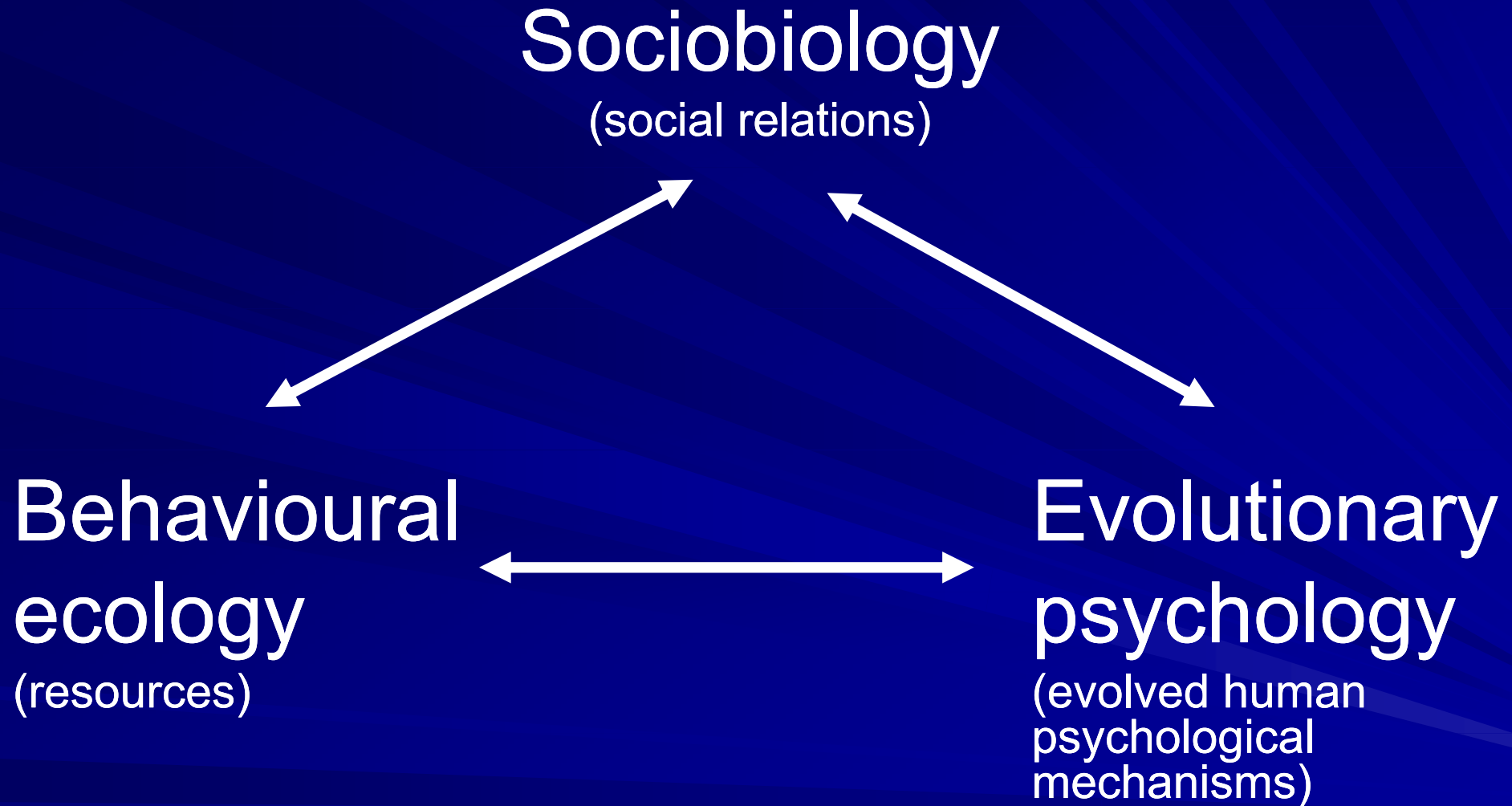
- 1963: The Evolution of Altruistic Behavior. *American Naturalist*, 97: 354-356.
- 1964: The Genetical Evolution of Social Behaviour, I & II. *Journal of Theoretical Biology*, 7: 1-52.

Sociobiology

■ Implications for:

- Nepotism
- cheating behaviour
- dominance
- jealousy
- cuckoldry and mate guarding
- hidden ovulation
- incest (avoidance and incest taboo)
- paternal confidence
- sex ratio
- adoption
- infanticide
- child abuse
- in-group/out-group relations
- etc.

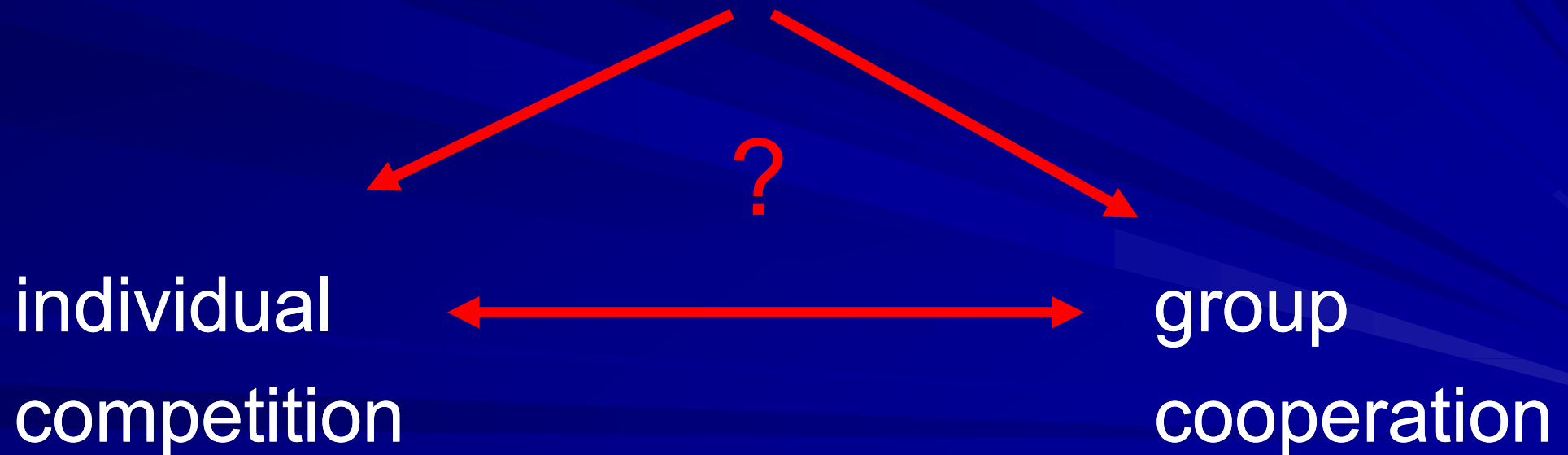
The completion of the sociobiological paradigm



The evolution of social behaviour

Adaptive value of sociality = **paradox**

Natural selection:



The evolution of social behaviour

Hamilton (1964):

Selection of altruism via kin =

Kin selection

$$rB > C$$

r :degree of relatedness ;

B: benefit for the recipient relative B :

C :cost for the altruist

Fitness



Inclusive fitness

The evolution of social behaviour

Trivers (1971)

'The Evolution of Reciprocal Altruism'

= evolutionary model explaining the
occurrence of altruistic behaviour between
non-relatives



evolutionary theory of co-operation

The evolution of social behaviour

P. Van den Berghe (1979):

three major foundations of human social life

Kin selection

Reciprocity

Social coercion

The sociobiology controversy

M.T. Ghiselin (1974)

The Economy of Nature and the Evolution of Sex:
("Scratch an "altruist", and watch a "hypocrite" bleed.")

Edward O. Wilson (1975):

Sociobiology, The New Synthesis:

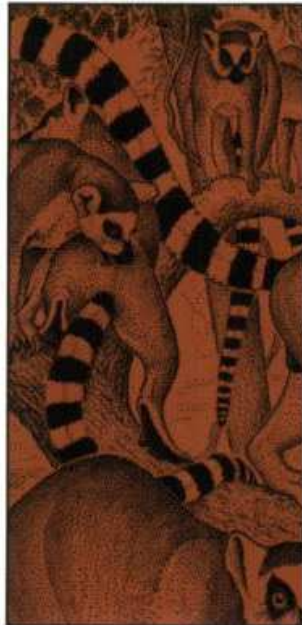
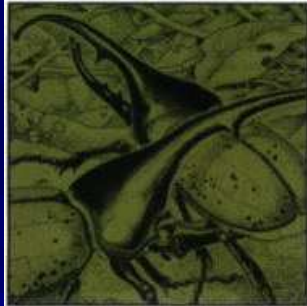
"One of the functions of sociobiology, then, is to reformulate the foundations of the social sciences in a way that draws these subjects into the Modern Synthesis."

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Sociobiology

THE ABRIDGED EDITION

Edward O. Wilson

Drawings by Sarah Landry



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The sociobiology controversy

Wilson's "New Synthesis" =

provoked scientific, but mainly **ideological controversy**

- Opponents:
 - Social scientists;
 - Marxists;
 - Feminists;
 - Religious believers.
- Reproaches:
 - Deterministic;
 - Reductionistic;
 - Capitalist;
 - Sexist;
 - Racist;
 - Atheist.

The sociobiology controversy

Causes of the sociobiological controversy:

- Chance events and actual circumstances
 - intensive **publicity campaign** of the publisher
 - the Harvard left-radical collective "**Science for the People**"
 - Marxist population geneticist **Richard Lewontin**
 - **feminist** second wave
- Fundamental causes:
 - considerable **progress** in different fields of biology
 - **compartmentalisation** of the scientific industry
 - Standard Social Science Model' (**SSSM**)
 - **anthropocentric** view of human nature
 - salient **teleology** in the social sciences
 - **socio-biological drives** in scientific business

Significance of a biosocial approach

- **Importance for the**
 - **socio-cultural sciences;**
 - **behavioural sciences;**
 - **life sciences.**
- **Bio-social duality** of human nature requires
 - **knowledge of the biology and the evolution of the human species**
 - **interrelations of human-biological and socio-cultural processes.**

Facts and values in biosocial interactions

- Social biology/sociobiology: **value-loaden?**
- **Specificity** of sociobiological approach:
 - human value systems: **cause and result** of hominization process;
 - human value and norm systems: subject to the evolutionary processes, i.p. **selection**.

The evolutionary origin and function of ethics

➤ Origin:

- shift from a largely genetically programmed control towards a **conscious control** of behaviour during hominization;
- **long maturation** of the human

➤ Function:

- value and norm systems = exo-somatic **survival** organ systems

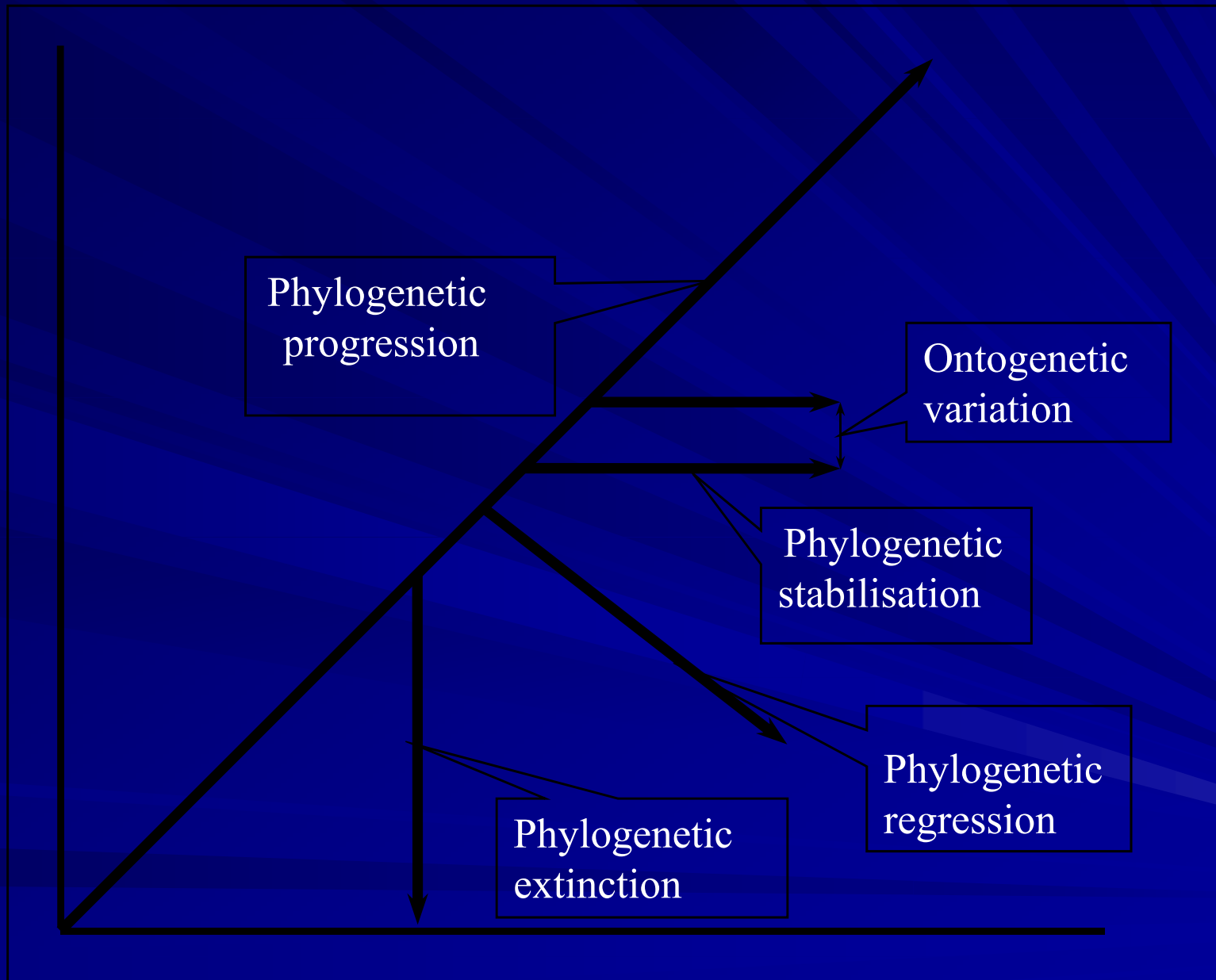
Sociobiological functions of ethics

- Steering the **ontogenetic** development of the individual;
- Regulate inter-individual **competition**;
- Regulate the relations between **groups** of individuals,
- Regulate **intergenerational** transmission
 - Short-term: maximization of inclusive fitness
 - Long-term: furthering hominization process?

Sociobiological functions of ethics

- Crucial questions:
 - Quality-quantity:
 - Ontogenetic
 - phylogenetic
 - Equality-inequality:
 - Between individuals
 - Between societies
 - Between generations

Sociobiological functions of ethics



The 'Sein/Sollen' controversy

- Facts \longrightarrow values = **naturalistic fallacy?**
- 'Sein' (static) \longleftrightarrow 'Sollen' (dynamic)?
- Life \neq static, but generic process:
 - ontogenetically;
 - phylogenetically;
- Human life = only partially programmed;
= requires a (human made) **design**

The social biology of modernization

- Human genome adapted to environment of evolutionary adaptedness' (EEA)



- Human genome inadapted to the novel environment of
 - Modern science
 - Technology
 - Humanistic values

The major biosocial challenges in modern culture

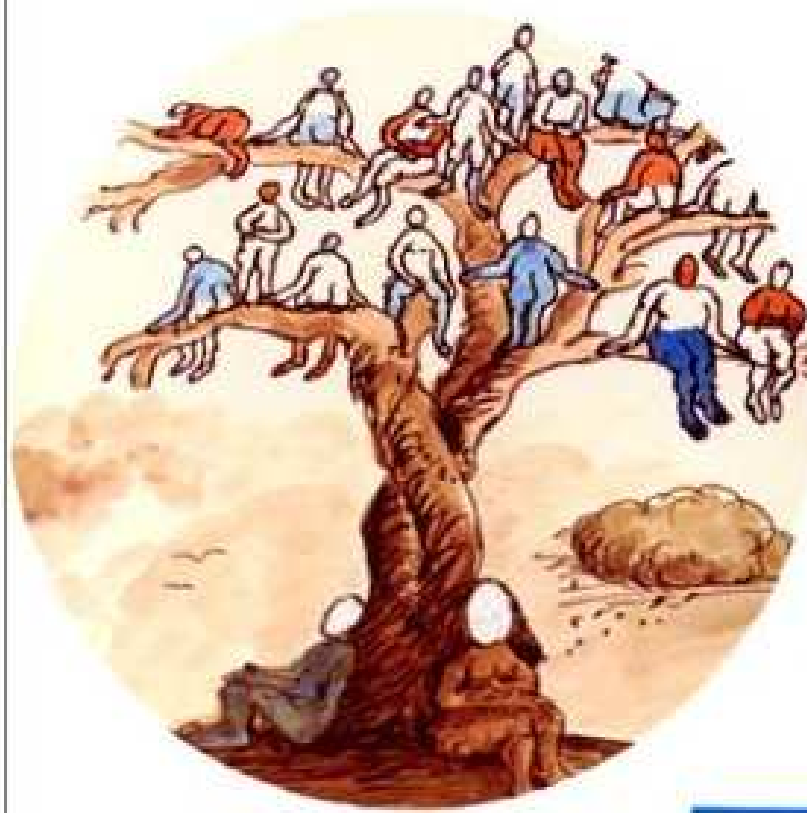
Source of variation	Challenge
➤ Individual variation	➤ individualism
➤ Age variation	➤ ageism
➤ Sexual variation	➤ sexism
➤ Family variation	➤ familism
➤ Reproductive variation	➤ natalism
➤ Social variation	➤ socialism
➤ Racial variation	➤ racism
➤ Intergenerational variation	➤ eugenism

Albert Jacquard

Points

Éloge de la différence

La génétique et les hommes



Sciences

Biosocial interactions in modernization

- The evolutionary background of bio-social interactions in the human species
- Individual variation and individualism
- Age variation and ageism
- Sexual variation and sexism
- Family variation and familism
- Reproductive variation and natalism
- Class variation and classism
- Racial variation and racism
- Intergenerational variation and eugenism
- Ethical and policy implications