

EVOLUTION AND CONTINUING CREATION

I. Evolutionary Theory

1. The Modern Synthesis - genetics joined with evolutionary theory.
 - natural selection process of cooperation as well as competition - species survival
 - Lamarck - animal behavior produced modifications
 - changes at molecular level not most important agent of change, but they do perpetuate the changes that take place.
2. Current Debates - challenges to the Modern Synthesis
 - Punctuated Equilibrium - periods of rapid change - Gould and Eldredge
 - Nonadaptive Changes - not all changes enhance survival -- detrimental changes and genetic drift.
 - Multilevel Selection - selection related to groups of related organisms.
 - Active Role of Genes - natural selection not the only agent of directionality, but genes take and active role.
3. DNA and the Origin of Life
 - Origins of life remain a mystery
 - DNA and genetic code are themselves a product of coded instructions - chicken and egg dilemma.
 - Second law of thermodynamics indicates that organisms must be open systems.
4. DNA, Information and Systems Theory
 - Information is communicated when it is coded, transmitted and decoded.
 - Rules limit change possibilities, thus choice and constraint coexist in the history of life.
 - Message leads to structure and structure leads of function.
 - A combination of chance and directionality (laws?) leads to higher levels of organization.

II A Hierarchy of Levels

1. Three Forms of Reduction - all explained by reduction to the atomic levels
 - Methodological reduction - analyze the whole by breaking into parts
 - But, higher level relationships (ecosystem) are best investigate in their own terms.
 - Research needs to allow for a variety of levels of analysis, include whole organisms.

- Epistemological Reduction - Attempt to explain higher level theories from analysis of laws operating at a lower or less complex level.
- Objection: not all theories can be understood from an analysis of their parts.
- Ontological Reduction - all reality “nothing but atoms”. Materialism - all reality reduced to matter and energy.

2. Levels, Emergence and Wholes

- Levels of Analysis - epistemological - various models for various levels of analysis.
- Levels of Organization and Activity - ontological concepts - different levels of analysis reflect real structures in the world.
- Interaction of wholes and parts - wholes exercise “boundary conditions for parts.”

3. Sentience and Purposiveness

- Sentience is response to environment. - perception (transfer of information from environment), pain, pleasure, goal directedness, anticipation.
- Some see all organisms as experiencing subjects.

III Theological Implications

1. Chance and Design

- Evolution shows a subtle interplay of chance and design (law?).
- Traditional theology sees chance as the antithesis of design. - But evolution suggests no detailed plan. However, evolution tends to complexity, but cannot be predicted.
- Three theological responses:
 - *God controls events that appear to be random.* Problem: waste and suffering.
 - *God designed a system of law and chance.*- True freedom based on love includes chance. (new deism?)
 - *God influences events without controlling them.* God with a vision, not a plan. A God of persuasive love. Process theology. (Whitehead)

2. Models of Creation

- God as designer from chaos, potter, father, Spirit, poet, choreographer of ongoing dance, experimenter of novelty and continuous creation.

3. Conflict, Independence and Dialogue

- Conflict: Scientism (atheistic scientific materialism coupled with only the scientific method recognized as valid.) in a conflict situation with Biblical Literalism (confusing

religion and science).

- Independence: Science and Religion seen as totally separate fields of study - different assumption, methods and questions. Neglect of divine immanence. An existentialist form of the Independence position sees God as acting only on the personal level. A final position is that religion and science use different, parallel language systems to describe reality.
- Dialogue: God is a primary cause, working through secondary causes.

4. Integration of Creation and Evolution

- Natural Theology - Evolution provides insights for theology. God as designer of a self-organizing system - a process of law, chance and emergence. God gives all creation freedom to be itself. Problem: how does this (new deism) compare with the active God of the Bible?
- Theology of Nature - Barbour suggests a theology of nature based on religious experience - understanding creation based on a religious experience, rather than understanding God from a scientific "experience" of creation. Science provides new ways for God to interact - communication of information, top-down cause with God acting as a constraint - a whole (God) relating to parts (creation). View of Chardin.
- Systematic Synthesis - An evolutionary metaphysics. Integrates evolution and continuing creation by replacing the Greek categories of being and substance with becoming and process. God involved in the process. Whitehead - process thought.