

**CHRTC 150**

**Science & Religion:  
An Introduction**

**CLASS NOTES**

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**NB**

Audio-Slide Episode  
Number

=

Class Notes Page  
Number

Abbreviations:

S: Audio-Slide Number

H: Class Handouts

## INTRODUCTION: ONLY WARFARE?

Slide 2

## I. THE PROBLEM: SCIENCE &amp; RELIGION WARFARE

S3

INTENSIFIES:

S4

with Charles Darwin's theory of evolution presented in his book *On the Origin of Species* (1859)

**Thomas Henry Huxley**

review of this book:

1. "[H]istory records that whenever **science** and **orthodoxy** [religion] have been fairly opposed, the latter has been forced to retire from the lists, bleeding and crushed if not annihilated; scotched, if not slain."

T.H. Huxley, "*Origin of Species*" *Westminster Review* 17 (1860), 556

COMMENTS:

S6

common understanding that Science destroys Religion

**NO** hope of a peaceful relationship between science & religion

PRODUCES:

S7 Handouts 1

*Science vs. Religion Dichotomy*

**Dichotomy**

DEF: division of an issue into only TWO simple positions  
thinking about issues in 'black-and-white' & 'either/or' terms

Problem:

- ☛ forces people into choosing between one of two positions

Therefore:

You cannot be both a scientist & a religious believer

DEVELOPS:

S8 H1

into the *Evolution vs. Creation Dichotomy*

Problem:

- ☛ forces people into choosing between only TWO positions:

**EITHER** (1) "Evolution"

**OR** (2) "Creation"

Therefore:

You cannot be both an evolutionist & a believer in a Creator

## 1. Common Understanding of "Science" &amp; "Evolution"

S9

**Julian Huxley**

S10

evolutionary biologist

Centennial celebration of Darwin's *Origin of Species* in 1959:

2. "In the evolutionary pattern of thought there is no longer either need or room for the supernatural. **The earth was not created; it evolved.**"

Evolutionary man can no longer take refuge from his loneliness in the arms of a divinized father figure **whom he has himself created.**

J. Huxley, "The Evolutionary Vision" in S. Tax & C. Callender, eds.  
*Evolution after Darwin: The University of Chicago Centennial*  
(Chicago, IL: University Press, 1960), 252, 260

COMMENTS:

S13 H1

- evolution vs. creation dichotomy
- COMMON understanding of "science" is "Godless"  
"evolution" is "Godless" natural process
- humans created God → he nothing but an invention of our imagination

S14

**Major Theme of this Course:**

Challenge COMMON terms/definitions & replace with ACADEMIC terminology

More accurately, Julian Huxley's position is:

S4 H1

**Scientism**

DEF: conflation of:

- (1) science  
and
- (2) secular [non-religious] philosophy

**Conflation**

DEF: careless mixing of distinct ideas into ONE simplistic concept

**2. Common Understanding of “Religion” & “Creation”**

S5

**Henry Morris**

S6

creation scientist & founder of the Institute for Creation Research (aka Young Earth Creation)

Creation Science

DEF: claims that creation of the world in 6 days 6000 yrs ago can be proven scientifically

3. “There are only **two** basic worldviews—the God-centred worldview and the man-centred worldview, **creation** or **evolution** ...

S7

**The Bible is a book of science!** ... The Bible does contain all the basic principles upon which **true** science [i.e., Creation Science] is built.

S8

H. Morris, “Foreword” in JD. Morris, *The Young Earth* (Colorado Springs, CO: Creation-Life Pub, 1994), 4-5; *Many Infallible Proofs* (San Diego, CA: C-LP, 1980), 229

COMMENTS:

S9 H1

- evolution vs. creation dichotomy
- COMMON understanding of “religion” → Bible reveals science & origins  
“creation” → God created in 6 days 6000 yrs ago

More accurately, using ACADEMIC terms/definitions, Morris' position is:

S10 H1

**Fundamentalism**

DEF: conflation of:

- (1) Christianity  
and
- (2) origins in 6 days

QUESTIONS:

S11 H1

- Is the relationship between science & religion this simple?
- Are we forced to choose between only TWO positions:

**EITHER** (1) “science”

**OR** (2) “religion”

**EITHER** (1) “evolution”

**OR** (2) “creation”

- Are there middle ground positions between these TWO positions?

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## II. LAMOUREUX'S POSITION

**First**, I am a Christian theologian trained to the PhD level

I believe in **God**

I believe in the **Bible**

I believe in **miracles** & I have experienced them

**Second**, I am an evolutionary biologist trained to the PhD level

I find that the evidence for biological evolution is **OVERWHELMING**

I have yet to see evidence that **falsifies** evolution

I recognize the **explanatory power** of the theory of evolution

☛ Biology **makes sense** in the light of evolution

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## III. TOWARD A SOLUTION: THE NEW SCIENCE-RELIGION DIALOGUE

scholarship that arose during the 1990s

### 1. Scientific Community

- Religious Beliefs of Scientists

4. "I believe in a God in intellectual and affective communication with humankind, i.e. a God to whom one may pray in expectation of receiving an answer. By "answer" I mean more than the subjective psychological effect of prayer."

Edward Larson & Larry Witham, "Scientists Are Still Keeping the Faith"

386 *Nature* (3 Apr 1997), 436

Results: **40%** believe in miracles → personal God

COMMENTS:

is this **proof** for God's existence? **NO**

☛ but this is serious data because these scientists are serious thinkers

- Contribution to Science-Religion Dialogue

5. "Both the **National Academy of Sciences** and the **American Association for the Advancement of Science** have launched projects to promote a dialogue between science and religion. New institutions aimed at bridging the gap have been formed, including the Chicago Center for Religion and Science, and the Center for Theology and Natural Sciences in Berkeley, California. Universities such as Cambridge and Princeton also have established professorships or lectureships on the **reconciliation** of the two camps."

Gregg Easterbrook, "Science and God: A Warming Trend?"

277 *Science* (15 Aug 1997), 890

COMMENTS:

NAS & AAAS → two of the most important scientific organizations in the world  
add to the list of professorships:

Oxford, Harvard, Toronto ... St Joseph's College University of Alberta!

## 2. Religious Community

S2

## • Roman Catholic Christian: Pope John Paul II

S3

6. “New knowledge leads to the recognition of the theory of **evolution as more than a hypothesis** ... Sacred scripture wishes simply to declare that the world was created by God, and in order to teach this truth it expresses itself in the terms of the **cosmology [science] in use at the time of the writer** ... The Bible does **not** wish to teach how heaven was made [science], but how one goes to heaven [religion].

Pope John Paul II, “Message on Evolution,” *Origins: CNS Documentary Service* 26 (Nov 1996), 415;  
 “Scripture and Science” *Origins* 11 (Oct 1981), 279

COMMENTS:

S6

- NO problem with evolution
- Bible is NOT a book of science
- Bible uses the science-of-the-day

## ☛ ANCIENT SCIENCE

S7

## Major Theme of this course

## • Evangelical Protestant Christian: Reverend Billy Graham

S8

very famous preacher

7. “I don’t think that there’s any conflict at all between science today and the Scriptures. I think **we have misinterpreted the Scriptures** many times and we’ve tried to make the Scriptures say things that they **weren’t meant to say**, and I think we have made a **mistake** by thinking the Bible is a scientific book. **The Bible is not a book of science.**

S9

S10

And of course, I accept the Creation story. I believe that God did create the universe.

S11

I believe He created man, and **whether** it came by an evolutionary process and at a certain point He took this person or being and made him a living soul **or not**, does not change the fact that **God did create man.**”

David Frost, *Billy Graham: Personal Thoughts of a Public Man. 30 Years of Conversations with David Frost* (Colorado Springs, CO: Chariot Victor, 1997), 73-74

COMMENTS:

S12

- Bible is NOT a book of science
- Openness to evolution is starting to appear in evangelical protestant churches

## 3. Summary: Moving Beyond the Warfare

S13

- Science & Religion Warfare is being challenged by prominent leaders within both the scientific community & the religious community
- It reasonable to accept **both** biological evolution & Christianity

S14 H1

S15

## IV. CRITICISM OF THE NEW SCIENCE-RELIGION DIALOGUE S2

Richard Dawkins S3

most important atheist in the world today

8. “Are science and religion converging? No ... Convergence? Only when it suits.

To an **honest** judge, the alleged marriage between religion and science is a shallow, empty, spin-doctored sham.”

R. Dawkins, “Snake Oil & Holy Water: Illogical Thinking Is the Only Thing Joining Science & Religion Together” *Forbes ASAP* (4 Oct 1999), 235, 237

COMMENTS: S4

Note the subtitle:

“**Illogical Thinking** is the Only Thing Joining Science & Religion Together”

☛ as you proceed through this course, ask yourself, “Is this true?”

## V. CONCLUSION S5

The central question in this course: How do YOU relate Science & Religion? S6SOME POSSIBLE RELATIONSHIPS:

## 1. Scientism S7

EG Julian Huxley

evolution explains away religion &amp; God

## 2. Fundamentalism S8

EG Henry Morris

Bible reveals “**true science**” → the world was created in 6 days 6000 years ago

## 3. Compartmentalization S9

Science & Religion do not communicate at all

☛ many students entering this course

## 4. Two Divine Books Relationship: The Book of Scripture &amp; the Book of Nature S10

EG Pope John Paul II &amp; Billy Graham

Science & Religion complement & enrich each other

## Sir Francis Bacon S11

contributed in developing modern science in the early 17<sup>th</sup> century

9. “To conclude, let no one . . . think or maintain, that anyone can search too far or be too well studied in the **Book of God’s Words**, or in the **Book of God’s Works**; theology or science; but rather let everyone endeavour an endless progress or proficiency in **both**.”

*Advancement of Learning* (1605) 1.1.3COMMENTS: S12

- traditional relationship between Science & Religion:

**Book of God’s Words:** Bible → Religion**Book of God’s Works:** Nature → Science

- Bible & Nature are GIFTS from God S13
- use both to construct YOUR personal beliefs & worldview

- Bible & Nature are used for loving God with our mind S14

**10. Jesus:** “Love the Lord your God with all your heart and with all your soul and **with all your mind**. This is the first and greatest commandment.”

Matt 22:37-38

☛ many students at the end of this course

# CATEGORIES & PRINCIPLES

## I. KEY THOUGHTS

S2

## **WARNING:** **Your head is going to swim!!!**

### 1. Science & Religion Warfare

S4

Cartoons are commentaries on our culture

S5

EG Non Sequitur

Common messages:

- Forced to choose between only TWO positions: **EITHER** (1) Science  
**OR** (2) Religion
- Science explains away Religion

### 2. PROBLEM behind Science & Religion Warfare → COMMON CATEGORIES

S6

#### Categories

DEF: the foundational concepts that direct the way we:

1. look at the world
2. think about the world

Note the two verbs. Categories are like:

1. Glasses → give a **view of the world**
2. Software → process information through a program or **worldview**

#### Common Categories

S7

trap the mind & force people to think in:

#### Dichotomies

DEF: division of an issue into only two simple positions  
thinking in 'black-and-white' & 'either/or'

EG: science vs. religion

☛ But this is a **False Dichotomy**

#### Conflations

S8

DEF: careless mixing of distinct ideas into ONE simplistic concept

EG: science & godless secular philosophy  
religion & origins in 6 days

NOTE:

we all begin our intellectual voyage in dichotomies & conflations

☛ good education moves us beyond both of these problems

### 3. SOLUTION toward a Peaceful Relationship between Science & Religion

S9

Introduce Academic Categories

#### Major Theme of this course:

challenge common categories & replace with academic categories

### 4. RESULT

S10

- Offer YOU a wide spectrum of possible relationships between Science & Religion
- Allow YOU to make informed decisions & develop:  
YOUR worldview  
YOUR personal beliefs



**II. THEOLOGY: GENERAL CATEGORIES**

S2

**Etymology** of the word “Theology”

S3

Greek *theos*: God*logos*: word

DEF: theology is the study of God’s words in the Word of God (Bible)

COMMENTS:

S4

- always be cautious with the term “God”
  - has a very wide range of meanings & nuances:
    - from a personal spiritual being (Jews, Christians, Muslims)
    - to only beauty & harmony in physical world (Einstein)
- ALL the definitions given below are the MOST BASIC

**Theism** Greek *theos*: God

S5

DEF: BELIEF in a personal God

Supreme Being who is all-loving, all-powerful, and all-knowing

EG:

God of Jews, Christians, Muslims

40% of US scientists are theists

**Deism** Latin *Deus*: God

S6

DEF: BELIEF in an impersonal God

Supreme Being who creates the world and then has nothing to do with it  
 this God winds the clock of the universe & leaves it run down on its own

EG:

God of Charles Darwin for most of his adult life

**Paganism**

S7

DEF: BELIEF in a Force or Forces that control/s the universe

Note: not a negative term → an academic category

EG:

Nature Religions:

a Force in the earth, sun, trees, etc

Popular Culture:

Fate, Destiny, the “Meant To be”

**Pantheism** Greek *pan*: all *theos*: God

S8

DEF: BELIEF everything is God

not a personal/impersonal spiritual being

the universe is the only reality

EG

famed physicist Albert Einstein (1879-1955)

**Atheism** Greek *a*: a prefix that negates S2

DEF: BELIEF that God does not exist.

EG:

**Richard Dawkins** S3

1. “The universe we observe has precisely the properties we should expect if there is, at bottom, no design, no purpose, no evil and no good, **nothing but** blind, pitiless indifference.”

Richard Dawkins, *River Out of Eden: A Darwinian View of Life*  
(New York, NY: Basic Books, 1995), 133.

KEY WORDS:

“nothing but” → often used by atheists

**Agnosticism** Greek *a*: prefix that negates S4

DEF: BELIEF that there is no knowledge regarding the existence or non-existence of God

EG:

Charles Darwin late in life

### III. CHRISTIANITY: GENERAL CATEGORIES S5

**Christianity** S6

- defined by HISTORY & 3 main branches (divisions): S7 H1

(1) Roman Catholicism

(2) Eastern Orthodoxy

(3) Protestantism

- defined by CREEDS (major statements of belief): S8

#### 2. Apostles' Creed (150 AD/CE)

I BELIEVE in God, the Father almighty, Creator of heaven and earth.

I BELIEVE in Jesus Christ, his only Son, our Lord, S9

He was conceived by the power of the Holy Spirit and born of the Virgin Mary.

He suffered under Pontius Pilate, was crucified, died, and was buried.

He descended to the dead.

On the third day he rose again. He ascended into heaven, and is seated at the right hand of the Father.

He will come again to judge the living and the dead.

I BELIEVE in the Holy Spirit, S10

the holy catholic Church, the communion of saints, the forgiveness of sins,

the resurrection of the body, and the life everlasting. Amen.

*Catechism of the Catholic Church* (Ottawa, ON: Canadian Bishops Publication, 1994), 50.

COMMENT:

Father, Son, and Holy Spirit = Holy Trinity. One God in Three Persons S11

**Conservative Christianity**

S2

CONSERVES the beliefs of the Apostles' Creed

- Jesus = fully God & fully human
- Resurrection of Jesus' physical body
- Bible **I**nspired (capital "I" inspired) by Holy Spirit

**Liberal Christianity**

S3

REJECTS the beliefs of the Apostles' Creed

- Jesus = merely an enlightened man
- Resurrection of Jesus' teaching only
- Bible inspiring (small "i") literature written by humans only

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**LAMOUREUX'S POSITION ON CHRISTIANITY:**

S4

☛ Conservative Christian. I accept the Apostles' Creed

H1 S5

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**WARNING ABOUT PARADIGMS:**

S6-7

paradigms are teaching tools to help organize information

**Divine Revelation**

S9

DEF: BELIEF that God communicates with humanity**(1) Special Revelation**

S9

DEF: BELIEF that God communicates **SPECIFIC** information to humanity• **Incarnation** Latin *in*: in *carnis*: flesh

S10 H2

God became a man and revealed himself through Jesus

"The Word [Jesus] was God . . . and became flesh" Jn 1:1, 14

• **Biblical Revelation**

S11 H2

God inspired the writers of the Bible to reveal himself

"All Scripture is God-breathed" 2 Tim 3:16

• **Personal Revelation**

S12 H2

answered prayer, dreams, visions, signs &amp; wonders

EG 40% of US scientists believe God answers prayer

**(2) General Revelation**

S13

DEF: BELIEF that God communicates **GENERAL** information to all of humanity• **Natural Revelation**

S14 H2

nature reflects God &amp; some of his general attributes

"The heavens declare the glory of God and the skies proclaim the work of his hands"

Ps 19:1

"God's invisible qualities ... clearly seen and understood from what has been made"

Rom 1:19-20

☛ **Intelligent Design** → HUGE topic in Science & Religion

S15-16 H2

• **Moral Revelation**

S17 H2

human conscience &amp; sense of morality

"The law written on the human heart" Rom 2:14-15

aka "moral compass" within us

**The Two Divine Books**

S2

DEF: BELIEF that God communicates (reveals) to humanity through two “books”

- ☛ traditional way for relating Science & Religion  
EG Sir Francis Bacon

**(1) Book of God’s Words Bible**

S3 H2

VERBAL Latin *verbum*: word

uses words → offers specific information

**(2) Book of God’s Works Nature**

S4 H2

NON-VERBAL

does **NOT** use words → offers only general information

EG it is like music. A symphony does not use words, but certainly communicates

Summary S5-6

**The Bible**

S7

- it’s like an ANTHOLOGY

written by roughly 50 authors over roughly 1500 years

has different types of literature (ie literary genres)

- gives the impression of being a record of actual events  
some events align with scientific evidence in archeology  
EG Judah deported to Babylon in 6<sup>th</sup> century BC/E

S8 H3

- CENTRAL QUESTION in Science-Religion dialogue:

S9 H3

What is the literary genre of the accounts of creation in Genesis 1-3?

**Science? Allegory? Fairy Tale?**

**Divine Action**

S10

DEF: BELIEF that God acts in the world

**Two Basic Concepts:**

S11

**(1) CONTEXT of Divine Action**

- Personal

DEF: divine acts with **people**

- Cosmological Greek *kosmos*: cosmos, entire universe

DEF: divine acts in **nature** (i) origins

(ii) operations

**(2) MODE of Divine Action**

S12

- Interventionism

DEF: **dramatic** divine acts

God breaks into the regular routines of people or nature

- Providentialism

DEF: **subtle** divine acts

God works through the regular routines of people or nature

**Six Basic Categories of Divine Action:**

For examples of each category see H3

1. Personal Interventionism

S13 H3

2. Personal Providentialism

S14 H3

3. Cosmological Interventionism in Origins

S15 H3

4. Cosmological Interventionism in Operations

S16 H3

5. Cosmological Providentialism in Origins

S18 H3

6. Cosmological Providentialism in Operations

S19 H3

**How to Determine the Category of Divine Action:**

S2

1<sup>st</sup> determine CONTEXT

Does it deal with people **OR** is it with the origins/operations in the cosmos?

2<sup>nd</sup> determine MODE

Is it dramatic (interventionism) **OR** is it subtle (providentialism)?

**TIP:** Personal Trumps Cosmological

S3

EG

3. Joshua & the miracle of the sun stopping

S4

“Joshua said to the Lord in the presence of Israel: ‘O sun, stand still’...

The **sun stopped** in the middle of the sky.”

Josh 10:12-13

QUESTION:

What category of divine action?

ANSWER:

**Personal Interventionism**

it involves people & it is dramatic

**Sin**

S5

DEF: BELIEF that certain acts are wrong/evil because they break God’s intention for **joyous** and **peaceful** human living.

☛ God is NOT a cosmic kill-joy!!!

• Conservative Christian Position on Sin:

S6

real & humans are accountable before God

determined by God → 10 Commandments

S7 H4

2 Great Commandments of Jesus

S8-9 H4

• Secular (at times Liberal Christian) Position on Sin:

S10

ONLY a cultural artifact, social convention & ultimately relative

ONLY determined by humans

LAMOUREUX’S POSITION ON SIN:

S11

• Biblical: from the opening pages to last pages

• Historical: major doctrine throughout Church history

• Experiential (life experience): have a look around the planet!

look inside YOURSELF

Was the Holocaust **nothing but** the clash of relative cultural artifacts & social conventions?

**OR**

Was the Holocaust truly wrong, truly evil, and truly sinful?

☛ YOU decide

## IV. PHILOSOPHY: GENERAL CATEGORIES

S2

Term “Philosophy” is made up of:

Greek *philos*: beloved, friend

*sophia*: wisdom, understanding

## Worldview (Personal Philosophy)

S3

DEF: BELIEFS concerning: ULTIMATE character of the world  
our place in the world  
how to live in the world

☛ *everyone has a worldview or personal philosophy*

A goal of this course:

to become aware of YOUR worldview and to develop it further

## Metaphysics

S4

Greek *meta*: behind, beyond, after

*physis*: nature → root of English words “physics” & “physical”

DEF: Ultimate Beliefs

- beliefs about the Ultimate Reality behind and beyond nature
- religious & philosophical beliefs

☛ *everyone has a metaphysics*

## Intelligent Design

S5

DEF: BELIEF that the beauty, complexity, and functionality in nature reflect rationality and the creative work of an Intelligent Designer

Teleology Greek *telos*: plan, purpose, goal, final end

S6

DEF: BELIEF that the universe & life have an ultimate plan and ultimate purpose and that the world is moving toward an ultimate goal or final end

- teleology is based in some Ultimate Being or Power
- Intelligent Design → REAL

Dysteleology German: *dysteleologie* *dys*: to lack *teleologie*: teleology

S7

DEF: BELIEF that the universe & life have **NO** ultimate plan, **NO** ultimate purpose, **NO** ultimate goal, and **NO** ultimate final end

- universe & life arose through **nothing but** blind chance
- Intelligent Design → ILLUSION

EG

## Richard Dawkins

S8

4. “The universe we observe has precisely the properties we should expect if there is at bottom **no design, no purpose**, no evil and no good, nothing but blind, pitiless indifference.”

R Dawkins, *River Out of Eden* (NY: Basic Books, 1995), 133

5. “The complexity of living organisms is matched by the elegant efficiency of the **apparent design**.”

S9

R Dawkins, *The Blind Watchmaker* (London: Penguin, 1986), xiii

# METAPHYSICS-PHYSICS PRINCIPLE

S2

1<sup>st</sup> Major Principle in this course  
foundational to Science-Religion scholarship

## (1) STRUCTURE

S3 H5

- Upper Compartment of **METAPHYSICS** (Religion & Philosophy)  
deals with Ultimate Beliefs  
Scientific instruments do not work in the realm of metaphysical beliefs  
EG cannot put God, sin, or teleology/dysteleology in a test tube

- Lower Compartment of **PHYSICS** (Science)

S4 H5

deals with Physical Facts  
Scientific instruments work extremely well in the natural world  
EG parts of nature can be placed in a test tube

## (2) COMPLEMENTARY RELATIONSHIP

S5 H5

- Latin *complēre*: to fill, complete  
In a complementary relationship, two parties add something that is lacking in the other  
so that they complete each other → enhance & enrich
- Two-way exchange between: Metaphysics (Religion & Philosophy)  
Physics (Science)

- Rooted in reciprocal STEPS OF FAITH (or intellectual leaps)

S6 H5

informed by Intuition & Reason  
no mathematical formula to move between upper & lower compartments  
☛ *everyone takes these Steps of Faith whether they are aware of it or not*

### UPWARD STEP OF FAITH

S7 H5

Science offers PHYSICAL FACTS to Religion & Philosophy

EG: Facts of an average cell:

1/1000<sup>th</sup> inch

2 yards of DNA

Storage Capacity = 1.5GB (2 CDs) = 6500 Books (300 pages each)

S8 H5

QUESTION:

Does this scientific evidence reflect the intelligent design of a Creator who is  
like a Supreme Engineer?

### DOWNWARD STEP OF FAITH

S9 H5

Religion & Philosophy offer metaphysical BELIEFS to Science

NB: this is often overlooked & rarely acknowledged

These beliefs function like a “**Metaphysical Set of Glasses**” through which we:

- (1) observe nature
- (2) interpret nature

QUESTIONS:

S2 H5

- Do atheists view nature through a “Dysteleological Set of Glasses?”

Does their metaphysical “lens” force them to believe design is an ILLUSION?

- Do Christians view nature through a “Teleological Set of Glasses?”

S3 H5

Does their metaphysical “lens” force them to believe design is REAL?

**TIP: SEPARATE DON'T CONFLATE**

S4 H5

Common error of atheists & agnostics is that they often conflate their Metaphysics & science, and they assume their worldview is purely scientific

☛ But atheists & agnostics have ULTIMATE BELIEFS!

PROVOCATIVE QUESTIONS:

S5 H5

- Is there a **Personal Factor** influencing the reciprocal Steps of Faith?

Does our relationship with God (or lack of a relationship) impact the intellectual leap?

- If so, could there be a Commandment #1 issue with those who reject intelligent design?

☛ **Does sin have an impact on our thinking?**

Leads to next section:

**Epistemological Categories**

the ‘mental machinery’ or ‘intellectual tools’ that direct our thinking and allow us to build our worldview



**V. PHILOSOPHY: EPISTEMOLOGICAL CATEGORIES**

S2

**Epistemology** Greek *epistēmē*: knowledge

S3

DEF: rules of knowing

theory of knowledge

STUDENTS CONFUSE THIS!!!

NOT knowledge itself

NOT information

BUT how we know we know → “Mental Tools”

“Mental Software” &amp; “Mental Hardware” that allows us to know &amp; understand

☛ *everyone has an epistemology*FOUNDATIONAL EPISTEMOLOGICAL CATEGORIES

S4 H6

**1. Correspondence**

knowledge matches external reality

**2. Coherence**

S5 H6

knowledge internally inconsistent &amp; without contradictions

**3. Consilience**

S6 H6

knowledge interconnects &amp; fits tightly into one encompassing theory

YOU have ALL these categories otherwise you would never have made it to university

RELIGIOUS EPISTEMOLOGICAL CATEGORIES

S7 H6

**1. Divine Foundation of Knowledge**

DEF: knowledge is ultimately rooted in God

**6. “The fear of the Lord is the beginning of knowledge.”** Prov 1:7

S8

COMMENTS:

- problem with term ‘fear’ → 17<sup>th</sup> English expression

Verse updated for today:

**“RESPECT for the Lord is the beginning of knowledge.”**Biblical Notion of Knowledge:

S9

- NOT just facts (our view)
- rooted in God & relational to God
- personal
- wide & holistic → includes wisdom, morals, personal experience

QUESTION:

S10

What is the foundation of **YOUR** knowledge?

Is knowledge ultimately rooted in God (or some teleological factor)?

**OR**

A brain built by only a dysteleological evolutionary process?

S11

Termed a **“4Fs Brain”** and it is produced by **nothing but:**

S12

(1) Fighting (2) Fleeing (3) Feeding (4) “Fertilizing”

IMPLICATIONS:

S13

IF we have a dysteleological **4Fs Brain:**

why should we trust our brain?

why should we trust our knowledge?

☛ our brain was never intended for finding Ultimate Truth

**2. Mystery**

S2 H6

DEF: knowledge that is beyond the human ability to know  
ideas that the human mind will **NEVER** grasp

EG

Religious Mystery:

Where did God come from?

Secular Mystery:

Where did energy &amp; matter come from?

Albert Einstein:

S3

7. "The eternal mystery of the world is its comprehensibility."

A. Einstein, "Physics & Reality," *Journ. Franklin Institute*,  
trans. J Piccard, 221:3 (Mar 1936), 351

COMMENTS:

S4

- not small 'm' mystery

EG medical mysteries

- but capital 'M' mystery → concepts humans will never understand
- reflects the (creaturely) limits of human mind
- word 'mystery' appears 30+ times in Bible

S5

8. "Can you fathom the **mysteries** of God?"Can you probe the **limits** of the Almighty?"

Job 11:7

**3. Impact of Sin**

S6 H6

DEF: knowledge is influenced by the spiritual state of a person

Does our relationship with God (**or lack of**) affect our ability to know?

EG:

does hating God affect a person's ability to think clearly &amp; rationally?

The Bible on Sin & Epistemology:

S7

9. For although they knew God, they neither glorified him as God nor gave thanks to him, but **their thinking became futile** and their **foolish** hearts were darkened. Although they claimed to be wise, they became **fools** and exchanged the glory of the immortal God for images made to look like mortal man and birds and animals and reptiles.

Rom 1:21-23

COMMENTS:

S8

- in the Bible:  
words 'fool' & 'foolish' do not mean intellectually stupid  
a fool is someone missing out on the best part of life → GOD
- Reject Commandment #1 (God is #1), then break Com. #2 (Idolatry)

## QUESTION:

S9

IF there is a Commandment #1 Problem,

THEN is there also a Knowledge Problem?

**Does Sin Impact OUR Epistemology?**

☛ YOU DECIDE

EXAMPLE:

S2

**Alvin Plantinga**, *Warranted Christian Belief* (Oxford University Press, 2000)

Chapter 7: Sin and Its Cognitive Consequences

IV. The Noetic Effects of Sin

Greek *nous*: mind

B. Sin and Knowledge

## SIN & METAPHYSICS-PHYSICS PRINCIPLE

S3 H5

QUESTIONS:

(1) IF sin is real,

IF the greatest sin is breaking Commandment #1 (i.e., not putting God as #1),  
THEN will sin impact the Upward & Downward Steps of Faith?

(2) BUT IF someone believes in God,

S4 H5

THEN will this belief impact the Upward & Downward Steps of Faith?

BE AWARE:

S5

**Our Metaphysical Beliefs IMPACT Our Epistemological Tools**

## VI. HERMENEUTICAL CATEGORIES

S6

### Hermeneutics

S7

DEF: rules of interpretation for reading a book

☛ *everyone has hermeneutics*

DRAWING EXERCISE:

S8-9

**10.** “In the beginning God created the heavens and the earth. Now the earth was formless and empty, darkness was over the surface of the deep, and the Spirit of God was hovering over the waters.”

Gen 1:1-2

### 3-Tier Universe in the Bible

S10 H6

- best example → Kenotic Hymn (Phil 2:6-11)

S11

Greek *kenoō*: “to empty, pour out”

- one of the most important passages in Bible

God emptied himself & became man in the person of Jesus → Incarnation

- Apostle Paul is the author

**11.** “At the name of Jesus every knee should bow,

S12

[1] in heaven and,

[2] on earth and,

[3] UNDER THE EARTH,

and every tongue confess that Jesus Christ is Lord,

to the glory of God the Father.”

Phil 2:10-11

### COMMENTS:

S13

- English translation “UNDER THE EARTH” is not the actual Greek word!

*katachthoniōn*: *kata* = down

*chthonios* = underworld

- More accurate translation reveals that Paul believed in a **3-Tier Universe**

[1] in heaven and,

S14 H6

[2] on earth and,

[3] in the **UNDERWORLD**

**Eisegesis** Greek *eis*: in, into *ēgeomai*: to guide S2

DEF: reading our views or agenda **INTO** a book

common error in reading of ancient texts like the Bible

EG: reading OUR modern science into the Bible (eg, spherical earth)

**Exegesis** Greek *ek* (*ek*): out, out of *ēgeomai* (*ēgeomai*): to guide S3

DEF: reading a book's views or agenda **OUT** of it

goal of reading any book, including the Bible

EG: reading the Bible's ancient science out it (eg, 3-tier universe)

**Hermeneutical Horizons** S4-5 H7

DEF: the conceptual worlds of the: (1) Bible

(2) Modern Reader

CHALLENGE: S6

21<sup>st</sup> century people steeped in 21<sup>st</sup> century science will find statements about nature in the Bible quite unusual and even bizarre

GOAL:

when reading an ancient text like the Bible → **THINK LIKE AN ANCIENT PERSON**

**Biblical Inerrancy** S7

DEF: BELIEF the Bible is absolutely true & without error

because the Bible was inspired by God (Holy Spirit)

• Inerrancy based on the Bible S8

Old Testament:

12. "Every word of God proves true." Prov 30:5

13. "All your [God's] words are true." Ps 119:160

New Testament:

14. "The Jews have been entrusted with the very words of God." Rom 3:2

15. "All Scripture is God-breathed." 2 Tim 3:16-17

• Inerrancy rooted in God's character → God of Truth → **God does NOT lie!** S9

16. "God, who does not lie." Titus 1:2

17. "It is impossible for God to lie." Heb 6:18

**BUT** S10

"At the name of Jesus every knee should bow,

[1] in heaven and,

[2] on earth and,

[3] in the UNDERWORLD,

and every tongue confess that Jesus Christ is Lord,

to the glory of God the Father." Phil 2:10-11

COMMENTS: S11

• IF the Christian God is the Creator of the world and the Author of the Bible,

THEN it is reasonable to expect an alignment between the Two Divine Books

• Did God make an error or mistake when he inspired the Apostle Paul?

• **DID GOD LIE IN THE BIBLE?**

**Phenomenological Perspective of Nature** Greek *phainōmenon*: appearance S2-3

DEF: nature as it appears to the naked eye & natural senses

18. “The sun **rises** and the sun **sets**, and **hurries back** to where it **rises**.” Eccl 1:5 S4

QUESTION:

Does the sun literally & actually move across the sky?

MODERN PHENOMENOLOGICAL PERSPECTIVE S5 H7

what we see, we know to be only an APPEARANCE

so-called “movement” of the sun across the sky is a visual effect due to rotation of the earth

ANCIENT PHENOMENOLOGICAL PERSPECTIVE S6 H7

what the ancients saw, they believed was LITERAL & ACTUAL:

sun literally & actually moves across the sky

NB: everyone believed this up to the 1700s (the debate with Galileo)

**3-Tier Universe** S7 H6

From an ancient phenomenological perspective, it looks like:

- heaven is an inverted bowl that holds up a blue sea of water
- the sun, moon, and stars are embedded in the surface of the inverted bowl
- the surface of earth is flat

Therefore:

when reading an ancient text → **THINK LIKE AN ANCIENT PERSON**

**DID GOD LIE IN THE BIBLE?** S8 H6

**NO!!!**

God inspired the Bible & allowed an ancient phenomenological perspective of nature

☛ **Ancient Science**

**Categories of Biblical Statements** S9-13 H8

(1) Spiritual Statements

DEF: statements about God & spiritual reality

(2) Scientific Statements

DEF: statements about nature & physical reality → **Ancient Science** → **Ancient Origins?**

**Categories of Biblical Correspondence & Concordism** S14

DEF: alignment between the Bible and reality

(1) Spiritual Correspondence

S15 H9

DEF: spiritual statements in Bible align with spiritual reality

(2) Scientific Concordism

DEF: scientific statements in Bible align with physical reality

THE OVERLAP PROBLEM S16 H9

the topic of origins deals with both Spiritual Correspondence & Scientific Concordism

**Genesis 1 & Creation in Six Days**

Does this biblical chapter reveal:

- Spiritual Statements?

the actual method that God used to create the world

- Scientific Statements?

the actual origin of the world → **Is evolution false?**

**Scientific Concordism**

S2

DEF: common assumption that the Bible aligns (or is supposed to align) with modern science

NB often referred to as simply “**Concordism**”

- Reasonable Expectation:

S3

God inspired the Bible ✓

God created the world ✓

Therefore → God’s Two Books should align

- Church History:

scientific concordism was part of academic hermeneutics up to the 20<sup>th</sup> century

common view held by many Christians today

QUESTION: **Is scientific concordism TRUE?**

---

**LAMOUREUX’S POSITION ON CONCORDISM**

S4 H9

- 1<sup>st</sup> and foremost I accept spiritual correspondence throughout the Bible

- BUT I reject scientific concordism

Bible is NOT a book of science

☛ Bible uses the **science-of-the-day** → **ANCIENT SCIENCE**

---

**MESSAGE-INCIDENT PRINCIPLE**

S5

The 2<sup>nd</sup> Major Principle in this course

foundational to a peaceful relationship between the Science &amp; Religion

**(1) STRUCTURE**

S6 H5

- Upper Compartment: **The MESSAGE**

**Spiritual Truths**

INERRANT → absolutely true &amp; without error

- Lower Compartment: **The INCIDENT**

S7 H5

**Ancient Science**

Science-of-the-Day

Ancient Phenomenological Perspective of the natural world

**(2) INCIDENTAL RELATIONSHIP**

S8 H5

- DEF of Incidental: to occur in connection with something important that which helps

- Incidental ancient science is a **vessel** that helps deliver the more important Spiritual Truths

☛ though ancient science is incidental, it is essential in transporting the Message S9

- During the process of inspiring the Bible, God **ACCOMMODATED** & allowed the ancient authors to use the science-of-the-day S10 H5

APPLICATION: Phil 2:10-11

S11 H5

Message: Jesus is Lord of the entire universe

Incident: 3-tiered universe

**TIP: SEPARATE DON’T CONFLATE**

S12 H5

common error made by Christians is that they often conflate the Message & the ancient science

## VII. ORIGINS DEBATE: GENERAL CATEGORIES

S2

In this debate, the distinction clearly emerges between:

- (1) Common (Church & Public) Categories
- (2) Academic Categories

### “Evolution” vs. “Creation” Debate

S3

DEF: common view of the origins debate BOTH inside & outside the church  
leads to Science & Religion warfare

☛ But a **False Dichotomy**

### Creation

DEF (Common): origin of universe & life in six 24-hour days 6000 yrs ago  
based on a strict literal reading of Gen 1

S4

CONFLATION:

Christianity & literal interpretation of Gen 1

DEF (Academic): RELIGIOUS BELIEF the world (creation) was made by a Creator

S5

☛ **Physical How?** questions are not part of theology

### Evolution

S6

DEF (Common): a natural process of molecules-to-humans through blind chance only

CONFLATION:

atheism & evolution

DEF (Academic): SCIENTIFIC THEORY that describes the natural processes that produced  
the heavens, the earth, and all living organisms, including humans

S7

ANIMALS:

molecules → single cells → soft-bodied marine → animals → marine animals  
with skeletons → jawless fishes → jawed fishes → amphibians → reptiles →  
mammals → primates → pre-humans → humans

PLANTS:

molecules → single cells → marine plants → land plants → seed bearing plants →  
flowering plants

☛ **Metaphysical Why?** questions are not part of science

### Darwinism

S8

DEF (Common): atheistic evolution

CONFLATION:

atheism & Darwin

NOTE:

S9

- Darwin never was an atheist!!!

19. “I have **never been an atheist** in the sense of denying  
the existence of a God.”

Darwin to Fordyce (7 May 1879)  
*Life & Letters of Darwin*, I:304

- Term “Darwinism” is not often used in biology  
computer search of biological abstracts (BIOSIS) between 2011-2015:  
Evolution (93,696) Darwinism (151) → 620 to 1

S10

SUGGESTION:

don’t use the term ‘Darwinism’  
it misrepresents Charles Darwin & it only causes confusion

**Re-Categorizing the Origins Debate****QUESTIONS:**

Is evolution teleological or dysteleological?

Is it possible to be both a creationist & an evolutionist?

**TIP** for religious people struggling with evolution:

**Embryology-Evolution Analogy**

S4

God uses natural **embryological** processes to create us in the womb

☛ God used natural **evolutionary** processes to create all of life on earth

**VIII. ORIGINS DEBATE: SPECIFIC CATEGORIES**

S5

**Evolutionary Sciences**

S6

Cosmological Evolution

**14 billion yrs ago** there was a massive explosion (The Big Bang) from which emerged space, time, and matter, and eventually led to the evolution of stars, planets, moons, galaxies, etc.

Geological Evolution:

S7

**4.5 billion yrs ago** planet earth formed. Natural processes such as erosion, volcanic activity, and the movement of continents have caused the earth to evolve and change over time.

Biological Evolution

S8

**4 billion yrs ago** molecules self-assembled into living cells from which evolved plants and animals, including humans

**Young Earth Creation**

S9

DEF: God created the universe & life in six 24-hour days about 6000 yrs ago

**Genesis 1:** strict literal interpretation

common view of a “creationist” & THE Christian position on origins

**Progressive Creation**

S10

DEF: God created life intermittently (progressively) at different points over billions of yrs

**Genesis 1:** Creation Days = Geological Periods millions of yrs long

**Evolutionary Creation**

S11

DEF: Personal God created universe & life through evolution

**Genesis 1:** reveals Spiritual Truths, not modern scientific facts

has an ancient science → ancient understanding of origins

uses the academic definition of the term ‘creation’

☛ *evolutionary creationists believe in a Creator & the world is his creation*

**Deistic Evolution**

S12

DEF: Impersonal God created universe & life through evolution

**Genesis 1:** rejects Biblical Revelation

EG: Darwin’s view of evolution through most of his adult life

**Dysteleological Evolution**

S13

DEF: universe & life evolved without any ultimate plan, purpose or final goal

natural processes are run by nothing but blind chance

**Genesis 1:** rejects God & Biblical Revelation

common view of an “evolutionist” & THE scientific position on origins

EG: Richard Dawkins



## Summary: Hermeneutics & the Origins Debate

S2 H10

Note the relationship between scientific concordism & the origins positions

S3 H10

☛ anti-evolutionism is connected to scientific concordism

QUESTION:

S4

**IF**

the Bible has an ancient science of origins,

**THEN**

is anti-evolutionism based on poor hermeneutics (scientific concordism)?

☛ **by the end of this course, I guarantee you will have a firm answer to this question**

## X. CONCLUSIONS

S5

### 1. Categories Are Absolutely Vital

S6

BEWARE of conflations & false dichotomies

S7

#### COMMON CATEGORIES

S8

trap us & chain us

conflations → false dichotomies → false choices → missed choices

#### ACADEMIC CATEGORIES

S9

free us & open our mind

spectrum of choices → allows informed choices → **OWNERSHIP of Your Worldview**

### 2. Consider the Two Foundational Principles for Science & Religion:

S10

#### METAPHYSICS-PHYSICS PRINCIPLE

S11 H5

a philosophical concept

Common Problem:

Atheists & Agnostics tend to conflate science & their metaphysics

**TIP:**

**SEPARATE & DON'T CONFLATE**

Atheism & Agnosticism are Ultimate Beliefs and not science!

#### MESSAGE-INCIDENT PRINCIPLE

S12 H5

a hermeneutical concept

Common Problem:

Christians tend to conflate the ancient science in the Bible & the Message of Faith

**TIP:**

**SEPARATE & DON'T CONFLATE**

Ancient Science is not a Spiritual Truth!

### 3. CONGRATS!

S13

You have made it through the part of the course with the most information!

# BASIC EVOLUTIONARY SCIENCES

## I. KEY THOUGHTS

S2

### 1. Nearly ALL scientists today accept Biological Evolution

S3

**98%** of American scientists accept:

“humans and other living things have evolved over time” Pew Research (2014)

### 2. Acceptance of evolution by the general public is significantly lower than the scientists

S4

**33%** of American adults accept:

“humans evolved due to natural processes” Pew Research (2014)

**52%** who reject human evolution believe the Bible is the:

S5

“Word of God & should be taken **literally**” Pew Research (2014)

#### ☛ Scientific Concordism

QUESTION:

Is a concordist hermeneutic correct?

### 3. The Dobzhansky Aphorism

S6

THEODOSIUS DOBZHANSKY (1900-1975)

S7

leading 20<sup>th</sup> century evolutionary biologist & also Eastern Orthodox Christian

Title of famous 1973 paper:

*“Nothing in Biology Makes Sense Except in the Light of Evolution”*

COMMENTS:

evolution is the unifying theory of biology & explains all biological evidence

EG Modern birds do not have teeth

S8

BUT

Why do all birds today have remnants of 6 genes that once made enamel & dentine for teeth? (non-functional genes termed “**pseudo-genes**”)

EVOLUTIONARY ANSWER:

S9

- birds evolved from animals with teeth → reptiles (dinos)
- fossil record reveals 1<sup>st</sup> birds had teeth
- beaks evolved & teeth became non-essential
- tooth genes became non-functional → teeth were lost

### 4. The Evolutionary Sciences are accepted today in nearly every university in the world

S10

THREE MAIN EVOLUTIONARY SCIENCES:

#### Cosmological Evolution

S11

14 billion yrs ago there was a gargantuan explosion termed “The Big Bang”

Space, Time & Matter emerged

stars, planets, moons, galaxies, etc then **Self-Assembled** over billions of years

#### Geological Evolution

S12

4.5 billion yrs ago planet earth **Self-Assembled** from material surrounding the sun

natural processes such as erosion, volcanic activity & the movement of continents

have caused the earth to change over time

#### Biological Evolution

S13

4 billion yrs ago molecules **Self-Assembled** into living cells

these cells over time **Self-Assembled** into plants & animals . . . **including humans**

## II. GEOLOGICAL EVOLUTION & AGE OF THE EARTH

S2

### 1. Historical Introduction

S3

Up until the 1600s, most scientists accepted:

- (1) Young Earth Creation
- (2) Noah's Global Flood

Based on:

- scientific concordism & literal reading of the Bible
- many layers (strata) in the crust of the earth
  - straight lines of strata indicate the layers were laid down in water
    - ☛ caused by Noah's 1 year worldwide flood

BUT

as scientists looked more closely at the strata it became clear they were not laid down in 1 yr  
geology begins in response to concordism

**Niels Steensen & Principle of Superposition** (1638-1686)

S4

studied shark teeth

S5-6 H11

observed specific shark teeth appeared in specific layers of rock

#### PRINCIPLE OF SUPERPOSITION

S7

a foundational concept of geology

- rock strata are historical documents
- lowest layer is the oldest & highest layer is the youngest

**TIP:** Think of an "In Basket"

The document at the bottom was the first, the one at the top the last

BUT

Steensen still believed in a young earth & a global flood

**Charles Lyell & Principle of Uniformitarianism** (1797-1875)

S8

considered the father of modern geology

strata were deposited in seabeds by erosion

S9 H12

straight lines of strata indicate they were laid down in water

heat & pressure from inside the earth SLOWLY raised the strata to become dry land

based on the experience of earthquakes & volcanoes:

they saw the raising & lowering of land

☛ explains marine fossils on mountains

**great amount of time needed → millions of years**

#### PRINCIPLE OF UNIFORMITARIANISM

S10

a foundational concept of geology

- earth's *past* is explained through the processes observed on earth *today*
- using the same forces & same intensities

**TIP:** Think of Crime Scene Investigations (CSI)

crime scene evidence *today* is used to reconstruct the crime in the *past*

**NB:**

S11

**ALL** the evolutionary sciences are based on this principle

scientific evidence *today* is used to reconstruct origins in the *past*

## 2. Annual Layers Deposited on Earth

some of the easiest evidence to understand the earth is older than 6000 yrs

S2

### Varves at the Bottom of Lakes

S3

layers that accumulate throughout the year

appear as a pair of bands & termed a “varve” → each pair represents 1 yr

Light Band: during summer

coarser silt & clay particles because of stronger flow from river run-off

Dark Band: during winter

finer silt & clay particles & organic material settle when lake freezes

EG **Green River Formation** (W. USA)

1,000,000+ yrs of annual varves

### Snow Layers in Polar Ice Sheets

S4

layers of snow fall that accumulate

Light Band: represents summer snow. It is warmed during the day & cooled at night

snow crystals are low density & coarse-grained

Dark Band: represents winter snow. There is no sunlight & no daily evaporation

snow crystals are dense & fine-grained

EG **Antarctic Ice Sheet**

800,000+ yrs of annual snow bands

### **NB**

S5

the power of these two examples of annual layers is that they are independent of each other

**TIP:** Think of Two Different Clocks (eg, digital clock & spring wound clock)

☛ BOTH sets of annual layers indicate the earth is much older than 6000 yrs

## 3. The Geological Column

S6

mapping to the strata in the crust of the earth began in mid-1700s

S7 H14

### Features:

- Strata in a Sequential Order

S8

1000s of feet thick & 10s to 100s of miles wide

some layers might be missing (due to erosion)

☛ BUT the layers are never out of sequence

### GLOBAL FLOOD PREDICTION:

strata should be very asymmetrical & haphazard

- Distinctive Fossils in Each Strata

S9

termed “**Index Fossils**”

EG dinosaurs are never found in rock layers with humans

### GLOBAL FLOOD PREDICTION:

fossils should be all mixed together

EG dinosaurs & humans should be found in SAME strata

- Fossils in an **Progressive Evolutionary Pattern**

S10

from simple organisms in lower strata to more complex organisms in higher strata

### PLANTS:

S11 H14

one-cell organisms → multi-cell organisms → marine plants → land plants →

seed bearing plants → flowering plants

ANIMALS:

S2 H14

one-cell organisms → multi-cell organisms → soft-bodied marine animals →  
marine animals with skeletons → jawless fish → jawed fish → amphibians →  
reptiles → mammal-like reptiles → mammals → primates → pre-humans → humans

GLOBAL FLOOD PREDICTION:

S3

mixing of fossils & no evolutionary pattern

**NB**

S4

**NOT ONE** fossil plant or fossil animal in the earth's crust has been found that is outside  
this **evolutionary pattern** in the geological column  
EG humans never in strata before dinosaurs

**4. Radiometric Dating**

S5

Basic Principle

S6

by measuring the amount change in a natural process, the amount time this process has been  
going on can be determined

**TIP:** Think of Burning Candles

a short candle indicates it has been burning for more time than a long candle

Radioactive Atoms

S7

DEF: unstable (parent) atoms that naturally change (decay) into more stable (daughter) atoms

- age of an object can be determined by comparing the amount parent atoms to daughter atoms

EG high amount of daughter atoms:

indicates the process of decay has been going on for a long time

- when molten rock (magma) cools & hardens (lava rock) different minerals crystallize S8 H15

some crystals only take up specific radioactive parent atoms & NO daughter atoms

☛ in this way the radio-metric "clock" is set at Zero

with radioactive decay the parent atoms in the crystal are changed into daughter atoms

Rate of Radioactive Decay

S9 H15

- rate of decay is known for different radioactive atoms
- it is measured as a "Half-Life"

DEF: time it takes ½ of parent atoms to decay into daughter atoms

1 Half-Life: original amount of parent atoms reduced to **1/2**

2 Half-Lives: " " " " " " **1/4**

3 Half-Lives: " " " " " " **1/8**

- usually after 10 Half-Lives (reduced to 1/1024) there is not enough material to date accurately

Example

S10

**Potassium 40 & Argon 40**

often used to date lava rock & volcanic ash

extreme temperatures of volcanoes expels Argon gas

as magma cools certain crystals only capture Potassium 40 → decays into Argon 40

Half-Life: 1.3 billion years

capable of dating rocks that are very old, such as those when earth formed 4.5 billion ya

**Other Examples of Radiometric Dating**

S2

Uranium 238 (Parent) & Lead 206 (Daughter): 4.5 billion yr Half-Life

Thorium 232 (P) & Lead 207 (D): 14 billion yr H-L

Rubidium 87 (P) & Strontium 87 (D): 48 billion yr H-L

NB: these are independent radiometric “clocks”

Radiometric Dating of Geological Strata

S3

- strata with radioactive rocks or volcanic ash layers can be dated S4 H15
- when different radiometric clocks are used to date the same strata:
  - ☛ they ALWAYS get roughly the same age
- age of strata increases from upper strata (younger) to lower strata (older)

**NB**

S5

**NOT ONE** stratum (which can be dated) in the geological column has been found that is outside this increase in age pattern from upper to lower strata  
the geological layer above a layer ALWAYS has a younger date

Carbon 14 Radiometric Dating

S6

- used to date organic material → plants (eg, wood/charcoal) & animals (eg, bones/teeth)
- Half-Life is only **5730 yrs**
  - can only be used to date material less than **50,000 yrs**
  - ☛ NOT capable of dating the age of earth (4.5 billion)

**Production & Decay of Carbon 14 (C14)**

S7 H16

cosmic radiation in upper atmosphere changes Nitrogen into Carbon 14

NITROGEN:

7 protons & 7 neutrons

1 neutron is added & 1 proton removed to produce C14

CARBON 14:

6 protons & 8 neutrons

C14 is unstable & decays to return to stable Nitrogen

1 electron is removed & 1 neutron becomes a proton

**The Carbon Cycle**

S8 H16

- living organisms use both unstable Carbon 14 & stable Carbon 12 (99% of all Carbon)  
ratio between C14 & C12 is constant
- when a plant or animal dies no new C14 or C12 is incorporated  
Carbon 14 decreases because it decays  
the lower the amount of C14 → the older the plant or animal

**Reliability of Carbon 14 Dating**

S9

Carbon 14 radiometric dating has been confirmed by known historical data

EG bones in graves with the date of death

wooden structures with the known date of construction

**NB**

S10

There are many more geological dating techniques: Fission Track, Electron Spin Resonance, etc

- ☛ **ALL** dating techniques are independent & indicate the earth is much older than 6000 yrs

## 5. Tectonic (Continental) Plates

S2

some of the best evidence for geological evolution

### STRUCTURE OF THE EARTH

S3 H17

(1) Inner Core: solid & mostly Iron

(2) Outer Core: liquid & mostly Iron

(3) Mantle: magma (molten rock)

magma is plastic & slowly flows in circular (convection) currents

hot magma rises & cool magma descends (like water in a lake or air in the atmosphere)

(4) Lithosphere: crust (rock) of the earth

moving magma pulls plates apart, together, or by one another → cause of earth quakes

plates move very slowly → about a few centimetres per year

☛ broken into a number Tectonic (Continental) Plates

S4 H17

### **Evidence for Tectonic Plates**

S5

#### Re-Assembly of Pangea

S6-7 H18

- 225 million yrs ago there was only 1 massive continent called “**Pangea**”

movement of magma in the mantle of the earth breaks up Pangea

- “**Rewind the Video Tape**” of the History of the Earth

reversing the movement of the plates re-assembles Pangea

**TIP:** Think of a Jigsaw Puzzle

EG: NE shore of South American fits into SW shore of Africa

#### Radiometric Dates of the Spreading Ocean Floor

S8 H19

- tectonic plates that spread apart allow for magma to come to the surface, cool & harden  
new sea floor is formed

- magma harden into rock can be dated radiometrically

EG **Mid-Atlantic Ridge**

S9 H19

middle of ocean has youngest rocks & lateral edges at shoreline the oldest rocks

increase in the age of rocks is progressive from the ridge in the middle

#### Similar Plants & Animals in Pangea 225 mya

S10 H20

- when Pangea was one continent, plants & animals crossed the future boundaries of continents

☛ therefore, in geological strata 225 mya → the plants & animals are similar

after the break up of Pangea organisms evolve in different directions

#### Similar Mountain Ranges across the Atlantic Ocean

S11 H20

- when Pangea broke up, some mountains were split apart

EG **Appalachian & Mauritania Atlas Mountains**

geological strata in these ranges match up

#### Radiometric Dates of Hawaiian Islands

S12 H21

- ages of the islands is progressive

most NW island is oldest (Kauai 5.6 my) & most SE island is youngest (Hawaii 0.7 my)

- over time the Pacific Plate has moved NW over a **Hot Spot** in mantle

S13 H21

magma spews out of Hot Spot & through the plate to form Hawaiian Islands

### III. BIOLOGICAL EVOLUTION

S2

#### 1. Introduction

S3

#### TWO CENTRAL CONCEPTS OF BIOLOGICAL EVOLUTION:

##### (1) Production of Variation

S4

genes naturally change (mutate) over time

this can result in new biological characteristics

##### (2) Natural Selection

S5

plants & animals with new biological characteristics that are advantageous have a better opportunity of surviving & reproducing (Survival of the Fittest)

- these advantageous genes are passed down to the next generation
- organisms without these genes are eliminated → Extinction
- ☛ results in the species changing (evolving)

#### CHRISTIAN CONCERN:

S6

many Christians troubled by Natural Selection, Extinction & Survival of the Fittest

**BUT** what is the Message of Christianity?

☛ is it not about spiritual selection?

survival of the spirituality fittest to gain eternal life?

#### OTHER CONCEPTS:

##### Evolution = Family of **ALL** Living Organisms

S7

ALL plants & animals are evolutionary relatives

closely related organisms have similar genes & anatomical features

##### Homology

S8

DEF: similar genetic & anatomical features between different living organisms indicating that they are related through evolution

EG anterior limb bones of vertebrates (animals with a backbone) are **homologous**

S9-11 H22-23

##### **TIP:** Think of a Family Genealogy

S12

close relatives have similar genes & anatomical features (eg shape of nose)  
compared to distant relatives

##### Transitional Fossils

S13

DEF: fossils that share characteristics with earlier animals from which they evolved, and also have new features of later animals into which they evolved

☛ excellent evidence of one species changing into another species

EG evolution of the foot of horses from 4 digits to only

S14 H23

1 digit over 40 million yrs

##### The Fossil Record

S15

features overwhelming evidence of a **progressive evolutionary pattern** over time

##### **TIP:** Think of a Family Photo Album

we only have **snapshots** of family members at different points in their life  
every time we find a new photo, it fits into the album at the right place

**Fossils = “Snapshots”** of the evolution of living organisms

☛ every new fossil **always fits** in the fossil record at the right place

S16



## 2. Fossil “Snapshots” of the Evolution of Vertebrates

S2

only 5% of animals are vertebrates (animals with a backbone)

S3 H24

### Vertebrate Fossil Record

S4 H24

progressive evolutionary pattern:

jawless fish → jawed fish → amphibians → reptiles (→ birds) → mammals

NEVER out of order

EG jawed fish are NEVER found in the fossil record before jawless fish

### **Fish-to-Amphibian Evolution**

S5 H25

- transition from fish to tetrapods (4-limbed land animals)
- fins evolve into limbs

☛ great advantage being able to crawl on land:

safety from marine predators

discovery of new sources of food

- **Tiktaalik** (375 mya) aka “Fish-apod”

S6 H25

classic transitional fossil:

Fish Features: gills, scales, fins

Tetrapod Features: lungs & spiracles (air openings), moving neck

- similar body outlines & skeletons:

S7 H25

Acanthostega (early amphibian) looks like a fish (Eusthenopteron) with limbs

- clear transition from lobe fins in fish to limbs in early amphibians

S8 H26

Lobe Fins: large fleshy fins with bones similar (**homologous**) to tetrapods

anterior fin/limb: both have a humerus, radius, ulna, digit-like bones & digits

EG **Sauripterus**

Fish with “Fingers”

- HOW? changes in bone anatomy are not difficult

S9

change the concentration of just one developmental molecule in the developing

S10 H26

limb & dramatic changes can occur in the **number & shape** of bones

EG experiments that increase Retinoic Acid in chick limbs

### **Reptile-to-Mammal Evolution**

S11-12 H27

- transition between reptiles & mammals is one of the best fossil records

#### **Mammal-Like Reptiles:**

☛ over 1000 species & 10,000 fossils

- Tooth Evolution:

S13 H28

transition from simple cone teeth of reptiles → bite & swallow prey

large canine for puncturing & tearing prey

curves on back teeth & cusps (points on teeth) also increase the ability to tear up prey

interlocking back teeth & cusps → grind up prey & draw more nutrients

mammals are warm-blooded & require more nutrients than cold-blooded reptiles

- Jaw Joint Evolution:

S14-15 H29

reptiles: joint between Quadrate & Articular bones

mammals: joint between Squamosal & Dentary bones

#### **Probainognathus**

has BOTH types of jaw joints! Excellent transitional fossil

**Reptile-to-Bird Evolution**

S2 H30

- birds evolved from small dinosaurs called “theropods” (had hollow bones like birds)
- Evolution of Flight:
  - flapping & jumping: Caudipterxy (feathers on tips of arms & tail)
  - gliding: Microraptor (feathers on arms, legs, & tail) S3 H30
  - flying: Archeopteryx
- Evolution of Feathers: S4 H31
  - single filaments → branched filaments (like down feathers) → feathers
- **Archeopteryx** (150-125 mya) S5-7 H30-31
  - classic transitional fossil:
    - Reptile Features: claws on wings, long tail with vertebrae, fibula, conical teeth
    - Bird Features: wishbone, feathers

**Land Mammal-to-Whale Evolution**

S8-13 H32-34

- transition features feet evolving into wide paddles & then into fins
- tail lengthens & thickens to become the powerful source of locomotion through water
- hind limb dramatically decreases in size & becomes a tiny remnant
- nasal cavity moves toward the top of head to become whale blowhole

**Evolutionary Vestige**

S14

DEF: small leftover structure that was functional in an earlier evolutionary ancestor

EG hind limb of ancient whales (eg Basilosaurus) S15 H34

fetal teeth of modern baleen whales S16-17 H34

[Brief Review of Genetics. See supplemental slides]

S18

**3. Genetics & Evolution**

S19

modern genetics offers overwhelming evidence that all living organisms are “evolutionary relatives”

☛ ALL living organisms share the “Molecule of Life” → **DNA**

**TIP:** Think of the Genes in a Family

S20

family members share similar genes, and so too do all evolutionary relatives

**Cytochrome C**

S21

- small protein that is essential for the production of energy in the cells of living organisms
- made up of about 100 amino acids → the gene has about 300 base pairs
  - 3 DNA bases (nucleotides) code for 1 amino acid
- close evolutionary relatives have similar Cytochrome C protein/gene/amino acids S22 H35
  - EG humans & monkeys have only 1 amino acid difference
  - Therefore: close evolutionary relatives
  - humans & horses have 12 amino acid differences
  - Therefore: distant evolutionary relatives
- Cytochrome C gene has changed (mutated) at a constant rate over time S23 H35
  - comparing the nucleotide differences between different living organisms produces an evolutionary tree
  - NB** this genetic evolutionary tree basically aligns with the S24 H24 & 35
  - evolutionary tree of the fossil record

**Body Plan Genes**

S2

- master genes that control the development of the body plan in nearly all animals
- appear as a series of genes along a chromosome/s
- these genes are very similar between different species → **Homologous Genes**

**TIP:** Think of Bone Homologies

S3 H23

similarities in bone anatomy between species indicates that they are related through evolution

EG Fruit Fly &amp; Human Body Plan Genes

S4 H38

☛ genes in the same column are homologous

a gene in a fly can be removed & replaced by the homologous human gene and the fly will develop normally

Gene & Chromosome Duplication

S5

- duplication of genes & chromosomes increases body plan genes over time

**NB:** evidence for duplications → most genes resemble other genes

- both types of genetic duplication occur today

S6

original gene/chromosome: continues to function normally & keeps the organism alive

duplicated gene/chromosome:

**free to change (mutate) → new genes arise for new features**

☛ MAJOR mechanism in evolution

EG Evolution of Body Plan Genes

S7 H39

vertebrates have 2 duplications of entire chromosomes

**Pseudo-Genes (Non-Functional or Relic Genes)**

S8

DEF: genes in chromosomes that no longer function → **Genetic Evolutionary Vestiges**

EG Tooth Pseudo-Genes in Modern Birds

S9

6 genes that once made enamel & dentine

makes evolutionary sense: birds evolved from dinosaurs with teeth

Olfactory Pseudo-Genes

S10

mammals have about 1000 genes for making receptors to smell chemicals in air

BUT 75-100% are pseudo-genes in toothed whales & are not needed because whales prey on marine life that is under water

makes evolutionary sense: whales evolved from land animals with a keen sense of smell

**IV. COSMOLOGICAL EVOLUTION & THE BIG BANG**

S11

**1. Historical Introduction**

S12

Albert Einstein (1879-1955)

S13

energy & matter are interchangeable → they are different forms of the same “thing”

famed equation:  $E = mc^2$      E = energy   m = mass (matter)   c = speed of light

energy could be turned into matter

☛ Big Bang begins with pure energy & some energy later converts into matter

Edwin Hubble (1889-1953)

S14

discovered galaxies were moving away from each other & concluded the universe is expanding

**“Rewind the Video Tape” of the Universe**

if we “rewind” of the movement of the galaxies back to each other, then we come to a single point termed **“The Big Bang”**

S2

**NB**

S4

S5

- S6

• after the Big Bang:

- (1) time begins
- (2) space begins & expands
- (3) universe starts to cool
- (4) four fundamental forces of nature emerge
- (5) matter emerges

S3

energy is converted into subatomic elementary particles (quarks, photons, etc)

neutrons, protons & electrons emerge

simple elements emerge (hydrogen, helium, etc)

- (6) gravity pulls matter together to form the first generation of stars (suns)

they later explode & larger elements emerge (carbon, iron)

- (7) gravity pulls together matter exploded from 1<sup>st</sup> generation of stars

later generations of stars (suns) emerge with planets & moons → our present universe

**TIPS:**

S4

Think of an Unopened Can of Beans on a Camp Fire

as the contents of the can heat up, they eventually explode and heat is dissipated outward & the contents cool

☛ extreme heat of the Big Bang explodes & expands the universe into being

Think of the Cooling of Water

as water cools, it goes from water vapour to liquid water to solid ice

☛ as the temperature of the expanding universe cools, energy turns into matter

**V. CONCLUSION: THE EVOLUTIONARY SCIENCES & DIVINE ACTION**

S5

QUESTION:

Was God involved in cosmological evolution, geological evolution, or biological evolution?

POSSIBILITIES:

**(1) No Divine Action**

S6

No God & evolution is dysteleological

**(2) The God-of-the-Gaps**

S7

DEF: belief that God miraculous intervenes at different places in the natural world

these places are termed “**Gaps in Nature**”

FEATURES

S8

- Term carries a negative nuance

BUT logically possible

God can intervene in nature at any time he wants to

**EG during biological evolution**

by adding new genes, new chromosomes, new species, etc

or by manipulating genes into new genes, etc

☛ **Progressive Creation**

- Prediction S2  
 IF gaps in nature are real,  
 THEN gaps should WIDEN with scientific research  
 No natural explanations or mechanisms will be found by science  
 Therefore, a point in nature (eg evolution) where God intervenes
- History of Science S3  
 ALL the gaps in nature proposed by religious people have CLOSED  
 natural explanations or mechanisms have been found by scientists  
 ☛ gaps are **Gaps in Knowledge**, NOT **Gaps in Nature**  
 EG Isaac Newton's Rewinding of the Universe Theory S4  
 saw wobbles in the orbit of Saturn  
 believed God intervened to fix wobbles & stop the collapse of the universe  
 BUT a **Gap in Knowledge**  
 the wobbles are self-correcting & explained by gravitational pull  
 of Uranus on Saturn  
 telescopes in Newton's day were too weak to see Uranus
- Concern S5  
 IF religious people claim there are Gaps in Nature where God intervenes,  
 EG adding new genes during evolution  
 IF new scientific knowledge closes these Gaps in Knowledge,  
 EG the discovery genetic evolutionary mechanisms like gene duplications  
 THEN  
 will this lead to a loss of belief in God?

### (3) The God-of-the-Self-Assembling Creation S6

God used cosmological, geological & biological evolution for the world to **Self-Assemble**  
 God used only ONE divine act → Big Bang to start the process

### GOD SHOOTING POOL ANALOGY S7

who is the more magnificent God?

God who sinks all the balls shot after shot after shot & clears the table

God-of-the-gaps

**OR**

S8

God who sinks all balls in ORDER with ONLY ONE shot, representing Big Bang

1<sup>st</sup> balls representing the heavens

2<sup>nd</sup> a ball representing the earth

3<sup>rd</sup> balls representing living organisms (in order):

fish → amphibians → reptiles → mammals

Finally, the 8-ball (the most important ball) representing humans

God then takes the 8-ball out of the pocket to have a personal  
 relationship with men & women

☛ **Evolutionary Creation**

**YOU DECIDE**

# SCIENCE & RELIGION MODELS & RELATIONSHIPS

## I. KEY THOUGHTS

S2

### 1. Warfare is the Common Perception of the Relationship between Science & Religion

S3

59% of Americans believe science & religion are often in CONFLICT (Pew 2015)

BUT

science-religion scholarship has moved well beyond warfare

### 2. Foundation of Science & Religion Scholarship Reflects the Metaphysics-Physics Principle

S4

Two Steps:

1<sup>st</sup> distinguish the fundamental differences between science & religion

S5 H5

2<sup>nd</sup> look for points of contact and have a reciprocal exchange of information

S6 H5

EG Intelligent Design deals with both science & religion

☛ explore & develop different relationships

### 3. Science-Religion Scholarship is a Young Academic Discipline

S7

emerged during the 1990s

still in the process of developing

two founding scholars: Ian Barbour & John Haught

## II. SCIENCE & RELIGION MODEL OF JOHN F. HAUGHT

S8

*Science and Religion: From Conflict to Conversation* (NY: Paulist Press, 1995)

S9

Roman Catholic theologian

### Haught's MODEL of Science & Religion

S10

NB:

a model includes as many relationships as possible, including those we do not accept

Four Relationships between Science & Religion:

1. Conflict

2. Contrast

3. Contact

4. Confirmation

### Haught's POSITION on Science & Religion

S11

NB:

a position is a personal & specific view on Science & Religion

Haught:

• rejects Conflict

• starts with Contrast

• integrates Contact & Confirmation

## TIP:

Select & Combine the relationships to develop YOUR position

S12

**1. CONFLICT RELATIONSHIP**

S2

- common perception of the relationship between Science & Religion  
asserts it is impossible to be both religious & scientific  
☛ especially if you are honest or not crazy!!!
- conflict fuelled by two groups: 1. Scientific Skeptics  
2. Biblical Literalists

**SCIENTIFIC SKEPTICS**

S3

Religion → enemy of truth &amp; enlightenment

Science → liberator &amp; saviour

**Conflict Relationship of Scientific Skeptics**common perception of science & religion by those who reject religion

S4-5

**RELIGION**

- based on mindless faith
- uses Deduction  
general rule to particular case
- emotional & irrational

**SUBJECTIVE****SCIENCE**

- based on hard facts & logic
- uses Induction  
particular case to general rule
- dispassionate & rational

**OBJECTIVE****COMMENTS:**

S6

trapped in simple dichotomies &amp; conflation

entrenched in black &amp; white and either/or thinking

**BIBLICAL LITERALISTS**

S7

Science → enemy of truth &amp; God

Religion → defender of REAL science (ie. Creation Science or Young Earth Creation)

**Conflict Relationship of Biblical Literalists**common perception of science & religion by many who accept religion

S8-9

**RELIGION**

- offers **True** science
- based on hard facts
- Godly & competent

**OBJECTIVE****SCIENCE**

- offers **False** science
- misinterprets the facts
- Satanic & incompetent

**SUBJECTIVE****COMMENTS:**

S10

trapped in simple dichotomies &amp; conflation

entrenched in black &amp; white and either/or thinking

**CONCLUSION: Conflict Relationship**

S11

1. Ironically, Scientific Skeptics & Biblical Literalists are quite similar

BOTH: claim to be purely “objective” &amp; based on “hard facts”

steeped in simple dichotomies &amp; conflation

2. Scientific Skeptics alienate religious people from science

S12

Biblical Literalists alienate scientific people from religion



**2. CONTRAST RELATIONSHIP**

S2

- NO conflict between Science & Religion
- Each deals with RADICALLY different issues & questions

**Contrast Relationship of Science & Religion**

separate science & religion from each other & recognize their fundamental differences S3-4

**SCIENCE**

HOW questions of nature

- patterns & processes
- natural causes
- works of nature

**RELIGION**

WHY questions of belief

- meaning & mystery
- ultimate causes
- Foundation of Nature

COMMENTS:

S5

NO conflict is possible: Science → Physical

Religion → Metaphysical

**CONCLUSION: Contrast Relationship**

S6

1. Contrast is THE 1<sup>st</sup> STEP toward a peaceful relationship between science & religion

1. “Perhaps it is even almost essential for us to pass through the discipline of contrast as we make our way out of the **confusions of conflation** and move toward a more nuanced discussion of science and religion.” Haught, 15-16 S7

COMMENTS:

also called: “an important step toward clarity”

“helpful first approximation” Haught, 17

reflects the 1<sup>st</sup> Principle in this course → Metaphysics-Physics Principle

2. Leaving science & religion in separate compartments is UNSATISFYING S8

2. “The urge to discover the coherence of all our ways of knowing is too powerful for us to suppress indefinitely.” Haught, 17 S9

COMMENTS:

many students enter this course with science & religion compartmentalized

BUT we all want an INTEGRATED worldview

**3. CONTACT RELATIONSHIP**

S10

- cautious (but not too intimate) move toward a fruitful relationship between science & religion beginning of a more integrated picture of reality

• Two-Way Relationship:

S11

(1) Science **broadens** religion’s understanding of the natural world  
offers physical facts

(2) Religion **deepens** science’s understanding of the ultimate meaning of nature  
offers metaphysical beliefs

**SCIENCE CONTACTS RELIGION**

S2

- Enriches & Magnifies the Doctrine of Creation

EG Who has a greater & more magnificent picture of God's grandeur in nature? S3

Biblical writers & their 3-tier universe?

OR

Our generation & the Hubble Telescope? S4

- Improves Hermeneutics S5

modern science: reveals there is an ancient science in the Bible

assists religious people to focus on the Message of Faith

☛ formulation of the Message-Incident Principle

**RELIGION CONTACTS SCIENCE**

S6

not as substantive as science contacting religion

religion does not impact/change/add to science

religion brings "religious meaning" (metaphysics)

EG: God is the Creator

cosmos is heading in an ordained direction

**CONCLUSION: Contact Relationship**

S7

1. Science impacts Religion more than Religion impacts Science

science changes religion → hermeneutics & Doctrine of Creation

religion has no real effect on scientific research → just adds a metaphysical interpretation

**4. CONFIRMATION RELATIONSHIP**

S8

- Intimate relationship between Science & Religion

- religion: nourishes science at a "very deep level"

impacts science substantively

NB: Haught claims there are religious elements in science!!!

S9 H5

EG: FAITH & BELIEFS

**Metaphysics-Physics Principle**

- downward movement of ULTIMATE BELIEFS into science
- STEPS OF FAITH are needed to move these BELIEFS into science

3. "Science, to be more specific, cannot even get off the ground without **rooting** itself in S10

a kind of *a priori* 'faith' that the universe is a **rationally ordered** totality of things.

Scientists always rely on a **tacit faith** (which they seldom reflect on in an explicitly S11

conscious way) that there is a **real world** 'out there,' that this **real world** hangs

together **intelligibly**, that the human mind has the capacity to comprehend at least

some of the world's **intelligibility**, and that no matter how far we probe there will

still be further **intelligibility** to uncover.

Haught, 23

FAITH IN SCIENCE

S2

Scientists have:

- “*a priori* faith” → assumed & not empirically proven

Latin *a priori*:

from something earlier (not based on observation/experience)

S3

- “*tacit faith*” → “seldom reflect on [this faith] in an explicitly conscious way”

Latin *tacitus*:

silent, unmentioned

ULTIMATE BELIEFS (METAPHYSICAL) IN SCIENCE

S4

**Metaphysics-Physics Principle**

downward movement of metaphysical/religious beliefs into science

• **Realism**

S5 H5

BELIEF “there is a real world ‘out there’”

refers to a “real world” 2X

how do you know you are not trapped in a computer program?

EG the movie The Matrix

• **Intelligibility of Nature**

S6 H5

BELIEF “universe is a rationally ordered totality of things”

refers to world’s intelligibility 3X and orderliness 1X

all scientists practice science assuming that nature “makes sense”

☛ reflects the belief in Intelligent Design

• **Human Intelligence**

S7 H5

BELIEF “the human mind has the capacity to comprehend” & we truly can know natureNO 4Fs **dysteleological brain** problem here! (See notes p. 15)**CONCLUSION: Confirmation Relationship**

S8

1. Confirmation can be very challenging to grasp  
you might have to think about it for a while

2. Confirmation appreciates faith (metaphysical) components in science  
it reflects the human epistemological condition

S9

DO NOT be embarrassed to say that we are creatures of FAITH**CONCLUSION: Science & Religion Model of John Haught**

S10

Haught’s Personal Position:

4. “The ‘**contrast**’ approach, while perhaps a necessary first step away from both **conflation** and **conflict**, is also unsatisfying ... I think that the ‘**contact**’ approach, supplemented by that of ‘**confirmation**,’ provides the most fruitful and reasonable response to the unfortunate tension that has held so many scientists away from an appreciation of religion, and an even larger number of religious people from enjoying the discoveries of science.”

Haught, 4

COMMENT:

move beyond conflation &amp; conflict to a peaceful view of science &amp; religion

**V. SCIENCE & RELIGION MODEL OF IAN G. BARBOUR**

S2

*Religion in an Age of Science* (San Francisco: Harper, 1990)

S3

“The Grandfather” of the science-religion dialogue

PhD physics &amp; Master of Divinity

Protestant Christian

**Barbour’s MODEL of Science & Religion**

S4

NB:

a model includes as many relationships as possible, including those we do not accept

Four Relationships between Science &amp; Religion:

1. Conflict
2. Independence
3. Dialogue
4. Integration

**Barbour’s POSITION on Science & Religion**

S5

NB:

a position is a personal &amp; specific view of the relationship between Science &amp; Religion

Barbour:

- rejects Conflict
- starts with Independence
- uses Dialogue & aspects of Integration

**TIP:**Select & Combine the relationships to develop YOUR position

S6

**The Challenge to Religion**

S7

the success of science

5. “The first major challenge to religion in an age of science is the **success** of the methods of science.”

Barbour, 3

COMMENTS:

Why bother with religion when science can deal with most of our problems?

**The Problem**

S8

Epistemological → science appears to be the only way to find Truth (capital “T”)

6. “**Science** seems to provide the **only reliable path to knowledge**. Many people view

[1] **science** as objective, universal, rational and based on solid evidence.[2] **Religion**, by contrast, seems to be subjective, parochial, emotional, and based on traditions or authorities that disagree with each other.”

Barbour, 3

COMMENTS:

S9-10

- common perception of the relationship between science & religion:

**SCIENCE****objective**

universal

rational

Based on:

solid evidence

**RELIGION****subjective**

parochial

emotional

Based on:

disagreeing traditions

- trapped in simple dichotomies & conflation
- entrenched in black & white and either/or thinking

**1. CONFLICT RELATIONSHIP**

S2

- never-ending conflict between science & religion
- fuelled by two groups: (1) Scientific Materialists  
(2) Biblical Literalists

**SCIENTIFIC MATERIALISTS**

S3

**Foundational Principle**

reality is **nothing but** energy & matter → there is no spiritual reality

**Foundational Method****Reductionism**

everything is explainable by reduction into physical laws

EG love & religion are “nothing but” energy & matter

**Carl Sagan**

S4

astronomer & hosted the most popular science TV series in 1980s

HUGE impact promoting the conflict relationship & the idea Science = Atheism

7. “THE COSMOS IS ALL THAT IS OR EVER WAS OR EVER WILL BE.”

C Sagan, *Cosmos* (NY: Random House, 1980), 4  
Capitals original

**QUESTIONS:**

- is this a scientific or religious statement?

is Sagan’s claim the same as:

S5

8. Jesus: “I am the Alpha and Omega, the First and the Last,  
the Beginning and the End.”

Rev 22:13

- did Sagan alienate religious people in Canada & US?

S6

did he do a disservice to science by discouraging them to be scientists?

**COMMENTS**

S7

Historical Trend:

science explains more & more aspects of the natural world

science discovers more & more natural processes in origins & operations

☛ science eliminates divine interventions in nature

**QUESTIONS:**

S8

- will science eventually explain away God & religion?
- can we extrapolate this historical trend and PROVE there is no God?

NO. Categorically not possible

Metaphysics-Physics Principle stops the extrapolation of physics to metaphysics

BUT you can take a Step of Faith & come to the BELIEF there is no God

**BIBLICAL LITERALISTS**

S9

**Foundational Principle**

Bible reveals True science

Therefore, biological evolution is false

**Foundational Method****Scientific Concordism**

align the scientific evidence with the literal statements about nature in the Bible

President of Answers in Genesis (Young Earth Creation)

9. “Many Christians fail to realize that the events of Genesis are **literal**, are **historical** (particularly Genesis 1-11), and are foundational to all Christian doctrine. S3

All biblical doctrines of theology, directly or indirectly, ultimately have their basis in the Book of Genesis. Therefore, a **believing understanding** of the **Book of Genesis** is a prerequisite to an understanding of God and His meaning to man. If Genesis is only a **myth** or **allegory**, then Christian doctrines have **no foundation**.”

*The Lie: Evolution* (Master Book., 1987), 10.

COMMENTS:

steeped in a literalist concordism → The Bible is a Book of Science S4

QUESTION:

IF God inspired the writer of Genesis 1-3 to use allegory,  
THEN does it mean that “Christian doctrines have **no foundation**”?

EG **Parables of Jesus**

parables are made up stories → NOT literal or historical S6

1/3 of Jesus’s teaching is parables

he used stories to reveal inerrant spiritual truths

**CONCLUSION: Conflict Relationship**

fuels the common perception that there are only two choices—either Science or Religion S7

10. “Both sides [scientific materialists & biblical literalists] **err** in assuming that evolutionary theory is **inherently atheistic**, and they thereby perpetuate the **false dilemma** of having to choose between science and religion.” Barbour, 10

COMMENTS:

common assumptions: evolution “inherently atheistic” = dysteleological  
“false dilemma” = false dichotomy S8

**2. INDEPENDENCE RELATIONSHIP**

- Science & Religion are totally independent & autonomous
- each asks different **questions**
- each uses different **methods**
- each is **limited**
- THEREFORE: it’s impossible for Science & Religion to conflict

**Langdon Gilkey**

S10-11

	SCIENCE	RELIGION
Questions	Physical HOW?	Metaphysical WHY?
Domain	Public	Personal
	Objective Repeatable Data	Good, Evil, Meaning
Authority	Nature	God
	Logic & Experiment	Revelation & Spiritual Experience
Language	Quantitative	Symbolic & Analogical

**CONCLUSION: Independence Relationship**

S2

1. A first step in moving beyond the conflict relationship

11. “The **independence** of science and religion represents a good **starting point** or **first approximation**.”

Barbour, 5

similar to: Haught’s Contrast Relationship

1<sup>st</sup> move in this course (Metaphysics-Physics Principle)

2. BUT incomplete &amp; unsatisfying

S3

12. “We do not experience life as neatly divided into **separate compartments**; we experience it in **wholeness** and **interconnectedness**.”

Barbour, 16

similar to: Haught’s criticism of his Contrast Relationship

many students entering this course

**3. DIALOGUE RELATIONSHIP**

S4

- the beginning of a discussion between Science & Religion
- deals with questions at the boundary or border between Science & Religion

**Cosmology**

S5

## QUESTIONS:

what happens before the Big Bang?

physics can go back to  $10^{-43}$  second after the Big Bang

S6 H40

why are the laws &amp; initial conditions of the Big Bang so finely-tuned?

S7 H40

EG explosive & gravitational forces balanced to 1 part in  $10^{60}$ 

☛ is there a Fine Tuner?

**Ethics**

S8

## QUESTIONS:

when does life begin?

implications for the abortion debate

when does life end?

implications for the physician-assisted death debate

**Stephen Jay Gould**

S9

leading evolutionary biologist at Harvard University

contributor to Science-Religion dialogue

13. “No such **conflict** should exist [between science & religion] because each

S10

subject has a legitimate magisterium, or domain of teaching authority—

and these magisteria **do not overlap** (the principle that I would like todesignate as **NOMA**, or ‘non-overlapping magisteria’). The **net of science**

S11

covers the empirical universe: what is it made of (fact) and why does it work

this way (theory). The **net of religion** extends over questions of moral meaningand value ... the two magisteria **bump right up against each other, inter-**

S12

**digitating** in wondrously complex ways along their **joint border**. Many of our**deepest questions** call upon aspects of both for different **parts** of a **full answer**.”SJ, “Non-overlapping Magisteria” *Natural History* 106 (1997), 19-20

COMMENTS:

S2

NOT an independence relationship

because Science & Religion: “bump right up against each other”  
share a “joint border”

NOT all sci-rel contributors are RELIGIOUS

☛ Gould was an agnostic

NOMA allows Gould to state:

S3

**14.** “Evolution [is] both **true** and **entirely compatible** with  
Christian belief—a position I hold **sincerely**.” Gould, 16

**CONCLUSION: Dialogue Relationship**

S4

1. Boundary questions between Science & Religion are quite valuable  
especially in cosmology & ethics

2. Dialogue between Science & Religion only informs the other party  
exchanges of information do not support or change either of them

S5

**4. INTEGRATION RELATIONSHIP**

S6

- an integration between the content of Science & the content of Religion in areas that overlap
- Science supports and in some cases even changes Religion

**Types of Integration:**

S7

1. Natural Theology

part of traditional Conservative Christianity throughout history

2. Theology of Nature

20<sup>th</sup> century approach originating from modern Liberal Christianity

**NATURAL THEOLOGY**

S8-9 H2

DEF: the use of science to argue for Intelligent Design in nature & point to an Intelligent Designer

**Anthropic Principle** Greek *anthrōpos*: man, human

S10

DEF: observation that the physical laws of the universe are finely-tuned and that minor  
changes to them would not have allowed the evolution of human life

**Big Bang Physics**

S11 H40

- the math reveals:

“mysterious numerical coincidences” & “delicate fine-tuning”

- raises **Metaphysical** questions

S12 H40

are the coincidences a reflection of intelligence?

is Someone/s or Something/s behind the universe?

- no one questions the amazing fine-tuning

☛ debate is over whether it reflects intelligent design & points to Designer?

**Basic Types of Anthropic Principle**

S13

**1. Strong Anthropic Principle**

fine-tuning is intentional & points to a Fine Tuner

held by those who BELIEVE in intelligent design & a Designer

**2. Weak Anthropic Principle**

S14

fine-tuning is nothing but an accident

held by those who do NOT BELIEVE in intelligent design & a Designer



<u>Multiple Worlds Hypothesis</u> (2 variations)	S2
1. Sequential: many Big Bangs in a <b>sequence</b> over time	S3
our universe is the successful Big Bang → produced humans	
2. Parallel: many universes exist <b>parallel</b> to our universe at the same time	S4
our universe is successful → produced humans	
<u>COMMENTS:</u>	S5
• proposing a high number of universes reduces statistical improbability	
EG assume that the universe is fine-tuned to 1 part in $10^{100}$	
IF there are $10^{100}$ universes,	
THEN one is bound to be like ours	
• NO scientific evidence for sequential or parallel universes	S6
Therefore,	
Multiple Worlds Hypothesis is NOT scientific	
☛ it is an “out-of-this-world” argument	
just like RELIGION!!!	

## EXAMPLES

<b>Paul Davies</b>	S7
physicist & leading Science & Religion scholar	
Big Bang → balance between explosive force & force of gravity → 1 part in $10^{60}$	

<b>Sir Roger Penrose</b>	S8
Oxford University mathematical physicist	
amount of precise order in the Big Bang → 1 part in $10^{10^{123}}$	
estimated number of atoms in the entire universe → $10^{80}$	

<b>Hugh Ross</b>	S9-10 H39-40
astronomer	
offers fine-tuning evidence that is accessible to popular audiences	

<b>Simon Conway Morris</b>	S11
Cambridge University paleontologist	
believes “the emergence of human intelligence is a near-inevitability”	
☛ evolution is setup or loaded for humans to evolve	

Scientific Evidence:  
pattern of convergence in the fossil record points to a teleological evolution

<u>Convergent Evolution</u>	S12
DEF: appearance of the same basic structures on <u>unrelated</u> evolutionary branches	
EG eye evolved 40 X	
camera-like eye 6 X (eg humans & octopus)	S13 H41

CHALLENGES	S14
------------	-----

Stephen Jay Gould’s “**Re-Play the Video Tape of Evolution**” Analogy  
Gould: rewind the tape of evolution & played it again  
DIFFERENT living organisms, or maybe NONE at all

BUT Conway Morris:  
SIMILAR living organisms would evolve

**THEOLOGY OF NATURE**

S2

DEF: science is used to **reformulate** traditional theological doctrines  
 the work of 20<sup>th</sup> century Liberal Christianity  
 ☛ reformulates the character of God

EG God's Interventionistic (Dramatic) action in nature S3

science reveals only natural processes

Therefore,

God **does not** intervene in the universe or in the lives of people

**Panentheism** Greek *pan*: all *en*: in S4

DEF: BELIEF that the world & God are inseparable realities, yet distinct realities  
 therefore, not pantheism

aka **Process Theology**

15. "God is in the world, but the world is also in God, in the sense S5

that God is more than the world ... the analogy of the world as

**God's body**, and God as the **world's mind or soul.**"

Barbour, 27

COMMENTS: S6

termed a "**Dipolar God**"

challenges traditional distinction between Creator & creation

changes the character of God

this God is often seen as grovelling through time like us

**CONCLUSION: Integration Relationship** S7

1. **Natural Theology** (Natural Revelation & Intelligent Design)

the traditional position is alive and well today → Strong Anthropic Principle

Barbour is supportive of Natural Theology

Why?

he once was a professional physicist & was impacted by the fine-tuning in  
 the laws of nature

2. **Theology of Nature** is held by some science & religion scholars S8

BUT it has little impact on the average person in most churches

a God who is grovelling through time like us does not attract many followers

this God rarely transforms the lives of people

**CONCLUSION: Science & Religion Model of Ian Barbour** S9

16. "I will argue that none of the options considered above [**Conflict & Independence**]

is adequate to the task ... I will suggest reasons for supporting **Dialogue**, and with

some qualifications, certain versions of **Integration.**"

Barbour, 3 & 16

COMMENT: S10

**TIP:**

Select & Combine the Science-Religion relationships to develop YOUR position

# NATURE & INTELLIGENT DESIGN

## I. KEY THOUGHTS S2

### 1. Definition of Intelligent Design S3-4 H2

DEF: BELIEF that the beauty, complexity, and functionality in nature reflect rationality and the creative work of an Intelligent Designer

BELIEF THAT nature reflects design, not HOW design arose in nature

### 2. ID is the Classic Complementary Relationship between Science & Religion S5

mirrors the Metaphysics-Physics Principle & reciprocal Steps of Faith S6 H42

Requirement of Faith: S7

1. “**By faith** we understand that the universe was formed at God’s command.”

Heb 11:3

Heb 11:3 Recast in the Context of ID: S8

**By faith** we understand that the universe **reflects God’s intelligent design.**

☛ EVERYONE takes a step of faith/intellectual leap

both believers of ID & skeptics of ID

ID is not a **proof** → at best an **argument**

### 3. ID is a Powerful, but Limited Non-Verbal (Does Not Use Words) Revelation S9

at best ID only points to a teleological reality:

Someone,

Someones,

Something, or

Somethings

## II. INTELLIGENT DESIGN ARGUMENTS S10

Two basic arguments:

ARGUMENT FROM DESIGN TO NATURE (Downward Arrows) S11 H42

**Presupposition Approach**

often overlooked & not acknowledged

BEGINS with the belief in God & design (ie, the presupposition),

THEN

uses this belief like a “Metaphysical Set of Glasses” to view nature

☛ looks at the creation through the “**Eyes of Faith**”

**Cardinal John Henry Newman** S12

famous 19<sup>th</sup> century Roman Catholic theologian

2. “I believe in design because I believe in God [the presupposition];

**not** in God because I see design.”

C Dessain & T Gornall, eds. *Letters & Diaries*  
(Oxford: Clarendon, 2006), 25:97

**Evidence Approach**

ID is often limited to this argument → aka: Argument of Design for God's Existence

BEGINS with the natural world,

THEN looks for physical evidence to argue for belief in design & God

**Antony Flew**

S3

famous atheist who became a deist because of ID in biology

3. "Biologists' investigation of DNA has shown, by the almost **unbelievable complexity** of the arrangements to produce life, that **intelligence** must have been involved ... **The only satisfying explanation** for the origin of such 'end-directed, self-replicating' life as we see it on earth is an **infinitely intelligent Mind.**"

A Flew, *There Is a God: How the World's Most Notorious Atheist Changed His Mind* (NY: HarperOne, 2007), 123, 132

EG

6.4 billion base pairs in each cell "self-replicate" with near perfection S4

☛ ONLY 1 bp mutation every 64 million bp per generation!!!

15,000 genes to make the enamel in 1 tooth → stunning co-ordination!!!

**III. RICHARD DAWKINS & INTELLIGENT DESIGN**

S5

most famous atheist in the world & rejects ID

4. "The **problem** is that of complex design ... every single one of more than a trillion S6  
cells in the body contains about a thousand times as much precisely-coded digital information as my entire computer. The **complexity** of living organisms is matched by the **elegant efficiency** of the **apparent design**. If anyone doesn't agree that this amount of complex design **CRIES OUT for an explanation, I give up ...**

Our world is dominated by [1] feats of **engineering** and [2] works of **art**. S7

We are entirely accustomed to the idea that **complex elegance** is an indicator of **premeditated, crafted design**. This is probably the **most powerful reason** for the **belief**, held by the **vast majority of people** that have ever lived, in some kind of **supernatural deity**.

R Dawkins, *The Blind Watchmaker* (London: Penguin, 1986), xiii, xvi, my capitals

COMMENTS:

S8

- despite being only "apparent" design (not real & nothing but an illusion):  
nature powerfully **IMPACTS** Dawkins  
"cries out for an explanation"
- impact of nature is the "most powerful reason for the BELIEF" in God S9  
an argument from nature to design  
"held by the vast majority of people"
- Characteristics of ID: S10
  - (1) engineered: "complexity" & "efficiency" (functionality)
  - (2) artistic: "elegance"

**QUESTIONS**

S11

Does the "elegant efficiency" & "complex elegance" in nature reflect ID?  
**OR** is this experience merely an illusion?

## IV. SCRIPTURE & INTELLIGENT DESIGN

S2

NB: term “Intelligent Design” does not appear in the Bible

BUT the concept of ID is definitely there in that nature offers a revelation from God

### Best Biblical Passages on ID:

S3

(1) Psalm 19:1-4. Old Testament

(2) Romans 1:19-23. New Testament

### Features of ID according to Scripture:

S4

- Active  
the creation powerfully impacts humans
- Intelligible  
humans are fully equipped to understand the revelation in nature
- Incessant  
natural revelation never stops
- Universal  
natural revelation is heard by everyone (both religious & non-religious people)
- Non-Verbal  
natural revelation is like music → it does not use words, but it definitely communicates
- Revelatory  
natural revelation reveals general attributes of the Creator
- Rejectable (Rom 1)  
humans have the freedom to reject natural revelation
- Accountable (Rom 1)  
humans “are without excuse” if they reject natural revelation

S5

S6

## PSALM 19:1-4

S7

<sup>1</sup>The heavens declare the glory of God;  
the firmament proclaims the work  
of his hands.

<sup>2</sup>Day after day they pour forth speech;  
night after night they display knowledge.

<sup>3</sup>They have no speech, they use no words;  
no sound is heard from them.

S8

<sup>4</sup>Yet their voice goes out into all the earth,  
their words to the ends of the world.

### COMMENTS:

- note all the verbs in the Active Voice (subject does an action)

S9

Heavens:

“declare” “proclaim” “pour forth” “display”

**Dawkins:**

“complex design **CRIES OUT** for an explanation”

- note all the terms related to intelligent communication

S10

“speech” “knowledge” “language” “words” “voice”

Hebrew *qaw* (translated as “voice” in v. 4) means “line”

can be rendered “a chord of music”

☞ nature is like a heavenly hymn

- Non-Verbal Revelation

<sup>3</sup>They have no speech, they use no words;  
no sound is heard from them.

<sup>4</sup>Yet their voice goes out into all the earth,  
their words to the ends of the world.

☛ Nature does not use words,  
BUT nature definitely communicates that God exists

## ROMANS 1:19-23

S3

### Book of God's Works

<sup>19</sup>Since what may be known about God is plain to them, because God has made it plain to them. <sup>20</sup>For since the creation of the world God's invisible qualities—his eternal power and divine nature—have been clearly seen, being understood from what has been made, **so that men and women are without excuse.**

### Epistemological Impact of Sin

S4

<sup>21</sup>For although they knew God, they neither glorified him as God nor gave thanks to him, but their **thinking became futile** and their **foolish** hearts were darkened. <sup>22</sup>Although they claimed to be wise, they became **fools** <sup>23</sup>and exchanged the glory of the immortal God for images made to look like mortal man and birds and animals and reptiles.

#### COMMENTS:

- Nature reveals some of God's general attributes S5  
“his eternal power and divine nature”

- ID is connected to Commandments #1 & #2 S6  
reject:

“immortal God” S7 H4

replace God with:

idols of “mortal man and birds and animals and reptiles”

- Sin Impacts Thinking S8

“their thinking became futile” → “they became fools”

NB

in the Bible the words ‘fool’ & ‘foolish’ do not mean intellectually stupid

a fool is someone who is missing out on the best part of life:

☛ a personal relationship with God

- ID makes ALL humans accountable S9

#### **The Without Excuse Clause:**

“so that men and women are without excuse”

according to Romans 1:20, there is no excuse or reason for anyone to say, “There is no evidence for the existence of God”

## V. CHRISTIAN TRADITION &amp; INTELLIGENT DESIGN

S2

## Pope John Paul II

S3

5. “Developing a **philosophical argument** in popular language, the apostle [Paul] declares a profound truth: Through all that is created, the ‘**eyes of the mind**’ can come to know God. Through the medium of creatures, God stirs in **reason**, an **intuition** of his ‘power’ and his ‘divinity’ (Rom 1:20) . . . By discoursing on the data provided by the senses, **reason** can reach the cause [God] which lies at the origin of all perceptible reality. In philosophical terms, we could say that this important Pauline text affirms the human capacity for **metaphysical inquiry**.”

JP II, “Faith & Reason” *Origins: CNS*  
28 (15 Oct 1998), 324

COMMENTS:

- reflects the Metaphysics-Physics Principle S5 H5  
creatures (physics) → intuition & reason → God & his attributes (metaphysics)
  - Argument from Nature to Design S6 H42
6. “This is to recognize as a **first stage of divine revelation** the marvellous ‘**book of nature**,’ which, when read with the proper tools of human reason [ie, science], can lead to knowledge of the Creator. If human beings with their intelligence **fail** to recognize God as Creator of all, it is **not because they lack the means to do so**, but because their **free will** and their **sinfulness** place an impediment in the way.” Ibid., 324

COMMENTS:

- The Two Divine Books S8 H2  
1<sup>st</sup> Stage: Book of Nature → Works point toward God  
2<sup>nd</sup> Stage: Book of Scripture → Words reveal who God is
- humans have “free will” & can reject ID S9
- accepts epistemological Impact of Sin with regard to ID S10  
sinfulness “an impediment” that blocks us from finding God thru his creation

## VI. CONCLUSION: NATURE &amp; INTELLIGENT DESIGN

S11

## 1. ID Is Powerful

S12

nature impacts even the skeptics of ID (Dawkins) & former skeptics (Flew)  
affirmed by Biblical Texts & Christian Tradition

## 2. ID Requires Reciprocal Steps of Faith

S13

ALL skeptics of ID & ALL believers of ID make a leap of faith

☛ whether they are aware of it or not → so be aware!

ID is a metaphysical BELIEF

ID is not a **proof** → at best an **argument**

## 3. ID Is Limited

S14

only points to Someone, Someones, Something or Somethings

only reveals general attributes of the Intelligent Designer/s

ID is **Non-Verbal**

in a subtle way, ID calls for a **Verbal Special Revelation** (eg Bible)

☛ a fuller revelation of the Intelligent Designer

<b>VII. MODEL OF INTELLIGENT DESIGN</b>	Lamoureux	S2
NB: a model includes as many positions on ID as possible, including those that reject ID		
<u>PARAMETERS OF INTELLIGENT DESIGN</u>		S3
<b>Ontological Parameter</b>	Greek <i>ontos</i> : participle of verb “to be” → “being”	S4
DEF of Ontology: the ultimate nature of something, its ultimate being		
Asks the question: “What <b>IS</b> Intelligent Design?”		S5
• Character: ARTISTIC & ENGINEERED		
• Integrity: REAL or an ILLUSION		
EXAMPLES		S6-7 H43
<b>Epistemological Parameter</b>	Greek <i>epistēmē</i> : knowledge	S8
DEF of Epistemology: theory of knowledge → how we know we know		
Asks the question: “How <b>CERTAIN</b> is knowledge of Intelligent Design?”		S9
• Range: Proof—Argument—Suggestive—Consistent—Inert		
• Epistemological Impact of Sin (1 <sup>st</sup> Commandment): YES or NO		S10
EXAMPLES		S11-12 H43
<u>POSITIONS ON INTELLIGENT DESIGN</u>		S13
intersection of the two parameters results in a countless number of positions		
EXAMPLES		
Richard Dawkins		S14-15 H44
ID is an illusion		
Lamoureux		S16-17 H44
ID is real & we are accountable		
ID → <b>Beyond a Reasonable Doubt</b>		
<u>WHY IS INTELLIGENT DESIGN SUCH A CONTROVERSIAL TOPIC?</u>		S18
My Answer:		
the implications of ID are <b>DEEPLY PERSONAL</b>		
<b>IF</b> Intelligent Design is real:		S19
THEN nature is a constant reminder forcing us to deal with Commandment #1		S20 H4
raises the question, “Who or What is #1 in our life?”		
THEN it points to an Intelligent Designer/s		S21
raises the question, “What is our <b>relationship</b> to this Designer/s?”		
☛ is the Intelligent Designer/s ultimately in charge over our life?		
are we accountable to Someone/s or Something/s greater than ourselves?		
<b>What do you think?</b>		S22

## End of First Half of Course



# RELIGIOUS BELIEFS OF GALILEO

## I. KEY THOUGHTS

S2

### 1. The scientific issue in the Galileo Affair was NOT about a flat earth!

S3

anti-religious individuals in 19<sup>th</sup> century concocted that myth

ALL educated people in the 17<sup>th</sup> century accepted the earth was spherical

Debate was over:

S4

GEOCENTRICITY Greek *gē*: earth

**Earth** at the centre of universe

old science of the scientific community

**OR**

HELIOCENTRICITY Greek *hēlios*: sun

**Sun** at centre of universe

new science of Galileo

### 2. Galileo had a PEACEFUL relationship between Science & Religion

S5

IMPLICITLY he accepted:

Metaphysics-Physics Principle & Message-Incident Principle

his hermeneutics were remarkable & better than the theologians of the church!

Features: Principle of Accommodation

Incidental Ancient Science in Scripture

### 3. The Re-cycle Thesis

S6

QUESTION:

Is the origins debate today a re-cycling of the Galileo Affair with a different science?

☛ **evolutionary biology** instead of **astronomy**

## II. THE TWO VIEWS OF ASTRONOMY IN GALILEO'S DAY

S7

### Geocentricity

S8

1<sup>st</sup> proposed by ancient Greeks (about 550 BC/E)

further developed Claudius Ptolemy (100-170 AD/CE)

became the dominant astronomy for 1400 years

☛ Galileo will challenge Ptolemaic astronomy

Basic features:

S9 H47

#### THE EARTH

- centre of the entire universe
- spherical
- immovable

#### THE HEAVENS

S10 H47

- spherical
  - multiple spheres with each having a planet
  - last sphere is called the "**Firmament**" & it has the "fixed" stars attached to it
- daily rotation of spheres around the earth causes day & night

**Heliocentricity**

proposed by Nicholas Copernicus (1473-1543)

famous book:

*On the Revolutions of the Heavenly Spheres* (1543)

☛ Galileo will develop & promote Copernican astronomy

faithful Christian

church canon (administrator) for 40 yrs

had a peaceful relationship between Science & Religion

Basic features:

S3 H47

THE SUN

- centre of the entire universe

THE HEAVENS

- planets & moon are in their own sphere
- motion of spheres caused the motion of the planets & moon
- fixed stars are attached to the firmament (last sphere of the universe)
- firmament is immovable

THE EARTH

S4 H47

- in the third sphere from the sun
- daily rotation of earth causes day & night

**III. BRIEF HISTORY OF GALILEO GALILEI (1564-1642)**

S5

**1564**

S6

born 15 Feb in Pisa, Italy  
raised a Roman Catholic

**1585**

moved to Florence and studied physics & math

**1589**

S7

professor of mathematics at U of Pisa

**1592**

professor of mathematics at U of Padua

**1597**

admits he had long ago accepted Copernican astronomy

**1608**

S8

telescope was invented by Hans Lippershey

**1609**

Galileo made his own telescope & pointed it to the heavens

**1610**

S9

leaves U of Padua & became “Philosopher & Mathematician” of the Grand Duke of Tuscany  
an opportunity to challenge the ideas in the universities

**1615**

writes the “Letter to Grand Duchess” → AMAZING document on his hermeneutics!!!

1616

S2

Roman Catholic Church bans Copernicus' *On the Revolutions* (1543)

- Committee of only theologians & pastors judged two propositions:

- (1) The sun is at the centre of the world & does not move
- (2) The earth is not at the centre of the world & is in motion

- Scientific Judgment:

S3

“foolish and absurd in philosophy” natural philosophy = science

☛ sun moves across the sky every day & no one feels earth moving

- Theological Judgment:

S4

1. “All said that this proposition [1] ... **explicitly contradicts** in many places the sense

of **Holy Scripture**, according to the **literal meaning** of the words ... All said that

S5

this proposition [2] ... in regard to theological truth it is at least **erroneous in faith.**”

M. Finocchiaro, ed/trans, *The Galileo Affair*

(Berkeley: U of California, 1989), 146

#### COMMENTS:

S6

☛ church was entrenched in SCIENTIFIC CONCORDISM

(1) sun moves daily across sky (Eccl 1:5, Ps 19:6)

(2) earth is immovable (Ps 93:1, Ps 104:5)

1632

S7

*Dialogue on the Two Chief World Systems: Ptolemaic & Copernican*

Galileo's most famous book

1633

S8

Roman Catholic Church bans Galileo's *Dialogue* & demands he reject his scientific views

#### **Galileo's Heresy Trial & “Recantation”**

S9

2. “I, Galileo, son of the late Vincenzo Galilei of Florence, seventy years of age ...

I have been judged vehemently suspected of **heresy**, namely of having held and believed that

[1] the **sun is the centre of the world** and motionless

[2] and the **earth is not the centre** and moves ...

With a sincere heart and unfeigned faith I abjure, curse, and detest the aforesaid

**errors and heresies.**”

*Galileo Affair*, 292

#### COMMENTS:

S10

Galileo was 70 yrs old & sick → wants to get home

returns to Florence & was under house arrest for rest of his life

continues his scientific work

NOT in a dungeon & in chains!!!

another myth concocted by 19<sup>th</sup> century anti-religious individuals

#### **BUT**

Galileo becomes the SYMBOL of the WARFARE relationship of Sci & Rel

1642

S11

dies January 8 & was buried in Florence, Italy

1992

S12

Pope John Paul II issues “Apology to Galileo” → theologians hermeneutically incompetent!

## IV. GALILEO'S HERMENEUTICS AND SCIENCE &amp; RELIGION RELATIONSHIP S2

## 1. FOUNDATIONAL PRINCIPLE: THE TWO DIVINE BOOKS S3

Scripture & Nature Rooted in the Trinitarian God S4

3. "For the **Holy Scripture** and **nature** derive **equally** from the **Godhead**, the former as the dictation of the Holy Spirit and the latter as the most obedient executrix of God's orders."  
 "Letter to Christina" Finocchiaro, 93

COMMENTS: S5

balance between the Two Books → both "derive equally" from God  
 "Godhead" a term for the Holy Trinity—Father, Son & Holy Spirit

Scripture & Nature Reveal God S6

4. "God **reveals** himself to us **no less excellently** in [1] the **effects of nature** than in [2] the **sacred words of Scripture**, as **Tertullian** [theologian; 160-220 CE/AD] perhaps meant when he said, 'We postulate that God ought **first** to be known [1] by nature, and afterward further known [2] by doctrine—[1] by nature through his works, [2] by doctrine through official teaching.'  
 "Christina" 93

COMMENTS: S7

balance between the Two Books → both equally "excellent"  
 strong view of Intelligent Design (natural revelation)  
 ☛ start 1<sup>st</sup> with nature in order to know God

Priority of Scripture over Nature in Theological Issues S8

5. "I have no doubt at all that, **where human reason cannot reach**, and where consequently one **cannot have a science**, but only opinion and **faith**, it is appropriate piously to conform absolutely to the **literal meaning of Scripture**."  
 "Christina" 104

COMMENTS: S9

reflects Metaphysics-Physics Principle  
 theology (metaphysics) is **beyond** science (physics)  
 accepts the literal meaning of theological statements

Priority of Nature over Scripture in Scientific Issues S10

6. "I think that in disputes about natural phenomena **one must begin NOT** with the authority of scriptural passages, but with sensory experience and necessary demonstrations [science] ... after becoming certain of some physical conclusions, we should use these as **very appropriate aids** to the **correct** interpretation of Scripture."  
 "Christina" 93 my capitals

COMMENTS: S11

REJECTS scientific concordism

**Science Contributes to Hermeneutics** S12

☛ "very appropriate aids to the correct interpretation of Scripture"

QUESTION S13

Is **evolutionary biology** a "very appropriate aid to the correct interpretation" of the creation accounts in Genesis 1 & 2?

## 2. NATURE: THE BOOK OF GOD'S WORKS

S2

### God Created Faithful Laws of Nature

S3

7. Nature is “the most obedient executrix of God’s orders ... Nature is inexorable and immutable, [and] **never** violates the terms of the laws imposed on her.” “Christina” 93

#### COMMENTS:

S4

implications: we can trust nature & practice science  
laws of nature → God is faithful & not deceptive

### Science is a Gift from God

S5

8. “I do not think one has to believe that the same God who has given us our senses, language, and intellect would want us to set aside the use of these ... Indeed, **who wants the human mind put to death?** ... When one is in possession of this [scientific information] it too is a **gift from God.**” “Christina” 94, 96, 105

#### COMMENTS:

S6 H1

#### **DESTROYS Science vs. Religion Warfare (Dichotomy)**

human epistemology & knowledge rooted in God

S7

☛ science is ultimately rooted in God!

#### QUESTION

S8

Is **evolutionary biology** also a gift from God?

### Nature is Intelligible & Written in Language of Mathematics

S9

9. From Galileo’s book *The Assayer* (1623):

“Philosophy [i.e., natural philosophy, or science] is written in this **grand book**, the universe, which stands continually open to our gaze. But the **book** cannot be understood unless one first learns to comprehend the language and to read the letters in which it is composed. **It is written in the language of mathematics** ... without which it is humanly impossible to understand a single word of it; without these, one wanders about in a dark labyrinth.”

S. Drake, *Discoveries & Opinions of Galileo* (NY: Doubleday, 1957), 237-8

#### COMMENTS:

S10

accepts the Two Divine Books Metaphor

nature “grand book” & “the book”

nature is rational & understandable → strong view of ID

#### **Albert Einstein:**

S11

“The eternal mystery of the world is its comprehensibility.” Q7 N16

BUT

no mystery for Galileo → God wrote mathematics into nature  
rationality of nature reflects the Mind of God

#### QUESTION

S12

What do we need to “first learn” before understanding origins?

geology, palaeontology, genetics

Otherwise, will we “wander about in a dark labyrinth”?

**3. SCRIPTURE: THE BOOK OF GOD'S WORDS**

S2

Purpose of Scripture is Theological, NOT Scientific

S3

10. "The **primary purpose** of the Holy Writ [is] the **worship of God** and the **salvation of souls.**"

"Christina" 93

COMMENTS:

S4

The Bible is intended for: (1) worshipping God  
(2) revealing the path of salvation

Scripture is Inerrant, NOT its Interpreters

S5

11. "Holy Scripture can **never lie or err**, and its declarations are **absolutely** and **inviolably true** ... Though the Scripture was **inspired by the Holy Spirit** ... we cannot assert with certainty that **all interpreters speak by divine inspiration** since if this were so then there would be no disagreement among them about the meaning of the same passages ... Holy Scripture can **never lie**, as long as its **true meaning has been grasped**."

"Letter to Castelli" in Finocchiaro, 49, 51; "Christina" 92, 96

COMMENTS:

S6

accepts Doctrine of Biblical Inspiration

"Scripture was inspired by the Holy Spirit"

accepts Doctrine of Biblical Inerrancy

Bible "can never lie or err"

Biblical "declarations" "absolutely &amp; inviolably true"

BUT "as long as its true meaning has been grasped"

The Bible is not the problem → human interpreters are the problem!

S7

☛ we need hermeneutics!

Science in Scripture is INCIDENTAL

S8

12. The Scripture "speak[s] **incidentally** of the earth, water, sun, or other created thing ... **sciences** [are] discussed in Scripture to a **very minor extent** and with **disconnected statements**; such is precisely the case of **astronomy**, so little of which is contained therein that one does not find there even the names of the planets, except for the sun, the moon, and only once or twice Venus, under the name Morning Star."

"Christina" 93-4

COMMENTS:

S9

reflects the Message-Incident Principle

science in Scripture → "**incidental**"

science in Scripture is not significant

"very minor extent and with disconnected statements"

QUESTION

S10

Do the creation accounts in the Genesis 1 & 2 "speak incidentally" of the origin of the world?

13. “Propositions **dictated by the Holy Spirit** were expressed by the sacred writers in such a way as **to accommodate** the capacities of the very unrefined and undisciplined masses ... in order **not to sow confusion** into the minds of the **common people** and make them more obstinate against dogmas involving **higher mysteries** ...

S3

Indeed I shall further say that it was not only **respect** for **popular inability**, but also the **current opinion of those times** ... This doctrine [accommodation] is **so commonplace** and so definite among all theologians that it would be superfluous to present any testimony for it.”

“Christina” 92, 106

COMMENTS:

S4

reflects the Message-Incident Principle

science in Scripture is “current opinion of those times”

science-of-the-day → ancient science

**Principle of Accommodation** (Hermeneutical Principle #3)

S5

refers to accommodation 8 X in “Letter to Christina”

“so commonplace” in the 17<sup>th</sup> century

reason for accommodation:

to avoid confusing people

“in order not to sow confusion into the minds of the common people”

## QUESTION:

S6

Why is evolution not in the Bible?

☛ to avoid confusing people

**4. THE CONFLICT BETWEEN GALILEO & HIS CRITICS**

S7

Main reason for this conflict → poor hermeneutics

## QUESTION:

Are the issues similar today with Anti-Evolutionism?

Scientific Concordism is the Root of the Conflict

S8

14. “So the reason they [Galileo’s critics] advance to condemn the opinion of the earth’s mobility and sun’s stability is this: Since in many places in Holy Scripture one reads that the [1] **sun moves** and the [2] **earth stands still**, and since the **Scripture can never lie or err**, it follows as a necessary consequence that the opinion of those who want to assert the [1] sun to be motionless and the [2] earth moving is **erroneous** and **damnable** ...

S9

They want to **extend**, not to say abuse, its [ie, the Bible’s] **authority**, so that even for purely **physical** [scientific] **conclusions**, which are not **matters of faith**, one must totally abandon the senses and demonstrative arguments [ie, scientific] in favour of any scriptural passage whose apparent words may contain a different indication.”

Ibid, 92, 90

COMMENTS:

S2

Galileo's critics accepted **Scientific Concordism**

"authority" of the Bible "extends" to "physical conclusions"

a superficial logic to the argument of the critics:

S3

- The Bible states the "sun moves" & "earth stands still"
- The Bible "never lies or errs"

**Therefore:**

belief the sun stands still & earth moves is "erroneous & damnable"

**BUT** critics fail to appreciate Message-Incident Principle:

☛ "physical conclusions ... are not matters of faith"

RECASTING GALILEO'S WORDS FOR TODAY:

S4

"So the reason **anti-evolutionists** advance to condemn the opinion of the **evolution of life** is this:

- Since in many places in Holy Scripture one reads that **life was created *de novo*** [quick & complete; Gen 1 & 2], and
- since the Scripture can never lie or err,

[Therefore]:

it follows as a necessary consequence that the opinion of those who want to assert the **evolution of life** is erroneous & damnable."

QUESTION:

S5

Can you **empathize** with scientific concordists & anti-evolutionists?

on the surface this argument is reasonable

**BUT**

in the end falls short hermeneutically

similar to Galileo's critics, it assumes scientific concordism is a feature of the Bible

Excessive Biblical Literalism

S6

- 15.** "Though the **Scripture cannot err**, nevertheless some of its interpreters and expositors may sometimes err in various ways. One of these would be very serious and **very frequent**, namely to want to limit oneself always to the **literal meaning of the words.**"

"Castelli" 49

COMMENTS:

S7

The Bible is not the problem → human interpreters are the problem!

"frequent" error is reading Scripture literally all the time

2004 ABC TV survey asked if the Genesis 1 creation account is:

S8

"literally true, meaning it happened that way word-for-word"

87% Evangelical Protestants

51% Roman Catholics

☛ accept Gen 1 is literal → Young Earth Creation



**V. CONCLUSION: RELIGIOUS BELIEFS OF GALILEO**

S2

**1. Galileo did NOT view Science & Religion in a Warfare Relationship**

S3

He was a Conservative Christian &amp; believed:

S4

- The Trinitarian God of Conservative Christianity

referred to as the “Godhead” Quote 3

- The Bible was inspired by God

“the Scripture was inspired by the Holy Spirit” Q 11

- Intelligent Design (Natural Revelation)

S5

1<sup>st</sup> stage of knowing God: “God ought first to be known by nature” Q 4

- Divine Action in Nature

*Cosmological Providentialism in Operations*

nature is “the most obedient executrix of God’s orders” Q 7

**2. Galileo had Academic Hermeneutics**

S6

He accepted the hermeneutical principles of:

S7

- Accommodation Q 13
- Incidental Ancient Science in the Bible Q 12
- Message-Incident Principle (Implicit)

EG he used Cardinal Baronio’s famous aphorism to summarize his hermeneutical views S8

**16. “The intention of the Holy Spirit is to teach us how one goes to heaven,****and NOT how heaven goes.”**

“Christina” 96

MESSAGE OF FAITH:

S9 H5

How to go to heaven

INCIDENTAL ANCIENT SCIENCE:

How heaven goes (ancient astronomy) in the Bible

**3. Time for a New Symbol for Science & Religion?**

S10

Galileo as a symbol of a PEACEFUL relationship between Science & Religion?

Time for a new aphorism?

S11

**17. “The intention of the Bible is to teach us **THAT** God is the Creator,****and not **HOW** the Father, Son, and Holy Spirit created.”**D. Lamoureux, *Evolutionary Creation* (2008), 35

# RELIGIOUS BELIEFS OF DARWIN

## I. KEY THOUGHTS S2

### 1. Darwin thought serious about God throughout his life S3

his religious beliefs were closely connected to this scientific theories

Personal Question:

is thinking about God & science (especially evolution) part of your story?

### 2. Intelligent Design was a major part of Darwin's story S4

nature struck Darwin with "overwhelming force" throughout his life (see Q20)

☛ Argument from Nature to Design S5 H42

I will term this experience the "**Psalm 19 Factor**" S6

Personal Question:

do "the heavens (& biology) declare the glory of God?" Ps 19:1

OR

is Intelligent Design nothing but an illusion?

### 3. Darwin's story demonstrates the problem with the God-of-the-Gaps S7

he was educated in the science-of-the-day in the early 19<sup>th</sup> century:

#### GEOLOGICAL CATASTROPHISM S8

- by 1900 geologists accepted that the layers of stratification in the earth were laid down slowly over millions of years.

BUT they could not explain some surface features S9-10

EG huge U-shaped mountain valleys with small rivers

- geologists assumed that multiple catastrophic floods caused these surface features

Noah's Flood was often seen as the last catastrophic event

☛ **God-of-the-Gaps in Geology**

they did not know about glaciers → *Gap in Knowledge*

#### PROGRESSIVE CREATION (aka Day-Age Theory) S11

- by 1800 all scientists accepted the earth was very old

BUT they did not accept biological evolution

EG James Dana & Day-Age Theory S12-14 H48

- most scientists assumed that the Creator intervened into the world at different times to create different kinds of living organisms

☛ **God-of-the-Gaps in Biology** S15 H48

they did not fully understand biological evolution → *Gap in Knowledge*

as Darwin's Gaps in Knowledge close → rejects God-of-the-Gaps in both Geology & Biology S16

Personal Question: S17

is struggling with the God-of-the-gaps part of your story?

## II. BRIEF HISTORY OF CHARLES DARWIN (1809-1882)

<b>1809</b>	born 12 February at Shrewsbury, England raised in an affluent family & educated in Anglican school	S2 S3
<b>1826</b>	studies medicine at Edinburgh University, but drops out	S4
<b>1828-1831</b>	studies theology at Cambridge University, but decides not to be ordained a priest	S5
<b>1831-1836</b>	5 year voyage around the world on HMS <i>Beagle</i>	S6
<b>1837-1838</b>	formulates his theory of evolution ☛ rejects Christianity, but not God → still believes in a Creator	S7
<b>1859</b>	<i>Origin of Species</i> Darwin's most famous book on the Theory of Evolution by Natural Selection	S8
<b>1871</b>	<i>Descent of Man</i> Darwin's book on human evolution	S9
<b>1876</b>	<i>Autobiography of Darwin</i> Darwin's mature views on religion in section entitled "Religious Beliefs"	S10
<b>1882</b>	dies 19 April at Down, England. Buried Westminster Abbey	S11

## III. CAMBRIDGE UNIVERSITY (1828-1831)

Charles drops out of medicine & his father sends him to study theology & become an Anglican priest  
he doesn't want a family disgrace

1. "I did not then in the least doubt the **strict literal truth of every word in the Bible.**" S13

Darwin, *Autobiography of Charles Darwin*  
N Barlow, ed (London: Collins, 1958), 57

### COMMENT:

Darwin was a biblical literalist → SCIENTIFIC CONCORDIST

### William Paley (1743-1805)

- his famous book was required reading:

*Natural Theology: Or Evidences for the Existence and Attributes of the Deity, Collected from the Appearances of Nature* (1802)

Natural Theology = Natural Revelation = Intelligent Design

a classic example of the Argument from Nature to Design

S15 N50 H42

- claims Paley was the best part of his Cambridge U education

☛ Darwin was powerfully impacted by ID

**Geology**

a passion begins

in the last year at Cambridge U, Darwin goes on a geological field trip

he has an “epiphany”

gripped by how science works:

2. “Nothing before had ever made me thoroughly realize, though I had read various scientific books, that science consists in **grouping facts** so that **general laws** or conclusions may be drawn from them.” S3  
ACD, 70

COMMENTS:

Inductive Method

“grouping facts” → “general laws”

**CONCLUSION: Cambridge University**

S4

1. Darwin begins to take ownership of his worldview

2. Darwin is steeped in Paley’s Natural Theology S5  
developing more of a philosophical faith than a religious faith  
will lead him eventually to **deism**

**IV. HMS BEAGLE VOYAGE (27 Dec 1831 to 2 Oct 1836)**

S6

5 year voyage around the world

S7 H47

**Geology**

S8

Darwin leaves with Charles Lyell’s 1<sup>st</sup> volume of *Principles of Geology* (1830)

field experience converts him to Lyell’s uniformitarian geology

**Principle of Uniformitarianism:**

S9

DEF: explaining the earth’s past through the processes observed on earth today using the same forces & same intensities

3. “When I was starting on the voyage of the Beagle, the sagacious Henslow S10

[Darwin’s former professor], who, **like ALL other geologists** believed at that time

**in successive cataclysms** [i.e., Catastrophism] advised me to get and study the first

volume of the *Principles [of Geology]*, which had just been published, **but on no**

**account to accept the view therein advocated** ... I am proud to remember that S11

the first place, namely, St Jago, in the Cape Verde Archipelago, which I geologised,

convinced me of the **infinite superiority of Lyell’s view** over those advocated in

any other work known to me.” ACD, 101 my capitals

COMMENT:

S12

☛ Darwin rejects God-of-the-gaps in geology (Catastrophism)

origin of the earth can be explained thru natural processes ONLY

Biology

S2

Darwin is still a Progressive Creationist

EG he notes a similarity between the Ant Lion pitfall (trap) in England & Australia S3

4. “Would any two workmen ever hit on so **beautiful**, so simple, & yet so **artificial** S4

**a contrivance** [Ant Lion pitfall]? It cannot be thought so. The **one hand** has  
surely worked throughout the universe. A Geologist perhaps would suggest that S5  
the **periods of Creation** have been distinct & remote the one from the other;  
that the **Creator** rested in his labor.”

Darwin, *Diary of the Beagle in Works of Darwin*  
N. Barlow ed (London: Pickering, 1986), I:348

COMMENTS: S6

• **God is part of Darwin’s science!**

“The one hand” & “the Creator”

• Darwin is a Progressive Creationist S7

“periods of Creation” & periods “the Creator rested in his labor”

☛ God-of-the-gaps in biology

Intelligent Design

S8

Darwin powerfully IMPACTED by nature:

5. “Amongst the scenes which are **deeply impressed on my mind**, none exceed in **sublimity**  
the primeval forests [of Brazil] ... [they] are temples filled with the varied productions of  
the **God of Nature**. **No one can stand unmoved** in these solitudes, without **feeling** that  
**there is more** in man than the mere breath of his body.” *Diary*, 388

COMMENTS: S9

let’s interpret this passage using Biblical ID Categories (plse review Notes 51)

**Intelligent Design in Nature:**

• Active

“deeply impressed on my mind”

“no one can stand unmoved”

• Intelligible

“feeling that there is more in man”

humans are not just physical, but we have a soul (see Q 11)

• Non-Verbal Revelation

use of the word “feeling”

• Universal

S10

“no one can stand unmoved”

• Revelatory

“varied productions” point to “the God of Nature”

PSALM 19 FACTOR

S11

do the primeval forests of Brazil declare the glory of God?

does nature reflect ID?

OR

was Darwin experiencing an illusion?

nothing but social conditioning from his religious Cambridge education?

**Religion** S2

Christianity

little evidence in diaries, notes & letters of a firm religious faith during the 5 year voyage

Darwin rejects his Christian faith during the 2 year period after his voyage S3

6. “I came to **disbelieve in Christianity as a divine revelation.**” ACD, 86

Natural Theology S4

Darwin still believed in a God

strong philosophical faith & even part of Darwin’s science → moving toward deism

**CONCLUSION: HMS Beagle Voyage** S5

1. **God is part of Darwin’s science**

still an anti-evolutionist & progressive creationist

2. Darwin does not sense the tension between his: S6

**Geology**

Uniformitarianism

☛ NO God-of-the-gaps interventions → natural-laws-only

**Biology**

Progressive Creation

☛ God-of-the-gaps interventions for the creation of living organisms

QUESTION: S7

IF

the formation of the earth is understood only through natural processes,

THEN

shouldn’t the formation of living organisms also be understood only through natural processes?

**V. ORIGIN OF SPECIES (1859)** S8

Darwin returns to England and formulates his theory of evolution between 1837-1838

he takes 20 years to write *Origin of Species*

*Origin of Species* has 7 positive & affirming references to the “Creator” S9

Darwin **NOT** an atheist!

**The Creator Made Living Organisms through the Laws of Nature** S10

7. “**Authors of the highest eminence** [ie, progressive creationists] seem to be fully

satisfied with the view that **each** species has been **independently created.** S11

To my mind it accords better with what we know of the **laws impressed on matter**

by the **Creator**, that the **production** and extinction of the past and present inhabitants

of the world should have been due to secondary causes like those determining

the **birth** and death **of the individual.**”

Darwin, *Origin of Species* (1859), 488

COMMENTS:

S2

- REJECTS Progressive Creation → science-of-the-day  
“Authors of the highest eminence”
- REJECTS God-of-the-gaps in the origin of living organisms
- ACCEPTS Teleological Evolution  
“the laws impressed on matter by the Creator”

EMBRYOLOGY-EVOLUTION ANALOGY

S3

IF

God does not use God-of-the-gaps miracles to create **each individual creature** today,

THEN

God did not use God-of-the-gaps miracles to create **all creatures** in the past

IF

S4

God creates **each individual creature** today through natural processes,

THEN

God created **all creatures** in the past through natural processes

**Famous Last Sentence of *Origin of Species***

S5

8. “There is **grandeur** in this [evolutionary] view of life, with its several powers, having been **originally breathed** into a **few forms** or into **one**; and that, whilst this planet has gone on cycling according to the fixed law of gravity, from so simple a beginning endless forms **most beautiful** and **most wonderful** have been, and are being, evolved.”

*Origin*, 490

COMMENTS:

S6

2<sup>nd</sup> edition (1860) to 6<sup>th</sup> edition (1872) Darwin changes:

“originally breathed” to “**breathed by the Creator**”

PSALM 19 FACTOR

S7

- does the “grandeur” of evolution creating living organisms that are “most beautiful & most wonderful” declare the glory of God?
- does the process of evolution reflect ID?

**CONCLUSION: *Origin of Species* (1859)**

S8

1. Rejects the God-of-the-Gaps in the origin of living organisms

2. Accepts a Creator

3. Accepts teleological evolution

S9

4. **God is part of Darwin’s evolutionary science in his most famous book!**

## VI. AUTOBIOGRAPHY OF CHARLES DARWIN (1876)

mature views on religion presented in a section entitled “Religious Belief”

☛ Intelligent Design a central issue

Argument Pattern:

Darwin gives an Argument & then a Rebuttal to it  
stalemate leads him → **Agnosticism**

9. “The mystery of the beginning of all things is insoluble by us; and I for one must be content to remain an **Agnostic**.” ACD, 94

### ARGUMENT FOR GOD’S EXISTENCE: 1<sup>ST</sup> DESIGN ARGUMENT (PSYCHOLOGICAL)

10. “At the present day the most usual argument for the existence of an intelligent God is drawn from the **deep inward conviction** and **feelings** which are **experienced by most persons** ... Formerly I was led by **feelings** such as those referred to, ... to the firm conviction of [1] the existence of God, and of [2] the immortality of the soul ... whilst standing in the midst of the **grandeur** of a Brazilian forest.” ACD, 91

COMMENTS:

**Intelligent Design in Nature:**

- Active

impact of the “grandeur of a Brazilian forest”

- Universal

“experienced by most persons”

- Intelligible

use of word “feelings” (2X) → **non-verbal** revelation

leads Darwin to understand two “firm convictions” (next)

- Revelatory

nature convicts Darwin of: [1] “the existence of God”

[2] “the immortality of the soul”

PSALM 19 FACTOR

Does the “grandeur of a Brazilian forest” declare the glory of God?

does nature point to the “existence of God” & “immortality of the soul?”

OR

Was Darwin experiencing an illusion?

“nothing but” social conditioning from his religious Cambridge education?

**REBUTTAL**

11. “But now [1876] the **grandest** scenes would not cause any such convictions and feelings to rise in my mind. It may be truly said that I am like a man who has become **colour-blind**.” ACD, 91

QUESTION:

Can you become “colour-blind” to Impact of ID Nature?

☛ see Darwin’s view in the last year of his life in Quote 16



ARGUMENT FOR GOD'S EXISTENCE: 2<sup>ND</sup> DESIGN ARGUMENT (RATIONAL)

S2

12. “Another source of conviction in the existence of God, connected with the **reason** and not with the feelings, impresses me as having **much more weight**. This follows from the **extreme difficulty** or rather **impossibility** of conceiving this immense and **wondrous** universe, including man with his capacity of looking backwards and far into futurity, as a **result of blind chance** or **necessity**. **When thus reflecting** I feel compelled to look to **First Cause** having an **intelligent mind** in some degree analogous to that of man; and I deserve to be called a **Theist**. This conclusion was **strong** in my mind about the time, as far as I can remember, when I wrote the *Origin of Species*; and it is since that time that it has very gradually with **many fluctuations** become **weaker**.”

ACD, 92-93 my underlines

COMMENTS:

S5

REJECTS dysteleology

the universe is not the result of “blind chance or necessity”

☛ that’s an “impossibility”

Darwin was a **theist** & believed in **ID** when he wrote *Origin of Species*

S6

NOT an atheist!!!

**Intelligent Design in Nature:**

S7

- Active  
impact of the “wondrous universe” → “compelled to look”
- Intelligible  
“connected with the reason”
- Revelatory  
nature points to a “First Cause having an intelligent mind”

**REBUTTAL**

S8

13. “But then arises the **horrid doubt**—can the mind of man, which has, as I fully believe, been developed from a mind as low as that possessed by the lowest animal, **be trusted** when it draws such **grand conclusions**?”

ACD, 93

DARWIN’S EPISTEMOLOGICAL DILEMMA: “THE HORRID DOUBT”

S9

- Darwin states he can’t trust his mind:
  - (1) on the subjects of Intelligent Design & God
  - (2) to make “grand conclusions”
- BUT what did Darwin just do?
  - he trusted his mind to make a “grand conclusion” about not being able to trust his mind!!!

S10

☛ **Self-Referential Incoherence**

- Did Darwin rebut his “Rational ID Argument” for God’s existence? **NO**
  - ID remains a POWERFUL rational argument for belief in a:
    - “First Cause having an intelligent mind”

S11

## VII. THE FINAL YEARS (1879-1882)

S2

Darwin “softened” on: (1) agnosticism → he had deistic periods

(2) intelligent design → he wasn’t so “colour blind” Quote 12

### Letter to John Fordyce (1879)

S3

14. “It seems to me **absurd to doubt** that a man may be an **ardent theist & an evolutionist** ...

I may state that my judgment often **fluctuates** ... In my most **extreme fluctuations** I have S4

**never been an Atheist** in the sense of denying the existence of a God. I think that generally

(and more & more as I grow older), **but not always**, that an **Agnostic** would be the more

correct description of my state of mind.”

To Fordyce (7 May 1879)

#### COMMENTS:

S5 H1

- DESTROYS the Origins Dichotomy in one short sentence!

- ☛ it is a perfectly reasonable to be “an ardent theist & an evolutionist”

- up to **1879** Darwin was NEVER AN ATHEIST (he dies in 1882)

S6

- most of the time an **Agnostic**

- “not always” periods → likely a deist → impact of ID

### Conversation with the Duke of Argyll (last year of Darwin’s life)

S7

15. “I said to Dr. Darwin, with reference to some of his own remarkable works [on living

organisms] ... it was **impossible** to look at these without seeing that they were the

**effect** and the **expression of mind**. I shall never forget Mr. Darwin’s answer. He looked S8

at me very hard and said, ‘Well, that **often** comes over me with **overwhelming force**;

but at other times,’ and he shook his head vaguely, adding, ‘**it seems to go away**.’”

*Life & Letters of Darwin*, I:316

#### COMMENTS:

S9

#### **Intelligent Design in Nature**

- Active

impact of ID in living organisms “comes over me with overwhelming force”

- Intelligible

“the effect and the expression of mind”

- Incessant

S10

“often comes over me” → makes 1876 “color-blind” comment doubtful Q12

- Revelatory

“impossible” not to see the work of a mind in nature → Mind of God

#### PSALM 19 FACTOR

S11

Was Darwin’s experience in biology declaring the glory of God?

OR

Was Darwin suffering from an illusion when studying living organisms?

## VIII. CONCLUSION: RELIGIOUS BELIEFS OF DARWIN

S2

### 1. Darwin was Never an Atheist!

S3

during the writing of *Origin of Species* (1859):

Darwin claimed he: (1) was a theist

(2) believed in Intelligent Design

### 2. Darwin was Impacted by Intelligent Design throughout his Life

S4

nature struck Darwin powerfully & often “with overwhelming force” Quote 16

TO ASK YOU THE QUESTION ONE LAST TIME:

S5

Is the Psalm Factor 19 real?

Do the heavens & living organisms declare the glory of God?

OR

Is this experience in nature nothing but an illusion?

TO ASK YOU RELATED QUESTIONS:

S6

If you believe in intelligent design, is it due to social conditioning from you being raised in a religious community?

OR

If you reject in intelligent design, is it due to social conditioning from you being raised in a secular community?

### 3. Darwin Destroyed the “Evolution” vs. “Creation” Dichotomy

S7-8

“It seems to me **absurd to doubt** that a man may be an **ardent theist & an evolutionist.**”

Quote 15

☛ THANKS to Darwin,

S9

being both a Christian theologian & an evolutionary biologist is perfectly reasonable

# GENESIS 1-3: BIBLICAL CREATION ACCOUNTS

## I. KEY THOUGHTS

S2

### 1. Literary Genre

S3

THE MOST IMPORTANT QUESTION:

What is the literary genre of Gen 1-3?

- a strict literal word-for-word scientific record of HOW God actually created the universe and living organisms, including humans

OR

- a complex literature featuring: S4

**Spiritual Truths** → 1<sup>st</sup> & foremost

ancient origins science

ancient story/allegory

ancient poetry (structured writing)

### 2. Ancient Creation Accounts

S5

most have 3 basic components:

#### RELIGIOUS BELIEFS

spiritual truths & values of a community

#### ANCIENT ORIGINS SCIENCE

S6

origin of the universe, living organisms, humans & the first communities

☛ origins science-of-the-day

origins understood from an *ancient phenomenological perspective*

CENTRAL FEATURE: ***De Novo* Creation**

#### ANCIENT STORY/ALLEGORY

S7

cast in a story-like account

often use allegorical features

### Message-Incident Principle: 1<sup>st</sup> New Application for Genesis 1-3

S8 H51

Ancient Origins Science & Ancient Story/Allegory are incidental vessels that deliver inerrant Spiritual Truths

Therefore: SEPARATE DON'T CONFLATE

### 3. The Beginning of REAL HISTORY in the Bible

S9

lots of debate on this issue

many conservative theologians like me see real history “phase in” around Gen 12 with Abraham

#### Common Concern:

S10

IF Gen 1-3 is not historical,

THEN the New Testament & Jesus are not historical

#### Academic Response:

S11

Gen 1-3 is a completely different Literary Genre than the New Testament

☛ NT is based on eyewitness accounts of real people that saw real events

## II. ANCIENT CREATION ACCOUNTS: INTRODUCTORY CATEGORIES

S2

### ETIOLOGY

S3

DEF: the cause or reason for something or someone

ALL creation accounts ask the basic etiological questions:

What is the cause or reason for the existence of:

- the universe: heavens, sun, stars, etc,
- living organisms: plants & animals
- humans: our community and other communities around us

### ANCIENT CREATION MOTIFS

S4

DEF of Motif:

recurring concept, symbol, character, theme, etc

DEF of Ancient Creation Motifs:

recurring ancient scientific concepts found in creation accounts

**basic concepts in the origins science-of-the-day** in the ancient world

appear in: (1) many of creation accounts throughout the world

(2) creation accounts in Ancient Near East (ANE)

EG Hebrews, Egyptians, Mesopotamians, etc

#### **(1) *De Novo* Creation Motif**

S5

quick & complete origin of the universe & life

many times humanity begins with a 1<sup>st</sup> man & 1<sup>st</sup> woman

Etiological Question:

what is the cause or reason for the origin of the world & people?

#### **(2) Lost Idyllic Age Motif**

S6

a something-went-wrong-in-the-world account

points back to the disruption of an original harmony in the world

negative effects of this event continue into the present

Etiological Question:

what is the cause or reason for the **bad things** in the world?

#### **(3) Tribal Formation Motif**

S7

origin of a community or nation from a single founding male individual

☛ ALL of humanity often descends from the 1<sup>st</sup> man & 1<sup>st</sup> woman

Etiological Questions:

what is the cause or reason for the origin of our community?

other communities around us?

### **Message-Incident Principle: 2<sup>nd</sup> New Application for Genesis 1-3**

S8 H51

Ancient Creation Motifs in Gen 1-3 are incidental vessels that deliver inerrant Spiritual Truths

Therefore: SEPARATE DON'T CONFLATE

ANCIENT STORY/ALLEGORY

S2

Bible uses non-historical stories & allegories to reveal Spiritual Truths

**Parables of Jesus**

S3

DEF of Parable: earthly story with a heavenly message

☛ 1/3 of Jesus' teaching is in parables

The Parable of the Good Samaritan (Luke 10:33-36)

S4

A man was going down from Jerusalem to Jericho, when he was attacked by robbers.

They stripped him of his clothes, beat him and went away, leaving him half dead. A **priest**

happened to be going down the same road, and when he saw the man, he passed by on the

other side. So too, a **Levite**, when he came to the place and saw him, passed by on the other

side. But a **Samaritan**, as he travelled, came where the man was; and when he saw him, S5

he took pity on him. He went to him and bandaged his wounds, pouring on oil and wine.

Then he put the man on his own donkey, brought him to an inn and took care of him. The

next day he took out two silver coins and gave them to the innkeeper. "Look after him," he

said, "and when I return, I will reimburse you for any extra expense you may have."

COMMENTS:

S6

these people NEVER existed & these events NEVER happened!

Message → Be Merciful

S7

Story → INCIDENTAL

Book of Job

S8

Could this be a **Holy Spirit inspired story** to reveal Spiritual Truths about suffering?

IF this is a historical account, (as recorded in Chapters 1 & 2)

THEN it means that:

- Satan can just walk into God's presence & bait him to prove a point
- God allows Satan to murder Job's 10 children & his servants
- God allows Satan to inflict Job with a debilitating disease

QUESTION:

S9

does this sound like something that God would allow?

OR

is this a story to reveal Spiritual Truths?

☛ is the story INCIDENTAL?

Garden of Eden Account in Genesis 2-3

S10

Features: • fast-talking snake

- idyllic garden paradise
- mystical tree with fruit that imparts eternal life
- mystical tree with fruit that imparts knowledge of good & evil
- mystical creatures → cherubim (composite creatures like Egyptian Sphinx)
- flaming sword flashing back & forth to protect the garden

QUESTION:

S11

does this sound like a **historical account** about real events?

OR

is this a **story with allegorical features** to reveal Spiritual Truths?

☛ is the story INCIDENTAL?

**THEORY OF ORIGINAL SOURCES**

S2

- states that Gen 1-3 is the combination of two original creation accounts:

(1) **PRIESTLY CREATION ACCOUNT**

S3

Genesis 1

written about 500 BC/E

Priestly author (P) uses divine Hebrew name *'Elōhîm* (God)

(2) **JAHWIST CREATION ACCOUNT**

S4

Genesis 2-3

written about 1000 BC/E

Jahwist author (J) uses divine Hebrew name *Yahweh* (Lord)

- an editor put P & J creation accounts together to become Gen 1-3

S5

called the “Redactor”

redaction of sources occurred around 500 BC/E

- evidence for two sources:

S6

Differences in the order of creation events between Gen 1 & Gen 2

**Genesis 1 (Priestly)**

**Genesis 2 (Jahwist)**

vegetation (fruit to eat)	3 <sup>rd</sup> Day	man	v. 7
birds	5 <sup>th</sup> Day	vegetation (fruit to eat)	v. 8-9
land animals	6 <sup>th</sup> Day	land animals & birds	v. 19
man & woman	6 <sup>th</sup> Day	woman	v. 22

QUESTION:

S7

is the order of creation events the Message of Faith?

OR

is it INCIDENTAL?

Differences in writing styles between Gen 1 & Gen 2-3 → two different authors

S8

EG Gen 1 (P) has no allegorical features

Gen 2-3 (J) has many allegorical features (mystical trees) see list above in S12

- produces a creation account with two **complementary** perspectives

S9

EG Gen 1 (P): God transcendent & in heaven

Gen 2-3 (J): Lord immanent & on earth

**CONCLUSION: Ancient Creation Accounts & Introductory Categories**

S10

1. Divine Inspiration of the Bible:

interactive process between human authors & the Holy Spirit

NOT simply passive secretaries

EG God allowed them to use their ancient creation motifs → ACCOMMODATION

2. Parallel between the Two Divine Books

S11

Origin of the BOOK OF GOD’S WORKS:

ordained & sustained natural evolutionary process

Origin of BOOK OF GOD’S WORDS:

ordained & sustained **ancient literary process** → literary evolution

### III. AN EXEGESIS OF GENESIS 1-3

Each chapter will identify:

Etiology

Motif

Author

Origin Debate Implications

Messages of Faith

S2

S3

#### 1. Genesis 1: The Creation Week

S4

##### VERB “TO CREATE”

S5

Hebrew word *bārā’*

has many nuances:

to create, form, separate, divide, split, fashion by cutting

ANE creation accounts often feature creation by separation of opposites

EG heaven separated from earth

Gen 1: waters above separated from waters below

sea separated from dry land

##### **Etiology**

S6

What caused the origin of the heavens, earth, plants, animals & humans?

Answer: God created all of them

##### **Motif**

*De Novo* Creation

quick & complete → typical of ancient creation accounts

##### **Author**

S7

Priestly (P) Author

• uses divine name *’Elōhîm* (God)

appears 35 times in Gen 1 (7 X 5)

☛ P author often uses stylistic number 7 & its multiples

EG Gen 1:1 has 7 words & Gen 1:2 has 14 words = 21 (3 X 7)

Gen 1: “earth” 21X

“heaven/firmament” 21X

“it was good” 7X

• often uses a Poetic Format → very structured writing style

S8

##### (1) Parallel Panels

S9 H52

• built off Gen 1:2 & the two rhyming Hebrew words: *tōhu* (formless)  
*bōhu* (empty)

• God solves the problem of the formless & empty earth

1<sup>st</sup> panel of three days he forms the world

2<sup>nd</sup> panel of three days he fills the world

• forming days & filling days are parallel to each other

S10-11 H52

Day 1 light → sun, moon & stars Day 4

Day 2 air space & sea → birds & sea creatures Day 5

Day 3 dry land → land animals & humans Day 6



Classic “Contradiction” in the Bible

Day 1: creation of light

Day 4: creation of the sun

IF Gen 1 is a scientific account, THEN there is a problem

**BUT**

IF this is poetic freedom, THEN no problem

☛ P author certainly knew that light comes from the sun!

(2) Creation Day Formula

S3

highly structured &amp; repetitious → typical of P author’s style

Introduction: God said, “. . .”

Command: “Let it be . . .”

Completion: It was so.

Judgment: God saw it was good.

Time Reference: “There was evening & there was morning—the n<sup>th</sup> day”Debate over the Word “Day”

S4

Hebrew *yōm*: (1) 24 hour day

(2) period of time

In the Old Testament:

when the word “day” is with a number → 24 hour day

Genesis 1:

uses numbers: first day, second day, etc

each day ends with:

“There was evening & there was morning—the n<sup>th</sup> day”

Therefore:

**days of Gen 1 are 24 hour days****Origins Debate Implications**

S5

PROGRESSIVE CREATION (Day-Age Theory)

days of Gen 1 are NOT 100s of millions of years long

☛ Scientific Concordism FAILS

PARALLEL PANELS & POETIC FREEDOM

S6

point away from Gen 1 being a scientific record of actual events

☛ Scientific Concordism FAILS

**Messages of Faith**

S7

- There is only one God who is the Creator of the universe & life

- Affirms the Sabbath Commandment (4<sup>th</sup> Commandment)

P author casts his creation account in the Hebrew work week

7<sup>th</sup> day for resting & honouring God

- God created humanity in the **Image of God**

S8

term “Image of God” was used in ANE for kings

kings were believed to be the representatives of the gods on earth

RADICALLY TRANSFORMED in Gen 1:

ALL humans are God’s “kings” & representatives on earth

## 2. Genesis 2: The Creation of Adam &amp; Eve

S2

TRADITIONAL INTERPRETATION:

S3

Gen 2 offers details of the events on the 6<sup>th</sup> day in Gen 1

Adam & Eve are REAL PEOPLE that actually existed in history

most Christians accept **Scientific Concordism**

**BUT**

S4

differences in the order of creation events between Gen 1 & Gen 2

evidence for TWO different creation accounts

- ☛ Gen 2 does not offer details of the events on the 6<sup>th</sup> day in Gen 1  
it is an entirely different creation account

**Etiology**

S5

Where do humans come from?

Answer: God created them

**Motif**

*De Novo* Creation

Adam & Eve are created quick & complete

*de novo* creation of a 1<sup>st</sup> man & a 1<sup>st</sup> woman often found in ancient creation accounts

**Genesis 2:7**

S6

“The Lord God formed [*yatsar*] the man from the dust of the ground and breathed into his nostrils the breath of life, and the man [Adam] became a living being.”

COMMENTS:

S7

- God is like a craftsman  
uses earth to make Adam
- Hebrew verb *yatsar* (to form) is the root of the term “potter”  
“We [humans] are the clay, you [God] are the Potter,  
we are all the work of your hand.” Is 64:8

**Craftsman-Like Mechanism in ANE**

S8

gods use earth to make humans → origins science-of-the-day

EPIC OF ATRAHASIS

a goddess mixes clay & blood of dead god to fashion 7 males & 7 females

ENKI & NINMAH ACCOUNT

an intoxicated god uses earth to make imperfect humans

EGYPTIAN TEMPLE IMAGE FROM DENDERA

S9 H53

god Khnum fashions humans on a potter’s wheel

goddess Isis gives life to the clay form

**Author**

S10

Jahwist (J) Author

- uses free flowing narrative
- uses divine name *Yahweh* (Lord)

**Author** (continued)

S2

Jahwist (J) Author

- uses word play

Hebrew *'ādām*: man, human, humankind & personal name “Adam”

*'ādāmāh*: earth, ground

1<sup>st</sup> *'ādām* was made from *'ādāmāh* → could be translated “earthling”

- uses allegorical features

S3

idyllic paradise (Garden of Eden)

mystical tree with fruit that imparts eternal life

mystical tree with fruit that imparts knowledge of good & evil

- uses **Archetypes** Greek *arché*: first, beginning *tupos*: type, model, example

S4

DEF: an original type or model from which similar things/beings are patterned

EG Adam & Eve are archetypes to represent all humans

☛ **Adam & Eve are YOU & ME**

- uses a Story/Allegory to reveal Spiritual Truths

S5

similar to a parable

common literary technique in ANE

Stylistic Differences Between Genesis 1 & 2

S6-9

	Genesis 1 (P)	Genesis 2 (J)
<b>Literary Style</b>	Poetic Structured & Repetitive	Narrative Free-Flowing
<b>Allegorical Features</b>	None	Many
<b>Stylistic Numbers</b>	7 & its Multiples	None
<b>Scene Setting</b>	Cosmic	Rural (No Sea)
<b>Divine Name</b> Hebrew	God <i>'Elōhîm</i>	Lord <i>Yahweh</i>
<b>Creative Action</b>	Verbal Commands	Hands-On
<b>Divine Being</b>	<b>Transcendent</b> & Heavenly	<b>Immanent</b> & Earthly
<b>Relationship to Humans</b>	Kingly Distant from Humans	Personal Near Humans
<b>Food Commands</b>	Without a Prohibition Focus on Sustenance	With a Prohibition Focus on Obedience

EVIDENCE for two *different yet complementary* original creation accounts

S10

REDACTION (under the inspiration by the Holy Spirit) results in a divine revelation that the Creator is BOTH:

**Transcendent**

in total control of the entire Cosmos (Gen 1)

**Immanent**

personally near each and every one of us (Gen 2)

**Origins Debate Implication**

S2

CONFLICTS in the order of creation events between Gen 1 & Gen 2 indicate some events:

DID NOT HAPPEN

☛ Scientific Concordism FAILS

**Messages of Faith**

S3

- God created humans to be relational with him

ANE:

humans are inconsequential

were created to be slaves of the gods & relieve them of their work!!!

- God created humans to be relational with themselves → Marriage

S4

- God set limits on human freedom

- Humans are accountable to God with regard to the way they behave & live their lives

**3. Genesis 3: The Fall**

S5

Adam & Eve sin by disobeying God and eating fruit from the forbidden tree

God judges them for their sin

**Fall of Humanity**

S6

sin enters the world because of Adam & Eve

☛ accepted as HISTORICAL by most Christians

**Cosmic Fall**

S7

God launches suffering & death into the world in judgment for sins of Adam & Eve

☛ accepted as HISTORICAL by most Christians

PHYSICAL CHANGES IN NATURE:

S8

- snake loses its legs

- birth pain increases for women

- earth is cursed → thorns & thistles appear → human work becomes painful

- physical death enters the world

**Etiology**

S9

Where does sin come from?

Answer: Adam & Eve

Where do suffering & death come from?

Answer: God's judgment of Adam & Eve

Where do people come from?

Answer: they ALL descend from Adam & Eve

**NB NB NB:**

S10

understandable why most Christians believe Adam & Eve were real people

QUESTION: is there a **non-concordist hermeneutic**?

**Motif**

S11

Lost Idyllic Age

a something-went-wrong-in-the-world account → explains the origin of **bad things**

points back to the disruption of an original harmony in the world

negative effects of this event continue into the present

The Fall in Gen 3 → explains the origins of bad things → sin, suffering & death

Tribal Formation S2

ALL of humanity descends from two people → 1<sup>st</sup> man (Adam) & 1<sup>st</sup> woman (Eve)

**Genesis 3:20** S3

“Adam named his wife Eve, because she was the mother of **all** the living.”

COMMENTS: S4

**Monogenism** Greek *monos*: one *genesis*: beginning

DEF: ALL of humanity descends from a ONE individual

**Author** S5

J author → Gen 2 & 3 are one literary unit

- uses word play

name of Eve means “life” and is similar to verb “to be”

- uses allegorical features S6

eating mystical fruit of forbidden tree makes Adam & Eve realize they are naked & sinful

mystical creatures → cherubim (composite creatures like Egyptian Sphinx)

flaming sword flashing back & forth to protect the garden

- uses **Personification** S7

DEF: attribution of human characteristics to animals & objects

fast-talking snake who tempts Eve

common literary technique in ANE S8

EG ETANA LEGEND

**talking snake** & talking eagle

DISPUTATION BETWEEN THE HOE & THE PLOW

talking hoe & talking plow

- uses **Archetypes** S9

Adam & Eve represent all sinful humans

they not only sin, but attempt to rationalize/justify their sin → **BLAME GAME!!!**

Eve blames the snake

Adam blames Eve and then BLAMES GOD for putting Eve with him!!!

☛ **Adam & Eve are YOU & ME**

**Origins Debate Implications** S10

YOUNG EARTH CREATION

claims the Cosmic Fall is a real historical event

IF this is true, S11 H75

THEN suffering & death should appear WITH humans in fossil record

there needs to be a human sinner (Adam) for God to launch the Cosmic Fall

BUT S12 H75

Fossil Record: suffering & death appear 100s of millions of years BEFORE humans

☛ Cosmic Fall NEVER HAPPENED

☛ Scientific Concordism FAILS S13

PROGRESSIVE CREATION S14

claims Gen 3 refers to the **Spiritual Death** of humans

BUT God’s judgment deals with **Physical Death**:

To Adam: “For dust you are and to dust you will return” Gen 3:19

EVOLUTIONARY CREATION

claims Gen 1-3 is **NOT** a scientific record of how God created the world

The Bible features:

(1) an ancient understanding of the **Origin of LIFE** (*De Novo* Creation)

CONSISTENCY argues that the Bible also features:

(2) an ancient understanding of the **Origin of DEATH**

**Messages of Faith**

S3

- Humanity's greatest problem: sin against God → NOT obeying his Commands
- Sin is serious & has consequences
- God judges humans for the sin of disobeying him

**IV. CONCLUSION. GENESIS 1-3: BIBLICAL CREATION ACCOUNTS**

S4

**1. What is the Literary Genre of Genesis 1-3?**

S5

Genesis 1-3 is an Ancient Creation Account [Incidental]

S6

inspired by the Holy Spirit to reveal inerrant Spiritual Truths [Messages of Faith]

**INERRANT MESSAGES**

S7

God created the universe & life (Gen 1 & 2)

God created humans in the Image of God (Gen 1)

the creation is very good (Gen 1)

humans are sinful (Gen 3)

God judges humans for their sins (Gen 3)

**INCIDENTAL ANCIENT FEATURES**

S8

ancient origins science

*de novo* creation of the universe and life

ancient phenomenological perspective of nature

perfectly logical for that time

ancient motifs

*De Novo* Creation, Lost Idyllic Age & Tribal Formation

ancient story/allegory

fast-talking snake, mystical trees,

ancient poetry

parallel panels

ancient methods of redaction

J & P sources

**The SUGGESTION:**

S9

**SEPARATE DON'T CONFLATE**

**2. The CHALLENGE**

S2

Many Christians find it very difficult to accept that God used non-historical stories in Gen 1-3

BUT

this is what ancient people did in their creation accounts in the ANE & throughout the world

REMEMBER **Parables of Jesus**

S3

☛ 1/3 of Jesus' teaching was in parables & he used non-historical stories

**3. The CAUTION:**

S4

**DO NOT** use the hermeneutics of Genesis 1-3 for the New Testament

**DO NOT** use the hermeneutics of the New Testament for Genesis 1-3

S5

Gen 1-3 & NT are completely different Literary Genres

different hermeneutical principles are needed for different Literary Genres

**4. The BOTTOM LINE:**

S6

The Bible does NOT reveal how God actually created the universe and life, including humans

Open the Book of God's Works → **Do the Science!**

# HUMAN EVOLUTIONARY SCIENCES

## I. KEY THOUGHTS

S2

### 1. Nearly ALL scientists today accept Human Evolution

S3

**98%** of American scientists accept:

“humans and other living things have evolved over time” Pew Research Center (2014)

### 2. Acceptance of Human Evolution by Christians is significantly lower than the scientists

S4

**66%** of American Roman Catholics accept human evolution

S5

**36%** of American Evangelical Protestants accept human evolution

Pew Research Center (2014)

QUESTION:

S6

Why couldn't God create humans through an evolutionary process?

☛ ordained, sustained & intelligently designed natural process made by the Creator

### 3. Scientific Concordism is a significant factor behind Anti-Evolutionism

S7

**34%** of Americans accept that humans have:

S8

“always existed in their present form since the beginning of time”

**52%** who hold this view believe that the Bible is the:

“Word of God & should be taken **literally**” Pew Research Center (2014)

### 4. Many Christians ASSUME that human evolution is a threat to:

S9

#### (1) Human Dignity

an attack against the belief that humans have the Image of God

#### (2) Bible

an attack against biblical creation accounts in Gen 1-3

QUESTIONS:

S10

- Why couldn't the Image of God emerge during human evolution?

EG Christians believe the Image of God emerges in every person during their development in the womb

- Is a literal (scientific concordist) reading of Gen 1-3 correct?

S11

## II. INTRODUCTORY CATEGORIES

S12

### Primates

DEF: a group of mammals featuring:

large brains → complex behaviour

forward facing eyes → binocular vision

grasping hands

Includes: Prosimians

Monkeys

Apes (Gibbon, Orangutang, Gorilla, Chimpanzee)

Humans



**Hominoids**

S2

DEF: Apes & Humans and their ancestors

**Hominins**

S3

DEF: Humans and their ancestors since the time of divergence from African apes  
 often characterized by being able to walk on two legs. Termed “**Bipedal**”  
 begin to appear about 6 million years ago (mya)  
 includes nearly 30 different species

**Last Common Ancestor** (or Ancestral Population)

S4

DEF: the evolutionary ancestor from which two groups/species evolved  
 EG humans & chimps share a Last Common Ancestor that lived about 6 mya

- one group led to the hominins with the appearance of humans at the end
- the other group led to ancestors of chimps and chimps today

**III. HUMAN EVOLUTION: THE BONES & THE FOSSILS**

S5

**1. Introduction**

S6

**Homology of Bones: Living Apes & Humans**

(Notes 30) S7 H54

- basic plan of the skeleton is very similar
  - ☛ clearly indicates an evolutionary relationship
- different proportions of the limb bones reflect habitat & locomotion

Gibbons & Orangutans:

very long arms suited for them to live in trees

Apes have a divergent (flared-out) big toe on their foot & it is **Opposable**

S8 H54

DEF: big toe can touch other toes (like the thumb in humans touching fingers)

allows feet to grasp branches in trees

Humans have short hip bones & long legs suited for walking on two legs on land

big toe not opposable & is parallel to other foot bones

- different proportions of the skull/face bones and teeth reflect behaviour

S9 H54

Human cranial volume is much larger than Apes

larger brain results in complex behaviour (eg, complex civilizations)

Apes have **Prognathic Jaws** (forward facing) with large **Canine Teeth** at corner of mouth

canines are protective weapons & used to tear flesh

S10 H55

Humans make weapons to protect themselves & use utensils to cut up food

**Evolution of Primates**

S11 H55

Common Mistake:

many people (eg, Christians) believe humans evolved from monkeys or chimps

Humans share a Last Common Ancestor with:

- Old World Monkeys that lived about 30 mya
- Chimpanzees that lived about 6 mya

Hominins descend from this LCA & Humans appear at the end of this evolutionary line S12

☛ **Humans Did Not Evolve from Monkeys or Chimpanzees!!!** S13 H55

**Evolution of Hominins**THE TWO FACTS:

- (1) The Fossils → over 6000 fossil individuals **Hominins** S3 H56  
about 30 different species
- (2) The Dates of the Fossils

THE DEBATE:

S4

- How to arrange the different fossil species in evolutionary relationships (or trees) S5-7 H57
- EG which hominin is related to which hominin?  
which hominin went extinct?

**NB:** 1% genetic difference between humans & chimps S8 H56

☛ ALL hominins are within this 1% difference → it's difficult to arrange these fossils

Despite The Debate: **NO** scientist doubts that hominins evolved

**2. Fossil “Snapshots” of the Evolution of Hominins**

S9

**Sahelanthropus tchadensis**

S10 H58

Date: 6-7 mya Region: North-Central Africa

Cranial Volume: 320-380 cc (cubit centimetres) COMPARISON: chimpanzees are 370 cc

Size: uncertain because no skeleton has been found, only the skull

much scholarly debate over this fossil:

S11 H58

Is it: an ancient ape?

a hominin that could walk on two legs?

the Last Common Ancestor between Chimps & Humans?

Features:

Ape characteristics:

S12 H58

small brain

very prominent brow ridges

New Hominin characteristics:

reduction in prognathic face & reduction in size of canine teeth

spinal cord opening in skull (foramen magnum) more forward than in apes

S13 H64-65

☛ might indicate it walked on two legs

**Ardipithecus ramidus**

S14 H58

Date: 4.4 mya Region: East Africa

Cranial Volume: 300-350 cc (cubit centimetres)

Size: 4 ft & 110 lbs COMPARISON: chimpanzees are 3 ft 9 in & 110 lbs

fossils of 36 individuals

Features:

S15 H64

Ape characteristics:

small brain, prominent brow ridges

prognathic face, large canines

long arms relative to short legs, divergent big toe

New Hominin characteristics:

though the hip bones are still large, it might have walked upright

lacked specialized anatomy for suspension in trees & knuckle-walking

**Australopithecus afarensis**

Date: 3.7 to 3.0 mya    Region: East Africa

Cranial Volume: 375-500 cc

Size: 5 ft & 100 lbs

fossils of over 300 individuals

☛ most famous is “**Lucy**”

40% of skeleton & discovered in 1974 by Donald Johanson

Note: complete fossil skeletons are rare

BUT with enough partial skeletons the complete skeleton can be reconstructed

Features:

S3 H64

Ape characteristics:

small brain, prominent brow ridges

prognathic face

long arms relative to short legs

New hominin characteristics:

canines are not as prominent

shoulder joint not adapted for moving through trees

big toe not as divergent

small short hips for walking on two legs (**Bipedal**)

Laetoli Fossil Footprints: 1<sup>st</sup> Evidence for Bipedal Locomotion

S4 H58

88 ft long with 70 footprints made in wet volcanic ash that hardened

dated 3.6 mya

2 adults & 1 child

human-like walking pattern → heel-first strike followed by a toe push-off

no evidence arms of touching the ground (no knuckle walking like chimps & gorillas)

Anatomical Comparisons between Chimpanzees, A. Afarensis & Humans

S6-17 H59-60

☛ A. afarensis is an excellent transitional fossil

	<b>Chimpanzee</b>	<b>A. afarensis</b>	<b>Human</b>
<b>Rib Cage</b>	pyramidal shape	pyramidal	barrel shape
<b>Hip Bones</b>	large & long	small & short	small & short
<b>Feet</b>	divergent big toe	modest divergence	no divergent big toe
<b>Foramen Magnum</b>	posterior of skull	more anterior	near midline
<b>Canine Tooth</b>	large	modest	small
<b>Diastema</b> (in upper jaw) space for lower canine	large	modest	none
<b>Posterior Tooth Rows</b>	parallel	parallel	curved
<b>Upper Jaw</b>	prognathic Naso-palatine Foramen away from Incisors	prognathic Naso-palatine Foramen away from Incisors	slightly prognathic Naso-palatine Foramen Near Incisors

**Australopithecus sediba**

Date: 2.0 to 1.5 mya    Region: South Africa

Cranial Volume: 420-500 cc

Size: 4 ft 6 in & 90 lbs

☛ might be a transitional hominin from Genus Australopithecus to Genus Homo

Features:

S3 H65

Ape characteristics:

small brain, short stature

long arms relative to short legs

New hominin characteristics:

small teeth & small cheek bones

modern-looking hand → BUT no evidence of stone tools

**Homo Habilis**

S4 H61

Date: 2.4 to 1.4 mya    Region: South & East Africa

Cranial Capacity: 500-650 cc

Size: 4 ft & 80 lbs

named “Handy Man” because it was associated with some of the earliest stone tools

scratch marks on animal bones & crushed bones (for marrow) indicate butchery

Features::

S5 H61

Ape characteristics:

short stature, long arms

New hominin characteristics:

brain larger than Australopithecine species

less prominent prognathic face & brow ridges

**Homo ergaster**

S6 H61

Date: 1.8 mya to 600,000 ya    Region: South & East Africa

Cranial Volume: 600-910 cc

Size: 5-6 ft & 90-150 lbs

Note: some argue this species is an earlier form Homo erectus that lived in Africa

Features:

S7 H65

1<sup>st</sup> hominin with a body size & proportions similar to modern humans

loss of anatomical characteristics for tree-climbing

able to walk & possibly could run long distances

used simple stone tools

**Homo erectus**

S8 H61

Date: 1.8 mya to 150,000 ya    Region: Europe to South East Asia

Cranial Capacity: 810-1250 cc

Size: 5-6 ft & 90-150 lbs

Features:

S9 H61

1<sup>st</sup> hominin to leave Africa about 1.7 mya & spread from Europe to South East Asia

more complex tools: hand axes, flake tools & cleavers

used fire: evidence of ancient campfires

**Homo heidelbergensis**

S2 H62

Date: 600,000 to 400,000 ya    Region: South &amp; East Africa, Europe

Cranial Volume: 1225-1300 cc

Size: 5 ft 9 in &amp; 100 lbs

Features:

S3 H62

1<sup>st</sup> hominin to build simple shelters out of wood & rock  
made wooden thrusting spears & hunted large animals

**Homo neanderthalensis**

S4 H62

Date: 500,000 to 30,000 ya    Region: Europe

Cranial Volume: 1250-1550 cc

Size: 5ft 5 in &amp; 155 lbs

Features:

S5 H62

shorter & stockier than us → an adaptation to living in cold environments  
controlled fire & built in shelters  
1<sup>st</sup> hominin to wear clothing & sew hides together from large animals that they hunted  
some evidence they buried their dead with flowers

**Homo sapiens: Anatomically Modern Humans**

S6 H63

Date: 200,000 ya    Region: Mostly Africa

Cranial Volume: 900-2000 cc    Average: 1350

Features:

S7 H63

similar anatomy to humans today  
BUT their behavior is similar to other hominins living at that time (eg Neanderthals)

**Homo sapiens: Behaviorally Modern Humans**

S8 H63

Date: 50,000 ya    Region: left Africa and spread to all continents except Antarctica

Cranial Volume: 900-2000 cc    Average: 1350

shift in behavior is sometimes termed “Creative Explosion” or “Neurological Big Bang”

Note: there is a debate on whether this happened quickly or over a period of time

Features:

S9 H63

buried their dead with grave goods → indicative of a religious belief in an afterlife  
art: figurines, jewelry, exquisite animal drawings in caves  
tools: blades, use of different materials (antler, ivory), gear for fishing  
transportation of raw material over long distances

**3. Summary: PATTERNS in Hominin Evolution**

S10

## • Skeletons

S11

arms shorten, legs lengthen, hips shorten & big toe divergence lost → leads to bi-pedal movement  
hands shorten → improves manual dexterity

☛ 1<sup>st</sup> hominin fossils look like apes & over time look more & more human

S12-15 H64-65

## • Skulls

S16

prognathic faces decrease & tooth size (especially canines) decrease  
cranial volume increases → complexity of behavior increases

S17-18 H66

## • Archeological Development

S19-20 H67

complexity of artifacts increases → reflects increased intellectual ability &amp; manual dexterity

QUESTION: Does this Creative Explosion reflect the 1<sup>st</sup> appearance of the **Image of God**?

S21

## IV. HUMAN EVOLUTION: THE GENES

S2

## 1. Introduction

S3

## Genome Mapping

DEF: Genome = all the genetic information in a living organism

dramatic technological advances for charting the DNA of many living organisms

Human Genome Project (2003)

S4

- mapped all 3.2 billion base pairs in the DNA of our 23 chromosomes

chromosomes are in pairs → we have **6.4 billion base pairs & 46 chromosomes**

- genetic diversity between humans → **0.1%** (or **99.9%** similar)

S5

- **20,000 genes** that code for (ie, produce) proteins

☛ these genes make up only **2% of our DNA**

ENCODE (Encyclopedia of DNA Elements) Project (2003+)

S6

- non-coding DNA was once called “Junk DNA”

- 80% of this DNA has some sort of function

20-40% of this DNA acts like “switches” for turning on genes (termed “enhancers”)

Chimpanzee Genome Project (2005)

S7

- genetic difference between humans & chimps → **1.0%** (or **99.0%** similar)

Neanderthal Genome Project (2010)

S8

- genetic difference between humans & Neanderthal → **0.2%** (or **99.8%** similar)

## 2. Pseudo-Genes (Non-Functional or Relic Genes)

S9

DEF: genes in chromosomes that no longer function

Olfactory Pseudo-Genes

S10

mammals have about 1000 genes that make receptors for smelling

they need a keen sense of smell to survive → find food or identify threatening animals

BUT **60%** of these genes are pseudo-genes in humans

presence of olfactory pseudo-genes in us indicates we evolved from earlier mammals

humans evolved a BIG BRAIN & no longer needed a keen sense of smell

when mutations arose in these genes → natural selection did not “weed” them out

☛ if a gene is not used, it mutates & becomes non-functional (use it or lose it!)

Human & Chimpanzee Pseudo-Genes

S11

we share with chimps about **10,000** pseudo-genes:

- **98%** of these genes are identical

- these genes appear in the identical position on the respective chromosomes

GULO Pseudo-Gene

S12

functional forms of this gene is involved in the production of Vitamin C

most animals make their own Vitamin C because this gene is functional

BUT humans & chimps (all primates) need to consume food with this vitamin to live

mutation occurred with Common Ancestor of Primates & was passed down S13

☛ like a bad gene (trait) being passed down through a family

H55

**3. Human Chromosome 2 and Chimpanzee Chromosomes 2A & 2B**

S2

Humans have 46 chromosomes & chimps (and other apes) have 48

WHY?

after splitting from the Last Common Ancestor of humans & chimps, two chromosomes were joined together at some point along the hominin evolutionary line

**Chromosome Fusion**

DEF: the joining of two chromosomes

occurs 1 in 1000 human births

EVIDENCE:

S3 H68

- telomere fusion near the middle of human Chromosome 2

**Telomere**

DEF: a segment of DNA at the ends of chromosomes to protect them

made up of multiple repeats of 6 base pairs:

**TTAGGG**

**AATCCC**

there are 158 copies of this telomere repeat in the middle of Chromosome 2

- relic (non-functional) centromere in human Chromosome 2:

S4 H68

**Centromere**

DEF: a constricted region in every chromosome that is involved in cell division

**4. Genetics & Evolutionary Trees**

S5

in the same way a family tree (a genealogy) can be made using the genes of different family members, an evolutionary tree can be made using the genes of different living organisms

EG

DNA Testing

you & your siblings are more closely related genetically than you and your cousins

Evolutionary Relatives: Humans, Apes & Monkeys

S6 H68

genetic similarities/differences indicate evolutionary relationships

humans more closely related to chimpanzees:

**99.0%** similar (or **1.0%** difference) → our closest evolutionary “cousins”

humans distantly related to old world monkeys:

**94.9%** similar (or **5.1%** difference) → our distant evolutionary “cousins”

**Molecular Clock**

S7

DEF: accumulation of genetic changes (mutations) in organisms over time act like a “clock”

- genetic changes occur at roughly a constant rate

NOTE: most mutations have no effect (neither beneficial or harmful)

they simply accumulate in chromosomes over time

- by measuring the number of mutations between two species, the length of time S8 H68

can be determined when they separated from their Last Common Ancestor (LCA)

☛ the greater the number of mutations between two species → the older the LCA

**NB**

S9 H55 &amp; 68

genetic tree of evolution based on Molecular Clock roughly aligns with fossil tree of evolution

EG **ROUGH** Calculation for the Date of the LCA between Humans & Chimpanzees S2

Length of a Generation: 20 years S3

Mutation Rate: 100 base pair mutations per generation

Number of Base Pair Differences between humans & chimps: 64 million

(1% difference in the 6.4 billion base pairs in humans & chimps → 64 million)

1/2 of these mutations arose along the human evolutionary line & S4 H69

1/2 along the chimp evolutionary line

Therefore → 32 million mutations in each line from the LCA

$32,000,000 \div 100 = 320,000$  generations in each evolutionary line S5

$320,000 \times 20 = 6.4$  million yrs ago when LCA lived

☛ calculation basically aligns with the fossil record S6 H69

## 5. Genetics & Geographical Movement of Ancient Humans S7

**Basic Principles:** S8

- genetic changes (mutations) occur at roughly a constant rate

Therefore:

a species with a high percentage of genetic mutations is a species that has been living for a long time → termed “**High Genetic Diversity**”

- as a small Sub-Population moves away from a larger Original Population of a species, it only takes a portion of the genetic diversity of the species S9 H69

Therefore:

genetic diversity is reduced in the Sub-Population

- as a second Sub-Population moves away from the first Sub-Population, diversity is further reduced, and with more new Sub-Populations, there is even more reduction in genetic diversity

Therefore:

Sub-Population furthest from an Original Population will have the least genetic diversity

- new genetic mutations emerge in the Sub-Population over time S10

Sub-Populations will have their own unique genetic makeup → it's like a “**Genetic Fingerprint**”

## Genetic Diversity in Humans & Geographical Distance S11 H70

Highest in Africa

about 3 times more genetic diversity than the rest of the world

Lowest in North & South America

☛ humans first evolved in Africa & arrived last in the Americas → aligns with the fossil record

Genetic diversity in humans today indicates: S12

(1) humans began to move out of Africa about **60,000 yrs ago**

date roughly aligns with appearance of **Behaviourally Modern Humans**

(2) these humans descended from a population of about **10,000 individuals**

**NB NB NB:** S13

too much diversity in humans today for us to have descended from only 2 people (Adam & Eve)

“Rewinding” the Molecular Clock to 2 people in the past dates to about **5 million yrs ago**

BUT NO hint of human fossils or human artifacts at this time



**Mitochondrial DNA & Y-Chromosome DNA**

S2

Mitochondrial DNA

S3

mitochondria are small organelles inside the cell that are involved in the production of energy  
each has its own DNA

when a sperm cell fertilizes an egg cell none of its mitochondria enters egg

we only inherit our mother's mitochondria → it can be followed through generations

Y-Chromosome DNA

S4

only found in males

males only inherit their father's Y-chromosome → it can be followed through generations

Tracking the Movements of Ancient Humans

S5

- as Sub-Populations of humans emerge & move to different geographical regions, they bring their mitochondrial DNA & Y-chromosome DNA

both forms of DNA mutate over time & produce their own unique "**Genetic Fingerprint**"

termed a "**Haplogroup**"

S6 H70

DEF: a group of individuals carrying the same group of genetic mutations in either their mitochondrial DNA or their Y-chromosome DNA

S7-8

- as ancient people moved thru the world different Haplogroups emerged along the way

H71-72

NOTE:

S9

mitochondrial DNA & Y-chromosome DNA are independent of each other

BUT the Haplogroup migration patterns for both is similar:

- ☛ humans move out of Africa, spread to Europe & Asia, and appear last in the Americas

DNA testing companies uses haplogroups to determine where people come from. EG: 23 & Me

**Multi-Regional & Out-of-Africa Theories**

S10

before recent genetic research there were two basic views on human origins:

(1) MULTI-REGIONAL THEORY

S11

by about 1 million yrs ago Homo erectus spread throughout Africa, Europe & Asia  
then humans in all these regions evolved from Homo erectus

(2) OUT-OF-AFRICA THEORY

S12-13 H73

humans evolved in Africa about 60,000 yrs ago and left to spread throughout the world  
all the other hominins like Homo erectus & the Neanderthals then went extinct

- ☛ Mitochondrial DNA & Y-Chromosome DNA indicate this is best theory

**6. Neanderthal & Denisovan Genomes**

S14

sometimes ancient fossil bones are so well preserved that it is possible to chart their DNA  
genomes of two ancient hominins are now available:

## (1) Neanderthals

## (2) Denisovans

in 2010 a piece of finger bone & a couple teeth were discovered in a Siberian cave  
genetic analysis revealed it was a new hominin species

evidence in the cave reveals that Neanderthals & Humans also lived in it at different times

habitation of the cave is dated from about 50-30,000 yrs ago

Inter-Breeding between Humans, Neanderthals & Denisovans

S2-3 H73

- genetic evidence in the human genome reveals that we have genes from Neanderthals & Denisovans
  - 2-3% of genes in European & Asian humans are Neanderthal
  - 4-6% of genes in South East Asian humans are Denisovan
  - NO genes in African humans are Neanderthal or Denisovan
    - no fossil evidence that Neanderthals or Denisovans entered Africa
- most of the inter-breeding would have occurred after about 60,000 yrs ago when humans moved out of Africa & before the extinction of Neanderthals & Denisovans about 40-30,000 yrs ago
- Neanderthals & Denisovans also interbred

**7. Human Accelerated Regions (HARs)**

S4

DEF: regions of DNA that act as regulators (like “switches”) of genes during embryonic development compared to chimpanzees, these regions have mutated at an accelerated rate (about 7X faster)

Features:

S5

- HARs are found in regions once called “Junk DNA”
- do not make (code) proteins
  - instead they make RNA molecules that influence the activity of genes
- many function as “enhancers”
- more than 1/2 of the genes involved in brain development are located near HARs

Examples:**HAR1F**

S6

- 118 base pairs long
- humans have 18 mutations compared to chimpanzees → **15.3% difference**
- involved in development & complex organization of the human brain
  - ☛ may have given early humans greater intellectual ability

**HAR2**

S7

- involved in the development of the thumb & wrist
  - ☛ may have given early humans greater hand dexterity to make complex tools

**CONCLUSIONS:**

S8-9

- small genetic mutations in regulator genes (eg HARs) can produce a new species → like humans
- HARs are examples that mutations can be **positive** & produce **enhanced** traits → like human brain

**V. THEOLOGICAL QUESTIONS REGARDING HUMAN EVOLUTION**

S10

1. Assume that God created animals like chimpanzees before humans as stated in Genesis 1. If God created humanity beginning with a single man (Adam), why would God have re-cycled the 10,000 pseudo-genes in chimpanzees & also have fused two chimpanzee chromosomes to form human Chromosome 2? S11
2. If God created the first woman (Eve) from the side of the first man (Adam), did God remove all the Y-chromosomes in each cell of Adam’s tissue and replace them with X-chromosomes to make Eve? S12
3. Genetic evidence reveals that there was inter-breeding between Humans, Neanderthals & Denisovans. If God created humanity beginning with a single man (Adam) and a single woman (Eve), where do Adam and Eve fit on this evolutionary tree? S13
4. Does a **Non-Concordist Hermeneutic** of Adam & Eve help in dealing with these 3 questions above? S14

## MODERN ORIGINS DEBATE

<b>I. KEY THOUGHTS</b>	S2
<b>1. Anti-Evolutionism is <u>common</u> in United States &amp; Canada</b>	S3
<u>GALLUP POLL</u> (1982-2017) conducted 13 times	S4
<b>38-47%</b> of Americans accept:	
“God created man pretty much in his present form at one time within the last 10,000 years”	
<u>ANGUS REID POLL</u> (2012)	S5
<b>39%</b> of Canadians reject or are uncertain that:	
“human beings evolved from less advanced forms over millions of years”	
<b>2. Scientific Concordism is a central factor contributing to Anti-Evolutionism</b>	S6
<u>ABC PRIME TIME POLL</u> (2004)	S7
<b>87%</b> of American Evangelicals &	
<b>51%</b> of American Catholics believe that the 6 Days of Creation in Genesis 1 is:	
“literally true, meaning it happened that way word-for-word”	
<b>3. Nearly ALL scientists today accept evolution</b>	S8
<u>PEW SURVEY</u> (2014)	S9
<b>98%</b> of American scientists accept:	
“humans and other living things have evolved over time”	
<b>II. CATEGORIES ON THE ORIGIN OF THE UNIVERSE &amp; LIFE</b>	S10
<u>THE CHART:</u>	S11 H74
• 5 basic origins positions	
• 12 categories on left margin	S12-13 H74
• Christian bias	S14 H74
but applicable to other religions	
could add: “Spiritual but not Religious” category	S15 H74
Religious Agnostics → uncertain about the existence of God	
Scientific Agnostics → uncertain about evolution	
• Choose & Combine different categories	S16 H74
you will create your own new position!	
<u>THE KEY CATEGORICAL CONCEPT</u>	S17 H74
<b>SEPARATE DON’T CONFLATE:</b>	
(1) God’s Activity in the Origin of the Universe & Life	
<b>Cosmological</b> divine action in origins	
FROM	
(2) God’s Activity in the Lives of Men & Women	
<b>Personal</b> divine action in relationships	

## 1. Young Earth Creation

common understanding of the “creationist” position (aka Creation Science)

### STRENGTHS

S7

- YEC best describes the view of origins of the biblical writers
- YEC is the traditional view of origins held by most Christians through most of history

### WEAKNESSES

#### Scientific Issues

S8

- rejects every evolutionary science:  
cosmological evolution, geological evolution & biological evolution

#### QUESTION

are **98%** of American scientists wrong?

- YEC Fossil Pattern Prediction

S9-10 H75

bones of every living organism should be at the bottom of the fossil record

EG humans & dinosaurs should be together

BUT fossil record does not align with YEC prediction

S11 H75

it shows an evolutionary sequence:

fish → amphibians → reptiles (→ birds) → mammals (→ whales) → humans

#### Hermeneutical Issues

S12

- accepts strict & literal scientific concordism in Gen 1-3

BUT

☛ scientific concordism → FAILS → Bible is NOT a book of science

S13-15 H6-76

EG we do not live in a 3-Tier Universe

## 2. Progressive Creation (Day-Age Theory)

S16-20 H74

view of origins often held by Christians who first move away from YEC

### STRENGTH

S21

- PC attractive to many Christians because it aligns the Bible & science

### WEAKNESSES

S22

#### Scientific Issues

- rejects biological evolution, but accepts cosmological & geological evolution → Inconsistent?

#### QUESTION

are **98%** of American scientists wrong?

- PC Fossil Pattern Prediction

S23 H75

claims living organisms appear on earth in the order they are created in Gen 1

BUT fossil record does not align with Gen 1

S24 H75

EG Bible: birds (day/age 5) appear BEFORE land animals (day/age 6)

Fossil Record: birds appear millions of years AFTER land animals

#### Hermeneutical Issues

S25

- claims that the days in Gen 1 are periods that are millions of years long

BUT each day ends with:

“There was evening & there was morning—the n<sup>th</sup> day”

☛ days of Gen 1 are 24 hr days

### 3. Evolutionary Creation

view of origins held by a small but growing number of conservative Christians

#### STRENGTH

S7

- EC accepts the Bible & accepts ALL the evolutionary sciences

#### WEAKNESS

S8

- conflicts with 2000 yrs of Christian tradition
  - most Christians throughout history have been:
    - (1) anti-evolutionists
    - (2) scientific concordists in Gen 1-3

#### Hermeneutical Solution

S9 H51

- accept Message-Incident Principle
  - statements about origins in Gen 1-3 are based on ancient origins science → INCIDENTAL
- reject scientific concordism in Gen 1-3 S10 H75
  - The Bible is not a book of science
    - ☛ cannot be used to make fossil pattern predictions

#### Embryology-Evolution Analogy

S11

EC believes BOTH of these natural processes:

- (1) are **Ordained & Sustained** by God
  - self-assembly** of humans in the womb
  - self-assembly** of ALL living organisms on earth

- (2) reflect Intelligent Design S12

- (3) manifest Spiritual Realities

Image of God & human sin appear in everyone during human development

Image of God & human sin entered the world during human evolution

#### Key Categorical Concept

S13 H74

direct challenge to the Origins Dichotomy

#### **SEPARATE DON'T CONFLATE:**

God's activity in origins

FROM

God's activity in lives of men & women

### 4. Deistic Evolution

S14-18 H74

deism is sometimes called "God without religion" & provides a God with no accountability to him/her

#### Comments

S19

- Why would this God create such personal & relational creatures like humans, and not have a relationship with them?

- Deism is intellectually attractive to some intellectuals S20

BUT fails to meet spiritual needs of most people & rarely does it transform lives

EG deism did not give birth to any church, school, hospital, etc

## 5. Dysteleological Evolution (Atheistic Evolution)

common understanding of the “evolutionist” position

### Comments

S7

- Mass Delusion Problem?

are most people delusional because they believe in God?

EG

**90%** of Americans believe in “God or a universal spirit” (Pew Survey 2015)

**40%** of US scientists believe God answers prayer

Notes 3

- Personal & Practical Problem?

S8

who can say to someone they love:

“I love you, but in reality love is **nothing but** an evolutionary herd response”?

- Personal Problem with the 1<sup>st</sup> Commandment?

S9

**nothing but** a personal preference?

### Summary of Chart

S10

4 “creationist” positions

S11 H74

YEC PC EC DeE

3 “evolutionist” positions

EC DeE DysE

2 positions are BOTH “creationist” & “evolutionist”

EC DeE

THEREFORE:

**The Origins Dichotomy is a FALSE DICHOTOMY**

### Other Features:

S12 H74

5% of US & Canada accept dysteleology

2 Christian positions accept the universe is old

PC EC

2 positions reject biological evolution

S13 H74

YEC PC → **God-the-Gaps** interventions → SCIENTIFIC CONCORDISM in Gen 1-3

2 positions accept God created life through evolution

S14 H74

EC DeE → **Self-Assembly** of the world

3 positions accept Conservative Christianity

S15 H74

YEC PC EC

#### Accept:

- teleology
- intelligent design
- God created the universe & life
- personal God & divine action (dramatic & subtle)
- Bible is Word of God
- Spiritual Correspondence → inerrant Spiritual Truths
- humans created in Image of God & humans are sinful

### Suggestion:

S16 H74

let origins be a **difference** between Christians & NOT a reason for a **division** between Christians

### III. HUMAN ORIGINS: THE GREATEST CHALLENGE

S2

#### THE BIG QUESTION:

S3

Was Adam a real person?

#### The Bible & Human Origins

S4

##### Genesis 2

S5

- states Adam & Eve were created *de novo* (quick & complete)

##### Jesus

S6

- refers to Adam & Eve
- quotes Gen 1:27 & Gen 2:24

##### MATTHEW 19:4-6

1. “Haven’t you read that at the beginning the Creator ‘made them male and female’ [Gen 1:27], and said, ‘For this reason a man will leave his father and mother and be united to his wife, and the two will become one flesh’ [Gen 2:24]? So they are no longer two, but one. Therefore what God has joined together, let man not separate.”

##### COMMENTS:

S7

NOT a debate over human origins

BUT a debate over divorce

- ☛ Jesus uses Adam & Eve as **Archetypes**  
they are examples of how marriage should be

##### Apostle Paul

S8

- accepts a historical Adam

##### ROMANS 5:12, 14

2. “Just as sin **entered** the world through **one man**, and death through sin, and in this way death came to all men, because all sinned ... Death reigned from the time of **Adam**.”

##### 1 CORINTHIANS 15:21-22

S9

3. “For since death came through **a man**, the resurrection of the dead comes also through a man. For as in **Adam** all die, so in Christ all will be made alive.”

##### COMMENTS:

S10

##### REMEMBER:

Paul accepted the 3-Tier Universe (Notes 17)

##### KENOTIC HYMN Phil 2:10

Jesus is Lord: (1) in heaven

(2) on earth

(3) in the UNDERWORLD

##### THEREFORE:

S11 H6

- Paul accepted **ancient astronomy & ancient geography**

CONSISTENCY argues he also accepted **ancient biology**

- ☛ *de novo* creation of Adam

**ANCIENT BIOLOGY** of the origin of humans

- The Bible does not reveal how God created humans

**Christian Tradition & Human Origins**

S2

**St. Augustine**

S3

- often regarded as the greatest theologian in history  
huge impact on Catholic & Protestant theology
- accepts Adam is historical & that ALL humans descend from him

**Christian Creeds**

S4

- accept Adam is historical & that ALL humans descend from him
- EG *Council of Carthage* (418) Catholic Church  
*Augsburg Confession* (1530) Lutheran Church  
*Thirty-Nine Articles* (1571) Anglican Church  
*Westminster Confession* (1646) Presbyterian Church

**Conclusion: The Bible & Christian Tradition on Human Origins**

S5

1. Both accept **Monogenism** Greek *monos*: one *genesis*: beginning  
DEF: humanity arose from ONE individual

**Polygenism** Greek *polus*: many

S6

DEF: humanity arose from a GROUP of individuals

2. Both accept Adam & Eve are historical

S7

QUESTION:

S8

Is Christianity based on a HISTORICAL ADAM?**IV. CATEGORIES ON HUMAN ORIGINS**

S9

**1. De Novo Creation (Traditional Monogenism)**

S10

Adam &amp; Eve were created as stated in Gen 2

Adam was made from dust of ground &amp; Eve from Adam's side

- ☛ Adam & Eve DO NOT descend from any pre-humans

Hermeneutics

accepts scientific concordism

strict literalism → Young Earth Creation

**2. Evolutionary Monogenism**

S11

Adam &amp; Eve appear at the end of evolution

happens quickly at one point in time

one single pre-human male &amp; one single pre-human female given spiritual realities

- ☛ Image of God & Moral Consciousness

the man (Adam) &amp; woman (Eve) then sin

Hermeneutics

accepts scientific concordism

general literalism → Adam &amp; Eve descend from two pre-human ancestors



**3. Evolutionary Punctiliar Polygenism**

Punctiliar = one sharp point in time

S2

Many Adams &amp; many Eves appear at the end of evolution

happens quickly at one point in time

one group of pre-human males &amp; one group of pre-human females given spiritual realities

☛ Image of God &amp; Moral Consciousness

ALL the men (Adams) &amp; women (Eves) then sin

Hermeneutics

accepts scientific concordism

general literalism

**4. Evolutionary Gradual Polygenism**

S3

NO Adam/s &amp; NO Eve/s

over many generations, spiritual realities appear **GRADUALLY & MYSTERIOUSLY**

☛ Image of God &amp; Moral Consciousness

ALL men &amp; women are sinful

Embryology-Evolution Analogy

S4

manifestation of the Image of God &amp; sinfulness occurs during BOTH natural processes

QUESTION:

when do we in our development begin to bear the Image of God &amp; act sinfully?

for many Christians this is a → MYSTERY

Manifestation of Image of God & Sin during Human Evolution

S5-6 H77

**WHEN?**roughly 50,000 yrs ago with **Behaviorally Modern Humans**buried their dead with items suggests a belief in an afterlife → **Religion****HOW?**

S7 H77

manifested gradually &amp; MYSTERIOUSLY

over an extended period of time &amp; over many generations of individuals

Hermeneutics

S8

rejects scientific concordism → Evolutionary Creation

The Bible does not reveal how God created humans☛ *de novo* creation of Adam → **ANCIENT BIOLOGY** of the origin of humansCOSMOLOGICAL EVOLUTION & BIOLOGICAL EVOLUTION ANALOGY

S9 H77

NO one would add a 3-tier universe at the end of cosmological evolution

S10

NO one should add Adam/s &amp; Eves/s at the end of biological evolution

☛ CONFLATES modern science &amp; ancient science

**5. Deistic Human Evolution**

S11

NO Adam/s &amp; NO Eve/s

rejects scientific concordism, the Image of God, and human sinfulness

**6. Dysteleological Human Evolution**

S12

NO Adam/s &amp; NO Eve/s

rejects scientific concordism, the Image of God, and human sinfulness → **nothing but molecules**

## V. HUMAN ORIGINS & AND THE TWO FOUNDATIONAL PRINCIPLES OF SCIENCE AND RELIGION

S2

### 1. Human Origins & Metaphysics-Physics Principle

S3 H78

#### METAPHYSICS

God created humans

God ordained, sustained, and intelligently designed the creation of humans

humans have spiritual realities: (1) Image of God (2) sinfulness

#### PHYSICS

S4 H78

human evolutionary sciences offer:

OVERWHELMING evidence humans evolved from pre-humans

#### COMPLEMENTARY Relationship between Science & Religion

S5 H78

Religion → Spiritual Truths about humans

Science → scientific facts about the origin of humans

ALSO offers hermeneutical insights:

humans were not created *de novo*

☛ scientific concordism FAILS

### 2. Human Origins & Message-Incident Principle

S6 H78

#### MESSAGE

Inerrant Spiritual Truths:

- God created humans
- humans bear the Image of God
- humans are sinful
- God judges humans for sin

#### INCIDENT

S7 H78

##### **Ancient Biology**

*De Novo* Creation of Adam → **ANCIENT BIOLOGY** of human origins

☛ God ACCOMMODATED

## VI. CONCLUSION: MODERN ORIGINS DEBATE

S8

### 1. Hermeneutics of Genesis 1-3 is the KEY to understanding the origins debate

most Christians accept some form of **scientific concordism**

☛ central reason for their **anti-evolutionism**

### 2. Most Christians ASSUME human evolution is a threat to the Bible and to human dignity

S11

BUT a final thought for Christians:

S12 H77

God has evolved a creature (the chimp) which is physically almost identical to humans (about 99% of the same genes). BUT can't you see that:

**WE ARE MORE THAN JUST PHYSICAL BODIES!!!**

**We are creators like our Creator**

**because we have been created in the Image of God**

# CONCLUSION: POSSIBLE PEACE?

S1

## 1. Science & Religion Warfare Continues to Be a Common Understanding Today

S2

held by both religious & non-religious people

EG **Richard Dawkins**:

S3

1. “Are science and religion converging? No ... Convergence? Only when it suits.

To an **honest** judge, the alleged marriage between religion and science is a shallow, empty, spin-doctored sham.”

“Snake Oil & Holy Water: Illogical Thinking Is the Only Thing Joining Sci. & Rel. Together” *Forbes ASAP* (4 Oct 99) 235,237

QUESTION: Is Dawkins correct?

## 2. Problems with Science & Religion Warfare

S4

### • Dichotomies

S5

Science vs. Religion

Evolution vs. Creation

### • Conflations

Science & Atheism

Religion & Young Earth Creation

### • Concordism

S6

Both religious & non-religious people assume the Bible has scientific facts

S7 H1

## 3. Toward **A** Peaceful Relationship between Science & Religion

S8

### METAPHYSICS-PHYSICS PRINCIPLE

S9 H5

**Charles Darwin**:

S10

2. “It seems to me **absurd to doubt** that a man may be an **ardent theist & an evolutionist**”

☛ crushes Dichotomies & Conflations

Fordyce (1879)

### MESSAGE-INCIDENT PRINCIPLE

S11 H5

**Galileo**:

S12

3. “The intention of the Holy Spirit is to teach us **how one goes to heaven and not how heaven goes**”

*Christina [Baronio] (1615)*

☛ crushes Concordism

### **THE KEY: Non-Concordist Hermeneutic**

S13 H85

☛ God ACCOMMODATED

## 4. Two Divine Books: Complementary Relationship within an Evolutionary Creation

S14

integration of:

Metaphysics-Physics Principle & Message-Incident Principle

RECIPROCAL exchange of information between Scripture & Evolutionary Sciences

### BOOK OF GOD’S WORDS

S15 H79

reveals Inerrant Spiritual Truths:

God created the universe & life

the creation is ordained, sustained & reflects intelligent design

### BOOK OF GOD’S WORKS

S16 H79

reveals Scientific Facts:

overwhelming evidence the universe & life evolved thru a self-assembling natural process

nature impacts people with overwhelming force & science magnifies this experience

## 5. THANK YOU!

S17