THE

INTELLIGENT DESIGN

REVOLUTION

IS IT SCIENCE?

IS IT RELIGION?

WHAT EXACTLY IS IT?

ALSO, WHAT IS THE ANTHROPIC PRINCIPLE?

SESSION 1 – PART A: INTELLIGENT DESIGN

Intelligent design attempts to understand the evidence for intelligence in the natural world. The nature, and in particular the moral characteristics of that intelligence constitute a separate inquiry.

Intelligent design is not an evangelical Christian thing, or a generically Christian thing, or even a generically theistic thing. Anyone willing to set aside naturalistic prejudices and consider the possibility of evidence for intelligence in the natural world is a friend of intelligent design.

Intelligent design is not creationism and it is not naturalism. It simply follows the empirical evidence of design wherever it leads.

The fundamental claim of intelligent design is straightforward and easily intelligible: namely, there are natural systems that cannot be adequately explained in terms of undirected natural forces and that exhibit features which in any other circumstance we would attribute to intelligence.

Intelligent design is the science that studies the signs of intelligence. Intelligent design does not try to get into the mind of a designer and figure out what a designer is thinking.

Its focus is not the designer's mind (the thing signified), but on the artefact due to a designer's mind (the sign). The designer's thought processes lie outside the scope of Intelligent Design. As a scientific research program, intelligent design investigates the effects of intelligence and not the intelligence as such.

To reiterate, as a theory, Intelligent Design is a strictly scientific theory devoid of religious commitments.

Intelligent design has theological implications, but that does not make it a theological enterprise.

This series of lectures will attempt to present the 'intelligent design' hypothesis and the related mounting scientific evidence in a hopefully simple and illuminating manner.

This entire presentation will strive to consider the scientific evidence only and not delve into its theological implications except at a most basic level.

It will also attempt to demonstrate that the design hypothesis most clearly accounts for the evidence of science and most especially the evidence gathered over the last 30 years. The considerable "explanatory power" of the design hypothesis will be outlined.

According to arch-Darwinist Richard Dawkins, Darwin made it possible to be an intellectually fulfilled atheist. Not any more. Intelligent design is showing that system after biological system is beyond the reach of blind purposeless material processes like the Darwinian mechanism of natural selection.

Many well-accepted, uncontroversial scientific disciplines are utterly dependent on detecting design, on inferring the past actions of an intelligent agent by examining present evidence:

- Forensic Sciences, where a death is investigated to determine whether the person died by accident (i.e., chance/necessity) or by intent (i.e., murder).
- Cryptanalysis, where code breakers examine patterns of characters to determine whether they convey a message or are simply random and meaningless noise.
- Archaeology, where artifacts are examined to determine whether they were fashioned by man or by nature. Is the rock just a stone, or a tool?

- Arson investigation, where one attempts to discern from charred remains whether the fire was set intentionally (by design) or resulted from a frayed wire (chance/necessity).
- Copyright infringement and plagiarism, where scientists examine writings to determine whether they were accidentally or intentionally similar to the work of others.
- the search for extraterrestrial intelligence (SETI)

Is a chunk of rock really an arrowhead? Is a random looking screed really an encrypted message? Is a radio transmission from distant space really a meaningful communication? Such questions are uncontroversial so long as they focus on **signs of intelligence** from designing agents that could conceivably have evolved by Darwinian means.

An inference that certain biological information may be the product of an intelligent cause can be tested or evaluated in the same manner as scientists daily test for design in other sciences

But what about signs of intelligence that cannot reasonably have originated from Darwinian or other materialistic processes? According to Darwinism, intelligence is not a basic creative force within nature but an evolutionary by-product. In other words, Darwinism regards all intelligence as the product of evolution.

In contrast, any intelligence responsible for biological systems could not be an evolved intelligence but must exist prior to the systems for which it is responsible. This explains why intelligent design is so controversial: **it claims to discover signs of intelligence in biological systems for which the underlying intelligence is not, and indeed cannot be, an evolved intelligence.** Thus, while not directly proving that God exists, intelligent design is far more friendly to theism than Darwinism.

In considering whether ID is science there are three points that should be kept in mind:

(1) **Science is not decided by majority vote.**
Can the majority of scientists be wrong about scientific matters? Yes they can. Historian and philosopher of science Thomas Kuhn(1970), in his *Structure of Scientific Revolutions*, documented numerous reversals in science where views once confidently held by the scientific community ended up being discarded and replaced. For instance, until the theory of plate tectonics was proposed, geologists used to believe that the continents were immovable (compare Kearey and Vine 1996 to Clark and Stearn 1960). Intelligent design is at present a minority position within science. But that fact by itself does nothing to impugn its validity.

(2) **Just because an idea has religious, philosophical, or political implications does not make it unscientific**.
According to the late evolutionist Stephen Jay Gould, “Biology took away our status as paragons created in the image of God…. Before Darwin, we thought that a benevolent God had created us.” Oxford University biologist Richard Dawkins claims, “Darwin made it possible to be an intellectually fulfilled atheist.” In his book *A Darwinian Left: Politics, Evolution, and Cooperation*, Princeton bioethicist Peter Singer remarks that we must “face the fact that we are evolved animals and that we bear the evidence of our inheritance, not only in our anatomy and our DNA, but in our behaviour too.” Gould, Dawkins, and Singer are respectively drawing religious, philosophical, and political implications from evolutionary theory. Does that make evolutionary theory unscientific? No. By the same token, intelligent design’s implications do not render it unscientific.

(3) **To call some area of inquiry “not science” or “unscientific” or to label it “religion” or “myth” is within contemporary western culture a common manoeuvrer for discrediting an idea.**

Physicist David Lindley, for instance, to discredit cosmological theories that outstrip experimental data or verification, calls such theories “myths.”

Writer and medical doctor Michael Crichton, in his Caltech Michelin Lecture, criticizes the Search for Extraterrestrial Intelligence (SETI) as follows: “SETI is not science. SETI is unquestionably a religion. Faith is defined as the firm belief in something for which there is no proof…. The belief that there are other life forms in the universe is a matter of faith. There is not a single shred of evidence for any other life forms, and in forty years of searching, none has been discovered. There is absolutely no evidentiary reason to maintain this belief. SETI is a religion.” Crichton’s criticism, however, seems extreme.

In the past, NASA has funded SETI research. And even if the actual search for alien intelligences has thus far proved unsuccessful, SETI’s methods of search and the possibility of these methods proving successful validate SETI as a legitimate scientific enterprise.

Let us look at a simple scenario to help picture this concept:

A pilot flying his plane over the South Pacific sees an uncharted island in the distance and circles downward to take a closer look. As the plane descends, the pilot spots large rocks on the island's shore arranged to spell out SOS. Beyond the reach of waves, he notices a grass hut. Without hesitation, the pilot radios for help.

Is this pilot behaving rationally? No one would question the point. He recognizes the improbability of wind and waves acting on the rocks along the shore to spell SOS. Experience has taught the pilot that intelligible messages must come from intelligent sources. SOS, though not a word in the English language, represents the code for the universal distress message. The island inhabitant spelled out not just a word, such as "help," but a special code, SOS, on the beach knowing that anyone seeing it from the air would recognize its meaning.

The grass hut also convinces the pilot to radio for help. It provides further evidence that the rocks' arrangement on the beach is not the effect of chance, but rather the work of someone stranded on the island. Encoded information coupled with additional evidence for intelligent activity provides support for design that goes beyond the mere presence of information. It requires an intelligent agent to choose and employ the code. And, encoded information carries an implied sense of purpose.

Over the last 30-40 years, scientists have found the same type of evidence inside the cell that prompted the pilot's radio call for help.

They have discovered that the cell's biochemical machinery is an information-based system. Moreover, the chemical information inside the cell exists as encoded information. The genetic code (the rules used to encode the cell's information) defines the cell's biochemical information system.

By itself, the cell's encoded information offers powerful evidence for an Intelligent Designer. And, like the islander's grass hut, recent discoveries provide additional proof validating the premise. Molecular biologists studying the genetic code's origin have unwittingly stumbled across profound evidence for Intelligent Design—a type of fine-tuning in the rules that form the genetic code. These rules impart to the genetic code the surprising capacity to minimize errors.

Error-minimization properties in the genetic code allow the cell's biochemical information systems to make mistakes and still communicate critical information with high fidelity. It's as if the stranded island inhabitant could arrange the rocks as SSO or OSS and still communicate the need for help.

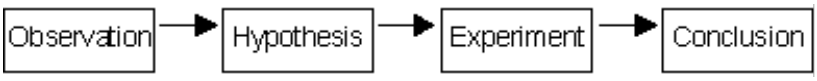
Evidence to date indicates that this genetic code originated at the time life first appeared on Earth. All this evidence dictates the conclusion that an Intelligent Designer is responsible for the genetic code.

This conclusion becomes even more compelling when one considers that encoded information demands an intelligent agent not only to generate the information, but also to design and apply the set of rules that constitute the code. The remarkable fine-tuning of the genetic code provides cohesive corroborative evidence for an Intelligent Designer. Like the SOS rock formation and the grass hut on the beach, the genetic code offers every indication that a Creator deliberately and purposefully shaped the message.

To determine if 'Intelligent Design' (and the later to be explained Anthropic Principle') are scientific, we need first to look at what is science and the scientific method.

The Scientific Method:

Generally, science tries to adhere to the following 4 step process to discover new ways of understanding. This 4 step process is:



The theory of intelligent design holds that certain features of the universe and living things are best explained by an intelligent cause, and are not the result of an undirected, chance-based process such as Darwinian evolution.

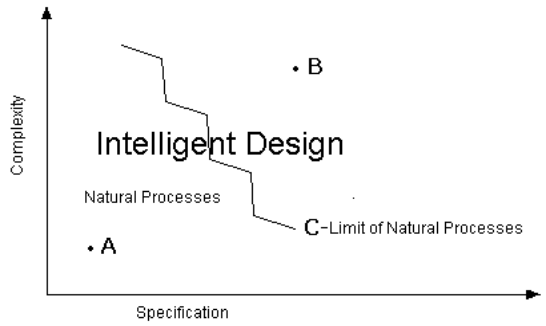
Intelligent design begins with observations about the types of information produced by intelligent agents. Even the atheist zoologist Richard Dawkins says that intuitively, "biology is the study of complicated things that give the appearance of having been designed for a purpose."

Darwinists believe natural selection did the "designing" but intelligent design theorist Stephen C. Meyer notes, "in all cases where we know the causal origin of 'high information content,' experience has shown that intelligent design played a causal role."

Intelligent design implies that life is here as a result of the purposeful action of an intelligent designer, standing in contrast to Darwinian evolution, which postulates that life exists due to the chance, purposeless, blind forces of nature.

Intelligent Design through the Scientific Method:

i. Observation:
The ways that intelligent agents act can be observed in the natural world and described. When intelligent agents act, it is observed that they produce high levels of "complex-specified information" (CSI) or 'specified complexity'. CSI is basically a scenario which is unlikely to happen (making it complex), and conforms to a pattern (making it specified). Language and machines are good examples of things with much CSI. From our understanding of the world, high levels of CSI are always the product of intelligent design.



Specified Complexity:

An event with is easy to define (and has a minimal description (eg getting 10 heads in a row) (called low specificational complexity) combined with being highly improbable (called high probabilistic complexity) is defined as having specified complexity.

An event has an extremely high probabilistic complexity is its probability is beyond the Universal Probability Bound'

1) Scientists estimate that within the known physical universe, there are around $\mathbf{10^{80}}$ elementary particles.
2) Transitions from one physical state to another cannot occur at a rate faster than $\mathbf{10^{45}}$ times per second.
3) Finally the universal itself is about a billion times younger than $\mathbf{10^{25}}$ seconds (assuming the universe is between 10 and 20 billion years old).

The total number of specified events throughout cosmic history cannot exceed

$$\mathbf{10^{80} \times 10^{45} \times 10^{15} = 10^{150}}$$

Thus, any specified event of **probability less than 1 in 10^{150}** is effectively impossible.

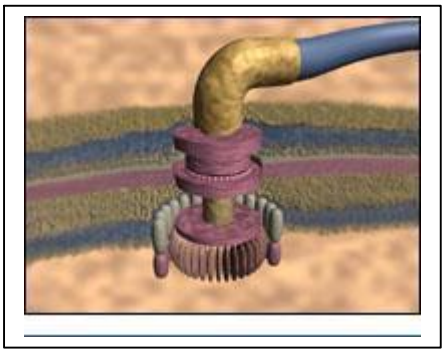
ii. Hypothesis:
If an object in the natural world was designed, then we should be able to examine that object and find the same high levels of CSI in the natural world as we find in human-designed objects.

iii. Experiment:
We can examine biological structures to test if high CSI exists. When we look at natural objects in biology, we find many machine-like structures which are specified, because they have a particular arrangement of parts which is necessary for them to function, and complex because they have an unlikely arrangement of many interacting parts.

These biological machines are "irreducibly complex," for any change in the nature or arrangement of these parts would destroy their function. Irreducibly complex structures cannot be built up through an alternative theory, such as Darwinian evolution, because Darwinian evolution requires that a biological structure be functional along every small-step of its evolution. "Reverse engineering" of these structures shows that they cease to function if changed even slightly. (eg simple mousetrap –check out the video "Unlocking The Mysteries Of Life" – viewable via videos.google.com)

iv. Conclusion:

Because they exhibit high levels of CSI, a quality known to be produced only by intelligent design, and because there is no other known mechanism to explain the origin of these "irreducibly complex" biological structures, we conclude that they were intelligently designed.



Many proponents of intelligent design have cited the bacterial flagellum as an example of intelligent design and irreducible complexity in the cell.

If a creature looks like a dog, barks like a dog, feels like a dog and pants like a dog, the burden of evidence lies with the person who insists the creature isn't a dog. Similarly, with the bacterial flagellum – the burden of evidence is on those who want to deny its design.

Clip from DVD

The historical nature of origins science is explained by Harvard Professor Ernst Mayr.

"For example, Darwin introduced historicity into science. Evolutionary biology, in contrast with physics and chemistry, is a historical science—the evolutionist attempts to explain events and processes that have already taken place. Laws and experiments are inappropriate techniques for the explication of such events and processes. Instead one constructs a historical narrative, consisting of a tentative reconstruction of the particular scenario that led to the events one is trying to explain."
Ernst Mayr, "*Darwin's Influence on Modern Thought," Scientific American* 283.1 (July 2000): 80–82

The historical-empirical distinction is critically important. Contrary to purely empirical sciences whose conclusions are held to rigorous objectivity by "laws and experiments," the explanations of a historian are held to no such standard or discipline.

In his book *Darwin's Black Box*, Michael Behe noted that:

> In The Origin of Species Darwin stated:
>
> **'If it could be demonstrated that any complex organ existed which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down.'**
>
> A system which meets Darwin's criterion is one which exhibits irreducible complexity. By irreducible complexity I mean a single system composed of several well-matched, interacting parts that contribute to the basic function, wherein the removal of any one of the parts causes the system to effectively cease functioning.[27]

Intelligent Design as a Theory of Information for Biological Systems:

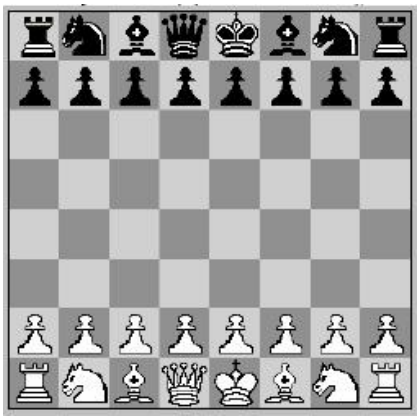
Putting Intelligent Design to the Test:

Table 1. Ways Designers Act When Designing (Observations):
(1) Take many parts and arrange them in highly specified and complex patterns which perform a specific function. (2) Rapidly infuse any amounts of genetic information into the biosphere, including large amounts, such that at times rapid morphological or genetic changes could occur in populations. (3) 'Re-use parts' over-and-over in different types of organisms (design upon a common blueprint). (4) Be said to typically NOT create completely functionless objects or parts (although we may sometimes think something is functionless, but not realize its true function).
Table 2. Predictions of Design (Hypothesis):
(1) High information content machine-like irreducibly complex structures will be found. (2) Forms will be found in the fossil record that appear suddenly and without any precursors. (3) Genes and functional parts will be re-used in different unrelated organisms. (4) The genetic code will NOT contain much discarded genetic baggage code or functionless "junk DNA". (5) Stenagraphy?[1]

Table 3. Examining the Evidence (Experiment and Conclusion):		
Line of Evidence	**Data (Experiment)**	**Prediction of Design Met? (Conclusion)**
(1) Biochemical complexity / Laws of the Universe.	High information content machine-like irreducibly complex structures are commonly found. The bacterial flagellum is a prime example. Specified complexity found in the laws of the universe may be another.	Yes.
(2) Fossil Record	Biological complexity (i.e. new species) tend to appear in the fossil record suddenly and without any similar precursors. The Cambrian explosion is a prime example.	Yes.
(3) Distribution of Molecular and Morphological Characteristics	Similar parts found in different organisms. Many genes and functional parts not distributed in a manner predicted by ancestry, and are often found in clearly unrelated organisms. The "root" of the tree of life is a prime example.	Yes.
(4) DNA Biochemical and Biological Functionality	Increased knowledge of genetics has created a strong trend towards functionality for "junk-DNA." Examples include recently discovered functionality in some pseudogenes, microRNAs, introns, LINE and ALU elements. Examples of DNA of unknown function persist, but discovery of function may be expected (or lack of *current* function still explainable under a design paradigm).	Yes.

[1] *Consider now the following possibility: What if organisms instantiate designs that have no functional significance but that nonetheless give biological investigators insight into functional aspects of organisms. Such second-order designs would serve essentially as an "operating manual," of no use to the organism as such but of use to scientists investigating the organism. Granted, this is a speculative possibility, but there are some preliminary results from the bioinformatics literature that bear it out in relation to the protein-folding problem (such second-order designs appear to be embedded not in a single genome but in a database of homologous genomes from related organisms). While it makes perfect sense for a designer to throw in an "operating manual" (much as automobile manufacturers include operating manuals with the cars they make), this possibility makes no sense for blind material mechanisms, which cannot anticipate scientific investigators*

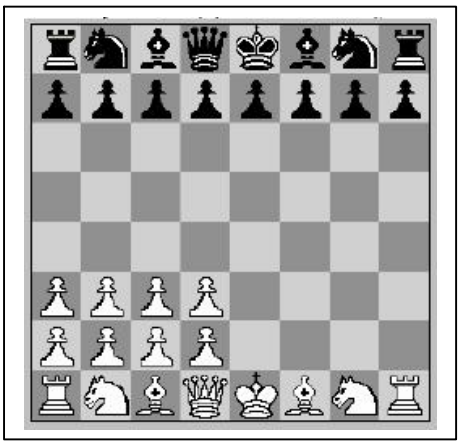
Consider the following analogy from the game of chess. In chess, there are initially thirty-two pieces arranged on an eight-by-eight chessboard as follows:



Chess operates by certain fixed rules. For instance, bishops move diagonally, pawns only move forward and only take one square diagonally, etc.

In this analogy, the chess pieces in their **initial configuration correspond to the material entities** that within methodological materialism constitute nature and the **rules of chess correspond to the laws of interaction** that for methodological materialism govern nature.

Given the initial position of chess pieces and the rules of the game, we can ask whether the following position is possible:



It turns out that it is not. There is no way to get from the first position to the second by the rules of chess.

So too, intelligent design purports to show that there exist configurations of material entities in biology (e.g., bacterial flagella, protein synthesis mechanisms, and complex organ systems) that cannot be adequately explained in terms of antecedent material conditions together with the law-governed processes (i.e., mechanistic evolutionary processes) that act on them.

Granted, chess constitutes a toy example whereas the biological examples ID theorists investigate are far more complicated. Also, where chess operates according to precise mathematical rules, the laws of interaction associated with material entities are probabilistic, so the obstacles to producing complex biological configurations of material entities are not logical impossibilities but empirical improbabilities.

But the point of the analogy still holds. Whenever one has a theory about process — how one state is supposed, by some process, to transform into another — it is perfectly legitimate to ask whether the process in question is capable of accounting for the final state in terms of the initial state.

--- End Session 1 ---