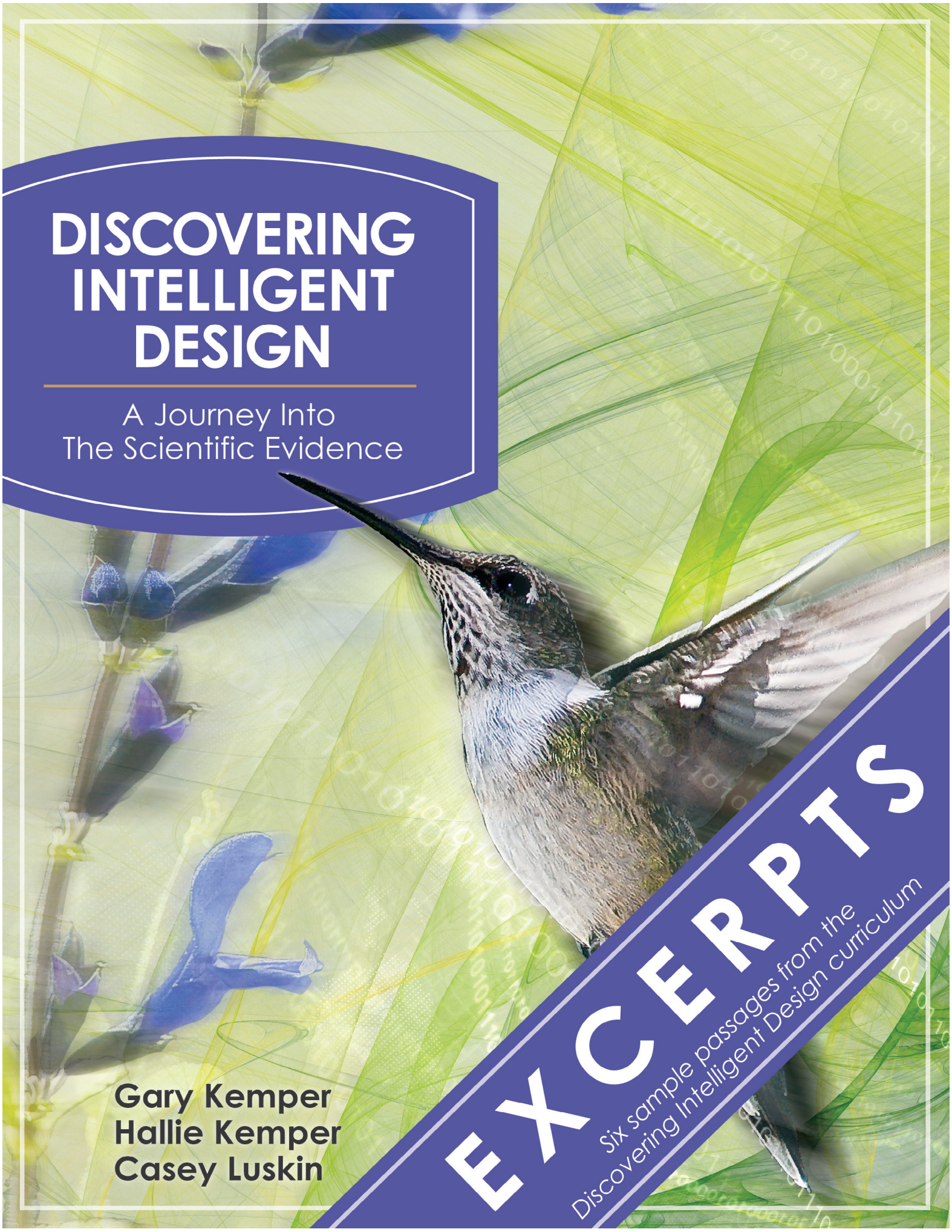
# DISCOVERING INTELLIGENT DESIGN

## A Journey Into The Scientific Evidence



## EXCERPTS

Six sample passages from the Discovering Intelligent Design curriculum

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# Define your terms

**WHEN TERMS ARE NOT** carefully defined, miscommunication and false leaps of logic can result. For instance, when you see the word "evolution," you should ask, "Which definition is being used?" Typically, there are three common meanings.

> EVOLUTION #1
> Microevolution: Small-scale changes in a population of organisms.

Macroevolution can be divided into two parts:

> EVOLUTION #2
> Universal Common Descent: The view that all organisms are related and are descended from a single common ancestor.

> EVOLUTION #3: Natural Selection: The view that an unguided process of natural selection acting upon random mutation has been the primary mechanism driving the evolution of life.

Sometimes evolutionists purposefully confuse these definitions, hoping you won't notice that they overstated their case. It's not uncommon for an evolutionist to take evidence for microevolution (evolution #1), and claim it supports common descent (evolution #2) or development solely through unguided mechanisms (evolution #3).


# The First Cause

**A NUMBER OF THEORIES** have been proposed to explain a materialistic origin of the universe.

SELF-CREATION

Some materialists have claimed that the universe created itself. As Stephen Hawking argues, "Because there is a law like gravity, the universe can and will create itself from nothing." But for anything to create itself, it would have to exist before it was created. Most people would agree this is logically absurd.

Oxford mathematician John Lennox observes that Hawking confuses physical laws—which merely describe how the universe works—with ultimate explanations:

> The laws of physics can explain how the jet engine works, but someone had to build the thing, put in the fuel and start it up. The jet could not have been created without the laws of physics... Similarly, the laws of physics could never have actually built the

> universe. Some agency must have been involved. What options are left for materialists? Since they are unwilling to accept intelligent design as a first cause, materialists hold that ultimately the universe came into being by chance for no reason at all.

## BETTING ON CHANCE

Oxford University scientist and author Peter Atkins parodies the book of Genesis with a summary of the materialistic view:

> In the beginning there was nothing. Absolute void, not merely empty space. There was no space; nor was there time, for this was before time. The universe was without form and void. By chance there was a fluctuation...

Atkins goes on to argue that this random, theoretical, primordial fluctuation spawned a chain of events that caused everything else—the chance universe.

While Atkins is correct that before the universe there was nothing, not even space or time, his argument does not account for the very beginning of everything. He says, "By chance there was a fluctuation." But if absolutely nothing existed, some questions arise.

- What was it that fluctuated?
- Why was there an environment that allowed for such "fluctuations"?
- What caused that non-existent something to fluctuate?

For many years, materialists have been attempting to answer such questions without much success. Is "chance" an appropriate final explanation in science?

When a person says that something happened "by chance," there may seem to be an implication that chance actually caused the event. But "chance" is not the true cause.

For example, we often think of a coin toss before a football game as an example of "chance." When a referee flips the coin, there are a number of factors that will cause it to come down heads or tails, such as the weighting of the coin, the placement of the coin in his hand, the amount of applied force, wind, and gravity.

Because many of these factors are difficult to predict or control beforehand, we attribute the outcome to "chance." But "chance" is not really the cause at all. That term is an expression of probability and is used simply to predict and describe events. It is not a causal agent.

Excerpt #3

# Animal Versus the Machine

**WHILE THE ANALOGY IS** far from perfect, the four tissue types in animals bear some resemblance to components we recognize from human technology.

Consider, for instance, the car. In cars, nervous tissue has obvious counterparts: electrical wires transmit electricity from the battery or alternator to the spark plugs, and computer chips control many other functions.

Muscle tissue might be compared to the engine, belts, and drive shaft, all of which generate the car's movement.

While some of the many functions of epithelial tissue might not have analogies in cars, there are similarities. Paint and wax on the car's body fulfill a protective role by preventing rust. Fuel and air filters keep harmful elements out but allow necessary ones to pass through.

Finally there is connective tissue, which is analogous to a car's chassis and body. Like the parts of a car, the organs and tissues in an organism work together to perform a multitude of functions.

These comparisons are readily made between biological systems and machines because organisms contain machines. And in all of our experience, machines arise only by intelligence.

When the analogy between biological components and car parts breaks down, it's because biological systems are more complicated. For example, the human brain is unimaginably more complex than computer chips in cars. Similarly, our bodies have an immune system and can often heal themselves—abilities many a car owner sitting in a mechanic's waiting room has wished that his or her vehicle had.

If inferior human technology requires design, why can't the design inference be made in the context of biology, which is dramatically more complex?

Excerpt #4

# My How You've Changed

**ONE OF THE MOST AMAZING** examples of animal complexity is insect growth and development. As they progress to maturity, insects undergo one of three processes: ametabolism, hemimetabolism, and holometabolism.

Ametabolism is the simplest of the three types of development and is only used by a few insects. In this process, young insects (called nymphs) have essentially the same body plan as the adult. After emerging from the egg, the insect undergoes only changes in size, but not shape, as it matures. Silverfish, for example, develop through ametabolism.

> Ametabolous development: egg > miniature adult (nymph) > adult

The other two methods of development are more complex, in that they involve metamorphosis.

> *METAMORPHOSIS:*
> A process of pre-programmed development where an organism changes its body plan.

In hemimetabolism (partial metamorphosis) the insect undergoes gradual, progressive change in form. However in these insects, this change occurs through a process of instars (periods of growth and change) and molts (the shedding of skin).

After entering the nymph stage, the insect begins to feed. With each subsequent instar and molt, the nymph gradually changes into its adult form until it reaches maturity and is able to breed. Dragonflies, grasshoppers, and crickets develop through hemimetabolism.

> Hemimetabolous development: egg > non-feeding larva > nymph > adult

Holometabolism (complete metamorphosis) is the most common and complicated form of insect maturation. The diverse group that undergoes this type of process includes butterflies, moths, beetles, fleas, bees, ants, and many kinds of flies.

A holometabolous insect emerges from the egg as a hungry larva—consuming anything it can while going through multiple instars and molts. The larva may have a simplified body plan, with reduced legs and eyes, and little distinction between major body segments. Its job is to eat and grow. It molts to accommodate its increasing size, but does not change form nor develop adult structures.

At the right time, larval growth slows and stops, and the organism becomes a pupa.

- In butterfly species the exterior of the pupa forms a hardened shell called a chrysalis.
- Moths and many other holometabolous insects spin a silken case for their pupa called a cocoon.
- Other insects develop as a pupa inside the last larval skin.

Metamorphosis now occurs as the pupa undergoes a complete transformation of its body plan. Inside the pupa, the insect liquefies itself and restructures most of its body to emerge later as a fully formed adult, often with wings. By breaking down much of its body to supply the building materials for the adult form, the creature is then only alive in the form of a "soup."

The dissolved remnants of its tissues supply raw materials to build the adult form. Additionally, new tissues grow from cells set aside early in development.

After the transformation is complete, developmental hormones signal the insect to emerge from its confinement. For many insects, the force they must exert to emerge and pump fluids into their wings is essential for their development.

> Holometabolous development: egg > feeding larva > pupa (metamorphosis) > adult

Without expending that effort, they would be deformed.

It is exceedingly difficult to understand the origin of holometabolism in Darwinian evolutionary terms.

Neither the larval nor the pupal stage is capable of reproduction -- only the adult is. In particular, the pupal stage is an all-or-nothing proposition. It must complete the process and become an adult, or it will die without ever reproducing.

The liquefied organism must be completely rebuilt. For this to occur, large amounts of information—encoding the larval body plan, the mechanisms of transformation during metamorphosis, and the adult body plan—must exist before the larva enters this stage. An organism could not survive complete metamorphosis unless the entire process was fully programmed from the beginning. Such a large jump in complexity requires forethought and planning—things that don't exist in Darwinian evolution. As one evolutionary entomologist acknowledges:

> ... the biggest head-scratcher in evolutionary biology would have to be the origin of the holometabolous insect larva.

But from an ID perspective, metamorphosis is easy to understand: it arose, evidently, by planning and foresight. An intelligent agent could produce the information to program the entire life cycle of such an organism, allowing it to undergo a radical transformation like this. Only a goal-oriented process like intelligent design can explain the mystery of holometabolism.

Excerpt #5

# Two Thumbs Up

**ANOTHER EXAMPLE OF** an allegedly poor design is the panda's thumb. Pandas obtain their nourishment largely from bamboo, which they strip before eating, using an extra appendage on their front paws. This appendage contains a bone but is not an opposable thumb like ours.

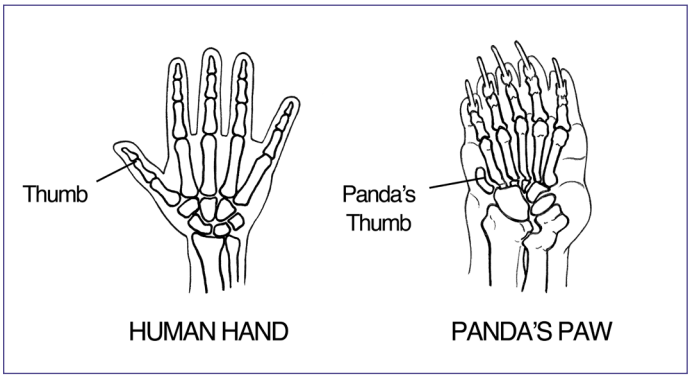
In his book The Panda's Thumb, evolutionary paleontologist Stephen Jay Gould argued that "odd arrangements and funny solutions are the proof of evolution -- paths that a sensible God would never tread." Likewise Miller claims that an intelligent designer would have "been capable of remodeling a complete digit, like the thumb of a primate, to hold the panda's food."

Are Gould and Miller right to contend that the panda's thumb is a "clumsy" feature that is "not necessarily well-designed"?

This figure (right) portrays a human hand, and a panda's front paw. Notice that the paw seems to have six digits. The one on the far left, however, is not a true finger but an elongated wrist bone equipped with muscles to hold and strip bark from bamboo.

It turns out that the panda's thumb is not a clumsy design. A study published in Nature used MRI and computer tomography to analyze the thumb and concluded that the bones "form a double pincer-like apparatus" thus "enabling the panda to manipulate objects with great dexterity."

The critics' objection is backed by little more than their subjective opinion about what a "sensible God" should have made.



Excerpt #6

# Opposition from the Scientific Establishment

**WHEN TRYING TO UNDERSTAND** scientific opposition to ID, people make two common mistakes.

One mistake is to believe that scientists universally oppose ID. That's not true. While ID is currently a minority scientific viewpoint, there is a growing community of scientists who are sympathetic to intelligent design. This expanding community pursues a vibrant research program and publishes data supporting design in peer-reviewed scientific journals.

Another mistake is to assume that if the scientific establishment opposes ID, it always does so based on objective scientific investigations. Some scientists do oppose ID because of their interpretations of the evidence -- and of course, there might be strong rebuttals from the ID viewpoint to their claims. But there are other reasons for opposition to ID which have little or nothing to do with evidence. Four prominent reasons are:

- Saving science from the ignorant masses.
- Defending a materialist worldview.
- Protecting their comfort zone.
- Going with the flow.

Let's investigate the first of these motives.

## FIGHTING AGAINST IGNORANCE

For thousands of years, superstitious people tended to attribute anything they didn't understand, any gaps in their knowledge of the natural world, to God or the gods. That has been referred to as "God-of-the-gaps" argumentation. Over time, many of these gaps were filled with scientific explanations instead of the supernatural.

In today's culture, many scientists believe that their work must be based strictly upon materialism—meaning they think that any threat to materialism directly threatens science. Since ID points to evidence challenging materialism, critics conclude that it is an "anti-science" resurgence of ignorance and superstition based on God-of-the-gaps thinking.

Philosopher and political scientist Marshall Berman expresses those fears:

> The current Intelligent Design movement poses a threat to all of science and perhaps to secular democracy itself.... Replacing sound science and engineering with pseudo-science, polemics, blind faith, and wishful thinking won't save you when the curtain of "Dark Ages II" begins to fall!

Does ID really threaten to bring on a new Dark Ages? Of course not.

ID challenges a reigning scientific paradigm. But as sociologist Steve Fuller says, ID is not anti-science, but rather anti-establishment. ID theorists want more scientific investigation, not less. They simply want the freedom to follow the evidence without harassment or philosophical restrictions.

An ID-based view of science promises to open new avenues of scientific investigation. Without materialist paradigms governing science, perhaps more scientists would have sought function for structures like "junk" DNA and vestigial organs, rather than assuming they were non-functional evolutionary relics.

Now that we've addressed the "Dark Ages" issue, let's consider a more sensible question: Does ID present a God-of-the-gaps argument? Again, it does not. First of all, ID refers to an intelligent cause and does not identify the designer as "God."

Moreover, ID theory is not based on what we don't know (gaps), but on what we do know (evidence). For

example, we know from experience that high levels of complex and specified information come from the action of an intelligent agent. When we find objects in nature with high CSI, we have positive evidence for design.

There will, of course, always be gaps in scientific knowledge. But by insisting that all gaps must be filled with materialistic explanations, ID critics are engaging in "materialism-of-the-gaps" thinking. While ID critics may think they are protecting science, they are actually hindering it by restricting scientific inquiry.

In contrast, ID rejects gaps-based reasoning of all kinds, and suggests we should follow the evidence where it leads—free from philosophical blinders.

*Excerpts can also be found on Evolution News & Views:*

1. *http://www.evolutionnews.org/2013/05/from_discoverin072361.html*
2. *http://www.evolutionnews.org/2013/05/from_discoverin_1072441.html*
3. *http://www.evolutionnews.org/2013/05/from_discoverin_2072481.html*
4. *http://www.evolutionnews.org/2013/05/from_discoverin_3072521.html*
5. *http://www.evolutionnews.org/2013/05/from_discoverin_4072531.html*
6. *http://www.evolutionnews.org/2013/05/from_discoverin_5072541.html*