

A New Design Argument

By Charles Thaxton

Just when scientists thought they understood how natural processes explained the order of the universe, they discovered a very special kind of complexity, called information, in nature. Experience had taught them that, wherever they found information, they could be sure of finding an intelligence behind it. As a result of 20th century discoveries, scientists are learning that the very methods they had used to discover natural causes (reasoning from experience) now point to an intelligent cause. But this goes against the assumptions scientists had made in the 19th century. Can 20th century scientists free themselves from their 19th century assumptions before they enter the 21st?

Generations of philosophers and theologians have taught the design argument for God's existence. The classical design argument called people to look at order or pattern in the world and to conclude that some designing intelligence called God must have caused it. Archdeacon William Paley in the nineteenth century refined the argument and put it in its most eloquent and persuasive form. Paley looked at the order of human artifacts and compared it to the order in living beings. Since human intellect is responsible for artifacts, reasoned Paley, then some intelligent power similar to and greater than human intellect must have produced living beings.

As convincing as that argument has been for many people, for most of the educated world it has lost its appeal and persuasive power. Belief in design has declined with the acceptance of the scientific world picture. Three centuries after Newton's Principia, with its mechanically operating universe, the official and widely accepted scientific view is that the heavens have been swept clean of any intelligent influence. Most educated people today see the notion of design in nature as anachronistic and consider anyone who dredges up the design argument as uninformed.

More than a century after Darwin the culturally accepted view is that people and all living beings are the products of physical forces at work on earth and throughout the cosmos. According to the widely accepted scientific story today, living beings were not the result of anyone's plan or purpose. In the words of Richard Dawkins of Oxford, living beings are only "complicated things that give the appearance of having been designed for a purpose."

Our culture's repudiation of design is based on last century's science. Major scientific discoveries in the twentieth century provide the basis for dramatically changing our views about design. But these changes have occurred faster than they have been culturally assimilated. Einstein's relativity revolution, quantum theory, DNA and the process of heredity, spin-off discoveries in molecular medicine, and the great computer revolution, which spawned internet and cyberspace-the larger implications of these great developments have only barely been sensed by the culture as a whole.

Today we are beginning to hear prominent scientists again speaking favorably about design in the universe. Paul Davies, a quantum physicist, received the 1995 Templeton Prize for Progress in Religion, and his acceptance address was printed in *First Things*. Davies was enthusiastic about design in the universe. But Davies is not the only current scientist referring to design in such glowing terms. Numerous books discuss the amazing design features of the universe: *The Grand Design*, *God and the New Physics*, *Disturbing the Universe*, *The Anthropic Cosmological Principle*, *The Symbiotic Universe*, *Perfect Symmetry*, *The Cosmic Code*. The topic of design in the universe is turning into a veritable industry.

Astronomers and physicists of the late twentieth century may be using the term design, but most, like Davies, mean only apparent design, giving credit to natural laws for the observed pattern that impresses them. The best that can be said is that these scientists are vague on the point of whether there is a designer behind the natural laws, and they often give the impression that there is not.

Breakthrough discoveries in mathematics and biology are every bit as noteworthy and exciting as those in physics and astronomy. As I shall show, these discoveries in mathematics and biology are making way for design with a designer, even though few dare to draw this implication from their work.

The new argument from design in biology and mathematics is not as well known as the one from astronomy and physics. Even so, it is perhaps more important. If the argument developed here can be shown to indicate a designer, then it may be used fairly as a basis for clarifying the vague impression on this point obtained in astronomy and physics. It is this new argument from design that I plan to focus on there.

Method of Abductive Inference

Reasoning from experience and linking cause to effect developed over several centuries and became a recognized scientific method of causal inference. It has been a part of science since the Scientific Revolution, which culminated in the great synthesis of Isaac Newton in the seventeenth century. Over the course of the development of modern experimental science, Western culture learned to rely on sensory experience to gain knowledge about natural phenomena. By following experience scientists learned to infer causes from effects, i.e., to work backward from the character of the effects to the cause.

A cause is that necessary and sufficient condition that alone can give rise to the occurrence of a given event. And it does not matter if the cause is natural or intelligent. In the words of David Hume, who gave a formal analysis of this approach, "From causes which appear similar we expect similar effects." (Emphasis his.) Later in the same book he added, "the same rule holds, whether the cause assigned be brute unconscious matter, or a rational intelligent being."

The inferential methods we usually learn in school are deductive, i.e., inference from the general to the particular, and inductive, i.e., inference from the particular to the general.

There has always been a third method of inference, though not clearly described and formally analyzed until the 1870s, this being abductive, i.e., inference from experience. The method of abductive inference is particularly important in the historical sciences, reasoning backward from phenomena to the cause.

Let us apply the method of abductive inference to a few examples. Strolling along a wave-swept beach we notice ripple patterns in the sand. The first time it may seem mysterious, but after repeated experiences, we associate the ripple patterns with the waves. We are so accustomed to making this assignment of cause that seeing photographs of similar ripple patterns in sediments that geologists had dated as three billion years old, we would infer water as the natural cause.

Likewise deep channels or rills on the Martian surface are so similar to what we know by experience to be the result of running water, that we would associate the natural cause of the channels with water—even if there is no water on Mars today. Thus scientists at NASA have concluded that water must have been on Mars sometime in the past.

On the other hand were we to hike in the Black Hills of South Dakota and come upon granite cliffs bearing the likenesses of four United States Presidents, we would quickly identify Mount Rushmore as the work of artisans instead of a product of wind and erosion. Our accumulated reservoir of experience enables us to discriminate types of effects we see and to distinguish a natural process from an intelligent cause. Walking farther along and finding "John loves Mary" etched on a rock, what do we conclude? Again from experience, we infer that someone, perhaps John or Mary, left this sign of his affection. We would not conclude it to be the work of erosional forces, since we are able to discriminate causes.

This ability is what led anthropologists to eventually change their judgment regarding eoliths. Eoliths are chipped flints that, for a time, had been considered indicators of early man. Later it was discovered that such chips and scars on rocks can result from tumbling in a stream. This change in the assignment of cause was on the basis of additional experience.

The abductive method gives us a way to approach phenomena and be completely open to either natural or intelligent causes. The assignment of causal category depends on the character of the effects. To illustrate the method, suppose we are detectives investigating someone's death. Is this a case of death by natural causes (accident) or death by design (murder or suicide)? We do not know the answer in advance. We must investigate and find out. If we announced before beginning our investigation that death must have been accidental (natural), others would be justified in objecting that we had illegitimately restricted the field of possible causes.

An important purpose of the investigation is to determine whether this was a case of intelligent cause (murder or suicide) or natural death. We need a method that is open to either possibility. The abductive method of reasoning backward from the effects considers and evaluates various candidate natural and intelligent cause hypotheses, and

eliminates those that do not agree with experience. Such openness to the full spectrum of natural and intelligent cause scenarios gives confidence that the abductive inference does yield the best explanation.

Despite the above explanation, some people, especially among scientists, suggest that science may not entertain intelligent causes. This notion is certainly mistaken. The abductive inference is very much at home in modern science. Retrospective causal reasoning is routinely used by NASA scientists as they explore the heavens looking for signs of intelligence in their SETI (Search for Extra-Terrestrial Intelligence) program. If signals from space conveyed artificial electromagnetic pulses sent in code to give, for example, the first thousand digits in the transcendental number 3.14159..., this would be considered so improbable an occurrence that we concur that intelligence had sent it. If scientists ever receive radio signals that are distinguished from noise and have the indicia of intelligence, we can surely expect a jubilant announcement from Washington.

The Planetary Society has initiated its Billion Channel Extraterrestrial Assay (BETA) survey of the heavens using one of the world's largest receivers, an 84-foot radio telescope set up in Harvard, Massachusetts. The goal of this heavenly scan is to receive intelligent messages that some advanced civilization could be beaming our way. It is a program within the borders of legitimate science. It is safe to put the objection aside that modern science is opposed in principle to the notion of intelligent cause.

Disappearance of Intelligent Causes From Natural Science

Despite the fact that intelligent causes are a legitimate part of the search for extraterrestrials (and a legitimate part of archeology, anthropology, and forensic science), the notion of intelligent cause has disappeared from natural science today. It is important to understand why this has happened.

Most of Western history has been characterized by belief in design. Scientists accepted an ordered world as a given, a designed given. According to Whitehead, these were not "the explicit beliefs of a few individuals," but rather "the impress on the European mind arising from the unquestioned faith of centuries." It was thus an "instinctive tone of thought and not a mere creed of words." In this context of faith the scientific quest involved discovering the laws describing the world's patterned behavior, reducing an apparent chaos to order. These scientists, and the larger culture, had an implicit belief structure that behind the order lay the great ordering intelligence, or God.

So deep was this impress on the European mind that few scientists, even well into the nineteenth century, disagreed with Isaac Newton who had written that "This most beautiful system of the sun, planets, and comets, could only proceed from the counsel and dominion of an intelligent and powerful Being."

Because of the cultural conviction of a created and designed universe, including earth and life upon it, it was very widely appreciated, from the early days of seventeenth century science onward until the time of Darwin, that science is not concerned with the question

of origins. Why, they must have thought, would we want to scientifically pursue an answer we already possess? The world is created and designed; science seeks laws that describe the regular patterns we observe. A London Times newspaper article in the days of the Darwin controversy expressed the predominant cultural view, including that of most scientists, when it said, "we look to men of Science rather for observation than for imagination."

Yet, out of view, there was an undercurrent of variant opinion, as the scientific naturalists were marching to a different drummer. The culture and most scientists were so enamored with nature's many regularities and confirmations of their underlying beliefs, that they hardly noticed when the scientific naturalists inferred from these regularities absolute natural laws which even God (if He existed) must obey. For the naturalists nature had replaced God. The external signs of religious orthodoxy remained, but a mental dislocation had occurred in the intellectual world, which represented a radical shift from theism to naturalism.

Implicit within naturalism is the denial of a creation distinct from its Creator. It logically developed, therefore, that naturalists sought to answer the great origin questions without reference to a Creator. A new intellectual regime (naturalism) was taking over the culture, even if it was not recognized by the majority for what it was. It had no clerical trappings, no shrines, no symbols, no places of worship reserved for it alone. It was fitting, therefore, that origin questions would be answered by appealing to the new deity, natural law.

Despite naturalistic speculation, professional biologists and the culture maintained their conviction that life owed its presence on earth to a great designing intelligence.

It is not immediately obvious to most readers today just how nineteenth century biologists made their appeal to intelligent cause. If you pick up many books on biology before 1859, it may not be obvious that it is arguing for intelligent design. Yet, if you know the code words you can readily recognize it. To pre-Darwinian biologists if an organism could be shown to be adapted to its environment, or if some structure could be shown adapted to function, that was tantamount to showing that it was purposefully designed, and hence the result of intelligent creation.

Until Charles Darwin it seemed to everyone that design required a designer. Intelligent design was finally removed from biology with the triumph of Darwin, who argued that the power of natural selection produces only apparent design in organisms.

Laboratory Demonstrations

Why then do scientists no longer accept intelligent design in nature? The short answer is that a naturalistic culture needs a naturalistic answer, and scientists can show many examples of natural processes producing order. Whether the beautiful patterns in crystals, the soapy swirl down the drain, or the order evident in a spiral galaxy, natural forces of physics have been demonstrated which produce order.

An easy kitchen demonstration to show the power of natural causes in generating order is to put a round flat-bottom glass container of oil on a well regulated hot plate and to slowly heat it from below. Soon hexagonal patterns will spontaneously appear on the oil surface. The generalization drawn from this is that energy passing through a physical system is all that is required to generate order.

According to the scientific picture, even if we consider the total universe as a thermodynamically isolated system, one where energy will eventually run down, there are still pockets within the total system of the universe where energy flow may sustain order over long periods. That is all the defense that materialists needed in order to satisfy themselves against the classic order-means-design and design-means-a-designer argument. Because these scientists are no longer persuaded by the design argument, many of the larger educated community are judging these objections valid, and they too are rejecting design.

For nineteen hundred years of Western history, the prevailing view was that the presence of order requires an ordering intelligence to account for it. The dominant view of the past century in Western culture is that an ordering intelligence is no longer needed. Natural processes have been demonstrated to account for many examples of order in the world, and it is assumed that natural processes will be found to account for all the examples of order that remain.

Order, Complexity, and Information

Then the unexpected happened. Just when it seemed that natural causes might suffice to account for all natural phenomena, there were breakthrough discoveries in both mathematics and biology. These gave the basis for a dramatic change in the way of describing living organisms and in answering questions about their origin.

We begin with biology. Most people today are familiar with deoxyribonucleic acid, DNA, the double helical molecule of heredity. It is like a long ladder twisted into a spiral. The sides of the ladder are composed of sugar and phosphate molecules. Its "rungs" are made of the four bases: adenine (A), guanine (G), cytosine (C), and thymine (T). A nucleotide consists of a base linked to a sugar linked to a phosphate. A polynucleotide is many nucleotides linked together, phosphate to sugar, like freight cars in a long train.

During replication inside the cell, the two sides of the "ladder" split, and each half attracts a new set of nucleotides from the surrounding fluid in order to replace the missing half. The sequence of nucleotides making up the DNA chain runs from a few million in bacteria to three billion in human beings. Not only is the length important; their specific sequence is too.

DNA is called an informational molecule because its unique structure functions as the central part of an elaborate communication system within the cell. This code aspect was hinted at by Francis Crick and James Watson in their modest announcement of the famous double helix structure of DNA. An early written statement of this idea was

recorded in a letter that Crick wrote on March 19, 1953 to his son Michael: "Now we believe that the DNA is a code. That is, the order of bases (the letters) makes one gene different from another gene (just as one page of print is different from another)." (Emphasis his.)

The second group of informational molecules is proteins. They are long chain-like molecules composed of amino acids linked together end to end, which fold up into very complicated shapes. The specific sequence of amino acids in a protein is what determines its overall three-dimensional shape and function.

DNA, with its alphabet of four bases, and protein, with an alphabet of twenty amino acids, represent two different languages related by a code. When the cell constructs proteins, a translation takes place between one language and the other; the sequence in DNA codes for and determines the sequence in protein.

Information theory is a special branch of mathematics that has developed a way to measure information. In brief, the information content of a structure is the minimum number of instructions required to describe or specify it, whether that structure is a rock or a rocket ship, a pile of leaves or a living organism. The more complex a structure is, the more instructions are needed to describe it.

Order: Periodic and Specified

The development of information theory provides a tool for distinguishing between order and complexity. Examples of ordered structures are a repeating wallpaper or floor tile pattern, the hexagonal pattern appearing on the surface of heated oil, the single structure repeated over and over in a crystal, and a sequence of alphabetical letters ABABABABAB.... The characteristic feature of an ordered structure is the PERIODIC AND SPECIFIED arrangement of its constituent parts. That means the parts are arranged in a highly repetitious and specific fashion. Such structures have a low information content and require only a few instructions to specify them.

As an example, if you want to tell a chemist how to make a crystal, you need only two instructions. First, specify the substance you want and the way you want the molecules packed together. Second, tell the chemist, "Now do it again." Repeat until the crystal is made. The structural information has to be given only once because a crystal has a regular pattern.

To tell your computer's printer to make a page of "Hello Bob!" will take only two instructions, (1) "Print 'H-e-l-l-o B-o-b-!'" and (2) "Do it again," until the page is filled.

Complexity: Aperiodic and Unspecified

On the other hand, aperiodic structures, i.e., structures that lack periodicity, are called "complex." Complex structures are of two types. The simplest type of complexity is a random structure. A random structure has no order, but, like an ordered structure, it has

little information because few instructions are needed to specify it. By definition random structures are APERIODIC AND UNSPECIFIED, such as a lump of granite, a pile of leaves, a random polymer, or a sequence of letters drawn at random.

A pile of leaves is random and can be specified with just two instructions: (1) "Select any type of leaf and drop it on the pile," and (2) "Do it again." To write a series of random letters, you also need only two instructions: (1) "Select at random a letter from A to Z and write it down," and (2) "Do it again." This way you can make as long a random sequence as you want.

Information: Aperiodic and Specified

It is the second type of complexity, however, that is most relevant for biology. Written messages, artifacts, DNA, and proteins are all examples of specified complexity. By definition structures characterized by specified complexity are those whose constituent parts are arranged in an APERIODIC AND SPECIFIED manner. Such structures have a high information content, which means that many instructions are needed to specify them.

As an example, if you wanted to print out a copy of Lincoln's Gettysburg Address that begins "Four score and seven years ago..." you could not find any brief set of instructions to give your computer. Your instructions would be as long as the famous address itself. You must specify every letter, one at a time, in the correct sequence. There are no shortcuts.

It would be quite impossible to give a chemist a set of a few instructions to synthesize the DNA of even the simplest bacterium. The instructions would have to include every chemical letter, one by one. That would be several million of them. Rather than a few sentences of instructions, there would be enough to fill a large book.

Now we have a clear and mathematically defined distinction between order and complexity. Experience shows that natural processes produce ordered structures like ripples in sand, hexagonal patterns on a heated oil surface, and crystals. Natural processes are also known by experience to produce a random distribution of leaves in autumn, and random polymers in the reported origin of life experiments.

Experience shows many examples of specified complexity, e.g., books, paintings, artifacts, produced by intelligence and none produced by natural processes. Living organisms are characterized not by order but by specified complexity, i.e., information. This dramatic development has profound implications for the design argument.

New Argument from Design

Generations of philosophers and theologians have taught that order requires an ordering intelligence, which they called God. As we have seen, the abductive method of inferring backward from the effects has shown that natural processes suffice to produce order, and

an ordering intelligence is not needed, (except perhaps in the remote sense of an intelligence standing behind the natural process, which is the view of many theists). But with the discovery of informational molecules, DNA and protein, which are characterized by specified complexity instead of order, the situation has changed dramatically.

DNA and protein, and, of course, living beings, are rich in information. Other structures that are characterized by specified complexity are linguistic messages, bridges, paintings, computer programs, and other human artifacts.

A structural identity has been discovered between the genetic messages on DNA and the written messages of a human language. This discovery opened the way for the application of information theory to biology. Information theory applies to any symbol system, regardless of the elements of that system. The so-called Shannon information laws apply equally well to human language, Morse code, and the genetic code. Hubert P. Yockey notes in the *Journal of Theoretical Biology*:

It is important to understand that we are not reasoning by analogy. The sequence hypothesis [that the exact order of symbols records the information] applies directly to the protein and the genetic text as well as to written language and therefore the treatment is mathematically identical.

There is an identity of structure between DNA (and protein) and written linguistic messages. Since we know by experience that intelligence produces written messages, and no other cause is known, the implication, according to the abductive method, is that intelligent cause produced DNA and protein. The significance of this result lies in the security of it, for it is much stronger than if the structures were merely similar. We are not dealing with anything like a superficial resemblance between DNA and a written text. We are not saying DNA is like a message. Rather, DNA is a message. True design thus returns to biology.

Answers To Common Objections

A straightforward application of the abductive method of inference to the genetic text implies that DNA had an intelligent cause. Yet few scientists acknowledge the result. Why not? Why would scientists (and large segments of our culture) not abide by this method in this one instance of DNA (and protein)? As we have seen from the acceptance within science of the search for extraterrestrial intelligence and also of the general methodology of forensic science, neither the scientists nor the culture are opposed in principle to the notion of intelligent cause.

We must, therefore, look for the source of the opposition elsewhere, in something that is very widespread and pervasive throughout the culture. Were it due to something exclusively within science itself, it is doubtful the opposition would be culture-wide or that it would have so thoroughly pervaded all other branches of science which have little professional interest in the subject of DNA.

I have sought the explanation for this culture-wide opposition to intelligent cause for DNA and provide three primary objections: philosophical, methodological, and psychological.

Why would scientists (and large segments of our culture) not abide by this method in this one instance of DNA (and protein)?

Philosophical. The first objection to intelligent design of DNA is philosophical. Most scientists come into discussions of science, particularly origins, already with a natural/supernatural way of thinking. It is easy, therefore, for these scientists to conclude that the notion of intelligent cause is a ruse, that it is really the supernatural without the courage of the one promoting it saying so. And because we do not incorporate the supernatural into science, the objection continues, the only way to proceed in the investigation of any natural phenomenon is to assume a natural cause.

It is easy to see how the critic might think intelligent cause is a ruse, for surely the cause might be supernatural. The problem is that we do not know from the inference we make from experience of DNA (and protein) whether the intelligence is beyond the cosmos, or within it. These prepositions "beyond" and "within" make all the difference. Because we do not know from the inference itself which preposition truly represents the case, we must remain equivocal. That is why we must simply refer to intelligent cause.

The power of this philosophical objection arises from the great confusion generated by mixing the categories and terms of science and philosophy. In science we use experience-based terms, natural and intelligent. As in the case cited earlier, that of detecting intelligible signals from space, we use the term intelligent cause. When the discussion involves an intelligent cause that is outside or beyond the cosmos, however, we use a different term that is philosophically recognizable. We use the term supernatural, thus indicating that it is transcendent, i.e., beyond experience.

Science also includes the experience-based term, natural cause, when inferring the cause of ripple patterns on a beach. But when the discussion involving natural cause extends outside or beyond experience, into the philosophical, there is not a different philosophical term used. In fact a variant of the same word "natural" is used, naturalism. Often the term natural is used without clearly indicating a transition from scientific to philosophical discussion. Much confusion thus arises from this equivocation on the term natural. How this confusion arises can be seen by putting the two dichotomies side by side, where the term natural appears in both:

- Science Philosophy
- natural/intelligent natural/supernatural

A better arrangement of terminology could not be devised if you want to deceive somebody. All you have to do is begin a discussion talking science, using the term natural in an appropriate way, and then somewhere along the way simply ease into philosophy, again using the term natural in an appropriate way. Just fail to inform your

listeners or readers that you have moved on to philosophy. By this method of sleight you might "persuade" your audience.

It is easy to see how this could happen without any intent to deceive. It was a tragedy bound to happen because of the linguistic terms used.

Consider, for example, the quotations below. The first is from British physicist Paul Davies, and the second by Leslie Orgel, a prominent figure in origin of life research:

"The origin of life remains one of the great scientific mysteries.... The problem is to understand how this threshold could have been crossed by ordinary physical and chemical processes without the help of some supernatural agency."

"Any "living" system must come into existence either as a consequence of a long evolutionary process or a miracle."

Both of these authors meant their words to be understood in the context of science, concerned to find a scientific answer to the mystery of life's origin. Yet both engaged in the practice of mixing categories, science and philosophy. In science the proper term for an alternative to physical and chemical processes (Davies) and evolutionary process (Orgel), is intelligent cause, not supernatural agency (Davies) or a miracle (Orgel).

Mixing categories is clearly inadvisable for meaningful communication. Such quotations present a false choice between science and philosophy to the reader. Whatever the intent of the authors in doing this, whether deliberate or not, the effect is to leave the reader with science (or is it naturalism?) as the only acceptable choice.

In summary, the philosophical objection to an intelligent cause for DNA assumes that an intelligent cause is supernatural. This is usually accompanied by mixing the categories and terms of science and philosophy. In science the proper experience-based alternative to a natural cause is an intelligent cause.

Methodological. A second objection to an intelligent cause for DNA is methodological. According to this objection we proceed in scientific inquiry by restricting ourselves to natural causes, whether one's philosophical view is naturalism or theism, an approach some advocates have called methodological naturalism. Therefore, intelligent cause is unacceptable in science; it is metaphysical.

The intent of this objection is laudable, which is to promote science and to exclude from science those philosophical and religious views that masquerade as science. Methodological naturalism, however, is not a true principle of science; it abandons the appropriate method of following experience in order to fit a preconceived image of science.

Methodological naturalism has a short history, dating from the insistence of scientific naturalists in the nineteenth century that science must include only natural causes. It may

seem to some today that methodological naturalism had an innocent beginning. By ignoring the significance of the cultural shift from theism to naturalism, and the concomitant interest in origins, it is easy to imagine scientists following the proper method of inferring causes from experience over an extended period of about four hundred years, and systematically finding natural causes in each case. So unerringly did the method of following experience lead to natural causes that it may have seemed to some that in the domain of science we must restrict ourselves to natural causes.

Nonetheless methodological naturalism is flawed because it does not follow experience. The informational molecules exposed methodological naturalism as an arbitrary restriction on nature and an unwarranted demand on scientific methodology, both of which are contrary to the spirit of science.

Many outside the DNA disciplines still do not know the significance of these informational molecules, and that the abductive method implies an intelligent cause as their most probable source. Methodological naturalism, which determines in advance that the cause must be natural, cannot accept intelligent cause. Consistent application of methodological naturalism would insist that NASA scientists continue looking for natural causes for any intelligible signals received from space, and that any structures with specified complexity found on any planet must likewise have had a natural cause.

If there is, as I now believe, no valid methodological basis for disputing an intelligent cause of DNA, then what conclusion do we draw about those who remain opposed? Metaphysical naturalists will remain opposed, until they find a way to incorporate the result into their metaphysical viewpoint. In the meantime, however, they will dispute intelligent cause, but will be decreasingly able to use the old argument that their natural-cause-only view is "just science." It will become clear to a much larger audience that metaphysical naturalists have been for many years smuggling metaphysical naturalism into the culture under the name of science.

But what about metaphysical theists, particularly those who have maintained that they are only opposed to intelligent cause in science for methodological reasons? It is hoped that, as they learn the true status of methodological naturalism as an arbitrary restriction on nature and an improper demand upon methodology, they will make open acknowledgment of this and then help to acquaint a broader audience of this important result. The need for open acknowledgment is clear. Unless methodological naturalism can be justified on some new ground, it will be indistinguishable from metaphysical naturalism.

Psychological. A third objection to the intelligent design of DNA is psychological. Many Christians in the sciences, including many who subscribe to methodological naturalism, are psychologically conditioned against considering anything other than natural causes. In the past, through a god-of-the-gaps approach, i.e., calling upon God in an ad hoc manner to fill some gap in human knowledge, many Christians were put in the humiliating position of seeing God removed by degrees from science. This happened as science showed many examples of mysterious natural phenomena accounted for by

natural causes. The lesson was painfully absorbed by the church and has now become a psychological reason why many Christians in the sciences and in the larger culture resist intelligent cause; they envision a repeat episode of this admittedly sad chapter in church history.

There is no ground to expect the DNA design inference to be overturned by some new scientific discovery of a natural cause for the informational sequences in DNA. If such a discovery of natural causes producing specified complexity is made, then much more than "one more disappointment" will be involved. The whole presumed knowledge of the past can be doubted. Our knowledge of antiquity, for example, based on the supposed decipherment of ancient languages, will be in jeopardy. For we only "know" about antiquity based on the soundness of the method of causal inference from experience to show us that an intelligent cause most probably produced the artifacts and strange writings found in those long ago places. Even that birth certificate in the attic that "identifies" you as the legitimate family heir may not be trusted.

Conclusion

The abductive method of inferring causes from experience is a recognized scientific method. This method is open to natural and intelligent causes. The story of a detective sifting clues to solve the mystery of someone's death is a classic example of abductive reasoning. Even though intelligent cause and design continued in some branches of science, it disappeared in natural science after Darwin. Breakthrough discoveries since 1950 in mathematics and biology have led to the recognition that at the heart of the life process is the DNA molecule, a molecule that is characterized not by order but by specified complexity, i.e., information.

The structures of DNA and a written linguistic message are mathematically identical. This structural identity and the fact that intelligence is the only known cause of specified complexity, i.e., information, is the basis for a significant revival of the design argument in a new and more powerful form.

I am well aware that the majority today are persuaded that a natural cause process accounted for life upon this planet, and that many theists hold that God designed the process. To them it seems such an obvious fact. Without direct evidence, however, all such scenarios are based on circumstantial evidence. Even though many cases are properly settled this way, it is well to recall what that venerable super sleuth Sherlock Holmes noted in another baffling mystery.

"Circumstantial evidence is a very tricky thing," answered Holmes thoughtfully. "It may seem to point very straight to one thing, but if you shift your own point of view a little, you may find it pointing in an equally uncompromising manner to something entirely different.... There is nothing more deceptive than an obvious fact."