

## NATURALISM

A Chinese paleontologist lectures around the world saying that recent fossil finds in his country are inconsistent with the Darwinian theory of evolution. His reason: The major animal groups appear abruptly in the rocks over a relatively short time, rather than evolving gradually from a common ancestor as Darwin's theory predicts. When this conclusion upsets American scientists, he wryly comments: "In China we can criticize Darwin but not the government. In America you can criticize the government but not Darwin."

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### The Apparent Conflict between Science and Religion

- + Carl Sagan feels contemptuous for those who deny that humans and all other species "arose by blind physical and chemical forces over eons from slime."
- + Richard Dawkins exults that Darwin "made it possible to be an intellectually fulfilled atheist,"
- + Richard Lewontin has written that scientists must stick to philosophical materialism regardless of the evidence because "we cannot allow a Divine Foot in the door."
- + Stephen Jay Gould condescendingly offers to allow religious people to express their subjective opinions about morals provided they don't interfere with the authority of scientists to determine the "facts" one of the facts being that God is merely a comforting myth.
- + What these statements mean is that the realms of science and religion are separate.
  - + science discovers facts
  - + religion indulges fantasy

### WHAT IS SCIENCE?

To help us understand what science is we examine the basic scientific enterprise; or what is called the Scientific Method. The scientific method follows roughly a pattern of operation which comprises four steps.

1. Identify the PROBLEM
2. Come up a POSSIBLE ANSWER (what is called a hypothesis)
3. PROBE into the plausibility of this being the answer
4. Make a PRONOUNCEMENT of the discovery

One Example:

I. **OUR PROBLEM:** How can we tell a sweet Kiwi fruit from one that is sour?

II. A **POSSIBLE SOLUTION IS BOLDLY PROPOSED**

A hypothesis is proposed as a plausible explanation to the problem.

Science will not make any progress if scientists when faced with a problem are not brave enough to move on to make bold, general, and universal "tentative theories".

**Theories, tentative as they might be, give us the hope of bringing order and universality out of the apparent random messiness of the experiences of life.**

From tasting a number of round-shaped Kiwi fruits and finding them sweet, or from tasting round tasty watermelons the scientist generate a tentative theory "All round-shaped Kiwi fruits are sweet". [Notice the broad, general character of the theory].

But from where does the possible solution come?

- + Here you might be surprised: a hunch, a dream, an "educated guess".
- + Einstein called this move an "intuition". It is a creative move.
- + Accident: Sometimes things are discovered quite by accident.

Davisson and Germer were studying the scattering of electrons off a nickel plate. At first their results were in keeping with classical view that electrons are merely particles. But due to an accident, the nickel plate was reheated at high temperatures and a new diffraction pattern showed that electrons could well be wave particle.

+ Bizarre Ways.

F.A. Kekule (1829-1896) the chemist discovered the molecular structure of benzene in the most bizarre way. One day drowsing in front of a fire after a hard day's work. There in his half-asleep state, he saw a snake biting itself by its own tail. It suddenly dawned on him that the structure of benzene molecule could be a closed ring of carbon atoms. So it is that through his trance-like vision of the snake he came up with the hexagonal formulae for the benzene ring.

By acts of creative imagination, scientists come up with possible solutions that might well solve their problem. It is generally agreed that there is no formal method by which scientists formulate their hypothesis.

It is not really a reasoning process. It does not proceed according to a rigid set of rules. But how does the scientist know that he has the right guess ?

### III. PROBE / TESTING THE HYPOTHESIS

At this stage: the hypothesis that round Kiwi fruits are sweet remains a hypothesis. The theory has got to be subjected to empirical testing.

"If all round Kiwi fruits are sweet then if I have in my hand a round Kiwi fruit it must be sweet".

This kind of reasoning is called a DEDUCTIVE reasoning. It follows an if/then argument. We are all familiar with it without attending a logics class. It is as if we are born with the rules of deduction stamped on our brains (from general to particular).

If A, then B  
A  
Therefore B

In reality, the experiments can take a lengthy period using complex equipments, statistics and mathematics.

### IV. PRONOUNCEMENT of Confirmation or Falsification

From a series of particular experiments, we confirm a general law. In principle, the results are of two types:

1. If experimental results do not agree with the hypothesis (suggested solution) it is falsified or disconfirmed.

This is called falsification.

If A, then B	If it has rained / the streets are wet
-B	The streets are not wet
Therefore -A	Therefore / it has not rained

1. If all round-shaped Kiwi fruits are tasty, then this particular round-shaped Kiwi fruit will be sweet
2. This particular round-shaped Kiwi fruit is not sweet
3. Therefore, not all round-shaped Kiwi fruits are sweet

+ If a belief cannot be falsified, it becomes incorrigible  
So a theory must be falsifiable. And if it is falsified, it is disconfirmed.

2. But if experiment results agree with the possible solution suggested the hypothesis is verified and the theory confirmed.

But this is not to say that the theory has been proven.

For even after I have tried thousands of batches of Kiwi fruits and continue to find all round-shaped Kiwi fruits sweet, I still cannot say that such a theory has been proven.

Why?

Because while every confirming case makes the theory progressively more certain the process is never complete.

- + There may have been a sour-tasting round-shaped Kiwi fruits (which incidentally was originally called Chinese gooseberry) in Canton in 1764, or there might have been one right now in Argentina for that matter, or still there may yet be one 2044
  - + And while it is easy to falsify a working hypothesis, it is difficult, if not impossible to fully confirm one.
  - + Increasing cases of confirmations increase the degree of verification.
  - + Other tests like consistency, elegance, simplicity, consistency need to be exerted upon the hypothesis.
- + One warning:
- + Even in cases when the confirmation seems irrefutable the fact remains that you get the confirmation that you get because your entire project has been conducted based on preexisting theories which can be philosophically challenged.
  - + Further it is vital to note that “theories are tested with reference to other theories. If an apparatus is to be constructed to test the theory, it is constructed on the basis of certain other theories. If meters, print-outs, etc. are to be read, they are evaluated on the basis of still other theories.

(James W Jones ,*The Texture of Knowledge, An Essay on Religion and Science*. University Press of America, 1981, pp. 8,9)

So people talk freely about proofs in science without realizing that the true scientist himself is often very modest about his own claims to knowledge.

His theories are often simply only one way of looking at the world.  
He realizes that there may be other ways of looking at the world and its problems.

For a long time it has been held that science is primarily concerned with empirical data.

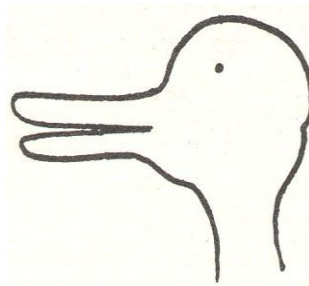
This is not altogether true.

- + Science is only interested in data to the extent that it is relevant to a theory.
- + Data are only relevant to the extent that they are relevant to a theory.
- + Scientific theories do not arise out of experience. Scientists very rarely begin with experience.
  
- + Theories are not drawn up in its full form as a result of an investigation of the observed data.
- + Experience is not the basis of theories

The opposite is the case

- + Scientists draw up theories in order to bring some semblance of order and universality to the messiness of our human experience.
  
- + In actual fact theories form the basis of our experience.
  
- + Science wouldn't even know what counts for good data without first drawing up some theories which help one to separate the relevant from the irrelevant.

Science is "a way of seeing" the world.



+ The above "duck-rabbit" was made famous by Jastrow (1900), Wittgenstein (1953) and Kuhn (1962).

- + A "fact" is what you see from your perspective. A Gestalt shift makes you see a different "fact".
- + The object itself does not undergo any change. All that changes is our way of seeing.
- + You can't ask which is really there, the duck or the rabbit. The question makes no sense.
  
- + Neither can anyone say: "Let's appeal to the facts!"
  - + Which facts? A "fact" is a fact "seen as"
  - + Norwood Hanson: "All seeing is `seeing as".
  - + Two people, faced with the same data can see different things as with the above "duck-rabbit" example.

- + Philosophers of science like Thomas Kuhn, N.R Hanson and Michael Polanyi have pointed out rightly that all data are already "theory-laden"
  - + Facts "ride piggy-back" on theories.
  - + Theories simply do not arise out of observations. Rather, theories are drawn up to explain the observations.
  - + There are no un-interpreted facts.
- + Along the rigid positivist lines, many major scientific explanations cannot be accounted for.

Experiential data only makes sense in the presence of some prior theory. They are rejected if they do not fit the theory.

James W. Jones gives the following compulsive example:

In 1932 Dr. J.B. Rhine and Dr. Louisa Rhine at Duke University did research under most rigorous controlled condition. The result is that some form of ESP experience is valid, justifiably true and it is consistent and statistically significant. Their scientific peers were unable to fault their conclusion.

But they rejected the data out of hand.

In another field of experimentation such a result that is honestly and accurately derived would have been accepted. But with no existing theory (except the religious) to interpret the occurrence of ESP, it was rejected.

*(James W Jones, The Texture of Knowledge, An Essay on Religion and Science. University Press of America, 1981, p. 69)*

How does the duck-rabbit phenomenon relate to our subject the scientific enterprise?

The duck-rabbit experiment shows us that no one approaches the data of experience with a blank mind.

- + Everyone brings to the data of experience, certain conceptions, certain ways of perception, certain predispositions that enable that person to make sense of what he sees.

The common misconception is that:

- i) we come across some raw data, then
- ii) we impose some understanding upon it but there is no such thing as raw data prior to interpretation.

+ Any data that we come across we interpret them through some context.

+ Data comes to us "theory-laden"

+ "Experience is theory-laden"

(Wolfe, David L.; *Epistemology: The Justification of Belief*, Downers Grove, Illinois: InterVarsity Press, 1989, p.63)

+ Merle B. Turner writes:

"Historians and philosophers of science...students of language and knowledge...as well as students of perception agree that *factual statements are conceptually contaminated* (emphasis mine)...How a scientist sees the world is no more a matter of veridical observation, *in any absolute sense*, than is the way a culture-bound person sees the world that is unique to his frame of reference."

(Merle B. Turner, *Philosophy and the Science of Behavior* (New York: Appleton-Century-Crofts, 1967, pp 191,92, quoted in David L. Wolfe, *Epistemology*, InterVarsity Press, Downers Grove, Ill. 1982, p.24)

+ Norwood Hanson, a philosopher of science argues that what we see and perceive is not necessarily what our senses receive. They are rather filtered sensory information, the filter being our existing predispositions. He pointed to the optical illusions of the famous old Parisienne woman, which can be seen in different ways. Hanson made a distinction between 'seeing as' and 'seeing that' and formulated a logic explaining how scientific discoveries take place. For him, "all seeing is 'seeing as'"

(Norwood Russell Hanson, *Patterns of Discovery: An Inquiry into the Conceptual Foundations of Science*. Cambridge University Press, 1958.)

Carl Henry exposed the fact that science at first pretended to be commitment-free and assumption-free.

+ It sought to discredit Christianity for beginning with assumptions.

+ Now this has been exposed to be untrue.

+ Each scientist belongs to a scientific community

+ The scientific community is defined by:

- the shared value

- the shared attitudes, and

- the shared basic assumptions of its members

+ They share the same interpretive framework or "paradigm".

+ According to Kuhn, a scientific revolution takes place when scientists encounter

anomalies which cannot be explained by any one current conventional accepted scientific paradigm.

- + Kuhn sees the paradigm as the entire worldview in which the current theory exists.

- + Kuhn makes the charge that anomalies for all paradigms are usually casually put aside as acceptable levels of error. They are routinely not dealt with.

- + From time to time, significant anomalies within a paradigm gather enough momentum to cast doubt on a current paradigm. In such a time, the existing paradigm becomes embroiled into a state of crisis. In such times, new ideas are explored. Sometimes those previously discarded as untenable are tried. Eventually a new paradigm comes to be accepted.

- + Kuhn calls this a *paradigm shift*.

- + Since the medieval time, there has been three such major gestalt shifts.

1. The Pythagorean/Aristotelian Model - An Organic Model

2. The Galileo/Newtonian Model - The Mechanistic Model

3. The Einsteinian Model - The Energistic Model

- + Kuhn likens a change in the way of seeing to a "conversion" experience because one has to be able to see the light to accept the change.

- + As in viewing the "duck-rabbit" picture, it cannot be forced. This is why in long-drawn arguments we often hear the phrase "I cannot see what you are talking about !"

- + Before a paradigm finally makes a shift the larger scientific community must be convinced

  - + Galileo faced powerful resistance.

  - + Copernicus's work took almost a century to gain widespread acceptance among the scientific community.

  - + Priestly resisted the discovery of oxygen.

  - + Early in time, Einstein was sure he had a set of equations that would supersede the probability calculus of quantum mechanics but few were convinced he was right.

+ Heisenberg claims to have formulated equations that unify the disparate field of high energy physics but his formulas have not been accepted.

+ This general reluctance to change is understandable when we realize that changes in paradigm changes the world (James W Jones *Texture of Knowledge* p. 53)

Example:

In the *mechanistic model*

- matter and forces which were considered to be absolutes

In the *energistic model*

- Einstein now suggests that motion is relative to the system of forces

In the *mechanistic model*

- the universe was thought of as a receptacle in which objects move, each object has an absolute identity (the universe was like a playing field in which things move in predictable manner)

In the *energistic model*

- objects do not have absolute identity  
- it is defined only relative to given situations  
- when we talk of motion and rest we are only using conventions to make sense out of experience  
- objects can be understood in more than one perspective; e.g. light may be either a wave or a particle

+ A paradigm shift, then, is a major "scientific revolution", as Kuhn puts it

+ Kuhn's principal contribution in this debate is his strong emphasis on the individual human person's involvement as a scientist. He exposes the myth that science is a strictly empirical or logical enterprise.

## THE PHILOSOPHICAL NATURE OF SCIENTISM

Many people assert that only science is rational, only science achieves truth. If something cannot be quantified or tested by the scientific method it cannot be true or rational.

+ Unfortunately this opinion, called scientism, is widely held.

+ According to scientism, science is the basis of truth or rationality

+ If a belief cannot measure up with currently well-established scientific belief.

- + If it is not within the domain of scientific investigation.
- + if it is not amendable to scientific methodology then the belief is not true or rational.
- + Everything outside science is held to be a matter of mere belief and subjective. And no rational assessment can be brought to bear on them.

### **How may we refute the naturalistic philosophy?**

When a statement includes itself within its field of reference and fails to satisfy itself (i.e. conform to its own criteria of acceptability), it is self-refuting

Examples:

"There are no true statements"

"I do not exist"

"I cannot speak a word of English"

- + These are self-refuting. If they purport to be true, what they assert, proves them false.
- + The dogmatic claim of scientism is of this nature. The naturalist affirms:
  - "Only what can be known by science or what can be quantified and tested empirically is true and rational"
  - + This, however, is self-refuting as this statement itself can neither be quantified nor can it be tested empirically ?
  - + The statement itself is not a statement of science. It cannot be quantified empirically.
  - + Rather the statement is a second-order philosophical statement about science.
- + The definitions and aims of science are philosophical presuppositions about science.
- + These definitions and aims of science cannot themselves be validated by science.
- + You cannot justify science by science. To say that science can justify itself is question begging.
- + Ultimately, the justification of science is a philosophical issue. And any claim to the contrary will itself be philosophical.

## The Myth of a Dogma-Free Scholarship

We have seen that science has not altogether faith commitment-free.

- + But we need to further and expose the fact that “this dogma of dogma-free scholarship is not simply a matter of philosophical or theoretical presuppositions—although that is included. At the deepest level these foundational beliefs are a religious power directing and animating our culture including scholarship.”

(Michael Goheen, *The Gospel and the Idolatrous Spirit of the University, The Word of God and the Academy in Contemporary Culture; Keynote Address; July 3-7, 2002; Károli Gáspár Reformed University; Budapest, Hungary*)

- + The humanism that was spawned from the Renaissance forged the dogma that through reason alone, human beings could achieve freedom and progress.
  - + With the discovery of the scientific method, it would appear that we now have the tool to arrive at objective and indubitable truth.
  - + By the 18th century, with the onset of the Enlightenment, this belief in scientific humanism spread from its original influence in Northern Italy to touch all Europe, and unwittingly became the dominant “religion” of European society.

This high-view of the power of autonomous reason resulted in the false fact-value dichotomy.

- + From there, the bold claim was made, that and truth claim that can be proven by scientific rationality is to be accepted as truth. On the other hand, truth claims that cannot provide rational justification, are consigned to the more inferior sphere of private opinions.
- + In no time, the Christian story came to be viewed as a matter of private belief and ought to make no claim to objective public-truth.
  - + Science can be viewed shares as a public and empirical fact life.
  - + The Christian gospel is relegated to the private realm of values.

Now that science has been exposed to be a discipline that is not value-free, it has also been exposed that the scientific method had over-stepped its proper boundary. And with that, we identify the idolatrous nature of science.

- + The postmodern impatience with science has stressed the failure of scientific enterprise to identify the locus objectivity and certainty.
- + In virtually every field of modern studies, this myth of certainty has been highlighted.
- + Together with this exposure, the relativity of human knowledge has been exposed.

- + The postmodern mindset emphasizes the social construction of human knowledge and incessantly drives home the point that there is no universal truth.
- + Kuhn's overall thesis that our interpretation is preconditioned by our worldview and that "all seeing is seeing as", has been largely embraced, and this in turn has spawned the philosophy of relativism and pluralism.

Goheen makes the brilliant point that both objectivism and relativism are ultimately idolatrous.

- + Objectivism does not give credence to the fact that human knowledge is shaped by numerous subjective factors. It does not acknowledge that there is a religious root to all human activity. Our claims to knowledge cannot rise above our religious impulse that shapes all cultural activity including scholarship.
- + Relativism, on the other hand, rightly points to the subjective factors that shape knowledge, but unfortunately, "it does not acknowledge that the deepest 'factor' shaping our knowledge is religious. Worldviews and paradigms are not only a matter of theoretical perspective shaped by historical, social, and cultural factors. Rather the deepest formative beliefs are religious. Religion is not one aspect of human culture alongside of others but a fundamental directing power that shapes all of human life. Further relativism does not recognize that there is a given order of creation that can be known and that there is a true Light in which this creation can be known."

(Michael Goheen, *The Gospel and the Idolatrous Spirit of the University*)

## Scientism the Sire of Darwinism

Stephen Jay Gould, with a few others defines Darwinian evolutionary theory for the culture.

- + In short, they get to tell us our creation story and furnish us with a viable metanarrative. They tell us
  - + that we came from a blind, purposeless, material process and that our existence is an accident.
  - + that this universe allows us to chart our own course make up our own values as we like and find whatever meaning in it we want.
  - + that there is no Creator, no purpose behind the universe, which is just an accident from a purely material process.
  - + Dawkins asserts that everything is made by the Blind Watchmaker, which is random mutation and natural selection.

From a philosophical perspective, Darwinism is a child of naturalistic philosophy.

- + Darwinism has its roots in metaphysical naturalism.
  - + What scientists are defending is really not necessarily evolution, but the philosophical doctrine of *naturalism*.
  - + Naturalism makes the unwarranted and indefensible assumption that the entire realm of nature to be a closed system of causes and effects, which cannot be influenced by any immaterial thing from outside this realm.
- + The Darwinist makes the philosophical assumption that only unintelligent and purposeless processes operated in nature before the evolution of intelligence.
- + Darwinists claims that it was natural selection that created the animal groups that sprang suddenly to life in the Cambrian rocks. This claim is made not because observation supports this conclusion but because naturalistic philosophy permits no alternative.
  - + It has been taken for granted that nothing else qualifies as an adequate explanation for the origin of life? The God hypothesis has been dismissed out of hand because the whole point of positivistic science is to explain the history of life without giving God a place in it.
- + Darwinism is a mechanistic theory looking for a mechanism it has not found.
  - + The origin of complex adaptations has remained a mystery. Darwin predicted innumerable transitional forms between major groups of organisms, yet the few transitions that are suggested are surrounded in controversy.
  - + Embarrassingly, the fossil record is pockmarked with gaps.
  - + Darwinian scientists, themselves, like Steven J. Gould are perfectly aware that there isn't really any persuasive evidence that mutation and selection can make complex organs. Gould, himself, has written about it.
    - + Sir Karl Popper, the philosopher of science admitted "Darwinism is not really a scientific theory because natural selection is an all purpose explanation which can account for anything, and which therefore explains nothing."

(quoted in Phillip E. Johnson, *Darwin on Trial Darwin on Trial*. InterVarsity Press, 1993, p. 21)

Ultimately, what divides the Dawinists and the Christian has little to do with science and everything to do with metaphysics.