

EDITORIAL COMMENTS

Dr. John N. Moore discusses how to teach scientific laws within a creationist framework. Several good "teaching" articles have been featured in past Quarterlies.

Another topic that has occupied many pages of the Quarterly is the discussion of classical and quantum physics in relation to the creation model of science. Smith and Geist add a contribution to the continuing debate. Dr. Robert A. Herrmann finishes his series on the deductive-world model and its relation to Scripture.

As an added help to Quarterly readers, Glen Wolfrom will provide a keyword index to the Quarterly that will appear in each September issue. Dr. Gary L. Johnson presents a model for a pre-Flood water and ice canopy. Several shorter items deal with geology, philosophy, insects, flood damage, thermodynamics and teleology. I hope that our readers will find much useful material in this Quarterly. I encourage you to send your comments to me. The exchanges in the Letters to the Editor are always very interesting.

Emmett L. Williams, Editor

EDUCATIONAL COLUMN

HOW WOULD YOU TEACH ABOUT SCIENTIFIC LAWS?

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Received 2 August 1985; Revised 5 September 1985

Abstract

This article contains a short response to the title question as an appropriate point of view to guide teachers, parents, and others according to methodology of proper and orderly scientific procedure. Avoidance of common semantic confusion is illustrated briefly.

The scientist who describes regularities [processes or "patterned behavior of matter"] of naturally occurring objects and/or events in expressions of various scientific laws, natural laws (or laws of nature) may very well be describing the way God acts as He sustains and maintains His creation. (CRSQ 22:25)

Introduction

What is a scientific law? A scientific law is a repeatedly tested and well supported or substantiated *generalization* of seemingly universal application regarding a limited set of facts. Excellent examples are the gas laws, laws of motion, thermodynamic laws, and Mendelian laws.

Scientific laws are specific descriptive statements by scientists about relationships of aspects of their *natural* environment based upon repeated observations. Therefore scientific laws are "inventions" or "discoveries" or broadly worded "cognitions" that result from proper and orderly scientific work. In a word scientific laws are "made" by human beings.

Necessarily, common relationships of natural objects and/or events are *not* set up by scientists. Scientists only *detect* specific relationships of aspects of their natural environment. Again, scientific laws are human approximations of the contingencies of the natural environment which have been identified by scientists over the centuries.

Therefore scientific laws do not control the universe or any part of the environment. Scientific laws are *descriptive* statements; hence laws of nature (or natural laws) are *not prescriptive*, and are distinct from civil or judicial laws. Young minds need to comprehend clearly that there is a distinction between descriptive natural laws and prescriptive laws of society (or societal laws).¹

Impact of Determinism

Because of the highly influential thinking of proponents of Determinism during the time of post-Newtonian physics, a too easy pattern of thinking has been adopted for many decades. In those decades scientists have enjoyed many, many successes in formulating and applying scientific laws to varying aspects of the natural environment. Too freely, however, non-scientists (and even a number of leading scientists) have applied a deterministic attitude of mind to *all* physical and biological phenomena.

Even some proponents of scientific creationism (and devoted Christians in general) have practiced a type of deterministic thinking and utilized such words as, "Physical objects move according to the laws of motion," "Chemical reactions and processes are controlled by scientific laws," or "The universe is governed by natural laws."

In talking about scientific laws, science teachers, parents and others should consider seriously and discuss at length the accompanying analysis of items associated with an explicit analogy between "Laws of Nature" and "Laws of Society" (See Table I), as follows:

1. A *scientific law* is a limited statement containing description of regularities found in the natural environment. A *societal law* is a prohibition regarding interpersonal relationships of naturally gregarious human beings.

2. A *scientific law* is identified or discovered (detected) with regard to already existing objects and/or events (with no information beyond mere relational existence). A *societal law* is passed by legislative proc-

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Table I. Scientific Laws: An Analogy Analyzed

Laws of nature (natural laws) are not just like laws of human society. Laws of nature are not enforced in the same way as laws of society.

Laws of Nature	Laws of Society
1. Descriptions	1. Prohibitions
2. Identified, discovered	2. Passed or decreed by human beings
3. Mainly a choice among average readings	3. Stated with precision as basis for punishment for infraction
4. Apply to things incapable of any volition	4. Govern responsible beings with free will
5. No moral connotation	5. Lead to implications of criminality for those who break laws

THERE ARE CRUCIAL DIFFERENCES BETWEEN USE OF THE TERM LAW WITH RESPECT TO (1) THE GENERALIZATION OF A SCIENTIST, AND (2) THE COMMAND OF AN AUTHORITY OF SOCIETY.

esses or decreed by human authority to be prescriptive of appropriate human behavior.

3. A *scientific law* is mainly an average of observations or meter readings (measurements by some means), often of limited application within parameters such as speed (velocity) or temperature. A *societal law* is stated with precision to avoid ambiguity of application and is the basis of just punishment (penalty) for some infraction.

4. A *scientific law* is applied to things incapable of any volition (and disregard of this point is the basis, regrettably, of improper and undesirable anthropomorphic thinking, writing and speaking that is inconsistent with professional scientific work). A *societal law* is a means to *govern* responsible, volitional human beings.

5. A *scientific law* has no moral connotation as such. A *societal law* commonly leads to the implication that criminal action has been taken by those who "break the law."

Natural objects *do not obey* natural laws or laws of nature. Scientific laws *only describe the behavior* of naturally existing objects. In contrast, the laws of human government *are prescriptive* as indications of how human beings should behave. Civil laws *are* types of *controls* over human behavior. But civil laws are not necessarily descriptive of how human beings behave. These basic distinctions stated here and afforded in the analogy analysis should be made very clear to students.

Laws Are Explained by Theory

Furthermore a precise analysis of the "position" of scientific laws with respect to scientific theories results in placement of scientific laws "under" scientific theory. Essentially scientific laws are *not* "elevated" to theory level or status. Let me explain.

Excellent examples of scientific theories are kinetic-molecular theory, modern atomic theory, nuclear theory, and gene theory. These scientific theories are used as particular frames of reference to explain particular facts relevant to natural objects and/or events in the natural environment.

Isolated facts are nearly useless. They have meaning or value primarily when related to other facts and placed into some coherent ideational framework: *an explanation*. Either such an explanation is accomplished when relationships and relational aspects of individual facts are comprehended in an overall "picture"; or when particular facts are fitted into some universal formulation by which widely diverse and

apparently isolated facts are organized into meaningful relationship: *a scientific theory*.

In contrast a scientific law is a limited generalization of specific scope as relating to a state of matter: a gas described by a gas law. As depicted in Table II scientific laws are "under" scientific theories. The scientific law is a specific generalization which in turn is "explained" by the scientific theory.

With respect to the quotation at the beginning of this article, the science teacher or parent of theistic viewpoint would be fully proper to point out in academic freedom to students that a "scientific law" may very well be an expression of the manner in which God acts "as He sustains and maintains His creation."

Table II.
Scientific Laws Are "Under" Scientific Theory

Postulates of Gas Kinetic Theory:

1. All matter is composed of small particles.
2. Gas molecules are small compared with distance between them.
3. Particles are in motion.
4. When molecules collide with each other or walls of a container there is no loss of energy.
5. The average kinetic energy of all different gas molecules is the same at the same temperature.
6. The energy of molecular motion is heat energy, that is, the temperature of a gas is a measure of the average kinetic energy of the molecules.

Gas Laws:

1. The volume of a confined gas is inversely proportional to the pressure of the confined gas, when temperature is held constant.
2. The pressure of a confined gas is directly proportional to the temperature of the gas, when volume is held constant.
3. The volume of a confined gas is directly proportional to the temperature of the gas, when pressure is held constant.

(Note: Electrostatic Laws, Magnetic Polar Laws, Laws of Chemistry, Thermodynamic Laws, and Mendelian Laws are explained by specific scientific theories, such as modern atomic theory, nuclear theory, and gene theory.)

Laws Represent Divine Governance

Physicist Howard J. Van Till has reasoned, "All material behavior may be perceived far more consistently

as evidence for the reality of divine action.”² Within Van Till’s context of emphasis that God is the Creator and that the cosmos is His creation, he states further:

Perhaps we all must be reminded that the Creator revealed in the Bible is not only the Originator of the cosmos, but also its Preserver, Governor, and Provider. Let us learn to see all phenomena as the product of divine activity: not just the extraordinary or unusual, but the ordinary and usual as well; not just the discontinuous or singular events, but the continuous and universal phenomena as well; not just the special events of the past, but the common events of the present as well.³

I am indebted to Professor Van Till for providing this insight because I agree with him so specifically when he makes explicit that detected processes in the natural environment, that is, “patterned behavior of matter,” are manifestations of divine governance. Thus, in the 1980s, he affords an excellent re-statement of the thinking of many of the founders of modern science.

Van Till points out that scientists label their *descriptions* of patterned behavior of material systems by the term “natural laws.” Then he states that he would “strongly prefer to call them the patterns of divine governance” (p.38). I agree because then the Biblical oriented scientist and parent indicates acceptance of the contingency of the entire cosmos. The entire cosmos is dependent upon God; the entire cosmos is *not*

independent of God as proponents of Materialism, Naturalism, and Determinism would maintain.

Conclusions

In conclusion I recommend teaching about scientific laws as limited, man-made, descriptive generalizations. Scientific laws are descriptions by human beings of already existing, contingent relationships “found” by scientists. Thus scientific laws are not prescriptive as are societal laws.

Scientific laws are not deterministic. Therefore scientific laws do not control existing patterns of behavior or processes involving natural objects and/or events. Hence, one would *not* state, “The universe is governed by natural laws.”

Rather, for the theistic oriented person, scientific laws may well be representations or manifestations of divine guidance and sustenance and maintenance. All the cosmos is fully contingent upon God the Creator of all things. The evidence is all around.

References

1. Moore, John N. 1983. How to teach origins without ACLU interference. Milford, MI: Mott Media, pp. 80 and 138. Condensed or abridged treatment of related methods of teaching about origin questions are developed by the author in *Creation Research Society Quarterly* 21:115-19, 21:189-94, 22:20-25, and 22:183-88.
2. Van Till, Howard J. 1984. The cosmos: nature or Creation?, *Occasional Papers from Calvin College*, 3(1):41.
3. *Ibid.* p. 26. Note taken from context of author’s emphasis on the difference between “cosmos” and “nature.”

D-WORLD EVIDENCE

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Received 26 August 1984; Revised 4 April 1986

Abstract

*This is the final article in the series **Nature: The Supreme Logician**. This article discusses indirect evidence for the acceptance of the deductive-world model. This evidence includes the unification of certain incompatible logics internal to quantum mechanics, other physical theories and computer science; subparticle models for quantum transitions, the formation of elementary particles and fields, the local Special Theory and how such subparticle models explain the experimental results associated with the Bell inequality. It is shown how a special interpretation correlates the deductive-world model to Scripture.*

1. Introduction

It may not be obvious to a reader of the previous articles in this series but I am actually expounding a very restricted philosophy of science. Historically, human or machine observations and measurements preceded attempts to correlate such observations to mathematical structures. When a compatible structure is accepted, then many of its predictions are open to verification. If these predictions did not correspond to a preponderance of experimental evidence, then the mathematical structure was often altered or a new structure sought. Unfortunately, in modern times, this process has been reversed. For example, in quantum mechanics the indirect evidence for β -decay does not verify certain conservation laws within the theory. Pauli, in an attempt to save the physical integrity of the theory, suggested the use of a physical term the “neutrino” that would be endowed with physical “life” by assigning to it the missing theory predicted analytical

components. Many scientists accept this term as objectively real rather than simply admitting that this invention may be a pure theory catalyst having no objective reality (i.e. the term neutrino need not correspond to anything in reality) or that for this particular scenario the theory or the mathematical structure may be incorrect. What physical terms for assumed indirectly detectable objects are in reality catalytic and what are not is unknown, but the more that are inserted in order to extend a restricted theory to other scenarios seems to me to imply that the original theory has an intrinsic weakness. This unfortunate philosophy of science is what this author has attempted to avoid with the construction of the deductive-world model (i.e. D-world model.)

All known scientific theories with one exception¹ are restricted by the use of standard discipline languages and mathematical structures to specific “states of affairs” where it is hoped that their descriptive content mingles rationally into a general theory. Recall that quantum mechanics has recently been shown to be

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