

A UNIT ON BIOLOGICAL ORIGINS FOR THE SECULAR CLASSROOM

DAVID PAUL LICATA*

Christian teachers of science often face a dilemma when confronted with the necessity of teaching evolution. This article relates the solution found by one teacher in a secular high school. The goal of the course is to present an objective discussion of both evolution and Creation. The core of the unit is a data table which clearly compares the world-views of Creation and evolution.

Introduction

The teaching of evolution is a foregone conclusion in most public high schools. Since most people view Creation as a religious rather than scientific interpretation of origins it is rarely discussed in secular science classes.

But it doesn't have to be that way. The alert and enterprising believer who teaches science can make good use of materials from the *Creation Research Society Quarterly*, and other creationist books and pamphlets, as well as secular resources, to construct a fair and balanced unit that objectively presents both evolution and Creation as alternate modes of origin and allows the students to draw their own conclusions.

Following is a description of such a course which was presented by the author when he taught biology at Pacifica High School, Garden Grove, California. The author firmly believes in Creation. The textbook for the course was *Modern Biology*¹ by Otto.

Lesson Plans

Lessons were set up so that there would be equal time given to the discussions of evolution and Creation. Each worldview was presented as being entirely factual. It was shown that each view could fit the available data. Then comments were made about each view. Three days were allotted for lecture and audio-visuals on each—a total of six days. As a discussion of Creation may lead to topics of a religious and often personal nature quite apart from discussing scientific evidence, most lessons were presented as lectures. Questions were fielded by the teacher as they came up in an effort to avoid class debate. If more time could be allotted to the issues of origins a carefully researched formal student debate might be highly instructive for all students.

The general outline for the unit was:

Day 1. Lecture and Film Strip.

I. Introduction to Evolution

- A. Geology of Evolution—supplemented by the *National Geographic* filmstrip "The Earth."²
- B. The primitive Earth
 1. The atmosphere
 2. Land masses
 3. Experiments of Fox, Miller, and Oparin.
- C. Organic Evolution—an introduction.

Day 2. Lecture with Chart

II. The Theory of Organic Evolution

- A. Paths of Evolution—commonly accepted evidences (with the beginning of the comparison chart—see Table I)
 1. Homology
 2. Vestigial Organs
 3. Embryology
 - B. Lamarck's Theory of Evolution (not accepted)
 - C. Darwin's Theory of Evolution
 1. Natural selection
 2. Survival of the fittest
 - D. The Mutation Theory of DeVries (as described in text book)
 1. Mutations occur—some "good" most bad
 2. Enough "good" mutations result in a better creature
- ### III. Factors affecting Evolution
- A. Gene Mutations
 - B. Environment
 - C. Migration and Variation
 - D. Change in Environment
 - E. Isolation
 - F. Speciation
 - G. Adaptive Radiation
 - H. Convergent Evolution

Day 3. Lecture

- ### IV. Summary and comments
- A. Evolution of the Universe
 - B. Evolution of the Earth
 - C. Biological Evolution
 - D. The evidence, a review—including comments on chart

Day 4. Lecture

- ### V. The "Other" Interpretation
- A. Why another interpretation
 - B. Three systems of acquiring knowledge
 1. Empiricism
 2. Rationalism
 3. Revelation
 - C. Why the Genesis account of Creation
 1. Universe was created/was not created
 2. If was: by personal Being/by nonpersonal Being
 3. If personal: revealed presence/not revealed
 4. If revealed: still interested/not interested
 5. We reject as useless all the "nots"—only Genesis speaks to the positive issues.

*Mr. David Paul Licata, B.S., teaches Science at Oceanview High School, Huntington Beach, California. His address is 15691 Butterfield Street, Westminster, California 92683.

Table 1. This table is an example of the kind of chart which can be constructed to exhibit the evolutionary and creationist interpretations of the major data concerning origins. In order to exhibit as much data as possible at once it was necessary greatly to abbreviate each argument and occasionally to omit less important sections. An overhead projector is a very useful tool in displaying the chart.

DATA	EVOLUTION		CREATION	
	EXPLANATION	COMMENTS	EXPLANATION	COMMENTS
Ice Age	Origin uncertain.	Dinosaurs extinct.	Related to the Flood	Dinosaurs extinct, fossils deposited.
Similar morphology	Common form and skeleton by common ancestor.	Most ancestors extinct and not yet found.	Same Creator.	Cf. artist: identical work by same brush strokes.
Homologous organs.	Similar structure means related by origin.	Differences related to adaption and use.	Same Creator.	If form is efficient, why change? Each creature has differences for adaption.
Vestigial organs.	Left over from unknown ancestor.	De-evolution? Really vestigial?	No vestigial organs. If some not used that is de-evolution.	De-evolution agrees with the law of entropy. Cf. Romans 8:20.
Similar embryos.	Development follows the stages of evolution.	Most biologists now reject this	Embryos of all creatures have the same environment.	Stages are not all that similar.
Mutation theory. (De Vries)	Many minute changes lead to better and different organisms: that is evolution.	Requires very long time. Transitions not found.	Mutations may cause changes within a species Most are lethal or recessive	No change between species ever seen. If different species mate, the offspring, if any, are sterile
Environment and fittest as survival. (Darwin)	Survival of from determined by determined by environment.	Better traits from mutations. Most recessive and non-useful unless fully developed.	Species may vary but not evolve. If a variation helps it may stay.	All variation is small. Much possibility for variation is part of the genetic code.
Pepper moth. (England)	Environment changed; black moths were favoured; so more black.	Called proof of evolution.	Definite proof of adaption and variation only.	Most have changed back to white. None changed to other species.
Not one genus observed to change in history.		Not enough time.		Never happens.
Radio active dating. (K-Ar, U-Pb, Sr-Rb)	Earth is 5 billion years old.	Allows long time for evolution. Uniformitarianism. (C14 similarly over shorter times.)	Billions of years in the gap. Or, appearance of age.	Radio halos prove appearance of age? New research.
Grand Canyon.	Fossil column formed over millions of years.	Prime example of geologic column and age dating.	Mostly formed in Flood. No erosion seen	Four layers missing; two reverse.
Entropy.	Reverse entropy.	How is inexplicable.	De-evolution occurs: less order, not more.	Creation was subjected to lack of order. Romans 8:20.

VI. The Genesis Account

Verses 1-4 of Genesis 1 were carefully exegeted in detail. Days 2-7 were summarized. The First and Second Laws of Thermodynamics were discussed along with comments on pre-deluge life. The Flood itself was described and discussed.

Day 5. Film Strip and Lecture

The previous day's discussion of the Flood was supplemented with the *National Geographic* filmstrip "Floods."³

VII. How creationists interpret the evidence

See "Comparing the Evidence" below. This section gives the Creationist interpretation of the topics discussed under II.A. "Paths of Evolution," and III. "Factors affecting Evolution" above.

Day 6. Film Strip and Lecture

VIII. Concluding thoughts on Creation and Evolution

See "Concluding Thoughts" below. Includes filmstrip "Cultural Evolution."⁴

Comparing the Evidence

While discussing Evolution a chart was prepared with three columns titled: DATA, EXPLANATION, and COMMENTS. The DATA column consisted of a listing of 12 significant observations often considered as relating to evolution, many taken from the textbook. Under the EXPLANATION heading were listed the evolutionary interpretations of each observation: how each fits the evolution model, why the particular piece of data is found, or some justification. Finally any additional remarks were added in the COMMENTS column when evolution was reviewed.

When Creation was discussed two additional columns were added to the chart, again labeled EXPLANATION and COMMENTS. In these columns were entered the Creationist interpretation of the data and comments as necessary. Here the *Creation Research Society Quarterly* and other Creationist writings proved most useful in providing a scientific basis for the Creation model of the data. Many back issues of the *Quarterly* were made available for students to read independently.

The format used in the chart allows for direct comparison of the evolution and Creation models (see Table I). Even though it is necessary vastly to abbreviate long arguments in order to display them adequately, students can readily see the differences between the two views and the fact that the evidence is subject to more than one "valid" interpretation. Part of the value of this is that it encourages critical thinking and cautions students carefully to weigh observations and conclusions before accepting them as fact.

The 12 items used were selected as the most important points discussed in the textbook or significant arguments of Creationists. Every possible argument could not be used as time simply did not permit a thorough discussion of more than the 12 items selected. Other teachers may wish to modify the chart presented and adapt the course to their textbook and personal opi-

nions regarding such things as the "gap" in Genesis 1:1, etc.

Concluding Thoughts

At the end of the comparisons the classes viewed the filmstrip "Cultural Evolution."⁴ This secular filmstrip is a discussion of the sociological effects of the general acceptance of the Theory of Evolution. The debasement of man is noted in the filmstrip as well as the appeal to the theory as an excuse for claiming one race is superior to another. Unlike the other filmstrips in this series the author found this one to be highly objective and show evolution to be the tool of godless men that Creationists believe it is.

The evolutionary view of man presented in the filmstrip is contrasted with the separation of man from the animals through Special Creation. The separate and responsible position of Man with respect to nature (originally given dominion over the Earth) is noted. The conclusion reached is finally summed up by saying, "Evolution makes man a little higher than the animals; Creation makes him a little lower than the angels."

These concluding remarks are not of a totally scientific nature. The main purpose is to show that one may choose to accept either Creation or evolution as a fact. Either view can be reconciled to agree with much of the evidence (at least in principle). Neither view can ever be proven scientifically since the origin of the Universe is not a matter of science (which deals with observable and repeatable experiments), nor of history (which depends on records—and no human recorded the event—in person), but of faith.

The final choice is then seen to be not so much a result of accepting incontrovertible scientific proof, as of personal faith. The careful teacher will be able to delineate the choice clearly enough that students can see that the real issue goes beyond merely HOW man appeared on Earth, but actually addresses the question of WHY man is on Earth. Clearly only the Creationist interpretation answers this latter, more important question.

Class Response

Those students who felt they did not want to hear the scientific evidence for Creation were allowed to go to the Media Center (library) during the three days when Creation was discussed. They were assigned to prepare reports on various aspects of Darwin's Theory.

The 44 students who remained in class (all but three) were asked anonymously to fill out a questionnaire and evaluate the six-day unit on origins. Responses were required for the first eight questions. The last two regarding church attendance were optional.

Following is the survey and results tabulated by per cent (except where indicated otherwise):

1. Do you believe that the evidences and information presented in this unit were presented in an objective and fair manner?
YES 96 NO 4
2. Do you approve of this treatment of the subject of origins?
YES 93 NO 7
3. How would you improve it? (suggestions listed by decreasing frequency of response)
No improvement needed
More detail on topics/more time

More student involvement/less lecture
 Vocabulary sheets (which the author agrees is very important)
 More arguments for Evolution
 More arguments for Creation

4. Did you object to any part of the presentation? What?
 YES 7 NO 93
 One student wanted more arguments for Creation, and one wanted more for Evolution, one objector made no comment.
5. If you did object should that part of the unit be omitted?
 YES 0 NO 100

6. Did you believe mostly in Evolution or Creation BEFORE this unit?
 EVOLUTION 27 CREATION 62 N/R 11

7. Do you NOW believe mostly in Evolution or Creation?
 EVOLUTION 25 CREATION 64 N/R 11

8. This unit:

	All Students	Originally Evolutionists	Originally Creationists
Caused me to be more convinced of Evolution	7	25	—
Caused me to be more convinced of Creation	25	—	41
Caused me to be more convinced of neither	39	25	44
Changed my belief from Evolution to Creation	4	17	—
Changed my belief from Creation to Evolution	0	—	0
No response	25	33	15
TOTAL	100	100	100

9. Do you attend church or synagogue?
 YES 45 NO 27 N/R 29
10. If so, how often? (As a percentage of those who attend)
 (Note: the responses here are likely to be somewhat skewed toward higher attendance as responses were optional and regular church attenders were more likely to answer)
- | | |
|----------------------------|----|
| Once or Twice a year | 4 |
| Four to eight times a year | 16 |
| Once a month | 8 |
| Once a week | 60 |
| Over once a week | 8 |
| No response | 4 |

Note that while only 45% of the students indicated church attendance almost two-thirds said they believed in creation.

Conclusion

Construction of a fair and objective unit on both Creation and Evolution is possible and desirable.

Students respond positively to a well thought out and clear presentation of the issues. With such a balanced presentation Christian teachers of science in secular intermediate and high schools can expose their students to both world views, encourage critical thinking, and demonstrate how a good scientist (an example for all reasonable people) must look at all sides of an issue and weigh all possible interpretations before drawing his conclusions.

It is hoped that this paper will generate some response and sharing of ideas relative to the objective presentation of the subject of origins in secular schools. The author found it necessary to present evolution as this is a part of the school district's competency standards. But it was not at all difficult to present more than one philosophy and let students make their own decision as to which world view better fits the evidence. From the class response it is apparent that most students, having been presented with evidence for both sides, made a choice which Creationists know to be most consistent with the evidence.

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⁴Eye Gate Media 1971. Introduction to evolution (filmstrip series) "Cultural Evolution", Educational Direction Service, Jamaica, N.Y.

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OUR FRIENDS HOLD BACK

WILLIAM J. TINKLE*

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This article is not one of our scholarly dissertations which reveal the true order of the world, but just a friendly talk with an important type of person. There are many church members who appreciate right conduct but consider right beliefs unimportant. We have a message for that person; and we are very desirous that he be our friend. Let us speak to him from here on.

We are supposing that you are not a member of the Creation Research Society, but have maybe borrowed

*William J. Tinkle, Ph.D., lives at Timbercrest Home, North Manchester, Indiana 46962.

this issue of the *Quarterly*. We like to lend, for we are not esoteric. Let us sit down and have a friendly talk.

Our statement in each issue of the *Quarterly* that "We are an organization of Christian men of science" is not an attempt to give the public a good impression of us; it is a simple statement of where we stand. When we were organizing the Society it was suggested that we could have many more members by inviting sympathetic non-Christians to come in. But we decided against that, believing that we could do more good by being true to the cause of Christ. We believe, moreover, that