

# Adding Feminist Values to the Evolution/Creation Debate

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## Legal Background

- ◉ The Creation Research Society collaborated with the Arkansas government to pass Arkansas Act 590, which mandated balanced treatment of creationism and evolution in public school science classes.
- ◉ In 1982, Judge Overton ruled against Arkansas Act 590, on the grounds that creationism was not science and that teaching it in science classes was an unconstitutional promotion of religion.
- ◉ Philosopher Michael Ruse was called as an expert witness in the case, testifying about the nature of science.
- ◉ Both he and philosopher Larry Laudan reviewed the legal decision and produced a lively written exchange published originally in the journal *Science, Technology and Human Values*.
- ◉ Their exchange has been reprinted in a number of philosophy of science textbooks and is discussed in a wide variety of university classes.
- ◉ Both Ruse and Laudan agree that creationism should *not* be taught in public school science classes, but they provide different rationales for their views.



## Creation Science

In the Arkansas case a very particular set of creationist claims was under discussion, often referred to as “creation science.”

Creation scientists claim that (some version) of the Biblical text of Genesis should be read as an empirical description of the origins of the universe. They study the scientific evidence for Biblical creation, and inferences from that evidence, to argue for:

- ◆The sudden creation of the universe, energy, and life from nothing;
- ◆The insufficiency of mutation and natural selection in bringing about the development of all living “kinds” from a single organism;
- ◆The special creation of humans as an event independent of the creation of other kinds;
- ◆An explanation of the Earth’s geology by appeal to catastrophism, including the occurrence of a worldwide (Noachian) flood;
- ◆A relatively recent inception of the Earth (approx 6-8,000 years ago).

## Ruse’s Testimony



Ruse believes that creation science is not science, but religion.

His legal game plan:

- 1) Assume that creation scientists actually believe that creation science is science, not religion;
- 2) Define science;
- 3) Use this definition to show that creation science isn’t science.

## Ruse's Testimony

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According to Ruse, scientific theories can be characterized by the following properties, more or less:

- 1) They express or appeal to laws and natural regularities;
- 2) They allow for explanations and predictions;
- 3) They can be tested, confirmed, and potentially, falsified;
- 4) They are tentative;
- 5) They are held with integrity.

## Ruse's Testimony

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According to Ruse, the theories of creation science fail to meet the 5 criteria.

- 1) Creation science claims that God can and does break natural laws.
- 2) Given that the theories of creation science make appeal to laws that can routinely be broken, then explanation and prediction are impossible.
- 3) "Creation scientists do little or nothing by way of genuine test" of their theories.
- 4) Creation scientists hold their theories dogmatically.
- 5) "Creation scientists use any fallacy in the logic books to achieve their ends."

## Laudan's Reply



- ⊙ Laudan worries that Ruse's description of science is incomplete and dangerously oversimplified.
- ⊙ If science is defined using the criteria provided by Ruse, then certain aspects of creation science theories count as scientific.
- ⊙ And certain theories that are generally considered scientific could be considered non-science.

## Laudan's Reply

- ⊙ Instead, says Laudan, we should acknowledge that some of the theories of creation science are indeed scientific, but they are incredibly weak.
- ⊙ In public school science classes, we do not have the time or resources to teach all the weak scientific theories ever proposed, we focus instead on the best theories available.
- ⊙ In contrast to the criteria for science laid out by Ruse, Laudan claims that:
  - Some of our best scientific theories did not have sound explanatory mechanisms in place when they were adopted, nor were many of them testable.
  - In contrast, creation scientists *do* make testable claims – the difference is that their claims have been tested *and they have failed* those tests.
  - Creation scientists aren't entirely dogmatic – they have made some revisions to their theories since the 19<sup>th</sup> century.
  - Scientists committed to evolution aren't as free from dogmatism as Ruse would like to believe.
- ⊙ Laudan's solution: When we do discuss creation science in a public school setting, we should confront each creation science claim at face value and show that the theory is not well supported by the evidence.

## Ruse's Response

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- ◉ “Unfortunately, the US Constitution does not bar the teaching of weak science. What it bars (through the Establishment Clause of the First Amendment) is the teaching of religion.”



## Debate Summary

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- ◉ Ruse ambitiously defines science in order to testify that creation science is not science.
- ◉ Laudan notes that some of Ruse's definitions can indeed apply to creation science, and worse, they don't describe science very well.
- ◉ Laudan instead attacks creation science by demonstrating its empirical failings.
- ◉ Ruse reiterates that Laudan's claims, even if true, will not help the constitutional case.
- ◉ The constitutional case requires showing that creation science is religion, not science, not even weak science.

## Feminist Interventions

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- ◉ We agree with the conclusion that creation science should not be taught in public school science classes.
- ◉ However, we think that the arguments of both Ruse and Laudan could be strengthened by acknowledging the important and inevitable role of values in science.
- ◉ Teaching the Ruse/Laudan debate provides a good opportunity for introducing into philosophy of science classes some feminist work on values in science.



## Anderson

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- ◉ In her 2004 essay “Uses of Value Judgments in Science,” Elizabeth Anderson argues that science isn’t value free and values aren’t science free.
- ◉ If by “value-neutral” we mean that scientific theories should not presuppose or support any value judgments, then neutrality is impossible.
- ◉ However, scientists should be *impartial* in evaluating scientific theories regardless of the values those theories presuppose or support.
- ◉ Impartiality is logically independent of neutrality.
- ◉ When scientists are being impartial they are evaluating the grounds for a scientific theory, including the values it presupposes or supports, solely on questions of epistemic strength (such as accuracy, consistency, and scope).

## Anderson

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- ⦿ Anderson makes use of scientific studies of emotional health and divorce to support her point.
- ⦿ She shows that studies supported and presupposed by particular feminist values are epistemically stronger than studies that are supported and presupposed by more traditional values.
- ⦿ She concludes that when recognized and evaluated impartially, value judgments have the potential to be used fruitfully in scientific endeavors.
- ⦿ “We need to ensure that value judgments do not operate dogmatically to drive inquiry to a predetermined conclusion.”
- ⦿ “This is our *fundamental criterion* for distinguishing legitimate from illegitimate uses of values in science.”

## A Stronger Case for Ruse

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- ⦿ Ruse’s arguments, splitting science so resolutely from religion, clearly represent the ideal that science is (or should be) value free.
- ⦿ Anderson recognizes that it’s not that we need to (or even can) keep science value-free (free of religion, free of politics, etc.)
- ⦿ Instead we need to work to keep science free of *dogmatically* held views.
- ⦿ Dogmatically holding onto any theory involves the refusal to re-evaluate it in light of new evidence, and the suppression of unsupportive data.

## A Stronger Case for Ruse

- ⦿ If Ruse were to acknowledge that values can and do play an important role in scientific endeavors...
  - he would still be capable of condemning creation scientists as unscientific, insofar as they have an unwavering commitment to their values (e.g., their commitment to the literal truth of [some version of the Genesis] account of creation).
  - and he would not be setting up science as an ideally value-free institution - an ideal that is available to attack from creation-scientists every time a particular value commitment is “revealed” to be playing a role in any given scientific decision.
- ⦿ Ruse should admit that religious and political values are ubiquitous in even the best science.
- ⦿ As long as those values are available to critical scrutiny, they do not hurt the epistemic success of science and in some cases they can help.

## Revisiting Laudan

- ⦿ In contrast to Ruse, Laudan’s recognition of the role of values in science is more realistic.
- ⦿ Laudan stresses that the religious values and motives of creation scientists are not relevant to the issue of whether or not creation science should be taught in public school science classes.
- ⦿ He also acknowledges that insofar as their values and motives function dogmatically, this dogmatism can also be found in scientists who support evolution.
- ⦿ For Laudan, like Anderson, dogmatism is a problem wherever it is found.
- ⦿ However, Laudan’s case could still be made stronger.

## A Stronger Case for Laudan

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- ◎ Laudan's commentary would benefit from the incorporation of Anderson's claim that, as long as they are not held dogmatically, value judgments can function like empirical hypotheses.
- ◎ From Anderson:
  - a value judgment is "more epistemically fruitful than another, relative to a controversy, if it guides a research program toward discovering a wider range of evidence that could potentially support any (or more) sides of a controversy."

## A Stronger Case for Laudan

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- ◎ The success of Laudan's argument against creation science stems from his willingness to treat the theories of creation science and evolution as genuine scientific theories that both incorporate values.
- ◎ Following Anderson, he could approach the debate by examining the different value judgments held by both creation scientists and scientists who support evolution.
- ◎ Examining which sets of values help discover a wider range of evidence that could potentially support any (or more) sides of the controversy, the theories of creation science clearly come up short.

## In Conclusion

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Regardless of the foundational differences in Ruse and Laudan's commentaries regarding the nature of science and creation science, both of their arguments make room for and can be strengthened by feminist arguments.

Discussions of the Ruse/Laudan debate in philosophy of science classes provide a good place to introduce work on feminist values and science.

Thanks!