dictions of QCD are actually the predictions of pseudo-QCD models that are mixtures of the perturbative QCD and arbitrary assumptions about hadronization. A good example of the claim of verifying QCD based on such pseudo-QCD models is the well-publicized claim of the discovery of gluon jets in e^+e^- annihilation.[1] The sensitivity of this claimed discovery of gluon jets on the underlying assumptions of hadronization has been pointed out and some remedial measurements urged by the author.[2] These remedial measurements can be carried out both in PETRA at DESY and PEP at SLAC, but have yet to be performed. It is clear that the essential step in the process of verifying QCD is not in piling up more predictions based on pseudo-QCD models but rather in the willingness of experimentalists to carry out the objective measurements necessary to reduce the arbitrariness of the assumptions about hadronization. Also the ability of theorists to solve the theory of QCD will eventually become overwhelmingly important in the process to verify QCD.[3] Before QCD is confirmed beyond reasonable doubt, predictions of grand unified theories can only stay at the level of the usual high-risk speculation of some theorists. The best motivation for constructing new accelerators seems still to be their potential for discovering radical phenomena beyond the imagination of theorists. At a time when the costs of future accelerators are approaching the level of small-arm systems for the Pentagon, I believe that an honest view of the present status of high-energy physics theory is not only essential for high-energy physicists, but is also important for the physics community as a whole.

References

1. PHYSICS TODAY, February 1980, page 17.
2. C. K. Chen, Phys. Rev. **D23**, 712 (1981); "Why the discovery of gluons in e^+e^- annihilation is not reliable," Purdue University Preprint (1981).
3. C. K. Chen, PHYSICS TODAY, May 1982, page 123.

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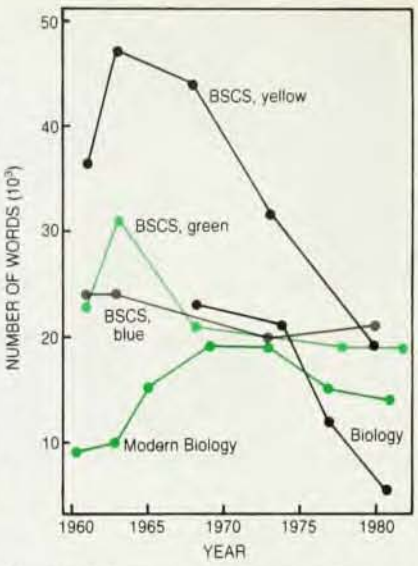
2/83

Creationism once more

In April (page 82) Wayne Newquist asks where "efforts to eliminate the teaching of evolution" may be found. One answer is in our public schools. One needs only to look at the changes made by publishers of high-school biology texts who have apparently yielded to creationist influences in recent years. The accompanying graph is a plot of the number of evolutionary



Number of references to evolution in consecutive editions of five high-school biology texts versus date of publication. *Biology Science Curriculum Studies*, Yellow cover, published by Harcourt Brace Jovanovich (except 1961, by BSCS); *BSCS*, Green cover, published by Rand McNally (except 1982, by Houghton Mifflin); *BSCS*, Blue cover, published by Houghton Mifflin (except 1980, by Heath); *Modern Biology*, published by Holt, Rinehart & Winston; *Biology*, published by Silver Burdett.

words or phrases contained in five major texts over several editions each versus year of publication. These data were collected by Gerald Skoog.[1] Textbook policies requiring qualifications with any references to evolution, such as those of the Texas State Board of Education, sanction this gradual erosion of quality, accurate textbook material. The effect can only be called censorship,[2] since no corresponding deemphasis of evolution has occurred in the life sciences. To draw an analogy, it is as if references to Newton's laws were being removed from secondary-school physics texts. Thus does creationism contribute to poor-quality science education in this country, and public-school students become its victims.

References

1. "Converge of Evolution in Secondary School Biology Textbooks: 1900–1982," Gerald Skoog, Dept. of Education, Texas Tech University, paper delivered to American Biology Teachers' Assn., October 1982.
2. "Censorship of Evolution in Texas," Steven Schafersman, *Creation/Evolution*, Issue X, Fall 1982, page 30.

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4/83

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If the creation scientists should win out and we have to begin teaching the Bible in the classroom, physics need not be left out of what has been heretofore a domain of biology. The Flood, for example, offers several simple problems which can be considered at say the high-school level:

▶ Using data from the World Almanac and assuming an average height for the land of 1.5 mi, calculate the total volume of water needed to cover the entire Earth to the altitude of Mt. Everest. (Answer: 972 million cubic miles.)

▶ Using the answer to problem 1 and data from the World Almanac, find the ratio of volume of rain which fell during the Deluge to the volume of water currently in all the oceans of the world. (Answer: 3.09.)

▶ Using the answer to problem 1 and allowing 40 days and nights to cover the Earth, find the rate at which rain must have fallen during the Deluge. (Answer: 5.60 inches/minute.)

▶ If a heavy rain (say during a thunderstorm) is defined to fall at the rate of 2 inches per hour, what is the ratio of the rate of rainfall during the Deluge to that of a thunderstorm? (Answer: 156.)

The teacher is to be discouraged from asking the student to think about such unanswerable questions as: Where did all that water come from and where did it go? How did life forms not taken into the Ark survive submersion under the heavy pressure of 5 miles of water? Why are there not traces remaining, even after several thousand years, of erosion brought on by such a heavy rainfall? Why did God choose such a difficult method by which to destroy mankind, when all he needed was to invent a deadly virus (something perhaps man himself will soon learn to do) to wipe him out?

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4/83

List of refusniks

One may wonder if the space in a professional journal like PHYSICS TODAY is well spent debating such polemical matters as whether a Jew can be a Russian (See letters of Mark Azbel, Ernest Silver, Vladislav Bevc in February, pages 97–101) and whether Academician Anatoly A. Logunov did his best to favor the exit of Victor Brailovsky.

The professional treatment of physicists throughout the world is, however, a clear matter of concern to PHYSICS TODAY and its audience—I therefore believe that it might be of interest to publish a biennial list (more frequent if necessary) of the names of *all* physicists from *all* countries who have been refused attendance at international meetings to which they have been