

## Evolution and education

SIR—Your erroneously titled “Californian setback for evolutionists” (T. Beardsley, *Nature* 5 September, p.3) described an unprecedented recommendation by California’s Curriculum Commission: that no science textbooks be adopted for grades 7 and 8 unless the books be revised to give proper treatment to evolution and human reproduction, among other subjects. This was a significant defeat for creationists and others who try to subvert science education in this state. The defeat was certified on 13 September, when the Board of Education accepted unanimously the Curriculum Commission’s plan.

Beardsley erred when he attributed to California an “antidogmatism law”. No such law exists. But the Board of Education has an antidogmatism policy, which dictates: “That, on the subject of discussing origins of life and Earth in public schools: (1) Dogmatism be changed to conditional statements where speculation is offered as explanation for origins. (2) Science should emphasize ‘how’ and not ‘ultimate cause’ for origins.”

This grotesque declaration, adopted in 1972, is noteworthy for many reasons. First, it is blatantly dogmatic. Second, it can be explained only as a device for appeasing creationists and for abetting their attempts to distort the teaching of science. Third, it erects a wholly specious, intellectually indefensible demarcation between discussions of “origins of life and Earth” and discussions of all the other subjects that science addresses. Fourth, nobody can say precisely what the policy means or requires, because none of its terms — dogmatism or conditional statements or speculation, for example — is defined. Fifth, in an antic, confused decision rendered in 1981, a judge of California’s Superior Court suggested that the policy should apply not only to discussions of “origins of life and Earth” but also to discussions of organic evolution. Sixth, since 1981, creationists in California have relentlessly and conspicuously invoked the policy (and their own interpretations of its surrealistic language) during efforts to vitiate or suppress discussions of evolution in textbooks and in science classes. Seventh, because the policy’s only evident purpose is to serve the adherents of a particular religious dogma, the policy’s constitutionality is (to say the least) questionable.

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**Tim Beardsley writes:** In the 1981 case referred to by Bennetta, Sacramento Superior court Judge Perluss not only upheld the validity of the antidogmatism policy but also ordered the State Board of Education to disseminate it to all interested parties; the policy may therefore be not entirely without legal force. □

## Teenage SCOPE

SIR—Your article entitled What to make of nuclear winter” (*Nature* 19 September, p.189, mentions “the working party called the Scientific Committee on Problems of the environment (SCOPE) set up three years ago by the International Council of Scientific Unions (ICSU)”. This sentence give a wrong picture of our committee. As you might know, SCOPE is one of the ten scientific committees of ICSU and was established in 1969 to assemble, review and assess the information available on man-made environmental changes and the effects of these changes on man.

In 1982, the SCOPE General Assembly decided, at the request of ICSU, to appraise the state of knowledge of the possible global environmental impacts of nuclear war. That project, called ENUWAR, may have been the most important of some ten international scientific projects undertaken by SCOPE during the past triennium, but it does not overshadow the contribution of SCOPE during the past fifteen years to the advancement of scientific knowledge on many problems of global environmental concern.

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## Velikovsky’s evidence?

SIR—Lynn Rose’s defence of his interpretation of the Venus Tablets<sup>1</sup> may be seductive, but his conclusion is neither as inevitable nor as secure as he argues. He states that the tablets “strongly support Velikovsky’s theory that Earth has undergone catastrophic orbital change within historic times”. However, there is no explicit connection between the tablets and Velikovsky’s catastrophes. Indeed, the change implied in the shape of Earth’s orbit is a far cry from the intersecting orbits discussed by Velikovsky. The only philosophically justifiable conclusion is that Rose’s interpretation of the tablets “is consistent with” Velikovsky’s theory, not “strongly supportive”.

In contrast to Rose’s insistence on ignoring as few of the observations in the tablets as absolutely necessary, he argues his case favouring Velikovsky while ignoring a plethora of contradictory data. The falsification of Velikovsky’s scenario provided by Greenland’s Dye 3 ice core<sup>2</sup> is corroborated by ocean sediments and bristlecone pine rings<sup>3</sup> and the revised late-glacial Swedish varve chronology<sup>4</sup>. Either their mere existence contradicts Velikovsky or they do not contain debris suggesting a catastrophe. Velikovskian catastrophes are neither indicated by nor necessary to explain the natural stratigraphies of the Holocene.

Furthermore, according to Rose’s own

work with Vaughan<sup>5</sup>, the sequence of orbital changes implied by *Worlds in Collision* that conserves angular momentum without increasing orbital energy starts with the untenable condition of Earth closer to the Sun than Venus now is. Surely such a severe physical constraint<sup>6</sup> is to be accorded more weight in assessing the validity of Velikovsky’s theory than an idiosyncratic interpretation of the enigmatic Venus Tablets.

The Terminal Cretaceous Event 65 million years ago, whatever it was, left unambiguous, worldwide signatures of iridium<sup>7</sup> and soot<sup>8</sup>. The catastrophe Velikovsky conjectured within the past 3,500 years left no similar signatures. In this light, advocating the validity of Velikovsky’s scenario, as Rose does, strains the bounds of credulity, both scientific and philosophical.

If the Venus Tablets preserve authentic observations, however disguised by copying errors, then explaining the discordant observations needs to be accomplished with new insight. For example, John D. Weir has suggested to me that if a formerly very bright comet periodically altered the sky’s brightness, then the dates of appearances and disappearances for Venus would be affected. The debris from the disintegration of comet Encke 4,700 years ago, discussed by Clube and Napier<sup>9</sup>, would be a possible agent. The clay of the Venus Tablets is far too fragile a foundation upon which to justify a new physics for the rationalization of Velikovsky’s theory.

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1. Rose, L. E. *Nature* 317, 470 (1985).

2. Ellenberger, C. L. *Nature* 316, 386 (1985).

3. Ellenberger, C. L. *Kronos* X:1, 92–97 (1984).

4. Cato, I. *Boreas* 14, 117–122 (1985).

5. Rose, L. E. & Vaughan, R. C. *Penise, Velikovsky Reconsidered*, 110–132 (New York & London, 1976).

6. Ellenberger, C. L. *Kronos* X:1, 91–92 (1984).

7. Alvarez, L. W. *et al. Science* 208, 1095–1108 (1980).

8. Wolbach, W. S. *et al. Science* 230, 167–170 (1985).

9. Clube, V. & Napier, B. *The Cosmic Serpent*, 150–153 (New York & London, 1982).

## Help wanted

SIR—In collaboration with Professor Richard Gregory, Professor Dorothy Hodgkin, Sir Fred Hoyle, Sir Peter Medawar and Dr Jonathan Miller, I am preparing an anthology of science writing, to be published by Basil Blackwell. The intention is to bring together a wide variety of pieces, ancient and modern, of varying length, and drawn from all sectors of science, the sole criterion being that of literary excellence. We would be delighted to receive suggestions from readers of *Nature* regarding items suitable for inclusion in what we hope will prove to be a work of sheer aesthetic and intellectual delight.

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