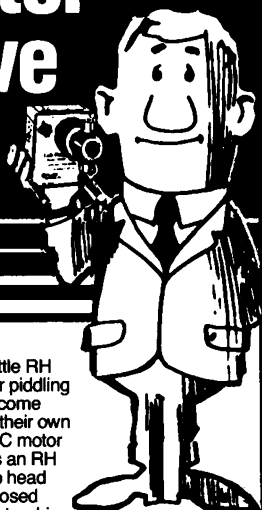


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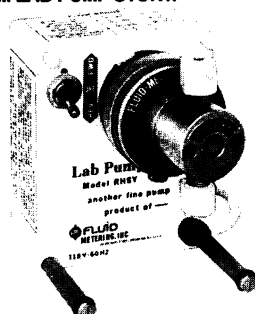
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Calculations Zeilik presents to support his argument refuting the lunar markings are in error by factors of 2 or more, as well as being internally inconsistent. The shift of the average limiting position of the moonrise shadow edge after the major extreme is 2.6 centimeters in 2 years (not "1.5 cm") and 5.6 centimeters in 3 years (not "a little over 2 cm"). The correct values make the marking of the lunar cycle significantly more evident. The argument that the shadows are not "reliably marked" on the "weathered petroglyph" disregards that when the spirals were first made and used they were not weathered. Zeilik supports his proposal that a lunar marking was, instead, a mid-May solar marking by citing "important corn and bean planting" at the historic Hopi Pueblo. His reference (2), however, makes no mention of any particular planting time in mid-May, but stresses that planting was determined by season and weather. In describing "the gist" of our reports of the lunar markings (3), Zeilik describes incorrectly, or omits mention of, several key features of the site that underscore these markings and their symmetry.

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## REFERENCES

1. F. Ellis, in *Archaeoastronomy in Pre-Columbian America*, A. F. Aveni, Ed. (Univ. of Texas Press, Austin, 1975), pp. 59-87.
2. E. Beaglehole, *Yale Univ. Publ. Anthropol.* 15 (1937).
3. A. Sofaer, R. M. Sinclair, L. E. Doggett, in *Archaeoastronomy in the New World*, A. F. Aveni, Ed. (Cambridge Univ. Press, New York, 1982), pp. 169-181; A. Sofaer and R. M. Sinclair, in *Astronomy and Ceremony in the Prehistoric Southwest*, J. Carlson and W. J. Judge, Eds. (Maxwell Museum Technical Series, Univ. of New Mexico, Albuquerque, in press).

**Response:** Sofaer and Sinclair raise two main points, first, the usefulness of ethnographic analogy and, second, the visibility of the motion of the shadow edges cast by the moon.

A methodological framework for the use of analogy is where ethnographic data can "serve as resources for testing hypotheses which seek to relate material and behavioral cultural phenomena" (1, p. 63). Pueblo sun-watching practices (2) show the importance of anticipatory observations. A conservative hypothesis is that anticipation was an important aspect of a Chacoan Anazasi calendar. This does not "equate" past and present, but forms a baseline for evaluating calendrical sites. Ellis (3) implicitly uses a similar approach in her analysis, while suggesting that practices may have been more elaborate in pre-Hispanic times.

As Sofaer and Sinclair correctly note, my calculation contained an error: their values are correct. This change makes the motions more evident, but they will amount to roughly a centimeter per year and only about a millimeter per month in the 2 years before the standstill. The visibility of such motions in moonlight and on a rough rock surface still limits the usefulness of the site for anticipating the standstills.

For Hopi planting dates, a more specific reference is a paper by Forde (4, p. 385 and figure 6), who indicates that the main corn planting occurred in the third week of May. This and other dates were announced ahead of time by the official Sunwatcher.

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## REFERENCES

1. L. R. Binford, *An Archaeological Perspective* (Seminar Press, New York, 1972), pp. 59-67.
2. M. Zeilik, *Archaeoastronomy* (no. 8), 51 (1985).
3. F. H. Ellis, in *Archaeoastronomy in Pre-Columbian America*, A. F. Aveni, Ed. (Univ. of Texas Press, Austin, 1975), pp. 59-87.
4. C. D. Forde, *J. R. Anthropol. Inst. G.B. Ir.* 61, 357 (1931).

## International Congress Attendance

Roger Lewin's article "Archeology congress threatened" (News & Comment, 22 Nov., p. 921) expresses a misconception that I ask to be allowed to correct: that is the statement that the decision was "to deny attendance to anyone working in South African institutions." The ban is wider than what is represented in the article.

On receiving the circular letter sent to all scientists living in South Africa denying them participation in the so-called World Archaeological Congress, I wrote pointing out that I was born and educated in England, could travel on a British passport, and am not (nor ever have been) employed by any South African university or other institution, being a self-employed professional man and private scholar. The reply from the World Archaeological Congress states that I cannot participate while I am domiciled in South Africa.

May I add that I am appalled that scientists in England should deny fellow members of distinguished British scientific bodies such as the Royal Society, the Royal Anthropological Institute, and the Society of Antiquaries the right to attend an international congress in England, and this on solely political grounds.

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