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## This Week

- 404 Data and Dispute Mark AIDS Meeting
- 404 EPA suspects ELF fields can cause cancer
- 405 Iraq temple may be ancient medical center
- 405 Radiation limits to plunge
- 406 Tamarin tale: Tracking down a new species
- 406 Probing cocaine in the heart and the brain
- 407 'Young' volcano near nuclear waste site
- 407 Hubble: First light with a second eye

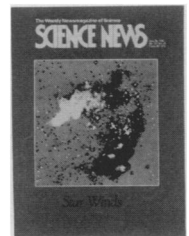
## Research Notes

- 410 Biomedicine
- 410 Environment

## Articles

- 408 The Winds of Starbirth

Cover: This picture of Messier 17, a region of star formation located in the Milky Way about 7,000 light-years from Earth, represents what we might see if our eyes were sensitive to infrared rather than visible light. From such penetrating views of dust-enshrouded stellar nurseries, astronomers are now laying the foundations for a coherent theory of the birth of sun-like stars. One model postulates that stellar winds play a crucial role in determining how stars are born. (Image: Ian Gatley et al./Kitt Peak National Observatory/National Optical Astronomy Observatories)



## Departments

- 402 Science on the Air
- 402 Books
- 411 Semi-Annual Index

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## Letters

### Species semantics

"Modern Humans May Need Redefining" (SN: 4/14/90, p.228) illustrates a pair of problems facing all taxonomy: the failure to compare like with like, and the fact that "species" are *concepts* and not organisms.

"Modern man" is defined on a time basis — any human living today or in the recent past. Any of its physical traits thereby become "modern." But fossils are defined by their physical attributes, on an entirely separate basis. If "modern man" has a chin, then either the Klasies fossils has a chin, then either the Klasies fossil has a "modern" chin, or — looking from the other end — the chin is an "archaic" feature in modern man. Until each anatomical feature is viewed separately and its changes accurately traced through time, the arguments over "archaic" and "modern" man will be irresolvable because they are based on the erroneous idea that "species" evolved in a unitary way.

Even the few items mentioned in the article

show that mosaic evolution exists in hominids (the chin appeared before the large teeth disappeared). This is in direct conflict with the basis of "punctuated equilibria" in which one invariant "species" (concept) is abruptly replaced by another concept that also shows "stasis" (the absence of change). It is clear from the details cited that this does not describe human evolution.

Recognition of mosaic evolution will be much more helpful in unraveling human evolution than semantic disputes over "species." The concept of *Homo sapiens* will always be as impossible to define objectively as "justice" or "truth." All concepts remain ultimately personal, not scientific.

Alan B. Shaw  
Geologist  
Kerrville, Tex.

### Modest effort, lofty goal

"Going for the Whole Moon" (SN: 4/28/90, p.264) states that building a permanent lunar outpost "requires something like the Lunar Observer." That "something" is Lunar Pros-

pector, a satellite in its final design stages *now*, not in seven or eight years down the road. Lunar Prospector is a modest effort coordinated by the Space Studies Institute in Princeton, N.J., using the remaining Apollo gamma-ray spectrometer, which was generously donated by NASA. Total costs will be, I believe, on the order of \$10 million to \$15 million, all from individual and corporate donations.

Thousands of space enthusiasts are working for the creation of a space-faring civilization, with a permanent and expanding human presence in space. I question whether grand, expensive and elaborate NASA projects, dependent on political commitment (an oxymoron?), will lead us to that goal.

William Bogen  
Ann Arbor, Mich.

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Please limit letters to 250 words.  
All letters subject to editing.

JUNE 30, 1990

403