

reason. Systematics is not simply the identification of specimens, it is the reconstruction of evolutionary history; and it should be supported not just because it has practical applications (which it does) but because it is a fundamental scientific discipline.

Systematics is important because all living things are the product of history, and we can understand little about the diversity of organisms without knowledge of their history—the phylogenetic knowledge provided by systematics (1). One might just as well try to understand the current political conflicts in Central America or the Middle East without understanding the history of the people of those areas.

Oliver correctly deplores the placement of major systematics collections in "maintenance storage," and we further deplore the disposal of other collections (2) and the retreat of university biology departments into nonevolutionary disciplines. Many of the biological "laws" that such disciplines discover may be bounded by clade and place, and only systematic research—research on evolutionary history—can discover those bounds.

Other recent calls for the support of systematics (3) have also emphasized its practi-

cal and cataloging aspects. We agree strongly that systematics is insufficiently supported, but we fear that these arguments based exclusively on "usefulness" will backfire in the long run. Systematics will not attract the brightest students—the true innovators of theory and practice—if it is portrayed as an identification service. Systematics must command attention because of the intellectual challenge it represents, in and of itself, as the study of evolutionary history.

ROBERT J. O'HARA  
DAVID R. MADDISON  
*Museum of Comparative Zoology,  
Harvard University,  
Cambridge, MA 02138*

PETER F. STEVENS  
*Curator, Arnold Arboretum and Gray  
Herbarium, Harvard University Herbaria,  
22 Divinity Avenue,  
Cambridge, MA 02138*

#### REFERENCES AND NOTES

1. For examples of the importance of phylogenetic knowledge to other disciplines, see J. A. Coddington, *Cladistics* 4, 3 (1988); J. Felsenstein, *Am. Nat.* 124, 1 (1985); W. L. Fink, *Paleobiology* 8, 254 (1982); G. V. Lauder, *ibid.* 7, 430 (1981).
2. C. Holden, *Science* 228, 38 (1985); F. A. Jenkins, Jr., E. L. Simons, M. C. McKenna, P. D. Gingerich, *ibid.* 229, 330 (1985).

3. M. Kosztarab, *ibid.* 223, 443 (1984); M. S. Strauss, *ibid.* 239, 714 (1988) (emphasizes technology); M. Sun, *ibid.* 237, 967 (1987); E. O. Wilson, *ibid.* 230, 1227 (1985).
4. We thank G. C. Mayer and E. E. Williams for their comments.

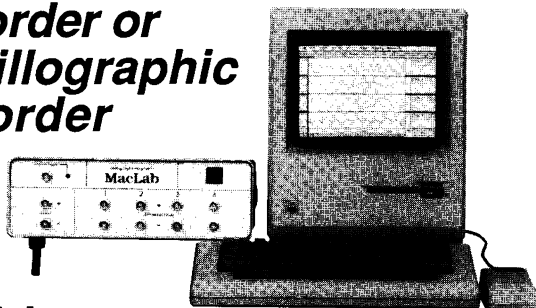
#### Mesoamerica, Not the New World

I was enjoying Roger Lewin's essay on agricultural origins (*Research News*, 20 May, p. 984) until I found myself misquoted. Lewin quotes me as seeing no evidence "anywhere in the New World" to suggest that population pressure was responsible for the beginnings of agriculture. What I said was that I saw no such evidence anywhere in Mesoamerica (a culture area stretching roughly from central Mexico to Honduras).

I would never have extended my comments to the whole New World, because I know that some areas, such as the Pacific Coast of Peru, had much higher population densities than Mexico. It is still too early to rule out population pressure in Peru.

KENT V. FLANNERY  
*Museum of Anthropology,  
University of Michigan,  
Ann Arbor, MI 48109*

## Turn your Macintosh into a paperless 4-channel pen recorder or oscillographic recorder



...with

# MacLab™

**Costs \$2000 to  
\$6000 less than  
comparable analog  
equipment!**

- **Hardware** unit has four input channels and a 12-bit analog-to-digital converter, trigger input, plus a waveform generator for analog output through a 12-bit DAC. Plugs into the modem port of any Macintosh. 40 kHz sampling rate.
- **Software** included: With "CHART," your Mac screen emulates a four-channel paper chart recorder. "SCOPE" turns your Mac into a digital storage oscilloscope. Lets you manipulate and analyze your data files — saving hours or days of manual calculations working with an expensive and cranky polygraph! Resulting plots can be printed out on Apple's ImageWriter or LaserWriter printers.

*Runs on any Mac with at least 512K memory and two disk drives*



**World Precision Instruments, Inc.**

375 Quinnipiac Ave • New Haven, CT 06513 • 203-469-8281

## CRUSHES AND EMPTIES SCINTILLATION VIALS

- GLASS AND  
PLASTIC
- THOUSANDS  
PER HOUR



Worker dumps vials from tray into Vyleater's basket, raises it to top, unit does the rest. **Fast.** Vials not handled one by one. **Safe.** Hands never contact liquid. Handles various sizes. Liquid and solids automatically deposited in separate containers. Internal fumes exhausted into building's vent system. **Easy to use, compact and efficient.**



Write for descriptive literature or call  
**414-464-5310**

**ENTERPRISES, INC.**

5630 N. 91st St., Milwaukee, WI 53225

Circle No. 114 on Readers' Service Card

Circle No. 34 on Readers' Service Card