

(7) also suffered from most of these design faults, and it considered only two pollutants, neglecting the influence of their correlates. These two studies (4, 7) are thus a shaky basis on which to attempt to interpret the ambiguous daily studies.

Finally, the scientific skepticism about this issue runs much deeper than just pro forma industrial opposition. A recent invited critical review of the particulate matter standards expressed doubt about the validity of both the short- and long-term mortality studies (8), and other academics have expressed similar opinions (9, 10). EPA would be well advised to demonstrate the actual public health benefits already accrued from its existing air quality regulations before mandating the hefty additional investments that meeting the new regulations will require.

Frederick W. Lipfert
Environmental Consultant,
23 Carll Court,
Northport, NY 11768, USA

References

1. J. M. Samet, S. L. Zeger, J. E. Kelsall, J. Xu, "Air pollution, weather, and mortality in Philadelphia, 1973-88, Report to the Health Effects Institute on Phase 1B: Particle Epidemiology Evaluation Project" (Johns Hopkins Univ. Press, Baltimore, MD, 1996).
2. R. T. Burnett, S. Cakmak, J. R. Brook, D. Krewski,

Environ. Health Perspect. **105**, 614 (1997).

3. F. W. Lipfert and R. E. Wyzga, *J. Air Waste Manag. Assoc.* **47**, 517 (1997).
4. D. W. Dockery *et al.*, *N. Engl. J. Med.* **329**, 1753 (1993).
5. E. L. Frazier, C. A. Okoro, C. Smith, D. V. McQueen, *Morbid. Mortal. Wkly. Rep.* **45** (no.556), 1 (1996).
6. F. W. Lipfert, in *Particulate Matter: Health and Regulatory Issues* (Air and Waste Management Association, Publ. VIP 49, Proceedings of the International Specialty Conference, Pittsburgh, PA, April 1995), pp. 78-102.
7. C. A. Pope, III, M. J. Thun, M. M. Namboodiri, D. W. Dockery, J. S. Evans, *Am. J. Resp. Crit. Care Med.* **151**, 669 (1995).
8. S. Vedal, *J. Air Waste Manag. Assoc.* **47**, 551 (1997).
9. R. F. Phalen, testimony before subcommittees on health and environment and on oversight and investigations, Committee on Commerce, U.S. House of Representatives, 8 May 1997.
10. A. A. Moghissi, *Environ. Intl.* **23**, 147 (1997).



Genetic Evolution of Morphology

Two commentaries in the 4 July issue, by their contrast, inadvertently point to a missing element in most discussions of the evolution of animal form. In his Perspective "Which came first, the hypha or the yeast?" (p. 52), P. T. Magee draws the lesson from a report by B. R. Braun and A. D. Johnson (4 July, p. 105) that the existence of a simple genetic switch between the budding yeast and the thread-like hypha morpholo-

gies of *Candida albicans* suggests that "there is no 'default' form for this organism." This seems reasonable: *C. albicans* is thought of as polymorphic, with numerous forms being consistent with a single genetic constitution. The choice between alternative forms in such cases may depend on epigenetic or environmental factors, although, in principle, heritable genetic change could bias such choices, leading to distinct morphological varieties.

This view may be compared with one presented in the Special News Report by Elizabeth Pennisi and Wade Roush "Developing a new view of evolution" (4 July, p. 34), in which they discuss, among other things, recently published evidence that a gene called *manx* distinguishes a species of tunicates whose larvae lack tails from a related species whose larvae develop them (B. J. Swalla and W. R. Jeffery, Reports, 15 Nov., 1996 p. 1205). We are told in the News article that the result "raises the possibility that a single genetic change could be responsible for the innovation that led to a tail in primitive vertebrates."

The attribution of ineffable creative power to individual genes is not an isolated instance, but can be traced back at least to the erroneous "unit character" model of Mendelism propounded by some early ge-

FELIX

CALL FOR PROPOSALS

CLIO

for research in (bio)physics, (bio)chemistry or (bio)medicine

by two Infrared Free Electron Laser facilities supported jointly under the TMR Programme for Access to Large-scale Facilities. Beam time at the two facilities is allocated on the basis of a review of research proposals by Programme Advisory Committees with EU membership. Access is free of charge for all non-proprietary research. Limited funding for travel is available for researchers from EU countries.

The deadline for the present call is 1 December 1997.

FELIX at the FOM Institute for Plasma Physics, Nieuwegein, The Netherlands

The FELIX facility provides continuously tunable infrared radiation in the range of 5-110 μm , at peak powers up to 100 MW in sub-ps pulses. Ancillary equipment includes synchronized visible lasers and a 60T pulsed magnet facility. The present call concerns the period March - August 1998.

Information about FELIX and ancillary equipment, including guidelines for submitting a proposal, is available on internet: <http://www.rijnh.nl/DEPARTMENTS/LASER/FELIX/USER/user.html> or via e-mail: lauravv@rijnh.nl.

CLIO at LURE, Orsay, France

The CLIO laser user facility provides a beam in the spectral range: 3 to 53 μm (continuously tunable) with peak power: 10 to 100 MW (in 0.5 to 6 ps pulses, minimum linewidth $\approx 0.3\%$), repetition rate of 32 to 4 ns (during 10 μs macropulses 1-50 Hz) and average power up to 2 W. Laser pulses at 2 different wavelengths can be produced, for ps time resolved 2-color pump-probe experiments. Ancillary equipment (in particular OPOs between 2 to 6 μm) is available.

Those interested in the use of CLIO in 1998 are invited to submit a research proposal on requests forms, which are available from Mrs M. Le Monze, LURE, Bat. 209 D, Université Paris-Sud, 91405 - Orsay, France. Fax: +33-1-6446-4148, Tel.: -8014, e-mail: lemonze@lure.u-psud.fr. More information is available on: <http://www.lure.u-psud.fr>.

neticists (1) and lives on in some precincts of developmental and evolutionary biology (Letters, C. Nielsen, 5 Sept., p. 1422). Investigators of the regulation of morphogenesis of protists and bacteria seem relatively resistant to this form of mystification, as exemplified by the recent work on *C. albicans* [see also (2)].

Genetic absolutism does not take into account that the correspondence of a given genotype to a nearly unique morphological phenotype seen in modern animals may itself be a product of evolution: in the absence of more recently evolved redundancies and other back-up mechanisms, the earliest animals may have been as polymorphic, or more so, as *C. albicans*. If true, this would imply that once the metazoa emerged, the genetic evolution of morphology would have been implemented not so much by the origination of novelty as by the selective stabilization of particular forms from those within the ancestral animals' morphological repertoire (3).

Stuart A. Newman

Department of Cell Biology
and Anatomy,
New York Medical College,
Valhalla, NY 10595, USA
E-mail: newman@nymc.edu

References

1. L. C. Dunn, *A Short History of Genetics* (McGraw-Hill, New York, 1965).
2. J. T. Bonner, *Life Cycles: Reflections of an Evolutionary Biologist* (Princeton Univ. Press, Princeton, NJ, 1993).
3. S. A. Newman, *J. Evol. Biol.* **7**, 467 (1994).

Resonance Raman Results: Retraction

We wish to alert readers that the resonance Raman spectra reported in two papers (Reports, D. Qiu *et al.*, 6 May 1994, p. 817; M. Kumar *et al.*, 27 Oct. 1995, p. 628) (1, 2) have been found to be unreliable and to consist of artifacts. However, the non-Raman data in both reports are reliable. We are confident that all the samples were properly prepared and contained the reaction intermediates under investigation. However, we have been unable to reproduce the Raman spectra with fresh samples, and judge the published spectra to be artifacts resulting from electronic processing of the data.

This retraction affects our main conclusions in both papers about the metal(s) to which CO and methyl bind in CODH, because these conclusions rested heavily on the reported isotope sensitivity of signals that we now consider spurious. We are working to produce positive new evidence regarding this topic.

Thomas G. Spiro
Department of Chemistry,
Princeton University,
Princeton, NJ 08544, USA

References

1. D. Qiu, M. Kumar, S. W. Ragsdale, T. G. Spiro, *Science* **264**, 817 (1994).
2. M. Kumar, D. Qiu, T. G. Spiro, S. W. Ragsdale, *ibid.* **270**, 628 (1995).

Corrections and Clarifications

In the Table of Contents for the issue of 12 September, on page 1579. Technical Comment author H. Tiedemann's name was spelled incorrectly.

In This Week in Science for the issue of 5 September (p. 1413), it is stated incorrectly under the title "Big craters on little bodies" that Vesta is an "Earth-crossing" asteroid. Vesta's orbit is completely within the main asteroid belt. Only its meteoroid progeny are found in Earth-crossing orbits.

In the next-to-last paragraph of the letter "Telomerase activity of reverse transcriptase" by Miria Ricchetti and Henri Buc (15 Aug., p. 887), the last sentence should have begun, "On specific template sequences, it is therefore sufficient to modify the cationic environment (from magnesium chloride to manganese chloride in the reaction buffer)..." Magnesium chloride and manganese chloride were inadvertently reversed during the editing process. Science regrets the error.

In figure 2 (p. 495) of the article "Human domination of Earth's ecosystems" by P. M. Vitousek *et al.* (25 July, p. 494), the y axis should have read, "Percentage," not "Percentage change."

The e-mail address of K. Tanaka, corresponding author of the report "Epilepsy and exacerbation of brain injury in mice lacking the glutamate transporter GLT-1" (13 June, p. 1699), was incorrect. It should have been, "tanaka@ncnaxp.ncnp.go.jp".

Letters to the Editor

Letters may be submitted by e-mail (at science_letters@aaas.org), fax (202-789-4669), or regular mail (*Science*, 1200 New York Avenue, NW, Washington, DC 20005, USA). Letters are not routinely acknowledged. Full addresses, signatures, and daytime phone numbers should be included. Letters should be brief (300 words or less) and may be edited for reasons of clarity or space. They may appear in print and/or on the World Wide Web. Letter writers are not consulted before publication.

HUMAN EMBRYONIC AND FETAL TISSUE

- ◆ Exclusively for biomedical research at universities and nonprofit scientific institutions.
- ◆ The laboratory has studied normal and abnormal development and provided tissue for 35 years.
- ◆ Most tissues are available for study.
- ◆ Tissues can be supplied from most gestational stages and from normal or abnormal specimens.
- ◆ Immediate processing includes rapid fixation, LN₂, balanced salt or medium as requested.
- ◆ Tissues shipped nationwide by overnight air are suitable for molecular biology, enzymology, receptor study, electron microscopy, etc.

For further information:

Phone 800-583-0671
FAX 800-583-0668

Please include an abstract of proposed research, preferably on PHS 398.

Circle No. 19 on Readers' Service Card

THE McKNIGHT ENDOWMENT FUND FOR NEUROSCIENCE

1998 McKNIGHT SCHOLAR AWARDS

The McKnight Endowment Fund for Neuroscience invites applications for the McKnight Scholar Awards, which commence July 1, 1998.

The McKnight Scholar Awards have been made since 1977 to stimulate research in neuroscience especially as it pertains to memory and, ultimately, to a clearer understanding of diseases affecting memory. This mandate has been interpreted broadly to include many relevant areas of neuroscience. The McKnight Endowment Fund for Neuroscience administers its awards programs through a Board of Directors made up of eminent scientists and representatives from the Board of Directors of The McKnight Foundation, which is the source of the Endowment Fund.

Up to six 1998 McKnight Scholars will be selected from applicants who hold M.D. and/or Ph.D. degrees and have completed formal postdoctoral training. Candidates should have demonstrated meritorious research in areas pertinent to the interests of The McKnight Endowment Fund for Neuroscience and should be in the early stages (one to four years) of establishing their own independent laboratory and research careers. Candidates must be citizens or lawful permanent residents of the United States. Award payments will be made directly to a sponsoring institution, which must be located within the U.S.

Each McKnight Scholar will receive \$50,000 annually in 1998, 1999, and 2000. Funds may be used in any way that will facilitate development of the Scholar's research program. Funds may not be used for indirect costs.

A review committee will evaluate applications and recommend candidates for appointment to the Board of Directors of the Endowment Fund. Awards will be announced by May 15, 1998.

To request application forms and guidelines, write, call or e-mail the office of The McKnight Endowment Fund for Neuroscience. Completed applications must arrive no later than January 2, 1998.

The McKnight Endowment Fund for Neuroscience
600 TCF Tower, 121 South Eighth Street
Minneapolis, Minnesota 55402
612-333-4220
info@mckfdn.org

Circle No. 41 on Readers' Service Card