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## Letters

### Cholera clarification

"Behind the scenes" (SN: 10/18/86, p. 252)  
contains an inaccuracy that bears correcting.  
In describing our study examining the incidence  
of diarrhea among people coming to the  
ICAAC meeting in New Orleans, I was mis-  
represented as stating that the majority of lo-  
cally caught oysters contain the cholera bac-  
teria or other diarrhea-causing organisms.

The organism responsible for cholera seen  
during this century in the United States is tox-  
igenic *Vibrio cholera* 01, serotype Inaba. This  
organism has never been cultured from  
oysters in Louisiana. Other *Vibrio* species,  
such as *V. vulnificus* and *V. parahaemolyticus*,  
are commonly cultured from raw oysters; one  
of the goals of our study was to estimate the  
incidence of diarrhea caused by these organ-  
isms. Although we are interested in a possible

### This Week

- 308 EPA Estimates Major Long-Term Ozone Risks
- 308 Early trials of Alzheimer drug positive
- 309 Bigger and better quasicrystals
- 309 Spinning a large telescope from glass
- 310 Personality linked to immunity
- 310 One-cell origin for atherosclerosis?
- 310 Salting away guest molecules
- 311 Firefly gene sets tobacco plants aglow
- 317 Gains from cutting tap-water lead

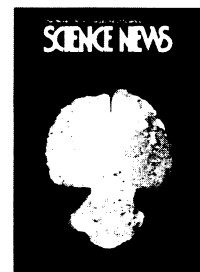
### Research Notes

- 316 Chemistry
- 316 Science & Society

### Articles

- 313 Million-Cell Memories

Cover: Two radioactive markers and computer imaging are used to trace elevations in glucose use in a cat's brain solely related to the memory for a visual cue. Significant increases are coded in orange and red. Data from this and other images indicate that millions of brain cells may participate in a single, simple memory. (Photo: E. Roy John)



### Departments

- 307 Letters
- 318 Books

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relationship between diarrhea and oyster consumption, we have no data to suggest that "the majority" of oysters consumed in Louisiana harbor other "diarrhea-causing organisms."

Philip Lowry  
Medical epidemiologist  
Louisiana Dept. of Health & Human Resources  
New Orleans, La.

### On strings and freedom

After reading your various excellent articles concerning string theories, it occurs to me that one aspect is more confusing to laymen than it has to be. Referring to 10 "dimensions" rather than 10 "degrees of freedom" leads to this confusion.

It makes good intuitive sense to an "ordi-

nary" person that it takes 10 characteristics to describe a string in addition to the "normal" four (three XYZ locations, plus time). Since the string could be rotating along any of the three XYZ directions, each of these rotations can take up a degree of freedom. Additionally, the string has an actual physical size in each of the three XYZ directions which could be presumed to vary. This would account for the remaining three degrees of freedom.

With respect to "curling up" the dimensions, the six degrees of freedom noted above are all of the type that would not be directly measurable except down at the level of the string itself. That would not have to mean, however, that they could not be detected — we might be observing them at the macro level as "density," or physical state. We might also be

Letters continued on p. 318

NOVEMBER 15, 1986

307

## Books

**Books** is an editorial service for readers' information. To order any book listed or any U.S. book in print please remit retail price, plus \$1.00 handling charge for each book, to **Science News Books**, 1719 N Street, NW, Washington, DC 20036. All books sent postpaid. Domestic orders only.

**Agent Orange on Trial: Mass Toxic Disasters in the Courts** — Peter H. Schuck. Exposes the human forces that have shaped the Agent Orange case, the personal injury class-action suit brought by Vietnam veterans, and explores the larger meaning of the case for American law and public policy. Harvard U Pr, 1986, 347 p., \$25.

**Annual Review of Astronomy and Astrophysics, Vol. 24** — Geoffrey Burbidge, Ed. Discusses such topics as the molecules in stars and the global structure of magnetic fields in spiral galaxies. Annual Reviews, 1986, 627 p., illus., \$44.

**The Fabric of Mind** — Richard Bergland. A prominent neurosurgeon presents the view that the brain is actually a gland controlled by the hormones within it. Bergland feels that the mysteries of behavior can be unraveled through a better understanding of brain hormones and that many kinds of illness will be more easily treated by understanding the hormonal signals that move back and forth between the body and the brain. Originally published in Australia in 1985. Viking, 1986, 202 p., illus., \$16.95.

**The Jade Kingdom** — Paul E. Desautels. A beautifully illustrated guide to the history, sources, lore, mineralogy, gemology and art of jade worldwide. Van Nos Reinhold, 1986, 118 p., color/b&w illus., \$34.95.

**The Last Extinction** — Les Kaufman and Kenneth Mallory, Eds. According to the authors, we are rapidly losing the diversity of life on earth. The intent of this book is to awaken the public to the issues involved, in the hope that the mass extinction now in progress can be prevented. Discusses the nature of mass extinctions and the role of people in causing the current one. The plight of the Amazon rain forest is described, as is the ecological situation in North America. Looks at the kind of world we might be living in if we do, or do not, make our best efforts at preserving life's diversity. Includes suggestions for how the public can make a difference and a random sampling of organizations involved in conservation issues. MIT Pr, 1986, 208 p., illus., \$16.95.

**Lead Toxicity: History and Environmental Impact** — Richard Lansdown and William Yule, Eds. A compilation of articles on lead, its history, uses today, distribution, presence in humans, sources of lead exposure and the effects of lead. Johns Hopkins, 1986, 286 p., charts & graphs, \$35.

**The Nature of Reality** — Richard Morris. "The reason that many of the theories that constitute the so-called new physics have 'bizarre' elements," says Morris, "is that conceptions of reality are changing. Old ideas are being replaced by new ones that often appear to be 'crazy' simply because they are unfamiliar. As science enters new territory, the structure of scientific thought must change." Here Morris separates speculations from well-established results in his explanation for the general reader of the important new discoveries in physics over the last two decades. McGraw, 1986, 249 p., \$17.95.

**Science Fare: An Illustrated Guide and Catalog of Toys, Books and Activities for Kids** — Wendy Saul with Alan R. Newman. Discusses ways in which parents can help make science more accessible to children of all ages. Focuses on encouraging inquiry and understanding, answering questions and approaches to science education. Describes community resources, school science fairs and other science competitions. Children's science books, kits, toys and games are described with sources of supply. For the child interested in a specific area of science, suggestions are given for activities, available materials and books in biology, earth science, chemistry, physics, astronomy, electronics, computers, building and engineering. Har-Row, 1986, 295 p., illus., paper, \$14.95.

**Science Trivia: From Anteaters to Zeppelins** — Charles J. Cazeau. Interesting information on a variety of topics from black holes, cloning, bats, petrified forests and anthropology to the supernatural. Plenum Pr, 1986, 285 p., \$17.95.

**Vital Lies, Simple Truths: The Psychology of Self-Deception** — Daniel Goleman. For those who want to increase their awareness and get the most out of human relationships. The book is based on three premises: The mind can protect itself against anxiety by dimming awareness; this mechanism creates a blind spot — a zone of blocked attention and self-deception; such blind spots occur at each major level of behavior, from the psychological to the social. Originally published in hardback in 1985. S&S, 1986, 287 p., paper, \$8.95.

Letters continued from p. 307

observing them, but defining them as separate "things," analogous to our colloquial references to "ice," "water" and "steam."

Steven Lewis  
Newton, Mass.

As I understand it, all nine spatial Kaluza-Klein dimensions represent translational degrees of freedom. Most proponents of Kaluza-Klein theories believe in the physical reality of all nine. This leads them to interesting geometric and metaphysical exercises. Whether the extra dimensions can be related to properties like electric charge, etc., is another question.

— D.E. Thomsen

### The ultimate rejection

"Survival of the Fetus" (SN: 10/11/86, p. 234) reports elaborate attempts to explain why rejection doesn't occur. But isn't that exactly what does occur? I think it's called parturition!

Jerome S. Schaul  
Caldwell, N.J.

### Blobs pull a fast one

I was left quite confused by "A handful of high-speed quasars" (SN: 10/18/86, p. 245). How can blobs or anything be going at 99 percent of "the speed of light in their own reference frames"? In their own reference frames

they are not moving! Special relativity says nothing can go faster than light in any reference frame. I simply do not understand what D.E. Thomsen is trying to say unless he is violating the principles of special relativity. Could we get some clarification?

Bruce Harmon  
Professor of Physics  
Iowa State University  
Ames, Iowa

The blobs are certainly moving in the quasar's reference frame, or at least that's what the observations purport to show. The explanation reduces their velocity there to an acceptable nine-tenths or so of the speed of light.

— D.E. Thomsen

### White dwarf: Not so small

"A dizzying orbit for a binary star" (SN: 10/11/86, p.231) describes a close binary system with an orbital period of 11 minutes, the two components presumably being a neutron star and a white dwarf. However, it then states that either star is only about 10 miles across. That figure is a reasonable number for the diameter of a neutron star, but it is much too small for a white dwarf, which would typically have a diameter on the same order as that of the earth.

Lee T. Shapiro  
Morehead Planetarium  
University of North Carolina  
Chapel Hill, N.C.

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