

This Week

- 212 Why Are Boys' Birth Rates Falling?
Janet Raloff
- 212 Bony growths found in heart valves
Nathan Seppa
- 213 Colorful gene marks mosquito manipulation
John Travis
- 213 Ritalin may work better as purer compound
Corinna Wu
- 214 Gravity's ring: Hubble bags another lens
Ron Cowen
- 214 Wild inbred butterflies risk extinction
Susan Milius
- 215 Doubts aired over Neandertal bone 'flute'
Bruce Bower
- 215 Storms paint bull's-eyes in stratosphere
Richard Monastersky

Articles

- 216 Private Eyes
Biometric identification is set to replace passwords and PINs
Corinna Wu
- 219 Ecologists Go to Town
Investigations in Baltimore and Phoenix forge a new ecology of cities
Mari N. Jensen

Letters

More effects of asteroid hit

In "Asteroid impact: Beware the tsunami" (SN: 2/7/98, p. 88), the judgment that an oceanic impact holds greater potential for destruction than a land hit apparently overlooks the potential effects of filling the atmosphere with vast amounts of impact debris.

*Vernon Chi
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A water-based impact distributes energy over a larger volume; however, a ground-based, small-volume impact has the potential for perturbing the rotational or orbital parameters of the planet.

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Jack Hills of Los Alamos National Laboratory says that unless the radius of the asteroid is greater than about 1 kilometer, it cannot send up enough dust to block out significant amounts of sunlight, even if it hits on land. If it is much larger than 1 km, it doesn't matter

where it hits: The depth of the crater would be several times greater than the diameter of the asteroid, so it would penetrate the ocean floor.

As far as changing Earth's orbit, it doesn't matter whether an asteroid hits in the ocean or on land, says Hills. Either way, its momentum will be effectively taken up by Earth. As a practical matter, it would be very hard to change either the orbit or the rotation by much, because the asteroid's mass is very much smaller than Earth's. —R. Cowen

Bacteriosins and folk remedies

A few years ago, an 80-year-old respondent sent me an amazing anecdote. He had suffered a puncture wound from a pitchfork, and the wound had become infected. His mother made a poultice of cow manure, and 2 days later the infection was under control.

There have been so many similar pioneer folk reports concerning the use of manure to heal human ailments that I wondered if there were some active beneficial fraction in digestive waste. When I read "Staging Germ Warfare in Foods" (SN: 2/7/98, p. 89), it struck me that the great microbial fermentation

chambers of a cow's digestive system might be producing bacteriocins. Their primary purpose in the animal would be to protect the linings of the food tract against pathogens.

The article quotes microbiologist Todd R. Klaenhammer as saying, "Virtually all bacteria—probably 99 percent"—make at least one bacteriocin. Some have turned up in milk and cheese. An earlier article ("Natural antibiotic found on human skin," SN: 7/5/97, p. 15) states that human beta-defensin-2, a naturally occurring antibiotic produced by human skin, kills *Escherichia coli*, *Pseudomonas aeruginosa*, and the common yeast *Candida albicans*. It closely resembles one found on the tongues and throats of cattle.

Another antibiotic, found in the human urogenital track, is beta-defensin-1. Yes, there is a matching folk-healing recipe. The diary of Charlotte Cox Heaton, 1879 to 1958, tells of urine, or "chamber lye"—"It was more healing than the best Jergens lotion or Watkins salve or mentholatum you can buy on the market today."

*Wesley P. Larsen
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Research Notes

- 218 Astronomy
Did an ocean flatten Mars' northern half?
Finding rocks in the Hubble archives
- 218 Biology
Rare, long view on frogs ups and downs
Twisted sisters can straighten out
- 223 Chemistry
DNA scissors cleave their comrades
Grainy wire self-assembles along DNA
- 223 Food & Nutrition
Chia for your pet—if it clucks
Another way alcohol may help the heart

Departments

- 210 Science News Books
- 211 Letters



Cover: Traditionally, ecologists have sought out research sites in pristine environments. Now, the National Science Foundation is funding ecological projects in Phoenix and Baltimore, shown here. **Page 219** (Credit: J. Morgan Grove/USDA Forest Service)

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