

for trials. Like AZT, ddI improves the health of AIDS patients by interrupting the process by which the AIDS virus infects cells. But unlike AZT, ddI doesn't cause the severe anemia that makes some patients unable to tolerate AZT. Initial experience with ddI led some proponents, including National Cancer Institute director Samuel Broder, to believe that ddI might have virtually no harmful side effects (*Science*, 28 July 1989, p. 353). But subsequent experience has shown that some patients who take the drug experience painful neuropathies and pancreatitis.

How long will it take to get FDA approval? Agency spokesman Brad Stone says the application has been given "top priority." He says the record—held by AZT—is 3 ½ months.

Appropriate Agriculture

The World Resources Institute (WRI), a Washington, D.C., think tank, has contributed to the case for "sustainable" agriculture in what it calls the first comprehensive economic comparison with conventional farming.* If the environmental costs are factored in, says WRI, sustainable farming techniques—such as multiple-crop rotations, fewer pesticides, and alternative plowing methods—would save not only the environment but farmers' money as well.

WRI illustrates its case with two case studies of individual farms. It estimated costs to society by subtracting estimates of losses, such as nutrient depletion and soil erosion, from overall operating profits. On a Pennsylvania farm, a conventional crop rotation of corn and soybeans resulted in an overall loss of \$61 per acre over 10 years. But a rotation of several crops including corn, soybean, wheat, and clover saved \$325 per acre. And the farmers themselves saved money: When off-

site environmental costs were excluded from the analysis, leaving just the toll from environmental damage on the farm, sustainable agriculture still saved \$280 per acre.

The other case study was in Nebraska, where environmental costs of farming are among the lowest in the nation. There, alternative methods didn't make much difference. But, says WRI, most of the country, like Pennsylvania, would gain.

Sleeping With Scuds

During the Gulf war, jittery residents of Tel-Aviv and Haifa slept poorly under the threat of nocturnal Scud attacks—many feared they might not hear emergency sirens. So sleep researchers at the Technion-Israel Institute of Technology devised an ingenious solution: "Silent Radio."

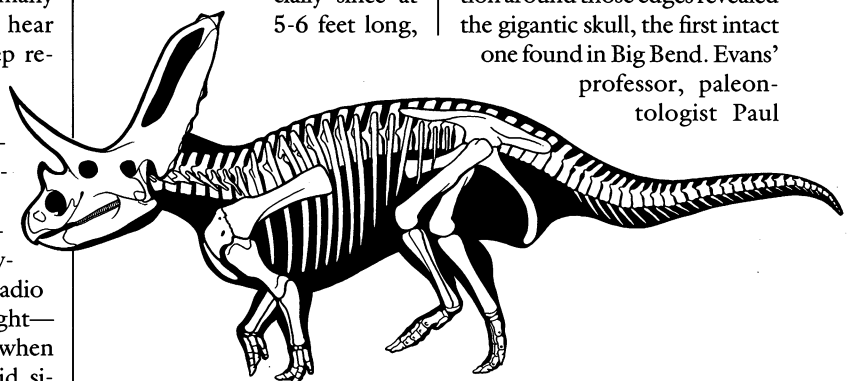
On the advice of the researchers, the Israeli government created a special radio station that was quiet at night—unless there was trouble, when it would broadcast air-raid sirens. The new program caught on rapidly; almost half the population tuned in at bedtime, according to Technion's sleep lab director Peretz Lavie.

Looking to longer term scientific concerns, the researchers also used wartime anxiety to study the effects of sleep disruption—40 subjects wore wrist actigraphs measuring their body movements, and, it turned out,

most people got back to sleep within 30 minutes after an attack. The researchers surveyed the population as a whole at weekly intervals to assess the impact of war on sleep; data analysis on that front is still in progress.

Largest-Ever Dinosaur Skull

Some would credit the discovery to beginner's luck, while others would explain that chance favors the prepared mind. By any measure, the discovery of an almost complete, 80-million-year-old, horned, dinosaur skull and shield is a major one—especially since at 5-6 feet long,



Big Bend find. *Reconstruction of Chasmosaurus, based on new fossil skull and skeletal bones found previously. Skull has two large brow horns and shorter curving nose horn. Bony "frill" resembles shield but was probably used for intimidation or sexual attraction.*

this relic is thought to be the largest skull of any land animal ever found. Getting the credit: University of Chicago senior Tom Evans.

Evans uncovered his unique prize in Big Bend National Park

in Texas while prospecting with his paleontology class last month during a spring field trip. The finding offers the best evidence yet that this type of dinosaur, known as Chasmosaurus—a relative of the better known and also large-horned Triceratops—roamed farther south than had been thought. Chasmosaurus is believed to have weighed about 5 tons and been about 30 feet long.

On his very first day of prospecting, Evans—whose preparation consisted of an 11-week paleontology course—glimpsed something interesting sticking out of the sand. "We were looking for edges, and it just kept on going," he said. Careful excavation around those edges revealed the gigantic skull, the first intact one found in Big Bend. Evans' professor, paleontologist Paul

Sereno, described the find as a "once-in-a-century kind of thing." Sereno ought to know. He himself has had uncommon success, having discovered the oldest known dinosaur, the 230-million-year-old Herrerasaurus, in Argentina in 1988, and, last December, a graveyard of huge sauropod dinosaurs in the southern Sahara. This time around Sereno selected a site where the Rocky and Appalachian mountain ranges once met. The area is the southernmost extremity of the ancient western North American landmass, which was once bordered by a midcontinental seaway. A team of researchers at the University of Texas, Austin, that specializes in the paleontology of the region will finish separating the fossil from the rock.

Drawing by Carol Abraczinskas and Paul Sereno

Submariner to Captain Science Service

Science Service, Inc., the publisher of *Science News* and organizer of the Westinghouse Science Talent Search, is getting a new head, geophysicist and former naval officer Alfred S. McLaren.

In October McLaren will take the helm from Edward G. Sherbourne Jr., who for 25 years oversaw the weekly, which has a circulation of about

260,000.

McLaren, currently at the Cooperative Institute for Research in Environmental Sciences at the University of Colorado in Boulder, spent 24 years as a naval submarine officer. His only direct experience with publishing is via marriage—his wife, Avery Battle Russell, is editor of *The Carnegie Quarterly*.

*Paying the Farm Bill: U.S. Agricultural Policy and the Transition to Sustainable Agriculture. WRI, March 1991.