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COVER: Koko, a 7-year-old gorilla with a 375-sign vocabulary, acknowledges the eye of a frog by signing "eye" with her left hand. Hitting the books is part of a pre-bed ritual that also includes playing with dolls and socializing with her housemate, "Michael." See p. 265. (Photo: National Geographic Society)

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LETTERS

Dinosaur utility

Over the years I've read just about everything I could get my hands on that dealt with dinosaurs. It has been interesting to watch new theories evolve with the application of new technologies and the unearthing of newly discovered fossil beds.

What I'm wondering about is whether the following has ever been considered regarding a practical use for the tyrannosaur's forelimbs and the hollow crest of some hadrosaurs:

It seems highly feasible to me that the double-clawed, weak, short forelimbs of the tyrannosaur and similar carnosaurs made handy dental grooming devices and evolved solely for that purpose. It is not hard to imagine a tyrannosaurus excitedly gorging himself and, in so doing, getting scraps of tendon, gristle, scales, and bone embedded between teeth and gums; then, prior to taking an after-meal nap, meticulously removing this foreign matter. The forelimbs are long enough and strong enough for this purpose, and the two claws would work quite effectively. With good grooming he could keep prime his most effective asset.

As for the hollow crest of the hadrosaur, why not as a resonant cavity? Since the animal lacks a more obvious system of defense, could it not have been capable of signaling the approach of danger with a loud, hornlike sound of warning? It would be a thrill to run tests and actually determine the sounds these creatures may have made.

Charles J. Liptak
Laurel, Md.

Epilepsy and crime: Biological?

Your article on epilepsy among prisoners (SN: 8/12/78, p. 101) suggested that the increased incidence of epilepsy among prisoners may be attributable to social factors—such as feelings of isolation, rejection and resentment. Although social factors may be important, impressive evidence for a *biological* link between crime and seizures is presented in the book *Nerves in Collision* by the late Walter C. Alvarez. *Nerves in Collision* is based on Alvarez's experience with 274 patients whom he diagnosed as having "nonconvulsive epilepsy." Most of these patients had never suffered a grand mal attack, and were not regarded as epileptics. They thus were spared the social consequences of the epilepsy label. Alvarez nonetheless diagnosed them as nonconvulsive epileptics and was frequently able to demonstrate an abnormal EEG. Usually a small maintenance dose of Dilantin would bring relief to the patient. The symptoms included alcoholism, stomach pains, headaches, violent tempers, sexual failures and fits of terror or "nerves."

Especially important are the 53 percent of the Alvarez cases who reported that they flew into rages with little provocation. One patient beat his dog to death; another almost killed his horse. Others beat their children and wives, kicked in television sets, or got into violent arguments or fights for little cause. Characteristically, they usually expressed great remorse for their actions. Immense relief from such "personality" disorders was reported as a result of mild medication.

Of special interest also is the mention in the King and Young article of the very high rate of 6 percent prisoners on medication in a maximum security facility. Were these prisoners, and the others on medication in other facilities, more likely to have committed unplanned violent crimes than their peers; and more likely to have expressed regret? It would seem easy to test this hypothesis.

If Alvarez was right, and I believe he was, the "high" rate of 1.9 percent reported by King and Young for prisoners on anticonvulsive medication is actually a gross underestimate of the percentage of prisoners who would benefit from treatment, if Alvarez's suggestions for identifying and treating such individuals were followed.

B. Rimland, Ph.D.
San Diego, Calif.

The other half of the spiral

I was pleased with the Chaco canyon article (SN: 8/26/78, p. 148). I am currently unraveling a petroglyph site in eastern Missouri that uses many astronomical alignments to ascertain festival dates. I sympathize with Sofaer and Zinser in their concern for protecting these sites. I myself have lost several that were vaguely described forty years ago and since destroyed by construction.

The spiral of Chaco mentioned in the letter by Lee Smith (SN: 9/23/78, p. 211) has in all pictures taken by Karl Kernberger a diagonal line extending through the entire spiral. The position of the line as it leaves the spiral is half the distance from the center to the right hand edge. If the edge represents the winter solstice date, then the diagonal line intersecting with the spiral edge would represent the equinox dates.

The continental drift plus the earth's axial shift would not produce a 45° change. The actual declination is much less than 1° from A.D. 1000 to the present for the 38° latitude.

The real mystery is the other half of the spiral and its representations.

Larry Wegmann
Festus, Mo.

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Please limit letters to 250 words.