

Chimps Employ Culture to Branch Out

On a new cable television program, trained chimpanzees mug their way through parodies of standard network fare. But don't underestimate these furry, lipstick-smudged thespians. Far from the broadcast jungle's lowbrow hijinks, wild chimpanzees develop rich sets of cultural traditions that have much in common with human culture, according to a synthesis of decades of field observations.

Other than humans, only chimps show a documented penchant for passing on styles of tool use, grooming, and other behaviors through teaching and imitation, contends a group of researchers led by Andrew Whiten of the University of St. Andrews in Scotland. The mix of cultural traditions varies across chimp communities, add the scientists, including famed chimp researcher Jane Goodall of Tanzania's Gombe Stream Research Centre in Kigoma.

Such assertions have long inspired debate over the nature of culture. Some scientists define culture as a product of language and thus unique to humans.

"Chimpanzee culture represents a step on the ladder between what most animals do and what humans do," holds Richard W. Wrangham of Harvard University, a coauthor of the new report. It appears in the June 17 *NATURE*.

Whiten's team focused on seven groups of common chimps observed in Africa for periods ranging from 8 to 38 years. The researchers defined a cultural act as one performed regularly by several members of one or a few—but not all—groups. Careful review of studies yielded 39 such behaviors that were potentially available to all the communities.

Chimps' cultural traditions included cracking nuts by using pieces of wood as hammer and anvil, sucking ants off sticks,

clasping a comrade's arms overhead, and slapping tree branches to get attention.

Whether such acts spread via imitation or other learning is unclear, Whiten says. Scientists also know little about how chimps invent traditions (*SN*: 6/5/99, p. 364).

Nevertheless, the study underscores a growing willingness to grant chimps at least rudimentary cultural capacities (*SN*: 12/12/98, p. 374). Moreover, field-workers continue to uncover chimp cultural practices, adding to those that Whiten's group tallied (*SN*: 5/15/99, p. 315).

"The evidence is overwhelming that chimpanzees have a remarkable ability to invent new customs and technologies, and that they pass these on socially rather than genetically," remarks Frans B.M. de Waal of Emory University in At-

lanta in a commentary accompanying the group's report.

In a noncultural example of mental sophistication, de Waal and Emory coworker Lisa A. Parr report that chimps recognize facial similarities between unfamiliar chimp mothers and their sons, but not between chimp mothers and their daughters. This ability may help females—who migrate to nearby groups at puberty—to dampen inbreeding by avoiding communities in which many males look like their mothers, the researchers propose in the same issue of *NATURE*.

Chimps' cultural affinity with humans has a particular poignancy, Whiten says. "Chimpanzees are dying out, partly due to a thriving bush-meat trade in Africa. Our research accentuates the need to preserve wild chimps," he says. —*B. Bower*

Raloxifene imparts anticancer benefit

When the osteoporosis drug raloxifene came on the market last year, it offered women a way to strengthen their bones yet avoid the breast-cancer risk associated with estrogen-replacement therapy. Now, researchers report that raloxifene may actually prevent breast cancer in many women.

As part of a worldwide study to gauge raloxifene's effects on osteoporosis, scientists gave the drug to two-thirds of a group of 7,705 postmenopausal women with the brittle-bone disease. The other participants received an inert substance. Neither the scientists nor the study participants knew which pills contained the medication.

All participants also took calcium and vitamin D supplements daily and received regular mammograms or breast ultrasound examinations in addition to bone measurements.

During the 40-month study, 27 of the 2,576 women receiving the inert pills developed breast cancer, while only 13 of the 5,129 women taking raloxifene were diagnosed with the malignancy. In other words, breast-cancer incidence with the drug was only one-fourth as great as without it, the researchers report in the June 16 *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*.

"It's a landmark study," says Michael B. Sporn, a pharmacologist at Dartmouth Medical School in Hanover, N.H.

The drug seems to stifle invasive breast cancer, in which estrogen induces uncontrolled cell growth, says study coauthor Steven R. Cummings, an internist and epidemiologist at the Uni-

versity of California, San Francisco. In about two-thirds of breast cancers in postmenopausal women, the hormone fuels a tumor's growth, he says.

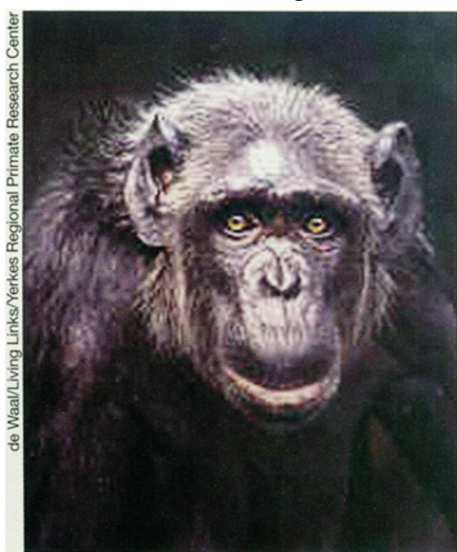
Estrogen circulating in the blood attaches to one of two estrogen-receptor molecules in cells. The receptors then activate specific genes, inducing a chain reaction of protein production that can lead to cell growth. Such a flurry of activity initially poses little risk, but repeated exposure to estrogen over a long period of time "is too much of a good thing," says Leo Plouffe, a research physician at Eli Lilly and Co. in Indianapolis, which makes raloxifene.

"If you consistently promote the growth of certain cells [with estrogen], the cells might transform themselves into cancer cells," he says. Or, if cancer is already present, the estrogen stimulus might abet the disease.

Raloxifene works by occupying the estrogen receptors, Cummings says. When the drug thus blocks the receptor on a cancerous cell, estrogen cannot bind and apparently the cell dies off, he says.

In its role as a bone-growth promoter, however, raloxifene mimics rather than blocks estrogen's effects. Precisely how raloxifene can play one role in one cell and another elsewhere remains unclear, Cummings says.

Raloxifene may provide yet another benefit: Women receiving the drug in this study didn't show the increased incidence of uterine cancer that previous research has associated with both estrogen and the anti-breast-cancer drug tamoxifen. —*N. Seppa*



de Waal/Living Links/Yerkes Regional Primate Research Center

Chimps assume a cultured stance.