qualities of the neglected species are unclear, notes Wrangham.

For many years, he says, chimp researcher Jane Goodall noticed that chimp dung at Gombe often contained one type of leaf that was never chewed.

But the function of the leaves, now known to be *Aspilia*, is just beginning to come to light. In April 1984, Eloy Rodriguez of the University of California at Irvine identified a red oil in the leaves, which he dubbed thiarubrine-A. A few weeks earlier, Neil Towers of the University of British Columbia at Vancouver isolated the same chemical from Canadian plants. He found that thiarubrine-A kills common disease-causing bacteria, fungi and nematodes, a type of parasitic worm.

In an electron microscope analysis of leaves retrieved from chimp dung, the two scientists jointly observed that surface cells containing thiarubrine-A were ruptured, probably during passage through the gut.

At that point, Wrangham and the two investigators visited East African research centers, where they found that some African peoples use *Aspilia* to treat a number of medical problems.

Chimps and people may have similar ideas about *Aspilia*, says Wrangham, but it is not clear what the leaves actually do. Perhaps they control worms in the gut. Or, he notes, since chimps sometimes eat more after swallowing *Aspilia*, the plant might be an intoxicant. Animals in many areas of the world "get high" by consuming naturally occurring drugs (SN: 11/5/83, p. 300).

Wrangham and his colleagues plan to monitor in the laboratory the physiological reactions of chimps and other animals to *Aspilia* and thiarubrine-A. They also want to compare physiological measures in chimps who swallow leaves with those of abstaining chimps.

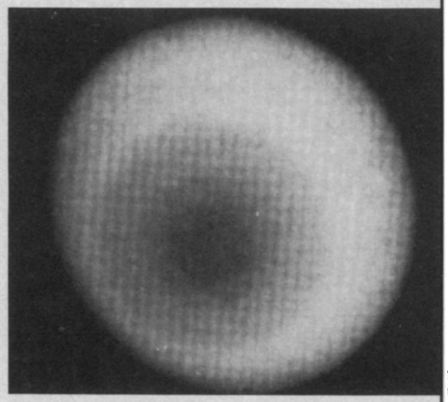
Wrangham's observations add to other recent findings concerning the eating habits of primates, points out anthropologist Randall Susman of the State University of New York at Stony Brook. Several primate species, for example, eat certain plants only when toxins are not present, such as early in the morning before the sun activates dangerous chemical compounds.

"The Gombe chimps appear to be actively seeking out certain plants, not just reacting to them," says Susman. "I would expect similar behaviors to turn up among other apes."

Baboons, which are not apes, do not swallow *Aspilia* leaves in Gombe, says Wrangham, although they occasionally eat foods that are poisonous to many other mammals. "When a baboon eats a fruit that would be toxic to people, it may merely be having a snack, rather than dosing itself with a drug," says Wrangham. "It's exciting to find a case where curious behavior suggests deliberate intake of a powerful drug." *— B. Bower*

Voyager 2: On the threshold of Uranus

The Voyager 2 spacecraft's hurtling flight past Uranus, less than a week away, will be the probe's third planetary encounter since it was launched in 1977. Yet the mood of anticipation surrounding the event's approach is different than it was for either Jupiter or Saturn. Unlike Uranus, of course, those two worlds had been visited before — by Pioneers 10 and 11 and then by Voyager 1. But the extreme remoteness of Uranus, nearly twice Saturn's and four times Jupiter's distance from the sun, has kept its secrets far less accessible even to the limited observations of earth-based and earth-orbiting instruments.



JPL

The first photograph to show latitudinal banding in the atmosphere of Uranus, this image was made by "summing" five frames taken by the Voyager 2 spacecraft from about 22 million miles out, less than a month before its flyby of the planet. So low is the contrast of the subtle features that making them visible required computer-dividing the image's brightness by that of a "hypothetical, featureless planet," illuminated by the sun from the same direction. By comparison, the far more conspicuous bands of Jupiter are visible, without enhancement, all the way from earth.

The sunlight reaching Uranus is four times fainter than it is at Saturn, making the planet both darker and colder. Earthbound astronomers have sought for years to detect signs of visible features rotating around the planet as it turns, in hopes of determining the length of a Uranian day. Only Voyager 2 has offered the promise of a clear answer, but it was not until Dec. 27, with less than a month to go before the flyby, that the craft was able to take photos from which even heavy computer processing could pick out identifiable features. And those were only concentric bands, not the sort of irregular details that could be tracked in their motion. By Jan. 13, the question was still open.

Before the spacecraft came, Uranus had only five known moons. Researchers were anticipating the discovery of as many as 18 more, based on a theory that they could be clustered close to the inside and outside of each of the nine rings that earth-based observations had identified around the planet. But it was only last week that Voyager officials announced a sixth moon — and it was not near the rings at all. Measuring about 45 miles in diameter, it follows an orbit about 53,500 miles from the center of the planet, or more than 20,000 miles from the outermost ring (unless, of course, Voyager 2 were to find additional rings).

The spacecraft did not see any of the rings at all until Nov. 28, when it took a series of photos that were then carefully combined to reveal the outermost of the nine (SN: 12/14/85, p. 373). And by the time six more weeks had passed, says Voyager project scientist Edward Stone of Caltech, in Pasadena, photos from the spacecraft were still able to reveal only two other ring-shaped regions, with their individual details too small at that time for the spacecraft cameras to see clearly.

With the flyby drawing nearer, Stephen Synnott of Jet Propulsion Laboratory in Pasadena, the Voyager control center, was combing through the spacecraft's growing bank of photos, evaluating several other possible candidates for new moons. As the Jan. 24 flyby neared, Voyager 2 would enter its "near encounter" phase, with new results from the craft expected by the day, the hour, the minute . . .

One of the planet's major mysteries seemed to be holding out to the end. Observations from an earth-orbiting satellite as long ago as 1982 had revealed Uranus to have a bright, ultraviolet glow, initially interpreted as an aurora and thus as a sign that the planet seemed to have a magnetic field. Such a field, however, was expected also to produce radio emissions that Voyager's instruments ought to notice. And as late as Jan. 12, Voyager 2 had not heard a thing. "The theorists are coming out of the woodwork," says Michael Kaiser of the NASA Goddard Space Flight Center in Greenbelt, Md. Writes NASA's Alex Dessler, in a piece for the Jan. 16 NATURE, "The impending encounter has made the theoretical community both humble and open-minded. . . . Firmly held views are not in fashion."

Voyager 2 sped on toward its encounter, the mysteries of Uranus looming. "One cannot but smile," says Dessler, "thinking how, in a distant future, a community of, say, pulsar theorists will behave when an interstellar probe is about to fly by a pulsar for the first time. Rotating neutron star indeed!"

— J. Eberhart