

Cornell project brings peregrines back to the

by John H. Douglas

No bird was more harmed by the overuse of DDT than America's peregrine falcon. One of the most voracious and skilled raptors, the long-winged, gray and white peregrine received concentrated doses of pesticides from its prey, and the eggshells of its chicks began thinning dangerously during the 1940's. Finally, the species vanished entirely from the eastern United States.

Now a team of ornithologists at Cornell University is trying to reestablish the eastern peregrine population, while uncovering secrets of the shy predator's behavior, physiology and breeding habits. Cornell's famous hawk barn, which can accommodate 90 large birds, is being converted into an artificial breeding ground for the falcons, earning it the local nickname Peregrine Palace. The National Science Foundation and the private Peregrine Fund support the work. Cornell professor Thomas J. Cade is project director.

Until very recently, breeding falcons in captivity was considered so difficult that few falconers would have believed regeneration of a lost population, or even supplying enough birds for sport, could be accomplished breeding. But 20 young peregrines were hatched and reared at Cornell this year from three fertile pairs, and more are coming.

Apparently the trouble with previous attempts to breed peregrines in captivity

came from the numerous changes wild birds suddenly encountered at mating—capture in the midst of a migration, presentation with an unnatural nesting site, an unfamiliar mate. To correct these difficulties the Cornell project concentrates on nonmigratory peregrines, allows the birds to dig their own nests in gravel on a high wooden ledge—imitating the birds' natural cliff ledge nesting sites—and allows the falcons to form lifetime mating pairs.

Most important, the Cornell team succeeded in encouraging falcon pairs to produce multiple clutches by removing newly laid eggs for hatching in incubators. In nature, when predators destroy a clutch of eggs, a falcon pair repeat the courting ritual and produce new eggs. Researchers were able to stimulate this response in captivity, but conventional incubation at first failed to produce live peregrine chicks. After experimenting with the eggs of hawks less endangered than the peregrine, the team found that the humidity used in commercial incubation was too high, leading to premature birth. After this defect was corrected, two of the Cornell peregrine pairs produced three clutches each and another pair produced two clutches—a total of 33 eggs, from which 20 healthy eyases (young falcons) survive.

The team members most closely as-

sociated with the daily 24-hour care of the peregrines are James Weaver and Phyllis Dague who run Peregrine Palace, where they also raise the gyrfalcons they annually take hunting on the Western prairie. A domestically bred young hawk must receive tedious conditioning in order to survive on its own. Most hunting techniques in falcons are instinctual, says Weaver, but "instinct doesn't fill an empty belly very quickly." Without proper conditioning, a young peregrine turned loose in the wild would quickly starve to death as the more experienced prey successfully eluded it.

Conditioning follows techniques developed in the ancient art of sport falconry, which probably first arose in China around 2000 B.C. and reached a summit of popularity in medieval Europe, where it is still widely practiced today. Especially important is the practice of "hacking"—letting a young bird roam freely from its home nest, or aerie, to which it can always return for food provided by its human benefactors. After a long period of trial and error, a young peregrine eventually learns to counter the evasive tricks of its prey to become one of the most deadly accurate of all birds of prey. Circling hundreds of feet above a smaller bird, darting sideways at speeds approaching 70 miles an hour,



Phyllis Dague (left) holds "Dakota Belle," a 14-year-old female peregrine falcon donated to Cornell to help breed the species for reintroduction into areas where it has vanished. Inside the Cornell Ornithology Laboratory "hawk barn," James Weaver feeds a gyrfalcon he and Phyllis keep for hunting.

Photos: John H. Douglas

eastern United States

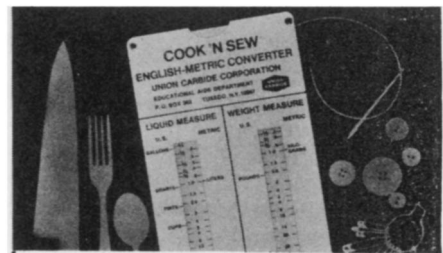
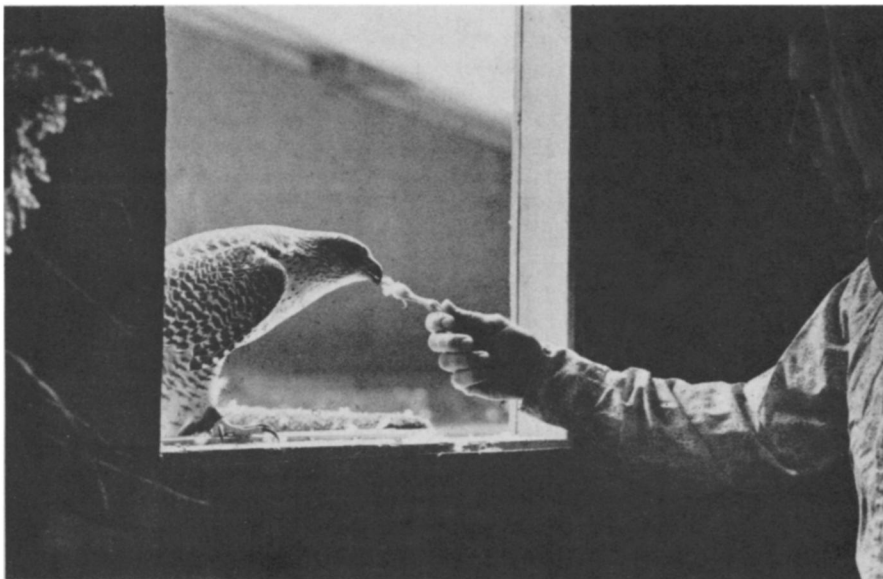
the falcon suddenly dives onto its victim at over 100 miles an hour, often killing it instantly by sheer force of impact.

After becoming a proficient hunter, a young falcon was once considered ready for hood and bells to keep it constrained to domestic life, but for the Cornell peregrines, the first failure to return to the hawk barn for a couple of days will mean the time is near for transporting them to the area where they will be released. Only three have been released so far, two of which were rehabilitated adults brought to Cornell for treatment of injuries. For the first couple of years, all peregrines will be held for breeding. In 1975, some attempts will be made to reestablish new eyases in the wild. Though falcons form close attachments to their masters, Dague says they seem to sense when they are being released. "We took one female to the airport to release her," she says. "We let her fly around as usual but were not going to take her back to the barn with us. She seemed to know and flew directly away. We waited a couple of hours, but she never came back."

Besides restocking a lost population, the Cornell project is revealing new data about falcons, which usually nest in inaccessible places and avoid contact with humans in the wild. Standing

behind the two-way mirrors that separate cages from the building interior, observers study the mating and nesting habits of the falcons, learning the visual cues of female receptivity and seeing how the male twice a day sits on the unhatched eggs, allowing the female to bathe and eat the food he has brought her. The researchers also experimented successfully with artificial insemination, but soon wearied of the tedious procedure—mating falcons may copulate as often as 20 times a day, and artificial insemination must be repeated daily for weeks to be successful.

By 1977, the Peregrine Palace will have at least 38 nesting pairs of falcons—the building capacity—and within a decade the Cornell team plans to return some 2,000 peregrines to natural habitats in the eastern United States, hoping that enough survive to reestablish the eastern population. But even though DDT is now restricted, the ecologically fragile falcons will be released into an increasingly hostile environment. And even now, other, migrating North American falcon species are being destroyed by increased pesticide use in South America, where they fly in the winter. "It would be foolish to turn them loose into the environment that caused them to decline in the first place," says Weaver of the falcons he and Phyllis raise and love. □



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