ORNITHOLOGY

Pastime of Kings Revived

Experimental Group of Very Modern High School Boys Are Training Their Own Hawks for Falconry

By DR. FRANK THONE

See Front Cover

FALCONRY, pastime of kings and nobles in the Middle Ages, has been revived in modern America by a little group of Washington, D. C., high school boys. Under the leadership of Frank and John Craighead, twin sons of a scientist in the U. S. Department of Agriculture, these modern falconers capture and train their own hawks, fly them at such game as rabbits and sparrows, and at last willingly turn them loose as free birds, to live their own lives of fierce liberty.

For the Craighead lads and their companions are not primarily hunters, and they are emphatically not trying to commercialize their hobby. Thrill and reward enough for them in the hazardous climbing of cliffs and trees to obtain the young, half-fledged birds, and then in winning the confidence and friendship of these wild, independent-spirited pets.

The hawking adventures of the Craigheads are a curious mixture of the traditional and the modern. They whistle their hawks back to fist, or swing a lure to call them down from the air. They fetter their legs with jesses, which are little handcuffs of soft leather, snapped on to a swiveled leash. They give them wooden blocks of approved ancient pattern for their perches. But when they ride afield they go not on gaily caparisoned horses like the knights of old, but in a small auto. And the swiftness and sureness of their birds is recorded, not in rimes of admiring troubadours, but on 16-millimeter movie film.

Experimenters

Nor are they bound by tradition even in this most traditional of all sports. They are experimenters, and like to find out for themselves. Sometimes they discover that tradition is correct, sometimes they show that it is not.

Tradition has it, for example, that the finest of all hawks is the peregrine falcon, a medium-sized bird all swiftness and dash. This they found out to their own satisfaction to be true, for they have had most success with the American first-cousin of the peregrine, the species known in this country as the duck hawk. They speak with most enthusiasm of various duck hawks they have trained, especially of a favorite bird they still have, called Ulysses.

They have, however, successfully challenged tradition in the matter of the trainability of owls, which are zoologically rather close relatives of hawks. Owls are supposed to be either too stupid or too sleepy to learn anything, but they have succeeded in training several of them; though they admit that owls are better as pets than as hunting companions, since they lack the vigorous hunting instinct of the hawks. Still, the Craighead lads remember some of their owls with real affection, especially a barn owl they called "Windy" because of his early hissing proclivities, and a tiny burrowing owl they caught on the Nebraska prairie and named "Cactus." Poor Cactus met a tragic end. He hid behind a tuft of grass and got stepped on by one of the boys who was hunting grasshoppers to feed his luckless pet.

Tradition loses out, too, in the matter of hooding hawks while carried on the fist until the game is flushed. The Craigheads do have hoods for some of their hawks, properly belled and all that; but they declared that they have not found hoods to be really necessary, and advise against them for other ambitious young practitioners of the ancient art of falconry. Setting yourself up in falconry is basically simple, though not easy.

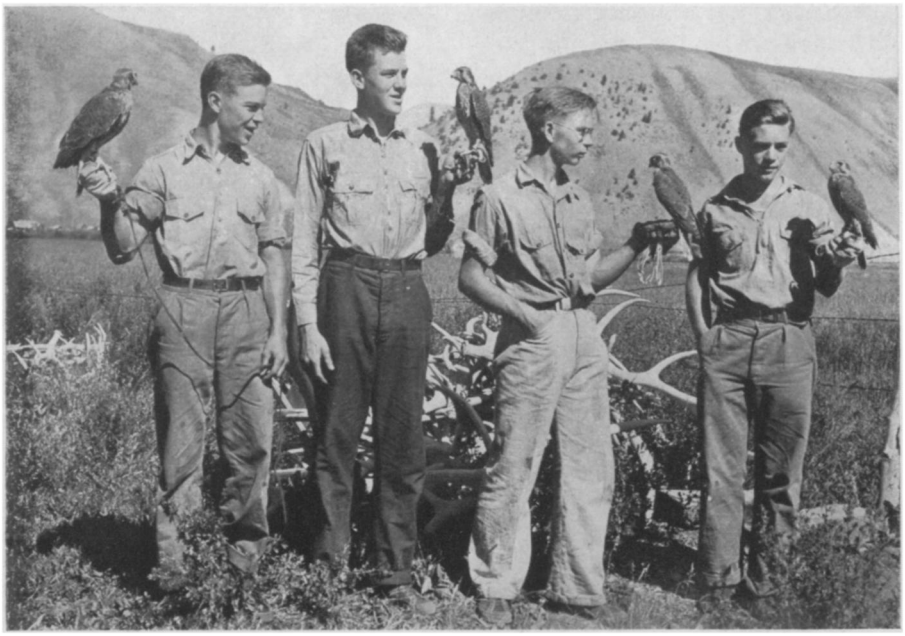
First, you catch your birds. That is done in exactly the way followed in capturing young birds of any kind: you climb up to the nest and take them out. But the nest of a hawk is almost invariably in the topmost branches of a lofty tree, or on a rocky ledge of some neck-hazardous cliff, so it isn't like kidnaping young bluebirds, by a long way. However, if you are young and enthusiastic, and not hasty and foolhardy, you can do it. The Craigheads get all the hawks they want, and haven't broken any bones yet.

Let Them Grow Up

There is a right time to catch young hawks, too. It is always best, the boys say, to let them stay in the nest as long as possible. The nearer grown up a hawk is when captured, the swifter and keener will the bird be as a hunter. So they let them get well feathered, just short of the age for first flight, as a rule, and then capture them and take them home.

There is a second advantage in letting the young hawks stay in the nest as long as possible. Ma- (*Turn to Page* 306)

FLEDGLING HUNTERS TEST THEIR WINGS



FALCONERS: MODERN STYLE

From left to right: John Craighead, Julian Griggs, Robert Stevenson, Frank Craighead. Other members of the hawk-training group are Morgan Berthrong and Larry Hufty.

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ture birds can be fed on such hearty viands as raw beefsteak and liver, but younger ones must have tenderer meat, like pigeon. So the longer you wait the less you have to fuss with feeding and the less danger there is of your young birds dying on your hands.

Taming and training a hawk is based on the same universal appeal used on almost all animals and birds you want to make into friends: teach them to expect food from you, and associate feeding with the thing you want them to do. By gentleness and careful approach you induce the birds to accept meat from your hand; teach it to perch on your wrist or finger while it pulls off bits of beef. Then you hold the meat in your hand before the bird on its perch, and let it hop or fly a couple of feet to get its meal.

Gradually you increase the distance, but always with a leash to the bird's feet, until it will fly some yards, or even tens of yards, to the offered food. The larger the hawk the longer the distance it must be taught to fly to you before it can be trusted in the air without the leash.

You teach your hawk to come to the lure as well as to your hand. A lure is simply a padded weight—a block of wood, or a heavy horseshoe wrapped in cloth, or something of the kind—with the necessary piece of meat attached to make it interesting to the hawk. It is trailed along the ground, or whirled around the hawker's head, to attract the bird's attention when it is in the air. Once it has thoroughly learned that the lure, or your whistle, always means meat to eat, your falcon will always "stoop" to the lure—come dropping out of the sky like a rocket in reverse. One big hawk the Craighead lads once owned would "stoop" to the lure so fast that it knocked it a couple of feet when it struck—they named that one "Cyclone."

A novice hawk's first flight after game, the boys state, is always a critical affair. You should not let your bird loose for its first independent kill until it looks like a pretty sure thing, for a failure at the outset is likely to discourage a bird, whereas later on it will not be particularly disappointed if it fails to catch its prey.

When a hawk has made its capture, whether a bird in the air or a rabbit or other small animal on the ground, it "covers" it with outstretched wings, exactly in the attitude shown by the golden hawks in the royal headdresses of ancient Egyptian kings and queens. If the prey is a bird, and the hawk is being allowed to eat (thereby ending its desire for hunting any more that day), it will pluck off the feathers before it tastes the flesh, unless hurried or afraid of being disturbed. If you intend to fly your hawk again, you do not permit it to eat its fill, but take the prey out from under its talons, let it have a few bites of meat, and put it back on your fist.

These are the outline elements of hawking, as told by Frank and John Craighead. There is a lot more to learn, especially about what to do when a bird looks ill, and how to keep it housed, and what kind of a bathing arrangement it likes. But the would-be falconer will learn all these things in due order.

Protect Song Birds

The Craigheads are, of course, choicy in the prey they permit their hawks to pursue. Rabbits and smaller rodents on the ground, pigeons, sparrows and starlings in the air, are about the limit. They will not loose their hawks when there are small songbirds in sight; though as a matter of fact relatively few of these fall victims to hawks, even in the wild. Songbirds, most of them, are creatures of woods and brushland, and most hawks are hunters of the open sky. It is really an incautious cardinal or oriole that exposes itself to the attack of a wild hawk.

The Craighead twins have tried out all kinds of hawks, and have their opinions of the value of each. The big, heavy-bodied hawks, like the red-shouldered and red-tailed hawks, are too dull and slow, they say, to put up much of a show, though they are big enough to master a husky rabbit without trouble. Cooper's hawk and the sharp-shinned hawk they find excellent birds; but their favorite is the duck hawk, and its relative, the prairie falcon, is also a fine hunter.

Two small hawks, the pigeon hawk and the sparrow hawk, they also find interesting and worth training, though these are not big enough to do any serious hunting. They are named, as a matter of fact, for their size rather than for their choice of prey; the sparrow hawk is little larger than a sparrow, and the pigeon hawk is about the size of a pigeon. In spite of the diminutive stature, however, they really can capture their namesake-birds if given a chance.

Females are Fiercer

For hunting purposes, female hawks are usually chosen. This is partly because in most species they are a good third larger than the males, and partly because they are fiercer and more eager hunters. Some male hawks, however, are excellent birds. Ulysses, the male duck hawk, is a "honey" in the opinion of the boys. He is swift, a sure attacker, and very tame and good-natured. He has but one fault; once loose, he likes to wander for a good, long while before coming back home; hence his name.

The Craigheads have suggested a somewhat paradoxical use for hawks:

they think they can be valuable as aids in game-bird conservation. It works out this way: game birds like pheasants and bobwhite will take cover and not move a feather so long as a hawk is overhead. The idea is to have one of the big birds "wait on," as falconers say—circle slowly overhead, while the game refuge keeper searches the brush for them, perhaps with a well-trained dog. With the birds "frozen" in this way, he should be able to make the necessary game censuses and get a close-up view of his birds for health and general conditions, which would not be possible if they were not afraid to break cover.

Use of hawks against crows, which are sometimes destructive to game bird nests and eggs, is probably not so simple a problem, though hawks are used for driving out rooks in England. The trouble is, that a wild hawk knows a crow is no good to eat. If a tame hawk can be prevented from ever tasting crow, by taking his prey away from him promptly and giving him a pigeon already dead, as the rook-hunters do in England, it might help to rid a district of crows. For Corvie is a wise old bird, and will vacate if he finds the neighborhood getting too bad for crow health.

The Craigheads are indignant at the intransigeant attitude of many game commissioners and wardens, who insist on regarding all hawks and owls as "vermin," killing them indiscriminately. Most hawks, and practically all owls, feed largely or exclusively on rodents, and so should be regarded as beneficial birds, entitled to full legal protection and the encouragement of everybody who is a real friend of wildlife.

Science News Letter, May 11, 1935

MEDICINE

Cortin Promises to Conquer Wasting Disease of Children

CORTIN, the hormone produced by part of the adrenal glands and recently hailed as a life-saving remedy for usually fatal Addison's disease, may prove to be very useful in ameliorating the unhappy effects of a baffling disease of children, muscular dystrophy.

Work done on several cases of progressive muscular dystrophy, hypertrophic muscular dystrophy, and myasthenia gravis, in comparison with other abnormal conditions and normals, was reported by Dr. M. X. Sullivan of Georgetown University to the American Society of Biological Chemists.

A chemist himself, Dr. Sullivan became interested in the muscle disease when he found it was accompanied by certain changes in the body chemistry. In this disease a substance called creatine, which is normally changed in the body to creatinine during muscle activity, is excreted via the kidney as unchanged creatine, scientists found. Investigating further, Dr. Sullivan, aided by Dr. Walter C. Hess and P. Irreverre, found that relatively appreciable amounts of guanidine are excreted in this disease, generally in a combined form readily converted to free guanidine by oxidation with silver oxide or mercuric oxide.

Guanidine is a protoplasmic poison and prevents the passage of an impulse over nerves to muscles. The muscles remain inactive and gradually waste away. Glycine, long considered valuable in checking the progress of the dystrophies, did not eradicate the simple guanidine derivatives but did seem to check the progress of the disease more or less.

Case Described

In one case of a seven year old boy, treatment for several months with cortical extracts taken in pill form brought about changes towards normality. The wasting of the muscle which characterizes this disease was checked, the appetite improved, weight increased, and the excretion of material yielding guanidine ceased.

Dr. Sullivan described a new colorimetric test which he had developed for free guanidine not given by combined guanidines. Material yielding free guanidine he finds is excreted in muscular dystrophies, especially pseudo-hypertrophic muscular dystrophy, but not in a similar disease of adults called myasthenia gravis. Some possibility exists that the cortin treatment taken early may actually have curative value.

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ASTRONOMY

Moon "Rays" May be Mirrors of Volcanic Ash

EVER since the telescope was invented and first turned on the surface of the moon scientists have been puzzled over the cause of great bright "rays" which radiate, like petals on a daisy, from some of its craters. Thirty thousand craters have now been observed on the moon's surface and 30 of them show such "ray" characteristics. Much speculation has been advanced which interpreted the rays as giant valleys or hills that reflected the sunlight back to man on earth.

The committee on Lunar Geology of Carnegie Institution of Washington has just suggested a new explanation of these long bright rays, some of which can be traced for more than a third of the moon's circumference, or over 2,000 miles.

Dr. George W. Munro of Purdue University reports, "it is quite probable that the rays, which to us are such an important feature of the lunar face, would be quite undetectable to one on the moon itself."

The reason appears to be, Dr. Munro suggests, that the highly reflective bright streaks are not great valleys or mountains but rather striplike lunar "mirrors" composed of volcanic ash which covers the earth's satellite.

Each particle of this ash reflects sunlight. In general the ash specks have a random distribution which scatters light in all directions. If, however, the moon were struck a violent blow it is highly possible that vibration waves would be set up on the surface. While persisting for only a short interval of time, such vibrations could orient particles so that their reflecting powers would greatly increase in a given direction.

If one asks where the moon would receive a violent shock that could cause the vibrations scientists point to the already existing evidence of the havoc wrought by millions upon millions of meteor impacts on the moon.

The moon, Dr. Munro reports, (*Science,* April 26) has its history plainly written on its face. Its larger craters are easily classified as to age. (*Turn Page*)