



THE EAGLE IN FACT AND IN FICTION



THE EAGLE

IN FACT AND IN FICTION



by Johanna Johnston

*Original drawings by
Ralph Pinto*

A Harlin Quist Book

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I. The King of Birds

THE KING OF BIRDS—that is what people have always called the eagle. It is not that he flies higher than any other bird (although he can fly to great heights). It is not that he flies faster than any other (although he can fly at amazing speeds). It is not even that he is bigger than any other bird. He is big, but there are bigger birds.

People call him King simply because the eagle has a look of power and majesty about him, at rest or in flight, that has filled men with wonder and admiration for thousands of years. Men have made the eagle a symbol for nations, for warriors, for tribes, and for families. Men have woven many legends about his strength, speed and keen vision.

The Eagle's Eye

Most eagles have clear, bright, golden eyes. These eyes, with their fierce, intense gaze, caused people of ancient times to believe that the eagle

was the only creature on earth that could stare directly into the sun for a long time without flinching. Pliny, an ancient Greek historian, wrote about a mother eagle who forced her young to look up at the sun. She punished any eaglet who could not keep his gaze fixed on the glowing disk by pushing him from the nest. Many people believed this imaginary tale. People also believed that when the eagle gazed at the sun he became so filled with warmth and strength that his youth was renewed.

Eagles soar high above the land or sea when they are hunting. Their vision must be keen enough to see clearly objects that are many hundreds of feet beneath them. Because they swoop down from the sky in a long slant, or stoop, they must be able to spot their prey from a long distance away, two miles ahead or even more. And they can.

An eagle's focusing ability is about four times greater than a human's. From a great height he can see tracks and paths and small animals moving about far beneath him and far ahead as well. Eagles that live on fish and seafood can see fish in the water or clams or oysters along the shore with the same telescopic clarity.

The Eagle's Flight

"The way of an eagle in the air" is one of the wonders of the world. Long, long ago, one of the Psalmists of the Bible used these words, and everyone who has ever watched an eagle's flight



has felt the same way.

High in the sky, the eagle can soar like a living glider, hour after hour, riding the wind currents, tipping, tilting, changing directions with scarcely a movement of his wings. With a few strokes of those wings, he can mount swiftly upward, thousands of feet. Folding his wings back, he can shoot downward with breathtaking speed.

An eagle has this manoeuverability and power because his body is slim and small in comparison with the great spread of his wings. The body of a large eagle may be no bigger than a hen's or rooster's, but his wings may have a spread of six, seven, or eight feet. Some eagles have even wider wingspreads. To get some idea of how great a spread this is, remember that an ordinary bed is generally about six feet long. Now imagine a bird no larger than a rooster, spreading his wings so that he more than hides a bed or sofa behind them!

This small body in relation to the great wings makes for low wing loading. In aeronautical

terms, to work out wing load, you divide the total weight of a fully loaded aeroplane by the surface area of the wings. Once the eagle's wings have lifted him from the earth, he can sustain his balance and motion in flight with the most delicate movements of his wing-tip feathers.

An eagle's maximum speed has never been clocked. Golden Eagles have been timed at one hundred and twenty miles an hour. Eighty or one hundred miles an hour are quite usual speeds for an eagle on normal glides. Some people who have observed eagles believe they can fly two hundred miles an hour.

This kind of speed is useful to the eagle in hunting, but it is clear to anyone who has ever watched eagles that the birds also seem to take joy in flight. They soar, they glide, they dip and rise in the sky when they do not seem to be concerned with hunting at all.

Eagles often engage in aerial acrobatics, sometimes alone, sometimes with another eagle. An eagle will rise in the sky until he is almost out of sight and then swoop downward. Midway in his downward flight, he will suddenly turn, doing an aerial somersault. Then, pulling out of the somersault, he will continue down or soar upward once more to descend for another roll.

Sometimes, particularly in the courting and mating season, two eagles will fly upward together, wheeling in ascending spirals. Together they will dive. Then one will turn and roll under the other. High in the air, they lock talons, just

as human acrobats in the circus link hands in mid-air. Talons locked together, they somersault downward, round and round, through acres of air. When it seems they are about to crash to the ground, they will pull out of their tumbling descent, level off, and soar upward to begin the whole beautiful game over again.

What pleasure the eagle takes in flying we cannot know, but we do know it is something he can never experience in a zoo. He may be well-fed and well cared for, and certainly humans find it interesting to see such a majestic bird at close range, but is the eagle paying too great a price for our few moments of observation? The freedom to use his huge, strong wings in hours of dipping, soaring flight is gone.

Goldie, an eagle in the London zoo, has twice made headlines by escaping from his cage. For days he managed to evade capture, and people wrote to English newspapers saying he should be allowed to keep his freedom.

Thinking about what a cage must mean to an eagle, Sir Walter Scott wrote:

"The captive thrush may brook the cage,

The prison'd eagle dies for rage."

His natural history was not quite exact. Imprisoned eagles rarely die of rage. After repeated attempts to spread their wings and soar, most of them finally give up such protests and sit quietly on their perches, day after day. A few eagles have been tamed into pets. But most caged eagles seem to lose any real interest in life. This is almost

sadder than the picture Scott painted.

Many things are wonderful about an eagle, but "the way of an eagle in the air" always has been and always will be the most wonderful of all. The beauty and the power of it cause us to call an especially brave and daring aeroplane pilot an "eagle." When we wanted to salute one of the most intrepid human fliers of all time, young Charles Lindbergh, who was the first man to fly the Atlantic non-stop by himself, we called him "The Lone Eagle."

The Eagle's Claw

The eagle is a bird of prey, or predator. This means that instead of living on seeds, grain, or insects as some birds do, he lives on flesh, as do the hawks and falcons to which he is related. He is also called a raptor. *Raptor* means "snatcher" in Latin, and this is exactly what an eagle does. He swoops down on his prey, living or dead, banks his flight, thrusting his legs forward, and then snatches his prey in his strong claws, or talons, and soars upward again.

There was a belief in ancient times that the eagle had one webbed foot, to swim with, and one taloned foot, with which to catch prey. Why people kept believing this, when some of them surely had opportunities to examine dead eagles, is hard to say. Eagles have always been such grand and mysterious birds, perhaps people like to believe strange things about them.

Both of an eagle's feet have talons. Each foot

has three powerful toes that curve forward and one hind toe that opposes them to create a vice-like grip. The talons on every toe are long and sharply curved. One clutch with those talons and a small animal is usually instantly paralyzed or dead. The dagger points of the talons may even pierce through to the heart of the eagle's victim.

The eagle is very skilful in the use of his talons. He carries his prey away after catching it by holding it in his talons. He holds the prey down with the talons of one foot when he shreds it with his beak for eating.

The power and curved grace of an eagle's claw have caused people to use its shape in various designs. Furniture used to be designed with legs that ended in an eagle claw grasping a round ball. Sometimes these claw-and-ball bases for chair, cabinet, or bed legs were carved in wood. Sometimes they were cast in brass or carved in stone. Look at the old furniture in some public building,



or look at the legs of the furniture in your own house. Perhaps you will spot an eagle claw very near to home.

The Eagle's Beak

The eagle's beak is also very powerful. It curves smoothly downward for about three quarters of its length and then suddenly turns sharply into a fierce hook. This hook is very useful for tearing and shredding food.

No human being really has a nose like an eagle's beak, but a very high-bridged nose, with an abrupt downward curve, is sometimes called an aquiline nose. *Aquila* is the Latin word for "eagle," so "aquiline" means "eaglelike."

The Eagle's Nest

When people say that a house or cottage is a real eagle's nest, or that someone lives in an eyrie, they mean the house is located in some high place that is very hard to reach. That is the kind of place most eagles prefer for their nests, or eyries. If they live in mountainous country, they will build their eyrie on an outcrop or ledge high up on the face of a crag or cliff. If there are no mountains, eagles will nest at the tops of very tall trees, fifty or sixty or seventy feet up, the higher the better.

Wherever it is located, an eagle's nest is rarely a temporary one-year home, as many bird's nests are. The eagle's eyrie is a sort of castle, to which



the eagle and his mate return every year. Sometimes they have two nests, and they may alternate between the two, like people who have a house in the city and a house in the country as well. But one nest or two, these are homes that the eagles maintain through the years.

Each year they add new branches, moss, heather, or other building material to the nest, so that it grows bigger and bigger. When one pair of eagles dies, another pair will often move in. So the nests continue to grow through the years until some become immense.

There was a very famous eagle's nest in Vermilion, Ohio. The nest was eighty-one feet from the ground, which is higher than six floors up from the street. One pair of eagles or another had lived in it every year for thirty-six years.

Each year additions had been made to the nest until finally it was twelve feet tall, or a little more than one story high, and eight and one-half feet in diameter. When this great tree-house of a nest was blown down in a hurricane, it was discovered that it weighed two tons.

Another eagle's nest that came to be a true ancestral castle was first noted in 1805, by Lewis and Clark, the pioneer explorers of America's Middle West and West. They saw the nest near the Great Falls of the Missouri River, and wrote: "Just below the falls is a little island in the middle of the river, well covered with timber. Here on a cottonwood tree, an eagle had fixed its nest and seemed the undisputed mistress of a spot to

contest whose dominion neither men nor beast would venture. . . ."

Fifty years later, another observant woodsman, passing near the same spot, saw that the nest was still there. An eagle was still living in it. The nest was seen again about twenty years later, in 1872. Then, in the next few years, it was abandoned and soon fell to pieces.

No one ever knew exactly why the eagles deserted the nest after so many years. Perhaps civilization had come too close for eagles to want to live in it any longer.

The Eagle Screams

"The eagle screams" is a phrase people like to use when they are describing an exaggerated and overblown political speech. They mean that the speaker has been shouting threats and warnings in the same way an eagle does when he is threatened by attack.

An eagle does not scream often. And a scream is not always his way of frightening enemies. He relies on his great wings to beat and buffet away intruders on his nest. His beak and his talons are powerful weapons too. His usual way of talking is a kind of cackling which sounds very mild for such an impressive bird. "Cack-cack-cack," he cries, or "koi-koi-koi."

But now and then an eagle does scream. Sometimes it is a scream of rage and warning to an enemy. Sometimes, high in the air, he seems to invite his mate to join him for one of those div-

ing, rolling displays of aerial gymnastics by calling out over the wind to her, in a loud, shrill scream. And sometimes the mother eagle, waiting at the nest for the father eagle to bring food for the eaglets and for her, appears to decide the father has been away hunting too long. Then she will throw her head back and call into the sky—another long, loud eagle scream.

II. The Eagle Family

EAGLES, like all other birds, are warm-blooded vertebrate animals, members of the class *Aves*, from the Latin word *avis*, which means "bird." Birds are the largest group of land-living animals next to the mammals, and the only living creatures with feathers.

Within this great class, eagles belong to the family or order called *Falconiformes*. Other birds in this family are falcons, hawks, kites, buzzards, vultures and the African secretary-bird—all of them day-flying birds of prey.

Once students of nature thought that owls, night-flying birds of prey, were in the same family. This was before scientists began to study the development and history of birds through the ages. Through the discovery and study of fossils it was learned that all birds originally evolved from reptiles.

There were many variations in the way the reptiles' scales gradually evolved into feathers

and their front legs into wings so that they became tree-dwelling creatures capable of flight. Now scientists classify birds according to the pattern of variation they followed as they developed into the birds we know today. Owls, in spite of being like eagles in some ways, followed a different line of descent, and so belong to a different family, the *Strigiformes*.

Within the *Falconiforme* family there are not only many different kinds of related birds but there are also many different types of eagles. Some are huge; some are quite small. Some are land birds, who prey on small land animals, such as rodents and rabbits. Some are birds who live near water and feed on fish.

Some eagles are feathered to the toes, giving those birds an elegant look of wearing long, tight trousers, like riding pants. Another group has a bare tarsus; that is, the shank, or lower part, of the leg is bare. The American Bald Eagle has a bare tarsus.

There are also many variations in the colouring of the plumage of different types of eagles. But all eagles have the same powerful talons, fierce, hooked beak, keen eyesight, and swift, graceful flight.

There are other things all eagles have in common. Eagles always mate for life. Only a few other birds, like the swan and the pigeon, do this.

The male courts the female through beautiful displays of aerial gymnastics. When the female chooses the male she prefers, the two eagles fly

together in glorious dives and rolls through the skies. After that, they stay together until one or the other of them dies.

An eagle couple often fly together. The male and female hunt together and share their kills with each other. And both of them share in the work of raising young eaglets.

Hides and Blinds

Big as they are and fierce as they are, eagles are very wary of human beings. They are especially alarmed by any evidences of curious humans nearby when they are nesting or incubating their eggs. If you were to spot an eagle's nest and then climb the crag or tree to look into it during the nesting or incubating period, you might be attacked by the eagles, beating at you with their wings, lunging at you with talons and beaks. After that, the eagles might very well desert their nest and their eggs, never to return. This would not only end your hopes of observing any of their habits, it would also mean that one family of baby eaglets would never be born.

As a result, we know most of what we do about eagles from the patient efforts of various people who have been willing to crouch or sit in some high and hidden place, hour after hour, day after day, watching, taking notes, and when possible, photographing the eagles.

The hidden place, called a hide, or blind, generally has to be constructed, very secretly, in a nearby tree or on a nearby rock shelf. Timber for

a light framework, perhaps some chicken wire, canvas or burlap, and then branches to camouflage the whole structure are used for these hides.

Building a blind is a time-consuming business and can be dangerous. And it is often anything but comfortable to roost in for long periods of time. If it is built in a tree, the tree may sway in the wind so the blind rocks dizzily. The weather may be very hot or very cold. Rain or snow or sleet may add to the discomfort. But the whole story of how eagles prepare their nests, lay their eggs, and raise the young eaglets is a story we know because of the many hours that people around the world have spent in such lonely, uncomfortable spots, observing the eagles day after day.

Green Branches

The male and female eagles begin work on their nest a month or more before egg-laying time. Whether they are building a new nest or repairing an old one, they fly to the nest site with big sticks held in their talons or bring smaller sticks in their beaks. They poke these into the structure, building up the walls. Sometimes they bring heather or moss. If their nest is not too far from civilization they will sometimes bring odd trophies from the world of man to add to their nest—a coil of wire, a length of clothesline, a discarded light bulb.

All of this is not unlike the way other birds build their nests. But eagles have one very un-

usual and special habit. At one point or another of the nest building, they decorate the nest with branches bearing green leaves, or with green spruce or pine tips.

Sometimes the male will fly in and decorate the nest before bringing the female to it. Sometimes the green branches are not added until a nest has been repaired or completed and it is almost time for the female to lay her egg or eggs. Whenever the green branches are brought in, they seem to have little to do with the actual construction of the nest. The female may trample some of them into the centre hollow of the nest as though carpeting it. But most of them are just placed around the edges of the nest like a festive decoration to celebrate their moving in for the season.

The Eagle's Eggs

Eagles lay one, two, or three eggs, and they raise only one family a year, unlike many birds who raise several broods in the course of a season. Sometimes eagles skip a year and raise no babies at all. Some species lay eggs only every three or four years.

The eggs are somewhat larger than a hen's egg—not very large, considering the size of an eagle. They are generally white and are mottled with different colours, depending on the species. If the female lays more than one egg, she lays the second several days after the first. But as soon as an egg is laid it must be kept warm and covered until it is time for it to hatch.

Brooding on the eggs is chiefly the female's job. She sits on the egg or eggs in the nest hour after hour, day after day. The male hunts both for himself and for her during this time, and brings food to her in the nest. Now and then he will come to the nest with another green branch in his beak and drop it near her. This always seems to please the female. Sometimes the male will sit on the eggs for a while so the female can fly off and do a little hunting herself, but this does not happen often. Sitting on the eggs is the mother's responsibility, and she "sits tight."

After about forty-five to fifty days, the eggs begin to hatch. This incubation time is about the same for all eagles, big or small. About a month and a half after the egg has been laid, the baby bird begins to stir within it and starts to work cracking the eggshell.

The Egg-Tooth

Nature has provided a wonderful way for the unborn baby bird to break the shell that encloses him. He is equipped with a small, pointed egg-tooth on the tip of his bill. He taps with this egg-tooth against the inside of the shell. "Tap, tap, tap," he works away at one spot until the shell cracks a little. Then he must move inside the shell and start again in another spot, "Tap, tap, tap"—all around the egg.

It is a long job for the baby bird. Sometimes he works for fifteen or twenty hours or longer before he has cracked the shell all around. But then,

all of a sudden, the two halves of the shell break open, and there he is, out in the world at last.

The Eaglet

The baby eagle is a forlorn and feeble-looking creature. His head seems much too big for his scrawny little body and lolls on a neck which can scarcely support it. He is covered with down, which is damp and matted as he comes from the shell. His eyes goggle blindly. Altogether it seems impossible that he will one day be a large, strong eagle like his parents.

He lies in the bottom of the nest and at first he does not even know how to eat. His father brings meat to the nest. His mother tears off a tiny, tender shred of it with her beak and holds it before the baby's beak. But the baby does not seem to know what to do with the morsel of food. The mother is gentle and patient. She cannot force the morsel into the baby's mouth with her hooked beak. She must simply wait, offering it to him until at last he opens his mouth and accepts it.

Of course, within a few days the eaglet has become wiser. He has learned the meat in his mother's mouth is good. Soon he is quick enough to snatch at a morsel when she has it ready. Soon he is hungry enough to start cheeping for food when he realizes his father has brought more meat to the nest.

But he is still a very weak and helpless baby. His mother stays in the nest with him most of

the time, keeping him warm under her wings or sheltering him from the heat of the sun. Each night the father eagle roosts somewhere near the nest that holds his mate and baby. Each day he flies out to hunt, for he is hunting for three now—the mother, the baby and himself.

Two or three times a day the father brings food to the nest. And, again, he sometimes appears with just a green branch in his beak, which he drops, like a token, on the edge of the nest.

If the mother eagle has laid more than one egg, the second hatches several days after the first. One small eaglet is just beginning to see a little, to hold his head up straight, and to lose his egg-tooth, when another little eaglet begins to tap at its shell. Finally it emerges, perhaps a female eaglet this time, as sad and sorry a sight as the first one was. Usually in eagle broods the first to hatch will be a male, the second a female.

Now begins an unhappy chapter in the story of the eaglets. The older eaglet is not kind to the younger one. He pecks at her, beats at her with his small wings, crowds her, and sits on her to squash her if he can. (If the older eaglet is a female, the younger one will have an even more difficult time. From birth females of the eagle family are larger and stronger than the males. An older sister can almost kill a younger brother with her rough attacks on him.)

Strangely enough, the mother and father eagle, so patient in their own treatment of the babies, never interfere in this warfare between the

young. So the brother and sister fight it out. Sometimes they finally call a truce and are friendly, but often the struggle goes on until both of them leave the nest.

Every day they grow stronger and bigger. When they were born they could not stand up at all but simply pushed themselves about the nest on their shanks. Soon they were able to hold their heads up. Their eyes opened. They began to make a good deal of noise, cheeping and chirping for their meals. By the time they are three or four weeks old, the first signs of feathers begin to appear amidst the down. There are little dark specks on their heads, down their backs, and on their wings.

By this time, too, they are finally able to stand up and walk around and are as active and curious as any toddlers. They stagger or shuffle around the nest. They peck at branches or leaves in the walls of the nest and try to toss them up in the air, toying with them. Sometimes they fall, tripping over their own hind talons, which have grown so fast the small birds do not know how to manage them.

By now, the mother eagle spends less time in the nest, leaving the babies room for their tumbling about. It could be a dangerous time for the eaglets. They are still chiefly covered with pale down, which makes it easy for any enemy to see them. And they make a lot of noise. Other large birds of prey—kites, buzzards or large owls—have been known to attack young eaglets in the



nest. But generally the mother is not far away and flies quickly to the rescue when any danger threatens.

She is gradually training the eaglets to feed themselves. When the father brings food and drops it in the nest, the mother sits on the edge of the nest and watches the young ones try to tear it for themselves. They hold down the meat with their back talons and clumsily pick at it with their beaks. Sometimes they get nothing for all their efforts. Then they squawk and cry pitifully for help.

As their feathers begin to grow in all over their bodies, the eaglets spend a lot of time preening themselves, pulling out the baby down with their beaks. The down floats in the air, some of it sticking to the nest, some drifting to nearby trees or shrubs. The feathers that are growing in are not exactly like those of their parents. Young birds first wear a "juvenal," or young, plumage, which lasts three or four years, depending on the species, before moulting those feathers to don the adult plumage.

The plumage of the adults of different species varies greatly, but almost all eaglets, of every species, have a brown first plumage. This is often confusing to humans after the young birds begin to fly, and many young eagles that are protected against hunters by law are mistaken for unprotected species and shot down.

Still in the nest, the eaglets spend most of their time alone now. Their mother joins their father

in his hunting expeditions and only appears once or twice a day to leave food. When either of their parents appears, the eaglets greet them eagerly. They may bow down in the nest till their heads are almost buried. They may stand and spread their wings wide. But no matter how they beg or show off, their parents do not linger long.

Of necessity, the eaglets learn to tear their food and feed themselves. They also begin to eat the feathers, fur, or bones of the prey that has been brought them, just as their parents do. These indigestible parts of the meal are later regurgitated (spit up) in small balls called castings.

The eaglets are now so much bigger that they seem to bear no resemblance to the babies who tottered out of the eggs. At four weeks of age, they were already eleven times their size at birth. By two months of age, they are almost as big as their parents.

When the eagle's wing feathers have grown in, it is time for him to begin practising for his first flight. The young bird begins by spreading his wings wide, and even this simple first step can lead to trouble. Crouching in the nest with his wings open, he will have difficulty closing them again, and has to lean from one side to the other to get first one wing, then the other, back in place.

Later, he tries flapping his wings. Then he tries flapping and hopping about the nest at the same time. If he is very daring, he may perch on the side of the nest and flap his wings and

hop. All of a sudden, he may find himself free of the nest, and then there is a frantic scramble of beating wings and clutching claws as he tries to get back to safety. At such moments, he seems as terrified by the air as any non-swimming human being is frightened of water when suddenly plunged into it.

Young eagles are from two to four months old, depending on their species, before they are really ready to fly. Their parents seem to know when the young eagle's wings are strong enough for flight and when they have practised enough. They reduce the amount of food they bring to the nest. People who have studied eagles believe this serves a double purpose. The young eagle gets so hungry he is encouraged to fly out and look for his parents and for food. Also, cutting down on his food supply may help him lose just enough weight to make his first flight easier.

Finally the day comes when the parents do not visit the nest at all. The mother may sit on a tree or a crag nearby with some food, but she will not bring it to the nest. Desperate, the young eagle perches on the side of the nest, spreads his wings—and takes off. He is really flying at last!

The young eagle may not alight exactly where he planned. He may have trouble braking for a stop and perching on a strange branch or rock. He may not find any food as a reward for his flight either, and will fly back to the nest hoping to find some there—but he has taken his first flight toward independence.

Learning to Hunt

Young seals have to learn how to catch fish. Young lions have to learn how to hunt. It is so with young eagles too. They do not know how to sight and catch prey without a good deal of guidance by their parents.

As a result, a young eagle stays near the nest for some days after his first flight and also spends



the nights there. The parent birds stay somewhere nearby too, and each day the young eagle joins them as they go out hunting. In the beginning, he is not able to follow them on the long miles they fly. He stops somewhere along the way and his parents bring back food to him later. But soon his flying skill and strength have developed until he can fly wherever they go. Then he makes his first attempts at swooping down on game as they do.

This requires much skill in sighting, timing and co-ordination. The young eagle misses more often than he succeeds at first. But finally he learns how and when to swoop down, brake himself, and reach out with his powerful talons to snatch his own game. He is five or six months old, not much older, but now he is an eagle who can fend for himself.

Off to Freedom

Now the mother, the father, and the young eagles all leave the vicinity of the nest, and it is impossible to follow their individual histories.

Where do they go when they all fly away together on their great wings?

The practice of banding eagles has given us a few clues. Metal bands are attached to the nestling's legs. Later in life the number on the band identifies the eagle for researchers, just as though he had a name.

We know now that most eagles migrate. Eagles

who have raised their families in a warm winter climate fly to cooler regions for the summer season. Eagles who nest in a cold climate fly to a warmer one during the winter. It seems that eagles all over the world follow various patterns of migration, but much is still unknown about those patterns.

We know least of all about what happens to the young eagle, old enough to fly and hunt for himself but still immature. It will be three or four years before he is a full-fledged adult, ready to choose a mate, build a nest and raise a family of his own. What does he do and where does he go during these years?

He does not stay long with his parents, once they have all flown away together. Observers, watching a pair of parent birds return to their home nest to begin raising another family the next year, frequently report seeing an immature bird hovering nearby. But the older birds do not make the young bird welcome. Whether he is their son or not, they drive him away. The nest is no longer his home.

As more eagles are banded, more information may be gathered that will shed some light on the mysterious years of a young eagle's life.

The Age of Eagles

Until not long ago, people had exaggerated ideas of how long eagles live. They liked to think that eagles, so grand and unusual in so many ways, lived to a fabulous age, and were a hundred

years old and more before they died. We are fairly sure now that no eagle lives that long. But many bird authorities do believe eagles live for forty years, and perhaps longer.

Once again, we will only know more exactly when more eagles are banded. Then, as the years pass and eagles that have died from natural causes are found, the date of their birth year on the bandings will enable scientists to arrive at some sort of average calculation of the eagle's life span.

III. The American Bald Eagle

HIS HEAD is covered with white feathers that come down to his neck like a cowl; his tail is white; his body is dark, covered with blackish-brown feathers; his legs are bare of feathers; his gaze is piercing and golden—this is the adult American Bald Eagle. He stands from three to three and a half feet high and he has a wingspread that may measure from six to eight feet across.

His image is familiar to everyone, for he is the national emblem of the United States. We see his likeness carved into ornaments for buildings, monuments, ships' prows, furniture, and wall plaques. His figure is the most customary symbol to top a flag pole. Wings spread, beak slightly open, eyes seeming to flash pride and defiance, he flies across wallpaper and drapery fabric, hovers on chinaware, soars over almost any kind of patriotic printed matter. We see him most dramatically on the Great Seal of the United

States, which is often displayed behind the President when he speaks on television. Americans see him most frequently on the money they use every day, for his image is on much United States paper money and most United States silver coins.

What is he really like, this bird whose image is more a part of American lives than that of any other bird or beast? And why, when he plainly wears a distinguished head-covering of white feathers, do we call him bald?

Words sometimes change in meaning through the centuries. Three or four hundred years ago, "bald" not only meant "bare," but it also meant "white." That was the meaning intended when the American Eagle was called bald. His Latin name, *Haliaeetus Leucocephalus*, makes that meaning clearer, for *Leucocephalus* means "white-headed." In early Anglo-Saxon, the word *beald* meant "bold" or "courageous," two adjectives Americans like to apply to their national emblem.

Handsome, white-headed, powerful, the Bald Eagle is found nowhere else in the world but on the North American continent. That was one of the reasons why Congress chose him as a symbol for the new United States in 1782.

In the early days of the nation he was found almost everywhere on the continent, wherever there were tall trees to nest in and plenty of water nearby. Now he is much rarer. The only place he flourishes is Alaska. There a subspecies, identical with the more southern bird but somewhat larger, still thrives in great numbers.

Nearby water is a requirement. Our American Eagle is a so-called "sea-eagle," living chiefly on fish, waterfowl and other aquatic life. But he does not require ocean water. Any kind of inland fresh water will do so long as it provides him with his favorite food.

He is a peaceful bird, much less of a fierce hunter than his dramatic appearance might lead you to think. He soars lazily through the air with slow sweeps of his heavy wings, and he much prefers game that is easy to catch—fish that are dying after spawning and ducks that have been injured and separated from the protection of the flock.

It was this lazy approach to life that made Benjamin Franklin oppose the choice of the Bald Eagle as a national emblem. Franklin was so disturbed by the idea when it was suggested that he spoke and wrote quite heatedly, declaring the Bald Eagle was a robber, a coward, and an eater of carrion. For his part, he wanted the United States to choose the wild turkey as an emblem.

Most of us feel now that it was just as well the wild turkey was not chosen, but some people are still troubled by Franklin's criticisms of the Bald Eagle. Is there any truth in what he said?

To a degree, there is. Now and then the Bald Eagle does engage in a bit of piracy. When he spies his smaller cousin, a fish hawk called an osprey, with a fresh fish in his claws, he will fly after him and scream a few threats. Alarmed, the osprey generally drops the fish, and often the Bald Eagle is swift enough to catch the fish in



mid-air, as it falls. But he never actually does any harm to the osprey, for all his menacing approach. And he does not depend on this sort of piracy for his living.

The Bald Eagle does eat carrion, or dead flesh, also. But this is hardly a fact that should fill us with disgust. Birds and beasts that eat carrion play a valuable role in nature's plan. Living creatures do die, sometimes in great numbers. Carrion-eaters serve as a clean-up squad, ridding the land or waterfront of bodies that would only decay and become breeding places for disease-carrying insects.

An argument about the Bald Eagle's eating habits raged for some years in Alaska. The annual runs of salmon up the Alaskan rivers to spawn provide a wonderful yearly feast for Alaskan eagles. They fly from near and far to gather along the riverbanks. There are so many eagles in Alaska that this gathering brings together multitudes—often thirty or forty eagles may be seen in a single tree.

People who come from states where eagles are not so common find this an astonishing and thrilling sight. But Alaskan cannerymen and packers of salmon were not thrilled. They were sure the eagles were eating thousands of salmon that should be going into cans for human consumption. For many years people in Alaska were encouraged to shoot eagles like pests and were paid a bounty for every dead eagle they could report to the proper authorities.

Careful observation by scientists finally proved that most of the salmon the eagles eat are dying fish, swimming feebly back down the rivers after spawning. Their feast is not depriving anyone or harming anyone's profits.

Other charges against the Bald Eagle came from Alaskan fox farmers who thought eagles preyed on the foxes they were raising for their furs. These criticisms were proved to have almost no basis in fact. When an eagle did carry away a fox now and then, it was one already dead or dying.

Elsewhere in the United States it has been against the law to kill a Bald Eagle since 1940. When Alaska became a state the bounty on eagles was removed and Bald Eagles are now protected there also. And gradually even those people who feel that human needs are more important than any others are beginning to realize that the Bald Eagle is no threat to them and that Alaska should take pride in being a haven for the bird that is our national emblem.

Franklin's third charge—that the Bald Eagle is a coward—has much less truth in it than his other criticisms. The Bald Eagle is a wary bird, and does fly from hunters, but this seems wise rather than cowardly. Both the male and female are watchful guardians of their eaglets during the months when they are young, and will fiercely attack anyone or anything that seems to mean harm to them. And there are various stories that tell of Bald Eagle behaviour which certainly de-

serves to be called bold and courageous.

Old Abe, the War Eagle

A hundred years ago, in the days of the American Civil War, one very bold and courageous eagle won nationwide fame. This eagle played a hero's role, inspiring and encouraging the Union regiment of which he was the mascot.

He had been found when he was an eaglet by a Chippewa Indian chief in northern Wisconsin. The Indian, whose name was Chief Sky, raised the eaglet. Then, on one of his trips down the river to trade with the white settlers, he took the grown eagle along. He traded the eagle to a farmer for a bushel of corn.

For a while, the farmer kept the eagle tethered in his barnyard as an object of curiosity. Then the Civil War broke out. And, as the farmer said later, "It struck me like a brick, one day, that the eagle ought to go to war."

The farmer took the eagle to the nearest town, Eau Claire, and presented him to the newly formed Company C of the 8th Wisconsin Regiment.

The men were delighted to have a living representative of the national emblem as their mascot. They named him Abe, after the President, Abraham Lincoln. They made an elaborate perch for him, to which he was tethered by a leather thong. The perch bore a United States shield just below the bar on which the eagle stood. The men also hung a red, white and blue ribbon around

the eagle's neck, with a rosette on his breast.

When they were ready to march off towards the South and battle, one man was delegated as an "eagle-bearer." He carried Abe on his perch and marched next to the regiment's colour-bearer.

The eagle caused a fine sensation in all the northern towns in which the regiment appeared. But the men were not sure how the bird would behave when they finally reached the front and went into battle.

During their first skirmish, they left Abe on his perch well in the rear. Then they saw that Abe showed no fear of the bullets whizzing past him and no alarm at the noise, smoke and confusion. Instead, he rose on his perch, spread his great wings, and screamed defiance in a way that gave the men new confidence.

Before the next battle, they brought Abe forward, stationing his perch near the regimental battle flags. He was quiet and watchful in the moments before the call to attack. He seemed to be waiting, just as the men were, for the bugle to blow the signal. Then, when the bugle sounded and the guns thundered, he spread his wings and screamed in excitement.

After that, Abe stood at his post in the front lines in battle after battle, and his screams rallied the men as no human words could do. His fame spread throughout the Union Army. When General Grant paid a visit to the regiment, he made a special stop to salute the bird.

By this time, the Confederate forces had heard

about the Union war eagle, too. Before the battle of Corinth, in 1862, several commanders on the Confederate side told their men they would rather have Abe as a prize than any number of regimental flags.

For a while, at the beginning of that battle, it seemed as if the Confederates might get their wish. Things went badly for the 8th Wisconsin Regiment and then became critical.

In one blast of gunfire several officers were killed or wounded. The men stumbled back in retreat. And one bullet in the blast severed the thong that held Abe to his perch. Flapping his



great wings, he rose slowly upward. Then he flew up above the battlefield and towards the Confederate lines.

The sight of Abe disappearing added to the sense of despair and defeat among the Northern soldiers. Confusion was everywhere. Complete rout seemed on its way.

Then the miracle happened. Someone looked up and shouted. Abe was circling down out of the smoke-filled sky, heading straight for his red, white and blue perch! Somehow, he had escaped capture or harm in his flight over the battlefield and had found his way back to the place he be-



longed. Settling down above the United States shield, he lifted his head and screamed long and loud.

All the men cheered. And while no one could say that Abe's return was the chief thing that rallied the Wisconsin regiment that day, the men did regroup themselves and charged again. In this attack they carried the day.

Later in the war Abe rode at the front of the troops with the colours when the Union forces entered Jackson, the capital of Mississippi. He was with the Union forces besieging Vicksburg, and entered that city, too, after its surrender, at the head of the troops.

One night, carried along with the troops on a hurried night march, Abe suddenly took alarm at some noise he heard in the woods. A scouting party went to investigate. Soon it came back with a Confederate courier. The regiment felt sure that old Abe, the war eagle, was the one who had made the capture of the courier possible, and after that, the capture of the Confederate fort from which the courier had come.

Altogether, Abe and the 8th Wisconsin Regiment took part in twenty-five battles and skirmishes. After that, the regiment's period of enlistment was over, and the men went back to Wisconsin. But Abe's contributions to the war effort were not over.

The men presented him to the state of Wisconsin. Requests to have Old Abe appear at various fairs and benefits for wounded soldiers or

their families poured in to the Governor.

The great Bald Eagle, wearing his red, white and blue ribbons and perched on his shield-trimmed roost, was an enormous attraction at any event. At one big fair, held in Chicago, school children sold pictures of the eagle for ten cents each. A child who sold a picture was rewarded with the title of "Private in the Army of the American Eagle." Selling a dollar's worth of pictures made a child a corporal. Bigger sales were rewarded with higher ranks, up to captain, colonel and general. The children sold so many pictures that they made over \$16,000 for the benefit of Union soldiers.

P. T. Barnum, the showman, realizing how popular the war eagle was, offered to buy him for \$20,000. But Abe was a symbol no one wanted to sell, no matter what the offer.

The war ended, but Abe's fame continued. His home was the new State House in Madison, Wisconsin, but he was not often there. He was continually travelling, in the care of his keeper, to cities all over the North and East, to appear at patriotic fairs and rallies. Large and dignified, the eagle rode in open carriages in parades. He was unruffled by the shouting, torchbearing crowds, and did not seem to mind when people threw bouquets at him.

When it was time for the speeches, Abe would share the platform with all sorts of Civil War dignitaries. Perhaps he showed his poise and courage even more in his stately behaviour at these

events than when he screamed with excitement in the days when the battles raged around him.

Old Abe lived until 1881. That year a fire broke out in the State House very close to the quarters where he lived. The fire was soon put out and never came near Abe. But the heavy smoke it created affected the eagle's lungs. A few days after the fire he died. No one was sure exactly how old he was, but he was certainly over twenty-one years old.

After his death, some of the veterans of the 8th Wisconsin Regiment wanted Old Abe to be buried in the Soldier's Cemetery, in recognition of his services during the war. But there were others who felt that those services might be remembered even better if old Abe's form were preserved and kept on exhibition. That was what was done. The old war eagle was stuffed and placed on exhibit in the State House in Madison, with a description of his history posted nearby. He was an eagle who did honour to the national emblem. And unique as his experiences were, he certainly disproved Franklin's belief that the Bald Eagle was not bold or courageous.

It is strange that a country that was so impressed by Old Abe, and a country that has always taken pride in its national emblem, should have been so recklessly destructive of its Bald Eagles in the years after the Civil War. These were the years when the Bald Eagle population began to decline all over the United States. Hunters shot eagles wherever they saw them.

Egg collectors robbed nests year after year. Many other human activities harmed eagles too.

Big trees where eagles liked to nest were chopped down to clear land for towns, farms or industries. Factories were built along the waterways where eagles had always hunted. Waste and sewage began to pollute the water in many waterways, destroying or driving away the fish and game on which eagles fed. With all these hazards and difficulties surrounding them, there began to be fewer eagles. These few began to retreat farther into wild areas where they could be free from any interference by man.

One place where eagles found conditions very nearly ideal, with vast stretches of uninhabited land, plenty of water and fish nearby, and a mild climate for raising their young, was in Florida, the opposite extreme of the United States from Alaska, where the Northern Bald Eagles thrive. Gradually, as people in other parts of the country saw fewer eagles, Florida began to be known as an "eagle state."

It was in 1938, in Florida, that a remarkable project in banding eagles began and continued for almost twenty years.

The Eagle Man

Sixty feet up in a huge old pine tree on Florida's West Coast a man swayed in the air as he climbed a light rope ladder that led up to the top of a tree and an eagle's nest there. Observers on the ground could hardly help holding their breaths.

It would have been nerve-racking enough if the climber were a young and agile acrobat. But though he was wonderfully agile and sure-footed, he was a man in his sixties, a man who, until his retirement a few years earlier, had been a banker in Manitoba, Canada.

What was he doing, risking his neck high above the ground in a pine tree in Florida?

He was on his way to fix metal bracelets, or bands, around the legs of the two eaglets in the nest at the top of the tree. After he had banded them, he made a variety of observations about the eaglets, the nest, and the activity of the parent eagles, if they were nearby. Then he came back down the tree, took down his rope ladder, packed his gear, and was on his way to another eagle's nest he had discovered that had young in it.

Charles L. Broley was his name, and he had become involved in this strenuous, risky activity almost by accident. He had always been interested in birds, but never in quite such a dramatic way. Then, after his retirement in 1938, just before he and his family left to spend the winter in Florida, a friend who was associated with the American Museum of Natural History in New York spoke to him about the Bald Eagles in Florida.

The museum officials had long felt that if even a few of the birds could be banded, much useful information about the habits of the Bald Eagle could be discovered. So the friend gave Mr.

Broley four bands and four cards to fill out with information about the birds marked with the bands, if any were. He suggested that Mr. Broley find some boy or man in Florida to climb to a few eagles' nests and fix the bands to eaglets.

Somehow Mr. Broley never did find a boy or young man to undertake the job. Those he spoke to about the project raised doubts in him about the care they would use in handling the young birds. When he found an eagle's nest with young in it, he decided he would climb the tree himself. After that, there was no more talk about getting a helper. As he located nest after nest he climbed to each one.

Before he was through, the project that had begun with four leg bands had grown and grown until Mr. Broley had banded over twelve hundred young eaglets. In the course of this monumental work, he added enormously to our knowledge of the Bald Eagle. It will be years before all the reports on the birds he banded stop coming in. All this he accomplished in the years after he had retired, when many men find golf about as much exercise as they can manage.

"Doing a Broley"

Climbing a tall tree to an eagle's nest presents many special problems. The big trees that attract eagles are often bare of branches as high as forty feet up the trunk. No one can climb them without some kind of climbing aid. Also, eagles often nest in dead trees, which means a climber cannot

rely on the kind of climbing irons that telephone linesmen use. The irons would not hold in the deadwood of the tree trunk's centre.

The method Charles Broley worked out for reaching eagles' nests in spite of these difficulties became so famous that anyone who goes up into a tree by a similar device is said to be "doing a Broley."

This depends, first of all, on a very long, light, strong rope ladder with wooden rungs fixed at intervals. To get this rope ladder fifty or sixty feet up in a tree, firmly anchored to one of the branches and to the ground, Mr. Broley used a system you will recognize if you have ever read *Swiss Family Robinson*.

He attached a lead sinker to a fine, light length of cord. Then he threw the sinker and line up and over a strong branch high in the tree. A stout length of clothesline was tied onto the other end. When the sinker came down to him from over the branch, he drew on it and pulled the clothesline length up the tree.

To the clothesline was attached a heavy rope, and to the heavy rope was attached the rope ladder. One by one, he pulled them up over the branch till the rope ladder was in place. Then, after anchoring the returned length of heavy rope around the trunk of the tree, he was ready to climb.

Later he worked out various refinements on this method. He used a slingshot for the first throw of the sinker, and a fisherman's reel on

which to wind the first fine line that went up and over the branch. But the basic system for raising the ladder by means of a series of ropes of graduated size and strength remained unchanged.

Climbing up the rope ladder, he took other lengths of rope along with him to aid him in getting from one branch to another when these were far apart at the top of the tree. He often took a light "nest ladder" also. Eagles' nests are sometimes built outward so that coming up from beneath them is like coming up under an opened umbrella. The nest ladder helped him climb from a nearby branch onto the side of the nest.

Plainly, whatever one's age, "doing a Broley" requires a person to be in fine physical condition, to have excellent muscular co-ordination, a good eye, and a steady nerve. Mr. Broley had all these, and in all his years of climbing never suffered an accident. But people should be very cautious in attempting to imitate him. Not only is great skill needed, but constant and careful attention must be paid to the strength and condition of the ropes on which one's life depends while up in the tree.

What the Bald Eagle Eats

"Why did I shoot the eagle? Because he was stealing my chickens, that's why."

Not only in Alaska, but in Florida, and wherever there are eagles, there are always people who are convinced that the eagles are killing their poultry or livestock. They see an eagle flying

over a barnyard or a field, and the sight of the great, fierce-looking bird is enough to convince them that the eagle must be responsible for any losses they have suffered.

Mr. Broley looked into hundreds and hundreds of eagle nests during his years of banding. He saw all kinds of fresh prey, recently brought to the nest by the eagles. He saw the remains of prey, such as bones, that had been gathered through the year.

He saw almost nothing to indicate that eagles are a serious threat to chickens and young livestock. A few times he found chicken heads in a nest. Investigating where the chickens might have been stolen, he found the heads had been thrown away by a poultryman when he was dressing chickens for the market and later picked up by the eagles. The remains of a young piglet in one nest proved to have been those of a baby pig that had died at birth.

What he did find was constant evidence that the Florida eagles lived chiefly on fish. Once he picked up a fish in a nest that had been so recently delivered by the father eagle that he took it home and had his wife cook it for him. He also found many turtle shells, indicating that turtles were a large part of an eagle's diet.

In spite of all he said and wrote about his eyewitness knowledge of an eagle's hunting and eating habits, in spite of all the evidence of other observers and scientists, some people are still determined to believe eagles can wipe out a barn-

yard. Flourishing their guns, they cry, "The eagle is a predator, isn't he?"

They choose to forget that man too is a predator, living on flesh, and far more ruthless and destructive than any wild predator ever could be. Man kills far more than he needs to eat. He kills for the sport of it. No wild animal does that.

Eagle Migration

From Florida to the Arctic for the summer—and then back again to Florida? It is a long journey, but some southern eagles make it every year. Others may not travel quite so far, but all fly north to some cooler climate for the summer months.

No one knew that Florida eagles migrated before Mr. Broley began his project. After that, eagles banded by him were recovered, during summer months, as far north as Nova Scotia and Winnipeg. Others were recovered in New England, and some found their way to the Middle West.

In the same way, eagles he had banded during the summer in Canada were sometimes recovered in southern states in the winter, showing that eagles like to follow mild temperatures just as humans do.

It was good to begin to discover a real pattern of eagle migration from reports of banded birds picked up. But it was sad to have almost all this information come as a result of misfortune to the banded eagles. Most of the birds recovered were

found dead. Some had been killed by flying into high tension wires. Some had been caught in fox or mink traps. But most of them had been shot.

It has been against the law to shoot a Bald Eagle since 1940. Those who admitted shooting an eagle claimed they had mistaken the eagle for a hawk. It is an easy mistake to make in the four years before a young eagle dons his adult plumage. Mr. Broley finally grew to dread reports on eagles he had banded, so many showed that the eagle was shot down in the first year after leaving the nest.

Menaces to the Eagle

Man is not the eagle's only enemy. The eagle may be the King of Birds, but the Great Horned Owl is one who pays him no allegiance. Sometimes the owl attacks eaglets in the nest. Sometimes he takes over an eagle's nest entirely either when the eagle is away for the summer or by fighting with the eagle. The Great Horned Owl likes to start his quarrel with an eagle at night, when he can see well and the eagle cannot, and so is at a disadvantage.

Severe storms can harm eagles. Eagles' nests grow so large and top-heavy through the years that hurricanes often blow them down. A pair of eagles may begin at once to build a new nest, but this break in the regular pattern of their lives generally disturbs them and they lay no eggs that year. One year, after a big hurricane had swept Florida, Mr. Broley found only a quarter as many



eaglets in the state as there had been the year before.

All the while, civilization moves into more areas that were formerly wild and isolated. The big tourist boom in Florida has caused the clearing of more and more land for the building of homes. As the land is cleared, down go the big trees that eagles like to nest in.

Even in Florida, the "eagle state," eagles have begun to retreat. Some nest in cypress swamps, in mangrove trees much lower than those the King of Birds usually prefers. One refuge remains to them in Florida—Everglades National Park. In this great and beautiful wilderness in the heart of Florida, they can still find the surroundings in which they are happiest, and nest and raise their families free of any danger from man.

National parks, wild-life refuges and bird sanctuaries are the chief hopes for the preservation of America's Bald Eagles. As civilization wipes out the wilderness everywhere, it grows more important that there be as many of these as possible.

Hawk Mountain Sanctuary

There is a ridge in eastern Pennsylvania which seems to be directly in the line of travel for many birds migrating north or south. For years, bird lovers and students of birds have gathered on this ridge, called Hawk Mountain, during the migratory seasons, to watch birds flying over by the hundreds every day. Until fairly recently, hunters gathered there too, to see how many

feathered travellers they could shoot down. Thanks to the efforts of various dedicated people, this area was finally named a bird sanctuary, and there is no more shooting.

Now, in the spring and fall, bird lovers come to Hawk Mountain Sanctuary from all over the country to watch the flights of many kinds of birds. Among them, they can see Bald Eagles, huge and majestic among the smaller birds, soaring on the wind currents with scarcely a movement of their wings.

The Project to Save America's Bald Eagles

Protected by law, with bird sanctuaries located here and there across the country, there still seem to be fewer Bald Eagles every year. Why? And what further steps can man take to try to keep the Bald Eagle from disappearing as the passenger pigeons and the bison did?

In 1960, the National Audubon Society began a large-scale, five-year study to try to find the answers. The government's Fish and Wildlife Service and various conservation groups are co-operating with the society in this project.

Finding out just how many eagles there were in the United States, outside Alaska, was the first step in the study. And the reports that came in after the first year's inventory added up to a count of less than four thousand.

Florida still led in numbers with 392 eagles. Illinois was second with 347. Missouri had 315, Oregon 287, Oklahoma 276, South Dakota 263.

Other states in the Middle West and the Northwest accounted for most of the rest, for a total of 3,642—not very many birds to represent an entire species.

Eagles like the Middle West because of the many rivers and waterways of the Mississippi valley and the waters of the Great Lakes. And one aspect of civilization there seems to be helpful to eagles rather than harmful. Many rivers and lakes are kept open and free from freezing during the winter by dams and water-power plants. This means eagles have year-round fishing. In the Northwest, they are found chiefly along the Pacific Coast and the main rivers, especially the Snake River in Idaho.

The one fact that worried everyone who studied the report was that so few young eagles were reported. Without an equal or greater number of young eagles than older ones, to replace those who die, the species would gradually disappear.

Why should eagles be raising fewer eaglets?

Once again, it may be man who is to blame—man, with a new sort of weapon, the powerful insecticide DDT. Naturally DDT is not used against eagles, but tons of it are sprayed yearly across woodlands and water areas to control the insects that men regard as pests. Eagles eat fish or other water life that has been killed by DDT or has absorbed great amounts of it. The poison is then absorbed into their systems.

Men are beginning to learn that many kinds of

natural life are harmed by a reckless use of this insecticide. In 1962, a scientist reported the effect on eagles. The study of many dead eagles and various nests with eggs that did not hatch made it seem very probable that DDT affected an eagle's ability to lay eggs and also prevented eggs that were laid from hatching.

To protect all kinds of wildlife, we are going to have to develop a better way of using poisons like DDT, or find some other way of controlling pests that will not upset nature's balance so completely. The eagle will certainly have a better chance of survival when this is done.

Of course, there may be other factors as well behind the decreasing birthrate of eagles. The National Audubon Society hopes to find out as much as possible about all threats to the survival of Bald Eagles in its Continental Bald Eagle project. And everyone interested in the preservation of the American national bird hopes it will be successful.

The Great Seal of the United States

Look at an American one-dollar bill—any one-dollar bill. On one side of it, you will see two circular designs. The circular design containing a very stylized eagle is a representation of one side of the Great Seal of the United States. The other circular design is the reverse of the seal.

The presence of the eagle on this Great Seal is the chief sign that it is the national symbol, for the Great Seal is a very special sort of stamp indeed. It is impressed on only the most important

documents, treaties and declarations, and only on those which represent the action of the United States as a whole.

The history of the Great Seal goes back to July 4, 1776, the day the Declaration of Independence was signed. As soon as the thirteen colonies had declared themselves free of Great Britain, they needed some sort of seal or emblem to identify themselves as members of a new nation. So the Continental Congress appointed three men, Benjamin Franklin, John Adams and Thomas Jefferson, to design such a seal.

Nobody was especially pleased with any of their designs, however. And for a while everyone was too busy fighting the Revolution to do anything more about a seal.

Then in 1782 another committee was appointed to work on the matter. This time the combined efforts of two men, Charles Thomson and William Barton, finally resulted in a design that was approved by Congress, a design very much like the one used today.

The eagle was the central figure in this design, in spite of Benjamin Franklin's objections. He was shown in the position called displayed in heraldry; that is, with wings and legs spread, and his head turned to the right. In his right (or dexter) talons, the eagle held an olive branch. In his left (or sinister) talons, he held a bundle of thirteen arrows. The olive branch signified America's peaceful ideals; the arrows, her willingness to defend them. On the breast of the eagle was a

shield, with thirteen alternate red and white stripes and a blue "chief" above them. A scroll, held in the eagle's beak, was inscribed with the motto *E Pluribus Unum*—"Out of many, one." Above his head was a constellation of thirteen stars, surrounded by bright rays, called a "glory," breaking through clouds. You can see every one of these elements in the representation of the Great Seal on the one-dollar bill.

Congress also approved a design for the reverse side of the seal, and this, too, you can see on the one-dollar bill. It showed an unfinished pyramid (signifying strength and duration), with an eye in a triangle above it, again surrounded by a "glory," and the motto *Annuit Caepit*—"He has prospered our undertakings." Below the pyramid were the Roman numerals MDCCLXXVI, standing for the year of the signing of the Declaration of Independence. There was also the motto *Novus Ordo Seclorum*—"A new order of the ages," signifying the beginning of the new American era.

The seal was cut in brass and delivered to President Washington in 1789. He made the Secretary of State its custodian. In the early years of its use, a round wafer of paper with scalloped edges was laid on whatever document was to be sealed, and a wafer of wax was placed between the round piece of paper and the document. The seal was then used to press the round paper onto the document. In recent years, the wax has been omitted, and the round piece of paper has glue

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Then in 1782 another committee was appointed to work on the matter. This time the combined efforts of two men, Charles Thomson and William Barton, finally resulted in a design that was approved by Congress, a design very much like the one used today.

The eagle was the central figure in this design, in spite of Benjamin Franklin's objections. He was shown in the position called displayed in heraldry; that is, with wings and legs spread, and his head turned to the right. In his right (or dexter) talons, the eagle held an olive branch. In his left (or sinister) talons, he held a bundle of thirteen arrows. The olive branch signified America's peaceful ideals; the arrows, her willingness to defend them. On the breast of the eagle was a

shield, with thirteen alternate red and white stripes and a blue "chief" above them. A scroll, held in the eagle's beak, was inscribed with the motto *E Pluribus Unum*—"Out of many, one." Above his head was a constellation of thirteen stars, surrounded by bright rays, called a "glory," breaking through clouds. You can see every one of these elements in the representation of the Great Seal on the one-dollar bill.

Congress also approved a design for the reverse side of the seal, and this, too, you can see on the one-dollar bill. It showed an unfinished pyramid (signifying strength and duration), with an eye in a triangle above it, again surrounded by a "glory," and the motto *Annuit Caeptis*—"He has prospered our undertakings." Below the pyramid were the Roman numerals MDCCLXXVI, standing for the year of the signing of the Declaration of Independence. There was also the motto *Novus Ordo Seclorum*—"A new order of the ages," signifying the beginning of the new American era.

The seal was cut in brass and delivered to President Washington in 1789. He made the Secretary of State its custodian. In the early years of its use, a round wafer of paper with scalloped edges was laid on whatever document was to be sealed, and a wafer of wax was placed between the round piece of paper and the document. The seal was then used to press the round paper onto the document. In recent years, the wax has been omitted, and the round piece of paper has glue

on its back.

Several new metal dies were made of the seal in the years that followed. In one of them, the engraver made various changes of his own in the original design, with six arrows instead of thirteen and the shield's top curved instead of pointed. No one seemed to notice these changes for many years, which was probably just as well. People might have argued that documents sealed with that seal were not really legal and official.

The changes were finally noticed when people began to plan for a centennial celebration of the adoption of the seal in 1882. The original design was studied, and a new seal was cast, following that design more closely. With just a few modifications, it is the design you see in reproductions of the Great Seal today.

While the use of the Great Seal itself is strictly governed by law, reproductions of it appear in many places other than the one-dollar bill. When the United States President makes an important public address on television, behind him you will see a replica of the Great Seal. At the White House in Washington, D.C., in one room you will see a large and beautiful rug with the Great Seal of the United States woven into it as its centre design. In room after room, you will see the same design repeated on furniture, fabric and china-ware.

Various branches of the government use the seal, adding the name of the branch around the edge of the seal. Large replicas of the seal are

placed over the entrances of United States embassies, legations and consulates. Small versions of the seal are used on army service caps and uniform buttons. In fact, American children can make quite a game out of seeing in how many different places, and with how many modifications, they can find the displayed American Bald Eagle of the Great Seal.

The symbol of the American Bald Eagle is treated everywhere with care and respect. If we treat the living bird who served as a model for the symbol with just a little of the same thoughtfulness and care, we will not need to fear that he will vanish from our skies. He can soar on, a sight to thrill anyone fortunate enough to glimpse him, high, swift and graceful, riding the currents of the air.



IV. The Golden Eagle



AN INDIAN brave picked up an eagle feather from the row of feathers carefully spread before him. He held up the feather and looked at it for a moment, his eyes far away. Then he spoke to the circle of braves gathered around him.

"This feather, my brothers," he said, "is for the enemy warrior I slew in the battle with the Kioka at the foot of the mesa, ten moons ago. You may remember, I was with Black Elk, and together we were pursuing ten of the enemy back across the plain.

"Then a Kioka brave rode from behind a rock. He had drawn so near me that in another moment he could have touched me. But something warned me and I turned. Before he could touch me and then ride away again to boast of his coup, I raised my war hatchet and let it fall. He fell from his horse dead. What think you, my brothers? Is that a fit coup for the war bonnet?"

The Indians around him nodded. There was no doubt about its being a brave deed. What was

more, in vanquishing that one particular warrior, he had kept the enemy from winning a special sort of honour among the men of his own tribe. To get close enough to an enemy warrior actually to touch him, and then to ride off or run away without being hurt oneself—to "tag" him, in the words of the children's game—was considered an act of special daring among the Plains Indians.

So the Indian holding the eagle feather put that feather in a small pile beside him and picked up another from those in front of him. Then he began to tell of another daring act he had done.

The Indian brave was recounting a coup (pronounced "coo"), or reciting all his achievements in war that seemed brave enough to deserve an eagle feather in recognition. The feathers he won by these brave deeds would be used to trim an elaborate headdress or war bonnet. He and his fellow braves often worked together for weeks making such a war bonnet.

The eagle whose feathers were used for this most important article of ceremonial dress—the eagle that was most admired, sought after and actually worshiped by the American Indians of the Plains Country—was the Golden Eagle.

The World's Eagle

There are two great groups of eagles under the subfamily classification *Aquilinae*. One group consists of sea eagles, like the American Bald Eagle, who live near water and feed on water life. The other group consists of land eagles, who

hunt over the land and feed on small mammals and other land creatures.

The Golden Eagle (*Aquila Chrysaetus*) is a land eagle. Unlike the American Bald Eagle, his haunts are not confined to the North American continent. He is found all over the world, in Europe, Asia and Africa. He likes rocky, upland country, and his nest is usually on some inaccessible cliff or crag. In the British Isles, he is found in the Scottish Highlands or on the small craggy isles in the North Sea. In the United States, his range is from Mexico northward, and he is frequently found in the rough, wild country of the Middle West and Far West.

The Golden Eagle is a magnificent-looking bird, as large or larger than the American Bald Eagle, with a wingspread of seven feet or more. His feathers are a rich, dark brown, his head and neck brownish yellow, and his tail, which is rounded, ends in light and dark tints. The Golden Eagle's legs are "booted," or feathered to the toes.

His style of flying and hunting is different from the Bald Eagle's also. The Bald Eagle flies high over his nesting and hunting areas. The Golden Eagle is a low flyer, who follows the contours of the land, close to the mountainsides. He hunts by working up one side of a chasm and down another, watching all the time for a rabbit or some other small creature. When he spies one, he drops down, half folds one wing, and seizes the prey with one foot.

"Big Medicine"

The Indians of the American Plains—the Sioux, the Cheyenne, the Algonkian Blackfeet, the Crows, the Comanche, the Kiowa and Apache—all felt awe of the great bird who came soaring down out of the hills, his feathers glinting gold in the sun. They believed there was a spirit of divinity in him. Believing this, they also believed there was a sacred power in everything about him.

Because Indians used eagle feathers as supernatural charms in curing the sick, white men, trying to give some English term to what the Indians were doing, said the Indians believed there was "big medicine" in the feathers. Gradually, in talking with white men, Indians began to use the words "big medicine" too, although their feeling that there was something holy in the feathers was very like the feeling white men have that there is something holy in a cross, or various other religious symbols.

The Indians used a single eagle's feather to give special and sacred meaning to anything it adorned—a peace pipe, an amulet, any kind of ceremonial outfit. Chiefs wore a single eagle's feather in their hair. Maidens dressing for a religious ceremony wore an eagle's feather on their foreheads.

Above all, the Indians prized the twelve tail feathers of an adult Golden Eagle. These are white with dark tips and twelve to fourteen

inches long. Wing feathers were used for war bonnets, for the sunburst bustles of feathers some Indians wore in ceremonial attire, and other ceremonial trimmings.

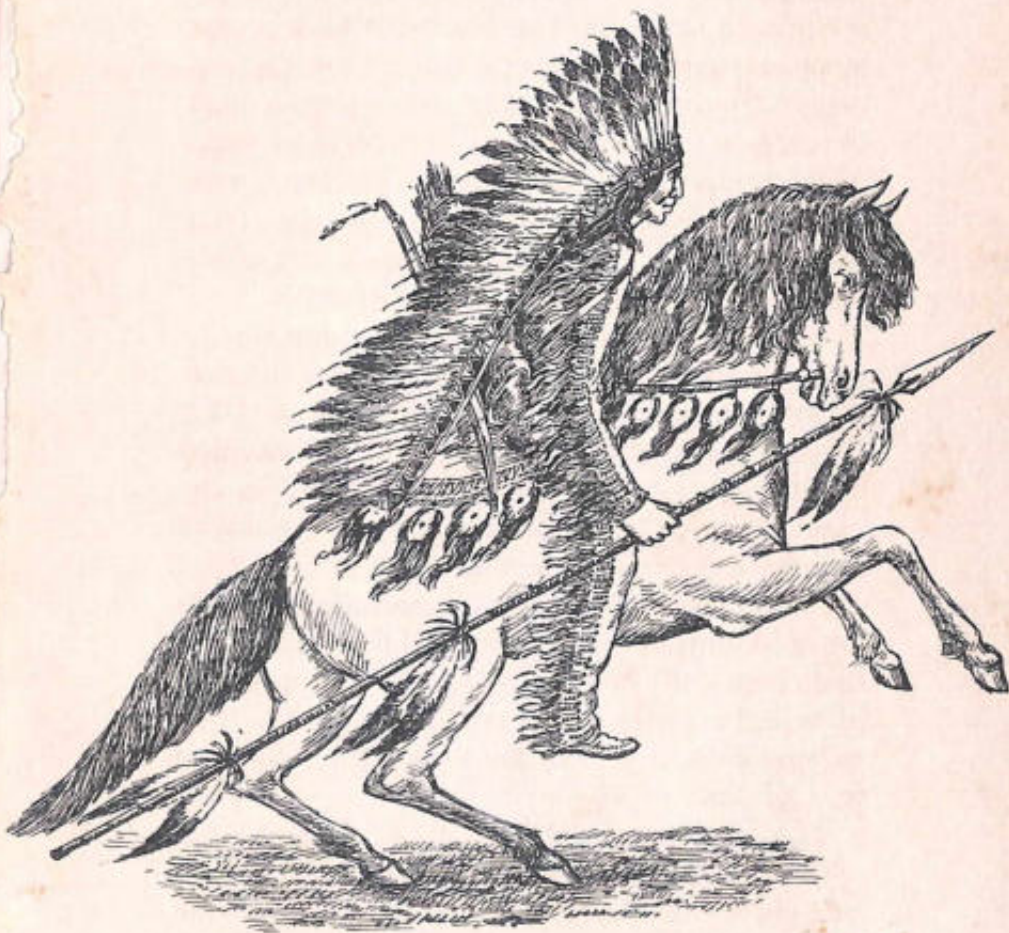
Small plumes, or "fluff" feathers, which grow at the base of the bird's tail, were often used along with larger feathers as a decoration at the base of the quill. The lightest of these plumes were called "breath feathers" because they were so light a breath could move them. Even an eagle's down was cherished. People sent small packets of the down to friends or to someone they wanted to honour. When they held races; the runners covered their hair with eagle down, and the spectators threw down in the air to add to the speed of their favourite runner.

The ceremony of counting coups and the use of eagle feathers to stand for various achievements in a kind of feather heraldry were developed chiefly by the Sioux Indians. Braves with many daring deeds to their credits wore bonnets with a long tail down the back to hold the extra feathers. Some won so many feathers they had to wear double-tailed bonnets. Because this headdress was so dramatic, and because white men began to expect all Indians to wear war bonnets, other tribes all over the West and finally all over the country started wearing feathered headdresses.

But as valued as eagle feathers were, most tribes considered it a sin to kill an eagle. Even trees where eagles nested were considered holy.

To kill an eagle could bring all sorts of bad fortune. If one was killed he was buried in silence.

This meant the Indians had to work out some system of getting feathers without harming the eagle.



Trapping the Golden Eagle

Indians obtained most of their eagle feathers by trapping eagles alive, a very dangerous business.

The Indian who was chosen or who had decided to undertake the task first dug a pit out on the plains, one large enough and deep enough for him to stand in. Then he went back to his tepee to prepare and purify himself for the next day's adventure. All night he would keep a vigil, burning a fire of sweet grass—perhaps sage, which was a sacred herb—and letting the smoke swirl around him. As the smoke drifted about him in the still night air, he would sing eagle songs, to lure and please the eagle spirits.

When dawn came and it was time for him to go, he warned his wife not to use a sewing awl or any other pointed object while he was away, for fear this might mean he would be wounded by the eagle's talons. Then, accompanied by another brave or two, and carrying some game as bait for the eagle, he left for the pit.

He set the bait by the pit's opening. Then he lowered himself into the pit, and the braves who had come with him covered over the top of the pit with branches and brush. They left him then to wait alone for an eagle to spy the bait from on high and swoop down for it.

This was the dangerous time. A bear or a wildcat or some other wild beast might see the bait before an eagle came near. Lunging for the

bait, the bear could not help but tumble into the pit on top of the Indian. In such close quarters, a man had little chance of defending himself and was lucky if he escaped alive.

If fortune was with him, and an eagle flew down, he still had a difficult time ahead. Quick as lightning, he had to reach up through the branches and seize the eagle's legs, and then pull the eagle down into the pit with him. Then, in spite of the eagle's struggles and wildly beating wings, he had to tie the eagle's feet and bind him so that he could be carried back to camp.

An eagle captured in such a fashion was kept through the years, tethered with a leather thong to a perch in the centre of the camp. Every year when his feathers moulted, the tribe could renew its supply of eagle feathers.

Sometimes, the Indian in the pit did not try to capture the eagle, but simply tried to pull out tail or wing feathers while the eagle settled on the bait. Even this was a risky and dangerous affair.

The Eagle Dance

The American Indians lived in close harmony with nature. To them, every animal and bird contained a spirit which had to be praised or appeased, depending on the animal. If it was an animal they killed for food or skins, they sang songs to it, asking forgiveness for having dealt out death to it. If it was an animal which had some trait that was highly desirable in a human,



they sang songs to its spirit and had ceremonies through which they hoped to obtain that trait for themselves. Often these ceremonies took the form of dances.

Since the eagle had many traits the Indians admired — speed, grace, power, keen vision, hunting skill—many tribes had elaborate and beautiful eagle dances. The exact patterns of the dances varied from tribe to tribe, but generally those who danced them were dressed to represent eagles.

Great wings were made of feathers and attached to each arm. A mask with an eagle's beak and a cap of eagle feathers covered the face and head. Costumed in this style, the dancers would lift and dip their arms like eagles' wings, and leap through the patterns of the dance like an eagle dipping and soaring in flight, crying out as they danced in imitation of the eagle's call, "Ku-ee-e-kee."

Here and there, Indians still perform such dances, especially in the Southwest, where the eagle was most venerated. The Hopi, the Zuni, and some of the Pueblo Indians still feel very deeply about the great bird, and one way or another his presence is evoked for tribal and religious rites.

But much has changed in North America since the days when all the land everywhere was open to the Indians, theirs to hunt across, to live in, to marvel at and enjoy. White men with guns found their way to Florida and Mexico. White

men with guns landed up and down the eastern seaboard. They were not all looking for the same thing. Some were seeking treasure, some were seeking freedom to follow their own religious ideas. But no matter why they came, their arrival spelled the end of an Indian civilization that was spread all across North America.

The story of how the Indians were pushed farther and farther from their own lands, always into lands the white men saw no use for, the story of treaties broken as soon as they no longer benefited the white man, and of Indians cheated and betrayed everywhere is one of the saddest, most shameful stories in the whole history of the settlement of North America by white men.

The same tendency to destroy everything that did not immediately seem to serve his purpose marked much of the white man's progress across the country. Forests were chopped down, all sorts of resources were used recklessly, and animals were slaughtered whether they were needed for food or not.

This kind of wastefulness nearly wiped out the Bald Eagle. Now the Golden Eagle is threatened by the same kind of treatment. Unlike the Indians, who felt it was a sin to kill an eagle, many white hunters have killed Golden Eagles simply for sport.

Once there were many Golden Eagles in the mountainous areas of the east, in New York and Pennsylvania. Hardly one is left there now as a regular nesting resident. The few Golden Eagles

still to be seen in the east are birds flying south from Canada for the winter months.

And in the rough upland country of the Southwest, where Golden Eagles still may be seen in some numbers, the killing continues.

Many birds are shot for their feathers. Some of these are sold to the Indians, and no one would want to deny them the feathers that have such importance to them. But many feathers are sold to people all across the country who want them for nothing more than fancy-dress Indian costumes, trimmings or souvenirs. For every one of these uses, the feathers of domestic turkeys would do just as well.

Boy Scout troops and other responsible groups who use Indian costumes in their ceremonies or programmes generally know by now that eagle feathers mean dead Golden Eagles, and they are glad to use the turkey feathers as substitutes. But still the eagle-feather trade continues, mostly through mail-order houses. And man, in his endless cleverness, has discovered a more effective way than he ever had before of obtaining those feathers and exterminating Golden Eagles.

Hunting Golden Eagles by Aeroplane

The southwestern part of Texas is rough, hilly country, just the kind of land Golden Eagles like. Every autumn, when it begins to get cold in the nesting areas in the Arctic and Canada, and when the small animals on which they feed during the summer begin to hibernate for the winter,

a great number of Golden Eagles from the Arctic migrate to this section of Texas.

They are not popular there with the ranchers, who chiefly raise sheep and goats. In fact, they are so unpopular that every winter for twenty years and more, the ranchers have hired pilots to hunt the eagles in the air. The pilots fly light aeroplanes with mounted shotguns and chase and shoot down every eagle that is reported over miles and miles of territory. One year, a single pilot reported killing over twelve hundred eagles in this fashion. Across the span of twenty years, another pilot killed twelve thousand.

Of course, the ranchers have their reasons for hiring pilots to do this. It is their belief that Golden Eagles take a terrible toll of their herds and flocks. They feel that in the lambing season, especially, eagles cause them to lose many of their baby lambs and kids.

It is true that Golden Eagles do sometimes attack and kill young lambs or kids. To an eagle, a lamb is just another kind of small prey, and eagles enjoy eating lamb meat just as humans do. But not everyone agrees that the eagles kill as many lambs as the ranchers think.

Various studies have shown that eagles generally carry off lambs that are already dead, or small, weak, sickly ones that are near death. Conservationists also point out that the ranchers do not protect their flocks but let them graze on the open range with no fences or enclosures. In other areas of the west to which Golden Eagles



also migrate, where the sheep and goats are carefully herded, ranchers do not seem to have any difficulty with the eagles.

But the Texas ranchers see only the harm the eagles do in their area and energetically defend their right to hunt them down by aeroplane.

Protecting the Golden Eagle

It sometimes takes men a long time to understand all the ways in which nature's plan provides necessary checks and balances for every species of living thing. They are even slower to see how their own interference may wreck that plan.

The Golden Eagle is unusually free from enemies. There is probably only one creature, aside from man, that he needs to fear, and that is the porcupine. If, in a moment of bad judgment, he decides to attack that prickly animal, he could easily die as a result. The porcupine's quills can become imbedded in his flesh, grow infected, and kill him.

Most animals and birds have many more enemies than that, and as a result nature has arranged that they breed in great numbers, so that no matter how many lose their lives for one cause or another, there will always be some to carry on the species. But since the Golden Eagle had almost no enemies, there was no need for him to breed that fertile. A pair of Golden Eagles does not raise a young eaglet every year or even every other year. Most Golden Eagles raise a

young eaglet only once in four years.

This slow birthrate would be just fine, and the Golden Eagle population would remain constant, if man were not part of the picture. When man starts the wholesale killing of a creature who breeds so slowly, it is easy to imagine how soon the species could be wiped out.

This would not only mean the loss to the world of a very special kind of beauty. Nature's plan would be upset in another direction as well. In general, the Golden Eagle preys on rats, rabbits, prairie dogs and other rodents which do breed rapidly—so rapidly that they would overrun the earth if they did not have natural enemies. The Golden Eagle is playing his part in a vast, interlocking system when he hunts these small creatures, and he is also doing mankind a service by helping to keep them in check.

Fortunately more and more people are beginning to realize this. Through the years it has also become clearer that the Bald Eagle, who looks so much like the Golden Eagle for the first four years of his life, cannot be protected unless the Golden Eagle is protected, too.

Finally, in October, 1962, Congress passed a bill making it against the law to shoot Golden Eagles. However, recognizing the fact that in a few areas, like western Texas, Golden Eagles may sometimes present a special problem, the bill has a proviso allowing the governor of any state to apply for permission to control them in specified places and at specified times. This should mean

that both the Golden Eagle and the Bald Eagle have a better chance for survival in this country.

Mexico's Eagle

If you take a trip to Mexico, the United States' nearest neighbour to the south, you will find the Golden Eagle even more important in art and legend there than the Bald Eagle is in America. The Golden Eagle is the Mexican national emblem and his symbolic importance to Mexicans goes back hundreds and hundreds of years.

It was more than one thousand years ago that a tribe of Indians in northwestern Mexico, where the land is rough and barren, started moving southward, seeking a better place to live. According to legend, they were started on their way by a prophecy.

The prophecy told them to seek a lake, in the middle of which would be an island. On the island, they would see a great eagle, perched on a cactus plant, holding a serpent in his talons.

Legend says they travelled southward until they did find such a lake, with an eagle on an island, holding a serpent, just as the prophecy had described, and that this was the beginning of the great Aztec civilization in the valley of Mexico.

The Aztecs did settle in the valley of Mexico about A.D. 820, and an eagle devouring a serpent became an important part of their mythology. The Aztecs built flourishing cities and rich



temples, and often used the eagle as a decorative part of their building and artwork.

Much farther south in Mexico, in the area now known as Yucatán, still another brilliant Indian civilization was created in the centuries before the Spaniards came and conquered Mexico. This was the Mayan civilization.

Like the Aztecs, the Maya had a religion that seems incredibly cruel to us today. It was a religion of many gods, the strongest of whom were most pleased by human sacrifices. The humans

the Maya used for these terrible sacrifices were generally prisoners of war. As with the Aztecs, two military orders, one known as the Tigers and one as the Eagles, were responsible for obtaining these victims.

One of the great Mayan ceremonial centres was the city of Chichén Itzá in Yucatan. The ruins of the temples there are visited by many travellers in Mexico today. Among the strange but beautiful carvings they see are eagles and tigers eating human hearts, statues symbolizing the activities of the human Eagles and Tigers whose duty it was to bring sacrificial hearts as offerings to the gods.

This kind of ferocity belongs to the far past in Mexico, just as similar cruelties lie at the beginnings of every civilization. But the eagle of the prophecy that led the Aztecs to the rich lands of the south still remains an important symbol.

In 1821, when Mexico became a republic, this eagle was made the national emblem. You can see him today on the flag of Mexico, on the white stripe between the green and the red—an eagle perched on a cactus, holding a serpent in his talons.

The Emperor's Falcon

Swooping down from the sky to capture a small animal or hurtling through the air after some smaller, slower bird which he can seize as soon as he overtakes it, a day-flying bird of prey is very much like a "living arrow." And in the

centuries before gunpowder, men developed a system of using birds of prey in their hunting, just as though they were very sensitive guided missiles.

Falcons, members of the same *Falconidae* family as eagles, were the birds generally used. Falcons are smaller than eagles. The largest falcon is only two feet high and the smallest is not much larger than a sparrow. They are very swift.

The peregrine falcon, the most popular of the birds used in falconry, is believed to be the fastest bird alive. Some of his dives, or stoops, have been clocked at one hundred and eighty miles an hour. The true falcon has dark eyes, unlike the eagle's bright yellow ones, and long, pointed wings.

As long ago as 300 B.C., men in Egypt and Asia Minor learned how to train these birds to be the swiftest, most precise hunting aid man had ever known. They taught the birds to have no fear of humans, and to ride on their owners' gloved hands when they went out to hunt.

They put hoods on the birds' heads to keep them quiet until game had been sighted. Then they removed the hoods, released the birds and sent them flying after the game. The birds were taught never to fly on after they had seized their game but to drop to the ground with it and wait until the hunters arrived to pick up both them and the prey.

Sometimes eagles were trained in the same way. A man had to have a strong arm and wrist



to hold a twelve- or fourteen-pound eagle perched on it. But being larger, the eagle could be trained to pursue much larger game than the falcon could. On the steppes of Asia, the Kirghiz Tartars used Golden Eagles to help them capture antelope, gazelles and foxes.

By the early Middle Ages, falconry had become popular in Europe too. It was the fastest and best way to hunt for small game in the days when man depended on hunting to eat, since twenty or more rabbits could be taken in one day by a single bird.

Gradually, as everyone in Europe began to practise falconry, from the poorest yeoman to the highest of the nobility, an elaborate etiquette was built up around the sport. Every aspect of the bird's training and use in the field followed prescribed rules and had special names.

The bird was "flown from the fist" after being unhooded and "cast off." The birds wore leather straps, or "jesses," around their legs. When they were not hunting, these jesses, fastened to a swivel, secured the bird on a leather leash. The building in which falcons were kept was called a "mews." That word is still in use in England, where some alleys and passageways are known to this day as mews.

Since a variety of falcons and hawks was used, the etiquette of falconry also determined which person could use which bird. The yeoman was allowed the goshawk (a very fast and serviceable bird), ladies could hunt with merlins, a prince

hunted with a falcon, a king with a gyrfalcon. At the very top was the emperor, and to him was given the largest, most majestic bird of all, the bird capable of hunting down game worthy of an emperor—the Golden Eagle.

Falconry remained an important part of hunting in Europe until the seventeenth century, when the development of gunpowder and guns made the use of "living arrows" unnecessary. But in Africa, Arabia and Asia Minor, men still use falcons for hunting on a practical, everyday basis, and all over Europe there are people so devoted to falconry as a sport that they keep its traditions alive.

V. Sea Eagles, Land Eagles, and a Few Outlandish Ones

"A HOUSE falling on your head will be the cause of your death!" That was the prophecy made to the famous Greek dramatist Aeschylus, who lived in the fifth century B.C.

The oracle who made the prophecy did not say how many years would pass before this calamity took place, but she was able to name the day of the year on which it would happen. As a result, every year Aeschylus spent that day out in the fields, where no house could possibly fall on him.

But then on one of those days when he was out in the meadows, trying to avoid fate, an eagle soared overhead. The eagle was carrying a tortoise in his talons and looking for some rock onto which to drop the tortoise to break its shell, so he could eat the meat.

With his sharp eagle eye he spied Aeschylus' bald head far below and mistook it for a rock. He dropped the tortoise onto it with unerring precision.

Just as Aeschylus had always written in his plays and poems, it is no use trying to cheat fate. He was killed as the oracle had prophesied, by a house falling on his head—for what else is a tortoise's shell but the tortoise's house?

People told that legend for centuries. And in telling the story, they said that the eagle who was the agent of fate was a Lammergeyer, one of the strangest and rarest of all eagles.

There are many different species of eagles. Eighty have been observed and named around the world. There are dozens of species of land eagles.

The Spotted Eagle, the King Eagle, and the Imperial Eagle are just a few of the land eagles found in Europe. The Tawny Eagle and the Martial Eagle are land eagles found most frequently in Africa, a continent where many eagles flourish, and where, in general, the natives regard them with awe and leave them alone. All these land eagles share many of the characteristics of the Golden Eagle and differ from him and from each other chiefly in their size and the varied colours of their plumage.

There are also many different kinds of sea eagles around the world, all somewhat like the American Bald Eagle in their habits. The Grey Sea Eagle, the Northern Sea Eagle of northeastern Asia, the African Sea Eagle, and the Fishing Eagle of India are among these.

And then there are a few species like the Lammergeyer, curious and colourful, who look, some

of them, like mythical birds of a fairy tale come to life.

The Lammergeyer

The Lammergeyer is huge, with a wing-spread of eight feet or more. He can fly to amazing heights and has been sighted at twenty-four thousand feet. Loving the cold, thin upper air, he lives in the lonely peaks of the world's highest mountains, the Alps, the Pyrenees, and the Himalayas.

But it is the way he is feathered that makes him most extraordinary. He has pinkish-brown feathers on the underside of his body, darker brown above, a white head, and on either side of his beak he has a tuft of feathers. These give him the look of having a beard. Because of this people often used to call him the Bearded Vulture.

He has an oddly constructed tongue, adapted for extracting the marrow from bones, a favorite item in his diet. So that he can get at the marrow even more easily, he frequently carries the larger bones he finds to great heights from which he drops them onto rocks to break them. This habit of his is probably the reason why people said it was a Lammergeyer who dropped the tortoise on Aeschylus. It has also won the Lammergeyer the name of Bone-Breaker.

In the remote mountain villages near the peaks where Lammergeyers live, peasants have always believed these birds carried lambs away from their pastures. Probably, like the Golden Eagle,

the Lammergeyer prefers to pick up dead lambs, but that has never stopped people from thinking of him as a lamb killer and feeling a surge of awe and dread when they see him swooping down from the heights towards a mountain valley.

Recently, there was a story about a Lammergeyer in the newspapers of America. This Lammergeyer lived in South Africa, where there are also some very high mountains, the Drakensberg Mountains of Natal. Someone had found him on a road high in the hills, unable to fly because of a broken wing. He was picked up and brought down to civilization, to a zoo. The curator of the zoo believed from the look of the injuries that the bird had been run over by an automobile.

Surely an automobile was as strange an agent of fate for that bird as the long ago Lammergeyer was for Aeschylus. But this story of our own day had a happy ending. The Lammergeyer's wing was set and mended, and then he was returned to the mountain wilds where he had been found.

South American Harpy Eagle

South America is the home of the very largest eagle of all, the Harpy Eagle, who may have a wingspread of ten feet. He is as strong and ferocious as he is big, and he preys on sloths. Like the Lammergeyer, he has two unusual tufts of feathers, but these rise from the top of his head and give him a witchlike look, which is what earned him his name—Harpy Eagle.

The Bateleur

Still another strange member of the eagle family is an African eagle called a Bateleur, which means "tumbler," or "tightrope walker." He is not nearly as large as the Lammergeyer or the Harpy, but he is much more astonishing to look at.

His body is almost entirely coal-black except for some grey about his wings, which have a silvery underside. He has practically no tail. What gives him his outlandish look is the fact that his bare legs and the skin around his face are bright red. To add to the effect, he has beautiful brown eyes with long, sweeping eyelashes.

Still, if you could see him flying across the plains and forests of Africa, you would forget the oddness of his appearance and marvel at the beauty of his flight. His wings are very long and curiously shaped, slightly bent backward at the tips, so that when he flies, he looks like a delta-wing aeroplane.

Because he has practically no tail, which most birds use constantly in steering and balancing, he must cant his wings this way and that as he flies. This is probably what won him the name tightrope walker, for his delicate balancing in the air is very like that of the circus tightrope walker who carries a pole before him with which to make constant small adjustments to his balance.

Tipping, tilting, flying at a terrific speed, the Bateleur covers many miles in his daily hunting expeditions. He eats mostly carrion, rats, or other

small animals. But now and then he does something else that makes him remarkable. He kills puff adders.

These deadly snakes are feared by most animals. But the Bateleur has developed a system of making repeated swoops down on the snake, just above its head, causing the snake to strike over and over again in vain, until at last it is tired out. Then the Bateleur seizes the snake and flies away with it.

Serpent Eagles

The Bateleur is not the only eagle that attacks, kills and eats snakes. There is a species of eagle, found in Africa, India and Central Europe, that eats nothing else but snakes. The Mexican emblem of an eagle with a snake in his beak is not just an imaginary fancy but a true picture of some eagles.

Since snakes are generally unpopular with humans, even though many of them play important roles of their own in nature's plan, most people who live in regions where there are serpent or snake eaters are happy to leave these birds in peace to kill as many snakes as they want.

A Snake Eagle is not too different from most land eagles in appearance, but he has shorter toes than they have, toes that are very strong and rough-surfaced to enable him to grasp his special prey.

His system for killing a snake is to seize it near the tail and rise at once into the air. The snake,

dangling head down from the eagle's talons, cannot lift itself up to strike at the eagle, so the eagle is protected against being bitten. As he flies through the air to his nest, he slowly moves his talons along the snake's body, as you might move your hands along a length of hose. Finally he has one foot around the snake's head and can crush it. Sometimes he even eats the snake as he flies, feeding it into his beak a few inches at a time, just as a human might eat a strand of spaghetti.

Snakes may seem like a most distasteful article of diet to us, but the wonderful thing is the way in which nature provides some special food for every creature, and provides that creature with just the right kind of weapons and hunting techniques for obtaining the food he needs. And so we should not be shocked or dismayed even by the large eagle of the Philippines, almost as large as the Harpy Eagle, who lives on monkeys. Monkeys are small mammals that are very numerous in the Philippine Islands, and the Philippine Monkey-Eater is simply following nature's laws in feeding on prey that is near at hand and present in such numbers that the species cannot possibly be wiped out by his hunting.

Strange, even outlandish, as some of these more unusual eagles may seem in their habits, their size or their plumage, all of them have contributed to man's idea of the eagle as a bird who is unique. Soaring with grace and power over the far, lonely stretches of the world, hunting with speed and cunning, and then returning to their nests or

eyries to raise their young with patience and tenderness, the eagles of every land, whatever kind they might be, have always inspired men to call them the King of Birds.

VI. The Eagle in History

THE EAGLE may fly in many places, but the most surprising place you'll find him is at the top of our alphabet.

At first it may not seem too easy to find an eagle in the symbol of our small, or lower case, "a." But the story of how the letter "a" developed thousands of years ago may help you see him more clearly.

In the very beginning of writing, in Egypt, five thousand years before Christ, people explained a situation or told a story by means of pictures, or hieroglyphic writing. They drew pictures of men, houses, the sun, trees, and animals. The picture of the thing stood for the thing itself and nothing more. A picture of an eagle might be part of such a picture story, and all it stood for was an eagle.

Then men began to try to express ideas with their picture writing, so that sometimes the picture of a thing was meant to mean something

more than the thing itself.

After this, the picture of an eagle in Egyptian writing sometimes stood for something more than just an eagle. The Egyptians attached religious meaning to the great bird that soared so high and so swiftly. They began to use a picture of him to represent the idea of the soul after death.

They developed their picture writing a little further. Now and then they began to use pictures to express word sounds, just as we do today in those puzzles called rebuses, which show a sentence like "I can fly" with pictures of an eye, a can and a fly. For one particular word sound they used a stylized picture of an eagle, just as they used a more elaborate picture of the bird to mean "soul."

Then they went on to letter sound pictures as well. And again an eagle was part of their writing. Even more simplified than when he represented a word or syllable sound, he now represented the letter "a."

The Egyptians did not invent a true alphabet, because they continued to use all the different kinds of pictures in the course of telling one story or message. In one inscription, pictures of eagles might be used in three or four different ways to mean an eagle, the soul, the word sound of eagle, or the letter "a."

Still, it was an eagle in an old Egyptian inscription that helped unlock the mystery of picture writing. The inscription was on an ancient tablet

that was unearthed in Egypt about a hundred and sixty years ago. For a long time no one could decipher it. Then a French scholar began to pay special attention to two pictures of an eagle recurring in one set of symbols within an oval. Finally they gave him the key. The eagles were in the name "Cleopatra," standing for the "a"s.

The Phoenicians, a neighbouring people to the Egyptians, were the ones who finally refined the Egyptian picture writing into a true alphabet. They dropped the thing-pictures, the idea-pictures, the word-and-syllable sound pictures, and kept only the letter sound pictures, making the pictures more stylized all the time.

But the eagle was still there, standing for the letter "a," and leading the whole alphabet. And there he is to this day.

Look at a picture of an eagle standing in profile, his wings folded. Imagine that profile drawn more and more simply. Then look at a small letter "a." The upper loop of the "a" is a very simplified version of the eagle's head and beak. The swelling circle below it is the eagle's breast. The little line off to the right is the eagle's tail. Do you see the eagle now?

Yes, A is for eagle, and has been for almost six thousand years.



The Phoenix and the Thunderbird

There was once a great, legendary bird who, when he felt himself growing old and his energy waning, flung himself into a fire, and in the flames was not consumed but made young again. That was the Phoenix, a supernatural creature in the religion and mythology of the Hittites and other ancient peoples of Asia Minor who lived at the time of the Egyptians.

The fabulous Phoenix was probably inspired by the eagle. We know the Hittites kept captive eagles in their temples to use in their religious rites honouring the Phoenix. And in ancient times, people generally seem to have thought of the eagle as a bird eternally capable of renewing his youth.

Another ancient myth, very like the myth of the Phoenix, told how, when the eagle grew old, he plunged from the sky into the ocean and emerged from the water young again. The English poet Edmund Spenser, who lived two thousand years after the myth was born, referred to the legend in some of his poetry:

"An eagle, fresh out of the ocean wave,
Where he hath left his plumes all hoary grey,
And decks himself with feathers youthful,
gay..."

One way or another, the eagle flew through the legends and religious beliefs of almost all ancient people. He found his way into Greek mythology. What other creature could have been the messenger of Zeus, the King of the Gods, liv-

ing high on Mount Olympus? There was none worthy but the eagle. And when a handsome Trojan youth was chosen because of his grace and beauty to be the cupbearer of the King of the Gods and live with the immortals, naturally he was flown to Mount Olympus on the back of an eagle.

The Romans took the Greek gods for their own with few changes except for the names. Zeus became Jove, but an eagle was still his messenger. An eagle grasping Jove's thunderbolts became the symbol both of the god and his unconquerable might.

A Roman emperor was considered so nearly divine that when he died, it was thought his soul went to join the gods on Olympus. Of course, an eagle took it there. The dead Emperor's body was burned on a great funeral pyre, laden with treasures of gold and silver. After the pyre had been lighted and the flames were leaping high, a live eagle was released from the top of the pyre, to bear the emperor's soul aloft.

On and on through the centuries, the eagle kept his religious significance for mankind. For a while, after the beginning of the Christian religion, when the members of that new, small sect had to fight for their lives against the cruel decrees of Roman emperors, the Christians had no use for a symbol that meant only Rome's might.

But when Rome itself had yielded to Christianity, the eagle's old appeal was felt again. The eagle became the symbol of Saint John, the Evan-

gelist, who had looked on "the sun of glory," just as the eagle looked at the sun. Medieval pictures of Saint John often showed him on an eagle's back.

In the East also, the eagle made his way into religion. The Hindu legends of India tell of how a sacred drink called soma was brought down to earth from heaven by an eagle. And eagle feathers were always the talismans for heroes.

In America's Southwest, where the Plains Indians also used eagle feathers as talismans for heroes and where the eagle was thought to be full of sacred power, there were legends about a supernatural creature as wonderful as the Phoenix, and surely, like the Phoenix, inspired by the eagle. This was the Thunderbird.

The Thunderbird, eaglelike but larger than any other bird ever seen by man, was the god or spirit of the thunderstorm. He was so huge and mighty that he himself made the thunderstorms that swept the plains or roared in over the ocean.

He flapped his great wings, and the thunder rolled. He blinked his eyes, and lightning flashed. On his huge back, he carried a lake of fresh water, and it spilled over and fell to the earth as rain.

Today, the Thunderbird is still the most popular decorative design in the articles that are made for sale by the Indians of the Southwest. You can see him on jewelry and in beadwork or painted onto leather and many other items.

The Thunderbird, the Phoenix, Zeus' messenger, St. John's bird—across the span of six thou-

sand years, and in countries around the world, the eagle has so symbolized mystery, power and beauty to man that over and over he has been used to express some of man's deepest religious feelings.

Eagles Lead the Armies

"Look for a field where an eagle is nesting," the centurions told their cohorts when the Roman legions were getting ready to set up winter quarters. But no Roman soldier really needed such a reminder. All of them knew it brought them good fortune to camp near an eagle's eyrie. And because they believed that the eagle, the bird of Jove, was never struck by lightning, they often buried an eagle's right wing in the field where they camped, as a protection against storms.

But this was only a small part of the eagle's importance to the Roman army. The eagle was not only a religious symbol, but a symbol of victory and might, and he had been since the beginning of recorded history. The ancient kings of Sumer, who lived and reigned four thousand years before Christ, engraved eagles on their seals. The Assyrians used the eagle as an emblem of conquerors, and the fighting Persians carried a golden eagle on a standard before them.

Then Rome's power began to grow. With an army divided into legions, which were units of three to six thousand men, and the legions further divided into cohorts (each cohort was commanded by a centurion, or "leader of a hundred"), Rome had the strongest, most flexible



fighting force the world had yet known.

At first, the legions carried all kinds of emblems and standards. Then the consul, Marius, ordered that only one standard be carried before every legion—a tall staff topped by a silver eagle with uplifted wings, carrying a thunderbolt. So the legions came to be called "the eagles of Rome," and marched north, south, east and west, to conquer most of the known world.

Finally, after more than five hundred years of glory, the eagles of Rome were vanquished. But the eagle as a bird of war and might and victory flew on, alighting on standards all over Europe.

Sometimes the eagle on the standard had his head turned to the right, sometimes to the left. As a result, when Charlemagne, the great King of the Franks, became Holy Roman Emperor in A.D. 800, uniting most of Christianized Europe under his rule, he chose a double-headed eagle for his standard. It was not a new emblem. Ancient peoples had also used it. But because the eagle of Germany looked to the left and the eagle of Rome looked to the right, Charlemagne showed his empire included both by using a double-headed bird, looking in both directions, as his symbol.

Several centuries later, the two-headed eagle became the Russian national symbol for a similar reason. Ivan the Great had married a niece of the last Emperor of Constantinople, linking Russia with the Eastern or Byzantine Empire. The double-headed eagle showed that the Russian

Empire had ties to both east and west.

Eagles were on dozens of standards and banners when the Crusaders gathered from lands all over Europe to fight for the freedom of the Holy Land. And when Edmund Plantagenet went back to England after fighting in one Crusade, he took a double-headed eagle with him on his standard, a symbol he claimed because he had been elected King of the Romans.

Finally, the Holy Roman Empire crumbled. The Austrian Empire, which succeeded it, took the double-headed eagle for its coat of arms. So both Germany and Russia had eagles on their banners until the present century. It was in 1918 that the Russian Revolution drove away the old imperial Russian eagle and replaced it with a hammer and sickle. In 1933, the Germans' double-headed eagle gave way to the swastika.

A triumphant imperial eagle alighted on the standard of France in the days of Napoleon's power. Napoleon made the eagle the symbol of France during the Empire. He himself was so identified with this symbol that his little son was often called *L'Aiglon*, or *The Eaglet*. It was not until 1871 that the Third Republic, wanting no more reminders of imperial rule, replaced France's Napoleonic eagle with a laurel wreath.

But the eagle as a symbol of might still flies on many banners and tops many standards, including the Mexican, the Spanish and the American. However, since the days when the committee appointed by Congress to design a Great Seal put

an olive branch in one of the American Eagle's feet, that eagle has also been a symbol of strength used to protect peaceful goals and pursuits.

Eagles in Heraldry

A knight, completely clothed in steel armour, his helmet down and the visor shut, met another knight riding through the forest, his face also invisible behind his closed visor. Was the strange knight a friend or a foe? How could he tell?

He could tell by the coat of arms painted on the knight's shield or blazoned on the pennant he carried. The coat of arms showed, by symbols of animals, birds and other devices, to what family the knight belonged.

The first knight also had a coat of arms painted on his shield so the second knight could identify him. These coats of arms served the same purpose as do the name-tags people pin on themselves today when they are going to gatherings where they will meet many strangers. Few people in the Middle Ages could read, but they did know the coat of arms of their king or lord.

Coats of arms like these, or armorial bearings, as they were also called, became necessary in Europe about A.D. 1100 when knights began to be heavily encased in armour and wear closed helmets. Kings had always used some sort of symbol for their seals. Nations had had symbols. Now every gentleman who bore arms had to have a family set of symbols.

The symbols used by kings were theirs alone

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The symbols used by kings were theirs alone

and not inherited by their families. But to be really useful year after year, these armorial bearings had to be hereditary, identifying one family generation after generation.

Also, the designs of these armorial bearings had to follow some system if they were to be recognized by everyone who saw them. And so a whole science of armoury, or heraldry, as we call it today, was developed.

The shield was the basic element in the design, and the ground could be a colour, a metal, or a fur. A colour must not be used on a colour, nor a metal on a metal. In heraldry, the colours are *azure* (blue), *gules* (red), *purpure* (purple), *sable* (black), and *vert* (green). The metals were *or* (gold, or yellow) and *argent* (silver, or white). Fur was represented as white with black spots, black with white spots, gold with black spots, and so forth.

On this field of colour, metal, or fur were placed the "charges"; that is, the symbols. They used a variety of geometric shapes, bars, chevrons, crosses and other symbols. After these signs, there was a host of heraldic animals to choose from. Some were imaginary, like the griffin or dragon. Lions, tigers, and wolves were popular. And, of course, just as many kings had always wanted to be identified with eagles, so did many knights.

Rules and special terms governed the use of eagles in heraldry just as they did all the symbols. There were three positions in which an eagle could be represented on a coat of arms. He could

be shown close; that is, in profile with his wings folded (like the eagle finally simplified into the letter "a"). He could be shown rising; that is, in the same profile position but with his wings raised. Or he could be displayed, which meant shown from a front view, with his wings and talons extended but his head turned to one side. The eagle on the United States Great Seal is displayed. Look about you, and in one kind of decoration or another that features an eagle, you are sure to find the heraldic positions.

People went on using heraldic devices even after men stopped wearing armour. Coats of arms were carved over doorways and fireplaces. They were embroidered on dresses and hangings. In general, people had found them so decorative as well as useful that they did not want to give them up. As a result, many families are still proud of their hereditary coats of arms. Many businesses and other institutions have adopted a coat of arms for identification and for decorative purposes. The same rules of heraldry that were developed in the Middle Ages are used for coats of arms designed today.



VII. The Eagle in Man's Life and Legends

THE EAGLE'S name is more popular than that of any other animal or bird for naming institutions, businesses, athletic teams and other organizations. Start noticing, and you will find eagles everywhere—the Eagle Star Insurance Company, Eagle Steamers, Eagle Building Society, the boys' paper called the *Eagle*. There is a men's social and charitable organisation called the Fraternal Order of Eagles, which has worked, quite fittingly, for laws to protect the Golden Eagle. And, of course, everyone knows that an Eagle Scout is a Boy Scout who has worked through all the other ranks of scouting to a high level of achievement and service.

There is even a certain kind of eagle to be found on golf courses now and then. When golfers make a hole in two strokes under par, they call that score an eagle.

America's Double-Eagle

Coins of gold as well as of silver and copper were used in the United States from 1795, when the first gold coins were minted, until 1934, when gold was withdrawn as circulating money. Five-, ten- and twenty-dollar gold pieces were the most popular currency. Because they were all engraved with eagles, the ten-dollar gold piece was called an eagle, the five-dollar gold piece a half-eagle, and the twenty-dollar gold piece was America's double-eagle.

Augustus Saint-Gaudens, a famous American sculptor whose statues can be seen in New York, Chicago, Boston, and other American cities, was asked in 1907 to make some new designs for gold and silver coins. When he was a very young man he had studied to be a cameo cutter. Perhaps his skill in that delicate art helped him to create very beautiful coins.

You can see an eagle of his design on the silver fifty-cent piece still in use. He also created new designs for the five-, ten- and twenty-dollar gold pieces. Many people think that his design for the double-eagle, or twenty-dollar gold piece, resulted in a coin worthy to rank with the most handsome coins of ancient Greece or Rome. Look for an example of Saint-Gaudens' double-eagle when you visit a museum that has a large coin collection.

The Eagle, Friend of the Outlaw

There have always been those who considered

the eagle a thief, stealing sheep from herdsmen, chickens from the barnyard, or ducks from sportsmen. But in Scotland, there are old stories that tell of the tables being turned and men stealing food from eagles.

A father eagle, bringing prey to the nest for a young eaglet, often brings more than the baby can eat in a day. The food the eaglet does not eat is sometimes stored thriftily away on a nearby rock ledge, a sort of eagle's food larder.

This larder has sometimes been a lifesaver to an outlaw, hiding out in the hills to avoid capture—at least according to the old stories. The outlaw, finding such a larder, could creep up on it and rob it, and thus keep himself supplied, day after day, with a freshly killed squirrel or rabbit to cook over his campfire.

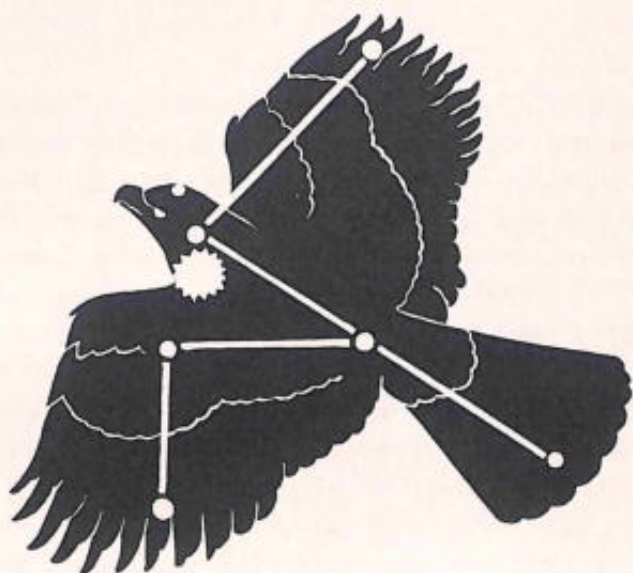
The Heavenly Eagle

In ancient times, men looked at the stars and saw the constellations suggesting the shapes of all sorts of animals and people. They saw bears and a lion and a swan, and they also saw a group of stars that seemed to outline an eagle. They called that constellation *Aquila*, from the Latin word for "eagle."

You can see that constellation on a summer night, far down at the southern end of the Milky Way. It is easy to locate because the constellation includes the star *Altair*, the brightest star in the Milky Way. *Altair* is almost a first magnitude star, ranking eleventh among the brightest, and

is sixteen light-years away.

If you cannot see the eagle shape right away in the constellation around Altair, look at a star map for a guide. Then go out and look up at Aquila, and see him with his wings outstretched, flying up the Milky Way.



VIII. A Gathering of Eagles

YOU CAN see pictures or carvings of eagles almost everywhere, but you do not find stories about them so frequently. Perhaps the fact that there is still so much mystery about them discourages writers from putting them into stories. Still, that does not mean no one has written about them. Here is a collection of stories, descriptions and poems that show how the eagle appeared to writers and poets and naturalists of many countries and across the centuries—bold and frightening sometimes, but wonderful always.



IN LONG AGO PALESTINE, *the land of the Bible, the people of the hill country were familiar with eagles. The Tawny Eagle and the Imperial Eagle were the most frequent species. And the great birds who were part of so many ancient and*

primitive religions, inspired the men who wrote the Bible also. There are many references to eagles in the Bible. Here are two of the most famous.

"There be three things which are too wonderful for me, yea, four which I know not:

The way of an eagle in the air; the way of a serpent upon a rock; the way of a ship in the midst of the sea; and the way of a man with a maid . . ."

Proverbs, Chap. 30, 18-19

"But they that wait upon the Lord shall renew their strength; they shall mount up with wings as eagles . . ."

Isaiah, Chap. 40, 31.



O NCE THERE WAS *a man with a wonderful talent for story telling. His stories were always very short and about animals or birds. And in the end, it always turned out that what the animals or birds had been doing pointed a lesson for humans. The story teller, whose fables have never been forgotten, lived in Greece, five centuries B.C., and his name was Aesop. Here are two of his fables about eagles.*

The Serpent and The Eagle

A serpent and an eagle were struggling with

each other in a deadly conflict. The serpent had the advantage and was about to strangle the bird. A countryman saw them, and running up, loosed the coil of the serpent and let the eagle go free.

The serpent, irritated at the escape of his prey, sometime later let fly his poison and injected it into the drinking horn of the countryman. The rustic, innocent of his danger, was about to drink, when the eagle struck his hand with his wing, and, seizing the drinking horn in his talons, carried it away.

The Eagle and The Jackdaw

An eagle made a swoop from a high rock, and carried off a lamb. A jackdaw, who saw this exploit, thinking that he could do the like, bore down with all the force he could muster upon a ram, intending to bear him off as a prize. But his claws becoming entangled in the wool, he made such a fluttering in his attempts to escape, that the shepherd, seeing through the whole matter, came up and caught him, and having clipped his wings, carried him home to his children at nightfall.

"What bird is this, father, that you have brought us?" exclaimed the children. "Why," said he, "if you ask himself, he will tell you that he is an eagle, but if you will take my word for it, I know him to be but a jackdaw."



ALFRID, Lord Tennyson, the English poet of the last century, probably knew the Golden Eagle of the Scottish Highlands. In this short poem he comes as close as one can, in words, to capturing the breathless feeling of an eagle's dive.

The Eagle

He clasps the crag with crooked hands;
Close to the sun in lonely lands,
Ring'd with the azure world, he stands.

The wrinkled sea beneath him crawls;
He watches from his mountain walls,
And like a thunderbolt he falls.



The Ornithology of Francis Willughby, Esq.

For centuries, fables and fancies were all mixed up with a few facts in what people believed about animals and plants. Then, four hundred years ago, a young Englishman named Francis Willughby began to pioneer in collecting careful and exact observations on living creatures. He died when he was only 37, before he had completed the two massive studies of birds and fishes on which he had been working. Even so, he is often called the Father of English Natural History, and many people claim that the great Swed-

ish naturalist of the next century, Carl Linnaeus, based his system of zoological classification on the young man's work.

"The Ornithology of Francis Willughby, Esq." was published in 1678, several years after his death, by a friend who had carried on his work, John Ray. It is a huge and handsome old book to look at today. The title page describes it as a work:

"Wherein All the BIRDS Hitherto Known, Being reduced into a METHOD suitable to their Natures, are accurately described."

In the section on eagles, Willughby devotes one chapter to the many things believed about the eagle by "Ancients and Moderns," which he considered untrue. Some of the ideas he listed as false are these.

1. That its feet are not equal, but the right bigger than the left.
2. That whereas [the female eagle] she excels in quick-sightedness, in trying her Young whether they be genuine or spurious, she makes use of an argument taken from the sight. For hanging them up by the Claw, she exposes them to the Sun-beams, and those that she sees look steadfastly on the Sun, she keeps and brings up as right-bred, and her genuine Offspring, but such as turn away their eyes, as not being able to behold it, she casts away as degenerous.
3. The after Noon she flies abroad and preys, but all the Forenoon before dinner she sits

idle.

4. That she would not at all hatch her Young, did she not bring the Eagles Stone into her Nest...
5. That she hath an extraordinary care of her Talons, lest by any means they should be blunted. Hereupon in walking she always draws them up, and turns them inwards, refuses to walk in stony places, lest perchance she should wear their points. And if she happens to sit or walk upon Rocks, she spreads under her feet the skins of such Animals as she hath kill'd, lest her talons be hurt."

Willughby's own classification of eagles, by his "METHOD suitable to their Natures," uses many of the terms we use today. He begins with the general heading, "*Carnivorous and rapacious*, called BIRDS OF PREY." These birds he divides into "Diurnal, that prey in the day-time," and "Nocturnal, that fly and prey by night." The diurnal birds of prey, he subdivides into "The Greater," and "The Lesser." "The Greater" he also subdivides. "*The more generous*, called EAGLES," and "*The more cowardly and sluggish*, called VULTURES."

When he called the eagle "the more generous" of the greater diurnal birds of prey, he may have been using the word generous in an old sense, no longer in use, to mean "of good descent." Or he may have been using it in another old-fashioned sense, to mean "having good or noble

qualities."

The wording also sounds strange and quaint when he describes the general characteristics of birds of prey, but the description is still sound and useful. It is characteristic of a bird of prey, he wrote:

"To have a great head; a short neck, hooked, strong and sharp-pointed Beak and Talons, fitted for ravine and tearing of flesh: Strong and brawny thighs, for striking down their prey: a broad, thick, fleshy tongue, like a man's; twelve feathers in their train; four and twenty flag feathers in each wing." He also noted it was characteristic of such birds, "To be very sharp-sighted, for spying out their prey at a distance, to be solitary, not gregarious, by a singular providence of nature: for should they, coming in flocks, joyntly set upon Cattle, the flocks and herds of sheep and beasts would scarce be secure from their violence and injuries."

Finally, like a good scientist of today, Willughby would not state anything as a fact unless he was sure of it. He thought that birds of prey were very long-lived, but wrote, "I will not rashly affirm anything, but leave the matter to be determined by experience and diligent observation."



AN EAGLE is the hero of an unusual full-length novel called *Greeka, Eagle of the Hebrides*, written by Joseph E. Chipperfield. The book tells the life story of a Golden Eagle on one of the small, mountainous islands off the west coast of Scotland called the Hebrides. In the early chapters you can read about the birth of the young eaglet, *Greeka*, his life in the nest, his first flights. Later, when he is grown, he mates with a beautiful female eagle, *Gruilma*. And then comes the accident which so nearly spells the end of his wild, free life in the mountains.

Here is an exciting excerpt from the story that tells about that accident. All you need to know before starting it is that a shepherd down in the valley has set a trap up in the hills for a wildcat. The wildcat's name is *Panzeed* and he and *Greeka* have long been enemies.

The instant *Greeka* saw the wildcat, he dropped low, and came drifting down between the cliffs of the corrie on motionless pinions.

Silent though his approach was, *Panzeed* was yet aware of his presence and made at once for the security of the boulder, passing within a couple of feet of the concealed springtrap. Arching his back, he stood close against the rock with one paw raised, ready to strike down the eagle should he attempt an assault.

Unfortunately for *Greeka*, because now he had a mate to protect, he experienced the urgent desire to defeat the wildcat. While *Gruilma* made a short encircling flight over the area, *Greeka*

hovered for a moment, came to within a few feet of the red boulder, then dropped.

Panzeed spat angrily and made a savage upward thrust with his paw.

Greeka was too quick for him. He keeled over and went drifting downwind, only to return suddenly, less than four feet from the ground.

Again Panzeed made a swift upward thrust with his paw, and this time, to avoid it, the eagle half lifted himself and fell back a pace or two. He instantly encountered the springtrap. In the very moment that he felt the jaws move beneath his tail feathers, he essayed to lift himself. Too late, however, for with a sharp metallic snap the jaws closed and Greeka was held captive by one talon.

The fear that comes to all trapped creatures came to him then. Even his dreaded enemy was forgotten in the panic that drove him fluttering forward. This action startled Panzeed more than the sudden metallic sound had done, and he leaped for the top of the boulder.

The sight of the cat's leap brought even greater panic to the eagle. His huge pinions beat the air, but he was powerless to lift himself. The more he struggled, the greater became the frenzy within him, cumulating in a rising tide of pain that seemed to leave his foot and run like fire through his whole body.

Meanwhile, Gruilma had come in low to her mate's assistance. The wildcat was completely unaware that she was almost on him. Snarling,

he prepared to leap on Greeka's back and tear him to pieces.

Panzeed had all but made the leap when Gruilma swooped. Her outstretched talons struck as the cat's arched back lent strength to his legs. A piercing scream came from him as Gruilma's grip sank deep into his flesh. In an extremity of terror, he tried to turn, heard Greeka still beating the air in vain, heard for the last time the distant belling of a stag. Then everything became lost to him, for Gruilma's grip tightened, one talon piercing the wildcat's heart. . . .

Some time later, when the old shepherd came up the corrie . . . he saw the body of the cat lying some distance from the stone, saw an eagle held by its foot in the trap he had set, and another—a larger, fiercer bird—rising swiftly as he appeared.

When speaking of the incident some weeks later, he said that when the female eagle passed overhead, the whole corrie seemed darkened by her enormous wing span.

It was as though night had come suddenly down to hide from his eyes the bird that lay struggling in the trap beneath the red boulder.

(Now the story tells how the old shepherd bound Greeka, released him from the trap and then took him down the mountain to the big lodge in the valley. The owner of the lodge, much impressed by the big bird, put him in a barred enclosure for the night. Gruilma, Greeka's mate, flew as close to the lodge as she dared, and called to Greeka through the darkness. Then, the next morning,

hovered for a moment, came to within a few feet of the red boulder, then dropped.

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the owner of the lodge came again to look at Greeka, and study the injuries he had given himself, struggling in the trap.)

It was the damage the primary feathers had sustained that caused the owner of the lodge... to decide to send Greeka first to Glasgow Zoo for treatment, from whence he was to be sent on to the Regent's Park Zoo in London. The foot should heal and the damaged feathers be renewed after the bird's usual moult...

Thus, the eagle was suddenly placed in an enormous hamper, and then he was on his way.

The next twenty-four hours passed slowly and he knew nothing of the journey he made, being confined all the time in the hamper. In it were a rabbit and a can of fresh water. Not that Greeka ate or drank. He was far too miserable and frightened. This strange new place of captivity afforded him even less space than the barred enclosure had done.

Then, curiously, like many another creature of the wild before him when made captive, the instinct to submit overwhelmed all other considerations. He lost the desire to struggle further, lost too, a little of his fear. This was replaced by a strange indifference that recognized no new change in his circumstances or surroundings. From a fierce bird of prey, he became a passive creature that even permitted people to handle him when he eventually arrived at the Glasgow Zoo.

Again, after a while, he was packed into a

hamper. This time, a long rail journey ended in another barred enclosure that looked out over an immense London park where crows nested in tall trees, and other small birds continually thrust up into a strange sky that possessed none of the characteristics of the sky he had known from birth. The clouds he saw were heavy and slow-moving, the blue he sometimes glimpsed had none of the clearness of that northern sky over the mountains he knew as home.

He was perplexed and downcast. He sensed that he was far, far from the land of his birth!

Slowly that first spring day of his captivity in a London zoo passed and night came earlier to the south than it did to the north... Greeka, up on the platform that was to be his roosting place, had not touched the rabbit that had been thrown in to him for his evening meal. He was staring away to the north, his eyes watching the Pole Star rise, and the day depart towards those far Hebridean islands that were his home.

The evening shadows deepened, and over seven hundred miles away... his mate sat and waited. For her, no city lights were blinking up to dim the stars, no roar of traffic to silence the voice of the burns. She was free, yet in her freedom, she sat and waited.

As day succeeded day, Greeka was subject to much attention. He soon became reconciled to seeing people standing outside his enclosure, taking little notice of the Harpy Eagle in the next cage, who danced and flapped his wings.

For many long hours at a stretch, Greeka sat

up on the platform, unmoving, listless, sometimes gazing out across the expanse of the park where children walked and played, and small birds darted from tree to tree. The eagle could not understand why it was no longer possible to spread his pinions and soar—why mountains and glens had been replaced by this grim place of bars.

All the experiences brought about by his fight with Panzeed...were still real in his diurnal mind. It was as though the part of him that retained visions was also the part that gave vent to a rising tide of anger when the lions roared at feeding time. More than any other sound, the roar of beasts brought out the fearless spirit that captivity sought to subdue—that, and the soft fall of rain.

Rain Greeka had known from birth. The scud of it before gusts of wind took him back to the desolate wastes of his homeland more than did anything else. It took him away from the sights and sounds in the zoo. He often dreamed of it as he squatted on his perch, but its significance was momentarily lost on waking, for through the bars of his enclosure, he saw it only as drops of moisture falling from an invisible sky. Then, having bridged in a split second of time, the difference between dreaming and being awake, the sharp alertness that always followed gave him back his sense of remembrance. He saw in the drops the rain he had always known and loved, falling from clouds that trailed

like smoke over sombre mountains . . .

In such moments, a wild fury would possess him. Those golden-brown pinions would attempt to open, the fierce eyes gleam. Just those things, no more! He had learned the futility of beating against prison bars. The rain might fall, and the wind bid him follow, but he just watched and listened, his moment of fury spent and gone.

Greeka's hour of escape approached without any untoward event to herald its coming. His last night in captivity was no different from the many other nights he had known... A wind sprang up, and the sky began to brighten with the dawn. The clouds showed signs of breaking up, and Greeka, asleep on his platform became aware of the finger of the wind, probing him to complete wakefulness...

The wind had a song for him that morning—an old, old, song that was the song of the islands of the north which it would soon visit. It was a strong wind too, travelling swiftly from out of the southeast and heading directly north, leaving the quarter moon like a ship tossed on a stormy sea and soon to be wrecked upon the ragged reefs of the cloud masses already driven to the northern horizon to await its sinking. Rapidly then, from the wild drifting of the moon, seemed to kindle the great fire of the dawn...

Then, as Greeka knew it would, the blackbird started to juggle with its notes. Clear and wild they trilled across the dewy park—"Cheeri—kee—cheeri—kee."

Greeka, listening, sensed that the world had indeed, wakened for his conquering!

Louder sang the wind, hard and clear sang the blackbird, and all the while the new day grew in splendour, and the few clouds that remained—remnants of the more stormy galleons of the night—were little more than frail craft slipping out of a quiet harbourage on a long voyage to the north in the wake of the sinking moon.

It was a long while before Greeka became aware of the keeper approaching. He saw the man coming from the direction of the Bird House, and the eagle suddenly bestirred himself, swooping suddenly from the platform on to the floor of the cage where he sat waiting.

So many things were happening in that tense moment—things that had no direct connection with Greeka himself, but were yet closely allied to all creatures great and small. Most of those trivial things were in the race of the wind, in the song it sang.

Some of them were in the whirling of a leaf recently blown from a tree that went fluttering across the path and below the moving feet of Greeka's custodian. The wind...swept the leaf from beneath the keeper's feet and sent it flying upward. As the man looked up, his attention was caught and held by the movement of a kestrel flying high over the park.

The keeper was still interested in the kestrel when he came to Greeka's cage and fumbled with the key that opened the gate. Scarcely had the lock turned beneath his fingers than he glanced

up once again to see if the hawk was still visible. The man nodded his head with satisfaction, and thought momentarily, how perfectly balanced the bird was in the flow of the wind.

He then felt the gate swing inward beneath his hands. Bending his head to enter the cage, he was about to cross the threshold when, like a mottled brown flash, Greeka made his sudden bid for freedom. It was decisive, and he was out through the swinging gate and across the path before the keeper was quite aware that he had gone.

Greeka fluttered wildly, even clumsily. It was clear he had yet to regain the strength that had been lost in captivity. He heard the keeper shout, and turned away from an obstacle in the shape of a post and a stretch of fencing directly ahead. In doing so, he found himself in line with a plot of grass.

He touched down for a moment, with his feet firm-pressed on the sward. Then the wind—his ally—came to him, and in a second he was rising—soaring higher and higher above the place where he had been held prisoner; higher still he went until he was beyond even the kestrel who had been a silent witness to his escape.

Even as the small hawk keeled over, Greeka, now in complete control of his pinions, swung around in the cold race of the wind and hit the airlines of migration—those invisible trails which, year by year, are followed by those in search of the sun.

Greeka, however, was not facing south. Due

north, he set his head. With a slow movement of his mighty wings, he set off towards the place where the quarter moon had already foundered on the cloud reefs.

Greeka was over open country in a matter of minutes. He had scarcely noticed the change in the scene below, so intent was he on reaching a safe height in the sky, and following the course of the wind.

(All that day, the eagle flew on, northwards. At night, he rested, and then the next day flew on again, and on and on. Until finally he had retraced all the seven hundred miles he had been carried. The mountains he knew were all around him when he came to a rocky glen and paused to rest a while.)

Greeka stood poised for an instant, his talons gripping the rock, his head turning from left to right. No memory had he then of the long journey he had made to reach this place, no lasting impression of the vast chain of mountains he had followed to reach this hinterland of the islands. He only knew that he was home at last...

Before he took again to the air, a curlew whistled from down by the Sligachan River, and with it came another sound from across the glen—the voice of an eagle!

The cry had scarcely died away when the black shape of Gruilma came hurtling over the glen... Greeka rose in one magnificent swoop to meet her—rose higher and yet higher—his pinions tilted to catch the flow of the wind—his

primaries clear-cut like scimitars against the sky.

The two birds met in mid-air, encircled each other, and cried out in excitement before soaring higher still, thrusting up and up in easy, joyous flight.

A few seconds later, they dived through the strands of mist torn from the fluttering pennants on Clach Glas, and breaking the stoop just above the summit of Ruadhstac, made direct for their old eyrie on the Bloven-Clach Glas ridge.



Audubon's Eagles

John James Audubon painted some of the most beautiful and exact bird paintings the world has ever known. He was a tireless observer of nature and took the utmost pain with detail even as he filled his paintings with brilliant colour and bold design. Still, in the course of making 435 paintings of 1,065 birds, even John James Audubon made a small mistake now and then. And oddly enough, two of those very rare mistakes are among the eagles, birds so mysterious they were even able to fool him.

He painted the portraits of three eagles, along with many hawks, buzzards, kites and other eagle relatives—the Golden Eagle, the American Bald Eagle, and another eagle with brown feath-

ers which he identified as a new species. Actually, what he had painted was the immature Bald Eagle. He had been misled, as many people still are, by the brown plumage which the young bird wears for four years before donning the adult black and white.

His other mistake was in the Bald Eagle's tail feathers. Look at a print of that painting and you will see that Audobon gave the bird only eleven tail feathers instead of the correct twelve.

But small slips like that do not effect for a moment the value and the vivid reality of his paintings. He brought the world of America's birds to life for thousands in his own time and since then his fame has only increased. You can find reproductions of the engravings made from his paintings in many places, in books and in prints for framing. You will want to look at them all, and you will get a real sense of how dramatic an eagle looks from his paintings of them.

Audubon did more than paint over a thousand birds. He also compiled a massive five volume Ornithological Biography which is still one of the standard references on American birds. And he was one of the first Americans to protest the reckless slaughter of wild life in his country and to talk and write about the need for conservation. It was in his honour that the Audubon Societies were formed, first on a state level, later on a national level, to increase a public understanding of the value of wild life.

Audubon travelled through miles and miles

of the American wilderness, north, south, east and west, in the course of trying to catalogue all the American birds. One of his first long journeys after deciding to make this his life work was down the Ohio and Mississippi Rivers on a flat boat to New Orleans. He kept a diary on this trip, and one entry concerns his adventures with an eagle. As you can see, he was much less interested in spelling and punctuation than he was in getting down the excitement and important facts.

Thursday December 7, 1820 At Day Break the Wind stiff a head, a Couple of Light Showers Lulled it, and we put off—Mr. Aumach Winged a *White headed Eagle*, brought it a live on board, the Noble Fellow Looked at his Enemies with a Contemptible Eye. I tied a String on one of its Legs this Made him Jump over Board. My Surprise at Seeing it Swim well Was very great, it used its Wings with great Effect and Would have Made the Shore distant there about 200 *yds* Dragging a Pole Weighing at Least 15 *lbs*—Joseph went after it with a Skiff, the Eagle Defended itself—I am glad that its Eyes were Corresponding with My Drawing—this Specimen rather less than the one I drew—the femelle hovered over us and shrieked for some time, exhibiting the *true sorrow* of the *Constant Mate*.

Our Eagle Eat of Fish freely about one hour after we have him, by fixing a piece on a stick and puting it to its Mouth—however whil I

was friendly Indian toward it it Lanced one of its feet and caught hold of My right thum, made it feel very sore.



HERE IS A STORY in which the eagle plays his traditional role of lamb-stealer. But the special sense of achievement the boy who is the hero feels when he overpowers the eagle is also something that makes eagles fascinating to men. They cannot help having a feeling of pride when they pit their strength successfully against such a great fierce foe.

Eagle From The Sea

'Where's Harry?' Mr. Thorburn came out of the back of the farmhouse. He stood in the middle of the well-kept farmyard. 'Here, Harry!' he shouted. 'Hi, Harry!'

He stood leaning on a stick and holding a letter in his hand, as he looked round the farmyard.

Mr. Thorburn was a red-faced, powerful man; he wore knee breeches and black leather gaiters. His face and well-fleshed body told you at a glance that Thorburn's Farm had not done too badly during the twenty years of his married life.

Harry, a fair-haired boy, came running across

the yard.

'Harry,' said the farmer to his son, 'here's a letter come for old Michael. It will be about this visit he's to pay to his sick brother. Nice time of year for this to happen, I must say. You'd better take the letter to him at once.'

'Where to?' said Harry.

'He's up on the hill, of course,' said the farmer. 'In his hut, or with the sheep somewhere. Your own brains could have told you that. Can't you ever use them? Go on, now.'

'Right,' said Harry. He turned to go.

'Don't take all day,' said his father.

Mr. Thorburn stood looking after his son. He leaned heavily on the thorn stick which he always carried. Harry went through the gate in the low grey wall which ran round one side of the yard, where there were no buildings. Directly he left the farmyard, he began to climb. Thorburn's Farm was at the end of a valley. Green fields lay in front of it, and a wide road sloped gently down to the village a mile away; behind, the hill soared up, and high on the ridge of the hill was Michael's hut, three miles off, and climbing all the way.

Harry was thirteen, very yellow-haired and blue-eyed. He was a slip of a boy. It seemed unlikely that he could ever grow into such a stolid, heavy man as his father. Mr. Thorburn was every pound of fourteen stone, as the men on the farm could have told you the day he broke his leg and they had to carry him back to the farmhouse on a hurdle.

Harry started off far too fast, taking the lower slopes almost at a run. His body was loose in its movements, and coltish, and by the time the real work began he was already tiring. However, the April day was fresh and rainy, and the cold of it kept him going. Grey gusts and showers swept over the hillside, and between them, with changing light, came faint gleams of sunshine, so that the shadows of the clouds raced along the hill beside him. Presently he cleared the gorse and heather, and came out on to the open hillside, which was bare except for short, tussocky grass. His home began to look far off beneath him. He could see his mother walking down towards the village with one of the dogs, and the baker's cart coming up from the village towards her. The fields were brown and green round the farmhouse, and the buildings were grey, with low stone walls.

He stopped several times to look back on the small distant farm. It took him well over an hour to reach the small hut where Michael lived by day and slept during most nights throughout the lambing season. He was not in his hut, but after a few minutes' search Harry found him. Michael was sitting without movement, watching the sheep and talking to his grey and white dog. He had a sack across his shoulders, which made him look rather like a rock with grey lichen on it. He looked up at Harry without moving.

'It's a hildy wildy day,' he said, 'but there'll be a glent of sunsheen yet.'

Harry handed Michael the letter. Michael looked at it, and opened it very slowly, and spread the crackling paper out on his knee with brown hands. Harry watched him for some minutes as he studied the letter in silence.

'Letter'll be aboot my brother,' said Michael at length. 'I'm to goa and see him.' He handed the letter to Harry. 'Read it, Harry,' he said. Harry read the letter to him twice.

'Tell thy dad,' said Michael, 'I'll be doon at farm i' the morn. Happen I'll be away three days. And tell him new lamb was born last neet, but it's sickly.'

They looked at the small white bundle that lay on the grass beside its mother, hardly moving.

'T'll pick up,' said Michael. He slowly stood and looked round at the distance.

Michael had rather long hair; it was between grey and white in colour, and it blew in the wind. It was about the hue of an old sheep's skull that has lain out on the bare mountain. Michael's clothes and face and hair made Harry feel that he had slowly faded out on the hillside. He was all the colour of rain on the stones and last year's bracken.

'It'll make a change,' said Michael, 'going off and sleeping in a bed.'

'Good-bye,' said Harry. 'You'll be down at the farm to-morrow, then?'

'Aw reet,' said Michael.

'Aw reet,' said Harry.

Harry went slowly back to the farm. The rain

had cleared off, and the evening was sunny, with a watery light, by the time he was home. Michael had been right. Harry gave his father the message, and told him about the lamb.

'It's a funny thing,' said Harry, 'that old Michael can't even read.'

'Don't you be so smart,' said Mr. Thorburn. 'Michael knows a thing or two you don't. You don't want to go muckering about with an old fellow like Michael—best shepherd I've ever known.'

Harry went away feeling somewhat abashed. Lately it seemed his father was always down on him, telling him he showed no sign of sense; telling him he ought to grow up a bit; telling him he was more like seven than thirteen.

He went to the kitchen. This was a big stone-floored room with a huge plain table, where the whole household and several of the farm hands could sit down to dinner or tea at the same time. His mother and his aunt from the village were still lingering over their teacups, but there was no one else in the room except a small tortoise-shell cat, which was pacing round them asking for milk in a loud voice. The yellow evening light filled the room. His mother gave him tea and ham and bread and butter, and he ate it in silence, playing with the cat as he did so.

II

Next morning at nine o'clock there was a loud rap with a stick at the kitchen door, and there by the pump, with the hens running round his legs,

stood Michael.

'Good morning, Mrs. Thorburn,' he said. 'Is Measter about?'

'Come on in with you,' said Mrs. Thorburn, 'and have a good hot cup o' tea. Have you eaten this morning?'

Michael clanked into the kitchen, his hobnails striking the flags, and he sat down at one end of the table.

'Aye,' he said, 'I've eaten, Missus. I had a good thoom-bit when I rose up, but a cup of tea would be welcome.'

As he drank the tea, Mr. Thorburn came in, bringing Harry with him. Michael, thought Harry, always looked rather strange when he was down in the village or in the farmhouse; rather as a pile of bracken or an armful of leaves would look if it were emptied out on to the parlour floor.

Michael talked to Mr. Thorburn about the sheep; about the new lamb; about young Bob, his nephew, who was coming over from another farm to look after the sheep while he was away.

'Tell en to watch new lamb,' said Michael; 'it's creachy. I've put en in my little hut, and owd sheep is looking roun' t' doorway.'

After his cup of tea Michael shook hands all round. Then he set off down to the village, where he was going to fall in with a lift.

Soon after he had gone, Bob arrived at the farm. He was a tall young man with a freckled face and red hair, big-boned and very gentle in his voice and movements. He listened to all Mr.

Thorburn's instructions and then set out for the shepherd's hut.

However, it seemed that Mr. Thorburn's luck with his shepherds was dead out. For the next evening, just as it was turning dark, Bob walked into the farmhouse kitchen. His face was tense with pain, and he was nursing his left arm with his right hand. Harry saw the ugly distorted shape and swelling at the wrist. Bob had fallen and broken the wrist earlier in the day, and by evening the pain had driven him back.

'I'm sorry, Mr. Thorburn,' he kept on saying. 'I'm a big fule.'

The sheep had to be left for that night. Next morning it was again a cold, windy day, and clouds the colour of gunmetal raced over the hill. The sun broke through fitfully, filling the valley with a steel-blue light in which the green grass looked vivid. Mr. Thorburn decided to send Harry out to the shepherd's hut for the day and night.

'Happen old Michael will be back some time to-morrow,' he said. 'You can look to the sheep, Harry, and see to that sick lamb for us. It's a good chance to make yourself useful.'

Harry nodded.

'You can feed the lamb. Bob said it did n't seem to suck enough, and you can let me know if anything else happens. And you can keep an eye on the other lambs and see they don't get over the edges. There's no need to fold them at night; just let the dog round them up and see the flock

is near the hut.'

'There's blankets and everything in the hut, Harry,' said Mrs. Thorburn, 'and a spirit lamp to make tea. You can't come to harm.'

Harry set off up the hill and began to climb. Out on the hilltop it was very lonely, and the wind was loud and gusty, with sudden snatches of rain. The sheep kept near the wooden hut most of the time; it was built in the lee of the ridge, and the best shelter was to be found near it. Harry looked after the sick lamb and brewed himself tea. He had Tassie, the grey and white sheepdog, for company. Time did not hang heavy. When evening came he rounded up the sheep and counted them, and true to advice that Michael had given him, he slept in his boots as a true shepherd does, warmly wrapped up in the rugs.

He was awakened as soon as it was light by the dog barking. He went out in the gray dawn light, and found a rustle and agitation among the sheep. Tassie ran to him and back towards the sheep. The sheep were starting up alert, and showed a tendency to scatter. Harry looked round, wondering what the trouble was. Then he saw. A bird was hovering over the flock, and it was this that had attracted the sheep's attention. But what bird was it? It hovered like a hawk, soaring on outstretched wings; yet it was much too big for a hawk. As the bird came nearer Harry was astonished at its size. Once or twice it approached and then went soaring and floating away again. It was larger than any bird he had

ever seen before—brownish in colour, with a grey head and a hawk's beak.

Suddenly the bird began to drop as a hawk drops. A knot of sheep dashed apart. Tassie rushed towards the bird, his head down and his tail streaming out behind him. Harry followed. This must be an eagle, he thought. He saw it, looking larger still now it was on the ground, standing with outstretched wings over a lamb.

Tassie attacked, snarling in rage. The eagle rose at him. It struck at him with its feet and a flurry of beating wings. The dog was thrown back. He retreated slowly, snarling savagely as he went, his tail between his legs. He was frightened now, and uncertain what to do.

The eagle turned back to the lamb, took it in its talons again, and began to rise. It could not move quickly near the ground, and Harry came up with it. At once the eagle put the lamb on a rock and turned on him. He saw its talons driving towards his face, claws and spurs of steel—a stroke could tear your eyes out. He put up his arms in fear, and he felt the rush of wings round his face. With his arm above his head he sank on one knee.

When he looked up again, the eagle was back on the lamb. It began to fly with long slow wing-beats. At first it scarcely rose, and flew with the lamb almost on the ground.

Harry ran, throwing a stone. He shouted. Tassie gave chase, snapping at the eagle as it went. But the eagle was working towards a

chasm, a sheer drop in the hillside where no one could follow it. In another moment it was floating in the air, clear and away. Then it rose higher, and headed towards the coast, which was a few miles away over the hill.

Harry stood and watched it till it was out of sight. When it was gone, he turned and walked slowly back to the hut. There was not a sound to be heard now except the sudden rushes of wind. The hillside was bare and coverless except for the scattered black rocks. Tassie walked beside him. The dog was very subdued and hardly glanced to right or left.

It took some time to round the sheep up, or to find, at least, where the various parts of the flock had scattered themselves. The sick lamb and its mother had been enclosed all this time in a small fold near the hut. The ewe was still terrified.

An hour later Harry set off down the mountain side to the farm. Tassie looked after him doubtfully. He ran several times after him, but Harry sent him back to the hut.

It was the middle of the morning when Harry came back to the farmyard again. His father was standing in the middle of the yard, leaning on his stick, and giving advice to one of his cowmen. He broke off when he saw Harry come in through the gate, and walk towards him across the farmyard.

'Well,' he said, 'anything wrong, Harry? I thought you were going to stay till Michael came back.'

'We've lost a lamb,' said Harry, breathlessly. 'It's been carried off by an eagle. It must have been an eagle.'

'An eagle?' said Mr. Thorburn. He gave a laugh which mocked Harry. 'Why didn't you stop it?'

'I tried,' said Harry. 'But I...'

Mr. Thorburn was in a bad mood. He had sold some heifers the day before at a disappointing price. He had had that morning a letter from the builders about repairs to some of the farm buildings, and there was work to be done which he could hardly afford. He was worried about Michael's absence. He felt as if the world were bearing down on him, and he had too many burdens to support.

He suddenly shouted at Harry, and his red face turned darker red.

'That's a lie!' he said. 'There's been no eagle here in my lifetime. What's happened? Go on—tell me.'

Harry stood before him. He looked at his father, but said nothing.

'You've lost that lamb,' said Thorburn. 'Let it fall down a hole or something. Any child from the village could have watched those sheep for a day. Then you're frightened, and come back here and lie to me.'

Harry still said nothing.

'Come here,' said Thorburn suddenly. He caught him by the arm and turned him round. 'I'll teach you not to lie to me,' he said. He raised

his stick and hit Harry as hard as he could; then again and again.

'It's true,' began Harry, and then cried out with pain at the blows.

At the third or fourth blow he wrenched himself away. Thorburn let him go. Harry walked away as fast as he could, through the gate and out of the yard without looking round.

'Next time it will be a real beating,' his father shouted after him. 'Bring the eagle back, and then I'll believe you.'

III

As soon as Harry was through the gate, he turned behind one of the barns where he was out of sight from the yard. He stood trembling and clenching his fists. He found there were tears on his face, and he forced himself not to cry. The blows hurt, yet they did not hurt very seriously. He would never have cried for that. But it had been done in front of another man. The other man had looked on, and he and his father had been laughing as he had almost run away. Harry clenched his fists; even now they were still talking about him.

He began to walk and then run up the hillside towards the hut. When he reached it, he was exhausted. He flung himself on the mattress and punched it again and again and clenched his teeth.

The day passed and nobody came from the farm. He began to feel better, and presently a

new idea struck him, and with it a new hope. He prayed now that old Michael would not return to-day; that he would be able to spend another night alone in the hut; and that the eagle would come back next morning and attack the sheep again, and give him one more chance.

Harry went out and scanned the grey sky, and then knelt down on the grass and prayed for the eagle to come. Tassie, the grey and white sheepdog, looked at him questioningly. Soon it was getting dark, and he walked about the hill and rounded up the sheep. He counted the flock, and all was well. Then he looked round for a weapon. There was no gun in the hut, but he found a thick stave tipped with metal, part of some broken tool that had been thrown aside. He poised the stave in his hand and swung it; it was just a good weight to hit with. He would have to go straight at the eagle without hesitation and break its skull. After thinking about this for some time, he made himself tea, and ate some bread and butter and cold meat.

Down at the farm Mr. Thorburn in the evening told his wife what had happened. He was quite sure there had been no eagle. Mrs. Thorburn did not say much, but she said it was an extraordinary thing for Harry to have said. She told her husband that he ought not to have beaten the boy, but should have found out what the trouble really was.

'But I dare say there is no great harm done,' she ended, philosophically.

Harry spent a restless night. He slept and lay awake by turns, but, sleeping or waking, he was tortured by the same images. He saw all the events of the day before. He saw how the eagle had first appeared above him; how it had attacked; how it had driven off Tassie and then him. He remembered his fear, and he planned again just how he could attack the eagle when it came back. Then he thought of himself going down towards the farm and he saw again the scene with his father.

All night long he saw these pictures and other scenes from his life. In every one of them he had made some mistake; he had made himself look ridiculous, and grown men had laughed at him. He had failed in strength or in common sense; he was always disappointing himself and his father. He was too young for his age. He was still a baby.

So the night passed. Early in the morning he heard Tassie barking.

He jumped up, fully clothed, and ran outside the hut. The cold air made him shiver; but he saw at once that his prayer had been answered. There was the eagle, above him, and already dropping down towards the sheep. It floated, poised on huge wings. The flock stood nervously huddled. Suddenly, as before, the attacker plunged towards them. They scattered, running in every direction. The eagle followed, and swooped on one weakly running lamb. At once it tried to rise again, but its heavy wingbeats took it along the earth. Near the ground it seemed

cumbersome and awkward. Tassie was after it like a flash; Harry seized his weapon, the stave tipped with iron, and followed. When Tassie caught up with the eagle it turned and faced him, standing over the lamb.

Harry, as he ran, could see blood staining the white wool of the lamb's body; the eagle's wings were half spread out over it, and moving slowly. The huge bird was greyish-brown with a white head and tail. The beak was yellow, and the legs yellow and scaly.

It lowered its head, and with a fierce movement threatened Tassie; then as the dog approached, it began to rock and stamp from foot to foot in a menacing dance; then it opened its beak and gave its fierce, yelping cry. Tassie hung back, his ears flattened against his head, snarling, creeping by inches towards the eagle; he was frightened, but he was brave. Then he ran in to attack.

The eagle left the lamb. With a lunging spring it aimed heavily at Tassie. It just cleared the ground and beat about Tassie with its wings, hovering over him. Tassie flattened out his body to the earth and turned his head upwards with snapping jaws. But the eagle was over him and on him, its talons plunged into his side, and a piercing scream rang out. The eagle struck deliberately at the dog's skull three times; the beak's point hammered on his head, striking downwards and sideways. Tassie lay limp on the ground, and, where his head had been, a red

mixture of blood and brains flowed on the grass. When Harry took his eyes away from the blood, the eagle was standing on the lamb again.

Harry approached the eagle slowly, step by step. He gripped his stick firmly as he came. The eagle put its head down. It rocked on its feet as if preparing to leap. Behind the terrific beak, sharp as metal, was a shallow head, flat and broad as a snake's, glaring with light yellow un-animal eyes. The head and neck made weaving movements towards him.

At a pace or two from the eagle Harry stood still. In a second he would make a rush. He could break the eagle's skull, he told himself, with one good blow; then he could avenge Tassie and stand up to his father.

But he waited too long. The eagle tried to rise, and with its heavy sweeping beats was beginning to gain speed along the ground. Harry ran, stumbling over the uneven ground, among boulders and outcroppings of rock, trying to strike at the eagle as he went. But as soon as the eagle was in the air it was no longer heavy and clumsy. There was a sudden rush of wings and buffeting about his head as the eagle turned to drive him off. For a second he saw the talons sharp as metal, backed by the metal strength of the legs, striking at his face. He put up his arm. At once it was seared with a red-hot pain, and he could see the blood rush out.

He stepped back, and back again. The eagle, after this one fierce swoop at him, went round

in a wide, low circle, and returned to the lamb. Harry saw that his coat sleeve was in ribbons, and that blood was running off the ends of his fingers and falling to the ground.

He stood panting; the wind blew across the empty high ground. The sheep had vanished from sight. Tassie lay dead near by, and he was utterly alone on the hill. There was nobody to watch what he did. The eagle might hurt him, but it could not jeer at him. He attacked it again, but already the eagle with its heavy wingbeats had cleared the ground; this time it took the lamb with it. Harry saw that it meant to fly, as it had flown yesterday, to an edge; and then out into the free air over the chasm, and over the valley far below.

Harry gave chase, stumbling over the broken ground and between the boulders—striking at the eagle as he went, trying to beat it down before it could escape. The eagle was hampered by his attack; and suddenly it swooped on to a projection of rock and turned again to drive him off. Harry was now in a bad position. The eagle stood on a rock at the height of his own shoulders, with the lamb beside it. It struck at his chest with its talons, beating its wings as it did so. Harry felt clothes and flesh being torn; buffeting blows began about his head; but he kept close to the eagle and struck at it again. He did not want simply to frighten it away, but to kill it. The eagle fought at first simply to drive Harry off; then, as he continued to attack, it became

ferocious.

Harry saw his only chance was to keep close to the eagle and beat it down; but already it was at the height of his face. It struck at him from above, driving its steel claws at him, beating its wings about him. He was dazed by the buffeting which went on and on all around him; then with an agonizing stab he felt the claws seize and pierce his shoulder and neck. He struck upwards desperately and blindly. As the eagle drove its beak at his head, his stick just turned the blow aside. The beak struck a glancing blow off the stick, and tore away his eyebrow.

Harry found that something was blinding him, and he felt a new sickening fear that already one of his eyes was gone. The outspread beating wings and weight of the eagle dragged him about, and he nearly lost his footing. He had forgotten, now, that he was proving anything to his father; he was fighting for his eyes. Three times he fended off the hammer stroke of the beak, and at these close quarters the blows of his club found their mark. He caught the eagle's head each time, and the bird was half stunned.

Harry, reeling and staggering, felt the grip of the claws gradually loosen, and almost unbelievably the body of his enemy sagged, half fluttering to the ground. With a sudden spurt of new strength, Harry attacked, and rained blows on the bird's skull. The eagle struggled, and he followed, beating it down among the

rocks. At last the eagle's movements stopped. He saw its skull was broken, and that it lay dead.

He stood for many minutes panting and unmoving, filled with a tremendous excitement; then he sat on a boulder. The fight had taken him near a steep edge and a long way from the body of Tassie.

His wounds began to ache and burn. The sky and the horizon spun round him, but he forced himself to be firm and collected. After a while he stooped down and hoisted the eagle on to his shoulder. The wings dropped loosely down in front and behind. He set off towards the farm.

IV

When he reached his home, the low grey walls, the ploughed fields, and the green pasture fields were swimming before his eyes in a dizzy pattern. It was still the early part of the morning, but there was plenty of life in the farmyard, as usual. Some cows were being driven out. One of the carthorses was standing harnessed to a heavy wagon. Harry's father was talking to the carter and looking at the horse's leg.

When they saw Harry come towards them they waited, unmoving. They could hardly see at first who or what it was. Harry came up and dropped the bird at his father's feet. His coat was gone. His shirt hung in bloodstained rags about him; one arm was caked in blood; his right eyebrow hung in a loose flap, with the blood still oozing stickily down his cheek.

'Good God!' said Thorburn, catching him by

the arm as he reeled.

He led the boy into the kitchen. There they gave him a glass of brandy and sponged him with warm water. There was a deep long wound in his left forearm. His chest was crisscrossed with cuts. The flesh was torn away from his neck where the talons had sunk in.

Presently the doctor came. Harry's wounds began to hurt like fire, but he talked excitedly. He was happier than he had ever been in his life. Everybody on the farm came in to see him and to see the eagle's body.

All day his father hung about him, looking into the kitchen every half hour. He said very little, but asked Harry several times how he felt. 'Are you aw reet?' he kept saying. Once he took a cup of tea from his wife and carried it across the kitchen in order to give it to Harry with his own hands.

Later in the day old Michael came back, and Harry told him the whole story. Michael turned the bird over. He said it was an erne, a white-tailed sea eagle from the coast. He measured the wing span, and it was seven and a half feet. Michael had seen two or three when he was a boy,—always near the coast,—but this one, he said, was easily the largest.

Three days later Mr. Thorburn took Harry, stiff and bandaged, down to the village inn. There he set him before a blazing fire all the evening, and in the presence of men from every cottage and farm Thorburn praised his son. He

bought him a glass of beer and made Harry tell the story of his fight to everyone.

As he told it, Thorburn sat by him, hearing the story himself each time, making certain that Harry missed nothing about his struggle. Afterwards every man drank Harry's health, and clapped Thorburn on the back and told him he ought to be proud of his son.

Later, in the silent darkness, they walked back to the farm again, and neither of them could find anything to say. Harry wondered if his father might not refer to the beating and apologize. Thorburn moved round the house, raking out fires and locking up. Then he picked up the lamp and, holding it above his head, led the way upstairs.

'Good night, Harry,' said his father at last, as he took him to his bedroom door. 'Are you aw reet?'

His father held the lamp up and looked into Harry's face. As the lamplight fell on it, he nodded. He said nothing more.

'Aye,' said Harry, as he turned into his bedroom door, 'I'm aw reet.'



ABOVE ALL, *it is the eagle's wild, free, independent spirit that has made him endlessly a symbol to man, who yearns to have the strength*

for that kind of independence himself. Here is part of a poem called "The Eagle and The Mole," by the American poet, Elinor Wylie, which expresses that feeling.

Avoid the reeking herd,
Shun the polluted flock,
Live like that stoic bird,
The eagle of the rock.

The huddled warmth of crowds
Begets and fosters hate;
He keeps, above the clouds,
His cliff inviolate.

When flocks are folded warm,
And herds to shelter run,
He sails above the storm,
He stares into the sun...



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