

The Home Forum®

Collecting nests, and history

BY 1920, American bird-nest collectors had done something that every collector dreams of doing: They had collected almost every type of nest known to exist in North America.

Nest-collecting was very popular among scientists and amateurs (including children) from about 1870 to 1920, says Douglas Causey, senior ornithologist at Harvard University's Museum of Contemporary Zoology in Cambridge, Mass. Most of the nests in the museum's huge collection date to that period.

Back then, collectors didn't have the ecological awareness that people have today. They would climb trees and saw off branches to "collect" a nest - with its eggs intact. Dr. Causey finds such behavior "just astounding."

Once museums had at least one of each, searching for more made no sense. From about 1920 to 1970, nest and egg collections gathered dust. "They just took up space, and no one knew what to do with them," Causey says. Some were thrown away.

During the 1970s, though, interest in bird eggs came back. Scientists noticed that eggshells of some birds had become thinner and more breakable. The insecticide DDT was found to be the cause. Researchers compared the thickness of old eggshells with new. Their findings helped persuade Congress to ban the pesticide.

Without eggs from 100 years ago, no comparisons could have been made. Egg and nest collections are important time capsules. They tell of environmental conditions at particular times. This, Causey says, is a good reason to collect more today. Researchers are now examining the old plant material in nests to determine how much carbon monoxide was in the atmosphere decades ago.

FINDING nests while birds are using them is challenging, since foliage often screens their location. Birds hide their nests on purpose. One clue to their placement is the frequency with which a bird flies into a tree or bush. It's easier, of course, to spy abandoned nests in late fall or winter, when the leaves have fallen.

In the United States, it is unlawful to collect the nests of migratory birds, unless for approved scientific study. Although not strictly enforced, the law exists to protect birds in the wild from disturbance.

When ornithologists study a nest, they know that if it has been unattended for several days, it's usually safe to conclude that the birds have gone and won't be back. Many keep a very clean "house." This is, after all, the baby birds' bassinet. Whatever tiny pests infiltrate generally leave when the bird does, especially if the weather is turning colder. Scientists wear rubber gloves when they handle the Harvard nest collection, to protect both the nests and their hands.

One of the main things they look for, says Jeremiah Trimble, an assistant at Harvard, is nest material. This can help researchers "determine the kind of vegetation that was in the area, based on historic nest material. They can even determine atmospheric conditions and contaminant levels."

R.A.



These engineers really soar

Birds are masterful at building strong, intricate nests. How do they do it?

IF YOU have any doubt that birds are master builders, try this: Get a bunch of thin twigs and grass and try making a nest yourself. And no fair using your hands - birds, remember, only use their beaks.

Douglas Causey of Harvard University's Museum of Comparative Zoology has asked young students to do just that. You can imagine the result. (You can also guess that Dr. Causey has an impish sense of humor - and you'd be right.)

But if you think making a simple nest is difficult, imagine building a more elaborate nest. Take, for example:

- The Megapode bird of New Guinea, north of Australia, which makes a 12-foot-high pile of vegetation. The bird is about a foot tall, so this is like a six-foot-tall person building a seven-story house.
- Or the South American ovenbird, which may take months to fashion one nest from clay or mud mixed with bits of straw, hair, and fibers. The tropical sun bakes the walls brick-hard.

- Or the bald eagle, which uses sticks, some two inches thick and several feet long, to make nests sturdy enough to support a human adult. They may look like a jumble of materials, but the sticks are usually placed in layers, beginning with a triangle, followed by more rotated, triangular layers.

Birds are capable of grand engineering feats. But are they engineers? Not in the way you might think. They didn't go to school and study architecture. They didn't even learn how to build by watching their parents or each other.

Just as birds know how to fly, they



PHOTOS BY MELANIE STETSON FREEMAN - STAFF

HIDDEN TREASURE: Harvard University is home to 25,000 birds' nests. Dr. Douglas Causey, senior ornithologist (left), examines some of the school's specimens.

know how to build a nest without instructions or apprenticeship. It's a matter of instinct, scientists claim.

"They are 'hard-wired,'" Causey says, "sort of like robots." Birds craft their nests without consciously thinking about it.

How then did some species of birds develop such well-engineered, elaborate nests? Books have been written on the subject without providing a real answer, says Jeremiah Trimble, an assistant in the Harvard museum's bird department.

One possible explanation involves natural variation and evolution. If a particular bird happens to build a nest that is stronger or more predator-safe, that bird's offspring are more likely to survive and pass along this trait to suc-

ceeding generations.

Another possibility, Mr. Trimble says, is that when females choose mates based on the quality of the nests they build, this means the best nest builders are more likely to breed. Nest-building, therefore, may still be evolving, but so slowly that no one really detects any change. This makes nest-building one of the most difficult bird behaviors to understand.

It helps, therefore, that Causey and his Harvard colleagues have one of the largest nest collections in the world, with 25,000 specimens to study. Most were collected nearly 100 or more years ago (see accompanying story). His interest isn't limited to these specimens, though.

This winter, Causey traveled to Costa Rica

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BIRDS KNOW HOW TO BUILD A NEST WITHOUT INSTRUCTIONS. 'THEY ARE "HARD-WIRED," ' DR. CAUSEY SAYS, 'SORT OF LIKE ROBOTS.'



DOING HIS BEST 'BABY BIRD'? Dr. Causey enjoys studying nests – and making visitors smile.

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Rica to study a wren that makes a cup-shaped nest with a roof. The roof helps protect the nest, which is built along stream banks, from being damaged by trickling water and rain.

Causey didn't expect to come back with a nest, but when he happened upon a vacated one, it became the first addition to Harvard's collection in half a century.

Such finds occasionally occur much closer to home. In fact, presently he is keeping his binoculars trained on a red-tailed hawk that built a nest in a tree outside the museum on Harvard's campus. This species is not often found nesting in Cambridge, Mass, he says.

Let the building begin

Generally, nest-building coincides with the arrival of springlike temperatures. That's when birds' internal "clocks" tell them it's time to mate and raise a brood. In the tropics, though, some birds build nests and breed year-round.

The nest, of course, is where the mother bird lays and hatches her eggs. Which bird actually does the building – the male or female – varies by species. In some cases, they both collect material to build the nest and join in its construction. One of the more peculiar routines is that of the male longbilled marsh wren, which migrates north before the female in order to build as many as 10 dummy nests in his territory. The reason for this is unclear. Perhaps it throws predators or nest wreckers off the trail.

Many nests take about a week to build. Some birds draw it out as part of the mating ritual.

We usually think of nests in tree branches. But some birds build nests on the ground, some in bushes. Others might attach their nests to the sides of cliffs.

Barn swallows have an affinity for barns. Chimney swifts, as the name implies, favor chimneys and other man-made enclosures. House wrens will nest in almost any cavity, from an empty can to a coat pocket.

To keep nests together and secured in place, birds need good adhesives. They use a variety of natural substances to do the job, including mud, saliva, spiderwebs, caterpillar silk, leaf mold, and certain plant fibers.

Materials that make up the nest are intertwined, and with the weaver bird, are actually woven or thatched together using grass, strips of leaves, and twigs.

Hard work, handsome results

Birds can make hundreds, even thousands, of trips to collect materials. And while they seem to prefer natural objects (helpful as camouflage), they will use almost anything that works and that they can carry. Candy wrappers, cellophane, shredded money – even barbed wire – have shown up in nests. Magpies, which are attracted to shiny objects, once flew into an eyeglass shop in India, found some gold frames, and used them in a nest.

But however coarse the outside of the nest is, the inside is usually lined with soft materials to make it comfy.

Birds don't need help building nests. But if they find supplies that people leave for them in their yards, such as string and fabric scraps, they will often use them. Some bird lovers leave a "goodie bag" – a mesh bag or suet holder hung from a tree, filled with both natural materials (pine needles, grass, twigs, etc.), as well as man-made objects, such as clothes-dryer lint and fabric-softener sheets.

Another way humans assist is by providing birdhouses. These appeal to birds that like to build their nests in tree cavities. Some gardeners like to erect what look like birdhouse motels for purple martins. Gardeners like the purple martins, which feast on unwelcome insects.

One theory about why birds build open nests is that they had to. Larger species shooed them out of the tree holes. Birds intent on avoiding bullies and predators may build nests that have coverings or that hang from the end of tree branches. Less aggressive birds may even build near more aggressive species, for protection.

Although some large birds (eagles, hawks, and sea birds) return to nests they've made, most birds rarely do. Cardinals may use the same nest year after year, but it's not the same pair each time.

Eagles, however, may return annually to the huge platform nests they build in the treetops. Some measure as much as 6 feet in diameter. In Ohio, reportedly, a two-ton eagle's nest once collapsed a tree.

On the flip side are hummingbirds, which fashion tiny cup-like nests not much bigger than a thimble.

Ross Atkin

▶ TODAY'S ARTICLE ON CHRISTIAN SCIENCE ◀

Bringing a spiritual perspective to daily life

God's reconciliation for Venezuela

"ALL OUR EGGS were in one basket," lamented a Caracas businesswoman, "and now they are all smashed."

The recent turbulent events in Venezuela have brought cycles of hope and despair, occurring at warp speed, along with an increasing viciousness along economic and racial lines.

Finger-pointing, name-calling, and worse uncivil behavior threaten to characterize social interactions. People report greater feelings of unease and express in the media their fears of civil war. Venezuela's insecurity affects more than Venezuelans, since this nation is the world's fourth largest oil producer. Implications are global.

What's the solution? I believe the Scriptures, the inspired Word of God, point the way out, as they have for thousands of years. As I've prayed to know how to think about the situation here, I've realized that two of the many themes found in the Bible are supremely applicable. One is the message of God's government; the other is the message of God's comfort.

"For unto us a child is born," says the book of Isaiah, "unto us a son is given: and the government shall be upon his shoulder: and his name shall be called Wonderful, Counsellor, The mighty God, The everlasting Father, The Prince of Peace. Of the increase of his government and peace there shall be no end, upon the throne of David, and upon his kingdom, to order it, and to establish it with judgment and with justice from henceforth even for ever. The zeal of the Lord of hosts will perform this" (9:6, 7).

God's government increases peace, orders all events, establishes justice forever. Who wouldn't want to live *there*? It's true that human governments don't always live up to expectations, but God's government does.

One effective, though not always obvious, way to improve human governments is to pray to understand God's government better. This doesn't involve marches, pressure groups, or angry confrontations. It involves us in the quietness of our prayers. Peace is the natural outcome of God's government, and all those who pray to God for peace, through whatever lens of religious experience, have a right to expe-

rience that peace.

Another aspect of God's government is the establishment of justice – a justice in which no one feels left out.

More verses from Isaiah address this point: "Break forth into joy, sing together, ye waste places of Jerusalem: for the Lord hath comforted his people, he hath redeemed Jerusalem. The Lord hath made bare his holy arm in the eyes of all the nations; and all the ends of the earth shall see the salvation of our God" (52:9, 10).

The joy is felt not just in the upper class or in the middle class, but even in the "waste places," because "all nations" rejoice in God's salvation – His eternal unfolding of events. In God's government of peace and justice, no social class is damned to everlasting poverty and misery; no child is left behind; no aspirations are frustrated. All of us are redeemed from the hideous spectre of economic or racial discrimination.

This is the comforting mission of the Christ, to uplift our thinking to see more clearly God's government of peace and justice, and to act accordingly. We

Those who pray for peace, through whatever lens of religious experience, have a right to feel that peace.

may feel this touch to pray more specifically, to express more love, or to lend a helping hand to our brother or sister in need. God's government leads us to the inescapable brotherhood of man, because without that, there will be neither lasting peace nor impartial justice.

Mary Baker Eddy, who founded this newspaper, wrote in "Science and Health with Key to the Scriptures," "One infinite God, good, unifies men and nations; constitutes the brotherhood of man; ends wars; fulfils the Scripture, 'Love thy neighbor as thyself;' annihilates pagan and Christian idolatry, – whatever is wrong in social, civil, criminal, political, and religious codes; equalizes the sexes; annuls the curse on man, and leaves nothing that can sin, suffer, be punished or destroyed" (pg. 340).

Praying in this way establishes a solid, spiritual basis for reconciliation. We can lean on God's government and depend on it to have a positive effect in our world. It supports us in our daily activities, comforts us in our distresses, and protects us from violence. We have the right to pray, "Thy kingdom come," and to expect it.

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