The Bird's Nest As a Dormitory

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In equatorial regions where day and night are at all seasons approximately equal in length, the resident, diurnal birds spend almost half their lives in sleep, or at least resting quietly in their roosts. At higher latitudes in summer, the daily period of activity may be considerably longer than that of sleep. But if these birds remain in the same locality throughout the year, they will in winter have longer nights than days; the long winter nights compensate for the short summer nights; so that in this case, too, the birds spend about half their lives at their sleeping places. Migrants like the Bobolink and Golden Plover, which breed at high latitudes in one hemisphere and then pass the non-breeding season well across the equator in the other hemisphere, enjoy long summer days through much of the year and may devote a larger share of their lives to activity. But even in the continuous daylight of the arctic mid-summer, birds take a few hours of repose in each 24-hour period. All animals appear to require sleep, not excepting fishes, insects and other creatures which lack lids for closing their eyes.

Considering how much time they devote to sleep, it is surprising that so few birds take the trouble to prepare comfortable dormitories for themselves, as with their skill in nest-building many could do if so inclined. In wooded regions the majority of the birds roost amid the foliage. Many sleep singly, perhaps with their mate not far away, if, like so many tropical species, they remain in pairs throughout the year. Among the American flycatchers which live about my house in Costa Rica, the Tropical Kingbird, the Boat-billed Flycatcher, the Gray-capped Flycatcher and the Yellow-bellied Elaenia follow this method. I have sometimes found male and female roosting a yard or two part, but never in contact.

Young, unmated flycatchers sometimes press close together in a row, perhaps with one of their parents, and make a charming sight as they go to roost on some slender twig in the evening twilight. I often find Blue Tanagers sleeping amidst the dense foliage of orange trees, male and female usually not far apart, but never in contact, and this, so far as I can learn, is usual in the tanager family. But the local finches and most other birds are more secretive, and I have rarely discovered just how they sleep.

Gregarious birds often congregate in great

numbers at their roosts. Those of starlings and crows are familiar to most people in northern lands, but that the American Robin also gathers in great companies for the night is not so well known. Recently an observer in the Transvaal estimated that one million European Swallows, on their way northward, passed the night in a single reed-bed, along with thousands of birds of other kinds.

Oceanic birds may sleep either on land or water. As the sun declines, long, sinuous strings of cormorants stream in to the barren islets off the coast of Perú, where in crowded thousands they pass the night on the guano-covered ground, to return next morning to their fishing far out in the Pacific. But petrels, albatrosses, auks and other birds which pass the non-breeding season hundreds of miles from the nearest land can hardly seek solid ground for their repose.

The majority of birds breed in open nests which offer few advantages as dormitories, while on the other hand they are liable to infestation by vermin, and they are probably easier for night-prowlers to find than a small bird perching amidst clustering foliage. Hence only in special circumstances do birds roost on open nests. In the deserts of northern México and neighboring parts of the United States, Palmer's Thrasher finds an open nest or platform an advantage when sleeping in a thorny cactus, whose crowded needles doubtless afford protection from four-footed predators. Rails, coots and other marsh birds build, in addition to their nests, sleeping platforms which raise them above the shallow water or sodden soil, and to these they lead their downy chicks to be brooded. Not long ago I found a compact platform, about a foot in diameter, situated head-high in the tangled vegetation beside a little marsh near our house. After nightfall I returned with a flashlight, which revealed a Wood Rail resting on it, staring into the beam with great red eyes. Neither then nor later did I find an egg on this bulky mass of vegetation, which was flatter and more exposed than the rail's breeding nests.

This nest of a Song Wren straddles the crotch of a sapling in heavy lowland forest. The doorway of the well-built structure is at the right, and five individuals came to it for lodging.

All photographs by the author

When these young Blue-throated Green Motmots left their burrow in a roadside bank, they roosted out in the cold rain but their parents continued to return to the underground nest each night.

While certain thrashers and rails need something to separate them from a wet or a prickly substratum, with most birds protection from cold or rain is the chief attraction of a dormitory, hence only covered nests are used. Among birds which use dormitories are many wrens, a few American flycatchers, certain swallows, bush-tits, the Bananaquit and the Verdin, all of which sleep in structures they have built themselves. Many more go to rest in cavities of various sorts, either excavated by themselves, as with woodpeckers, barbets, kiwis and at least one kind of motmot, or found already prepared, as with swifts, toucans, woodhewers, certain swallows, titmice, a few wrens, a sunbird and others.

Did those birds which build dormitories, like wrens, or carve them out, like woodpeckers, begin by preparing these snug shelters for sleeping and then find that they also served for rearing their families; or did they first use them as breeding nests and then acquire the habit of sleeping in them even when not incubating eggs or brooding young? Over the years in Central America, I have little by little gathered evidence that the dormitory was, in most instances at least, originally a breeding nest, rather than the reverse.

In the great family of American flycatchers many species build covered nests, either oven-shaped or pensile, some of great beauty and others so bizarre that one would hardly take them to be birds' nests. Yet so far as I know, in only two related genera are these nests, all of which would seem to make safe, snug dormitories, used for sleeping. The first stage in the utilization of a breeding nest as a dormitory is represented by the Yellow-olive Flycatcher, a small, dull bird not uncommon in this valley. Its nest is a marvelous structure such as no northern bird builds. Shaped like a chemist's retort, with a globular body entered through a downwardly directed spout, it hangs from some slender vine or twig in a shady pasture or beside a roadway. The female alone builds this nest, which is matted or felted rather than woven like an oriole's pouch and is generally composed of blackish fibers. As with so many tropical birds, she begins to build long before she is ready to lay, and when her retort nears completion she sleeps in it, sometimes beginning a week before her first egg appears. She alone incubates the two or three eggs but receives some help from her mate in feeding the nestlings. After these take wing they do not return to sleep in the nest, although their mother continues to do so. In this locality only a single brood is reared, and the female flycatcher may sleep in her nest for four months after the close of the nesting season. But even if not claimed by a bird of another species for its eggs, it gradually deteriorates in the wet weather, and I have found none in use as a dormitory after September. So the Yellow-olive Flycatcher, which seems never to build a nest especially for sleeping nor even to repair the one made in the first place for its eggs, appears to roost amid the foliage during the wettest and the coldest months of the year. Yet with a little industry it might enjoy a safe, snug shelter at all seasons.

The flycatchers of the genus *Rhynchocyclus* represent a somewhat more advanced stage in the use of dormitories. These slightly larger birds also build retort-shaped nests, but unlike those of the Yellow-olive Flycatcher they contain large dead leaves in their walls and are less neat in appearance. They usually hang in an open part of the woodland and are only exceptionally accessible for examination of their contents. I have never found more than a single grown bird sleeping in one, but they are occupied as dormitories at seasons which suggest that some are constructed for this special purpose.

AS AN EXAMPLE of the next stage in the evolution of the dormitory habit we may take the Bananaquit, a very small, yellow-breasted honeycreeper widespread in tropical America. In regions where it is abundant its little globular nests, made of pieces of dead leaf and other vegetation, are among the most frequently found of all birds' nests. Without using a small mirror, it is impossible to see the contents of the cozy chamber entered through a narrow, downwardly directed doorway. One may of course probe the interior with a finger; but this method must be used with caution, as sharp-toothed marmosas, ants and other biting creatures sometimes ensconce themselves within them.

The reason for the abundance of the Bananaquits' nests is that they are used by these prolific birds not only for rearing broods through much of the year but also for sleeping by both sexes at

all seasons. The breeding nest is built by male and female together, but she alone sleeps in it, not only while incubating the eggs and brooding the young but often before she lays and after her family has flown. The male, who helps the female to feed the nestlings, builds his own dormitory in the vicinity, usually without her assistance. Of the same shape as the breeding nest, it is often slighter and flimsier. Nevertheless I have seen some that were hardly to be distinguished from breeding nests, and in one instance a female claimed her mate's lodging for her eggs. Each adult sleeps alone, and one rainy evening I watched a male strenuously resist his mate's intrusion into his bedroom. The same nest may be occupied for months together, but whenever a Bananaquit loses its dormitory it promptly makes itself another, the male often singing squeakily as he works. Fledglings are never led back to sleep in the nest, where their mother may continue to pass her nights alone. After some nights in the open, a few of the youngsters manage to find unoccupied nests built by their own kind, or perhaps equally often a covered nest abandoned by a bird of another species. Before acquiring their brighter adult colors some of them undertake to build their own dormitories. One youngster who tried to construct a lodging for himself in the trees about our house had the product of his toil repeatedly taken from him by the adult on whose territory he intruded. The older bird then slept in the juvenile's nest.

The woodpeckers, which I take to be most primitive in their sleeping habits, are at the stage represented by the Bananaquit, and from this we can follow them to a more closely knit family life. In all that refers to sleeping, the Red-crowned Woodpeckers about our house resemble their neighbors the Bananaquits, with the difference that they carve holes in soft wood rather than build nests amid the foliage. With them as with other woodpeckers, the male is the more industrious wood-carver, with the result that he often has a better dormitory than his mate, who is sometimes content with a sadly dilapidated chamber. Hence it is natural that the female should deposit her eggs in his dormitory rather than her own, and that, continuing the use of his cavity by night, he should incubate them, while she sleeps elsewhere. By day the two alternate in warming the eggs, as with other woodpeckers. After the month-old fledglings have left their nest, their father continues to lodge in it, while they pass the night clinging to a tree in the open. I have seen him actually repulse his children from his bedroom doorway, and evict them when they stole a march on him and entered first. But on a very rainy evening, a female youngster insisted so strongly on joining her father in the nest-hole in our garden that finally she had her way. But they slept together only a single night, after which he found another lodging and abandoned the old nest-hole to her. The Hairy Woodpecker closely resembles the Red-crowned Woodpecker in all its family arrangements. In these and a number of other woodpeckers, individuals past the nestling stage do not regularly sleep with other similar individuals at any season.

FROM the stage represented by these woodpeckers, two possible routes lead to more sociable sleeping in nests. The second parent might join the first in the dormitory, this continuing until their fledglings come to share it with them. Or one of the parents might lead the youngsters to a lodging at nightfall and stay with them, then by further evolution the second parent might join the family party. I am not familiar with any of the woodpeckers that exemplify either of these intermediate stages, for with them, so far as I can learn, either the grown birds sleep singly or all members of the family pass the night together. For the intermediate situation we must turn to other groups of birds. The motmots provide an example of the parents sleeping together, but not bringing their young to the dormitory. In the lovely, racquet-tailed Turquoise-browed Motmot of the warm lowlands, a single parent occupies the breeding nest by night, and after the young fly the burrow in the ground is deserted. But in the aberrant Blue-throated Green Motmot of the cool Guatemalan highlands, both parents sleep at the end of their long tunnel throughout the year, and they follow this practice while hatching their eggs and rearing their young. Although the latter emerge at a season when rains are long and cold, they do not return to share the snug chamber with their parents. These dig a new burrow soon after their single brood has fledged, and

A retort-shaped nest of the Yellow-olive Flycatcher. The doorway is in the spout hanging below the round bottom of the nest chamber.

here, if everything goes well, they will continue to lodge nightly until next year's brood has fouled the chamber, for motmots pay no attention to the sanitation of their nest.

The wrens show us the other intermediate stage, and from this we can follow them to still more companionable sleeping arrangements. The House Wrens of tropical America remain mated throughout the year; but male and female normally sleep apart at all seasons, in a hole in a tree, a niche in a bank, beneath the tiles of a roof, in the center of a bunch of bananas or in any other secluded nook they can find. The nest, placed in the same great variety of sites as are chosen for sleeping, is built by both sexes, but the female alone incubates and broods in it. The young are fed by both parents and after their departure they are led in the evening back to the nest or to some other sheltered cranny. Both parents show them to bed by going in and out of the chosen nook in their presence, continuing this until the weakly flying fledglings succeed in following. Their mother often sleeps with them, especially if they have been led back to the nest space, but she does not invariably do this. The father almost always goes to a separate lodging. If they continue to roost in the nest cavity, the youngsters are usually evicted before their mother's next brood hatches. Sometimes, however, they persist in sleeping with her despite parental opposition, and they may help to feed their younger brothers and sisters.

An advance on the House Wren's arrangements is shown by the Highland Wood Wren, which builds globular, moss-covered nests in the undergrowth of the cool, damp mountain forests. In these structures male and female sleep together at all seasons, except while the latter is attending eggs and nestlings, and sometimes her mate passes the night with her even then. For some weeks after they fledge, the one or two young lodge with both of their parents in a nest similar to that in which they were reared.

Banded Cactus Wrens differ from most members of their family not only in their extraordinarily large size but in their gregariousness, which seems to be caused by delayed breeding, the young staying with their parents and helping to feed their mother's next-year's brood rather than setting up housekeeping for themselves when a year old. Although the female seems usually to occupy the great globular breeding nest alone after the young have fledged, they, their parents and the helpers lodge in the same or a similar nest, continuing this custom throughout the year, usually with periodical changes of domicile. I have known eleven of these big wrens to sleep together. On mornings when frost whitens the open fields on their high mountains, they are most reluctant to venture forth into the cold, thin air.

The huge gatherings of Chimney Swifts in hollow trees or chimneys have been often described. In inclement weather many swallows, titmice, nuthatches or tree creepers may huddle together in whatever cavity they can find to keep them warm. Although European Wrens prefer at all seasons to sleep singly, in unusually cold, damp weather in England as many as forty-six may crowd into a bird-box. Despite the large

number of bedfellows, such aggregations cannot be regarded as representing the highest development of the dormitory habit, for they are temporary and promiscuous rather than based upon the family.

I believe that the highest development of the dormitory habit has been reached by certain tropical woodpeckers and barbets. In the Golden-naped Woodpecker and its relatives, as in the diminutive woodpeckers called piculets, male and female sleep in company throughout the year in a hole they have carved for themselves in a tree. By day they incubate alternately and at night both sleep with the eggs, the male, I surmise, actually covering them. In sharp contrast to woodpeckers like the Red-crowned and the Hairy, the fledgling Golden-napes and piculets, far from being repulsed from their parents' bedroom, are shown the way back to it, much in the manner of wrens. Young and old continue for months to share a common lodging. In the Golden-naped Woodpecker, which seems to be single-brooded, the young part company with their parents about the time these move to a new hole for rearing the following year's brood. In the Olivaceous Piculet, which may rear two broods in a season, the youngsters of the first brood may continue to sleep with the parents while they hatch out their second set of eggs. In a nest which I watched this year, I was eager to learn whether the single surviving youngster of the first brood would help to feed the later brood with which it was so closely associated, but unhappily ants invaded the hole soon after the eggs hatched.

As many as eleven birds have been found sleeping together in this bulky nest of the Banded Cactus Wren in frosty winter-time.

The sleeping habits of the Prong-billed Barbet of the Costa Rican highlands resemble those of the Golden-naped Woodpecker in every way, except that in the coldest and wettest months several families may lodge in the same cavity. Once I found sixteen sleeping in a small hole in a tree, where they must have been tightly packed. Woodpecker families, so far as I have seen, never club together in this fashion.

In the Golden-naped Woodpecker, Olivaceous Piculet, Prong-billed Barbet, Banded Cactus Wren and a few other birds, the nest, which originally served only to hold the eggs and helpless young, has through a long evolution become the family home, in which the parents and their full grown but still unmated children lodge together in comfort and safety throughout the year.

Scientific Names of Species Mentioned

Bobolink – *Dolichonyx oryzivorus*
Golden Plover – *Pluvialis dominica*
Tropical Kingbird – *Tyrannus melancholicus*
Boat-billed Flycatcher – *Megarhynchus pitangua*
Gray-capped Flycatcher – *Myiozetetes granadensis*
Yellow-bellied Elaenia – *Elaenia flavogaster*
Blue Tanager – *Thraupis episcopus*
American Robin – *Turdus migratorius*
European or Barn Swallow – *Hirundo rustica*
Kittiwake – *Rissa tridactyla*
Palmer's Thrasher – *Toxostoma curvirostre*
Wood Rail – *Aramides cajanea*
Bananaquit – *Coereba flaveola*
Verdin – *Auriparus flaviceps*
Yellow-olive Flycatcher – *Tolmomyias sulphurescens*
Red-crowned Woodpecker – *Centurus rubricapillus*
Hairy Woodpecker – *Dendrocopos villosus*
Turquoise-browed Motmot – *Eumomota superciliosa*
Blue-throated Green Motmot – *Aspatha gularis*
Tropical House Wren – *Troglodytes musculus*
Highland Wood Wren – *Henicorhina leucophrys*
Banded Cactus Wren – *Campylorhynchus zonatus*
Chimney Swift – *Chaetura pelagica*
European Wren – *Troglodytes troglodytes*
Golden-naped Woodpecker – *Tripsurus chrysauchen*
Olivaceous Piculet – *Picumnus olivaceus*
Prong-billed Barbet – *Semnornis frantzii.*