



AN ADULT SOCIABLE WEAVER
BIRD NEAR ITS NEST

THE SOCIABLE WEAVER BIRD OF SOUTH AFRICA

How the Social Habits of this Remarkable Bird Architect Prompt it to Construct
"Apartment-house" Nests, in which it Lives in Colonies

By HERBERT FRIEDMANN

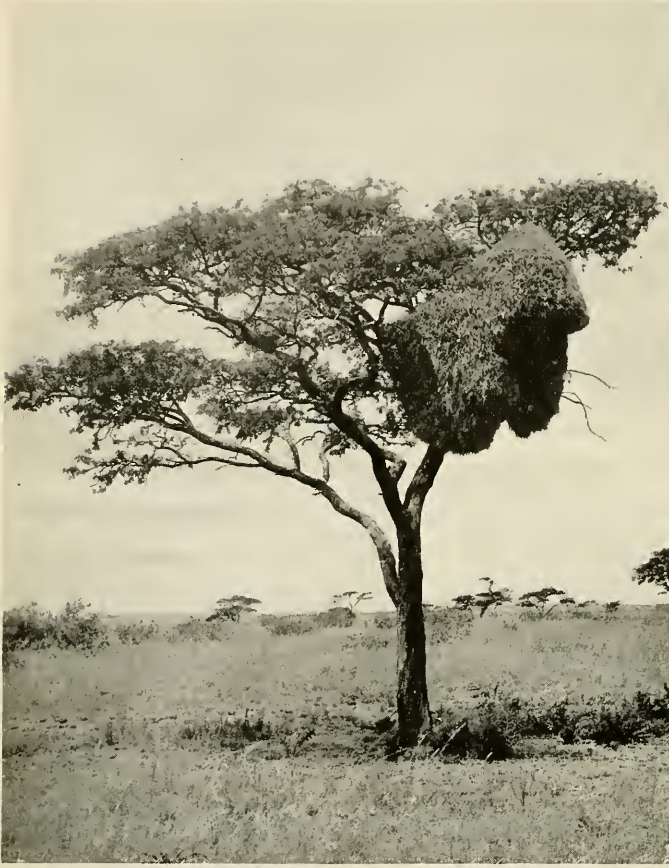
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The American Museum greatly desired to obtain one of those marvels of the bird world, a nest of the sociable weaver bird, both for the information and pleasure such an exhibit would give to the public as well as for its scientific value. Therefore, when in 1924 Doctor Friedmann was planning to go to South Africa on quite another mission, it was decided that the opportunity to procure materials for an exhibition group of the social weaver might not repeat itself for some time, and Doctor Friedmann gladly undertook to try to collect the desired material. The remarkable structure will be put on exhibition at the American Museum. Doctor Friedmann's observations, on which this article is based, were made chiefly around Maquassi, Transvaal, January 15-23, 1925, and are published in this issue of NATURAL HISTORY by permission of the Secretary of the Smithsonian Institution.—THE EDITORS.

AMONG the many wonders of Africa's teeming bird population, surely one of the most prominent is the sociable weaver bird. As a bird among other birds, it is very ordinary looking. Its modest plumage and unimposing appearance, however, form but the outer aspect of what in all fairness must be granted to be the mightiest of all avian nest-builders, the greatest bird architect in the world. When we consider the delicately constructed and ingeniously decorated or concealed nests of some of

the orioles, humming birds, and tailor birds, this statement has all the more force. It is freely admitted that some other birds may build nests of finer structure or of more intricate workmanship, but if we think of such aspects of building as bulk, strength, durability, and the consequent safety afforded the inhabitants, then the achievements of the sociable weaver stand out in their true value.

The wonderful colonial "apartment house" nests of this bird have excited



A NEST COLLECTED FOR THE AMERICAN MUSEUM

Doctor Friedmann covered an area approximately one hundred miles long and ten miles wide looking for a nest which was suitable for exhibition

much comment on the part of the relatively few naturalists who have had the privilege of seeing them and studying the builders in their remote African home. The massive bulk of the nest structures, however, made it impossible to collect and transport specimens to museums in other lands before a railroad had been pushed through the rather dreary part of Africa that produced these remarkable birds. But now that has all been accomplished, and a person may travel in a comfortable train from Cape Town, and, in a day's journey, get to where he can see these famous nests that were hitherto gazed upon only by indifferent and un-

appreciative Hottentots or Bushmen, or scrutinized by the inquiring eyes of a casual explorer.

A rather tawny, sparrow-like bird, with a black patch on the chin and upper throat, and with the back presenting a somewhat scale-like appearance due to the buffy edges of the dark brownish feathers, the sociable weaver strikes the observer in its native haunts as being exactly what it is—a close relative of the now ubiquitous house sparrow of our city streets. In voice, gregariousness, feeding habits, pugnacity, and general mannerisms, it recalls its more cosmopolitan relative. This is all the more noteworthy in view of the recent discovery by Sushkin that the latter is a weaver bird and not a member of the true finch family. In this particular instance field ob-

servations and laboratory studies supplement each other unusually well and point independently to the same conclusion. In view of the fact that both are very generalized in form and structure, neither eminently specialized in any one direction, it is quite puzzling that one group (*Passer*—the genus to which the house sparrow belongs) should have spread all over Africa, Europe, and Asia, and, more recently, through artificial means, the rest of the world as well, while the other (*Philetairus*—the social weaver) should have remained in a very restricted area.

The social weaver is an inhabitant of the rather arid acacia-dotted grass veldt

of southwestern Africa—the extreme western Transvaal, adjacent portions of the Orange River Colony and the Cape Province (Griqualand West), and particularly of Damaraland and Namaqualand, north to Ovampoland and the Kalahari Desert. Like most denizens of dry regions, it is subdued and sandy in coloration, but otherwise it is not obviously adapted to a semi-desert environment.

As the common name of the bird implies, *Philetairus* is very social in its habits; in fact it is probably as social as any bird could possibly be. It is always found in flocks, feeds in flocks, and breeds in large, "many-apartmented" compound nests. The smallest flocks that I saw contained about twenty birds; the largest one at least a hundred and fifty. The flocks seem to stay pretty much in the same general vicinity all the year round, and the birds

use their huge, massive nests as roosting places during the nonbreeding season. With this extreme sociability and sedentary habit of life the territorial relations of the species have been modified in a way that is quite remarkable, perhaps unique, among birds. Instead of each pair of birds having its own breeding territory, each flock seems to have a definite territory, and as the individual flocks are usually far enough apart not to compete with one another, the boundaries of these territories are seldom crossed by individuals of other flocks and other territories. However, in a few cases in my own experience, two flocks were fairly close together (i.e., two nests were on trees not very far apart), and the birds mingled more or less while feeding, but in these cases far more fighting and quarreling was observed than in all the others



THE UNDERSIDE OF A NEST

It is possible to distinguish numerous entrances in this close-up view. These lead to the individual nests which make up one large, compound, "apartment house" nest



COLLECTING A NEST

The first step in preparing this nest for its journey to the American Museum was to trim all extra branches from the tree on which it grew

together. In an area approximately one hundred miles long and ten miles wide, or a thousand square miles in all, that I covered while looking for a nest suitable for transport to New York for exhibition purposes, I found only twenty-six nests of the social weaver, so it can be seen that the flocks ordinarily do not live in very close juxtaposition to each other. (The nests are so large and conspicuous at great distances, and the country so open and easy to examine, and the trees so relatively few in number, that I am quite certain I found practically every nest in this area.)

The nests observed varied in size as did the flocks. The smallest nest found measured some three feet in diameter at the

base, was about three feet high, and had perhaps ten entrances on the under surface, indicating that it contained that number of individual nests. The largest one found was incomplete, i.e., a piece of it had broken off, breaking its supporting branches by its weight, but the remaining part was a large, flat, horizontal mass of straw, more or less repaired at its broken edge, and measuring about twenty-five by fifteen feet at the base and about five feet

in height. The part that had broken off must have been about five feet in diameter each way. This nest contained about ninety-five nests within it.

In a locality where these birds occur it is impossible to remain long unaware of their presence. Trees are not so numerous but that each one becomes an object of considerable importance in the landscape. Needless to say, a tree on which



LOWERING THE NEST TREE

The second operation was to chop the tree nearly through at its base, and then very carefully lower it until the nest reached the waiting truck

there is a social weavers' nest is a very conspicuous object, visible for a great distance and widely proclaiming the presence of the builders. But the birds themselves soon intrude upon one's consciousness with their noisy, harsh, chattering notes, as they fly by in flocks, or feed in scattered bunches upon the seeds of the small, stunted shrubs and plants that wrest an existence from the inhospitable soil. While feeding, they keep up an incessant chatter

much like a flock of house sparrows, and like them, frequently quarrel over bits of food. In flight they all act in unison with a precision quite remarkable for birds of their type, the whole flock turning, rising, falling, wheeling, and stopping more or less together.

Although the birds live in compound "apartment-house" nests, feed and fly in



READY TO START FOR THE RAILROAD STATION

The nest and accessories were then drawn across the arid grass veldt to the railroad where the packing and crating were finished

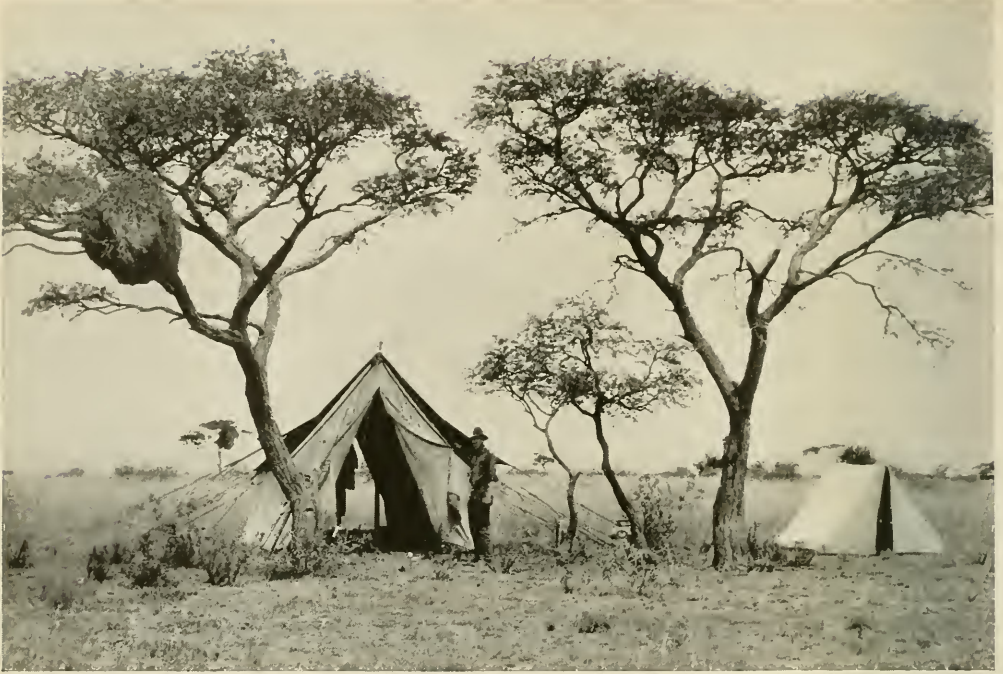
flocks, and are at all times exceedingly gregarious, they mate in regular monogamous fashion as far as my field observations indicate. If they were promiscuous they would be forever in one another's way getting in and out of the entrance holes of the individual nests in the large communal structures. As a matter of fact the harmony of life within each colony, the lack of what

may be likened to "traffic congestion," that is, the coming and going of birds in the task of providing food for the young, the fact that out of numbers of individual nests examined by various observers none were found with unusual numbers of eggs or young, all argue for the actuality of monogamy.



WRAPPING THE NEST

A covering of burlap, followed by burlap soaked in plaster, then chicken wire and more plaster, were used as a protection



CAMP NEAR MAQUASSI, TRANSVAAL

A new, and consequently small, social weavers' nest is hanging on the tree at the left

There have been several attempts to explain the structure of the large, composite nests of this species, some writers claiming that each pair of birds builds an individual nest, all of them close together, and then the flock builds the common roof over all the nests, while other writers have recorded that the flock builds a large structure and then each pair builds its individual nest into this structure. I have never seen the actual beginning of a nest and the smallest nests I found were, as mentioned above, complete structures with numbers of nests within them.

We may therefore quote the account of the building process given by Sir Andrew Smith, from Shelley's *Birds of Africa* (Vol. IV, 1905, p. 131).

The most striking peculiarity observed of the species is the extraordinary manner in which a number of individuals associate, and build their nests under a common roof. When a nesting

place has been selected, and the operation of building the nests is to be commenced *ab initio*, the community immediately proceed conjointly to construct the general covering which interests them all; that being accomplished, each pair begins to form their own nest, which like the roof, they construct of coarse grass; these are placed side by side against the under surface of the general covering, and by the time they are all completed, the lower surface of the mass exhibits an appearance of an even horizontal surface, freely perforated by small, circular openings.

They never breed in the same nests a second time, though they continue for many years attached to the same roof. With the return of the breeding season, fresh nests are formed upon the lower surface of those of the previous year, which then forms an addition to the general covering. In this manner they proceed, year after year adding to the mass, till at length the weight often becomes such as to cause the destruction of its support, upon which a new building-place is selected. They appear to prefer constructing the nests upon large and lofty trees, but where such do not occur, they will even condescend to form them upon the leaves of the arborescent aloe (*Aloe arborescens*), as occa-

sionally happens towards the Orange River. The commencement of the roof is firmly interwoven with the branches of the trees to which it is intended to be suspended; and often a great part of a principal branch is actually included within its substance.

The only point that I can add to Smith's description is that not only do the birds build their individual nests, but during the non-breeding season, all the members of the flock do a certain amount of roof building and repairing of the whole structure. All the birds work together equally, the males as well as the females, and even during the breeding season, when they have eggs or young in the nest, the birds may be seen carrying straw to the roof or other parts of the common structure, not necessarily close to their own respective individual nests. The huge, massive affairs are composed chiefly

of small twigs and of dried grasses of a rather coarse, tough sort that grows commonly in southwestern Africa, and the seeds of which enter very largely into the diet of the weavers. The material is not really woven or even plaited on the surface of the nest, but is rather roughly put together in about the same way that hay is put into a well-made hay rack, but with a fairly definite thatching arrangement, causing the rain to run off and not to soak through. The under side of the nest presents the rough, hard ends of the coarse straws, and forms a very uneven surface.

The breeding season of this bird in western Transvaal is at its height in December and is practically over by the middle of January. Consequently I was too late to learn much of the nest



A NEST BROKEN BY ITS OWN WEIGHT

This nest became too heavy, and parts of it broke down with the supporting branches, leaving three pieces of what was once one large nest. The middle portion is about ten feet long

life of the young, or of the eggs. In fact, I found but two nests with eggs, three in one case and two in the other. In both cases the eggs were addled and broke when I tried to blow them. The eggs are very similar to those of the house sparrow, *Passer domesticus*, and are dull, dirty grayish-white, feebly speckled and marked with darker cloudy gray. Numbers of young birds were seen flying about with the adults and a few slightly younger individuals were seen being fed by the adults.

In the colonies of social weavers we find several other vertebrates living in close relations with the weavers. The pygmy falcon, *Polihierax semitorquatus*, lives in the nests with the builders, and seems to have established a most remarkable type of symbiotic relationship with them. I never saw more than a single pair of these little hawks at any one nest, no matter how large the nest was, and I never saw any sign of the slightest hostility between the weavers and the falcon. Frequently I noted both species perching side by side close together on the same branch, not more than a few feet apart, and yet in the stomachs of all the *Polihierax* I collected (three individuals) I found nothing but feathers and bird bones, but the feathers were certainly not those of *Philetairus*! It looks as though the hawk, while feeding largely on small birds, did not molest the weavers. The only good the weavers could possibly derive from this curious symbiotic arrangement is that they would be assured that any other small bird coming to their nest would not survive to usurp any breeding space there. In some nests the rose-collared love birds, *Agapornis roseicollis*, usurp

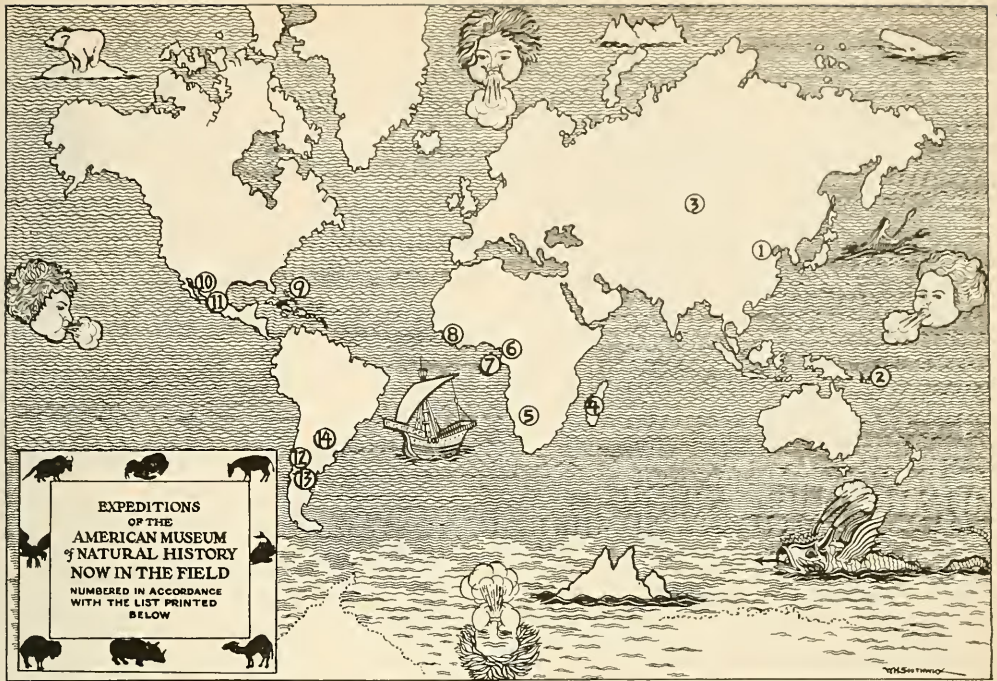
an unused nest and breed in it. In such cases there seems to be no particular advantage to the weavers. I do not know of any instances of the love bird and the pygmy falcon nesting together in the same colony of social weavers. I personally never found the love bird at all, but it has been recorded by several observers as a regular breeder in these large nests.

The chief enemy of the social weaver aside from man is a tree snake or, as it is called by the Boers, "boomslang" which gets into the nests and eats the eggs and young and any adults it can catch as well. The natives are very much afraid to pass under one of the nests lest a snake drop down on them, and consequently they often set fire to the nests after they have attained considerable proportions. However, some of the nests persist for years and grow with the passing of time. The largest nest that I saw was known to some of the Boer residents for more than twenty years, and the one I collected for the American Museum of Natural History was known for at least nine years.

Because of the difficulty of transporting bulky objects, I limited my search to within five miles of the railway line. The nest collected was on the farm of Mr. James M. Lamont near Maquassi, Transvaal. Mr. Lamont prized the nests on his land, but very generously allowed me to cut down and take away the one now on exhibition in New York. When it is remembered that this gentleman has never been in the United States and has no personal interest in the public served by the American Museum, his friendly gift assumes all the more significance.



A YOUNG SOCIAL WEAVER JUST OUT OF THE NEST



1. Central Asiatic; 2. Whitney South Sea, Solomon Islands, for birds; 3. Morden-Graves, Turkestan, for mammals;
4. Madagascar, for birds, mammals, and fossils; 5. Vernay, to Africa, for mammals; 6. Columbia-University-American Museum, to Africa, for anatomical study; 7. Thorne-Correia, Gulf of Guinea, for birds; 8. Murphy, to Liberia, for birds;
9. Bacon-Miner, Bahamas, preliminary biological survey; 10. Frick-Rak, New Mexico, for fossils; 11. Vaillant, Valley of Mexico, archaeological study; 12. Olson, South America, archaeological reconnaissance; 13. Otteley-Anthony, South America, biological reconnaissance; 14. Naumburg-Kaempfer, Southeastern Brazil, for birds

AMERICAN MUSEUM EXPEDITIONS

EDITED BY A. KATHERINE BERGER

It is the purpose of this department to keep readers of NATURAL HISTORY informed as to the latest news of Museum expeditions in the field at the time the magazine goes to press. In many instances, however, the sources of information are so distant that it is not possible to include up-to-date data

THE COLUMBIA UNIVERSITY-AMERICAN MUSEUM ANATOMICAL EXPEDITION.—On January 21 the scientific and administrative staffs of the Museum gathered to meet Dr. William K. Gregory upon his return from the Columbia University-American Museum Anatomical Expedition to Africa. President Osborn and Director Sherwood welcomed Doctor Gregory and spoke of the interest with which the progress of the expedition had been followed, as under the able leadership of Associate Curator Raven, the members had visited the homes of the mountain gorilla, west of Lake Kivu, and of the coast gorilla in the French Cameroon.

Doctor Gregory regretted that the other members of the expedition could not be present, Mr. Raven, because he was still in the interior of the

French Cameroon, Professor McGregor, on account of his duties at Columbia University, and Professor Engle, on account of illness contracted in Africa. Doctor Gregory said that the success of the expedition was due chiefly to Mr. Raven, who had worked out the long itinerary across the continent, planned the bulk of the equipment, and secured and preserved the entire bodies of the gorillas for anatomical studies in the laboratories of the Museum and of Columbia University.

Doctor Gregory said that the geological history and present geological structure of Africa, which had especially interested him, naturally had a direct bearing on the present distribution of the mammals and birds of Africa. The geologists, under the leadership of Prof. J. W. Gregory of Glasgow University, had shown that the