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PROBLEMS OF ALBATROSSES AND MEN ON MIDWAY ISLANDS

By Hubert and Mable Frings
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Third Installment

Our primary work was with the behavior of the birds, particularly their communication signals. For this, we observed the birds during their normal activities and noted any sounds or other signals produced and the effects of these on other birds. The sounds were recorded and then played back to the birds to see whether they would react when the visual elements were removed. Again, the results can be only abstracted here, for all our analyses are not completed.

The Albatrosses have two types of sounds which they use -- beak sounds and vocalizations. The repertories of the two species are the same, but the Black-foots have voices pitched about an octave lower than the Laysans, and have thicker and shorter beaks, giving a slightly more metallic sound to the beak snaps.

We have so far been able tentatively to recognize four classes of beak sounds, as follows:

1. Spontaneous and Incidental Beak Sounds. The spontaneous sounds are of no definite number or sequence and are produced without, to us, any provocation. Birds sitting quietly on the nest, or walking about, often snap the beak suddenly a few times and then lapse into silence. Perhaps we just do not know what these mean, in which case the term, spontaneous, is merely a confession of our ignorance. In some cases, these sounds precede or accompany certain activities, and may then be more correctly called, incidental. Thus, before preening, the birds generally snap the beak sharply and continue to snap irregularly during the preening.

2. Nest Beak Sounds. These consist of rhythmic, repeated snaps, usually from 5 - 15 in number, produced by the birds before or just after settling in place, usually on a nest. This type of snapping is also done when an intruder approaches, at distances over four or five feet, and may be considered as an early warning that the intruder is invading a territory. We formerly used the term, greeting, for the latter sounds, but, on further study, find that these cannot be separated from the usual nest sounds.

3. Defensive Beak Snapping. This is irregular, hollow-sounding snapping produced when an intruder approaches within reaching distance. The difference in tonality between this and other beak sounds makes it quite easy to recognize. The Black-foots often accompany this type of defensive snapping with growling sounds; the Laysans do this only rarely.

4. Clappering or Rolling Beak Sounds. These are rapid-fire snaps, sounding much like castanets or high pitched drum rolls. Our recordings indicate that the birds may

be able to produce these at a rate of 20 snaps per second, which is rather fast for movements of the mandible. These are produced by the birds rather seldom under ordinary circumstances, but may be heard during aggressive or defensive encounters, and thus may possibly be variants of the defensive beak sounds. It is during the famous Albatross dance, or ecstatic ritual, that these beak rolls are heard most persistently. In fact, of all the sounds used during dancing, only these beak clappering sounds seem characteristic; all other sounds are merely slight variations on ordinary sounds. It is interesting that these beak rolls and beak snaps during dancing can be produced with such great variation in timbre. Sometimes they sound hollow and wooden, other times sharp and metallic. It is our belief, without any experimental verification, that these differences are determined by the differences in extent of filling or opening of the extensive air-sacs in the heads and necks of these birds.

Seven types of vocalizations seem to be sufficiently distinct to be named:

1. Territorial Call. This is a whistling sound, often like the whinnying of a colt or horse. It is done with the beak closed, and therefore is often difficult to localize in a colony. We feel that it represents the homologue of the territorial song of a song-bird. It is definitely a structured production, with definite, if variable, sequences, and it is used by the birds to identify their territories. Thus, one hears this almost continuously throughout a colony, it and the nest beak sounds being possibly the most characteristic sounds, before dancing starts.

2. Nest Call. In the Laysans, this call sounds like a harsh, high-toned, "Ah - ah;" in the Black-foots like the honking of a goose. Actually the difference is merely one of speed of repetition and tonality, the Black-foots' voices being about an octave lower than those of the Laysans. In both species, this is produced as the birds prepare to sit, or particularly as they prepare to brood the eggs. Everyone on Midway knows it most familiarly as "talking to the egg," but we prefer the term, nest call, because the egg is not necessary. It seems to be used to identify the immediate territory, as against the wider defended area.

3. Challenge. This is a combination of the nest call and territorial call, and thus might be considered as not in a separate class. The combination, however, is made in a structured fashion, and we believe that it is worthy of separation. This is used by a bird on its territory to challenge a bird which actually approaches to within a few feet. Generally, the first warning given to an intruder is the nest beak sound or the territorial call. If the intruder continues to approach, the defender bows forward and with the mouth open utters the nest call a few times, then straightens up to its greatest height and utters the territorial call at high intensity. The defender then holds the upright threat posture until the intruder either continues to approach or turns away. Possibly another term for this sound would be, Greeting, for, if the intruder is a female and the defender a male, the male lowers from the upright threat posture and reaches under one wing to preen. This seems to be an invitation to dance, and, if the female also signals willingness by similarly preening or nibbling at the beak of the male, the dance proceeds. It may well be that only males produce the typical territorial call and challenge, but our observations do not allow us to say that this is true.

4. Fighting Sounds. Invasions of territories can result in fights. During these, the birds scream hoarsely. The Laysans are much more given to serious fighting than the Black-foots. The latter usually do only ritualized fighting. Both, however, make much noise about the affairs.

5. Victory Call. This term may be either too anthropomorphic or may even be inaccurate, but, at present, it is the best we can do. The call is produced with the head thrown upward, the beak wide open. It is best described as a scream, and some have used the term, Cry of Triumph, which is just as good. Sometimes both combatants give the call, so the victor is hard to determine, but often the victor is obvious and

the vanquished walks away. This call is also given by a male after copulation with a female.

6. Sky Call. This is the term used by Richdale in his study on the Royal Albatross, and is descriptive enough. The bird throws the head upward and, with the beak closed and pointed skyward, utters a short, one-syllable sound. In the Laysans, it sounds like the mooing of a cow; in the Black-foots like a deep-throated groan. Once again, the calls of the two are essentially the same, except for the lower pitched voices of the Black-foots. This call is heard spontaneously throughout a colony, sometimes seeming to accompany certain activities, but never consistently enough for us to establish its communicative significance, if any.

7. "Distress" Call. This is uttered when the birds are restrained. Merely holding them off the ground by their wings will often cause them to yell. Actually, the sounds are much like those heard during fighting, and may be best described as yells or shrieks. Since we had used the distress call of the Starling to drive that bird away from places where it was not wanted, it seemed worth-while to try that with these birds. The tests were quite disappointing. As far as the Laysans are concerned, the distress call is so much like the fighting sounds, that the birds pay no attention to it, for there are fights off and on all around. In the Black-foots, however, the sound is somewhat different, and these birds moved slowly away, on the ground, but did not change their flight-paths in the air.

All these calls are accompanied by characteristic positions of the birds as they are uttered, and the positions are important in conveying information. Thus, the sounds themselves, without actual presence of the birds, seem to have little effect. In terms of the problem to be solved, the fact that these sounds are used by birds on the ground for purposes related to their lives on the ground and that no effects were produced on the quite silent flying birds, which are theones creating the hazard to planes, makes their use in practical control seemingly impossible.

To be concluded

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BREEDING THE BUDGERIGAR (PARAKEET)

By Arthur Stanton

This popular little bird is one of the species of cage birds that will breed at any time of the year if provided with a nest box. However, if we take pride in our hobby of bird raising we look forward to the improvement of the species.

As stated in my last article, these birds breed in single cages, or in an aviary where many are kept and where they may select their own mates. Breeding them in single cages, with the owner selecting the pairs is by far the better method, which will result in an improvement in the stock as the years go by. In selection of breeding pairs, good healthy stock is the prime consideration, color being a secondary factor, unless one chooses to specialize in a certain color.

Before letting the birds start to breed, they should have had sufficient exercise and ample flight room. Moult should have been completed and plumage in good condition. The birds, if ready to breed will evidence this by flighty actions and compact plumage with a brilliant sheen. The cocks will be attentive to the hens, and the hens will chew on the woodwork of the aviary.

An inexpensive type of single breeding cage, known as the box breeder, is made of $\frac{1}{2}$ inch plywood with hardware cloth for the front. One commonly used is 12x12x18", containing three perches of $\frac{1}{2}$ inch diameter dowels. The nest box should be hung on the outside of the cage, held securely against the hardware cloth. Cut a hole at

least 1 ½ times the size of the entrance hole of your nest box. Put a little sawdust in the box when it is hung up, as the parakeet will not build any sort of nest, but lay the eggs on the floor of the nest box. The bottom of the box should be made with a slight concavity in the middle. If your birds are in good condition, they will nest immediately when they are introduced to their new quarters. The first egg should appear in 10-15 days. The incubation period is 18 days.

During the nesting season, the birds should be given the very best of attention. See that the dishes are always filled with seed. Many good birds are lost because the owner thinks there is plenty of seed, when the dishes are filled with husk only. Recommended seeds are white prosso millet, plus canary seed and hulled oats. Seed should be bought loose, as packaged seed might be wormy.

A worthwhile plan to follow in breeding your birds is to permit them to nest only twice a year. Following this method should prove rewarding and the birds will be healthy.

I hope I have given helpful information to anyone who is sincerely interested in trying to improve the standard of their birds. It is always a good plan to join a bird club that specializes in the breeding of Budgerigars. In Hawaii we are fortunate in having two very active clubs, and I am sure either one of them would welcome you into its fold.

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REVIEWS

BIRDS AND THEIR OBSERVERS by Michael Sharland. (Australian Museum Magazine, Vol. 13(2), 1959: 50-53)

It is refreshing to hear that in the great continental island of Australia bird watching and bird study are ever more popular. A few excerpts should be interesting to all of us. The author says:

"People are keener than ever before to know how birds live, rather than what they look like dead ... It is the living, animated bird, going about its normal affairs, and in so doing posing all sorts of interesting problems, that is the fundamental object and the very basis of most ornithological studies of current times ...

"The upsurge of interest in wild birds is occurring in most countries, and Australia perhaps is but following oversea trends. In both America and England the increase in membership of bird-study clubs has been astonishing ...

"Ornithological problems, some of great complexity, continue to crowd upon us. The wider knowledge of birds the more are these problems presented for solution. It is chiefly because of the recognition of the work yet to be done and the extensive gaps in ornithological knowledge to be filled that membership of amateur societies and clubs concerned with field studies has been growing. In addition, many people are realising that herein lies the opportunity to become interested in a fascinating pursuit outside the normal walks of life.

"It is obvious that in studying wild birds every observer almost automatically becomes interested in their welfare. This often leads to better measures for protection, and is, therefore, one of the most important attributes of amateur societies ..."

The author lists several of the bird clubs and tells of the Gould League of Bird Lovers, named for the famous ornithologist, John Gould. Starting in 1909, some 5,152 branches of the League have been formed!

"They have obtained many of their members, both directly and adventitiously, from the schools, a source that has been rich in the cultivation of the principles of nature study and, particularly, the sympathetic appreciation of birds... and the need to protect birds ...

"From this exceedingly fertile ground there has grown a harvest of great value to the community, the measure of which is becoming more apparent as we observe improvement in the public attitude towards birds and more insistent demands for their protection and for the reservation of their breeding places ...

"This is good for Australia, as such studies must ultimately be of national benefit. And in this development the amateur bird-observer has an important part to play."

Conditions in Australia are not comparable to our minute little islands, but the need for opening up to young minds the appreciation of the natural world about us is as great here as elsewhere. We see and hear everyday of fresh signs of new loss of natural beauty. How can we assist in teaching the young the preciousness of the natural world, non-replaceable if lost?

We congratulate Australians on their success.

Margaret Titcomb

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THE NENE COMES BACK by Ivan Cameron. (Field and Stream, V. 64 (4):55, 74-75)

This popular account of the Nene attempts to cover in brief form a history of the bird and of the restoration project. It is illustrated with a fine photograph of pair of Nene and two goslings. It undoubtedly will serve a purpose in arousing public interest. However, some of the statements need to be examined, as "The slaughtered geese were hauled to the market by the wagon-load, and the meat was salted and sent to the mainland in whaling ships". It would be helpful to discover the source of this information, which is given in none of the literature with which I am familiar, nor do old-timers recall any such incidents. The paragraph on the establishment of the project is confused; some rather loose statements about the viciousness of the mongoose might also be questioned.

The article gives credit to those who have labored for and those who are now engaged in developing the restoration project. The general style is pleasant; the descriptions of recent and present status seem to be generally correct. In short, the story may serve as an introduction for those who know little or nothing about the Nene, but should not be used for authoritative information.

Grenville Hatch

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THE WANDERING TATTLER

This is the name of the new Hawaii Audubon Society publication on birds for the use of children in the elementary grades, produced with the cooperation of the State School Office. Mrs. Mary Riggs and her Education Committee prepared the first issue on Birds in the Grass in time for the opening of school. The October issue will feature Birds Flying; November will be concerned with Birds Feeding; and December will feature the children themselves as Bird Watchers.

Mr. Teruo Masatsugu, Director of Science for the State Schools, had the mimeographing done and has sent two copies to each elementary school principal. His

covering letter requested each principal to put these copies into the hands of the teachers who would make best use of the material. He has asked for recommendations and suggestions from teachers and principals. Should a teacher request enough copies for each student in her class, Mrs. Riggs states that the Audubon Society will try to find the means of providing the additional copies required. Mr. Masatsugu has suggested that other living things, such as fish, plants, animals, etc, might be featured later if this initial series works out well.

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WHITE-TAILED PTARMIGAN
By Charles Smith*
Hot Sulphur Springs, Colo.

I have observed these birds above timberline in Colorado since 1946. Formerly I've seen as many as 15 adults in one flock. This season only 2 adults were seen together. One squawked loudly as it ran. The other fluttered away, its white tail and wings flashing even in the rain. With hawks, coyotes and weasels both four-footed and two-footed hunting them, it's a miracle they survive.

I also saw a mother with three half-grown chicks, two days running last week. The first day she kept warning them and they sneaked away. The second, I talked to her and she quieted down. All four went back to feeding.

About a month ago, my co-worker and I disturbed a mother with six small chicks. The offspring were very conspicuous, their pattern of black and white markings standing out against the pale green of the tundra. The mother ran at me once like a setting hen, and hissed repeatedly like a goose. I picked up two of the three chicks. The other three hid successfully. When we drew off a hundred feet, she called in the hiders. When we returned from the pass, she was hovering all six in the trail.

Like the others seen this season, they were hundreds of feet from the topmost stunted trees, with just rocks and the short grass around them.

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*Mr. Smith, a visitor to Hawaii in the winter of 1958-59, frequently accompanied us on field trips while here.

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FIELD NOTES:

Field Trip, August 23, 1959, Manoa Falls.

Led by Mr. Charles Hansen, a party of twenty-four, members and guests, set out on the quest for the elusive shama thrush in the upper Manoa Valley. The trail was easily negotiable but birds were not easily visible in the thick growth of trees and shrubs, interesting in themselves because of great variety. Leiothrix were heard in number, with doves in the distance a constant obligato. We were rewarded by hearing the call of the shama several times, while Ruth Rockafellow, doing a silent watch alone, saw either one thrush twice or two birds once each, a half hour apart. Mr. Hansen reported a Japanese tit, and apapane, and our visitors had good views of elepaio and mejiro.

The photographers in the group were disappointed by lack of sun when the falls were reached, but it was pleasant to sit on the boulders and chat a while.

A bonus on this trip was a visit to the Harold L. Lyon Arboretum, named in honor of that great friend of Hawaii, Dr. Harold L. Lyon, eminent botanist and former direc-

tor of the Experiment Station, HSPA. From our guide, Mr. Donald Anderson of the Arboretum staff, we learned that in 1921 a piece of pasture land, over-grazed, denuded and eroded, and the gulch at its head, was taken in hand by some dedicated men. Funds always were scant and labor thereby limited, but what we see today seems almost a miracle.

Roads and contour terraces were laid out, water problems solved, and the world searched by Dr. Lyon for material in answer to this question: "What plants will grow here to replace the native Hawaiian flora which has been devoured and cannot reproduce itself against the ravages of introduced hoofed animals?"

The decision was to experiment, in the main, with plants of the aroid family - taro, bananas, gingers, heliconia, and related species, some of which look much like palms, such as the "palm" from which is obtained the fibre for Panama hats. Seeds obtained were planted at Foster Gardens. Seedlings were transferred to a quarantine nursery here in Manoa; when ready these were planted on the steep hillsides of the gulch. Records were kept of each plant, by section,row, and place in the row, so any one plant can be located without difficulty.

Among the wealth of plants today can be seen taro and ginger from Africa, India and the Molucca Islands. There are Kauri pines from Australia, New Zealand and Fiji; several kinds of Albizzia trees, one of which has the amusing common name in Hawaii of "Snow on the Lawn". There is a pickle tree and a tree tomato, a charcoal tree and both bitter and sweet cassava. From the roots of the latter is made tapioca. Trees are draped with orchids, among them the vanilla vine.

After this feast to the eyes, one of the members of the staff at the Station, Mr. Hugh W. Brodie, treated our ears with a tape-recording which he made in 1957 of the song of the shama thrush. He set up his machine out of doors and the lovely, clear song rang out strongly over the valley.

At this time the writer discovered the loss of some of her notes, so she retraced her steps to look for them. To her vast delight a shama high in the gulch was trilling out his song along with the recorded one, an enchanting duet. Mr. Brodie may take pride in his achievement because his production was just as sparkling and fresh as the one proceeding from the throat of the bird in the forest.

Margaret Smail

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OCTOBER ACTIVITIES:

Field Trips: MR. & MRS. FRANK STEPHENSON WILL LEAD BOTH TRIPS.
October 11 - Waianu Trail, in Waiahole Valley.
October 25 - Shore bird trip.
Meet at the Library of Hawaii at 7:00 a.m. for each trip.

Board Meeting: The Board of Trustees holds its regular meeting on the second Monday, October 12, at the Hawaiian Mission Academy, 1415 Makiki St., at 7:30 p.m. Members are always welcome.

General Meeting:
October 19 - At the Honolulu Aquarium auditorium at 7:30 p.m.
Miss Beatrice Krauss will talk on "Efforts toward conservation in Hawaii."

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