

# THE ELEPAIO

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A STUDY OF THE BREEDING BEHAVIOR OF THE MYNAH  
(*Acridotheres tristis* L.)  
By Charles Robert Eddinger\*  
Second & Final Installment

## RENESTING

If the nest is destroyed before the young are fledged or if the young die in the nest, a new nest may be built either at a new site, or by the addition of new nesting material at the old site. In the 25 nests observed, four renestings at the same site were observed (nests numbers 2, 5, 11, and 14).

Dharmakumarsinhji (1954) reports that in India mynahs often lay twice, and rarely three times, in a season, but it is not known if he means two and three successful broods (making the mynah a multiple-brooded species), or renesting upon destruction of the first and second nests (indicating they may be single-brooded). My observations in Hawaii suggest that only one clutch was laid, if this clutch was carried successfully through the nestling period. This point needs further investigation, however, because neither Dharmakumarsinhji nor I studied color-marked populations.

## PARENTAL CARE

Both parents have been observed brooding the young during the day. At night one parent broods the young while the other perches nearby. It is not known if brooding is shared at night.

Feeding is shared by both parents. Feeding begins at sunrise and continues to sunset. The most active feeding is done during the early morning and late afternoon.

Defecation occurs following each feeding, and nest sanitation is shared by both parents. The excrement, enclosed in a fecal sac, is carried from the nest by the parent.

## MORTALITY IN THE YOUNG

In all nests observed, there was a high mortality rate among the young (see Table 3). At site number 2, two clutches were laid (totaling 7 eggs) but no young were fledged. At site number 14, two clutches were laid (totaling 9 eggs) and no fledglings survived.

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\*Graduate student in Zoology Department, University of Hawaii.

Table 3.  
Mortality in the young

| nest no. | clutch size | total hatch | survivals |
|----------|-------------|-------------|-----------|
| 1        | 4           | 4           | 0         |
| 2        | 5           | 0           | 0         |
| 2*       | 2           | 1           | 0         |
| 3        | 2           | 0           | 0         |
| 5        | 3           | 3           | 0         |
| 5*       | 4           | 4           | 3         |
| 8        | 2           | 2           | 1**       |
| 8*       | 3           | 2           | 0         |
| 9        | 2           | 2           | 1**       |
| 10       | 2           | 0           | 0         |
| 12       | 4           | 4           | 2         |
| 13       | 3           | 3           | 0         |
| 14       | 5           | 4           | 0         |
| 14*      | 4           | 3           | 0         |
| 19       | 4           | 4           | 1         |
| 20       | 4           | 4           | 0         |
| 22       | 2           | 2           | 0         |
| 23       | 1           | 0           | 0         |
| Totals   | 56          | 42          | 8         |

\* renestings

\*\* hand raised

This indicates a mortality rate of 86% of the eggs laid, a very high rate for passerine birds. Three factors contribute most to nest mortality: poor selection of nesting sites, unfavorable weather, and, apparently, insufficient food for nestlings.

The cup of the mynah nest is often too small to contain four or five nestlings. A clutch of four eggs may be laid in the hollow of a tree only large enough to contain one nestling. The first bird to hatch usually develops most rapidly and smaller nestlings are crushed or pushed out of the nest. Other nests are built in drain pipes that become flooded, ledges that are wind swept, and in domestic residences where they fall prey to man.

Rainy weather affects the adults as well as the young. On several occasions the nests were completely deserted during hard rains. Not only did the nestlings suffer from exposure, but during long periods of time they are without food.

Although both parents gather food continuously throughout the daylight hours, if food is not readily available, feeding four or five nestlings, who for the first few days are presumed to consume more than their own weight of food, becomes difficult if not impossible. If this constant demand for food is combined with unfavorable weather conditions, parent desertion is common and nestling mortality is high.

Young mynahs, as well as adults, are often parasitized by the eye nematode, Oxyspirura masoni (Schwabe, 1967). Although the parasite does not directly result in death, if the infection is acute, vision is impaired and the bird shows signs of nervousness. Two of the nestlings that were brought into the laboratory to be raised by hand had acute infections and refused to eat.

Mynahs are also parasitized by mites. I tried to hand-raise three nestling mynahs that had acute mite infestations (nest numbers 11 and 22). These birds showed signs of nervousness and refused to eat; they died within a few days.

## LEAVING THE NEST

The young that did survive to fledge, remained in the nest 4 to 5 weeks (Table 4).

Table 4.

## Nestling period

| nest no. | date hatched | date fledged | time in days |
|----------|--------------|--------------|--------------|
| 5        | 7/6/66       | 8/7/66       | 31           |
| 5        | 8/6/66       | 8/7/66       | 30           |
| 5        | 9/6/66       | 8/7/66       | 29           |
| 12       | 9/5/66       | 13/6/66      | 35           |
| 12       | 10/5/66      | 13/6/66      | 34           |
| 19       | 13/6/66      | 17/7/66      | 34           |

If the young remain in the nest for the 4 to 5 week nestling period, they are able to fly well when they fledge. They do not remain on the ground but are able to fly up into trees with the parents.

Even after the young have fledged, they can be seen begging food from the parents. The young fledglings approach the parents with wings depressed and shaking. They emit a "chep-chep-chep" cry and gape readily. The adult birds continue to feed the fledglings for an unknown period of time, perhaps several weeks. After several days of such feeding the adults may make obvious attempts to avoid their begging young. Adults can be seen running across the lawn or flying from tree to tree with the begging young in close pursuit. The young bird is soon gathering all of its own food.

In late July and early August, mynahs begin to reform flocks, especially in areas where much food is available. The young remain near the parents but there is mixing with other members of the flock. Communal roosting commences again at night, the new birds establishing their own position in the hierarchy of dominance.

## OBSERVATIONS OF HAND-RAISED BIRDS

Four nestling mynahs were taken into the laboratory to be hand-raised (from nest numbers 8, 9, 16, and 21).

I fed the birds mixed cereal, dogfood, papayas, bananas, and avocados. The nestlings would beg by shaking their wings and emitting a "chep-chep-chep", but none of the birds would gape when I first brought them into the laboratory. Feeding was therefore forced each time the birds begged. The birds were hand-fed for 3 to 4 weeks at which time they were able to eat by themselves.

The yellow on the skin around the eyes, typical of the adult mynah, began to appear between 104 and 110 days after the birds had been brought into the laboratory--- at the age of approximately 125 days (Table 5).

Table 5.

## Appearance of yellow around the eyes

| nest no. | date brought into laboratory | appearance of yellow | time in days |
|----------|------------------------------|----------------------|--------------|
| 8        | 27/4/66                      | 11/8/66              | 108          |
| 9        | 26/4/66                      | 11/8/66              | 109          |
| 16       | 25/5/66                      | 12/9/66              | 110          |
| 21       | 28/6/66                      | 10/10/66             | 104          |

The bird from nest number 9 injured itself by flying against the side of the cage, and died on 15 October 1966. The other three birds were banded with size 4 aluminum bands on one leg and colored plastic bands on the other. The birds were

released on 15 November 1966.

Table 6.  
Banding information

| nest no. | left leg    | right leg      | date released |
|----------|-------------|----------------|---------------|
| 8        | 49481727    | yellow plastic | 15/11/66      |
| 16       | red plastic | 49481726       | 15/11/66      |
| 21       | 49481728    | green plastic  | 15/11/66      |

The bird from nest site number 8 was seen in a fig tree near Farrington Hall within a small flock of mynahs on 30 November 1966. On 7 March 1967 this same bird began a clutch of eggs at site number 20.

The mynah from nest site number 16 was seen near Bilger Hall on 16 November 1966 and was not observed again.

The mynah from nest site number 21 was seen feeding with a small flock of mynahs near Farrington Hall on 16 November 1966 and was not seen again.

#### SUMMARY

The preceding study on the breeding behavior of the mynah (Acridotheres tristis L.) was made at the University of Hawaii, Honolulu, from April 1966 to April 1967. The major portion of the study was carried out on the University of Hawaii campus.

Nest site selection may begin in late February, but is more frequent during March. Nesting sites are extremely variable, but man-made structures are preferred. The same site may be used again if the first brood fails to fledge successfully.

Nesting sites and areas from which nesting material is collected are actively defended.

Precopulatory courtship is usually quite simple but may include courtship presentations. Copulation often occurs two to five months before the active breeding season and may serve to maintain the pair-bond or to stimulate both sexes.

Both adults take part in nest building. The shape and size of the nest depends directly upon the available space of the nest site.

The date of egg-laying during one year varied from 7 March to 25 July. Two to five blue to blue-green eggs are laid at intervals of twenty-four hours.

Incubation lasts for thirteen days; it is shared by both parents. Both parents brood the young and share in feeding and nest sanitation.

The mortality rate may be as high as 86% of the eggs laid. Three factors contribute most to nest mortality: poor selection of nesting sites, unfavorable weather, and possibly insufficient food.

The young leave the nest at four to five weeks (29 to 35 days) but may continue to receive food from their parents for several more weeks.

Young mynahs may be successfully raised in the laboratory on a diet of mixed cereal, dogfood, and fruit.

The yellow on the skin around the eyes, typical of the adult mynah, appears at the age of approximately 125 days. Mynahs reach sexual maturity and breed within one year after hatching.

#### ACKNOWLEDGMENTS

I am indebted to Dr. Andrew J. Berger for suggesting field as well as laboratory techniques, and for constant encouragement; to Dr. E.S. Reese and Dr. O. Wayman for suggestions in preparing my paper; and to my Thai friend, Jinda Jan-Orn for his



company and help with the ladders on numerous field trips.

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#### APPENDIX

##### Acridotheres tristis Linnaeus

##### Nesting Record

##### NEST 1

- Location: Edmondson Hall, Rm. 362A,  
open window
- 13/4/66 Construction under way.
- 19/4/66 Nest near completion.
- 22/4/66 One egg. Before 7:30 am.
- 23/4/66 Two eggs. Between 12:00  
and 3:00 pm.
- 24/4/66 Three eggs. Before 7:30 am.
- 25/4/66 Four eggs. Between 9:00  
and 10:00 am.
- 7/5/66 One young. Three eggs.  
At 12:00 noon.
- 8/5/66 Two young. One egg.  
One egg broken.  
Between 8:00 and 9:00 am.
- 8/5/66 Three young. At 11:30 am.
- 18/5/66 One young. Two smallest  
young absent from nest.
- 20/5/66 One young dead in nest.
- 13/6/66 Adults return to nest but  
no relaying here.

##### NEST 2

- Location: Pacific Biomedical Research  
Center, Rm. 309, air conditioner.
- 19/4/66 Adults carrying nesting material.
- 20/4/66 Five eggs.
- 21/4/66 Mirror put beside nest.  
Eggs rolled out of nest.
- 23/4/66 Adults return to nest daily.
- 17/5/66 Mirror removed.
- 18/5/66 Adults carry nesting material.
- 16/6/66 Nest doubled in thickness.
- 24/7/66 One egg. Before 8:30 am.
- 25/7/66 Two eggs. Before 8:30 am.
- 7/8/66 Second egg hatched before 9:00 am.  
First egg unhatched.
- 9/8/66 Young absent from nest. Egg  
unhatched.

##### NEST 3

- Location: Kuykendall Hall, Rm. 219,  
corner ledge.
- 23/4/66 Nest complete.
- 24/4/66 One egg. Before 7:30 am.
- 25/4/66 First egg absent. Second egg  
laid before 8:00 am.
- 26/4/66 Second egg with a hole in it.
- 19/5/66 No reneesting.

NEST 4

Location: Henke Hall, in tree.

- 23/4/66 Nest complete. No eggs.  
27/4/66 Adults at nest. No eggs.  
28/4/66 Adults absent.

NEST 5

Location: Baptist Student Center, back corner up Vancouver Drive.

- 24/4/66 Three young.  
27/4/66 Young taken to be hand-raised.  
First died after 32 hr.  
Second died after 36 hr.  
Third died after 72 hr.  
19/5/66 Adults carrying nesting material.  
25/5/66 One egg. Before 8:00 am.  
26/5/66 Two eggs. Before 8:00 am.  
27/5/66 Three eggs. Before 8:00 am.  
28/5/66 Four eggs. Before 8:00 am.  
7/6/66 One young, 3 eggs. Before 8:00 am.  
8/6/66 Two young, 2 eggs. Between 8:00 and 9:00 am.  
9/6/66 Three young, 1 egg. Between 8:00 and 9:00 am.  
10/6/66 Four young. Before 8:00 am.  
25/6/66 Three young. One dead young.  
8/7/66 Three young fledged.

NEST 6

Location: Bilger Hall roof, second drain, front-left.

- 22/4/66 Adults carrying nesting material. Nest inaccessible.

NEST 7

Location: Crawford Annex #1. Nest above air conditioner.

- 19/5/66 Nest complete, no eggs.  
20/5/66 Adults absent, nest inactive.

NEST 8

Location: Spalding Hall. Tree in front.

- 27/4/66 Two young removed for hand-feeding.  
30/4/66 One young died.  
16/6/66 Juvenile eats well. Nest with 2 young, one egg.  
25/6/66 Young and egg absent from nest.  
11/8/66 Yellow around eye appears.  
15/11/66 Bird released.  
30/11/66 Bird seen beside Farrington Hall.  
7/3/66 Bird nesting in site 20.

NEST 9

Location: Bureau of Commercial Fisheries Department. Under air vent on second floor.

- 26/4/66 One young taken to be hand-raised.  
One dead young in nest.  
11/8/66 Yellow around eye appears.  
14/10/66 Bird died.

NEST 10

Location: Dean Hall, inside of steel support of the fire-escape.

- 19/5/66 Adults carrying nesting material.  
24/5/66 One egg. Before 8:00 am.  
25/5/66 Two eggs. Before 8:00 am.  
8/6/66 Two eggs unhatched.  
25/6/66 Two eggs unhatched.  
No renesting here.

NEST 11

Location: Henke Hall, above entrance, Edmondson Hall side.

- 7/5/66 One young taken to be hand-raised.  
27/5/66 Young dead, heavily parasitized by *Thelazia* sp.  
28/6/66 One young taken from the other side of the entrance, to be hand-raised.  
30/6/66 Young dead. Heavy mite infestation.

NEST 12

Location: Temporary Building across Maile Way from Snack Bar, under the roof.

- 7/5/66 Adults carrying nesting material.  
9/5/66 One egg. Before 8:30 am.  
10/5/66 Two eggs. Before 8:30 am.  
11/5/66 Three eggs. Between 8:30 and 9:30 am.  
12/5/66 Four eggs. Between 8:30 and 9:30 am.  
23/5/66 One young. Three eggs. Between 8:00 and 10:00 am.  
24/5/66 Two young. Two eggs. Before 9:00 am.  
25/5/66 Three young. One egg. Between 8:00 and 9:00 am.  
25/5/66 Four young. Between 9:00 and 10:00 am.  
28/5/66 Two young alive. Two young dead in the nest. Dead removed.  
13/6/66 Two young fledged.

NEST 13

Location: Miller Hall Annex on top of air conditioner.

- 9/5/66 Nest near completion.
- 14/5/66 One egg. Before 8:30 am.
- 15/5/66 Two eggs. Before 8:30 am.
- 16/5/66 Three eggs. Before 8:30 am.
- 27/5/66 One young. Two eggs. Before 8:30 am.
- 28/5/66 Two young. One egg. Before 8:30 am.
- 29/5/66 Three young. Between 8:30 and 9:30 am.
- 3/6/66 All young absent from nest.
- 6/6/66 Nest destroyed by yard workers.

NEST 14

Location: Edmondson Hall roof.

- 9/5/66 Three young. One egg. One dead young beside nest.
- 10/5/66 All young dead. Egg unhatched.
- 28/5/66 One egg. Before 8:00 am.
- 29/5/66 Two eggs. Before 9:00 am.
- 30/5/66 Three eggs. Before 9:00 am.
- 31/5/66 Four eggs. Before 8:00 am.
- 12/6/66 One young. Three eggs. Before 8:00 am.
- 12/6/66 Two young. Two eggs. Between 8:00 and 12:00 am.
- 13/6/66 Three young. One egg. Before 8:00 am.
- 15/6/66 Three young. One egg.
- 25/6/66 Three young dead. Egg unhatched.

NEST 15

Location: George Hall, in palm tree.

- 19/5/66 Three eggs.
- 25/5/66 Young in nest but no further observations due to relative inaccessibility.

NEST 16

Location: Bilger Hall. Palm tree in front.

- 25/5/66 One young taken for hand-feeding.
- 12/9/66 Yellow around eyes appears.
- 15/11/66 Bird released.
- 16/11/66 Bird seen beside Bilger Hall.

NEST 17

Location: Traffic light, corner of University & Metcalf Sts.

- 13/6/66 Birds carrying nesting material.
- 25/6/66 Birds continue to try to build.
- 28/6/66 Birds absent.

NEST 18

Location: R.O.T.C. behind Bachman Hall, under the roof.

- 13/6/66 Adults carrying nesting material.
- 18/6/66 No eggs.
- 22/6/66 No eggs. Adults absent.

NEST 19

Location: Hollow of a tree behind Crawford Annex.

- 13/6/66 Four eggs.
- 25/6/66 One young. Others assumed dead.
- 17/7/66 Young fledged.

NEST 20

Location: Window of Stock Room of Pacific Biomedical Building, second floor.

- 28/6/66 Adults carrying material to an old nest.
- 1/7/66 One egg. Before 8:00 am.
- 2/7/66 Two eggs. Before 8:00 am.
- 3/7/66 Three eggs. Before 8:00 am.
- 4/7/66 Four eggs. Before 8:00 am.
- 14/7/66 One young. Three eggs. Before 8:00 am.
- 15/7/66 Two young. Two eggs. Before 8:00 am.
- 16/7/66 Three young. One egg. Before 8:00 am.
- 17/7/66 Four young.
- 20/7/66 Two smallest young absent.
- 1/8/66 Two young dead in nest. No relaying this season.
- 7/3/67 One egg. Before 8:00 am.
- 8/3/67 Two eggs. Before 8:00 am.
- 9/3/67 Three eggs. Before 8:00 am.
- 10/3/67 Four eggs. Before 8:00 am.
- 11/3/67 Five eggs. Before 8:00 am.

NEST 21

Location: Hemenway Hall, tree in front.

- 28/6/66 One young found on the ground beside a nest with one dead young. Taken for hand-feeding.
- 10/10/66 Yellow around eyes appears.
- 15/11/66 Bird released.
- 16/11/66 Bird seen beside Farrington Hall.

NEST 22

Location: Music Building, above the entrance facing Lower Campus Dr.

- 2/7/66 Two young taken for hand-feeding. Heavy mite infestation.
- 4/7/66 Both birds died.

NEST 23

Location: George Hall, in the fork of a tree.

- 2/7/66 One egg.
- 15/7/66 One egg unhatched.
- 30/7/66 One egg unhatched. Adults absent.

NEST 24

Location: Jefferson Hall, on the concrete beams over the entrance.

- 14/6/66 Adults seen carrying nesting material.
- 17/6/66 Nest is quite large but inaccessible

NEST 25

Location: Coconut tree at the corner of Webster Hall and the Pacific Biomedical Center.  
15/6/66 Adults seen carrying nesting material. Nest is inaccessible.

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FIELD NOTES: From Walter R. Donaghho - Mt. Kaua, Oahu

I went on an overnight trip up Mt. Kaua on the 10th and 11th of June with Bill Hay.

It was the first time in twenty-five years that I have been up the mountain. I found that the 'elepaio and 'amakihi were still common. There were a small group of bush warblers in the patch of rain forest crowning the summit, and also the small group of 'apapane that I had always seen there.

Bill has seen 'i'iwi in one of the valleys under the main peak on past trips, but we were not favored with any on this trip.

June 17: Palehua - Palikea, Oahu

Twenty-three mockingbirds were counted along the road up Palehua. This area is a paradise for them. Nowhere else have I found them so common. The black-headed mannikin is also spreading over the slopes of the Waianae, and I noticed small flocks by the roadside, one above the junction of the Palehua and Timerline Camp roads.

At the present time one is sure to see them in the fingergrass along the side of the road as it crosses the plain to the base of the mountains.

This area, along with the trail to the top of Palikea is a bird paradise, and it is possible to see both doves, both cardinals, house finch, black-headed mannikin, ricebird, mockingbird, pheasant, mynahs, red-billed leiothrix, bush warblers, the owl, 'elepaio, 'amakihi, 'apapane, 'i'iwi, if lucky, and also if lucky, Chinese thrush. In season one will also see the golden plover in the pastures, and the Japanese quail lives in the grassy fields.

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FOR JUNIOR MEMBERS:

Have you seen the article on the Laysan finch in the Honolulu Star-Bulletin, June 27, 1967, page A-7?

It said, "Honolulu Zoo director Jack Throp is celebrating the arrival of the Zoo's third baby Laysan finch this spring. 'These birds are so rare, this is an event,' he said yesterday.

"Two of the small yellow-and-brown songbirds were recently hatched in the zoo's Animalanai building. Throp discovered a third baby finch in the research section of the zoo early Monday morning.

"Twelve Laysan finches were brought here from isolated Laysan Island in April 1966....At that time no one knew if they would reproduce in captivity.

"The zoo is learning how Laysan finches feed their young, what they feed on, and their nesting behavior. Now there are three locally bred chicks, and two more eggs ready to hatch. But Throp is not complacent. 'Getting an egg is one thing. Raising a chick is another,' he said. The Laysan finch program will not be a success unless the baby finches born here grow to maturity."

Let's hope that the program will be a success, and he will be able to share his experiences with us very soon. In the meantime, visit the zoo and tell us about your discoveries by writing to Kojima.

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Are you watching your backyard birds?

Fort Shafter, July 3, 7:00 a.m.: Four Brazilian cardinals were busily chattering, so I looked toward them. A complete surprise--I saw not only two handsome cardinals with their young ones but also eight frigatebirds majestically gliding and soaring toward Waikiki. A beauty to behold: the yellow of the golden shower tree



was accentuated by the gray and red of the cardinals, and the delicate blue sky sprinkled with puffs of white clouds floating-by picked up a faster tempo by the occasional flapping of the frigates' wings.

You must have similar experiences that give you a wonderful feeling of well being. Please share them with other members by writing to Kojima, 725-A 8th Ave, Hon, Haw 96816.

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Excerpts from the minutes of the Hawaii Audubon Society, General Meeting, May 15, 1967...

Presiding officer while President Michael Ord is in Guam was Vice President Jack Throp....

Robert Pyle gave a report on the Society's field trip of May 14 to Palikea. It was very well attended, partly because Dr. Berger's Avian Biology class was there. By playing a tape recorder, Carl Frings was able to cause several Japanese bush warblers to sing and there was a fleeting flimpse of one. Another highlight was the sightings of at least three 'i'iwi on the trip. Carl Frings had recorded one on the previous day, and Patrick Conant reported seeing one within 20 feet, quite well. He also reported seeing a falcon. Other species seen were 'amakihi, 'apapane, 'elepaio, leiiothrix, pueo, and house finch. From the road coming up through the fields ring-necked pheasants and mockingbirds were seen.

Eugene Kridler gave a report on his recent visit to Patuxent Wildlife Refuge near Washington, D.C. to see their program on rare and endangered species. In the study they are raising artificially a whooping crane, sandhill cranes, Andean condors and South American kites that are very similar to the Everglades kite of Florida....

Jack Throp told us about some very interesting things that are going on at his Honolulu Zoo. The Zoo has some Laysan finches, a Drepanid endemic to Laysan Island. The finches raised one new bird last year, and two young are off the nest so far this year, and three more eggs are in the nest. The Zoo is in the process of obtaining a baby gorilla from Sweitzer's Compound with the help of Dr. David Miller. They are also planning to import wild dogs from Australia in order to study the origins of the Ploynesian poi dog. Jack told us a delightful story about the nesting of a pair of wild firefinches in a coconut hat hanging by the back door of his home at the Zoo. He also told us about some new acquisitions at the Zoo, and Egyptian sacred ibis from the Philippines, a pair of red-breasted geese from northern Europe and a pair of emperor geese. From the Portland Zoo have come six cackling geese and six white-fronted geese.

Walter Donaghho reported seeing tame red-footed boobies nesting at the Sea Life Park. Dr. John Hendrickson added that the pair made a nest, laid an egg, then the egg disappeared and the pair of birds abandoned the nest.

Jack Throp then introduced Dr. Hendrickson, who is the Director of the Oceanic Institute, which is located next to the Sea Life Park. He showed us slides of the Galapagos Island turtle and iguanas, then answered many questions on the behavior of these reptiles....

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#### AUGUST ACTIVITIES:

August 13 - Field trip to Manana to study seabirds. Trip will be limited to Society members. Boat fare is estimated at \$3.00. Meet at the Library of Hawaii at 8:00 a.m. Leader: Dr. Robert L. Pyle, telephone 265-379 for reservations.

August 14 - No board meeting.

August 21 - General meeting at the Waikiki Aquarium Auditorium at 7:30 p.m. Speaker: Robert N. Walters, Mgr Ophthalmic Div, American Optical us. Company will show NATURE REMAINS, a colored movies about the world around/

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#### HAWAII AUDUBON SOCIETY EXECUTIVE BOARD:

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