

of 0.509, and of eggs fledging of 0.283. In this group, the probability that nestlings would fledge was 0.557.

The recruitment probabilities are strikingly similar in the two flocks, even though one was observed only during the spring months whereas the other was observed for more than a year. Indeed, a test of the difference between the probabilities of hatching of the two flocks showed the difference to be not statistically significant.

It has been mentioned above that the ventilating tower station on the hospital grounds was not subject to the extremes of outdoor temperatures, and it might be assumed that this would have an effect on the survival probabilities at this station. However, a tally of the nests at this station showed that of 111 eggs, 59 hatched and 33 subsequently fledged, which give probabilities of hatching and fledging of 0.531 and 0.297 respectively, very close to those mentioned above.

Since the two flocks were by and large very similar, the data were combined for the following estimate of survival of young pigeons in Baltimore, Maryland:

Number of nests in survey	234
Number of eggs	445
Number of eggs hatching	234
Number of nestlings subsequently fledging	130
Probability that eggs would hatch	0.526
Probability that eggs would survive to fledge	0.292
Probability that nestlings would fledge	0.556

It is hoped that the above information will add to the fund of basic information needed to analyse more intelligently the factors of survival and mortality in birds. The author is indebted to the staff of the Vertebrate Ecology Division of the Johns Hopkins School of Hygiene and Public Health, and in particular to Mr. Phillip Ottenritter, for help in making the observations from December 29, 1951, to May 24, 1952.—MARTIN W. SCHEIN, *U. S. Department of Agriculture, Jeanerette, Louisiana.*

A Captive Gannet.—On September 22, 1952, my son Stephen brought home a Gannet (*Moris bassana*) that he had found unable to fly and swimming just beyond the surf-line of Galveston Island. It was one of the few examples of this species ever secured in Texas. I kept it in my garage for three weeks and then released it on Galveston Island. Since observations on Gannets at close quarters are not common, the following notes may be of interest:

Parasites.—The bird was heavily infested with lice. I dusted it with a pyrethrum-base insecticide, and the lice fell off in great numbers within a few minutes. No louse was seen on it afterward. Mr. John Simmons, Department of Biology, the Rice Institute, identified some I collected as *Pectinopygus bassani* (17 specimens) and *Menopon* sp. (8 specimens).

Plumage and molt.—The plumage succession of young Gannets is very complex, and I did not find the plumage phase of this bird described in any of the usual authorities. The back and wings were entirely dark brown, as were the tail feathers, except at the base. The underparts were dirty white except for a broad, indistinct dark band around the lower neck or upper breast. The top of the head was white flecked with black. The tertials on both wings had evidently been molted and not replaced, and the very distinct gap left in the wing surface next the body probably accounted for the bird's inability to fly. These tertials had grown back almost to normal length within three weeks. The iris (which also changes color with age) was gray-blue.

Feeding behavior.—For the first three or four days it was force-fed with strips of codfish or ocean-perch steaks bought frozen and thawed out. The bird resisted

violently and would cast the meat from its beak unless it was shoved far back in the throat. Once, on the fourth day, when I had not had time to feed it in the morning and it had been without food for eighteen hours, it voluntarily seized from my hand two strips of codfish meat. The next day I bought frozen whiting, scaled and headless, but otherwise whole, with fins and tail still attached. Having thawed them out in warm water, I held one up before the Gannet. Apparently it immediately recognized the object as a fish, for it began squawking excitedly, flapping its wings, opening its beak wide, and trying to seize the fish from my hand. It seems incredible that a fish presented in such circumstances could be recognized, but no other interpretation seems possible. The bird would still refuse codfish strips, and when a whiting was sliced in two longitudinally, the bird would usually refuse it; or if in haste it did seize the piece, it would sling it from its beak. The bird would swallow fish two and one-half inches in diameter and a foot long; they usually went down head-first, but when the bird was almost replete, it would flip the fish around and swallow it down tail-first. After eating, the bird would always stand and shiver a few minutes, and drops of moisture would drool from the tip of the beak. The bird was offered both fresh and salt water in a pan, and the beak was forced into it, but the water was slung off violently. After the first few days water was no longer offered; the bird drank not a drop in three weeks.

Intelligence.—The bird displayed an unexpected capacity to learn. Within ten days it was recognizing me as its feeder, and would beg (with half-opened, flapping wings, neck extended, and open beak) from me, but never from other members of the family. When it was not taking food from my hand, it would savagely attack me or any other person who came within three or four feet, and on more than one occasion it inflicted painful wounds. But if several people came at once to observe the bird, it always showed fear and tried to retreat. The garage where the bird was kept is connected to the house, with a doorway leading from a pantry to the garage. I usually fed the bird through this doorway; and at any time of the day or night when I rattled the lock of this door, I could hear the bird beyond the door shuffling fast across the newspapers spread on the floor. Clearly it had learned to associate the rattling of the lock with food. It quickly made another association. In order to move or handle the bird without damage to myself, I would drop over its head a cloth that I kept handy for that purpose. Within a week the bird learned to fear the cloth and to retreat whenever I approached with it. Without the cloth, I was attacked if I came near without food. Apparently the bird could see in the dark better than I could; but when I switched on the bright electric lamp in the garage, the bird would stand dazed for about five seconds before it would seize a proffered fish.

Behavior on release.—When set down on the beach near the surf, the bird paid no attention to the water but continued to fight the three of us who had released it. When it was finally shoved into the water, it slowly waded out until it was swimming. It then fluffed itself, flapped its wings, threw spray on itself with its wings, and repeatedly dipped its whole head and neck under the water (but it still did not seem to drink). After a few minutes it tried to fly; but unfortunately a dead calm prevailed that day, and the bird could never become airborne. It swam out about five hundred yards into the Gulf and remained there until we left, half an hour later. I looked for it carefully the next week but never saw it again.—GEORGE G. WILLIAMS, *The Rice Institute, Houston, Texas.*