	Calypte costae	*Hybrid*	*Selasphorus platycercus*
Length of wing	45.5 mm.	48.3 mm.	49.2 mm.
Width of outer primary 10 mm. from tip	3.2 mm.	2.4 mm.	1.5 mm.
Shape of tip of outer primary	rounded	attenuated	pointed
Length of tail	22.0 mm.	28.1 mm.	32.2 mm.
Width of outer tail feather 10 mm. from tip	1.5 mm.	2.9 mm.	5.2 mm.
Width of second tail feather 10 mm. from tip	4.1 mm.	4.5 mm.	6.1 mm.

The color of the underside of the second tail feather shows an interesting combination of the two parental lines, but not a blend. The distal half of this feather, though lacking the white tip, is otherwise colored much like the corresponding feather of *S. platycercus;* the basal section shows primarily *C. costae* influence.

The bird was collected in the conifer belt and within the Transition Zone as it is known in Arizona. In this zone *Selasphorus platycercus* breeds sparingly. On the other hand, *Calypte costae* breeds in the two Sonoran zones which are below the conifer belt, but ascends into higher associations after it has nested. The hybrid was presumably a product of parents that has lived in the intermingling borderline section. Being more than a year old, it had probably returned to the general region where it had been raised. At any rate, the date of capture, the locality, and the unique characters of this hybrid add a mite to our knowledge of these brilliant little birds, for which southern Arizona is the outstanding area in the United States.—LAURENCE M. HUEY, *San Diego Society of Natural History, Balboa Park, San Diego, California.*

Observations on interspecific sexual behavior between a chicken and a pigeon.—For the past year, observations have been made on the social behavior of a number of species of birds kept in a former greenhouse adjoining the biological laboratories of Wabash College, at Crawfordsville, Indiana. The greenhouse is heated by air blown in from a nearby animal room.

The present observations were made in the early afternoon of March 9, 1944. The day was fair and warm, with the sun shining. The temperature in the greenhouse was between 65 and 70 degrees F., a marked increase over the temperatures of the past week.

While several hens, a male chick, and a pigeon were being fed and watered, the pigeon and one of the hens were seen at a feeding tray apart from the other birds. The first unusual behavior which caught the attention of the observer was a loud and continued cooing note from the pigeon. This peculiar type of vocalization had not been heard from this bird recently. The pigeon approached the hen as the latter began to feed, and pecked vigorously at the head of the larger bird. At first sight, this behavior appeared aggressive, as if the pigeon were defending the territory around the feeding tray. However, when the behavior was repeated several times, it was evident that it was sexual.

The pigeon continued its pecking and cooing. The bird would rapidly walk up to the hen, peck at the auricular region of the latter, then thrust its small head completely under the feathers of the hen. With its head thus buried beneath the plumage of the wings, sides, or flanks of the hen, the pigeon appeared to move its head about, pecking continuously. The hen fluffed up her feathers, and seemed to enjoy the procedure.

Another action of the pigeon at this time was an occasional strong flapping of

the wings. Several times the hen was struck on the side of the head by the beating wings of the smaller bird. The pigeon did not fly during the period of observation, although several times a type of hopping dance was performed before the hen. All these actions suggested male courtship behavior.

One of the interesting points about this behavior was the attitude of the hen to the advances of the pigeon. During an observation period of at least thirty minutes, the pigeon repeated this characteristic behavior eight or ten different times. The hen showed two different reactions. Either she walked away, followed rapidly by the pigeon, pecking at her head, or she stood quietly and allowed the pigeon to carry on its pecking and head-burying technique with apparent indifference or, perhaps, pleasure. The change in the typical behavior of these two birds was impressive: the calm pigeon was aggressive and active, while the hen became docile and submissive. This is a good example of the effects of the sexual hormones on behavior.

When one realizes that these birds are only distantly related, being classified in separate orders, the behavior described becomes even more interesting. Yet the full significance of the relationship can not be appreciated unless one is familiar with the earlier story of these individual birds.

The pigeon was obtained in September of last year (1943) as a young bird that had fallen from its nest. Its sex was not known, although it is now assumed to be a male. This bird lived for several weeks with a number of adult Bob-whites and some chickens kept in the greenhouse. During this period the pigeon learned to fly.

Two White Austral chicks, about two weeks of age, were placed in the greenhouse with the other birds in September. An unusual relation was soon established between the pigeon and the two chicks. The former bird acted for a long period of time as a foster mother to the two young birds. The three birds remained in close contact at all times. Often the chicks pushed their way under the pigeon; the latter offered no resistance to this act. To all appearances, the pigeon took the place of a brooding mother hen. The chicks also approached the quail, but those active, nervous birds would have nothing to do with them. A close social unit was established among these three birds, and even today, about seven months later, they are always together, act as a group, and often keep apart from other birds. Kodachrome motion pictures were taken of this unusual social group.

This interspecific relation caused several changes in the social behavior of the pigeon. For a period of many weeks, until the chickens were large enough to perch off the ground, the pigeon rarely flew, although perfectly capable of so doing. The few occasions on which flight was observed were instances of great alarm. The pigeon was also observed to defend "her" chicks by pecking vigorously at quail entering a territory which the three birds often occupied. In fact, that portion of the greenhouse was so often occupied by the pigeon and the two chicks that it was designated "pigeon corner."

No fighting has ever been observed among these three birds. Yet, when other birds have been introduced into the greenhouse, peck-orders have usually been established, especially among the chickens. One of these two chicks, now about seven months of age, is the hen whose attitude toward the sexual behavior of her foster parent, the pigeon, has been described in these notes.

The morning after this behavior was noted, the first egg of the season was laid in the greenhouse. It would be of interest to prove that the sexual behavior of

the pigeon may have stimulated the hen to lay an egg, but this is not definitely known as there was another hen present at the time.

No other sexual behavior on the part of the pigeon has been noted in the past week (preceding March 15).—HOWARD H. VOGEL, JR., *Wabash College, Crawfordsville, Indiana.*

Greater Snow Geese near Quebec in 1634.—Absolute proof has been lacking that the Greater Snow Goose (*Chen hyperborea atlantica*) had, before about 1870, been seen on the migratory feeding grounds in the area covered by Cap Tourmente, Ile aux Oies, Ile aux Grues, La Batture aux Loup-Marins and vicinity about thirty miles east of Quebec, although there is recorded and traditional evidence of the presence there of 'oyes,' 'oies,' 'oies sauvage,' 'oies blanches et grises,' and 'oies blanches.'

Although the French word 'oie' is used to mean 'Snow Goose' in the area near Quebec frequented by the Greater Snow Goose, it actually means 'goose,' so there is reason to believe that 'oie sauvage' might mean 'wild goose' of any kind. 'Oies blanches' means 'white geese' and, unless tame white geese are meant, must refer to Snow Geese.

Most conclusive evidence of the presence in the Cap Tourmente area of Snow Geese is found in the report of Père Paul Le Jeune in 'Les Relations des Jesuits' for the year 1634, the original and translation of which are contained in The Champlain Society Edition, edited by R. G. Thwaites, Cleveland, The Burrows Co., 7: 73–79, 1896. Père Le Jeune gives a detailed account of a trip he made with twenty Montagnais Indians, among whom were a Sorcerer, an Apostate, and women and children, to spend the winter with them in the country east of Quebec on the south shore of the St. Lawrence River.

At 10:00 A. M., October 18, 1634, the party set sail from Quebec and passed the Island of Orleans to an island known by the Indians as 'Ca Ouhascoumagakha.' While some of the party were out securing game for supper and the women were erecting the shelter, the Apostate returned to the boat and drank so much of the keg of wine which Père Le Jeune had consented to include among the supplies with the promise it would be used only with his consent, that he became raving drunk, broke down the shelter, tipped over the supper kettle, and threatened the life of Père Le Jeune, until he was finally subdued. Père Le Jeune retired at some distance to pass the night.

In the morning (Oct. 19, 1634), the tide fell sooner than expected and it was necessary to await the evening for arrival at midnight at the Island of Ouapascounagate.

The original text of the Jesuit Relations reads:—

> "Le lendemain (Oct. 20, 1634) nous quittasmes cette
> Isle pour entrer dans une autre appellee Ca Chibariouachcate.
> Nous la pourrions nommer L'Isle aux Oyes blanches, car
> il y en vis plus de mille en une bande."

The R. G. Thwaites Edition (7: 79) gives the above French text and the following translation:

"The next day we left this Island to go to another one called Ca Chibariouachcate; we might have called it the Island of the White Geese, for I saw there more than a thousand of them in one flock."

The translation continues: