canopy of the climax forest in the East, and by the great stretches of grassland to the west. In the East the opening of the forest canopy by agriculture, logging and burning, and in the western grasslands the planting of trees, coupled with cessation of burning, converted great areas into potential Indigo Bunting habitat. This species has apparently responded to these changes with a great increase in population and extension of range, so that it has now invaded areas formerly occupied exclusively by its western representative, the Lazuli Bunting. A population increase may result in a genetically more varied population, with potentially greater adaptability, and this may partially explain the current success of the Indigo Bunting in extending its range. The Indigo Bunting apparently exhibits more aggressiveness than the Lazuli Bunting, which seems to have undergone no spectacular population increase in the relatively less disturbed region west of the Great Plains.—PHILIP V. WELLS, *Department of Botany, Duke University, Durham, North Carolina.*

An Observation of Luminosity in Marine Birds.—It is well recognized that birds and mammals do not produce light (*cf.* E. N. Harvey, "Bioluminescence," Academic Press, Inc., N. Y. 1952). However, there are some rare instances whereby birds become secondarily luminous. W. L. McAtee (Amer. Midl. Nat. 38: 297–213, 1947) reviewed this subject and came to the conclusion that two general instances of luminous birds have been reported by creditable observers. Various owls that live and nest in hollow trees become luminous due to fungi of rotting wood adhering to their feathers. Luminous spots on the breasts of various herons have been widely reported, but the cause is unknown. In the present note the writer records an instance where marine birds became luminous from contact with light producing organisms of the sea.

On the evening of September 26, 1957, the "Hermes," of the Gulf Coast Research Laboratory, lay at anchor in Mississippi Sound, just off Ship Island Lagoon. Many birds, including Royal Terns (*Thalasseus maximus*) and Least Terns (*Sterna albifrons*), were in the vicinity, often resting in large groups along the sand beach. As twilight faded into black night, a squall line that had threatened most of the day struck in full force. Heavy raindrops, driven by howling winds that shifted from easterly to south and back again, pounded the surface of the water to a white sheet. Single drops seen through a porthole as they struck the surface appeared as tiny explosions of light. Occasional white caps, whipped up even in the sheltered water of our anchorage, were racing splashes of luminescence. Then, as the rain slacked momentarily, formless spots of pale light drifted through the outer limit of visibility, completely evading all sense of distance. They brought to mind old sea stories of St. Elmo's fire playing about the masts of sailing ships and tales of the will-o'-the-wisp.

Shortly thereafter, a bird, clearly visible and brightly luminescent, flew into the wind close aboard. The entire form of the bird glowed with a clear, steady light. The movements of the wings were easily observed. This phenomenon, observed by Louis Beaugez and the writer, was repeated many times. At least two species were clearly present. One was about the size of the Royal Tern and the other approximately the size of the Least Tern. It seems likely that some of the light producing organisms from the water stuck to the feathers of birds disturbed by the weather.

None of the commercial fishermen and biologists later questioned reported that they had ever seen similar phenomena. Henry Nash, a commercial fisherman of many years experience, reported that the wing tips of night-flying Black Skimmers (*Rynchops nigra*) sometimes become luminous.—J. Y. CHRISTMAS, *Gulf Coast Research Laboratory, Ocean Springs, Mississippi.*