GENERAL NOTES

Replaced primaries in first nuptial plumage of Passerina cyanea.—Dwight pointed out (1900, p. 211 *et seq.*) long ago that the Indigo Bunting replaces some outer primaries at the postjuvenal molt. These replaced primaries (in the male) have blue outer vanes contrasting sharply with the blackish outer vanes of the juvenal primaries, except that primary 9 has a black outer vane in each plumage, that is, juvenal and first winter. I have noted the number of replaced primaries in 17 males in first nuptial plumage. This plumage is easily identified by other characters given by Dwight. He does not go beyond saying that 5 or 6 primaries are replaced.

I find all the birds had replaced primaries 6 to 9, of those 13 (76%) had also replaced primary 5 and of these latter 5 (62%) had replaced primary 4.

The statistical situation is interesting. Regard the percentages having replaced 4, 5, or 6 primaries respectively, namely 23, 47, 29. This suggests the Bernouilli (polynomial) distribution, which is an appropriate distribution where a variable may take only a small number of *integral* values. In the present case the chi-square test shows that the odds are slightly in favor of the observed values differing from the Bernouilli distribution (25, 50, 25) only by chance. It can be shown (see *e.g.* Moroney 1951, p. 127) that the Bernouilli distribution is a first approximation to the Gaussian (normal) distribution.

If we adopt the view of the previous paragraph, we can estimate the percentage of first-year males which may replace either three or seven primaries. The pertinent Bernouilli distribution is the coefficients of the expansion of $(a + b)^4$. We now compute a standard deviation as though this was a Gaussian distribution and find the corresponding Gaussian ordinates. As would be expected, the two distributions are very similar as Table I shows. On the average just under one bird in 17 should replace either three or seven primaries.

TABLE 1. COMPARISON OF BERNOUILLI AND GAUSSIAN DISTRIBUTIONS FOR REPLACEMENT OF THREE TO SEVEN PRIMARIES

No. primaries replaced	Cases per 100 birds	
	Bernouilli	Gaussian
3 or 7	6	5.4
4 or 6	25	24.3
5	37	40.0

REFERENCES

DWIGHT, JONATHAN, JR. 1900. The sequence of plumages and moults of the passerine birds of New York. *An. N. Y. Acad. Sci.*, **13:** 73-360, illus.

MORONEY, M. J. 1951. Facts from Figures. Pelican, ix + 472, illus.

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Some Early Applications for Bird Collecting in Massachusetts.—Between the years 1882-1889, Frederic Ward Putnam served on the Commission of Inland Fish and Game in the State of Massachusetts. During that time he made arrangements for a number of permits for the collection of wildlife granted by this state agency. In making a study of the papers of Dr. Putnam, I have encountered a number of applications for collecting birds for scientific purposes. One received from Arthur Cleveland Bent has already been published (*Bird-Banding* **35:** 121-122. 1964). Several others of special interest are given here.

Spencer Fullerton Baird, Secretary of the Smithsonian Institution at Washington, D. C., wrote to Putnam 21 January 1887, cautioning him against granting an excessive number of permits in areas where harm might result to the breeding birds, "I should think the fewer of such licences that are given out the better, particularly in the vicinity of the islands of Vineyard Sound, where the gulls and terns have been in the habit of breeding." On 10 June 1887 the Reverend T. S. Smith of Northampton, Massachusetts, wrote to Putnam, "I am a missionary of the American Board to Ceylon. I am in this country on furlough and am anxious