Radiosensitivity of Song Sparrows and Slate-colored Juncos.—The effects of ionizing radiation have been studied on few species of birds. This report adds data about the sensitivity of two species of North American Fringillidae to the lethal effects of exposure to X-ray.

Song Sparrows (*Melospiza melodia*) and Slate-colored Juncos (*Junco hyemalis*) trapped wild near Ithaca, N. Y. were the main subjects of the study. They were obtained by intermittent trapping from mid-March to late April, 1964. The birds were maintained in outdoor, sand-floored, wire cages measuring 6 feet by 9 feet by 6 feet high. Corrugated aluminum sides, ends and top protected one-third of each cage. Cracked corn, cracked wheat, and water were provided at all times with some "wild-bird seed" added most of the time. Confinement of one to six weeks preceded irradiation, usually with groups of 20 or less per cage.

For irradiation the birds were transported in large cloth bags to the Large Animal

TABLE 1
MORTALITY DATA

Day of death post-irradiation	Song Sparrow		Slate-colored Junco	
	800r	1000r	800r	1000r
3	2 males soiled vent 1 female soiled vent 1 female no symptom	1 no observation 1 male soiled vent		
4	1 male soiled vent pale liver 1 male soiled vent			
5		1 female no symptom		
6		1 male soiled vent 1 no observation		
7		1 no observation		
8				1 female liver pale internal bleeding, clots
9	1 female liver pale gut enlarged, flaccid			
10			1 male large clot in neck, many coelomic nematodes	2 females liver pale 1 with internal clots 1 gut enlarged, flaccid
11		1 no observation	1 female no symptoms	1 male liver pale gut enlarged few coelomic nematodes
12		3 no observations		
13		1 no observation		1 female liver pale
18				1 male liver pale

Clinic of the New York State College of Veterinary Medicine where they were restrained in cloth baby socks which were pinned to a wooden table. Radiation was from a Picker Vanguard X-ray machine (280 Kvp, 20 ma, HVL 1.5mm copper). A dose rate of 90 roentgens/minute was measured in air with a Victoreen r-meter (a thimble ionization chamber). Immediately following exposure to 800r or 1000r the birds were removed from the socks and transported in the bags back to the cages. The total time from cage to return ranged from 40 to 75 minutes.

As a preliminary experiment two juncos, a Tree Sparrow (*Spizella arborea*), and a Fox Sparrow (*Passerella iliaca*) were given a dose of 1000r. The Fox Sparrow died on the third day and a junco on the thirteenth day. On the basis of these results 14 Song Sparrows were given a dose of 1000r and another 14 sparrows were given 800r. Of the 14 given 1000r, 11 were dead within 30 days following irradiation. Seven of the 14 given 800r died within 30 days. Of the five birds kept as controls and handled exactly the same (except that while in the socks they were not irradiated), one died on the eleventh day of the experiment. It showed no obvious cause of death.

Eight juncos were exposed to 1000r and another group of eight to 800r. Six of the 1000r group died within 30 days, while only two of the 800r group died in the same period.

Because of the limited numbers of birds involved, these data must be considered as no more than suggestive. The $LD_{50/30}$ (dosage producing death to 50 per cent of test birds within 30 days) for the sparrows is about 800r and for the juncos about 900r as indicated by a logarithmic probability plot. Table 1 summarizes the times of death and some observations of possible causes of death. For various reasons circumstances were unfavorable for examination of some specimens for determination of sex and possible causes of death. The "soiled vent" term in the table refers to discolored feathers around the vent, presumably caused by diarrhea. In several autopsies the "soiled vent" was found associated with gut abnormalities. In a limited supplementary study it was found that the "pale liver" condition was associated with a low red blood cell count. From the earlier deaths and the greater incidence of apparent diarrhea, there is the indication that the gastrointestinal tract of the Song Sparrow may be more sensitive to the irradiation than that of the junco.

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