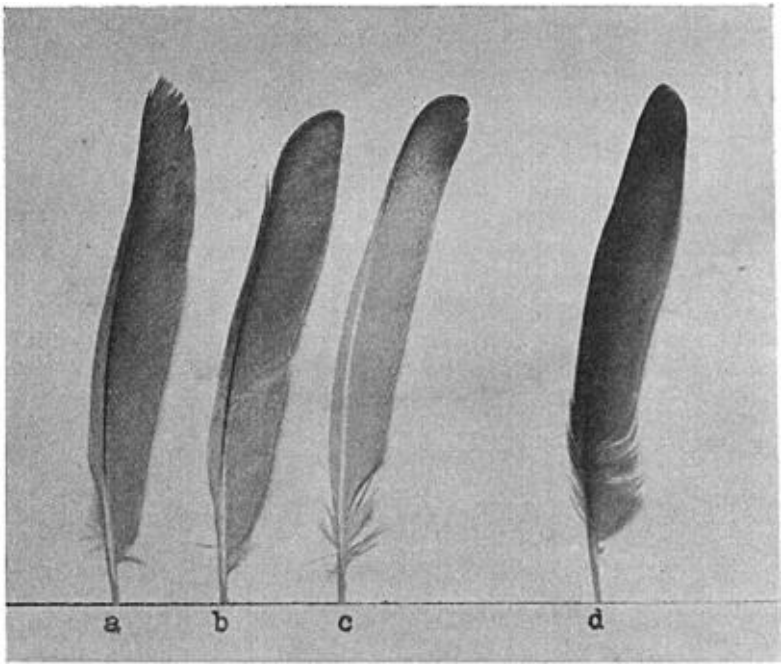

Fig. 25. Feathers a, b, and c are successive albinistic right fourth primaries from a female House Finch; d is a normal right fourth primary from another female House Finch.

particular interference with the normal pattern. In the extreme this may bring about the complete obliteration of the pattern by all the feathers being white, and, perhaps, it is in these extreme cases that the pigmentation of the eyes disappears. We have not observed diminished eye pigmentation except in the California Jays described above, which fall within this class because of their paler plumage. The second type of albinism is that in which one or more spots of white appear where the color is normally other than white, these spots ranging from a part of a single feather to the entire plumage. When these spots occur on the wings they are usually almost bilaterally symmetrical. The feet, legs and beak may also be light. In the birds we have captured, this type of albinism seems to occur much more frequently than the first.

Pasadena, California, January 5, 1936.

FOOD OF THE COMMON MALLARD IN THE LOWER FRASER VALLEY, BRITISH COLUMBIA

By J. A. MUNRO

The question of the food supply of waterfowl in British Columbia is one which increasingly is engaging the attention of sportsmen, particularly those who are interested in hunting grounds in the Lower Fraser Valley. That the natural food resources are insufficient to meet the requirements of wintering ducks is an assumption generally accepted. So also is the corollary that the propagation of plant foods, such as wild rice, is desirable.

It is not the intention to discuss the merits of introducing plant foods in British Columbia or, at this time, to question the widely held view that the supply of native plant foods is inadequate. Before doing so it would seem necessary to enquire into the local feeding habits of the more valuable duck species in order to understand their food preferences, and later to undertake food resource surveys on the wintering grounds.

In connection with the first requirement some data pertaining to the Mallard (*Anas platyrhynchos*), the most abundant of the surface-feeding ducks wintering in the Lower Fraser Valley, are now available. Through the co-operation of the British Columbia Game Commission and the Vancouver Angling and Game Association the stomachs of ninety mallards, taken in this district in the last two weeks of November, 1935, were acquired. The following summarizes the results of an examination of the stomach contents of these specimens.

STOMACH CONTENTS OF 90 MALLARDS, LOWER FRASER VALLEY, NOVEMBER, 1934

21 contained 90 to 100% fragments of grass leaves representing several species.
27 contained 90 to 100% wild oats.
12 contained 90 to 100% seeds other than wild oats.
1 contained pieces of equisetum.
1 contained shred of fish probably salmon.

Species of seeds taken		Number of times found
Cat-tail	Typha latifolia	1
Bur-reed	Sparganium sp.	38
Pondweeds	Potamogeton heterophyllus	1
	Potamogeton (pusillus?)	1
	Potamogeton foliosus	25
Sago pondweed	Potamogeton pectinatus	6
Horned pondweed	Ceratophyllum demersum	2
Barnyard grass	Echinochloa crusgalli	2
Wild oat	Avena fatua	41
Sedge	Carex sp.	5
	Carex (exsiccata?)	4
Bulrush	Scirpus (americanus?)	1
	Scirpus (occidentalis?)	19
Spike rush	Eleocharis palustris	12
Bindweed	Polygonum convolvulus	19
Knotweed	Polygonum aviculare	1
Knotweed	Polygonum muhlenberghii (or amphibium)	9
	Polygonum lapathifolium	30
Smartweed	Polygonum (hydropiper?)	2
Water smartweed	Polygonum (acre?)	2
Lady's thumb	Polygonum persicaria	5
Wild water pepper	Polygonum (hydropiperoides ?)	10
Goosefoot	Chenopodium sp.	4
Orach	Atriplex sp.	1
Penny cress	Thlaspi arvense	4
Ball mustard	Nestia paniculata	3
Rose	Rosa sp.	1
Dogwood	Cornus (occidentalis ?)	1
Mint	Labiatae	3
Bedstraw	Callium sp.	1
Wheat	Triticum vulgare	12

It is of interest to record that eleven of these mallard stomachs (or 12.2% of the

total number) contained lead shot, unfortunately the bodies of these birds were not available for examination, so that no information regarding their physical condition was obtained. In this connection it should be mentioned that three mallards, each with shot in the gizzard, taken at Pitt Meadows, December 16, 1923, were fat and apparently in normal condition. In two, the shot pellets were considerably abraded, indicating that the birds had been subjected to the poisonous effect of the lead for some time. It would seem then that Mallards may develop a resistance to lead poisoning when only a small quantity of shot is ingested.

Grateful acknowledgment is made to the Bureau of Biological Survey, Washington, D. C., for valuable assistance in the identification of seeds.

Okanagan Landing, B. C., March 6, 1936.

COLORATION OF DOWNY YOUNG BIRDS AND OF NEST LININGS

By JEAN M. LINSDALE

On a field trip to western Nevada in 1927, my attention was attracted to the strikingly whitish linings in several nests of Black-throated Sparrows. The observation so impressed me that I began to wonder if this feature might not have some special significance in the lives of the birds. Next I noticed that the down of nestlings of this species exhibited a similar whitish appearance, and this aroused the idea that both these peculiarities might be responses to some single item in the environment of the bird. When opportunity came, in 1930, to make more careful study of Great Basin birds, at a locality in central Nevada, particular attention was directed to this phase of bird life.

For as many as possible of the passerine species of birds found nesting in the Toyabe Mountains region, I recorded the prevailing color of nest lining and the color of the down on the nestlings. Also for each species it proved pertinent to consider the nature of the usual nest site—whether hidden in a protected place, partly screened, or completely exposed. Another trait of each bird, given consideration, was whether it was northern or southern in its general distribution.

Finally, it became apparent that coloration of down on nestling birds and of the lining of their nests is evidence, in each kind, of an intimate relation to the physical environment. This is separate from any responses which these characters may show to biotic influences such as would be revealed by examples of concealing coloration. Aside from recognition of its existence I am not here concerned with this latter phase of the life of a bird. I wish, rather, to direct attention to the general nature of the adaptive response made in structure and habits to one environmental factor—the heat which comes in sunlight.

It is generally supposed that young birds have a narrower range of toleration to extremes of their physical surroundings than have adults. At least they are less able to escape unfavorable conditions than are their parents. It would not be surprising then to find that special devices have resulted which tend to allay the harmful effects of extremes of heat or cold during this early stage. In this connection, see Kendeigh's "The rôle of environment in the life of birds" (Ecol. Mon., vol. 4, 1934, pp. 299-417). It seems obvious that if the devices here described are really effective in protecting young birds from harmful conditions, they may be among the means by which birds are segregated into different kinds of habitat or even larger units of distribution. Thus, two species may live in two different climates because of differ-