

Observations on Colour-Change in the Male Reed-Bunting (*Emberiza s. schoeniclus* (L.)).

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(From The Zoological Gardens of Copenhagen).

(Med et dansk resumé: lagttagelser af farveskiftet hos Rørspurvehannen (*Emberiza s. schoeniclus* (L.)).

Like HEINROTH I have observed the development of the Reed-Bunting (*Emberiza s. schoeniclus* (L.)) from young to adult in the Zoological Gardens of Copenhagen. During the last few years four Reed-Buntings, taken a few days before leaving the nest, were reared by hand. They were about 8 days old, and the juvenile plumage — their first true feathers — was developing. Wings and tail were not yet fully grown. I followed the colour-change in the males, and my attention was called to the diverging opinions regarding the colour-change of the head in the male in spring. E. STRESEMANN (1920, p. 52) thus holds, on the basis of males secured in the breeding season, that this colour-change is due to abrasion which makes the pale tips of the feathers come off with the result that the colours of the basal parts of the feathers become visible. He finds no reason for ascribing the colour-change of the head to a partial moult as does WITHERBY (1916, p. 245). STRESEMANN says, however, that a moult of the lores is likely, but he is not able to prove it. Also NIETHAMMER (1937, p. 139) and O. HEINROTH (1928, p. 193) are of the same opinion. HEINROTH gives the following comment on WITHERBY's explanation: "Im allgemeinen kommt jedoch bei den Vögeln insgemein eine Teilmauser, die sich nur auf ganz bestimmte Körperstellen beschränkt, so leicht nicht vor". He was not able to make observations on the Reed Buntings which he had reared, as they either died too early or were females. WITHERBY (1916, p. 245; 1938, p. 142) came to the result that the colour-change was partly due to abrasion, partly to moulting.

The young Reed Buntings in the Zoological Gardens were reared in the years 1945 and 1946. In their first juvenile plumage they were like the adult female. By the end of Au-

gust and in September a moult took place, and they got a plumage like that of the adult male. Simultaneously with the moult of the body feathers in the young birds an adult male underwent a total moult. The moult of remiges and rectrices occurred in the usual way as mentioned by HEINROTH (1923, p. 113).



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Fig. 1. Male Reed-Bunting in second winter-plumage (24. 1. 1947). Moulting on head not yet commenced, and only a few feather-edges of head have disappeared by abrasion.

Rørspurv han i anden vinterdragt (24. 1. 1947). Farveskiftet på hovedet er kun lige begyndt og fældningen endnu ikke.

Every year the young as well as the old birds began to change the colour of the head in February, and this colour-change continued until the beginning of May. The progress of the colour-change was frequently checked by taking the birds out of the cage. But a glance at them in the aviary was sufficient to show that an abrasion as well as a moult had taken place. It is a well known fact that an abrasion is not completed in captivity, either in cages or in aviaries. Birds changing their colours in spring by abrasion are, therefore,

rarely fully-coloured; the male Redstart (*Phoenicurus phoenicurus*) retains parts of the pale tips of the feathers also in summer, while those of the free-living birds are lost. The Reed-Bunting changed the colour of the frontal part of the head at places where the real moult had taken place, while the rest of the head more or less changed colour at a later date, but only by abrasion; no real moult took place here. In the free-living Reed-Bunting the opposite is the case: a great deal of the tips of feathers have been lost when moulting begins.

Moulting was observed on the upper side of the head near the beak, the upper part of the throat just below the bill, on lores, the upper part of the malar stripes and the ring of feathers round the eyelid and on the ear-coverts. The rest of the upper side of the head, the hind neck, the white ring round the neck and the rest of the throat did not undergo any moult, only abrasion took place. In those parts of the head where a moult occurred the feathers are not deeply coloured on the basal parts and have paler tips, so there is no colour-change by abrasion. In the winter plumage the feathers of the upper throat, forehead, lores and ear-coverts are greyish-brown, the malar stripe is not pure white, but dirty yellowish-white, and the small feathers on the ring round the eyelids and the lores are brownish. This is the case in the young as well as in the old birds, but the young birds have longer pale tips in the winter-plumage. Besides, the feathers in the parts where a moult occurred later on were less black than in the old birds. In the parts where a moult took place subsequently some of the old feathers remained. Simultaneously with the colour-change in the plumage of the head of the male Reed Bunting, the bill also changes colour from a grey-brownish to black. The bills of the Reed Buntings in the Zoological Gardens of Copenhagen turn black in February-March before the colour-change of the feathers have been completed.

These observations show that the colour-change of the male Reed Bunting takes place in accordance with WITHERBY'S record.

In a male Lapland Bunting (*Calcarius lapponicus* (L.)) in an aviary in the Zoological Gardens I have observed the same

colour-change on the head partly due to abrasion partly to moult. Further, F. SALOMONSEN (1949, p. 9) has recorded the same moult on the head of the Snow-Bunting (*Plectrophenax nivalis* (L.)).

DANSK RESUMÉ

Iagttagelser af farveskiftet hos Rørspurvehannen (*Emberiza s. schoeniclus* (L.)).

Som bekendt skifter Rørspurvehannen farve paa hovedet om foråret. Om sommeren er hovedet sort med hvid halsring, hvid skægstribe og sort strube. Om vinteren er denne farvetegning mere udvisket og farverne mere brunlige. Der er modstridende meninger om, hvordan dette farveskifte fremkommer. STRESEMANN mener, at farveskiftet skyldes en bræmfældning, mens WITHERBY hævder, at det dels skyldes en rigtig fældning — lige omkring næbbet — dels en bræmfældning på den øvrige del af hovedet. HEINROTH, der har opmadet Rørspurve lige fra små unger, giver STRESEMANN ret, men han har dog ikke selv kunnet gøre iagttagelser, da hans fugle enten døde for tidligt eller viste sig at være hunner.

De Rørspurve, hvis udvikling jeg har fulgt, viste, at farveskiftet foregår sådan som WITHERBY mener. Farveskiftet, der blev iagttaget både hos unge og gamle fugle, foregik fra februar til maj. Hos Rørspurve i fangenskab begynder farveskiftet omkring næbbet, hvor nye fjer vokser frem, mens farveskiftet på den øvrige del af hovedet, hvor der er bræmfældning, kommer senere og er mere eller mindre fuldstændig. Hos fugle i fangenskab sker bræmfældning aldrig fuldstændigt. Hos Rørspurve i naturen er bræmfældningen allerede begyndt inden fældningen.

Hos en han af Laplandsværling (*Calcarius lapponicus* (L.)) i Zool. Have har jeg iagttaget det samme farveskifte, og F. SALOMONSEN (1949, p. 9) har konstateret en tilsvarende fældning hos Snespurven (*Plectrophenax nivalis* (L.)).

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