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A Ruffed Grouse with an abnormal bill.—During the course of a research project conducted near Amherst, Massachusetts, a Ruffed Grouse (*Bonasa umbellus*) was found dead in a live trap on 24 January 1968, evidently killed by a predator. The bird proved to have an abnormal bill (Figure 1), the only such aberration noted in 12 grouse caught in this vicinity during January and February 1968. The grouse weighed 681.0 g. An autopsy performed by the Animal Science Department at the University of Massachusetts indicated that it was in good physical condition. It was a male, central tail feather 18.4 cm, and classified adult by shape of the primaries.

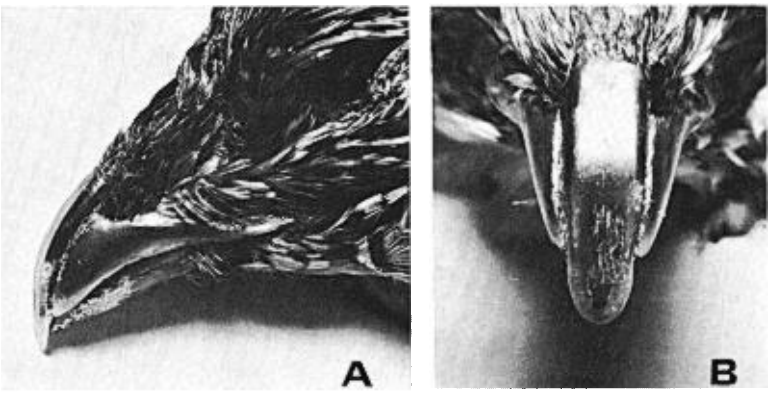

Figure 1. A, side view of bill (opposite side is identical). B, top view of bill showing uniform and symmetrical structure.

Pomeroy (Brit. Birds, 55: 49, 1962) reviews the literature concerning species with abnormal bills and their probable causes. He lists the types of deformities as crossed mandibles, upper mandible decurved, lower mandible upcurved, upper mandible upcurved and/or lower mandible decurved, elongation, lateral curvature, and locked bills. The abnormal bill of this bird does not seem to fall into any of these categories. Pomeroy attributes abnormal bill formation to accidents, disease, and genetic mutations. The external and internal examination of this bird revealed no evidence of accident or disease. The remarkable parallel growth of the three divisions of the upper bill strongly suggests a genetic cause. It is not likely that injury or disease would maintain such a uniform and symmetrical growth pattern. The lower bill appeared normal in every respect.

The only other case of a similar bill structure that I have observed is a live Copper Pheasant (*Syrmaticus* sp.) in captivity at the University of Massachusetts. This bird has an upper bill of three parallel divisions and a normal lower bill.—RICHARD S. STOTT, *Department of Forestry and Wildlife Management, University of Massachusetts, Amherst, Massachusetts 01002. Present address: 350 South Mammoth Road, Manchester, New Hampshire 03103.*

Abnormal bill of a Western Meadowlark, *Sturnella n. neglecta*.—Most of the many abnormal bills recorded in wild birds tend to handicap the bird to some extent. If the bird does not die of causes resulting directly from the abnormality, it must adapt to a completely different set of feeding behavior patterns (cf. Fox, Condor, 54: 160, 1952; Pomeroy, Brit. Birds, 55: 49, 1962). Yet it is possible that not all bill abnormalities are a handicap. In fact, for a bird that obtains a portion of its food by probing in the ground for grubs and insects an elongated bill may be an asset.

On 15 April 1966 in the grasslands of the Verde Valley, Yavapai County, Arizona, D. F. Truett shot a male Western Meadowlark, *Sturnella n. neglecta,* with an unusually long bill (Figure 1A) that measured as follows: length of maxilla to feathering on side, 77.5 mm; length of mandible to feathering on chin, 64.0 mm; the maxilla extended 8.0 mm beyond the mandible. The average bill measurements of 15 Western Meadowlarks in the collection of the Museum of Northern Arizona taken precisely as above are: maxilla, 26.3 mm; mandible, 21.9 mm; extension of the maxilla beyond the mandible, 1.4 mm. The abnormal bill was sufficiently downcurved to fit the "curlewtype" classification (Pomeroy, op. cit.).

We found the skull completely ossified, the fat class medium, the plumage adult and in good condition; testicular growth had reached 6 × 5 mm for both testes. The occlusion of the two mandibles was good and their tips showed some wear. The extended portion of the maxilla was rather fragile. The above information indicates that this bird was a healthy, potentially breeding adult. The fact that the plumage in the head region showed no unusual wear suggests the bird fed in the normal probing manner.

X-ray photographs showed the underlying bony structure of the bill to be of normal length, the abnormally long portion being confined to the rhamphotheca. As no scars could be seen on the bone (Figure 1B), we feel the elongation was not caused by an injury.

When Fox (op. cit.) found no scar tissue on the mandibles of birds with similar bill abnormalities, he maintained that the rhamphotheca must have been injured, arguing that had the abnormality been congenital, the bony portion of the bill would also be elongated. Pomeroy (op. cit.) suggests, however, that even though the bone does not extend to the full length of the rhamphotheca this does not discount the possibility of genetic influence.