

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 (*Syrnaticus* 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.

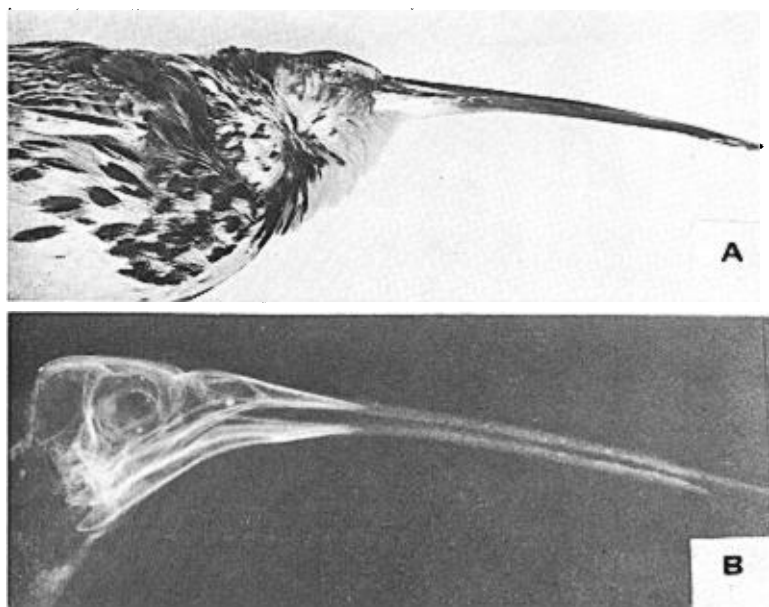


Figure 1. A, Western Meadowlark with abnormally elongated and downcurved bill. B, X-ray photograph showing normal bone length and lack of scar tissue on mandibles.

Unfortunately no observations were made on this meadowlark's feeding habits and general behavior, but it is of interest that the habitat where the meadowlark was taken each year attracts considerable numbers of Common Snipe, *Capella gallinago*. This area is used for agriculture during the spring and summer and irrigated year round, which keeps the topsoil soft and easily penetrated. Thus the meadowlark could have used its bill in the same manner as the snipe. Indeed the flattened tip of the abnormally long meadowlark bill is much more similar to the bill of snipe than it is to that of a normal meadowlark.

Lanyon (Auk, 74: 183, 1962) points out the strong selection for irrigated farmlands by the somewhat isolated populations of this species in central and southeastern Arizona. In these areas the Eastern Meadowlark, *Sturnella magna*, occupies the more xeric grassland. Our specimen was undoubtedly feeding on the irrigated lands where collected. The elongated bill probably caused no shift in habitat by this individual, as it could probe the soft, moist earth efficiently for insects. Possibly this individual was as successful in obtaining food by probing as individuals of normal bill length.

It is of interest that only at the northern limits of the grassland of the southwest is the Western Meadowlark restricted to the more mesic grassland where the moist topsoil makes probing for food easier. In all probability, this individual could not have survived in the dry habitats the species occupies throughout most of its eastern and southern range. The specimen is now in the collection of Northern Arizona University.—STEVEN W. CAROTHERS, *Museum of Northern Arizona*, and RUSSELL P. BALDA, *Department of Biological Sciences, Northern Arizona University, Flagstaff, Arizona 86001*.