character. Other varieties appear to be localized either in the center of the distributional area or at one side of it although still within the limits occupied by the type. Geographical botany in America is still in its infancy, and it is a question whether much weight is to be attached to present statements in regard to distribution; but there is no more certainty as to the data concerning subspecies localized in geographically distinct areas, whether isolated by physiographic or climatic barriers. In the Verbena mutant we have not only a distinct type which originated by a saltation in a definite direction but a type which spread side by side in the same habitat with the parent and kept itself distinct without the aid of external selection or isolation of any kind. The isolation in this case is resident in the internal nature of the plant and had its origin in the same physiological and hereditary processes which gave rise to the original mutant.

It is assumed by many that, in case a new species arises with a character or quality more advantageous than the old, the new will finally displace the old through the struggle for existence. This is a hypothetical assumption which often appears to be without foundation in fact. If conditions of habitat were uniform and if each species lived in only one type of habitat and could endure only one narrow set of conditions there would be grounds for the general assumption. But most species can live in quite diverse habitats and under quite diverse and varying degrees of favorable and unfavorable conditions. There is a great difference in the character of plants adapted to similar habitats and still on a natural prairie conditions settle down to a sort of equilibrium with a complex flora where one species or at most a few ought to hold complete sway. The physiography, the habitat, the soil, and the plants are always shifting, always changing; and in this constant shifting and changing room is made not only for the stronger but also for the weaker. Burrowing animals, rain, wind, and gravity, are ever at work. It is not always necessary for the new type to migrate to a separate geographical area in order to survive unless its nature has been changed to such a degree as to put it out of all harmony with its surroundings. The two forms may divide the diverse and varying habitats of the region between themselves and exist side by side for an indefinite period just as the parent stock before division shared the habitat with others. Or one might say that the wild species may continue to exist in a continually changing physiography for much the same reason as cultivated plants continue to exist in man's cultivated field. And finally, is it not immaterial whether a species, to be a good species, cover a square mile or a continent, whether it continue for ten generations with a few thousand individuals or for a geological period with countless millions?

DESCRIPTIONS OF NEW MALLOPHAGA, II.

E. P. Dubrant.

4. Physostomum merulae nov. sp. (Fig. 1, D.)

Female: Body, length 4.7 mm., width 1.3 mm.; light fulvous, of rather uniform color except abdomen, which has the lateral bands distinctly marked: of large size and evenly rounded outline.

Head, length .75 mm., width .75 mm.; front broad and evenly rounded, margins diverging somewhat and slightly swelling, ocular notch medium, fleck distinct, notch with one small hair; temple extended posteriorly, slightly obtuse, three large bristles along margin evenly spaced, anterior two with one small hair between; occipital margin deeply re-entering; labral lobes large; antennal fossae well-marked by brown bands on lateral borders, interior band much broader; palpi extending beyond margins; anterior submargin with four long, and numerous short hairs.

Thorax, length 1.20 mm., width 1.04 mm.; prothorax broader than long, a little narrower than head, anterior convex, posterior concave, margins nearly straight except at anterior, which has a rounded notch; the anterior angle has two small hairs and a bristle; the rounded posterior angle has one bristle; marginal extensions of even width and clear.

Metathorax larger than prothorax, rounded in front and widely diverging to rear, posterior margin slightly concave; two small bristles at posterior angle; lateral margins with wide light-brown band; lighter and narrower bands diverging from posterior of prothorax to posterior two-thirds of metathorax and uniting with marginal bands; legs same color as head and thorax, of medium size.

Abdomen rounded oblong, first seven segments of nearly equal length; the transverse sutures straight; first four segments have a hair and a long bristle at angles, the next have two bristles and the eighth two long bristles on posterior border with a fringe of fine short hairs between; lateral line terminating abruptly on median border, but continued to lateral borders by a lighter shade, no lateral line on last segment.

Description from specimen in Professor Osborn's collection, taken from Merula migratoria propinqua at Ft. Collins, Col., by C. F. Baker.

This species bears a close resemblance to P. mystax Nitzsch, but is distinguished by larger palettes and the shallower and more anteriorly placed notch of the prothoracic extensions.

5. **Physostomum cherriei** sp. nov.

Female (Fig. 1, E.). Length 3.4 mm., width .9 mm.; except the pitchy brown sub-marginal lateral bands on abdomen and similarly colored blotches on head and thorax, it is of very uniform pale-brown.

Head, length .78 mm., width .62 mm.; evenly rounded in front and rather broad, widening toward posterior, the lateral margins nearly straight; ocular notch small with three small hairs, fleck wanting; temple clear, with two small hairs and two large bristles alternating, posterior angle just perceptibly outturned; occipital margin broadly concave with narrow submarginal band; palettes of medium size, light-brown backward-curved band behind; two curved, brown blotches between antennal fossae and labral lobes; antennal fossae with narrow dark-brown curving line near minor border; palpi not extending beyond margin of head; clypeal suture marked by pale band.

Thorax, length .88 mm., width .73 mm.; prothorax broader than long and narrower than head; anterior and posterior margins concave, lateral and posterior angles rounded, the former with a short and a medium length bristle, the latter with one long bristle; a short thick bristle nearly opposite temporal angle; dark-brown bands extend from anterior to posterior part, being marginal half the distance back, the rest of the way submarginal; a narrower and paler band on each side of the median line extends nearly full length of prothorax with slight outward curve; narrow dark bands in posterior half extend obliquely backward toward median line; marginal extensions pale brown.

Metathorax longer and wider than prothorax, anterior part covered by it; width a little less than length; anterior margin rounded then incurved at middle of lateral margin, which then diverges to posterior angle; posterior angle with one short and one long bristle; anterior rounded margin with three small bristles; dark-brown marginal bands extend along anterior border halfway back then curve in, cross the straight submarginal bands running whole length of metathorax, and then curve forward to a point two-thirds from posterior margin. Legs of pale-golden color.

Abdomen, with sides only slightly swelling widest at middle, last segment evenly rounded, with border of genital opening slightly extending; segments of nearly equal length and transverse sutures straight except last three which are posteriorly convex; posterior angles have long bristles, last segment with two shorter bristles on each side half way from median line, genital extension with fringe of fine hairs; lateral line dark-brown with band of lighter brown extending to margin of body and broken obliquely at sutures, band in last segment half the length of the segment; central part of segments clear light-brown.

Male (Fig, 1, F.). Length 3.07 mm., width .81 mm. General form very close to that of female, markings of head, thorax, and body a little darker, lateral bands not extending into eighth segment.

Described from seven specimens in Professor Herbert Osborn's collection, taken by George H. Cherrie from Melozone cabanisi and Melozone leucotis, four females from the former and two males and one female from the latter.

This species shows considerable resemblance to P. subangulatum Carriker and to P. subhastatum sp. nov. in general form but differences in size and in arrangement and form of markings and various details of shape seem to require the establishment of a new species.

This work was carried out in the Zoological Laboratory of Ohio State University under the direction of Professor Herbert Osborn, to whom the writer is greatly indebted for valuable assistance.

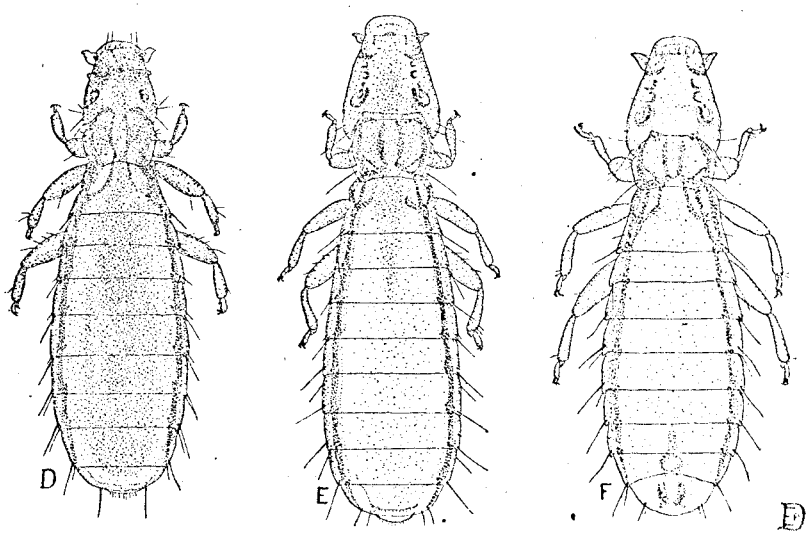

Fig. 1. D. Physostomum merulae, from Merula migratoria propinqua. x 15. E. Physostomum cherriei, from Melozone sp. x 20. F. Physostomum cherriei, male, from Melozone sp. x 24.