

FORMES" (Univ. Calif. Publ. Zool. VI, December 1910, pp. 285-312).—Mr. Henry Chester Tracy under the above title adds an unusually important contribution to both fact and theory relative to the general subject of adaptive coloration. The province particularly dealt with is that of so-called directive markings, which term has been employed in explaining a type of coloration where white or light patches are conspicuously contrasted with black or dark areas. This theory, of the directive function of contrasted markings, has recently been unqualifiedly condemned by A. H. Thayer who has been able to see in them only an obliterative, or concealing effect. Tracy defends the directive theory most convincingly, both with argument and an array of fact, the latter derived from field observation of passerine birds. The author under review brings out incontrovertibly the remarkable correlation existing between the possession of *revealing* (a preferred substitute for the word directive) marks, the flocking habits, and use of location notes, in many birds which forage in the open. The significance of this correlation is self-evident.

A fundamental point emphasized by Tracy is the usual association of *motion* with the optimum display of contrasted markings. Perfect quiet on the part of a bird possessing such a pattern might in truth result in obliteration against a checkered background; but quick movement, as when the bird takes flight, brings the same pattern to the instant attention of the observer. In other words the function of concealing might be subserved by the coloration of a bird *at rest*, when the same coloration would render the bird conspicuous *in motion*.

Tracy's attitude throughout is modest and conservative. Although he clearly holds definite views, he presents these always tentatively, giving the reader a fair chance to weigh the evidence pro and con. The paper in hand is well worth careful study by every observer of birds. Data contributory to the solution of problems of this nature are probably to be derived chiefly from observation of the living animal under natural conditions. The devotee of field ornithology will find here one way in which part of his horde of facts can be of use in a large field of philosophic inquiry.—J. G.

BIRDS AND MAMMALS OF NORTHWESTERN COLORADO, BY A. H. FELGER. [The University of Colorado Studies, vol. VII, no. 2, January, 1910, pp. 132-146.]

The report deals mainly with the species seen on an expedition into northwestern Colorado, August 1 to September 4, 1909, but includes as well "those reported on good authority from the region," the birds amounting altogether to 133 species. The annotations relate principally to the manner and place of occurrence of the species observed. Considered as the result of observations made during a

single month the list is a long one; as a list of the birds occurring in that part of Colorado it is evidently incomplete, judging from statements in the introduction. It is hard to tell in which category the author wished it to fall. To the reviewer the practice of including in such publications species which were *not* encountered but which the author believes should occur there seems objectionable. To take a particular instance in the present paper, under *Otocoris alpestris leucolaema* the only statement made is that "not a single bird of this common species was seen on the whole trip." If none were seen why is it considered a common species, or why is it entered at all?

The paper will be of undoubted value to any one studying the distribution of birds in Colorado, but such a student will be forced to ignore a number of the records.—H. S. S.

THE TERRESTRIAL | MAMMALS AND BIRDS | OF NORTHEAST GREENLAND | Biological Observations | by | A. L. V. MANNICHE (=Danish Expedition to Northeast Greenland, 1906-1908, vol. v, no. 1; 1910; pp. 1-200, figs. 1-20, pls. I-VII).

For two years the author of the paper under notice was stationed on the northeast coast of Greenland at lat. 76° 46'. The immediate vicinity of his permanent quarters fortunately proved to be surprisingly prolific of animal life, more so than any other parts of the adjacent region which were visited at different seasons by other members of the expedition. Dr. Manniche devoted his attention to a biological study of the neighborhood, and the present report on the eight species of mammals and thirty-eight of birds is proof of close observation and discriminating judgment.

Confining our attention to the portion of the work relating to birds, some 100 pages, we find exceedingly interesting accounts given of the breeding habits of such far northern visitors as the Knot, Sanderling and Ivory Gull. Eggs of the latter two were found. Although no eggs of the Knot were actually secured, close observation of the birds throughout the breeding season was possible. The account of the ptarmigan shows strikingly close agreement with the facts recorded of the Rock Ptarmigan of Alaska. The author shows a clear conception of the molt-processes, until not so very long ago obscurely understood. The courting and nidification of the Red Phalarope is most entertainingly narrated. Those interested in the problem of sexual coloration will find here some facts of significant bearing.

The paper in hand is altogether of a biological and faunistic nature. Although brief descriptive notes on the specimens secured are presented, there is no evidence of close systematic enquiry. The nomenclature is scarcely recognizable from the standpoint of the A. O. U. Check-List, and no attention is given to subspecific distinctions. Thus the ptarmigan is "*Lagopus mutus*", with no reference to *L. rupestris reinhardi*. However, this cannot be emphasized as a fault, when the whole paper is avowedly concerned only with ecology and biography.—J. G.