

Riddle's 'A Study of Fundamental Bars in Feathers.'¹—This is a study of abnormalities in feathers and their cause. Defects in the development of feathers are not uncommon, and are not confined to particular species, nor to any particular condition of existence, as to birds in a state of domesticity, but apparently occur in all birds. A feather does not present a perfect, uniform continuity from tip to tip, but is made up of an apposed series of faint 'fundamental bars,' and the defects are found to appear at these points of apposition. It is assumed that each segment or 'fundamental bar' represents a day's growth, and also the amount of feather growth between two low blood-pressures. The period of lowest daily blood pressure has been determined as occurring between 1 and 6 A. M. "Since," says the author, "these defective lines are laid down at approximately the same time each day — as is proved by the regularity in the distances separating them — we are forced to the conclusion that the defective *lines* are normally laid down at night, and that a lowering blood-pressure is associated with the production of defective *areas*, and, therefore, of defective lines, for, that the defective line stands for the initial stage of the defective area is as certain as that a defective area has more dimensions than a line." These conclusions are based on experimental and histological research, and appear to have an important economic bearing. The value of the ostrich plume output for South Africa alone is annually depreciated, it is said, to the extent of £250,000 by defective development, which Mr. Riddle traces to malnutrition due to defective diet and other life conditions that it may be possible to remedy. Such researches should also give the final quietus to the belief in 're-pigmentation' and 'rejuvenation' of old, full-grown feathers, which seems to have still a persistent hold upon the minds of certain ornithologists abroad — a relic of former days when feather growth was little understood, and casual observation of external appearances were awarded undue value.—
J. A. A.

Hopkins on the Bony Semicircular Canals of Birds.²—The purpose of this investigation was to determine "whether there is any relation of the comparative dimensions of the bony semicircular canals of the ear of birds, either to mode of locomotion, or to genetic affinities." These canals were examined in about 75 species of birds, representing all orders, and all modes of locomotion — running, swimming, diving, flying, and all degrees and modes of flight. The measurements are tabulated. The results show (1) that birds of the most diverse forms of locomotion and very diverse affinities have the same relative sizes of semicircular canals; (2) that

¹ A Study of Fundamental Bars in Feathers. By Oscar Riddle. Biological Bulletin, Vol. XII, No. 3, February, 1907, pp. 165-174.

² On the relative dimensions of the Osseous Semicircular Canals in Birds. By May Agnes Hopkins. Biological Bulletin, Vol. XI, No. 5, October, 1906, pp. 253-264.

allied genera may exhibit great differences in this respect. Hence, the types of canals bear no relation to different modes of locomotion, and have also no taxonomic value. Five different types are described and figured; but "in type 2 occurs *Catharista*, one of the best flyers, and in the same group *Geococcyx*; which seldom flies but is one of the ablest runners." This appears to be the first attempt to investigate the relation of the bony canals in birds' ears to locomotion, or to genetic affinity, and are thus of special interest, since the relative size and structure of these canals has been supposed to have some relation to power and manner of flight. Presumably a knowledge of these structures would be of some use in taxonomy, but it proves to have such importance only within narrow limits.—J. A. A.

A Twenty-five Year Index to 'The Auk' and 'Nuttall Bulletin.'¹—In November, 1899, the Council of the American Ornithologists' Union appointed a Committee to prepare for publication an Index to 'The Auk' and its predecessor, the 'Bulletin of the Nuttall Ornithological Club,' to cover the twenty-five year period from 1876 to 1900.

The Committee was a large one, and proceeded at once to its work. Each volume was indexed by two persons independently; their work was collated by a third member of the Committee, and verified by Dr. Jonathan Dwight, Jr., the Chairman of the Committee and Editor of the Index. The work was thus very laborious and time-taking, some 34,000 cards having been turned in in duplicate by the indexers to the editor for revision and preparation for the press. This, with unexpected delays in the printing, has deferred the appearance of the volume beyond the anticipated date of publication, but the final results are eminently satisfactory, and form a well-printed volume of nearly 450 pages. As stated by the editor, it forms "a guide to a large part of the ornithological literature of the last quarter of the nineteenth century." The references are classified and arranged in a way to facilitate finding any information required. The titles include papers and works reviewed as well as the papers and notes here first published, arranged in chronological sequence under the names of the authors. Under localities (as States and countries) are entered all geographical references, alphabetically by the names of the authors, followed by citation of volume and page. Species are entered primarily under their respective genera, under their A. U. O. Check-List names, 1895 to 1900, when North American, or their current names in Sharpe's 'Hand-list' or Ridgway's 'Birds of North and Middle America when extralimital, with cross-references to their synonyms. (For index convenience subspecies are treated

¹ Index | to the | Bulletin | of the Nuttall Ornithological Club, Volumes I–VIII — 1876–1883 | and to its continuation | The Auk, Volumes I–XVII — 1884–1900 | Compiled by a Committee of the American Ornithologists' Union | Edited by | Jonathan Dwight, Jr., M. D. | [vignette] New York, | Published by the American Ornithologists' Union | 1907 — 8vo, pp. viii + 426. Price in paper covers, \$3.25 net; bound in cloth, \$3.75 net. Orders should be addressed to Jonathan Dwight, Jr., Treasurer, 134 West 71st St., New York, N. Y.