

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.—
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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.