

Tate, R. C. Some Birds of the Oklahoma Panhandle. (Univ. of Oklahoma, Bull. No. 271, October, 1923.)—A briefly annotated list.

Nice, Margaret M. Nesting Records from 1920–1922 from Norman, Oklahoma. (Ibid.)—Data on 612 nests showing 118 successes and 150 failures.

CORRESPONDENCE.

Photoperiodism in Bird Migration.

Editor of 'The Auk':

No doubt very many of your readers have shared my interest in Mr. Eifrig's discussion of the question "Is Photoperiodism a Factor in the Migration of Birds" (*Auk*, 1924, XLI, 439). The idea that the seasonal variations in the length of daylight may act as a stimulus to migration has often been put forward, but a further exposition of it is welcome. Ornithologists must be grateful to Mr. Eifrig for drawing their attention to recent botanical evidence as to "photoperiodism" and to the possible existence of an analogy in the case of birds. At the same time they will be cautious about arguing from analogy alone, and will realize that in the absence of more direct evidence the theory as applied to avian migration is purely speculative.

If I may venture a friendly criticism, it is that Mr. Eifrig tends to obscure an important distinction when, for example, he speaks of "compelling" and "controlling," or of "driving" and "regulating," as if they almost necessarily went together. Surely it is essential to distinguish between ultimate causes and immediate stimuli? I may perhaps be allowed to state this point more fully.

In the first place it is desirable to notice that the migration habit obviously serves certain ends which are of advantage to its possessors. In very general terms these are the exploitation of the summer opportunities of high latitude on the one hand, and the avoidance of their winter rigours on the other. But the mere existence of these advantages could neither have originated migration as a habit nor create migration afresh each year: the end does not cause the means, and a thing does not happen simply because it is advantageous. The advantages may well, however, give the habit a "survival value."

This preliminary assumption being granted, the question of actual causation seems to have a dual aspect. The ultimate cause of migration must surely lie in the existence of the inborn habit and in the nature of the forces in the far past which gave it origin. In the second place there must be immediate stimuli, periodically recurring, which evoke the habit to active expression each autumn and each spring. We may liken the habit to an explosive charge in a cartridge, the ultimate cause to the hand

which packed the charge, and the immediate stimulus to the finger which pulls the trigger and so releases the pent-up force. The simile then breaks down, for the habit is not spent as is the cartridge at discharge. But the point is that the pressure of the trigger is a releasing stimulus, a mere "occasional cause" which regulates or controls the action but is not in itself the compelling, driving force.

Securing the maximum amount of daylight throughout the year may be, and probably is, an advantage of the migration habit, but that is not directly a question of causation. Variations in the length of daylight may possibly have been concerned in the origin and the evolution of the habit, but that is a matter necessarily of conjecture only. Photoperiodism may be a (or the) immediate stimulating factor, and it is towards that conclusion, rather than towards any more fundamental theory of causation, that Mr. Eifrig's argument tends.

Even when narrowed down to this aspect of the matter, there are great difficulties in the way of wholly accepting the theory, as there are in the case of all theories on the subject which stress a single factor. The view is a very attractive one as regards autumn migration from high latitudes: the variation in length of daylight is by far the most constant of the external seasonal changes, and thus apparently the one most capable of correlation with the wonderfully punctual manifestations of the migration habit. The attempt to apply the theory to the spring migration, however, is much less satisfactory. A bird "wintering" on the equator, for example, is subject to constant conditions as regards length of daylight; it surely cannot there be stimulated by the lengthening daylight in its distant summer home. The same remark applies to other seasonal changes, and one thus seems driven back to the physiological explanation—a stimulus arising from the recrudescence of reproductive activity. This recrudescence, it would seem, must in a case where local environmental conditions are irrelevant take place in accordance with a rhythmic physiological cycle, which is related to the sum of the conditions experienced throughout the year. The existence of a periodicity of this kind is also indicated by the fact that some migrants "winter" in the summer of high altitudes in the opposite hemisphere while the birds native there are breeding: they experience two summers, with similar external stimuli acting upon them in each, but breed only in one. In sedentary tropical species, on the other hand, the reproductive cycle is not annual.

It is necessary also to remember that very positive evidence already exists that there is a close relation between the departure of migrants and the incidence of certain meteorological factors. A high barometric pressure is favorable at either season, while a falling temperature is favorable in autumn and a rising temperature in spring, the conjunction of both factors giving the maximum effect. The relevant conditions have been shown to be those, as one would expect, at the starting point of a given journey or part of a journey: unfavorable conditions existing at the point of arrival, as Mr. Eifrig has noted, are not effective. It is prob-

able, however, that these meteorological factors stimulate only in a secondary way, determining the day of flight rather than the time of year. They can scarcely be the primary stimuli, because they do not always lead to migration but do so only at the appropriate seasons: the pressure stimulus, moreover, is the same for northward as for southward migration.

In discussing the causes of migration we have accordingly to consider (a) factors which, without being truly causative, may make migration advantageous and thus give the habit a survival value; (b) factors which may in the past have helped to originate and develop the habit; (c) factors which periodically stimulate the habit to activity at the proper seasons; and (d) factors which may act as secondary stimuli determining the exact time of departure, whether from the winter or summer home or from some intermediate stopping places. My submission is that it is necessary to distinguish clearly in which of these ways any particular factor is being considered as possibly operating, and that to think of the cause of migration as a simple unity would be to ignore the undoubted existence of an inherited habit which has a past as well as a present.

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London, England.
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A Plea for More Rational Common Names.

Editor of 'The Auk':

I realize that this subject has been often discussed, but an article on Panama birds in the April 'Auk' (Vol. XLI, pp. 304-326, 1924) demonstrates anew our need for a better system of common names for foreign birds. Such designations as "Central American Squirrel-Cuckoo," "Panama Sittasomus," "Hick's Seed-Eater," and "Panama Buff-Throated Saltator"—selected from among many of like kind in the paper before me—will illustrate my meaning. Those who work with Neotropical birds in the field know that no such epithets are ever hurled at them by their human nationals.

Perhaps the manufacturers of these synthetic names will argue that every bird should have an English as well as a Latin name; but should it? North of the Mexican boundary, yes; for here English names are demanded by an ever increasing body of bird-lovers interested in the native avifauna only as birds in the bush, and to whom anything that smacks of scientific nomenclature is distasteful. But the same conditions do not obtain south of our borders. In South America there are no bird-lovers save the naturalists (who need no common names) and those who know birds best by their savor in the pot. And even were bird-lovers legion in our sister republics, English names would be worse than useless to them.

The great majority of Neotropical species have not been given vernacular names because they are unknown to the natives of the countries they