

#### Migration of Birds

I HAVE to thank Mr. Wallace and Mr. Romanes for their remarks (*NATURE*, vol. x. pp. 459 and 520) on the article in which I drew attention to this subject. The former especially has laid all ornithologists under an obligation for the characteristic skill with which he has illustrated the way whereby migratory habits have most likely been brought about. I think it is very possible, as he suggests, "that every gradation still exists in various parts of the world, from a complete coincidence to a complete separation of the breeding and subsistence areas," and that "we may find every link between species which never leave a restricted area in which they breed and live the whole year round, to those other cases in which the areas are absolutely separated." Still, I cannot point out any species which I believe to be, as a species, strictly non-migratory. No doubt many persons would at first be inclined to name half a dozen or more which are unquestionably resident with us during the whole year, and even inhabit the same very limited spot. But I think that more careful observation of the birds which are about us, to say nothing of an examination of the writings of foreign observers, will show that none of them are entirely free from the migratory impulse. Perhaps the nearest approach, among British birds, to an absolutely non-migrant may be found in our familiar Hedge Sparrow. Personally, I have never been able to detect any movement in this bird, but one has only to turn to works on the ornithology of the extreme north and south of Europe to see that it is affected like the rest, and even in the Orkneys it is described as an occasional autumnal visitant. However, in most of the

British Islands and the more temperate parts of Europe it is very possibly only the young of this species which migrate, and the adults, having once fixed on a place of residence, may stick to it; so that here we have a case which will almost bear out Mr. Wallace's supposition. With this, however, he stops, and I am sorry to say offers no suggestion as to the way in which migration is effected.

The question which Mr. Romanes puts would be more appropriately answered by Mr. Tegetmeier, and I hope he will be induced to do so. I can only say that that gentleman has repeatedly urged his views on me in conversation and upon the public in his books (see "Pigeons, their Structure," &c., pp. 84, 85, and "The Homing or Carrier Pigeon," pp. 37-42, 105-118) which, being ready of access, I need not here quote. To limit myself to what I am alone answerable for, I would say that when declaring that sight alone cannot be much aid to birds while migrating, I had especially in mind the almost peculiar case of the Scandinavian form of Bluethroat (*Ruticilla surcica*), which winters in Egypt and the Nile Valley, and summers in the northern or mountainous parts of Sweden, Norway, Finland, and Russia; while, though no doubt passing regularly twice a year over the intervening countries of Europe, it is there so singularly scarce as to have been, until of late years, almost unknown to the best of German ornithologists. For the benefit of such of my readers as are unacquainted with the bird, I may add that the cock has a conspicuous and beautiful plumage, a fine song, and habits which, in the spring of the year, cannot be called unobtrusive. If, therefore, it did commonly occur in Germany—where I should state that a kindred form (*Ruticilla leucocyana*) is very well known—it could not escape observation. Wonderful as the feat looks, it would therefore seem as though this Scandinavian Bluethroat passed over Europe at a stretch, and if so, I cannot conceive its flight being guided by any landmarks.

Furthermore, there is ground for believing that some of the migrations of many species, particularly of water-birds, are performed at night, when sight, one would think, can be of little use to them. But, to be honest, I must confess that dark, cloudy nights seem to disconcert the travellers. On such nights the attention of others besides myself has often been directed to the cries of a mixed multitude of birds hovering over this and other towns, apparently at a loss whither to proceed, and attracted by the light of the street-lamps.

One other point only need I now mention; this is Mr. Romanes's assertion that "in the case of all migratory birds, the younger generations fly in company with the older ones," which is at variance with a statement (hitherto, I believe, uncontroverted) of Temminck's:—"On peut pour un fait que les jeunes et les vieux voyagent toujours séparément, le plus souvent par les routes différentes." (Man. d'Orn. ed. 2, iii. Introduction, p. xliii. note.)

ALFRED NEWTON

Magdalene College, Cambridge, Nov. 2