cerned with other phases of biology, to college students with a minimum of biological knowledge and to interested laymen. With this in mind, the out-of-the-laboratory illustrations of the genetic process, as it relates to evolution, are given from the naturalist's viewpoint as well as from the geneticist's. The book is introduced by a historical statement on the evolution concept over the centuries. This is followed by chapters on organic diversity, the distribution of diversity in time and space, and the evidential material supporting the evolution theory. The inclusion of evidential material is not so much to convince readers that evolution has occurred, ". . . for with rare exceptions they hold that view already. It is merely that they should know why they hold it. In this age too many people have opinions whose bases are not clear to them." The genetic information is dispersed throughout the book more than in the original edition, it being the author's aim to strengthen the relation between such information and the evolutionary phenomena to which it applies. With deference to students of the humanities and social sciences, the material on the origin of man has been expanded to form a separate chapter and the often confused relations between biological and societal evolution have been rather strongly contrasted. In the reviewer's opinion, retention of a general bibliography in the second edition would have been desirable. A few cytological errors involving the mechanism of crossing over and the relation of the centromeres to the strands of a meiotic tetrad (p. 126) do not detract materially from the main purpose and effectiveness of the book.—Ray Moree.

## Letter to the Editor

In his interesting and informative article on "The Mourning Dove on Cape Cod" in the October 1951 issue of *Bird-Banding*, Dr. Oliver L. Austin, Jr., calculates the number of young that must be raised each year in order to keep up the population. "The production of 4.6 young per pair in three broods of two eggs each requires a nesting success of 77%" (p. 164), i.e. success of eggs, not nests. In three of the nesting studies on this species involving more than 50 nestings, success of the eggs reached 38% in 57 nestings (Kendeigh 1942), 35.9% in 141 nestings (Nice 1923), and 46.6% in 4,273 nestings (McClure 1946). The other studies give success of nests only—always higher than for eggs: 51.9% for 235 nestings (Monk 1949, *Migrant* 20: 1-9), an estimated 45-50% for 771 nestings (Quay 1951), and 52.2% of 592 nests (Pearson and Moore 1939, *Trans. N. A. Wildl. Conf.*, 4: 468-473). The success of nests in the first three studies was 54.4%, 43.2% and 47.9% respectively.

Dr. Austin explains the wide divergence between his theories and the findings of these students by suggesting that "their very actions in observing the nests could not help but contribute to the mortality," (p. 165) by causing desertion and increasing predation. Desertion was brought about by nest-hunting in Young's (1949) report on 10 nests, and perhaps also in Quay's work (1951: 35). In only 8 of the 141 Oklahoma nests were deserted eggs found; five of these desertions occurred in September after the hunting season had started (Nice 1923: 52). In populations in towns, as were McClure's and mine, these birds become very tolerant of human beings. Predators would hardly follow people by scent to nests in trees, but it seems possible in McClure's work that Blue Jays were sometimes attracted by disturbance incident to banding. However, his study of the birds resulted in much public interest that probably offset any loss from this cause. The low percentage of success found in Oklahoma was due primarily to severe storms.

If observations on nesting Mourning Doves decreased the success of the birds from 77 to 47 percent, what about all the studies of other altricial species with open nests that have been found to average some 43%? Moreover, does the Mourning Dove with its frail nest have higher success than altricial species nesting in holes that have been found to average 66%? If the Mourning Dove really has a nesting success of 77%, we will have to discard the results of all our studies on this subject because of the very high mortality we brought about by watching the birds.

Dr. Austin believes that three broods a season are indicated by his trapping results; 77% of 6 eggs gives 4.6 young. *But Mourning Doves attempt more than three broods.* In Iowa McClure (1943: 384) found that in 1938 303 pairs aver-

aged 5.4 nesting attempts; in 1939 378 pairs averaged 5.1 attempts and in 1940 93 pairs averaged 4.6 attempts, an over-all average of 5.2 attempts for the 772 pairs. Let us accept McClure's figure of 46.6% success of 8,018 Mourning Dove eggs in three states. In five attempts 10 eggs will be laid; 46.6% of these equals 4.66 young fledged per pair. So each pair of Mourning Doves can well raise the necessary number of young, even though they lose half their eggs. They do so by keeping everlastingly at it, many of them well into September, a few into October.

Margaret M. Nice, 5725 Harper Avenue, Chicago 37, Illinois.

## Whither Bird-Banding — An Editorial

There comes a time in the life of almost all organizations and of almost all codified procedures when some new line of thought or action is needed to prevent the organization or the procedure from becoming sterile, and such new lines often grow out of external developments. We may take examples of this from taxonomy, the Linnaean, essentially artificial, classification of plants and animals gave way somewhat gradually in the first quarter of the nineteenth century to supposedly natural classifications based on comparative anatomy but still involved the fixity of species. The publication of Darwin's work on the origin of species in 1859 gave an impetus to taxonomic procedures which assumed that species were not fixed and led to our, now almost too great, devotion to varieties and subspecies. Only some fifteen years ago it became evident that taxonomy was again in danger of sterility. The points of view expressed in "The New Systematics" are only beginning to be put into actual operation and yet we now hear commonly of superspecies, clines, and Rassenkreise (perhaps not all who use these terms know quite what they mean).

Bird-banding as a technique also appears in danger of becoming institutionalized, sterile, and, in a word, bureaucratic. It seems to me that the time is past when any of us can sit back and wait for the returns to roll in. Most of us band small birds and the returns just don't roll in. Even if they did the time is, I think, long past when, in any field of ornithology, unless the case is very specialized, we can to any profit publish raw data. It needs to be analyzed and reduced. This does not mean that all banders must become competent mathematicians, but rather that they recognize in one way or another that the data that they have are of value but that they must be treated by modern methods. I am here concerned with two things which have been broached already by others—(1) the quantity of information which is in any bander's files and is unused, and (2) cooperative utilization of information where no one bander can hope to acquire enough on a given species to yield results of value. There have been, fortunately, a good many examples over the years of utilization of banding data which does not involve returns although it often involves repeats: Groskin's work on goldfinches and their color changes, the recent work by Parks on evening grosbeaks. In both of these cases, for very good reasons, the authors utilized only their own data which were, in the first place, adequately large, and in the second place, taken by methods which they could assure themselves were uniform. No two people would make precisely the same estimate of colors. On the other side, as instances of cooperation we have Fischer and Gill's work on the whitethroats published in *The Auk*, July 1946.

Mr. Bergstrom has but recently pleaded with banders to look over their files and put a little time towards summarizing the data that they have. Perhaps few banders realize the possible amount of information which is in their files. This can be studied in some detail mathematically. I would, however, from spot checks of my own files for chickadee, catbird, thrasher, and towhee, suggest that the situation may be about as follows: that the return rate based on individual, not on total returns, runs from less than 2% to a maximum of about 17% of the birds that could show returns. That, on the other hand, if we take the rate of trapping information, that is the number of birds that repeat, from the same few species it varies with me from 24 to 67%, several-fold larger. If we now look at the cards themselves and count up the number of items of information per bird, we find a still greater total of information. Here I include everything except the mere fact of banding, that is, I include that the bird was retrapped, that, either