

SOUNDS AND HABITS OF ANIMALS AS CRITERIA OF RELATIONSHIP

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Evidences for relationship of plants and animals are taken from Comparative Anatomy, Classification, Serology, Embryology, Paleontology, Geographic Distribution, and Genetics. The purpose of this paper is to speculate on the possibility or the impossibility of determining relationship by the sounds and habits of animals.

This method of procedure may not be new, for writers have at least hinted at the similarity of sounds and habits in animals of a group, but as far as I know very little has been written directly on the subject.

All biologists are acquainted with the arguments, pro and con, mostly pro, for evolution. Probably most biologists are so completely sold on arguments for evolution that they do not care to consider the arguments on the opposite side. It is well at this time to say that several anti-evolution books have appeared in the last few years. These are written by scientists and should be read by those interested in evolution. One of the objections raised is that it is not easy to determine what structures are homologous and what are analogous. Even Dr. A. F. Shull in his "Principles of Animal Biology" recognizes this fact. Probably a number of mistakes have been made here. In this present research the writer struggles with the same difficulties, namely analogy and homology. When it is difficult to determine which is which, no conclusions are drawn. A great deal more may be said with respect to difficulties to prove relationship, but it is impossible to continue such discussion in a brief paper, so let us proceed to the matter at hand.

The study of the young of the armadillo and human identical twins has led to the conclusion that close relationship is expressed in similarity of structure and emotions. From this fact it is easy to infer that close relationship also expresses itself in similarity of sounds and habits. And it is not surprising to find that this is true to some extent.

The many difficulties encountered may be largely due to the variations which are not recognized as similarities. It is easy to recognize the similarity of the songs and habits of the different species (or varieties) of chickadees, cuckoos, flickers, grosbeaks, gulls, hawks, jays, meadowlarks, orioles, owls, sandpipers, wrens, and a number of other birds. From this it must not be inferred that all the members of the same group have similar sounds and habits, for they have not. Three common sounds of the barnyard fowl are clucking, cackling, and crowing. Are these sounds produced by the other members of the same group? It is reasonable to expect that they are. The guinea fowl has gone in strong for cackling. The male turkey gobbles, but is this a modification of crowing or what? Gobbling has the characteristics of crowing, which seems to require more effort than cackling or clucking. The bowing of the head and use of the wings in one way or another often accompanies crowing. This is true of the barnyard cock and male pheasant. In gobbling the turkey moves his head considerably and often drags his wings. The dragging of the wing is not the same as clapping the wings. Such movements do not accompany cackling or clucking. Now what is the "bob white" song of the quail? It is not continuous nor performed with such staccato as cackling or clucking, neither does it sound like crowing. It has one characteristic of crowing, however, in that "bob white" consists of two notes simulating the crowing. The ruffed grouse spreads the tail like the turkey gobbler and makes a drumming noise by striking its wings together. The pinnated grouse (prairie hen) produces loud, hollow, resonant, booming sounds. The gobbler also makes a sort of booming sound at times. The sharp-tailed grouse makes sounds similar to cooing and crowing. In this group, then, there are similar sounds and habits, and such may bespeak relationship.

In the duck group two familiar characteristics are nodding and quacking. Nodding is also common in shore birds. In some species of ducks it is difficult to say whether they quack or not. Now both males and females may quack, and

there are sounds produced by drakes which the writer has not found names for.

Now what are these sounds made by the duck group? If there is such a thing as a common ancestry between the pheasant group and ducks, one would expect to find sounds that would reveal the fact. Since quacking is produced by both sexes in ducks, it is perhaps not crowing. It is interesting to note that the quacking of the blue-winged teal sounds very much like cackling of the barnyard hen. The writer does not venture to say that it is cackling however. The sound is probably a modified quacking. The sound made by the male spoonbill is very similar to clucking. There is a sound made by the male wood duck, male pintail, and male mallard which has the characteristics of crowing. In these cases there is the familiar movement of the head as in crowing, and the three sounds are strikingly similar. If this is crowing it may be taken as an evidence of common ancestry or it may be parallelism. The writer inclines to the latter view, since so many similar sounds are produced by distant groups. Two sounds made by the male cowbird and redwinged blackbird bear the earmarks of crowing, and the familiar sounds of the common kingbird and Arkansas kingbird strikingly resemble gobbling.

In the dog group barking is common, but barking is also common in some, if not all, of the squirrels, too.

In conclusion I might say that to determine relationship by means of sounds and habits is possible to a limited degree for the species of a group. Probably such study presents more difficulties than approaching the problem from the other fields of investigation. It seems evident that before drawing conclusions it will be necessary to have an intimate knowledge of the sounds and habits of the various groups before comparing them.