

SPECIES DIFFERENCE IN BEHAVIOUR

The gradual accumulation of small genetic changes may lead to the formation of a new species. It may be that part of a population moves off into a new area where it gradually becomes so different from the parental population it left behind that there are now two distinct species, recognized by the fact that they cannot interbreed. Over long periods of time, new species will evolve and others become extinct. New structures and new patterns of behaviour appear. One sort of evolutionary change that attracted the great deal of attention is that a behaviour initially does not serve any communicating function becomes elaborated and exaggerated over evolutionary time to serve as a signal. Huxley studied the various courtship displays of Great – crested Grebe, one of which involves both partners rearing out of water and presenting nest material to each other. This display has been derived from elements of the Grebe's nest building behaviour and in becoming adapted to its courtship function, it has become more elaborate and ' ritualized'.

In closely related species or different strains of the same species, the behaviour has diverged from that of the common ancestor. Some times the behaviour pattern may remain more or less the same but the frequency with which it is performed changes. In other cases, the form of the behaviour itself alters. For example, the ' Calling behaviour ' of male Crickets. It remains the same but how much calling a male does in a night can be either increased or decreased by selective breeding. Here selection acts on the frequency of the behaviour. Bentley and Hoy have shown that the form of behaviour can be changed by quite small genetic differences. They showed that, in back cross hybrids between two closely related species of Australian Crickets, some hybrids songs contain an extra impulse to the wing muscles which in turn gave an extra scissor movement to the wings that produce the song. Lizards of the genus *Sceloporus* shows most beautifully now form and frequently change more together during micro evolution. When ever they meet other lizards, males perform rhythmic head-bobbing movements, which act as identifying signals. Each species has a characteristic pattern of bobbing, which is produced by the rhythmic contractions of the muscles that extend the front legs, thereby raising and lowering the head and shoulders. The pattern of micro evolutionary change is particularly well indicated because only two groups of muscles are involved and there is change in amplitude, speed and length of movements from species to species.