

Unklosdy

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Tinbergen, N. Fighting. Social Behavior in Animals. New York: Wiley & Sons, 1953. p.58

Secondly, although so much fighting goes on all through the spring, it is relatively rare to see two animals actually engaged 'in mortal combat' and wounding each other. Most fights take the form of 'bluff' or threat. The effect of threat is much the same as that of actual fighting: it tends to space individuals out because they mutually repel each other. Some instances of threat display were given in Chapter I. Its variety is almost endless.

Tinbergen, N. Fighting. Social Behavior in Animals New York: Wiley & Sons 1953. p.61-2

Concluding, it is clear that reproductive fighting serves a function. It results in a spacing-out of individuals, thus ensuring each of them the possession of some object, or a territory, which is indispensable for reproduction. It thus prevents individuals sharing such objects, which would in many cases be disastrous, or at least inefficient. Too many Bitterling eggs in a Mussel will result in a low ration for each. When many males would mate with one female instead of securing females of their own this would be a waste of germ cells. Two broods of Starlings in one hole may be fatal to both broods. Spacing out makes the individuals utilize the available opportunities.



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... Terr. K.

Tinbergen, N. Fighting. Social Behaviour in Animals, New York: Wiley & Sons 1953  
p. 60-61

This all shows that fighting is aimed at reproductive rivals.

Further, fighting, and threat as well, tend to prevent two rivals or competitors from settling at the same spot; mutual hostility makes them space out, and thus reserve part of the available space for themselves. An examination of what is essential in this reserved space will help us understand the significance of fighting.

The fighting of each individual is usually restricted to a limited area. This may be the area round the female(s) as it is in Deer and many other animals. Bitterling males defend the area around a Freshwater Mussel against other males; to this Mussel they attract a female. They induce her to lay her eggs in its mantle cavity, where they will develop, leading a parasitic life. Carrion Beetles of the genus Necrophorus defend carrion against



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rivals. The defence in all these cases not only concerns the central object itself, but also a certain area round it; rivals are kept at a considerable distance. In the species mentioned it is easy to see what the central object is: when a doe moves and walks off the male will go with her; it always fights in her vicinity. When the Mussel moves, the male Bitterling shifts the area it defends along with it. In most species however the defended area does not move; the male settles down on a chosen spot, and defends a territory. This is known in many animals; territorial fighting and threat can be watched in every garden, for Robins, Chaffinches and Wrens, to mention only a few species, are renowned fighters. It is possible to understand the significance of such a territory when the fighting is centred on one particular part of it. Thus in many hole-breeding birds the fighting is particularly furious when intruders come near the hole. In most species, however, there is no such concentration on a particular part of the

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territory, and here the significance of territory is less easy to understand.

*Terr L*  
Tinbergen, N. Fighting. Social Behaviour in

Animals, New York: Wiley & Sons, 1953  
p. 64.

It seems certain that territories are selected mainly on the basis of properties to which the animals react innately. This makes all animals of the same species, or at least of the same population, select the same general type of habitat. However, the personal binding of a male to its own territory -- a particular representative of the species' breeding habitat -- is the result of a learning process.

*Learning*  
Tinbergen, N. Fighting. Social Behaviour in

Animals, New York: Wiley & Sons  
1953, p. 71.

Animal species living in groups sometimes fight over other issues than females or territories. Individuals may clash over food, over a favourite perch, or possibly for other reasons. In such cases, learning often reduces the amount of fighting. Each individual learns, by pleasant or bitter experience, which of its companions are stronger and must be avoided, and which are weaker and can be intimidated. In this way the 'peck-order' originates, in which each individual in the group knows its own place. One individual is the tyrant; it dominates all the others. One is subordinate to nobody but the tyrant. Number three dominates all except the two above it, and so on. This has been found in various birds, mammals, and fish. It can

Excerpt of Tinbergen, N., 1969: Social behaviour in animals, Frome and London (Butler & Tanner) 1969.



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The peck-order is another means of reducing the amount of actual fighting. Individuals that do not learn quickly to avoid their 'superiors' are at a disadvantage both because they receive more beatings and because they are an easier prey to predators during fights.



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