Acta 18th Congressus Internationalis Ornothologici, Moscow, 1982.
Eds V.D.Iiychev and V.M. Gavrilov. Academy of Sciences of the USSR, Moscow,
pp 919-920

SOME FURTHER COMMENTS ON THE GATHERINGS OF BIRDS

A.Zahavi
Institute for Nature Conservation Research, Tel-Aviv University,
George S.Wise Faculty of Life Sciences, Israel

I have been asked by Dr. Burger to use the available time, owing to the absence of Dr. Nettleship to add some comments on the function of the gatherings of birds as information centers (Ward, Zahavi, 1973). Some of these comments are the outcome of discussions with the late Dr. P.Ward whose recent tragic death ended for me a very fruitful collaboration. Consider these comments as comments to a discussion rather than as a paper in the symposium.

1. Since we have published the hypothesis there have been a few attempts to gather evidence to test the hypothesis. A few attempts have failed to secure evidence for the hypothesis (Evans, 1982; Bayer, 1982). When looking for such evidence it is important to remember that although information concerning the location of food may sometimes be of use, birds are not necessarily in search of such information every day. In order to secure supporting evidence it may be necessary to watch at particular days following a sudden decline of food. I shall cite an observation by Dr. Pearse (pers.comm.) to illustrate the case. Rooks (Corvus frugilegus) around Aberdeen breed in Colonies in which trey also roost in summer. But in winter several colonies gather for the night roost. In the morning the rooks fly first to their respective colonies and later always forage within the homerange of the colony. Further there is evidence that food is more abundant in winter than it is in summer. These findings seem to contradict the hypothesis that the communal roost serves for rooks as an information center. But once, during a snow storm when most of the ground was covered with snow and visibility was very low, a whole colony followed another colony, from the night roost, to feed together on a stack of corn available above the snow. It is reasonable to believe that unless the rooks at that time had information about food they would not have been able to survive. It may be that such rare cases are sufficient to select for the communal roost.

2. Birds are attracted to the communal roost by the communal displays which occur in most communal roosts sometime before the birds go into the roost. In 1973 we suggested that the displays function as "advertisement to facilitate the assembly into a single roost of as many birds as possible, from as far away as possible. The more birds attending a particular roost, the larger is the area searched for food and the greater is the chance of all good feeding places within it being decovered". Although the displays serve to advertise it is a mistake to consider the advertisement as an ultimate reason (as we did) for the behaviour of the individual bird in the flock. Stated as it is, it is a group selection argument. A bird may rest in the periphery of the roost and enjoy the outcome of the advertisement without investing in it. Those who are not satisfied in explanations by models of group selection should consider an alternative explanation.

I suggest that a bird which displays with others is able to assess its potential to compete with its flock members when they would eventually reach the feeding site. There is often no point to arrive at a feeding site if all

other members of the flock are quicker and stronger. Such a hypothesis suggest that the strength, agility and other performances of individuals in various flocks differ to the extent that a bird may benefit from picking the flock which suits its potential. Such a hypothesis may be tested.

3. Birds watching daily the gatherings into a communal roost may acquire some information on the homerange of their roost without having to go out of their individual homerange. If the numbers of birds in the roost increases they would benefit if they stay because if it is good for the new-arrivals the home range of the roost may still serve them if they loose their feeding sites, on the otherhand if numbers decline in the roost they may also do well if they leave before they are actually short of food.

4. I still believe that a gathering without active defence is not an effective strategy to reduce predation pressure in birds. Although predation certainly affect much of the behaviour of the birds in the gathering, predation pressure by itself has not selected birds to gather into roosts or nesting colonies.

5. In 1973 we have overlooked the importance of sexual selection as a primary factor in selecting birds to form leks and nesting colonies. There is now some evidence to show that leks may function as advertisement for the fitness of the males. Males in the center of a lek have a much higher fitness than peripheral males. Thus leks function for females as information centers to leatn about the fitness of their potential mates and for males to advertise their fitness. Coulson (this symposium) has provided evidence to show that in Kittiwakes, Rissa tridactyla, the nesting colony may function as advertisement to the fitness of the males and that females prefer central males to peripheral males.