

It may be useful, therefore, to record a grey seal (a female) which was taken some time in 1912 (I believe as a pup) and placed in a pond in Victoria Park, Cardiff, where it lived until April 6, 1939. This animal, therefore, lived more than 26 years 3 months in captivity. The mounted skeleton (accession number 39.211) is preserved in the Zoology Department of the National Museum of Wales. Dr. Edward Hindle has been good enough to direct my attention to another grey seal, in the Stockholm Zoo at Skansen, recorded in 1935 by Dr. Erna Mohr<sup>2</sup>, the animal being then at least thirty-six years old. Capt. Gustaf Lilliehöök, acting director of the Zoological Department of Skansen, has written to me that this seal "was caught, aged a few months, in the spring of 1898 or 1899, near the town of Uddevalla on the west coast of Sweden", and soon afterwards "was sent to Skansen, where he lived . . . till March, 1940, when he was found one day lying dead at the bottom of his pond". This grey seal, therefore, apparently reached the record age of forty-one or possibly forty-two years.

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<sup>1</sup> *Proc. Zool. Soc. Lond.*, 145 (1931).

<sup>2</sup> *Zoologische Garten (N.F.)*, 8, 17 (1935).

### Influence of Pregnancy and Social Facilitation on the Behaviour of the Grazing Sheep

BAYER<sup>1</sup> has shown that the presence of a hungry hen can increase the food consumption of a well-fed hen by as much as 60 per cent. This social facilitation has also been observed in fish<sup>2</sup>, rats<sup>3</sup> and apes<sup>4</sup>. It is now reported in grazing sheep.

A flock of fifty Blackface ewes was divided into two groups of twenty-five as nearly equal as possible in weight and general condition. Every animal in group A was offered one pound of the following ration daily: 2 parts linseed cake meal, and 1 part crushed oats. Group B received no supplement. The management of the flock, which was also used in studies on worm-burden and immunity, was described by Cushnie and White<sup>5</sup>. For lambing in March-April 1948, the two groups were first enclosed separately in neighbouring fields of comparable size and botanical composition. Observations, each lasting for a continuous period of twenty-four hours, were made on the behaviour of ten sheep in each group. Group B was then put into the same field as group A, and further observations were made on the behaviour of three more animals from each group.

Before differences in the behaviour of the two groups can be discussed, however, a further point must be considered. These observations were all made when the sheep were in the last stages of pregnancy, and it was therefore necessary to determine whether this condition by itself influenced the times spent grazing. Of the ten sheep in each group that were watched in the first series of observations, five were carrying twins and five singletons, and, of the three sheep in each group that were watched in the second series of observations, one carried twins and two singletons. The results may be summarized as follows:

(a) When the two groups grazed separately, the supplemented group spent less time grazing and more time resting than the unsupplemented group.

(b) When the two groups grazed together, their grazing and resting times were very similar and represented those of the unsupplemented group when grazed alone.

(c) Ewes of the supplemented group which carried twins grazed for approximately one hour longer than those of the same group that carried singletons.

(d) There was no difference in the grazing times of ewes of the unsupplemented group which carried twins and those of the same group which carried singletons.

That there was a difference of approximately one hour in the grazing-times of the ewes that carried twins and those with singletons in the supplemented group, whereas the times devoted to grazing by all those in the unsupplemented group were the same, suggests that a fatigue-limit influenced the behaviour of the latter group. It may be that after approximately eleven or twelve hours out of twenty-four has been spent grazing, the animal generally, and particularly the musculature of the jaw, is too fatigued to continue.

It is clear that in addition to the social conditions of the environment, the times devoted to grazing may be greatly influenced by pregnancy.

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<sup>1</sup> Bayer, quoted by Katz, "Animals and Men. Studies in Comparative Psychology" (Longman, Green and Co., London, 1937).

<sup>2</sup> Welty, *Physiol. Zool.*, 7, 85 (1934).

<sup>3</sup> Harlow, *J. Genetic Psychol.*, 41, 211 (1932).

<sup>4</sup> Harlow, *J. Comp. Psychol.*, 16, 171 (1933).

<sup>5</sup> Cushnie and White, *Vet. Record*, 60, 105 (1948).

### Life-history of the European Earwig, *Forficula auricularia*

WORKERS in Europe<sup>1-4</sup> have maintained that the common earwig, *Forficula auricularia* L., is single-brooded in Europe, whereas American researchers<sup>5-9</sup> have recorded that this species in America has two broods a year. Recently, Bolwig<sup>10</sup> reported from Denmark that *F. auricularia* is single-brooded, and laid a second batch only if the first eggs were destroyed. However, while studying the life-history of *F. auricularia* in the Department of Zoology, University of Edinburgh, I found the earwig to be double-brooded. The first or winter batch of eggs is laid between late November and March. During May-June some of the females die, and the others lay a second or spring batch of eggs. A detailed account of the investigations will appear elsewhere.

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<sup>1</sup> Worthington, E. B., *Entomol.*, 59, 138 (1926).

<sup>2</sup> Weyrauch, W. K., *Biol. Zbl.*, 49, 543 (1929).

<sup>3</sup> Beir, M., *Biol. Tiere Dtschl.*, 26, 169 (1933).

<sup>4</sup> Burr, M., *Sci. Prog.*, 34 (133), 20 (1939).

<sup>5</sup> Jones, D. W., *U.S. Dept. Agric. Bull.*, 566 (1917).

<sup>6</sup> Fulton, E. B., *Bull. Oregon Agric. Exp. Sta.*, 207 (1924).

<sup>7</sup> Beall, G., *Proc. Ent. Soc. Brit. Columbia*, 39, 28 (1932).

<sup>8</sup> Crumb, S. E., Eide, P. M., and Bonn, A. E., *Tech. Bull. U.S. Dept. Agric. Wash.*, 766 (1941).

<sup>9</sup> Guppy, R., *Proc. Ent. Soc. Brit. Columbia*, 43, 28 (1946-47).

<sup>10</sup> Bolwig, N., *Tid. for Planteavl.*, København, 49, 301 (1945).