

Calendar of Nature Topics

Daylight and Animal Activity

The significance for the activities of animals of the reduction of daylight during the winter months is indicated by the experiments carried out at Harper Adams Agricultural College in connexion with the artificial lighting of poultry. Artificial lighting to control egg production is not a common practice in Great Britain, although it is recognised that scarcity and dearth of eggs throughout the year correspond generally with the falling off of natural daylight. When this is supplemented by artificial light, arranged so that morning and evening lighting is extended to make a uniform 12- or 14-hour day throughout the winter, food consumption and egg-laying both show a marked increase (Bull. No. 6, National Institute of Poultry Husbandry, 1931). In an uncontrolled pen, food consumption reached its lowest during December; in a lighted pen the amount consumed remained much more uniform throughout the year, and each bird used about 4 lb. more in 48 weeks. The final results show that, allowing for the additional cost of food and lighting, a reasonable profit may be made by thus artificially stimulating metabolism, since lighting causes increased winter production when eggs are dear. For the winter months, the 120 pullets under lights laid 950 more eggs than an equal number of pullets without lights, and for 48 weeks the lighted pen yielded 1,086 more eggs. The price received per dozen was 17·34d., the food cost per dozen 5·26d., the margin per dozen 12·08d., and the margin of profit over food and lighting costs per dozen was 11·58d.

American Ducks in Europe

Winter wildfowling has revealed many records of rare species, notably the occurrences in British and Continental waters of typical North American duck otherwise difficult to obtain. The first European record of the American hooded merganser (*Lophodites*, or *Mergus, cucullatus*) was an immature female shot at Yarmouth in the winter of 1829 (Selby, *Trans. Nat. Hist. Northumb.*, 1, 292); others were afterwards recorded in the Menai Straits, off Sussex, Suffolk, Caithness, Co. Meath, Sheerness, etc., but no record appears to have been made on the Continent.

The American widgeon (*Mareca americana*) was first recorded in Britain by Blyth (*Naturalist*, 111, 417) from a male bought in Leadenhall Market, London, in 1837-38, but a male bird in the British Museum was shot in the Outer Hebrides in 1807. The species breeds from Alaska east to the Hudson, migrating in autumn as far south as the West Indies, Central America and Mexico. The North American surf scoter (*Edemia perspicillata*) has occurred off the Irish coast and the western coasts of England and Scotland, more frequently in the Orkneys and very exceptionally off the east and south coasts of England, though a pair were seen off Southend Pier about 1880. Martin (*Naturalist*, 83, 1853) recorded the surf scoter from the Firth of Forth in 1852, though the first record has been mentioned as 1838. Donovan recorded the buffel-headed duck (*Bucephalus albeola*) in Britain in 1819; others have been noted from Yorkshire, Aberdeenshire, Orkney, Yarmouth and Norfolk. The harlequin duck (*Histrionicus histrionicus*), a North American nester, resident in Iceland but almost unknown elsewhere in Europe, was first recorded by Montagu (1802) from the Isle

of Lewes. Several records have since been proved of other species, and a drake was shot at Crossens, Lancashire, so recently as 1916 (Check List, Lancs. and Cheshire Fauna Committee, 1930).

Salmon Spawning in Progress

In the tributaries and small streams which feed the salmon rivers of the British Isles, spawning is now actively taking place and will continue until about mid-January. What determines the salmon's choice of a spawning stream has not been discovered, but the oxygen content of the water seems to be one factor, and others certainly are the presence of a suitable current and suitable gravel in which the eggs may be laid, fertilised and concealed. It is generally supposed that the spawning adults are always fish returned from a sojourn in the sea, about four or five years old, but recent evidence from Ireland suggests that sometimes salmon may spawn before they go to the sea. In the Shannon, R. Southern, while investigating the age and growth of parr and smolts, found that a number of large male salmon parr had enlarged testes, and a number of these had upon their scales the marks of wear and tear which indicate that they had passed through a spawning season (*Field*, June 10, 1933, p. 1336).

Most of the salmon smolts in the Shannon make for the sea after one or two years in fresh water, so that parr like the Killaloe specimen, 10·4 inches long, four years old, with two spawning marks on its scales, must be very rare. But precocious male salmon with fully developed testes are common in the Liffey, and one of these, 5·8 inches long, had one full spawning mark and traces of the formation of another, at the end of its third year. The milt from such individuals has been found to be capable of fertilising salmon ova, and it now remains to observe and record the natural process in respect of these precocious males.

Lime and Grassland

Liming is a winter job and will now be in progress on numerous farms. On grassland, the effects are in general slower and less spectacular than they are on arable land. In fact, at the outset, the result of liming pasture is often more apparent to the livestock than it is to the farmer. Thomas Hale, in the "Compleat Body of Husbandry" (1758), says: "The first year I used chalk on my pasture grounds I was afraid I had thrown away my labour. . . . I perceived that the grass was not a whit the taller or fuller for it and therefore I thought it did no good, but I soon found from my cattle and in my dairy that chalk gives a body or richness and sweetness to the grass though it does not increase the quantity." This effect, well known to graziers on lime deficient soils, is no doubt associated with the increased calcium content of the herbage and the gradual incursion of clovers that enrich the grazing both in protein and in lime.

Farmers of the early days had little guide apart from local observation whether lime was needed for their soils, and disappointment must have been frequent. The matter is now on a more precise footing, thanks to laboratory methods for determining the quantity and intensity of acidity. In the case of grassland, such methods assist in deciding if the basic phosphates usually applied will suffice to improve the herbage or whether the greater expense associated with liming must be undertaken.