

Some Observations on the Orkney Vole,  
*Microtus o. orcadensis* (Millais).

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PREAMBLE

The observations that follow, made during a period of naval service in Orkney, are neither as complete nor as systematic as I would have wished. They are put forward in the hope that they may be of service to anyone wishing to investigate more fully the biology of a mammal of unusual evolutionary and general interest. While reference is freely made to Barrett-Hamilton and Hinton's *History of British Mammals* it is the intention mainly to enlarge upon those aspects of the vole's biology which seem to have received least attention.

The Orkney Vole, *Microtus o. orcadensis*, is widely and abundantly distributed throughout the Orkney mainland, from pastures and arable land by the sea where it seems to be most numerous, to 700 feet or more on the heather-clad hills. Runs are perhaps more conspicuous among heather than on well-grazed pasture, but cultivated land was generally found to support a larger vole population. On higher ground runs frequently extended through wet *Sphagnum* moss and wet patches of Heath Rush (*Juncus squarrosus* L.).

Barrett-Hamilton and Hinton record the mainland vole *orcadensis* as occurring on Shapinsay, and some doubt still seemed to exist on this point. A detailed search on 16th and 18th May and 5th June 1943 over most of the island, but particularly in the south-east corner, revealed no trace of voles. No vole runs, usually plain enough evidence of their presence, were seen anywhere on the island, and Mr J. Nicholson, farmer, of Feastown, locally reported as interested in mammals, said that he had never known voles on the island during this lifetime.

Underground tunnels, nesting chambers, and burrows in localities from sea level to 700 feet were dug out between November 1942 and June 1943.

WINTER NESTS.

On 28th November, at 700 feet above sea level on Wideford Hill, near Kirkwall, a vole was seen to enter a burrow which was subsequently excavated. A fairly wide straight trench, ten feet long, was dug out along a main tunnel at a depth varying from a few inches to 30 inches. The trench uncovered:

(a) Three nests 4-5 inches in diameter of shredded Heath Rush, situated off the main tunnel and just below the surface. All were quite dry.

(b) Several dead end tunnels about 24 inches long branching the main tunnel, with pieces of green heather 1.5 inches long at the closed ends of three or four of them,

(c) An intricate mass of tunnels in rocky ground down to 30 inches, into which the main run extended. Tunnels penetrated below 30 inches.

Small flat stones in this area, which measured between 2 and 3 feet across, were used as dung heaps; four of them here but none elsewhere in the tunnels.

In an arable field at Evie (sea level) about a dozen short burrows were dug out on 6th January. These were usually situated at the end of short runs branching off the main tracks through laid oats and stubble. Each burrow had two entrances up to 2 feet apart and 12-2 inches long, leading to an oval chamber 6 inches by 8, at a depth 6-9 inches below ground. Two voles were taken in a 5 inch diameter nest of pieces of oat straw up to three-eighths of an inch long. These nest chambers and burrows closely resembled one dug out on 28th November 1942, to the entrance of which voles appeared to have dragged and partly eaten a vole trapped twenty yards away. In this case (Fig 1) the nest measured about 6 inches by 8 and was built of dead grass, *Sphagnum*, and pieces of dried fern. In pasture land runs led to burrows 18-24 inches long, with several nests four inches in diameter, of old wet material under large flat stones

One winter nest which measured 12 inches by 9 was dug out, empty but dry. Barrett-Hamilton and Hinton record 8 inches by 5 as the largest nest.

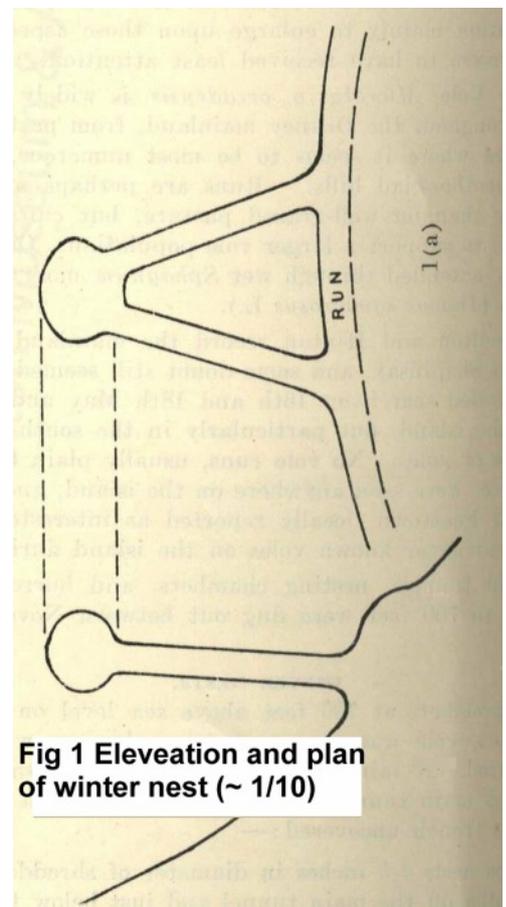


Fig 1 Elevation and plan of winter nest (~ 1/10)

## SUMMER NESTS.

On 17th March 1943, 5 adult and 3 juvenile voles were caught during removal of a 2 feet high pile of sandbags on Hatston aerodrome. All adults had large moulting or abraded dark patches on the back, with the red-brown tips of the hair missing. The young measured 40-50 mm. in overall length, were naked beneath but with dark hair on the back. The female ate one of them when left with the litter for an hour and a half. Barrett-Hamilton and Hinton quote Kinnear as finding no young except one, a quarter grown, at the end of May, and Millais as stating that the first litters appeared in April. Similarly moult is said to occur in May and September. also on 17 March a nest was dug out on a stream bank at 200 sea level. Fresh soil had been seen at the entrance seven earlier, and the site and plan were almost identical with the winter nest dug out at the same place on 28th November (Fig. 1). The nest was of shredded dry grass, and fitted closely into the chamber of six inches by four.

A hundred yards away, again on the stream hank, another burrow was dug out. The nest was incomplete, only the roof having been built. It is thought that voles bred more commonly in the grassy banks of the stream than in the heather nearby.

## UNDERGROUND SYSTEM.

On 4th May 1943 two burrows were followed up and dug out. No voles were seen during digging, which uncovered an area of about 15 feet by 5 of the underground system, of which only 8 feet by 3 could be at all clearly illustrated (Fig. 2). Two nests were found, both **dry** and in good condition, one of them apparently *newly* completed. Tunnels went down to 30 inches through 18 inches of loam and red clay and 12 inches of peaty soil and stones.

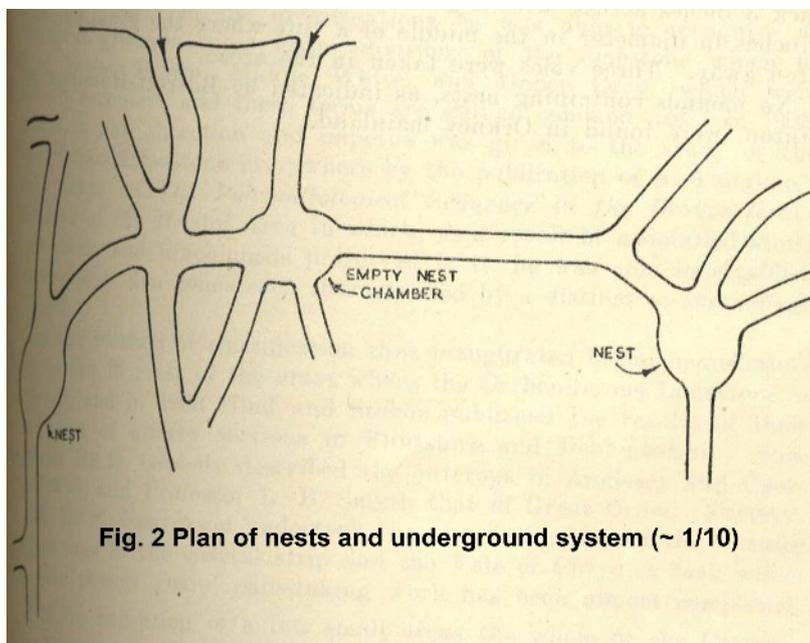


Fig. 2 Plan of nests and underground system (~ 1/10)

An area of flat damp pasture 60 yards by 20 at 200 feet above **sea** level was searched on 20th May. All runs were followed through but only one nest was found. This was above ground, built into a large tuft of grass, and of shredded dry grass stems. There were, however, a good many runs and burrows in a nearby bank.

On 4th June a wide area of ground at the North end of Hatston aerodrome (an area locally renowned for voles) was searched in the same manner, and burrows dug out. Nests of the type shown in Fig. 1 were found in this dry well-drained pasture. Voles were most numerous near piles of stones, or in long rough grass. Fairly large areas of flat ground, without ditches, stones, or banks, held no voles. A well-worn track 3 inches across, with a good many offshoots, led to a dung heap 3 inches in diameter in the middle of a tuft 'where the grass had been eaten away. Three voles were taken in the area.

No mounds containing nests, as indicated by Barrett-Hamilton Hinton, were found in Orkney mainland.