LAKELAND NATURAL HISTORY

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LAKELAND NATURAL HISTORY

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PREFACE.

THE varied contents of this the seventh volume of the Transactions of the Carlisle Natural History Society are bound together in several respects. Collectively, they are representative of Cumberland, Westmorland and Lancashire North of the Sands which, united as the land of the English lakes, are Lakeland.

All the accounts have been put together by members of the Society, several having been read as papers at Ordinary Meetings. They combine to give some idea of influences and changes in Lakeland affecting the structure and appearance of the area itself, the wild life within its bounds, and the gain of directly related knowledge. A brief consideration of them in their turn may help their common purpose.

Developments in aviation as they affect birds, and the advantages of the aerial observer, instanced in the wider grasp of certain bird activities, enter into an ornithological topic of great moment.

The subject of ice action in glacial times concerns a mighty moulding of the face of Lakeland, a remote process still being interpreted. Its effects can well be read into other sections of the book.

Windermere, the largest of the lakes, is treated as a bird haunt, with considerations of its general formation and ecology. Changes in the composition of its winter-visiting birds are shown.

On an orchid of limited habitat, the wholesale disappearance of colonies is recorded as the result of the extensive felling of pine woods.

The Grey Lag-Goose, illustrative of continually altering bird distribution, here has its local expansion shown to be coincident with the formation of haunts attractive to the species.

The Badger, as described, is an interesting example of a mammal which, all in modern times, from near extinction in the area has become very firmly established.

A regional scan devoted to part of the Pennines associates birds with other forms of life and with natural and artificial features of the country covered. The same region is represented in the succeeding moorland paper.

The narrative of progress traces the part of individual naturalists and societies of naturalists in working up the knowledge of a county.

Finally, the bird supplement includes further evidence of movements in the feathered population, some having become more pronounced in the time since the publication of *The Birds of Lakeland* in 1943.

In acknowledgment, the paper on the Ice Age has been gone over by Dr F. M. Trotter of H.M. Geological Survey, the two maps have been drawn by David Dalton of Carlisle, the frontispiece and Raven picture are the work and gift of W. C. Lawrie of Workington, and the production of the volume has been helped in different ways by other non-members of the Society.

The frontispiece has special interest in showing an old Buzzard nest annexed by Peregrines in a site which, to Mr Lawrie's knowledge, had previously been used by Buzzards for thirty years. Furthermore, while the bird to the left in the picture is definitely known to be the falcon in possession, the bird to the right is not the tiercel, which was afterwards seen, but, as might fairly well be judged, another falcon. At rare times there are three apparently adult Peregrines about an eyrie, and here three were seen several times, the intruder or hanger-on in this instance seemingly being a female.

The Raven family, pictured in illustration of another distinctive Lakeland bird, are in one of five nesting sites variously used by both Raven and Peregrine in the particular locality.

James Storey, that grand old man of the Solway, who is prominent in the account of the Grey Lag-Goose, died on 9 June 1946, in his eighty-second year.

The felling of the last-known wood in the immediate Carlisle district, one at Stoneraise, to shelter Creeping Lady's Tresses has been begun in the month here appended.

THE EDITOR.

CARLISLE, August 1946.

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THE BADGER IN CUMBERLAND.

By Ritson Graham, M.B.O.U.

In this brief survey of the history and attempted assessment of the present status and distribution of the Badger—*Meles meles meles* Linn.—in Cumberland many factors are disclosed which are similar to those encountered in a study of the Roe Deer—*Capreolus capreolus thotti* Lönnberg—in the same county printed in the Transactions of the Carlisle Natural History Society, Vol. 5, 1933.

The neglect and the lack of information by our early naturalists concerning these two native mammals of ancient lineage are features common to both. The Badger and the Roe Deer were formerly regarded as being extremely scarce throughout the whole of Lakeland and their final extinction was widely accepted. In recent times, however, the once precarious pair have considerably increased, and they have also received a greater degree of attention from field naturalists. As these shy and retiring creatures increased, so did the knowledge concerning them, a coincidence which cannot be overlooked when we come to consider their exceptional progress from scarcity to comparative abundance.

Upon investigation we frequently discover these two quite unrelated mammals to be very closely associated in the vicissitudes of their destiny. This remarkable similarity of ways continues. There are to-day few Roe Deer haunts without a Badger earth somewhere on the wooded slopes or in the scrubby glens, and often the locality is new to both of the animals, for though the two differ considerably in habit, they do not differ greatly in their choice of habitat. Thus the connection between the two could not reasonably be omitted.

The great antiquity of the Badger in Britain is established beyond doubt, and there are cave bones and numerous place names to prove its existence in Lakeland at a very early period. Professor Owen in his *History of Fossil Mammals and Birds*, 1846, claims that, subject to the authenticity of a skull found in Miocene formation in Suffolk, the Badger will prove to be "the oldest known species of mammal now living on the face of the earth." Concerning the prehistoric existence of the Badger in the Faunal Area of Lakeland, there are the jaw bones and teeth found in the Helsfell deposits by John Beecham, in about 1880, and which are preserved in the Kendal Museum. Macpherson in his *Fauna of Lakeland*, 1892, fails to include these Badger remains in the list of animal bones found in the Helsfell caverns and I am indebted to A. Wainwright of the Kendal Museum Committee for the information.

In addition to this evidence from the only suitable Lakeland locality where such has been sought, there is ample proof of the early existence of the Badger in our faunal area in the frequent occurrence on the map of the place names Brock, Grey, Bawson and Pate. The familiar place name of Brock alone ranges the country from the lower reaches of the River Eden to a number of crags extending up to 2000 feet in altitude in the Lakeland fells, whilst the many farm, field and fell names of which Brocklewath, Brockholes, Brocklands and Brocklebank are typical examples, all testify to the prevalence and wide distribution of the Badger in former times.

In the middle of the seventeenth century the hitherto unmolested Badger became an object of persecution in Lakeland, particularly in those districts where it was most numerous and where its depredations, real or imaginary, were calculated to cause most harm or concern. These were chiefly the fell and moorland districts. The parish registers of certain parts of Cumberland, Westmorland and North Lancashire contain entries showing that head money was paid out of the parish funds for the destruction of Badgers, the earliest being one from Penrith dated 1658. The name there used for the Badger is Payte and the fee one shilling a head.

The term Brock was, however, already in use elsewhere and it remained the common name for the Badger until almost the end of the seventeenth century. The modern name of Badger first appears in the parish books in 1695, though Dacre in Cumberland and Barton in Westmorland continued to use the old name for many more years.

With unremitting zeal this paid persecution of the Badger prevailed in the hill parishes of the three counties for almost a hundred years, the first payment recorded being the one from Penrith dated 1658 and the last from Ulverston in 1741. During this period the payment varied from a shilling to sixpence a head and, in a few instances to fourpence.

The parishes of Penrith, Kendal, Dacre, Barton, Kirkby Lonsdale, Orton and Ulverston are all mentioned as having paid head money for the killing of Badgers, and Kendal heads the list with seventy-three Badgers paid for within a period of eight years. Detailed information on this sordid sidelight on the Badger in Lakeland is to be found in *The Fauna of Lakeland,* pp. 40-42.

During this period the Badger was undoubtedly equally as numerous in suitable districts in the low country as it was about the fells and subject to a similar, if unrecognised and unrewarded, persecution. The wholesale destruction had its effect as is evidenced by the fact that the entries in the parish registers gradually become fewer before they finally come to an end.

By the beginning of the nineteenth century the Badger had definitely decreased, and its position worsened as the century advanced. The early naturalists Richardson and Heysham, and later Macpherson, all record the scarcity of the Badger even to the extent of its verging on extinction. Dickinson in his *Cumbriana,* p. 172, states: "Badgers are now (1875) extinct in the wild state in Cumberland but were not scarce until about the end of the eighteenth century." Reporting the capture of a Badger near Grasmere in 1863, *The Westmorland Gazette* adds that, "the old hunters say that the last Badger caught in Westmorland was in 1823": whilst in Dumfries, the Scottish county adjoining Cumberland, Robert Service writes: "The general opinion is that the last of the native Badgers met their fate about 1860." The scant accounts in local literature of this period confirm the decline and the extreme scarcity of the Badger.

Dr John Heysham's account of the Badger in his "Catalogue of Animals" in Hutchinson's *History of Cumberland,* 1794, is typical of the period. "The Badger," he writes, "is an indolent animal, burrows underground where it sleeps the whole day, feeds only at night. It lives upon roots, fruits, grass and insects. Badger bating is a common diversion in the north of England."

Macpherson in his *Fauna* expresses a doubt as to total extinction in: "Whether the Badger really became quite extinct in Lakeland within the limits of the eighteenth century is a difficult point to settle. On the whole the balance of evidence seems to favour the belief that this species lingered on the fells of Cartmell and Windermere for at any rate the first thirty years of our own century." Nine years later, in 1901, in *The Victoria History of Cumberland,* the same writer expresses some improvement as well as a similar doubt thus: "Formerly Badger earths were to be found in most parts of the county, from the shores of the Solway Firth to the borders of Westmorland. Some years ago it appeared probable that the old race of Badgers had become extinct, but of late years Badgers have reasserted their rights of domicile in some of our larger covers. Whether these animals had escaped from confinement is difficult to determine but as wild Badgers certainly exist in Westmorland, it is possible that though the number of Badgers in Cumberland dwindled to very small proportions the original stock never became entirely extinct."

Harry Britten in his "Mammals of the Eden Valley" (*Trans. Carlisle Nat. Hist Soc.*, Vol. 1, 1909) writes of the Badger: "I have only one record of the occurrence of this animal. This was on Skirwith Abbey estate near to Langwathby (Cumberland) where one was trapped by my father about 1888."

The generally recognised scarcity of the Badger towards the end of the nineteenth century, whilst certainly real, would probably not be so great as the various writers imagined. The nocturnal habit of the Badger and its exceptionally unobtrusive way of life render it at all times a much under-rated inhabitant of the more remote parts of the countryside, and to-day, when this mammal is much more numerous throughout practically the whole

of the county, these characteristics greatly obscure its real strength.

There is a conspicuous hiatus in local Badger information during the first decade of the present century, an occasional newspaper account of one being trapped being about all that I can discover.

Before entering into the period of my own experience and investigation, the vexed question of the introduction of Badgers into certain parts of Cumberland must be referred to.

It is widely claimed that Arthur Lawson liberated Badgers, which he obtained from Ireland, in the Hesket-Newmarket district. Referring to this event the local press of April 1929 states that "several years ago the above named gentleman liberated two Badgers, a boar and a sow, and there is no doubt that from these have sprung a good number of the Badgers which are now about the countryside." The same account also refers to Badgers having been introduced on the Naworth Castle estate in: "On the Naworth estate about 100 years ago, four Badgers were liberated by the then owner near Irthing and established themselves in a fox's earth."

Macpherson mentions two instances of Badger introduction, one at Edenhall and the other at Castlesteads. It is also frequently stated that Canon Rawnsley had Badgers introduced into Gowbarrow Park, a National Trust property in Lakeland which he did so much to acquire. I can, however, find no reference to this in any of his many books on the Lake District. There is an early reference to the Badger in Gowbarrow which cannot be associated with this reputed introduction. It is by William Hodgson, the Cumberland botanist, who resided at Watermillock, which is less than two miles from Gowbarrow, and reads: "The Badger has for many years been regarded as extinct in Cumberland. Quite recently, however, "brock" has reappeared amongst us; stray specimens continue to be reported from different quarters; .... During the summer of 1885, John Greenhow, the gamekeeper at Gowbarrow Lodge, informed me that a solitary Badger had taken up his quarters among the rocks on the adjoining fell. After an unmolested sojourn of several months, the animal had not long ago disappeared." (*Trans. Cumb. and Westm. Assoc.*, No. xi.)

Whatever these introductions of the Badger into various parts of Cumberland may have amounted to, or whatever their success, it is nevertheless a fact that all but the last named locality are notable Badger haunts to-day. But then so are many other localities which are far removed from the sites reputed to have been artificially colonized.

The period now reached is that following the war of 1914-18 and the beginning of my own interest in the Badger population of Cumberland.

Before giving any special attention to the Badger, I had a knowledge of only about half-a-dozen earths or setts, and this despite many years of outdoor observation in most parts of the county; such is the unobtrusive nature of the Badger and the obscurity of its haunts. None of these early earths were ancient, or even old, and two of them had not existed before 1914. As soon as particular attention was directed to the Badger and its haunts, two prominent facts emerged, one being the surprisingly large number of strongholds and the other the very considerable age of many of them. Regarding the first, I find that my first year's list of earths visited rose from seven to twenty-seven, and that two years later the number had increased to fifty-two. Though the increase has been less remarkable during the succeeding years it has nevertheless continued, and new haunts continue to come to my notice at a greater rate than my limited time allows for their inspection.

In considering the haunts of the Badger in Cumberland, as distinct from its distribution, I find that they can only be described as varied, yet they demand more than a word. Many, probably the majority, of the earths I have examined are situated on the banks of streams, and in this general statement I include every kind of waterworn defile, from the narrow ravine to the wide river valley, a particular type of physical feature abounding in Cumberland. Within this broad classification of haunt there exist many types of site and a variety of substance, the latter ranging from bare rock to the finest sand, and the earth varying accordingly from a clean crevice in rock to an extensive series of large dumps and holes in a bank of sand.

The position of the sett in the broad valley or the narrow gill is as varied as the site itself; it may be almost at water level or on the brink of the bank, at the head of the water which feeds the gill or down by the broad sweep of the river. The majority of these valley earths are sheltered and more or less concealed by trees or bushes; exceptionally they are in the open, though this is often due to subsequent felling of the trees or clearing of brushwood.

The next most common type of haunt is the tree, scrub or bracken covered bank, and these together with the banks of streams, also often tree clad, certainly constitute the majority of our Badger haunts. Yet there are many exceptions, and it would be incorrect to state that the Badger is purely a woodland dweller.

There are many Badger haunts in comparatively open country, and many earths in treeless localities. As examples of the treeless or otherwise exceptional site, we find Badgers established in abandoned quarries and old coal drifts, in thick hedgerows and disused sandpits, and in bare hillsides. Thus, whilst the bank is preferred and some cover desirable, the Badger is adaptable and can secure a home in almost any kind of country. A feature of the Badger's haunt is the evident desire of the owner for peace,

and thereby security, the earth being invariably situated in a quiet place, though not necessarily far removed from human habitation. Most earths are well away from busy roads and from towns and villages, yet the Badger can live quite near a solitary dwelling providing its own home is not disturbed or does not become too popular. Many isolated Cumberland farms have a Badger stronghold situated no more than a field's length from the house, yet so unfrequented is the haunt that the householders are often unaware of its existence.

Though the site of the Badger's stronghold is usually hidden and obscure, the earth itself is often quite the reverse. Bare and fresh soil is prominent and noticeable in an environment of green vegetation, be it a narrow gill or a broad wood, and the work of the Badger is more extensive than that of the Rabbit, or of the Fox which does little digging. It is the Badger's habit of constantly cleaning out and gradually enlarging its earth than accounts for both its exposure and its distinctiveness.

Fronting each large mouth of the stronghold is a more or less well-defined mound, a dump which is constantly being enlarged with each cleaning out of the old bedding and loose earth. These mounds resemble in miniature the tippings of our modern excavators and refuse disposers. The top of the dump is flat and firm, and the rejected material is shot over the continually receding edge, the whole forming a rounded mound on a level with the mouth of the earth. Where circumstances permit, as for instance on the top of a steep bank, the outer rim of the dump can be very high with the spoil spilling down to the beck or valley below; or where a tree blocks the path of the deposited material, the soil, sand or gravel is piled up against the trunk. In districts where reddish-brown soil prevails, I have seen trees in the vicinity of the earth smeared and stained to a height of five feet by the material carried out by the Badger.

The debris as well as the original material of the earth is carried and not scratched out and thrown back by the feet as is the case with the Rabbit, and this accounts for the difference in form and structure of the exterior of the two kinds of workings. Where the earth is dug in stiff and wet clay, this tenacious material is brought out in the form of crudely fashioned nodules and, on the outer edge of the dump, they set into hard fist-sized lumps. The dumps vary in size according to the age of the earth and to the nature of the material. Invariably the mound, however small, contains a quantity of dead and damp grass and leaves mixed with the more solid material, whatever its nature.

Underground obstacles in the form of large stones, fragments of rock, or slate, are removed and carried out to the dump. Stones of the average cobble size are frequently to be found on the mounds and, at an earth near Greystoke, I found several angular stones, each larger than a building brick, which had been removed

and carried out. In addition to the more or less obvious signs and indications as to whether an earth be occupied, it is almost always possible to find odd hairs adhering to the damp soil of a tunnel of recent use. These cast hairs are quite distinctive, being whitish at the base, black in the middle and pale brown at the tip, and they possess a characteristic crinkle.

Amongst the material excavated by the Badger I have occasionally found skulls and other bones of previous occupants, but not of any other mammal. At one earth of recent construction, a very old, if not actually ancient, skull of a Badger was found on the dump, which suggested that the site had been occupied by a race of Badgers long before the time of the present owners. A long-lost steel trap, in sprung condition, had on one occasion been dragged or carried out during a period of cleaning, and once I picked up a piece of cheap jewellery, a necklet, at the mouth of a Badger earth. This last find remains a mystery.

Before concluding this note on the exterior of the typical Badger earth, mention must be made of an example of the animal's desire for cleanliness in addition to that exhibited by its constant changing of its bedding. At many of the dumps I find, either about the sides or at the foot, shallow holes scratched in the loose material in which the excrement is deposited. Often several of these pockets in the soft soil are quite close together, and others may be found by disturbing the soil at likely places. At some well-established earths with substantial mounds and well-trodden paths none of these latrines are in existence, though similar deposits are occasionally to be found at some distance from the earth.

Next in prominence and distinctiveness to the mounds are the well-trodden paths which lead to and from the earth. These, though often few in number, are unmistakable. Where a river or other obstacle bars the way on one side, a single path leads at right angles in the opposite direction, otherwise the earth is usually served by two or three equally used highways. The tracks seldom radiate in several directions, nor do they usually branch into subsidiary tracks, but lead as main roads to the nearest fence or point of emergence from the site. When they reach open country they peter out. The only divergence from the general arrangement is where the entrances to the earth are far apart and at varying angles, in which case each hole has its own direct lead-in.

From well inside the hole to a distance of many yards along the paths there is strewn a quantity of bedding such as grass, moss, leaves and bracken. I find these scatterings most noticeable during the early months of the year, in February and March. Not every entrance to the earth possesses this evidence of occupation, nor does every dump have an equal amount of the spent bedding in its make-up, as evidently only the path and entrance leading to the sleeping quarters and the lying-in chamber of the

sow are provided with this material. Occasionally quantities of fresh grass, rolled into balls as big as a Hedgehog, are found both on the paths and elsewhere in the vicinity of the earth, gatherings lost or abandoned by the carrier, whilst the stripped banks and woodland floors tell where the material had been obtained.

Where fallen trunks or growing trees are in direct contact with the main paths or the entrances to the earths, they are often rubbed smooth or clawed bare by the passing Badgers, betraying an indulgence very characteristic of the creature.

In its excavations the Badger throws minor sidelights on local geology. The many drumlins and eskers, relics of a glacial age, prevailing in various parts of the county provide excellent material for the purpose of this mammal and in more than one instance its diggings have exposed a hitherto unsuspected ridge or hillock to be of glacial origin. In a glacial overflow channel illustrated in the Geological Survey Memoir of Carlisle, Longtown and Silloth District, 1926, it is interesting to note that old and extensive Badger workings exist at two points on the sandy margin of this ancient inland channel where, in the clean sand brought out by the Badgers, I have picked up very old and pure white molluscan shells.

A small stream valley, worn deep through a ridge of the New Red Sandstone, was always disregarded as a Badger haunt in consequence of the absence of suitable and sufficient sub-soil yet Badger earths were eventually found at two sites in this ravine. The earths were situated in a thin layer of fine sand which was inconspicuously bedded between the sandstone and the top sod, and of which I had not previously suspected the existence.

Apart from the rich brown earth which the Badgers occasionally expose in localities where the surface ordinarily betrays no trace, I have found deep diggings into very ferruginous soil which stains the Badgers a permanent rufous shade and dyes the trees and the vegetation about the earths in vivid contrast to all that is green above ground. Incidentally, many Badgers are stained a hue which is usually described as "ginger," the white parts of the animal in particular being coloured some shade of brown or tawny, a condition which sometimes give rise to the belief that a red or genuine erythristic Badger has occurred. On only two occasions have I seen examples of this rare dimorphism in the Badger in Cumberland, and in both instances it was the preserved skin that I examined. A Badger mounted in the form of a footstool was shown to me in a farmhouse in Bewcastle, in which district the animal had been obtained. It was a perfect example of erythrism, the normally white parts being coloured deep red, the shade naturally deep and not imposed by the preserver. The other was a skin serving as a bedroom rug in a boarding house near Silloth, the Badger having been obtained many years ago in the Castle Sowerby district and the skin preserved by the owner. In neither instance was the possessor aware of the abnormality of the trophy.

The friendly, or at least tolerant, relationship which normally prevails between the Badger and the Fox is well known though in point of fact the very occasional use of a Badger earth by a Fox, or *vice versa*, is seldom a permanent arrangement. Where the two co-exist it is frequently due to a recent disturbance or dislodgment of one or the other from its rightful home, and their living together is a matter of temporary convenience, a mutual expedient. More often the two are found occupying a large series of workings, though they are not necessarily actually living together. In almost all these dual occupations of an earth it is the Fox that is the interloper. I have on several occasions found Fox cubs being reared in a Badger earth and both the Fox and the Badger using the same entrance, though the Badger's quarters underground were not necessarily shared by the Fox. On the other hand the Fox frequently takes possession of a vacant Badger earth as soon as it is deserted by the original owners, but even this is only for the purpose of rearing cubs. Unlike the Fox, the Badger is almost strictly subterranean in its home life, and the former can only be regarded as a temporary lodger.

Despite the fact that the young of rabbits often constitute the staple food of the Badger, these prolific rodents do not hesitate to burrow into the dump and live in the outer ramifications of the Badger's earth generally, and they do so apparently unmolested. Many Badger earths are literally surrounded by rabbit burrows and occasionally the Badger lives in the centre of a strong rabbit warren. In such localities, particularly where the workable soil is shallow and the rabbits have their nests near the surface, I have found dozens of these rabbit nests dug out and their contents devoured by the Badgers. This kind of work was most noticeable, on an occasion early one May, in a locality where the steep sandstone bank of a stream abounded in rabbits and possessed no less than three Badger earths in a distance of little more than a mile. For about three miles along the valley the exposed and disordered nests of grass and fur appeared at very frequent intervals, this evidence of destruction by the Badgers continuing right up to the respective earths.

Though it is generally agreed that the food of the Badger is very varied, direct evidence of the creature's daily diet is difficult to procure. In this connection I can give only some of the more prominent items of food which I have found to be normally consumed by the Badger. Shallow, rabbit-like scratchings in the woods tell where the Badger has been seeking the bulbs of the Wild Hyacinth—*Scilla non-scripta* H. & L., and where these plants are rank the cup-shaped hollows are proportionately numerous. These delvings are made by the Badger's strong snout, and they are perhaps grubbings rather than scratchings. Badgers certainly forage about the corn stacks, especially in autumn and winter, husks of oats being prominent in their excrement at these times of year. The rabbit-catcher's heap of entrails is readily cleaned

up by the prowling Badger, and trapped rabbits are frequently taken from traps when these are left out overnight. An unmistakable indication of the creature's nocturnal peregrinations is provided by the overturned cakes of dry cow dung occasionally found in the fields and lanes. The object of this novel industry is to secure the many beetles and other insects that are to be found under the dung. On only one occasion have I found a wasps' nest ravaged by the Badger, although wasp grubs are regarded as common fare.

It is evident that the Badger subsists on an abundance of pickings rather than a limited range and bulky form of food. It has also the ability to fast for long periods and, as often occurs in such cases, the tendency to feast when occasion offers. It is well known that during the worst of winter's weather the Badger will be denned up for weeks on end without securing a meal, but what may not be generally recognised is the fact that, after being subject to disturbance or attack, at any season, the creature will stay in the earth for as long as three weeks together without attempting to seek food. This ultra-cautious and extremely sensitive behaviour of the Badger is a constant and strong characteristic and is in direct keeping with its unobtrusive and unsuspicious nature generally. Normally indifferent and devoid of an excess of care and regard for its welfare, the unconcerned and clumsy Badger reverts to the opposite extreme once it is given the slightest cause. The moment interference of any kind is imagined or experienced the otherwise neglectful creature becomes extremely guarded and vigilant.

Though the present distribution of the Badger is fairly general throughout the county, it is nevertheless patchy; there are parts of comparative density and others of relative scarcity. As the creature increases, the extent of its range, its territory, grows proportionally, thus the geographical distribution of the Badger is constantly and progressively changing. This is perhaps most marked in the central lake and fell region, a historic Badger country, but now practically unoccupied by either the old or the new Badger population.

It is appropriate here to remark in passing that the Cumberland hill Badger did not adopt the cairn-dwelling habit that is practised by the Badger on many of the Scottish mountains and, except for the occasional occupation of an old mining drift, there is no evidence of mountain-top dwelling by the Badgers of either the central fells or the Pennines. The hard and elevated core of central Lakeland is now, however, in process of being penetrated. In addition to the increasing number of Badgers being encountered on the Lakeland mountains by the fell packs of foxhounds during hunts, I have recent notes on earths from Thirlmere, the Skiddaw Group and Ullswater and, in Westmorland, from Martindale and Mardale. The Badger is undoubtedly climbing back to the mountain strongholds of its ancestors.

In North Cumberland, the valleys of the rivers Lyne, King, Irthing and Cambeck are all excellent Badger haunts and there are many earths elsewhere in this wild and sparingly-peopled district.

A similar condition prevails in the Pennine region. The comparatively short valleys of the rivers Gelt, Croglin and Raven, as well as those on the Westmorland side of the Crossfell escarpment, all have their Badger haunts, whilst the main valley of the River Eden is liberally occupied throughout its whole length in Cumberland. In the sand and light soil of the mid-reaches of this broad valley, from Lazonby to Wetheral, the Badger can be regarded as being fairly common and, here as elsewhere, the earths are not restricted to the main river valley.

In the Cumberland plain, the stream sides are again the chief haunts, yet there are many earths established away from the narrow and often wooded valleys. The limestone country about Greystoke and the red earth around Penrith contain many Badger strongholds. Sowerby Row and Middlesceugh are localities in this region where really old haunts exist, whilst others of equally historic interest are situated in the neighbourhood of Wigton and Westward.

In the Solway region the Badger is established in all but the actual coastal strip and its extension in this direction is of comparative recent origin.

Inland from the industrial belt of West Cumberland, the wooded and stream-intersected zone between the central region and the sea is fairly well occupied by the Badger. There are many earths in a wide district round Cockermouth, including the Lorton and Derwent valleys. In all these districts there is a sprinkling of very old, and maybe ancient, Badger earths as well as a few traditional haunts not now occupied. The majority, however, in all localities, are of fairly recent origin, the outcome of the last twenty-five years of increase in the species, an increase which continues though perhaps, during recent years, less rapidly than hitherto.

Two items of interest, which I have not been able to fit into the general account, refer to the fairly frequent fatalities among Badgers caused by road and rail traffic, and to the existence here and there of mounted specimens of late nineteenth century Badgers in private ownership. Regarding the first, I have many records of Badgers having been killed by railway trains and motor vehicles, particularly by the heavier types of the latter which are now increasingly travelling our roads. The mishaps generally occur after sunset or during the early morning, and they relate to all the railways radiating from Carlisle with the possible exception of the Carlisle-Penrith section. The bus services on the Solway, North Cumberland and Brampton-Carlisle routes have from time to time been responsible for Badger fatalities. The local press invariably announces the road deaths, whilst the drivers of the

railway locomotives concerned usually report such incidents to me. Of the few examples of the old race of Badger available for inspection, I have notes on specimens from Bassenthwaite, Sowerby Row, Bewcastle and Scaleby, all obtained in the latter half of the nineteenth century, though little further information concerning them is now to be had.

In concluding this brief sketch of the Badger in Cumberland I am conscious of much that has been omitted, of much that is not adequately dealt with, and of information that is scanty. The natural history aspect, rather than the economic, has been the object of this paper. The Badger's relationship to man, the conflict of interests between the two, the hunting and sporting sides, past and present, have not been considered. Such observations as are available to a field naturalist on this elusive and strictly nocturnal mammal are here offered in the hope that they may stimulate a wider interest, and thus increase the knowledge and understanding which is so urgently necessary of the much maligned and misrepresented Badger.

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http://www.carlislenats.org.uk/wp-content/uploads/2009/11/CNHS-Trans-Vol-VII.pdf