

# IRISH DEER AND FOREST RELATIONS

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**F**EW of those who have any knowledge of deer will have failed to notice that these animals have increased in numbers considerably within the last fifteen years or so, on the mountains and uplands and even in the plains of this country. The forester has good reason to know this but were he to reflect would he, it is wondered, include himself as one of the contributory causes of this increase?

During the last and in the early parts of this century, the landlords' walled demesne and deerpark was the main sanctuary for deer. A deer breaking out of these walled enclosures, as they occasionally did, found himself in a land without much cover or welcome for him and amidst a people never far away from the border-line between hunger and starvation. Without the friendly cover of woods, he was given little chance of survival.

With the passing of the demesnes and the breaking down of deer park walls in recent times deer have emerged into the open country and have found alternative sanctuary in all parts of the country and have multiplied. This increase is general but there are one or two important exceptions in places where deer have been on the decrease during the last two or three years. But what of still much earlier times?

Of the various species of deer now found in Ireland only one, the Red Deer, is indigenous to our country and is recorded in history and by travellers from the earliest times. It was natural to and ran unfettered through the then extensive forests of oak, birch, ash, holly and fir, which covered the country, the Giraldus Cambrensis during his meanderings in Ireland in the 12th century made reference to them. The Normans, with their love of the chase, imported deer into Ireland and in 1244 a record shows that eighty deer, including Red Deer, were imported from the Royal Forest of Chester to stock the new Royal Forest at Glencree, County Wicklow. It is accepted that this event does not imply that Red Deer have become extinct in Ireland before 1244. The fact was that a wall or containing fence had been established in Glencree to keep in the introduced deer and possibly exclude the indigenous humans. Also it is clear that it would not have been worth any invader's while or neck to go hunting Red Deer in the hostile woods of County Wicklow. The existence of Red Deer in this country from the earliest times is clearly established by remains found in bogs and superficial gravels and in caves. At about this time too, 1250 or thereabouts, large numbers of Fallow Deer were introduced to the more strongly held estates of the Normans.

After the arrival of the Normans the gradual clearing of the natural oak woods began, first for boat and house-building and later for iron smelting until about 1750 when most of these woods had disappeared and with them most of the Red Deer.

In earlier times, during the reign of Queen Elizabeth I of England, the clearing of the oak woods which formed the main centres of Irish

resistance to the invaders became good politics and was pressed on apace. The iron smelting initiated about 1610 was approved as an aider and abettor of this process.

Round about 1750 we find that Red Deer were on the verge of extinction in the Knockmealdown mountains and another record shows that a few Red Deer survived in the Galtee mountains and Glengarriff until after 1830. While travelling in the West in 1834, William Thompson records that there were still 13 deer in Connemara and 12 in the barony of Erris. An exceptionally heavy snow in 1834 seems to have led to the extinction of the Erris herd although, and this will be of interest to Western foresters, it is also stated in a somewhat contradictory manner that the last specimen was shot near Nephin Beg in 1830.

Meanwhile, from about 1750 the landlords were planting trees in their demesnes, building walls and introducing species of deer within these enclosures. Various strains of Red Deer were imported from Scotland and England. However, a statement made in 1900 that "descendants of the Irish Red Deer only survive among the wooded mountains that adjoin the Killarney lakes and on the estate of Lord Fitzgerald, Wexford," is generally accepted as being correct. The Wexford herd in the Deerpark of Johnstown Castle, now a school and soil research station for the Department of Agriculture, was broken up about 1914 but some fine specimens have been preserved in the National Museum, Dublin. It is now generally agreed that Killarney is the only remaining district where the descendants of the original natural Irish Red Deer are to be found. There is, however, considerable doubt as to whether the pure native strain is still in existence.

Besides the Red Deer, the earlier introduced and later augmented Fallow Deer became widely established and introductions in the latter part of the century gave us the Japanese Deer and the Roe Deer.

## LIFE HISTORY AND CHARACTERISTICS

It would be quite impossible here to deal adequately with the complexities of the life and habits of deer species known in this country as these not only vary from species to species but also within each species according to the part of the country in which they live. The account offered here, therefore, attempts at no detail but aims mainly at conveying the important facts of a deer's form and habits in a general way to those who may have very little knowledge of these animals.

There is one characteristic which the name "deer" suggests to most and that is the antlers. These are the horny growths which sweep and branch upwards with poise and nobility from and around the foreheads of most species of deer. To the huntsman and deer stalker the size and formation and ramifications of these antlers are criterion of quality and of achievement after a successful kill. To many poets they have been an inspiration and to the ordinary person they make the deer the notable

animal it is. The male deer or stag bears these antlers, the female deer, hind or doe has none. The form of these antlers varies from species to species and is one of the most obvious means of identification, at least in the case of the male. The development of these horny growths is interesting. When deer are about ten months old horns start to develop on the young male deer and from this to the second year they appear only as two spikes a few inches long. In the third year they develop, growing upwards and forming off-shoots. In the fourth year further height growth and stronger formation with additional branching occurs, and so on until the fifth or sixth year when the horns are regarded as fully developed. These stages of development are illustrated in Illustration II.

The spikes or horny points on a stag's antlers are generally known as points or tines. To the deer-stalker or hunter achievement is the killing of an animal with finer antlers and more points than normal. The pointed off-shoots from the main beam of the antler are also named. Thus the brow tine is the forward and upward off-shoot from the main beam immediately above the forehead or where it emerges from the head. The second outward and upward branch from the head is known as the "Bay or Bez" tine and the third branch as the "Tray or Trés" tine. The top set of points is known as the crown or coronet.

These points are illustrated and indicated in Illustration I which is a drawing of the head of a Red Deer stag with a fine set of antlers having 12 points. (See Illustration overleaf).

The Antlers are always solid and not hollow as in cattle and they weigh very heavily and require considerable building up so that in areas which are overstocked or the type of food poor, the antlers become quite degenerate on the stag. In certain areas it is said that the stags eat the cast antlers in order to contribute to the bone building of the new antlers.

Added to this development but almost as a separate phenomenon is the casting of the antlers or horns which occurs each year quite independently of any other development. In short a buck or stag loses its antlers or horns completely at a certain time of the year and then proceeds to grow them again and this event takes place each year in the life of the deer. In this country the phenomenon occurs between February and the end of April with most deer and so the stag or buck starts off at once to grow a new set which goes on until about August when the horns or antlers are fully developed. When growing, the antlers are covered with a furry skin called velvet, and when the stage of full development is reached, the deer rubs off this velvet until the hard horn is completely bared. This is accomplished by rubbing off the velvet on tree branches or other stiff objects.

Towards the end of August and through September, the preliminaries to the mating or rutting season take place and in most species this takes the form of battles between the fully grown stags for possession of groups of does and the result usually is that the strongest stags take over possession of numbers of does and keep company with them in a most

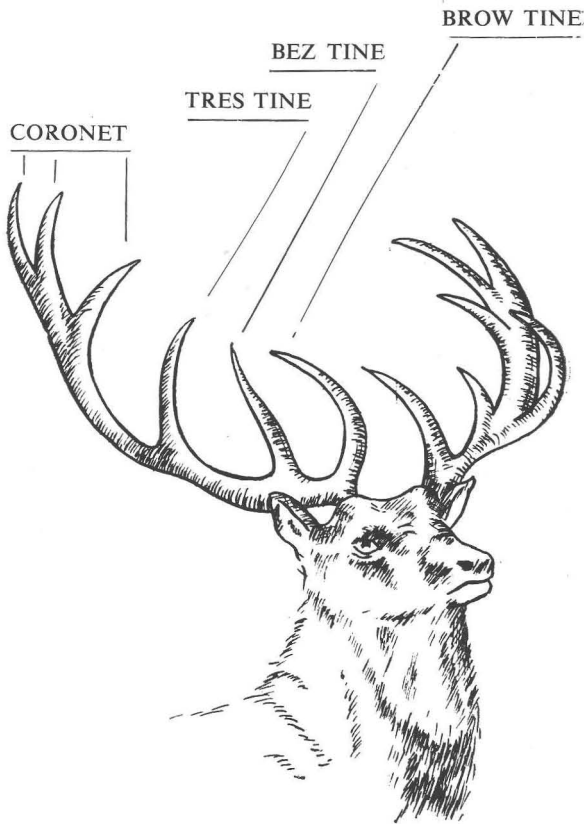
**RED DEER HEAD. 12 POINTS.**

ILLUSTRATION I.

jealous fashion for the month of October or thereabouts. At this time also, the roar or call of the stags and sometimes the clash of antlers can be heard echoing through the glens. Certain fine stags may dominate a district for years and annually beat off less endowed stags for possession of his pitch, but with old age the inevitable happens and some day a younger stag conquers, after which the one-time "monarch of the glen" after a few belated attempts at asserting his authority, has to lead a lonely bachelor life.

When the rutting season is over in November, the stags wander off on their own in small groups to different locations away from the does.

In certain species the stag may keep company with a doe or does the whole year round but this is not usual.

The chain of events is completed with the dropping of the calf or fawn by the doe in or about May. It is unusual for deer to have more than one fawn, but unless they lose their mothers the one fawn nearly always survives. The fawns are laid in a well camouflaged nest until they can walk and as they do not give off any scent, they are safe from a possible fox or dogs.

For food deer depend on grass, trees, shrubs, in other words, they are graziers principally, and browsers. The development of the animal and particularly the antlers depend greatly on the type and amount of vegetation available. When ground becomes overstocked with deer or where the vegetation is poor, the animals are small and puny with scrubby antlers. Deer are a menace to farmers' crops in districts where they are numerous and they also eat the leaves and twigs of broadleaved trees. They eat the bark and leaves of conifer trees also but this is not always regarded as a natural food for deer.

## THE SPECIES

### **THE RED DEER (*Cervus elapus*). Indigenous to Ireland.**

This deer has been described as the finest animal embodiment of nobility and freedom. In paintings and in poems it is invariably described as the "monarch of the glen" or the monarch of the Forest. These eulogies are well merited.

The Red Deer is found all over Europe where there are large forests, from France through Germany to Russia and south to North Africa in Syria and even on to Persia, in England and in Scotland.

In Ireland, the species is found principally in the Killarney district and in the Wicklow mountains. It is generally agreed that the Killarney deer are not now pure natural stock. Up to about 1880, it is believed that the stock in and out of the Deer Park at Muckross was of the pure native strain. Later, however, stags were imported from Scotland and from Windsor Great Park and soon an improvement was noticed in the size and general bearing of the antlers from shot deer. Also, the deer became heavier and a good stag of 18 stone and 10 points, shot round about 1870, could not compare favourable with a good stag of 26 stone and 12 points about 1916. The native type of deer was definitely smaller, redder, and its horns more upright and thinner than the breed later met with which were heavier, with antlers thicker and more spreading. Recently, fine stags have been shot and 13 points with 27 stone have been recorded. In Killarney, the Red Deer are confined in the Vincent Memorial Park at Muckross and in the Kenmare Demesne and range free on Mangerton through Torc on to Derrycunihy where they are said to be about 300 in number.

In Wicklow the strain is not native though two definite types are recognised by some observers. The stock is mainly supplied from the nearby Deer Park at Powerscourt, which have spread westwards and range across Glendalough into Glenmalur, into Aughavanagh, in the foot hills and valleys of Lugnaquilla. Red Deer were also at Ballinacor in Glenmalur, but whether the herd have broken out or was dispensed with is not known.

Red Deer are not numerous in Wicklow and are unlikely to increase greatly as they are less vigilant than the Fallow and Japanese deer and fall an easier prey to the marksman or pot hunter. When Dr. Peter Delap published his peerless record of his personal observations of Wicklow deer, he estimated the Red Deer in Powerscourt at 60-65. It is likely that there were more deer outside the park at that time but while they must undoubtedly have spread since then and increased their range considerably there are no reliable grounds for believing that there are more than 60 deer of this species in the Wicklow mountain massif to-day, and there may be less. About 300 Red Deer are reported in the Killarney district. Red Deer stags with antlers of seven to nine points are usual in Wicklow, while finer stags with antlers bearing more than 10 points are rare. The Red Deer stag, the biggest of our deer, measures from  $3\frac{1}{2}'$  to  $4'$  in height at the shoulders or withers and his length from nose to tail up to  $80''$ , and his weight anything from 15 to 30 stone with records over 40 stone, but an animal over 20 stone is considered big nowadays. The doe or female is generally smaller and lighter. The stag's antlers are round, rough and grooved along their long axis. Characteristically there is a very prominent brow tine and a big tres tine with a surmounting three-pointed coroney.

The coat of the Red Deer is reddish brown and short during the summer, changing to a bristly grey affair in the winter. Two definite types are reported from Wicklow, one small and red coated, the other heavier and grey coated. The Wicklow type generally is also distinguishable both anatomically and in colour from the Killarney deer by those who have observed in both places.

The neck is long, the tail very short and the limbs slender and ears long and pointed. The face, throat and under parts are duff grey. The sides of fawns are white spotted but these disappear with age.

The Red Deer stags fight among themselves during the rutting season but it is not usual for them to do each other serious injury. Sometimes two stags may die due to interlocking of the antlers. The call of the stag at mating season is difficult to describe, but it is often referred to as a roar. Even when kept in the semi-natural state in the parks, stags have seldom been known to attack man and in the wild they put the greatest distance possible between them and humans. However, unfortunately the Red Deer are not canny as other deer and when startled pause and gaze anxiously at the intruder and then maybe run a bit, pause again and look again. Whatever may be the underlying reason for his emulation

of Lot's wife, it frequently provides opportunity for the huntsman and the downfall of the noble animal.

### THE FALLOW DEER (*Cervus dama*).

The Fallow Deer is not indigenous to Ireland but was introduced in early times. Giraldus Cambrensis made no mention of Fallow deer, but this is not conclusive evidence that they were not in the country at the time. They possibly came with the Normans with the introduction into the Glencree Royal Park in 1244. One interesting record tells of a gift of twelve fallow deer in 1296 from the Royal Forest at Glencree to Eustace le Poer, ancestor of the Powers of Curraghmore in County Waterford, but the actual date of introduction is uncertain but was certainly very long before 1600.

Since then, the Fallow Deer has spread by its own wanderings and by introduction to many parts of Ireland and is present in far greater numbers and with wider ranges than any other of our deer species. It is to be found in the midlands, west of the Shannon and on to Sligo and Donegal through Cavan and Monaghan, in Wicklow and Tipperary and Waterford, south-west to Killarney, most often in the semi-confinement or immediate vicinity of their old home demesnes and less frequently ranging nomadically, a frequenter of the lowlands and foot-hills and it is rarely met with in the mountains away from the grass and green fields.

Geographically, the Fallow Deer's natural distribution is in Southern Europe and Asia Minor. It is natural in the Ibernian Peninsula and through Southern France, Italy, Greece and Rhodes and Palastine and has been introduced into many of the more northerly countries.

There are several well-defined features by which this Fallow Deer can be distinguished from other deer in this country.

First, the Fallow Deer is smaller than the Red Deer, being from about 30" to 36" in height at the withers and about 60" to 68" from nose to tail tip and weighing about 10-15 stone in the case of fully developed males.

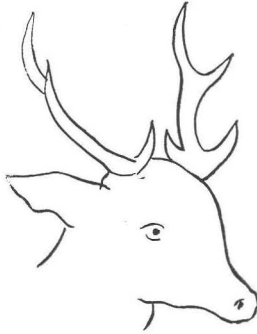
The fully developed antlers of this stag spring from the head as round horns but having thrown off a brow and a Bez tine, they flatten out in the fashion of Irish Elk antlers and give off small pointed spurs from this flattened area. (See Illustration II overleaf).

The colour of the coat in the summer is a rich fawn with white spots on the sides. The neck is greyish brown and along each flank passes a well-defined white line, and along the back and tail, which is blackish and longer than other species, runs a line of black hair. The buttocks are white. Dr. Delap emphasises a telling point in that when either the Red and Japanese deer are going away from you, the impression is just that of a white posterior but with the Fallow deer, the longer tail is emphasised as being superimposed over the white area.

2nd YEAR



3rd YEAR



4th YEAR



5th YEAR



6th YEAR. FULL DEVELOPMENT.



DEVELOPMENT STAGES OF  
ANTLERS IN A YOUNG  
FALLOW DEER.



The Fallow Deer in the wild state is altogether more cunning than the Red and rarely gives the marksman a second chance or even a first one, for that matter. This instinct of distrust towards man is very strong and they will not willingly cross or use paths or roads during the day-time. Like all deer, they come out to feed early in the morning and late at night but lie close in or near cover during the day. In the wild state these deer are not gregarious but wander about in small groups and the sexes segregate until the stag, which is polygamous, starts to gather his harem in Autumn. For food, the Fallow Deer depends mainly on grass but is also a natural browser on trees and shrubs and when occasion arises makes excellent headway with the farmers' crops. Though the antlers of the Fallow Deer are not so much prized as the Red Deer, his venison is much superior and makes excellent eating.

### THE JAPANESE OR SIKA DEER (*Cervus nippon*)

This deer is a comparatively recent introduction to this country and seemingly did not arrive till late in the 19th century. It has, however, broken out of the few demesnes where it was established and has readily accommodated itself to the country and particularly to the mountains and has become quite numerous in certain locations.

The Japanese Deer were introduced into Powerscourt demesne, County Wicklow, in 1884 and in 1935 Peter Delap stated that there were some 500-600 head and that they had overrun the entire Deer Park. Perhaps indeed, soon, they will invade the whole mountain area of County Wicklow. Japanese Deer were also introduced into Killarney, probably about the same time and found the country there equally to their liking so that the present estimate of the number of head in that district is 700 and is probably more. There is also a remote suggestion that the Japanese deer was introduced into Waterford probably at Curraghmore but it is not named as one of the species found at large in that county or the Suir valley to-day. It has a few other stations scattered over the country but has never increased as in Wicklow and Kerry. Its natural range is Northern China, Manchuria and Japan.

The antlers of the Japanese Deer are round but shorter and simpler than any others of the Red Deer group. They arise from the head with an immediate light brow tine but then develop more or less upwards without any Bez tine instead of sweeping outwards and then upwards as with the Red Deer. There is a tres tine and then the crown which may consist of one to three points as in Illustration III. (See overleaf).

The coat is spotted in summer and there is a very distinctive white region about the tail which is very noticeable when the animal is moving away. The tail is a comparatively long one—but not as long as in the Fallow deer—with a whitish tip. The coat is chestnut-red with numerous white spots in the summer of which there is little trace in the winter. The coat is very dark and almost black in the stag and doe

### JAPANESE DEER. ANTLERS.

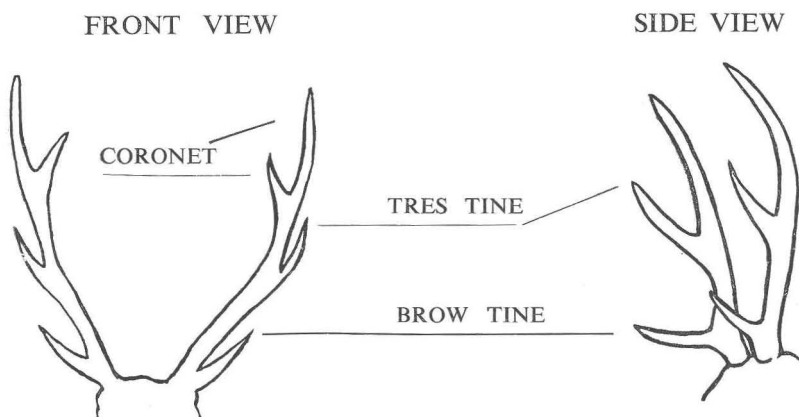


ILLUSTRATION III.

during rutting. The average height of the buck at the withers is from 2' 6" to 3' with exceptional stags up to 3' 3". Heads with seven or eight points are not unusual but nine points or more are rare. When on the run the Japanese Deer may also be distinguished from the Red and Fallow deer by reason of its hopping or jumping up-and-down motion whereas the Red or Fallow appears more to canter along with an even unhurried motion. Good sized stags of Japanese deer may weigh up to 115 lbs. entire, or 90 lbs. cleaned etc., but the majority of animals weigh much less.

The habits of this animal are similar to those of the Red Deer. It has adapted itself well to mountain conditions in this country and is a great frequenter of young plantations. Above all the other deer we know it displays the keenest sense of human approach and the greatest cunning in avoiding the marksman or hunter, but as a prize, the venison is regarded as far superior to any of the others.

### ROE DEER or ROE BUCK (*Cervus capriolus*).

Mention of this deer must be made here because it has not been possible to establish definitely whether or not it still inhabits parts of our countryside to-day. A description of the deer may at least encourage anyone who has seen a similar animal to record the fact, and make it known.

Roe Deer are recorded as having been introduced into the Gore-Booth estate at Lissadell, County Sligo, late in the 19th century. This

herd, however, became extinct as the Roe buck does not flourish within the demesne wall. Reports of animals resembling Roe deer have been received from various parts of the country but in no case yet has the evidence been conclusive.

The Roe deer is supposed to have been natural in England in early times but to have died out and been re-introduced, at any rate there is no evidence at all of its being indigenous to Ireland.

It ranges naturally through most of Middle Europe into Asia Minor and Russia and it is as a part of the forest and forestry in Germany where it is the renowned Roe buck of the chase.

The Roe Deer is a very different animal to other deer described here, both as to its size, habits and antlers. It is small, only 2' to 2' 6" at the withers measuring about 4' from tail to nose tip and weighing from  $2\frac{1}{2}$  to 5 stones. In general, colour of the coat is brownish-grey and the very stiff coat is shorter and redder in the summer and long and greyer in the winter. It has a pure white rump disk and a short stump of a tail. A characteristic of this deer is its very long ears and its straight short stout antlers which rarely exceed 1' from base to tips. (See Illustration below).

#### HEAD OF ROE DEER STAG.

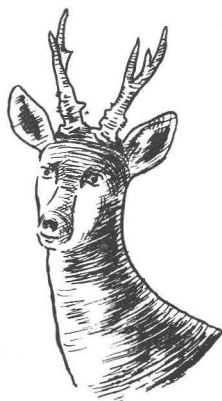


ILLUSTRATION IV.

The antlers are very rough and are covered with horny nodules or pimples and bear no brow tines and divide into three points at the summit. The bucks shed their antlers in the first week of November and new horns start to grow at once and are half grown in January and fully grown and cleaned by the middle of April.

This little animal is a lover of the glens and forests and seldom ascends to high mountain heather like the Red Deer. The rutting season commences in July and is over by August when the stag goes away alone returning only to the does and fawns in the following May. The doe drops her calves in May or June.

The Roe Deer is very agile and fast and a very good and strong jumper. Its normal diet is from browsing and is much less a grazer than the other deer described. In the semi-wild state or when cornered the stag is said to be very dangerous and there are numerous records of their ferocity and of fatal attacks on man.

### OTHER DEER

Doubtless other kinds of deer have been introduced from time to time and there may be stray individuals or small groups about the country. A white deer has been repeatedly reported in the Wicklow Mountains and is often referred to as a Chinese deer but reliable observers tend to the view that it is a "sport" or an albino, the product possibly of inbreeding amongst the Red deer. On the other hand there was once a herd of white deer at Grange Con in West Wicklow. These animals may be the descendants of that herd.

Several deer, small, with a pair of unbranched upright horns have been shot in the Roundwood area of Wicklow and are said locally to be a cross between a Canadian Wapiti introduced into Powerscourt, and the Red Deer. This does not seem probable as the Canadian Wapiti is a much heavier animal than the Red and bears bigger and thicker antlers. This deer has been shot by experienced men who would be unlikely to confuse the short un-branched horns with a young buck of the usual species but as yet, this oddity has not been named conclusively.

### FOREST RELATIONS

The deer is part of the forest life and there are few foresters who would not mourn their passing were they for some reason or other to become extinct in our country. From time to time readers of periodicals dealing with nature and country life will find contributors who make strong cases in defence of deer with a theme that deer do little damage to forest trees and indeed there are extremists to be found who will argue that deer do no damage to trees at all.

It can, however, be stated with certainty and in a spirit of tolerance and admiration towards these fine animals that deer do damage both to broad-leaved and coniferous trees in the younger stages sometimes to a lesser and sometimes to a fatally serious extent according to the species of deer and other governing circumstances. Members of the Society who attended at any of the excursions to Aughrim, Urlingford and Glencree

must be convinced of this fact. The damage to young forest trees by deer is carried out by both the antlers and by the teeth.

The damage by antlers is caused mainly during the period when the velvet is being cast from the fully developed antlers. In order to aid this process and, as it is said, due to irritations set up by the casting velvet, the deer rubs its antlers vigorously on young trees which are stiff enough to sustain the pressure. This results in a vertical stripping of the bark which is often carried right round the tree with its resultant destruction.

This type of damage is done to trees from the time they develop their stiff stems, i.e., from 1" to smooth barked poles up to six or seven inches. Losses brought about in this manner are often very serious and accounts of stricken trees in badly hit areas are as much as 100 per cent. and often over 70 per cent. causing death or serious damage. It is probably fair to state that all of the usual coniferous and broadleaved trees used in forestry practice are attacked in this way but some are much more seriously visited than others and *Pinus contorta* of the conifers with its long internodes is selected out for special attention. Scots pine is also seriously attacked and larches are also damaged but to a lesser extent. The deer do not seem to relish rubbing their antlers on the prickly internodes of the Sitka spruce as no doubt the needle-like leaves prick their heads and ears during the process but nevertheless, this spruce is not immune and is frequently damaged where there are large areas of pure Sitka and no better alternative for rubbing off the velvet. Norway Spruce receives some attention too as does Silver Fir, *Tsuga* and various hardwoods.

The type of damage described occurs in conifers from about four to eight years after planting but more serious damage still is done to smooth barked light poles of Douglas fir and Norway spruce which are frequently killed. Japanese deer are generally acclaimed the greatest villains in this respect, while Fallow deer do a good deal of damage too, particularly to hardwoods in lowland forests, but most observers agree that Red deer do comparatively little damage in the way described. However, the Red stag does erratic but unimportant damage by lashing at conifers of six foot high and thereabouts and breaking their tops.

The second type of damage, that is injury done by using the teeth, requires attention under two distinct headings.

First comes the browsing which amounts to nothing more than the eating and nibbling of leaves and young shoots in the same way as goats deal with any hedges or shrubs within their reach. This is a natural method of feeding with deer and they are particularly severe on broadleaved trees and it is quite impossible to grow beech, oak, ash and other such like trees beyond the size of stunted bushes, as where deer abound they are eaten back every year. In rare cases where a broadleaved tree manages to grow to ten feet or more, the deer can be seen with their forelegs supporting them on the lower stem of the tree and with extended

neck reaching to the leaves in the upper parts of the young tree. Fallow deer do a lot of damage in this way which is only natural as they frequent the lowlands where broadleaved trees are most often to be found. On the other hand, conifers are also browsed down in the upland and mountain plantations and *Tsuga* (Hemlock spruce) and *Abies* species (Silver firs) are selected out for special attention which frequently nullifies under or interplanting of these shade-bearing species in deer frequented country. Of the hardwoods, beech appears to be a special favourite but oak, ash and mountain ash, sycamore, Spanish chestnut and in fact all broadleaved species receive considerable attention. Often too, in newly planted areas of conifers, deer will pluck some plants out of the pits and nip the tops off others.

The second type of injury done to the trees by the teeth of the deer is the eating or stripping of bark of both conifers and hardwoods. Here we are dealing with a very debatable and much more complex subject because there are many who will not admit that deer eat tree bark and there are others who, with some reason, argue that the eating of bark is not natural to deer and only occurs under abnormal conditions.

From collected evidence of observers it seems certain that deer eat both conifers and hardwood bark. Furthermore, and conclusively, conifer bark has been found in the stomachs of deer. Further still, it is evident from teeth marks on a tree without the slightest trace of bark under the tree. With the conifers the eating of the bark occurs on young plants usually before they reach six feet or thereabouts when the bark is more tender, but taller conifers are also attacked in this way. This seems reasonable when one reflects that young conifers of the type mentioned would not have the requisite rigidity for rubbing the antlers effectively. This is a particularly deadly form of attack for while a deer may rub off the bark on one side of a young tree with its antlers, the eating process may often proceed completely round the tree and kill it.

Pines, *Abies* (Silver Firs) *Tsuga* (Hemlock spruces) and young larches are most attacked in this way and severe treatment is handed out to all hardwoods. There is no doubt that hard cold weather and snow aggravates such damage because there is nothing else to eat and hunger drives, but there is evidence that it occurs, though to a lesser extent, in the ordinary course of events. In the case of both Red and Japanese deer, eating is definitely carried on more intensively by the does during the four months preceding the arrival of the young fawns, and Contorta pines and other pines are treated in this way in the mountain areas of Wicklow.

Teeth marks are easily discernable on trees from time to time. With pole hardwoods the deer may grip the bark at the butt of the tree and then rising its head quickly rip a strip up to a few feet from the ground, and then eat it. The Japanese deer once again heads the list of the accused and convicted with the Fallow a close second, particularly with hardwoods and the Red deer a lesser offender.

In any year when an unusually hard winter is experienced and snow lies for long periods very serious damage is done to hardwoods and conifers, even up to the heavy pole stage, and this fact itself suggests an argument in support of those who argue that deer are not naturally bark eaters as the conclusion that if natural foods are available in sufficient quantity no bark eating takes place, is quite reasonable. In any event the question as to whether the eating of conifers is a natural habit with deer is one which seems to gather most answers on the negative side. There are some places where reliable observers are very emphatic that no damage is done by deer eating bark and observers in other countries very often support this view. This is stated to be the case in Killarney.

Another type of damage often experienced and most usually attributed to Japanese deer is the plucking out of young plants from their pits just after planting or in the first year or so; plants plucked out in this manner are often consumed.

Unless some outside interference occurs we must, it is considered, expect an increase in the deer population in certain mountain areas in which Red and Japanese deer are already established and in which big areas of coniferous plantations have been laid down. Forestry plantations from the greatest planting decade 1930-1940 are now mostly pruned through and opened out or in the case of the most backward areas, crops are in the thicket stage. Though blanks and open spaces are always adroitly utilised by deer for safe sanctuary, once opened up and pruned through the crops provide greater sanctuary, for the does at least, to move about in and while the nearness of the trees at this stage does not allow of free movement of fully antlered Red or Fallow stags it seems that the Japanese stag with his tidier and more narrowly borne antlers can move around woods at the first pruning and opening out stages with a fair degree of freedom. Thus, a forester does well to consider how the deer will react before pruning through very light crops as his action may be but an invitation to trespass.

Following the first and second thinnings the forest becomes a natural home and protective fastness for the deer from which they can move out and around to feed and complete their life cycles. We foresters, it seems therefore, are creating conditions which may favour the increase and spread of deer of all species extant in our country. This is certainly not a bad thing and not likely to have any seriously detrimental effect on our plantations if the number of deer can be kept under control.

At one time deer were effectively kept outside plantations by erecting 8' deer fences. This method of protection may have had practical application during the period when planting projects were not so big as they are now and when the activities of deer were more localised and their numbers less.

Now, however, at the cost of £1 per yard an 8' deer fence completely hung with netting wire and said to be—but not always actually so—deer-proof, is a prohibitive proposition as general policy. We must rely

principally on measures of control by planned and well-conceived shooting of the deer with a prime object—limitation but not extermination—in view. With a suitable number of professional marksmen operating this is possible and not difficult to achieve.

The worst deer damage ever seen by the writer has been in plantations which have become well-established after the cleaning period and have been then felt unobserved to fend for themselves in the pre-thicket stages. The deer may enter and frequent such areas for long periods before their presence or resultant damage is detected. It is in such cases that damage to individual trees may be as much as 90 per cent. over ten acres or more with a high mortality rate. If, however, deer are chivied and shot at, such damage is not likely to occur. Vigilance, therefore, on the part of the custodians of plantations is a vital factor in deer protection as it is with rabbits and competent measures should be taken when early detection is achieved.

In shooting deer or directing their control we would do well to remember that the Red deer, the finest of our deer, is the most easily shot and yet, as acknowledged by all, is the least harmful to forest plantations. The Japanese deer is an animal with much greater elusive qualities and powers of multiplication—is unanimously agreed to be the greatest villain in its relations with forest trees.

Another point worthy of comment is that the deer species are not embraced by any of our Game Preservation Acts. There are, however, certain signs which suggest that the time may not be far distant when they should be brought under the wing of some of our legislation.

Apprehension must be expressed for the prolonged existence of Red deer in the Wicklow Mountains. Even the Japanese deer may be in process of reduction though this is not yet definitely observable. Both local people and armed visitors from the city combine to carry out a slaughter on the deer quite devoid of all sportsmanship and very frequently dominated by greed or financial gain. These people who are no mere handful have one object only, to kill. The various methods by which this is achieved are not superior to those used in killing rats. There are those, too, who come out as sportsmen and marksmen but none the less, they take their toll. We may accept that this inquisition goes on the whole year round even when the does or hinds are with young. There is no close season for our deer, they are shot down at all times. It is doubtful that they can bear this. If the Game preservation authorities took an interest in this problem it is believed that they could be convinced of the need of taking deer into their conservations.

Foresters, on the other hand, would be missing something if they did not look into the future and consider the prospect of bringing deer shooting on their properties under control and bend it to their own gain as is commonplace in European countries. When Irish foresters get older and when their plantations get older too, and become forests, they



will be able to walk in company with their deer in greater harmony. Meanwhile, we in Wicklow at least, will have to try and save them from extinction.

Finally, we foresters could profitably get to know a great deal more about deer than we do. Deer are not so widespread as rabbits, about which we are bound by training to know a good deal, yet when they inhabit a district in numbers they may cause much more destruction because they cannot be reasonably excluded from planted areas by marginal fences as can the rabbit.

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