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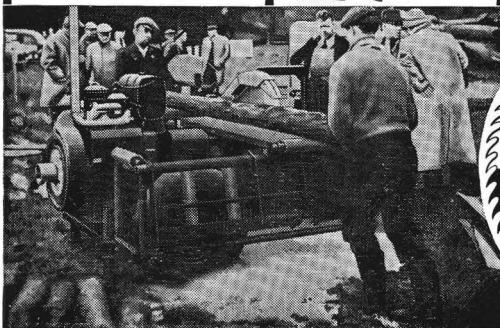
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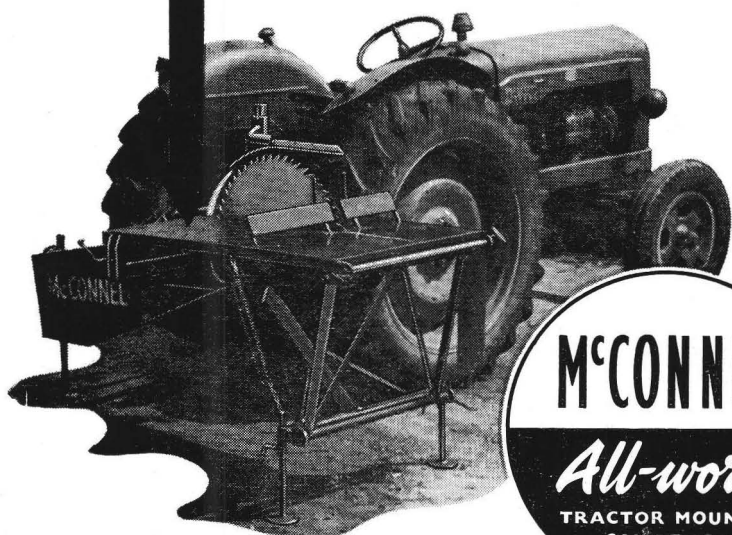
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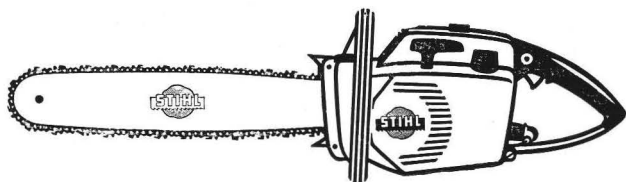
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CONTENTS

(The views expressed in the articles and notes in this journal are not necessarily the views of the Editor or of the Society of Irish Foresters.)

PAGE

COVER PHOTOGRAPH: View of Rathfarnham Forest, Co. Dublin.

OFFICE-BEARERS AND COUNCILLORS ... 33

EDITORIAL ... 35

Original Contributions :

Growth Check of Norway spruce and Scots pine
(N. O'Carroll) ... 36

The Control of Forest Insects (D. Goodhue) ... 42

Society's Activities :

Day Excursion to Pollaphuca ... 48

Minutes of 24th Annual General Meeting ... 49

Financial Statement 53

Presidential Address ... 54

Annual Study Tour ... 58

Obituary :

Mr. F. McMahon ... 73

Honorary Members :

Mr. D. Stewart ... 74

Mr. T. O'Donovan ... 75

Letters :

Professional Civil Servants ... 76

Review :

Man of the Trees ... 79

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Editorial

TWENTY-ONE years of Irish forestry were reviewed. Not only that, but they have, to a large extent, been synthesised in "the book". In the context of organised forestry in Ireland those twenty one years (from 1942 to 1963) have shown the most spectacular growth and expansion of forestry. That was at our Twenty First birthday.

Now the Society is passing another milestone, our Silver Jubilee. The four intervening years have not only produced something new in the Society (lest you forget: "The Forests of Ireland"!) but have also shown a new feeling in the field of forestry in Ireland. The horizons are broadening. The man with the planting spade begins to see over the brow of the hill where increased use of native timber lies. Already over 3,000 tons of pulpwood are used weekly in this country, and the value of timber in the building industry (especially in system building) is being appreciated.

To further the proper utilisation of our timber, a programme of research into the properties of Irish-grown softwoods is under way at the Institute for Industrial Research and Standards. So far we have been planting trees, now the demands of modern technology require that we inform the users of the potential of the timber produced from these trees. At a series of Open Days recently held at the Institute many visitors found that the research into timber properties was a development of which they were not aware. Following those Open Days, officers of the Forestry Division had their own look at the timber research work. To culminate these revelations of the field of timber research, there was a Timber Seminar, in October, at which foresters, wood scientists, engineers and architects expanded on the subject to the better understanding of this versatile material.

These developments show that our eyes are turning towards the next step in forestry—the use of our forests.

To this end there was also, in the autumn, the opening of Gougane Barra Forest Park; from the appreciation of cold engineering facts to the warm concept of recreation and leisure—another most valuable step.

These trends show, as we move into our jubilee year, that forestry also has reached milestones. Even in the short period of four years the visible changes and developments are significant—and those quoted are by no means all the changes that have occurred. The challenge to answer the demands of modern society and technology is stronger now than ever it was—and the glove must be picked up.

Growth Check of Norway spruce and Scots pine due to Potassium Deficiency

By N. O'CARROLL *

Summary

A condition of checked growth associated with chlorotic foliage of Norway spruce and Scots pine on *Phragmites* peat appeared at first examination to be due to moisture deficiency. Detailed investigation did not support this hypothesis but foliar analysis and, to a lesser extent, soil analysis pointed to potassium deficiency. The appearance of the trees was quickly improved by applications of sulphate of potash.

INTRODUCTION

LATE in 1961 attention was drawn to an area in Emo State Forest (Moanvane property) where tree growth was uneven, some parts being poor and apparently getting worse.

The 275 acre property was bought by the Forestry Division in 1940. The soil is a well humified *Phragmites* peat overlying calcareous sand and gravel. The peat varies in depth but is generally more than 3 feet and rarely less than 1 foot deep. An extensive system of drainage ditches at an average distance of 150 to 200 yards apart suggests that the area had once been reclaimed for agricultural purposes. Scots pine shelterbelts associated with some of these ditches are about 100 years old.

Just before its purchase by the Forestry Division the area was being used for the production of hay in the wetter parts and for tillage crops (probably potatoes and oats) where drainage was better. At that time it was expected that drainage would be a problem because of the flatness and relatively low-lying situation.

The species used in afforestation were Norway spruce (*Picea abies* (L.) Karst) and Scots pine (*Pinus sylvestris* L.) both in pure crops and in mixture. Reports on record indicate that early growth, particularly of the spruce, over much of the area was not satisfactory.

In the years following planting the drainage system was intensified, with main drains $2\frac{1}{2}$ to 4 feet deep and feeders about $1\frac{1}{2}$ feet deep. In parts of the area these drains were placed as close as 20 yards.

When seen in 1961-62 the condition of the crop varied from complete check, with spruce and pine averaging about 4 feet in height, to good growth.

One small plot of spruce had reached a top height of 37 feet at 21 years. In the checked areas the trees were chlorotic with very sparse foliage and many were dead although it seems likely that the final cause of death in many cases has been late frost. Spruce rooting in the checked areas was confined to the surface 3 inches. The ground

* Research Officer, Forestry Division, Department of Lands, Dublin.

vegetation was mainly sweet vernal grass (*Anthoxanthum odoratum* L.) and Yorkshire fog (*Holcus lanatus* L.) with herbs, devil's bit (*Succisa pratensis* Moench) and plaintain (*Plantago lanceolata* L.). *Phragmites communis* Trin grew in the drainage ditches.

One of the most striking features of the site at this time was the presence of ground fissures up to about 9 inches wide and 2 feet deep. These, and the dry crumbly condition of the surface peat, immediately suggested that the trouble was due to soil moisture deficiency. The appearance of the trees, however, was such that a nutrient deficiency could not be ruled out. The symptoms here were rather similar to those corrected by potassium applications in Northern New York (Heiberg and White 1951). There was also the possibility that depth to mineral soil might be important. An investigation covering these three possibilities was therefore begun.

METHODS

Since Norway spruce appeared to be most severely affected, and since it would probably be the preferred species on this area, it was chosen for detailed investigation. Twenty plots, each one fortieth acre (11 yards square) were chosen so as to sample the complete range of spruce growth from worst to best. Mean plot height at the end of the 1962 growing season was used as the site indicator in the subsequent investigations.

In the summer of 1963 two samples for gravimetric determination of soil moisture content were taken from each plot. One of these was from 0.3 inches and the other from 3.6 inches. In Spring 1964 two observation wells, 4 inches in diameter and about 40 inches deep were bored in each plot. Mineral soil was reached in 16 of the 40 wells and the depth at which it occurred was noted. Depth to water table in these wells was measured at irregular time intervals. In December 1963 foliage and soil samples were collected. Foliage samples were taken from the current (1963) needles in the upper crowns of the spruces: soil samples were taken to a depth of 6 inches. The samples were sent to the Agricultural Institute's Soil Laboratory at Johnstown Castle, Wexford, where the foliage was analysed for N, P, K, Ca and Mg, and soil for pH and available P, K and Mg.

A further investigation of drainage effect was carried out on a strip 5 feet wide and about 300 yards long. The strip was laid down at right angles to the prevailing drain direction. The height of each tree on the strip, and its distance from the nearest drain, were recorded.

RESULTS

Moisture

The strip described above contained 143 spruces from 6 inches to 15 feet high and from 0 to 62 feet from the nearest drain; and 56 pines from 9 inches to 23 feet high, and from 1 to 63 feet from the nearest drain. In neither species was there any evidence of a relationship between tree height and distance from the nearest drain.

The relationship between mean height of nineteen of the twenty plots and mean moisture content of the top 6 inches of soil is shown in Fig 1 (one of the soil samples was lost). Clearly there is a correlation but it is the reverse of that which would have been expected had tree growth been controlled by moisture content. It appears that much of the variation in moisture content can be accounted for by variation in tree growth. In fact the regression of moisture content on height and $(\text{height})^2$ shown by the line in Fig. 1, is significant, both in its linear and quadratic components, at the 5% probability level.

There was no significant relationship between tree height and water table level in the observation wells, or with the depth to mineral soil where this was less than about 40 inches from the surface.

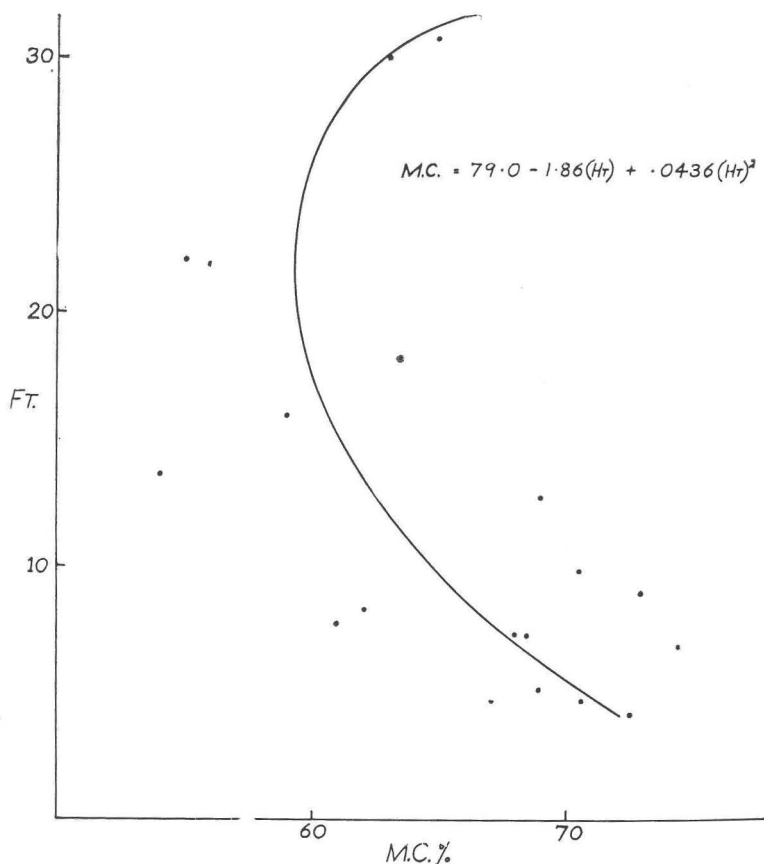


FIG. 1. Relationship between plot mean height and mean moisture content of top 6 inches of soil.

Needle analysis

No significant simple relationship was found between plot height and needle contents of N, P, Ca or Mg. Needle potassium content however showed a strong correlation (Fig. 2). The linear regression of plot height on potassium content of needles is significant at the 0.1% probability level. Multiple regression analysis using N, P and K as determining variables gave the same result.

Soil analysis

Soil pH ranged from 4.4 to 5.4 and was unrelated to tree growth. There was a significant simple relationship between plot height and available magnesium. Multiple regression analysis using available P, K and Mg as determining variables showed that plot height was significantly related to both K and Mg. The nature of this relationship is shown in Fig 3.

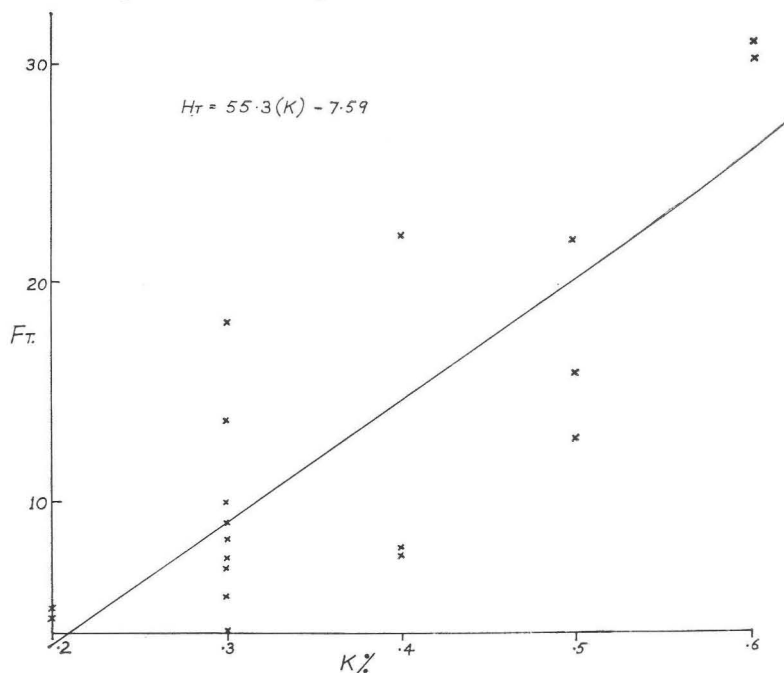


FIG. 2. Relationship between plot mean height and potassium content of needles.

CONFIRMATORY EXPERIMENT

Potassium deficiency was indicated by both needle and soil analyses, and magnesium deficiency by soil analysis only. Since the symptoms more closely resembled those described for potassium than for magnesium deficiency (e.g. Van Goor 1963) an experiment to test

the effect of potassium application was laid down early in June 1964. Fifteen of the plots used in the original investigation were extended to one tenth acre for treatment. The best two plots were excluded, since these might be considered to be non-deficient, as were three others which could not be increased in size because of their location. The experimental treatments were 3 cwts. and 6 cwts. per acre of sulphate of potash, with controls. By mid August 1964 there was a striking response in the ground vegetation of treated plots, particularly in the herbaceous plants. (Some of the better plots had closed canopy and had no vegetation). During the growing season there was no visible response in the trees, but this became obvious during the following autumn and winter when control plots reverted to the usual condition for their size category while current needles on the treated plots remained a healthy normal colour throughout. Quantitative effects on growth and nutrient content of needles are being recorded.

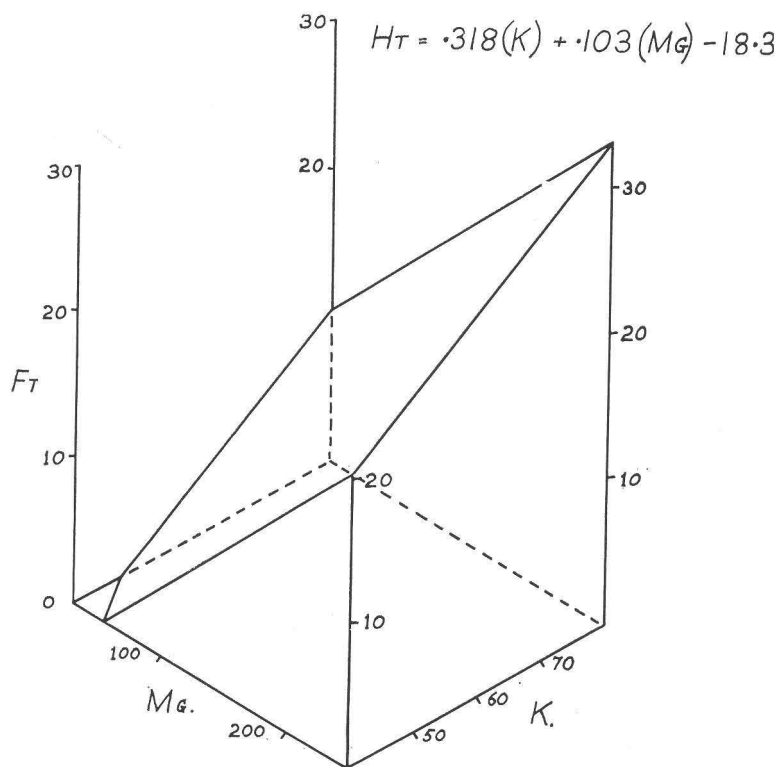


FIG. 3. Relationship between plot mean height (vertical scale) and available potassium and magnesium (horizontal scales).

Because of the indication from soil analysis that magnesium deficiency might be involved, a single 0.1 acre plot was treated with magnesium sulphate at 2 cwt. per acre. So far this has had no visible effect.

DISCUSSION

The investigation provided no evidence to support the hypothesis that tree growth on this site was controlled by soil moisture. On the contrary, it appears likely that decreasing moisture content in the more vigorous plots (Fig. 1) is due to increased evapotranspiration. The increase in the most vigorous two plots may be a result of deeper root systems in those plots.

The most unequivocal evidence on the cause of the trouble came from needle analysis which indicated definite potassium deficiency. Application of potassium appeared to correct the condition completely.

Soil analysis at first indicated magnesium deficiency, and only when the relationship of height with available magnesium was removed, was there a significant correlation with available potassium. It should be stated, however, that the soil was extracted and analysed by methods designed for routine analysis for agricultural purposes.

It appears likely that this site has been so degraded by agricultural use that it is now well below its inherent site quality, as defined by Heiberg *et al* (1964) and the effect of fertilizing may therefore be expected to be relatively long lasting.

ACKNOWLEDGEMENTS

This investigation was initiated by Mr. O. V. Mooney, Chief Research Officer, at the request of Mr. M. S. O Fiacháin, then Senior Inspector, Management. Chemical analysis of soil and foliage were carried out by the Agricultural Institute's Soil Laboratory, Johnstown Castle, Wexford. Much of the field work was carried out by Mr. Eric Joyce, Research Forester.

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The Control of Forest Insects

I—GENERAL PROBLEMS

DEREK GOODHUE¹

WHEN the problem of controlling insect pests in forests is discussed, two approaches are possible: one may discuss the present situation in the forests of a given country in the light of what is known about their insects; or one may attempt to produce a plan which can be modified to deal with the pests of any country. This article deals with the second possibility, and is not therefore directly concerned with the present practice in Ireland.

It is common in many countries today to rely on the observation of foresters to draw attention to the presence of insects, or their damage in a plantation and this the forester is willing to do. He will report that an outbreak has occurred in a particular area, and will await further action by the central forestry authority. Although the notification of outbreaks is essential for the efficient management of the forest, it is worthwhile to ask if that is all the useful information a forester can provide without seriously overburdening himself. Consider a hypothetical outbreak.

The forester has noticed that there is a defoliating insect at work in a plantation. Does he merely report the presence of the defoliator, or does he try to assess its importance in terms of potential economic loss? If he reports only the presence of the outbreak then someone else must assess its importance, although if he is to assess it himself he must have a rapid method of gaining the relevant information. He must know the questions to ask, and the way to answer them: for instance, how many trees are affected, how extensive is the defoliation, are all the trees affected of the same age, or are all ages of tree affected? These could all be answered in different ways, but if the assessment is to be useful it must be comparable with assessments made anywhere else in the country. This will occur only if the forester who is to assess the insect damage is trained to use a standard technique which is applied throughout the country.

Let us extend the hypothetical example and suppose that the foresters in the east find that there is damage to their trees which is caused by a particular species of insect, but the damage has not been recorded from the west. Does this mean that the insect does not occur in the west or that there is a smaller population of the insect present which is too small to cause damage that is worth reporting? No matter how helpful a forester wishes to be, he cannot spend all his time chasing insects and looking at random for small

¹Department of Zoology, Trinity College, Dublin.

outbreaks of insect attack, particularly when it may be obvious that these small outbreaks have little immediate economic significance. This suggests that there is need to keep a list of insects which are known to be of economic importance, and which every forester is trained to recognise on sight. The status of these insects is reported by the forester at regular intervals, whether they appear important or not. Such a system allows the spread of economically important insects to be recorded, and warning of a likely increase in their potential danger in a particular forest can be given. With this system in operation it would be possible to plan control techniques and know with greater certainty the potential dangers which confront a given forest. Control techniques can then be applied before serious economic loss occurs.

The role of the forester in detecting and appraising insect attack is vital if the forest is to run successfully, but the forester cannot be expected to assume responsibility for initiating surveys on his own. His greatest contribution is in accurate observation and reporting, in the use of the national systems that the state entomologists have devised. Clearly for such systems to exist there must be a group of entomologists large enough to perform the research that is needed to organise and run the surveys and also to devise control methods.

The problems of controlling insect pests must be considered in relation to the economic effect that the damage produces; the damage can occur in one of three ways, the death of the tree, damage to the tree, or delay in rotation. A sudden heavy attack by insects during one season may be sufficient to kill a tree outright, or the tree may not die for two or three years if the insect is allowed to remain unchecked. This situation produces an economic loss which is measurable in dead trees, but if the trees do not die then the time that they take to grow to a certain size is prolonged, and the increased growing time can again be measured in economic terms. This assumes that there is a predictable relationship between insect attack and reduction in growth, but this is not always so, and the answer can be provided only if sustained research is performed on trees growing in an environment which is equivalent to the natural forest. Again, this research must be the responsibility of entomologists who can show which factors are important in deciding the ultimate effect of an outbreak, and whether it is economically worthwhile to apply measures at particular levels of infestation, or to any particular age-group of trees. Thus the effect of insect attack on trees, measured in economic terms, is likely to be complex and to require intensive study. It is nevertheless important to note that the field assessment of actual insect damage can be performed by foresters who use the standardized techniques referred to earlier.

Mechanical damage to the wood by wood boring insects may result in the timber becoming weakened or aesthetically spoiled by the presence of tunnels caused by insect activity. In addition,

the tunnels may provide a possible entry site for fungal attack in growing trees. In economic terms the loss caused by the tunnels may be calculated.

In addition to the actual damage that insects produce, they may be responsible for transferring fungal or virus diseases from infected to non-infected trees. Again it will be the task of the entomologist to decide which species of insect act as vectors and to include their names and descriptions in the list of recognised insect pests.

At present, the decision to control an insect pest in a forest is usually based on evidence which shows that there is a major outbreak present in the forest although we have seen that the aim should be to recognise that such an outbreak is likely to occur. Once the decision has been made to control an insect species, what control and what criteria should be used to judge which method is the most appropriate? Ideally, a method which gives complete control (or eradication) should be used, but such methods have not yet been developed for all pest species because this important aspect of pest management is being neglected in many countries, even in those which have serious pests in their forests. Virtually all the methods of control that are in general use today are unlikely to provide a permanent solution for any outbreak and so must be applied at intervals, to keep the population of insects at a level which ceases to be economically important or at which it would be unprofitable to apply further control. At first sight insecticides appear to be the most practical means of control, but the disadvantages in their use can be great, and it is generally agreed that they should not be used indiscriminately.

The use of insecticides tends to be a controversial subject, with the commercial interests of the suppliers and applicers being ranged against the concern of those who are interested in wildlife conservation. The main arguments are that insecticides can be effective in temporarily reducing an insect population, that the cost of control may be calculated directly (an argument which appeals to administrators), which is true, and that the use of non-specific toxic substances results in the death of many organisms either immediately or as the result of toxic residues being absorbed over a period of time, which is true. At best, it should be recognised that existing insecticides are toxic substances which have unwanted side effects, and that extensive research must be carried out to determine both the best methods of applying these substances, and of biological control, that is methods which provide control of the pest without the use of non-specific toxicants.

Before methods of control are considered it is essential to describe the factors that affect the way in which the insects are likely to be distributed in the forest during an attack.

Unless an insect attack has been allowed to develop to catastrophic proportions it is unusual to find that every tree (of a given species)

has been attacked. The attack may be concentrated on a particular age group, or on trees that are situated in a particular location. An irregular distribution *may* be due to chance and the presence of insufficient insects to attack all the trees. However such small numbers of insects are usually unnoticed, so there must be some other cause, perhaps the selection of some trees in preference to others, or perhaps the insects can survive in certain locations only. Selection mechanisms depend, in many instances, on chemical stimuli, and the presence or absence of a relatively small amount of some chemical (either attractant or repellent) may be sufficient to determine whether a tree will be attacked or not. The presence of substances which act as repellents is often related to the vigour of the tree, sickly trees or trees which have become stunted having less of these substances than trees which are growing well, and as a result the least vigorous trees are often the first to show signs of insect attack.

Susceptibility differences which are related to the age of the tree result from similar chemical stimuli, which may either inhibit or attract insect attack.

These chemical substances are often specific in the sense that they affect one or at most, several very closely related species of insect. The forester (or the forest entomologist) has therefore a powerful means of controlling the behaviour of the insects which respond to the chemical. If the substance is attractive, then a tree or an artificial surface can be sprayed with this substance plus a suitable insecticide, and the insects will be attracted to the trap. In principle this technique is simple to apply, but before it can be applied as a routine control method it will be essential to know how much more attractive the trap is than the naturally growing trees, from what distances the trap will attract the pest insects and for how long the trap is, or needs to be, effective. Again, research into these problems must be performed by entomologists under conditions that pertain to the forests of a given country.

No matter how great an outbreak appears to be, the population of the insect never reaches the proportions which in theory it could attain. The reason for this is that the insect is used as a source of food by other insects, birds and mammals. In addition, there is usually some parasitic organism which will help to limit the size that the population attains. Manipulation of these predatory and parasitic organisms in order to help reduce the level of the pest species of insect is the essence of the method of biological control. It has been recognised for several years that biological methods of control can work effectively and with safety only if the environmental factors which affect the controlling organisms are known. It must also be considered if there is any danger of releasing an organism in such large numbers that it could itself become a pest. This latter consideration is particularly important when new species of insect are introduced into a country. It might be added that the

introduction of plant material from other countries may result in the unwitting introduction of insects which are already pests in other countries. Stringent enforcement of plant quarantine regulations is the only means of ensuring that this does not occur.

The principles on which any successful control method will be based can now be summarised. The use of specific attractants to bring a single species of insect into contact with an insecticide which is confined in such a way that it has no unwanted side effects on the rest of the forest is practicable and would disarm the present critics of the use of insecticides. The use of substances which occur in the trees themselves has already been quoted. Other potent chemicals which could be used in the same manner are the sex attractants. Sex attractants are produced by the sexually active females of many species of insect as a means of attracting males of the same species. It does not matter that only one sex is attracted and killed, for if the insects do not mate there cannot be viable young. For the method to be successful it must be known that the males of the pest species can be attracted, and that they will tend to go to the traps rather than the females, in addition the distance over which the males are attracted must be great enough to make it economically feasible to set up efficient traps.

The use of predators and parasites to reduce the size of a pest population has, on occasion, proved very effective. The method can, however, permit fairly large fluctuations in the numbers of pest to occur. Such fluctuations occur because the maximum population of parasites or predators reduces the population of the pest to a level which deprives the parasite or predator of adequate food, with the result that their population falls sharply to a low level. The pest is no longer limited by the presence of the predator or parasite and its population rapidly increases, and the increase in the supply of food allows the parasite or predator population to regain its maximum level, and the pest population falls again. As long as the maximum population of the pest remains at a level which causes little economic loss once the parasite or predator is established, the method is successful.

Other methods which are gaining in popularity aim to interrupt the sexual cycle of the pest insects. One method employs the use of chemosterilants, that is chemical compounds which produce sterilisation in the organisms which come into contact with them. Their use introduces the same type of hazard as occurs with insecticides; non-specificity can cause many other organisms to cease reproducing and die out. Although many of the potential hazards can be reduced, if not eliminated, through careful application by trained personnel, what factors are important in planning control methods with such substances can be discovered only by critical research. A second method which is of limited application in forest entomology is the sterilised male technique. This method is used for species

of insect whose female mates once and at that time stores enough sperm to complete her egg laying activity. Large numbers of males, which have been sterilised by means of irradiation, are released into the wild population where they compete with the fertile males for the females. For this method to be successful the size of the wild population must be known, so that enough males can be released, and it must be possible to breed large numbers of the males under artificial conditions. When the method is successful it completely eradicates the pest from the area, which should be the ultimate goal of all control methods.

The control of forest insects must not be considered as a task to be performed when it has become obvious that something must be done if trees are not to be ruined. Methods must be devised to give warning that there is likely to be an attack by a specific insect, and the methods must operate on a nation-wide scale if they are to be effective. Whilst the forester can provide the information for the routine surveys, he cannot be expected to perform the research that is essential to determine which insects should be watched carefully and what factors are involved in the development of an insect as a serious pest, for such research is the responsibility of the state entomologists. Similarly, the choice of control method will depend on the data that the entomologist provides about the pest insects. Whatever method is used it should not have unwanted side effects which could destroy the wildlife of the forest and ultimately affect man himself.

This paper has dealt with the problems of insect control in forests in general terms, subsequent papers in the series will deal with specific aspects of the problem and relate the information to the conditions of the forests in Ireland.

Society's Activities

Day Excursion to Pollaphuca

3rd OCTOBER, 1965.

Assembling at Blessington for a visit to the Electricity Supply Board's Liffey Valley plantations which surround Pollaphuca reservoir, the Society was welcomed by Mr. O. V. Mooney, Vice-President. He introduced the leader for the day, Mr. D. Mangan. Mr. Mangan, who is forester with the E.S.B. and is responsible for the silvicultural management of the plantation, welcomed the party on behalf of the E.S.B.

At our first stop, which was at Baltyboys on the western shore of the lake, Mr. Mangan outlined the history of the plantations. In 1940 the valley was flooded to the 600 ft. contour. A belt of land around the new lake bought in connection with the flooding project, remained in the Board's hands. For some years the Board let the land for meadowing and for tillage to a limited extent. It proved difficult to prevent trespass by stock, and as the lettings yielded only £1 per acre per annum it was decided to examine the possibility of timber production on the area. In 1958 it was decided to plant a belt around the lake with forest trees in order to reduce the risk of pollution and to produce transmission poles for the Board's use. The decision to plant led to a detailed assessment of the project. Geologically the lake touches the Wicklow granite range to the east and the Ordovician deposits to the west. In the immediate vicinity the soil is mainly Silurian overlaid with limestone glacial drift, but on the eastern slopes soils derived from the parent granite predominate. The glacial drift soils have a pH of 5.6 to 6 with phosphorus and potassium levels low to medium; and on the granite soils the pH range is 5.4 to 5.8 with phosphorus and potassium levels medium to high. The latter condition may be due to manuring. Amenity aspects also received consideration. When the flooding of the valley was first mooted most of the opinions expressed suggested that the area would suffer scenically as a flat stretch of water could not possibly be as pleasing to the eye as the green valley through which the Liffey meandered. While opinions may differ on that score, the fact remains that the lake drive has, with the years, attracted more and more visitors, particularly motorists from Dublin out for an afternoon's drive. It was therefore decided that openings would be left at the public road and also that as wide a range of species as feasible would be used to add a blend of colour to the view.

The first plantation was laid down in 1958. A belt of beech and sycamore was planted near the public road. Japanese larch and Monterey pine (*Pinus radiata*) formed the central block with alder

along the lake shore. The Monterey pine suffered heavy losses during the winter frosts of 1961-'62 and, although the surviving trees are growing vigorously, it was felt that the risk of failure due to low winter temperatures in the area was too great to justify large-scale planting of the species. It was generally agreed that Japanese larch was very suitable for the dry grassy sites. The species grows vigorously in its early years and gets clear of the ground vegetation quickly. A deciduous species with characteristic seasonal changes of colour, it must rate as one of the most attractive conifers where amenity and timber production are to be combined. Since 1958 the Board has planted 700 acres using 27 different species.

Lively discussions on various aspects of scenic forestry took place. Pleas for wider use of hardwoods and more frequent openings for unrestricted viewing were made and discussed. As the party moved on around the lake the remarkable success achieved by the Board in combining scenic forestry with timber production became apparent.

Mr. Mooney thanked Mr. Mangan for the manner in which he led the party. His courtesy in dealing with the various questions raised was typical of the man. He also asked Mr. Mangan to convey our best thanks to the Board for allowing us to visit the plantations. He said that the Board must now be one of the largest private plantation owners in the country.

After the meeting the party were the guests of the Board at afternoon tea.

M. McN.

Minutes of 24th Annual General Meeting

MARCH 19th 1966 IN SHELBOURNE HOTEL

THE President, Mr. Kilpatrick, took the chair at 3 p.m. and welcomed those present to the 24th A.G.M. The minutes of the 23rd A.G.M. were read, approved and signed. The President, opening the discussion on the Council's report, enlarged on some points which were only initiated towards the end of the calendar year. Three meetings had been held to encourage new membership at various centres throughout the country. To date response had been most encouraging, 48 having joined compared with only 13 for 1965. A copy of the book was not available as hoped due to flooding in the printing works during the winter. Proof of a fifth of the text was available for inspection as was a sample of the final form of the book. Mr. Gallagher was asked to explain the delay of the Autumn '65 issue of the journal. It was three fold, his personal work, a breakdown at the printing works and work in connection with the book. Delays in receipt of articles and reports have a large impact on the date of issue. Mr. McEvoy

proposing the acceptance of the Council's report expressed disappointment at the late issue of the Journal and at the increased cost of the Spring issue. This was up £190 on the Autumn '64 issue. Mr. A. Simpson seconded the adoption of the Council's report.

Abstract of Accounts :

It was to be noted that income this year was down £160 on last year, the brunt of the deficit being due to increased Journal costs. In fact the Journal account showed a deficit of £195. The overall picture would have been worse had the honoraria been paid. Journal income has been decreasing over the past 3 years, in 1963 it was £308, 1964 £297 and in 1965 £137. The Business Editor pointed out that the position was not as bad as it appears. When he took over income from Autumn '64 adverts had not been collected. Of £109 outstanding £56 had been collected. For Spring '65 advertising yielded £180 of which £120 had been collected. Three firms have outstanding accounts for two issues totalling £100. It can be said that the cost of both 1965 Journals will be borne by income from advertisements. To reduce costs it was essential to keep the size of the Journal uniform. The removal of Society excursion reports would reduce the size of the Journal and costs. Another remedy put forward was the seeking of competitive tenders. It was however hoped to look into this question in more detail. On the brighter side income from membership had increased, at this date 259 out of 400 were paid up. The Treasurer requested that more members should use Bankers Orders to pay subscriptions. Turning to the book finances the Treasurer stated that a circular would shortly be issued asking members to subscribe in advance. A second one will be sent to potential buyers. It is hoped that sales will cover the entire cost of the book, £670 for 1,000 copies. Acceptance of accounts was proposed by Mr. M. Swan and seconded by Mr. A. M. S. Hanan.

Presentation of Certificates :

The President called on successful candidates in the recent Foresters Certification examination to come forward, sign the roll of successful candidates and receive their certificates. The successful candidates were William B. Luddy, William O'Dwyer and John J. Hanly. Each was warmly applauded by the meeting as they received their certificates.

Presidential Address :

Mr. Kilpatrick read a paper reviewing forestry development to date with particular reference to Northern Ireland.

Election Results :

The results of the 1966 Council Election were President : C. S. Kilpatrick; Vice President : O. V. Mooney; Secretary : J. O'Driscoll; Treasurer : T. Moloney; Bus. Editor : J. D. Robinson; Councillor

Grade I: L. Condon, D. McGlynn; Grade II: W. Luddy; Associate: L. Furlong.

Mr. J. Durand proposed that the results be taken as valid, this being seconded by Mr. M. MacNamara.

Election to Honorary Membership of Mr. Timothy Donovan:

Mr. T. Moloney proposing that Mr. Donovan be elected an honorary member gave a brief description of his long and dedicated career in forestry. He was one of the older generation of foresters who had witnessed the foundation of forestry both in the north and south. When he took charge of the first area in the north he received the princely sum of 3/6d. a day. He subsequently moved to Baunreagh where he was instrumental in establishing one of the oldest and largest of our present-day forests. He subsequently rose to the rank of Divisional Inspector with special interest in land acquisition particularly in the West. The motion was seconded by Mr. D. McGlynn who expressed pleasure at being asked to do so. He recalled that Mr. Donovan was with Mr. Stewart the surviving link with the first days of forestry as we know it in Ireland. The motion was passed unopposed and the President had great pleasure in declaring Mr. Donovan elected an honorary member of the Society.

Motions:

The second of the two motions was dealt with first, it being "That the constitution of the Society be amended to provide Student Membership. Forestry students at University and Forestry Schools would be eligible for the duration of their studies. The annual subscription for Student Membership would be 10/- per annum". Mr. MacNamara proposing the motion said that it had its origins at the Cahir meeting. The aim was to attract students to join the Society. However, one stipulation would have to be included being that they would not be eligible to be elected to the Council of the Society. Mr. K. Parkin seconding the motion stated that most Society's had a student membership grade and that it could only be of benefit. The decision on whether they be allowed to vote should be left to the Council to decide. Many other loose ends would first have to be cleared up before the motion was constitutionally sound. As a statement of intent it was passed unanimously.

The second motion on the revision of the constitution arose from the meeting held at Strabane and was proposed by Mr. W. Dallas and seconded by Mr. Dalton. It was:—

- (a) "That the constitution of the Society of Irish Foresters be altered to allow regional representation on the Council where this is desired by any region.
- (b) The regions should be based on the historic four provinces but may consist of any groups of counties as determined from time to time by the Council.
- (c) Each region where desired should be represented by a

Council member, in addition to the Council as at present constituted.

- (d) Regional councillors may only be nominated and voted for by the members residing in the region concerned.
- (e) The regional councillor may form a committee from among the members resident in his region by co-option.
- (f) The regional councillor and committee (where formed) should organise meetings within their region in liaison with the Council meetings Convenor''.

Before discussing the motion, the President stated that the Council could not accept the motion in its entirety as it now stood. Section (a) should form the basis of discussion with the other details to be worked out by the Council were the motion passed. Mr. Dallas proposing the motion pointed out the benefits of the Society to the ordinary member. It gives them a professional bond, holds examinations and is a mouth piece for airing technical viewpoints. Despite this only 150 out of 450 foresters are members. It would appear that many were apathetic towards the Society. Present attendance of 35 at A.G.M. tends to emphasise this apathy as does the figure of 180 who voted in the annual elections. With the present organisation of the Society, if a country member living in a particular area missed the one meeting in his area, he had no further opportunity to take part in the Society's activities for that year. Regionalisation would help to solve some of these problems by holding more meetings in particular regions, by encouraging new membership and by increasing interest in the annual elections.

Mr. H. Kerr, seconding the motion on behalf of Mr. Dalton, stated that the Strabane meeting was in itself an indictment of the need for regionalisation. Forty people had been expected but in fact seventy had turned up. Foresters in the north-west feel isolated and away from the centre of things. Were a regional group to hold more meetings it would be of great benefit to the Society.

In the ensuing discussion it was agreed that a strong case had been made for regionalisation. This desire seemed to stem mainly from the north. It might be possible as an alternative to organise meetings regionally on a trial basis. Before any final decision could be taken it would be up to the Council to examine every aspect. The motion was put to the meeting, with the amendment that sections (b) to (d) be deleted and was passed unanimously.

Programme for 1966:

The Annual Study Tour would take place in week commencing June 13th. Day meetings would be held in the S.E., in north Donegal in May, in the south in July, and in the west in September. One indoor meeting would be held in April.

There being no further business the President brought the meeting to a close and thanked all present for attending.

J. O'DRISCOLL,
May, 1966.

SOCIETY OF IRISH FORESTERS

Statement of Accounts for Year ended 31st December, 1965.

1964. £226 0	2 To Balance from last account	Income	£ s. d.	£ s. d.	1964. £90 6 £400 19 9	8 By Stationery and Printing of Journal and reprints of	£ s. d.	£ s. d.	10
		Subscriptions received:							
		4 Technical Grade 1, 1963	4 0 0			Articles	...	435 6 9	
		20 " " 1964	28 0 0		£65 0 3	Postages	...	84 4 6	
		73 " " 1965	108 0 0		£74 16 9	Expenses re Meetings	...	43 5 6	
		4 " " 1966	6 0 0		£1 7 3	Bank Charges and Cheque Books	...	1 16 3	
		1 " " 1967	1 10 0		£12 10 0	Honoraria: Secretary	...	—	
		1 " " Grade 2, 1962	1 10 0		£12 10 0	Treasurer	...	—	
		8 " " 1963	4 0 0		£20 0 0	Editor	...	—	
		24 " " 1964	23 10 0		£2 0 0	Trees for Ireland—Affiliation Fee	...	—	
		108 " " 1965	107 0 0		£25 0 0	Study Tour	...	—	
		5 " " 1966	5 0 0		£22 8 3	Examination Expenses	...	—	
		3 Associate	2 5 0		—	Preparation of Manuscript of Book—	...	12 5 6	
		13 " " 1964	13 0 0			The Forests of Ireland	...	24 15 6	
		108 " " 1965	106 6 4		£135 0 5	Balance in Bank	...	—	
		4 " " 1966	3 15 0						
£322 6 1	1	Interest on Investments	412 16 4						
£6 16 8	8	Journal:	6 16 8						
		Sales	40 13 11						
		Advertisements	96 14 6						
£296 16 5	5	Examination Fees:	137 8 5						
		Woodman's Certificates	7 0 0						
		Forester's Certificates	12 0 0						
£10 0 0	0	Refund of Excursion Expenses	19 0 0						
			24 0 0						
£861 19 4	4		£735 1 10		£861 19 4			£735 1 10	

I have examined the above account compared it with the books and vouchers and certify it to be correct, the balance to credit being £24 15s. 6d. which is on current account at the Ulster Bank Ltd. There is also a holding of £200 Dublin Corporation 5% Redeemable Stock 1962/73 and a holding of £200 Prize Bonds. Credit has not been taken for Subscriptions for 1963 £16 5s. 0d., for 1964 £59 5s. 0d. and for 1965 £99 5s. 0d. which were outstanding at 31st December, 1965.

D. M. CRAIG, Hon. Auditor,
85 Harcourt Street, Dublin 2.

10th February, 1966.

Presidential Address

19th MARCH, 1966

It is inevitable that a review of the advances in forestry or forestry knowledge during the year, by your current president, must be largely from a Northern point of view. This, however, once in a while, is not a bad thing and needs no apology.

Both our Forestry Divisions reached and passed their planting programmes of 25,000 and 5,000 acres respectively, a total of 30,000 acres, which compares favourably with the last published figure of 49,000 acres by the Forestry Commission in Great Britain.

However, there is a feeling in the North of Ireland that it may become increasingly difficult to maintain this figure. It is true that in the last published annual report, 6,000 acres had been acquired during the year and that the plantable reserve stood comfortably at 30,000 acres. Yet on all sides we hear of offers of land drying up and of land owners holding back at least for the time being.

Part of the reason may be the increasing value of land, but it is more likely that it is due to a reluctance on the part of owners to commit themselves at the present time of uncertainty following the publication of the Government White Paper on "The Development of Agriculture" in August, 1965.

This paper is mainly concerned with Farm Structure and Co-operation and sets out Government aims of encouraging the increase in the size of farms by amalgamation.

Part of the proposed scheme is the payment of grants to owners who wish to give up uncommercial holdings for amalgamation.

- (a) Farmers up to the age of 55 would receive £500 plus £15 per acre released and in addition would get, of course, the market value of their land;
- (b) Farmers of 65 years of age or over would receive an annuity for life of £100 per year plus £1 per year for each acre released;
- (c) Farmers between the ages of 55 and 65 would have the option of either grant.

Regional boards would be set up to control the scheme and would be able to decide on proper land use in their area. The boards could authorise the payment of grants to occupiers of uncommercial agricultural holdings within their area for afforestation approved by the board on the same basis as if the holdings had been sold for amalgamation.

No legislation has yet been passed to give authority to this scheme and for some time to come we will have a period of uncertainty.

It is, of course, vital that Forestry interests be properly represented on the Regional Rural Development Boards.

That we have reached a watershed in the progress of Forestry is evident from the publication only last month of the Report of the Land Use Study Group on "Forestry, Agriculture and the Multiple Use of Rural Land" under the chairmanship of Professor W. Ellison, who some years ago, addressed the Agricultural Science Association in Dublin on this subject. He must have been impressed by what he saw, for he states, "scenic changes need not detract from beauty as has been shown at Thetford Chase in England and the slopes of the Wicklow Hills in Eire".

This committee, while placing great stress on the importance of Forestry for social reasons, as a reserve against world shortages, for landscaping, recreation, wild life and tourism, considered it most important to know exactly what it was earning or costing the nation.

It states "This does not imply that all decisions must be based on financial criteria . . . Nevertheless by first applying financial criteria the cost of the non-financial objectives can be assessed in terms of income foregone by some alternative use of the land".

The method adopted of comparing the economics of agriculture and forestry is that of the Net Discounted Revenue which was well explained here two years ago by Mr. D. R. Johnston.

It found in the few typical examples taken that on extensively farmed marginal areas, agriculture earns a higher financial return to the nation and the private owner than does forestry unless the discount rate, ignoring the effect of possible inflation, is set as low as 3%-4%. In areas of better quality farm land, the profitability of agriculture is higher than forestry even at a discount rate as low as 3%.

On unreclaimed land, forestry was shown to earn more than agriculture at interest rates below $4\frac{1}{2}\%$.

In Argyll, forestry became unprofitable on unreclaimed land at interest rates above 3%, but agriculture remained unprofitable to the nation over the whole range of interest rates

The report states :—

"Theoretically it would be possible to find cases where the N.D.R.'s to both agriculture and forestry were negative at all rates of discount. In practice we have found no such case. This is because though agriculture may be practised on extremely inhospitable sites (for example mountain tops) it is highly unlikely that plantations would be established in places where the site conditions and market situations were so unfavourable that cash receipts would fall below cash expenses. So long as receipts (undiscounted) exceed expenses (undiscounted) there will be a positive rate of discount at which forestry will provide a positive N.D.R."

The reports ends on an encouraging note, and I quote:—

"One of the important effects of continuing afforestation would be that the important growth industries, which are looking to increasing future home supplies of wood to support necessary expansion, would gain confidence. To maintain confidence and to reinforce the success which these industries have already shown, it is desirable to pursue an expanding forestry programme."

These two reports indicate that there is a real danger that forestry will be relegated more and more from what used to be marginal land from the agricultural point of view to what is economically marginal and sub-marginal from the forestry point of view.

When that point is reached, the technical forester must call a halt as there is no other person qualified to decide on such issues. If it is decided by others that non-financial considerations must be paramount then the decision to proceed should be taken in full knowledge of the costs of such action.

It is now over 20 years since the Food and Agriculture Organisation of the United Nations (F.A.O.) was founded in Quebec on 16th October, 1945, when 42 nations met under the chairmanship of Mr. Lester B. Pearson now Prime Minister of Canada.

In November last, no less than 114 member nations met at the F.A.O. headquarters in Rome with Mr. Sauv, the Minister of Forestry from Canada in the chair.

They set down certain considerations which must determine the scale and pattern of F.A.O.'s future activities.

1. The rapid acceleration of the demand for forest products;
2. Need for substantial expansion of forest-based industries in developing countries;
3. The importance of forestry and forest industries in overall economic growth in developing countries;
4. The need to increase forest productivity to meet world shortages;
5. The non-crop functions (erosion control, water yields, wild life management, amenities, recreation, tourism) of the forest are assuming increasing importance and already exceed in importance the timber production function in many countries;
6. The number of institutions for higher forestry education responding to these changing needs is as yet insufficient.

Two important steps were taken in the North during the year in line with the fifth of these points.

Firstly, on 31st March, 1965, the Amenity Lands Bill became law.

This Act will enable native reserves and national parks to be created and will protect areas of outstanding beauty. It will also finance the provision in forests of facilities for public recreation such as paths, car parks, picnic sites, caravan and camping grounds, etc.

The second step was the appointment for a provisional period of a wild life forester who has been engaged in planning to increase the game and wild life potential of our forests.

It is also interesting to note in the last annual report of the Forestry Commission the appointment of a landscape consultant and a Divisional Officer as Wild Life Officer.

I cannot omit from a review of forestry during the year the establishment on a formal basis of co-operation in research between both our Forestry Divisions. Dr. Jack and Mr. Parkin travelled to Dublin on 31st August, 1965, and were very hospitably entertained.

Mr. Mooney travelled North on 13th September, and a third meeting is to take place shortly.

Long may this spirit of co-operation and respect continue and spread.

We wish the Congress members every success in their deliberations and the implementation of the decisions taken.

I thank you all for your support during the year and hope others will not mind if I mention especially Miss Furlong for her valiant work as Tour Convenor; Fergal Molloy, who helped us so much at Cavan; Mr. Fitzpatrick, who has brought the Book almost to the point of publication; Mr. Macnamara, who has led the team of certificate examiners; Mr. O'Driscoll, our secretary, who never fails us and Mr. O. V. Mooney our Vice President, who has always been ready with advice and support and to step into the chair at short notice.

We are now much looking forward to welcoming as many of you as possible to the North in June 1966, and hope that the weather will be as kind as it was in Cavan.

Annual Study Tour

NORTH DERRY/ANTRIM FROM JUNE 14th TO JUNE 16th.

FIRST DAY (Tuesday, June 14th).

Morning :

The Society chose north Derry and Antrim for this year's study tour which was once again favoured by the good weather which we have now come to accept as routine for study tours. On the opening day heavy showers fell all around us but not a drop on the tour party. The morning started with a visit to Springwell Forest.

Stop No. 1

Mr. Kilpatrick, President of the Society, introduced Northern Ireland personnel. Mr. Blackmore, Principal Officer of the Ministry of Agriculture, deputising for Mr. Elliott, Assistant Secretary (unavoidably absent) and Mr. Parkin, Chief Forest Officer of the Northern Ireland Forestry Division (who was in Madrid at the Sixth World Forestry Congress), welcomed the party to Northern Ireland and wished us an enjoyable tour. He then introduced Mr. McPherson, District Officer, Mr. Lamb, Mr. Fotheringham, Forester-in-Charge, his Assistant Forester, Mr. McGregor, and Mr. Bill Bryan, until recently Forester-in-Charge at Springwell and our leader for Stop No. 5. He then also introduced Mr. Simpson, Working Plans Officer.

Springwell is a forest of 2,279 ac. Of this 1,840 ac. are planted, 200 ac. unplanted with a plantable reserve of 239 ac. The underlying rock is basalt, covered with a deep layer of boulder clay. The soil is heavy with impeded drainage and many embedded boulders. Leaching of the top layer has been severe and most of the area has a thin cover of peat.

Mr. McPherson gave some details of the forest. The first land was acquired in 1929 and the main block had just been planted in the spring of '46 when a fire burned 360 ac. This was replanted in 1947-'50 and further planting was carried out in 1951-'52. Species distribution is as follows:—

- 61% pure Sitka spruce;
- 16% *Pinus contorta*/Sitka spruce mixture
- 14 %Norway spruce mixed with Thuja and Lawson cypress;
- 4% Japanese larch;
- 5% others.

Some storm damage has occurred and losses by windblow occurred as follows:—

- 1957—47 ac. blown;
- 1959—152 ac. blown;
- 1961—30 ac. blown.

At the time of the preparation of a Working Plan in 1961 (just before the '61 storm) it was estimated that 7½% pure Sitka spruce and 41% *Pinus contorta*/Sitka spruce mixtures were in check while 15% and 30% of these respectively, were coming out of check. Sitka spruce was Quality Class III and IV. The *Pinus contorta*/Sitka spruce mixture was calculated to produce Quality Class V Sitka spruce after removal of *Pinus contorta*. Norway spruce and Japanese larch were Quality Class III and II respectively.

The Working Plan, which came into operation on October 1st, 1961, divided the forest into two working circles:—

(a) Saw Timber; (b) Pulpwood.

It was intended that, owing to lack of stability, the latter should not be thinned at all but owing to market commitments the so called "Cam" thinning was carried out. This involved the removal of the largest trees. This type of thinning has now been suspended. The saw timber working circle on better ground was thinned eclectically to produce larger sized saw timber of about 10½-11 in. QGBH. The rotation was fixed at 50 years for both working circles.

The theme of our visit here was the management of a forest which, due to fire and windthrow, has an intimate mixture of age classes which is further complicated by very considerable variations in growth rates. To achieve maximum potential, Sitka spruce would grow to a top height of 80 ft. but a storm blew it down at 35 to 40 ft. so instead of a mean annual increment of 180 ft.³, one of 95 ft.³ was returned. The most important factor on such sites is wind damage.

Stop No. 2.

Mr. Fotheringham showed us various stages of dominance of Sitka spruce and *Pinus contorta* in a P/33 mixture of *Pinus contorta*/Sitka spruce. It was originally planted 2 Sitka spruce to 1 *Pinus contorta* on pure *Calluna*. Where *Pinus contorta* was felled for road construction, it was noted that Sitka spruce started to recover, even though it was almost completely dominated by the *Pinus contorta*. In a general discussion it was felt that with modern techniques (ploughing, manuring, weedkillers, mixing species) a crop of Sitka spruce could be raised. Mr. Sharkey reminded the party that on pulpwood sites, volume rather than species was the most important consideration. Low current annual increment and high interest rates ruled out fancy treatments.

Stop No. 3.

A p/34 stand which was windthrown was replanted with Sitka spruce. A suspected cause of windthrow was inadequate drainage and additional drains had now been opened. Messrs. Fotheringham and Bryan tried to invite discussion on the adequacy or otherwise of present drainage but the response was poor. As a new county road ran through the forest at this point, it was felt that it was

due as much to clearance for road construction as to poor drainage that windblow occurred. The nice, new post and rail fence, which is the standard boundary fence for all plantations adjoining country roads, drew much more discussion than the drainage problem. The timber is Protomised, has a life expectancy of 20 years and costs £1 per running yard.

Stop No. 4.

Mr. Simpson was leader for this stop which consisted of a walk through Compartments 57, 58, 67 and 68 to illustrate the problems which arise from a mixture of age classes. A good general view was obtained near the start of burned and windthrown areas. The original P/35 stand was windthrown during the '59 storm when the patches were only 11 and 12 years old, yet some trees on exposed edges of the patches are being windthrown. Increment was reduced by exposure affecting the surviving small stands. It was suggested that the area should be clear felled and an even-aged structure created in one solid block. Mr. Condon thought that it presented a very pleasing landscape pattern as it stood and should be retained as a public amenity. (One chain wide on either side of the public road is devoted to amenity). Mr. McGlynn remarked on the importance of keeping sight of our main role—timber production. Landscaping, amenity, game, etc., could only be asides and incidental.

Stop No. 5.

At Stop 5 Mr. Bryan gave a dissertation on Scottish eclectic thinning in a P/48 stand of Sitka spruce. Mr. McDonald, late of the British Forestry Commission, was the chief exponent of this method and termed it a really simple system. His prescription ran:—

- (a) Carefully select and spot the very tallest and straightest trees ten yds. apart (i.e. about 60 per acre). Call these crop trees and high prune them.
- (b) Remove dominants competing with crop trees.
- (c) Select followers, i.e. smaller trees surrounding each "crop tree".
- (d) Relieve competition among followers by removal of interfering trees.

The merits of the system are purported to be basically:—

- (a) Cutting out uneconomic thinnings.
- (b) Isolating the Final Crop trees.
- (c) Producing sawlogs quickly.
- (d) Creating uneven canopy.
- (e) Slanting light helping to decompose humus.
- (f) Good increment on selected trees.
- (g) Pruning confined to final crop trees only and those from an early age.

Ideally, the system should start from about 16 years in good Sitka spruce.

T.G.

Afternoon :

On reaching Cam Forest, after a pleasant lunch at Springwell we were introduced to two of the assistant foresters, Messrs. Holmes and Wilson.

The President apologised for Dr. Jack's absence. Cam Forest consists of a total area of 3,133 acres and planting was carried out during the period 1930-1952.

Planted area : 2,801 acres.

Reserve : 172 acres.

U/P : 160 acres.

Staff : One Forester-in-charge and three assistants.

Soils : Mostly boulder clay over basalt. Soil is heavy with poor drainage. A total of 481 acres were wind blown in 1957, '59 and '61.

Species : The choice of species was very closely related to the changing soil conditions resulting in intimate mixing of pure blocks of different species.

<i>Species</i>	<i>% of Area</i>	<i>Quality Class</i>
SS	61	IV
SS/PC	15	—
PC	5	V
NS	13	II/III
JL	4	I/II
EL	2	IV

The themes of the afternoon were thinning at Stop No. 1 and Production operations at Stop No. 2.

Stop No. 1

Compt. 102—Leader Mr. Bryan F. i/c. Four plots were examined during this stop and members were asked to note any points of interest and raise them later at the general discussion. The four plots visited were as follows :

Plot No. 1 Eclectic thinning

„ No. 2 No thinning

„ No. 3 Low thinning

„ No. 4 Cam thinning

SS. P/43

All plots except No. 2 had a first thinning in February 1961 when top height was about 30 ft. A few trees were removed during draining in June 1963 and a second thinning was carried out in November 1963. Some windblow occurred in all plots except No. 2. Windblown poles were removed in March 1964. The total volumes to-date including thinning and windblown trees were :

Plot No. 1 Eclectic thinning 2,444 Cu. ft.

Plot No. 2 No „ 2,547 „

Plot No. 3 Low „ 2,252 „

Plot No. 4 Cam „ 1,505 „

Mr. Kilpatrick and Mr. Bryan explained the various thinning techniques involved with special reference to the eclectic thinning.

The "No thinning" is self explanatory. Natural selection is allowed to take place and the smaller poles are suppressed.

The "Low thinning" in No. 3 plot is the conventional thinning method.

The "Cam thinning" in No. 4 plot was a new concept for most of the party. It was explained that this thinning, which started in Cam Forest, consisted of a heavy crown thinning by removing the predominant stems. It was only intended as an expedient to supply material urgently required and was not recommended as a silvicultural practice.

The Eclectic thinning technique is as follows:

- (a) Approximately 60 elite trees per acre are selected and paint-marked. These trees are vigorous predominants. Tall, straight and free from blemish, they are high pruned and will form the final crop, and are referred to as "crop trees".
- (b) All dominants competing with these crop trees are marked for removal.
- (c) A few healthy straight poles called "followers" are selected from the smaller trees surrounding each crop tree, are given every chance to develop by removing competing poles, and are likely to come along well behind the crop trees.

After a lively discussion, the general impression was that the "No thinning" plot looked best—ground quite dry and firm and no sign of windthrow.

In answer to Mr. Condon's query "What do you hope to achieve from the Eclectic thinning?" the President replied "We aim to get a larger volume of high quality timber on a smaller number of stems". The eclectic thinning, apart from ensuring better stability also makes early thinnings economic, as some larger trees are removed. It was hoped to get the best of both worlds—early economic thinnings, crop stability and high quality timber (crop trees are pruned to 25 ft.). The system came under fire from all sides on the question of stability and mean annual increment. Some members felt that the "saw-tooth type" crown would lead to windthrow. Mr. Maher asked "why not select 100-120 final crop trees at the beginning and so make provision for losses from windthrow or other causes?" We were informed that some people in the Forestry Division favoured this idea.

Mr. McNamara favoured the idea of extending the eclectic system to *Pinus contorta* to provide timber suitable for panelling in our affluent society. Mr. Sharkey scotched the idea and maintained that panelling, although fashionable at the moment may not last,

but good quality timber will always be in demand for construction. Sitka spruce is nearest to the white imported timber. The main problem is not rings to the inch but rather one of knots. In answer to Mr. O'Grady, the President said that it was hoped to reduce the rotation period as timber is being put on a small number of trees which are given every opportunity to develop from the beginning. This information was welcomed by the party as the reduction of 5-7 years in the rotation would have a big bearing on the impact of compound interest.

Mr. Bryan was ably assisted in the discussion by the President and Messrs. MacPherson and Simpson.

Stop No. 2

The President introduced Mr. Deveria, chief Mechanical Engineer and Mr. Devenney. A demonstration was laid on using a Garreh Tree Farmer for extracting poles. Mr. Deveria explained the workings of a Tree Farmer and its uses for extraction (Price £2,950 (1961 price), operation cost 10/- per hour (approx.); optimum radius about 400 yards; maximum haul 800 yards; optimum load 2 tons, approx. cost per cu. ft. on a 400 yd. haul is $2\frac{1}{2}$ d.).

Mr. Devenney, who is stationed at Baronscourt, very kindly took along his "chain saw conversion unit" which he designed himself. He demonstrated the unit to us in cutting poles into 5'-4" pit wood lengths. Briefly the conversion unit consists of two sets of steel rollers which are set in metal frames resting on the ground. One set of rollers carries an upright steel post into which a chain saw (surrounded by a special frame) can be locked on a swivel device. The chain saw can be used for cutting by using the swivel action. The second set of rollers carries an adjustable stop. The poles are deposited by the Tree Farmer on the first set of rollers leading to the chain saw. One pole is pulled forward using a timber pick until the butt reaches the stop. The operator cuts the pole by swinging the saw in an arc and the cut length is pushed forward onto the second set of rollers where the second helper piles the pitwood using a pulp hook. It was noticed that all on extraction and conversion wore helmets and gloves.

The chain saw unit replaces the McConnell unit which was found to be uneconomic for pit wood conversion. The work has been made much easier, as no heavy lifting is involved, also the team has been reduced from six men to three. All members were loud in their praise of the unit as it gave precise measurement and quality and is perfectly safe in working. The cost of conversion and piling was given as $2\frac{1}{2}$ d. per cu. ft.

The heavy butt ends are cut in situ on the rollers while attached to the Tree Farmer and are then pulled to one side.

Before leaving the forest we had a demonstration of extraction by horse using both a Border Sledge and a Swedish type sledge.

In the latter, special type harness and shafts are used which enable the horse to hold back loads on steep ground. Both sledges will allow loads of 10 to 12 cu. ft. and special steel runners prevent snagging on the tree stumps. It was noticed that very little damage was done during extraction, as the horseman either leads or drives the horse and does not allow it to choose its own route.

Before leaving the forest, Mr. Kilpatrick expressed sincere thanks to all officers who did so much to ensure a very successful tour.

And so we returned to Portballantrae by the scenic route via Bishop's road, Downhill and Portrush.

P.P. O'G.

SECOND DAY (Wednesday, June 15th)

Morning :

WEATHER conditions were good and the party moved off at 9 o'clock for Coleraine and along the Bann Valley to Portna Lock the mid control on the Bann Navigation Scheme. Here Mr. Kilpatrick introduced the Society members to Mr. Crawford, D.O. for South Antrim and Mr. Robson, Forester-in-Charge, Portglenone Forest, Mr. Deveria, Divl. Forest Engineer, whom we had already met the previous afternoon at Cam Forest, was also in attendance.

For a short time the care and study of trees and allied subjects were abandoned for something in lighter vein as Mr. Ellis, Manager of Toome Eel Fishery gave a very interesting discourse on the life cycle, habits and the methods employed to capture this fish. It was indeed interesting to note that the entire weir at Portna is constructed and maintained by thinnings taken from adjacent forests.

The party then proceeded up river by boat to Moyknock Wood. At this stage Mr. Kilpatrick gave a brief outline of the history of the woods on the Bann Dumps. In 1929 an Act was passed to lower the level of Lough Neagh, work commenced in 1930 and was completed in 1942. Thirty two miles of river from Lough Neagh to the sea were widened and deepened costing £1,000,000 and involving the removal of 5,000,000 cubic yds. of soft mud together with large quantities of rock. The dredged material was dumped at pre-selected sites along the banks thus creating unsightly vistas along this beautiful stretch of river. As it was considered that the dumps would never be fit for agricultural purposes they were handed over to the Forestry Branch. The Forestry Branch proceeded to plant them with a variety of species with an eye to amenity rather than economic forestry. They were planted whilst still in a raw state and the results to date reflect great credit on the wisdom of Mr. D. Steward and Mr. Matt Byrne, Inspector and Forester, in their choice of species. Both are now living in retirement. Accessible dumps have been well thinned, whereas operations tend to be postponed on those with poor access. Moyknock Wood is not readily accessible.

Mr. Robson then conducted the party through a number of interesting plots.

Stop No. 1—Alder/Sitka spruce plot P/39; alder suppressing spruce. It was agreed thinning should favour the spruce.

Stop No. 2—Alder/oak plot; alder removed in '65 and under-planted with Norway spruce. Oak is poor but Mr. Sharkey advocated retaining the better oak for amenity as a mixture with the Norway spruce.

Stop No. 3—Sitka spruce/poplar mixture; the poplar which is far ahead of the Sitka spruce is being removed as market warrants. Messrs. Mangan, Condon and Hunt advocated early removal of poplar to bring the Sitka spruce along.

Stop No. 4—Alder/ash mixture scheduled for clear felling if market available. This policy was questioned and many favoured removal of poor stems and under-planting with *Tsuga*, Norway spruce or *Abies*.

Stop No. 5 was made to show the remarkably well formed though slow growth of *Pinus contorta*, Japanese larch and Scots pine on pure gravel dump.

At this stage the party boarded the boats and proceeded up river. At Gortgole, Mr. Deveria discussed the extraction and transport problems encountered in the Bann Dump Woods and demonstrated the methods employed to unload a converted lifeboat barge using a Hiab hoist and double boom loader. The material being handled was for the chipboard mill at Coleraine and the capacity of the trailer loaded was 700 cu. ft. The difficulty of providing suitable forest roads capable of taking such large transport units was discussed.

Mr. Crawford then conducted the party on a walk through Gortgole Wood, a 72 ac. block with good public road frontage. The emphasis here was on future management techniques with special reference to well formed Japanese larch where further thinning and underplanting to control vegetation was advocated. Moving on to Norway spruce/*Pinus contorta* the question arose, what should be retained. The mixture is uncommon so it was felt the elite stems should be retained. Finally we came to an alder/Sitka spruce mixture where the removal of the alder has demonstrated the wonderful recovery powers of Sitka spruce. As we moved back to the quayside and lunch in the bright sunlight, we couldn't help but reflect on the successes achieved in this river basin. Drainage has benefitted 148,000 ac. of rich farmland, useless mud dumps are producing economic forest crops and adding to the amenity of the area—man has made a contribution here.

Afternoon :

FOLLOWING lunch the party proceeded to Garvagh Forest in the North Derry District. This area of 537 acres, formerly Lord Garvagh's Demesne, was acquired in 1945. Planting was completed in 1956. Spruces and Douglas fir were planted on the old agricultural land and hardwood/conifer mixtures on the scrub covered sites. The pattern was groups of five at twenty feet spacing.

There were 21 acres aside for a nursery at the time of acquisition and this together with the planted areas, has given an ideal integrated forest both as regards labour and supervision.

The first stop was at the nursery where we were welcomed by Mr. Coates the Ministry's Nursery Officer, Mr. MacPherson, District Forest Officer and Mr. F. Corrigan the Forester. This was the first mechanised nursery in the Division and it now produces $1\frac{3}{4}$ million plants annually. There are normally 5 acres of seed-beds and 16 acres of transplant lines. Rainfall is 45 in. and the soil is heavy and stony. Fertility is maintained by a green crop rotation of Italian Ryegrass every 3 years and by adding 20 to 30 tons pig manure and 3 cwts. of balanced fertiliser at the time of sowing. Regular soil tests are made and pH. varies between 5.5 and 5.9.

Many members were surprised to hear that summer lining-out was being done with good results. This was first practiced in 1956 and about 50% of transplanting can be done from mid-July to late August, mainly with the spruces and pines. Working conditions are found to be much easier and the labour is better spread over the season. Manual bedding-out with short boards in raised beds created interest and it was explained that this was a very good method in heavy soil and in wet weather. It was also a protection against frost lift, and soil aeration was much better. Stocking was 208,000 to the acre and an average day's work per man was over 4,000. With the use of chemicals weeding costs were kept very low. Simazine was used in transplant lines and Paraquat as a pre-germination spray on the seed-beds.

A demonstration of machinery used in seed-bed preparation, seed-sowing and lining-out was given by the nursery staff. The good work done by a Garvagh lining-out plough with fertiliser spreader attached was appreciated by all members. With this equipment 5,000 seedlings were lined out per man per day, in favourable weather conditions.

Two types of lining-out boards were discussed. The first one, developed by Mr. D. Stewart, former Chief Inspector, had small springs, in which individual plants were held. As these frequently break it was considered expensive, and because they were fixed, the spacing of $2\frac{1}{2}$ " could not be changed. One big advantage was that the filling of the board could be done without the erection of a shelter to act as a windbreak.

The other type of board was the Ben Reid, on which the spacing could be adjusted. A shelter was necessary and it was desirable that the plants should be the same size.

Leaving the nursery we stopped at a P/47 Norway spruce/oak mixture. The oak groups showed poor growth but the spruce was excellent. The opinion of some members was to write off the oak, but eventually after discussion it was agreed that there should be a "wait and see" policy, removing competing spruce where necessary. It was pointed out that there was an excellent market for town or village Christmas trees.

Continuing through the Forest we saw an ash/beech/oak mixture planted in 1947. Here the best trees of all species were spotted to give approximately 100 per acre. No one was very happy with this stand and it was generally agreed that, because of the low annual increment, poor use had been made of the ground.

Further on in an elm/beech mixture it was noticed that the elm were quite good, but we were told that the market for this species was very limited.

In a plantation like this, with both hardwood/conifer and pure hardwood mixtures, the problem that always comes up for discussion is the procedure to adopt in the future with the hardwoods. Some advocate that they should be ignored in management plans, and others suggest that even small areas of hardwoods should be encouraged.

On this note of sentiment versus hard facts the visit ended.

C.H.K.

THIRD DAY (Thursday, June 16th)

Morning :

As our bus rounded the scenic north Antrim coast, our President kept the party well informed on local history and places of interest. Our first view of forestry on this bright morning, was of Ballycastle Forest. Viewing it from distance, we could see once again the result of storm damage—here the upper slopes were all cleared and replanted. We had a closer view of Ballypatrick Forest as our route took us through this, the first large area of blanket bog acquired in Northern Ireland. We were told that this area was to be managed on a "no thinning" basis, with the exception of areas adjacent to main roads. Stands were moderately successful though growth rates were somewhat slower than anticipated.

The approach to our first stop of the day took us through one of the Antrim glens—that of Glendun—and on arrival at Beaghs Forest the party was introduced to Dr. Black, the District Forest Officer, and Foresters, Messrs. Wilson and Orr. Dr. Black extended a welcome to the group, and gave us a description of the forest.

The total area is 4,602 acres where elevation varies from 500 to 1,676 ft. with only 150 acres below 800 ft. and two thirds of the entire area is above 1,000 ft. The area is covered with deep peat except near streams and on rocky outcrops on higher ground. First plantings were of P/59 origin and planting proceeded at a rate of 180 acres per annum, which was mainly Sitka spruce. The area was first ploughed and 2 oz. of basic slag were applied per plant. Roads at approximately 1 mile to 60 acres were laid out. These were built by laying down sand, on top of which a layer of stones and a final binding by means of quarry dust were imposed, costing about £65 per chain. Initial planting was at 5' x 5', but this is now increased to 7' x 7' due to the introduction of herbicides to suppress the vegetation and the proposed treatment on a "no thinning" basis. For fire protection two systems are used, first by rotovating and secondly by spraying with herbicides and then burning off the dead vegetation with a flame gun using a mixture of petrol and diesel oil. The latter method proved most satisfactory as the ground was left in good condition for working on. Of the entire forest area, 316 acres were set aside for experiments which to date have been devoted to problems of establishment.

Stop No. 1

Dr. Dickson, who is attached to the chemical research division of the Ministry of Agriculture, led us to our first stop where we were shown an experiment to determine the long term effect of phosphatic fertilisers on Sitka spruce, with and without nitrogen and potassium, laid down in 1962. The phosphate was broadcast prior to ploughing and the nitrogen and potassium applied as a band across the ribbon on either side of the trees and round the base of the trees respectively soon after planting. The differences in growth have been slight, but from a visual assessment both the trees and the ground vegetation indicate better conditions in the treated plots. We were also shown an experiment where ground limestone and basalt dust were applied at rates of 10 tons/acre, the object being to render the phosphate less liable to wash out in drainage. A further experiment to determine the best method of application was seen. It was found that by broadcasting before ploughing, better results were obtained than by applying the manure on top of or below the ribbon. The crop was P/62 and the leader growth for 1964 was 15-20% greater in the "broadcast" treatment. Mr. Condon and Mr. Hunt raised a discussion on root development as a result of "stepping" down the ribbon before planting and it was felt that the mulching effect of the off-cut rather than the depth of ploughing was responsible for any improved growth.

Stop No. 2

Dr. Jack led us to our second stop where, on a site at 920 ft., soil (peat) temperatures were recorded at depths of 5 cm., 20 cm.,

and 120 cm. Rainfall, water levels in the peat and exposure were also measured. Exposure was measured by using tatter flags. These were flags 15" x 10" placed at 5 ft. from ground level and allowed to rotate with any change of wind direction, exposure being measured by the amount of flag tatter per day. Mr. Condon asked if there was any noticeable change in wind speeds due to irregularities of the ground. It was said this was found to be so where ploughing, or the ground vegetation, made the surface irregular. On the question of flag tatter, Mr. Morris asked if there was any relation between size of flag and degree of flag tatter. Dr. Jack told us that the same amount of tatter was measured from half worn flags as from new ones. The flags were replaced every two months—weather conditions had no effect on tatter, with the possible exception of frost, sometimes a frozen flag would reveal a flaw in the material which would tend to tear at the flaw. A "contour" map of the forest showing the calculated wind run from October, 1964 to April, 1965 at 5 ft. above ground level was on view at the stop.

Stop No. 3

The party walked around the edge of an experiment which was laid down to determine the effect of drain intensity on deep peat. Water levels were being observed through bore holes. It was indicated that drainage sufficient for establishment is adequate. Effectiveness in lowering the water level is only noticeable at the drain edge and under such conditions as existed at the site, this effect diminished some 12 ft. away from the drain edge. Any effect of deep drainage could be attributed to the mulching effect of the spoil from such drains and where the spoil was removed from the area no noticeable effect was to be found.

Stop No. 4

Our next stop was at an experiment where soluble N.P.K. with and without herbicides was demonstrated. These treatments had the desired effect on Sitka spruce showing poor growth, and a combination of both gave best results. Spraying with herbicides gave best results when this was carried out in July as against October when heavier applications were necessary. A mist application gave best results, but with this method there was the problem of drift blowing on to and damaging the foliage and trees unprotected from the spray were defoliated.

At this stage we bade farewell to the Beaghs forest area and set out for Glenarm forest. Our journey brought us along the magnificent Antrim coast, Mr. Kilpatrick continuing the good work of giving us the historic background of the countryside as we journeyed along and a very pleasant trip was enjoyed by all.

W.L.

Afternoon :

DOWN the hills from Beagh, and along the coast to Glenarm, was a pleasant journey, and this, added to the exertions of the morning, heightened our appetites for lunch, of which we partook in the very picturesque surroundings of the entrance to Glenarm Forest.

There to greet us were Mr. Crawford and Mr. Deveria. The former we had met on Wednesday, and the latter was with us on Tuesday, and again on Wednesday. The Forester in charge, Mr. McLoughlin, was introduced to the party.

Before proceeding to the first stop, the President, Mr. Kilpatrick, reminded us that this was the second visit of the Society to the Forest, the first visit having been made some twelve years ago.

This glen forest, which consists of 440 acres of short steep slopes of easily drained brown loam, is leased for 150 years from the East of Antrim. It was acquired in 1928; first planting began in 1929, while existing woodlands were clear felled during the war, and planting was more or less completed in 1945. The first working plan for a forest in Northern Ireland was prepared for Glenarm in 1945.

Discussion opened in a P/33 stand of *Tsuga*, which had been planted under larch and sycamore, since removed. Mr. McLoughlin explained in each of two thinnings, up to 90% of the poles removed were affected by *Fomes annosus*—in some cases to as much as 7 ft. up the stem.

Messrs. Maher, Morris, Harbourne and Dr. Jack contributed to the discourse which followed. It was suggested that the incidence of Heart Rot evidenced in *Tsuga* thinnings generally, would seem to indicate that up to 70% of plantations of this species are affected by Heart Rot. As this was an alkaline site, it was not to be wondered at here, but it must also be remembered that thinnings were largely comprised of sub-dominants. A very wrong impression of the crop as a whole might be got by basing an opinion on the number of affected poles in thinnings, but anyhow, this crop did not appear to be growing well. While somebody roughly estimated the loss in thinnings at Avondale Forest, due to Heart Rot, at 12% to 16%, it was suggested that the disease must have wider effects than the direct loss of pumped timber. However, it was pointed out that Foresters on the Continent do not worry unduly about it.

Mr. Kilpatrick, having listened patiently to several suggestions as to what should be done with the stand—some of the suggestions being of a rather drastic nature—brought the discussion to a close by stating that this problem is one with which we must live, while taking all steps to minimize the spread of the disease, we can at least hope for a respectable volume from the crop.

At the second stop, where the Isachsen double drum winch was in operation, Mr. Deveria gave very adequate technical details of

the machine. Here, on slopes which were too steep for horse haulage, it was found to be very useful. For straight hauls of 150 yds. and cross hauls of about $\frac{1}{2}$ a chain, up to 400 cu. ft. per day could be extracted. Costings of 2.8d. to 3.5d., with an average of 3.2d. per cu. ft., were quoted by Mr. McLoughlin.

After proceeding through the forest, the Convenor, Mr. McGlynn, thanked Mr. Crawford and his staff for a pleasant afternoon. He also thanked the members of the tour for the co-operation which he, as Convenor, had received throughout the tour. He paid a special tribute to his able helper, Miss Furlong, to which everyone responded with loud applause, this being followed by an extended round of applause for Mr. McGlynn himself.

T.H.

REPORT ON DINNER AT STORMONT GIVEN BY GOVERNMENT OF NORTHERN IRELAND FOR MEMBERS OF SOCIETY OF IRISH FORESTERS ON THURSDAY, 16th JUNE, 1966.

Perhaps the outstanding highlight of the 1966 Study Tour to Northern Ireland was the dinner given to members of the Society at Government Buildings, Stormont. Mr. H. West, Minister for Agriculture in the Northern Ireland Government acted as host for the occasion.

Mr. West, in his after-dinner speech, intimated what a great pleasure it was for him to welcome, on behalf of the Northern Ireland Government, all the members of the Society both from the North and the South. Having paid a sincere tribute to the activities of the Society and having wished them well in all their undertakings he outlined the progress made by the N.I. Forestry Division since its foundation. He complimented all the Officers of the Division for their enthusiasm and devotion to duty. Coming to the present day, he referred to the tremendous potential which forests and forestry had in the promotion of tourism. The provision of amenities such as existed in Tollymore Park were indicative of a forest usage which was bound to become more important in years to come. As Minister for Agriculture, one of his greatest problems was the co-ordination of the activities of the Hill Farmer and the Forester. He foresaw very good prospects for future trade in timber products and therefore recognised the forester as one who can contribute significantly to the economic development of the country.

Two speakers replied to Mr. West on behalf of the Society *viz* Mr. C. S. Kilpatrick, President of the Society and Mr. D. McGlynn, Excursion Convenor.

Mr. Kilpatrick thanked the Minister for the very kind invitation of the Government. He intimated that the Society were deeply appreciative of the honour bestowed on them. He availed of the opportunity to refer to the pending retiral of Mr. Elliot, Secretary to the Ministry and paid tribute to his services to Forestry during his time in office. He expressed thanks to Mr. Blackmore and other members of the H.Q. Staff and indeed to all officers who had helped to make the 1966 Study Tour the success which it undoubtedly was. In referring to the activities of the Society, he said that recently the Society had, in fulfillment of one of its major objectives, published a book, "The Forests of Ireland". This was a major achievement and one which the Society could feel justly proud of. In conclusion, as a memento of the occasion and as a token of the esteem of the Society, he presented a copy of "The Forests of Ireland" to Mr. West.

Mr. McGlynn in his remarks intimated how honoured he was to speak at this gathering in Stormont. He was very glad that the Society had never recognised either social or political divisions and their presence there that night was indicative of their loyalty to these principles. The Society had many contacts with Northern Ireland. He referred to the first visit of the Society to Northern Ireland fourteen years ago. On that occasion, the members from the South felt that perhaps they were going "abroad". On this occasion, he could truthfully say that the feeling was that they were staying at home. The Society was particularly proud and gratified that this year and on this occasion our President was himself a North of Ireland man, Mr. McGlynn also referred to Professor Augustine Henry, also a North of Ireland man, and one with many outstanding achievements in the field of forestry and was indeed of world renown. The Society was proud of its association with this great forester.

Mr. McGlynn also re-iterated the President's thanks to the Minister and to the officers of the Ministry who had contributed so much to the success of the 1966 Study Tour. He noted how much they all had enjoyed the visits made to the various forests and complimented the field staffs on their co-operation and enthusiasm. In conclusion, he again thanked the Minister for his kind and wonderful hospitality and expressed the pride of the Society in the excellent and wholehearted way that its members had been treated during their visit.

L.C.

Obituary

IT is with deep regret that we record the death of our esteemed colleague, the late Mr. Felix McMahon. Felix, although of quiet disposition, made a lasting impression on all those associated with him. He combined unquestioned loyalty to his chosen professional responsibility with a keen and human appreciation of the problems and difficulties of his fellow men.

Born in Dungannon, he was educated at Presentation Brothers Schools, and at St. Patrick's Academy, Dungannon. After further studies at Bolton St. Technical School, he entered the Forestry Service as a Trainee in Dundrum in 1926. He served in many parts of the country—Clonmel (1927), Ards (1929), Killeshandra (1931), Dunmanway (1933), Pettigo (1936), Lough Gill (1941), Cootehill and Monaghan (1945). His contribution to the development of forestry in this country is reflected in the many fine plantations now apparent in those forests. He was very conscious of the aesthetic value of forestry. His work at many forests, and at Lough Gill in particular, shows his talent in combining good forestry with amenity considerations. In 1946 he was promoted to the rank of Inspector, and served in Rathdrum and Bray District Offices until his demise in June, 1966.



His keen interest in his fellow men was exemplified by the voluntary efforts which he exerted on behalf of the State Foresters' Association and the Society of Irish Foresters. He was Honorary Secretary of the S.F.A. during the late nineteen thirties and early forties. In his quietly determined way he pressed for established status and for better housing for State Foresters. Although success was not achieved during his term of office, he laid the foundations that ultimately led to success. He was a founder member of the Society of Irish Foresters. His enthusiasm and optimism were appreciated attributes in those early days when pessimism and indifference could have led to failure of the entire enterprise.

We tender our sincere sympathy to Mrs. McMahon and to her family in their bereavement. Their loss is also our loss.

"Ar dheis Dé go raibh a anam".

Honorary Members

MR. D. STEWART

On September 11th, 1965 at Gortin Glen Forest, after the Northern Ireland Forestry Competitions, Mr. David Stewart was made an honorary member of the Society.

Although he may not be known to many foresters in the south, it can be said that Mr. Stewart devoted a long and active lifetime to forestry in Ireland and that it benefited in a very positive way from his early activities and then in a widespread and very enduring way from his tenacity and administrative ability when he reached high rank later in life.

Mr. Stewart who lives at Hillsborough, Co. Down was born in 1885 at Argyll where his father was a forester on the Stonefield Estate. As a boy he worked as a forest trainee and later as an apprentice at the Edinburgh Botanic Gardens and as a student at the East of Scotland Agricultural College. In 1908 he came to work at the Lisduff Estate and became head forester there. He left in 1911 to join the State Forest Service, the then Department of Agriculture and Technical Instruction, and worked for a short time there before transferring to Baunreagh—now Mountrath Forest—in 1911, as Forester in charge. There he remained until 1920 where he trained many of the now older Foresters. He is remembered as a strict but fair master.

In 1920 he was appointed District Officer by the B.F.C. at Baronscourt and transferred as Inspector to the Ministry of Agriculture in Northern Ireland in 1922.

In 1927 he was moved to Belfast to organise the setting up of a technical headquarters for the first time and to institute an Advisory and Grants system for the private estates. Here he acted as the Senior Inspector in charge of operations in Northern Ireland and was responsible for Timber Control by the British Board of Trade during the last war. He was honoured an imperial award for these services. After nearly 40 years in the service of forestry in Ireland he retired in 1950 at the age of 65.

Since then he has been honoured by the Royal Scottish Forestry Society with honorary membership and has been awarded a Gold Medal by the Royal Forestry Society of England, Wales and Northern Ireland. Apart from his early contribution to Forestry in the south, Mr. Stewart, starting with 25 men and only 400 acres planted at Ballykelly, virtually built up the Northern Ireland Forestry Service as it exists to-day. When he retired in 1950 there was a staff of five Inspectors, 30 Foresters and 600 men with an acreage of 25,000. Those who experienced the early work of forestry in the south will readily appreciate how, with such a small staff, the force of the individual must have influenced the planting of each acre of the annual planting of about 100 acres as it was in those days.

His greatest achievement was the establishment of a forestry tradition, the training of personnel with high skills and principles leaving behind him a hard-working conscientious and efficient service.

A determined man of purpose he fought many battles for forestry with administration and politicians. Brought up in a tough period of forestry he asked much of those who served but in his own turn worked hard and was respected as a man with integrity beyond reproach.

He can truly be said to have made a great contribution to forestry and deserves well the honour of honorary membership which we have bestowed upon him.

MR. T. DONOVAN

At the 24th Annual General Meeting, the Society had great pleasure in conferring on Mr. Timothy Donovan, honorary membership of the Society. He is the 6th honorary member and holds the distinction of being, with Mr. M. O'Beirne, the only Irishman, born and bred, to have been given this honour.

Born in Clonakilty, Co. Cork in 1882, it was not until 1906 that he entered the Forestry School at Avondale. He remained there for 3 years where he received his basic training in forestry which was to stand him in good stead during his long and active career.

His initial posting was to Camolin, Co. Wexford, one of the first state forests in Ireland. Following a short period there, he transferred to Ballykelly, Co. Derry, where he took over 200 acres of land which was to prove to be the nucleus of the North's afforestation programme. During his stay at Ballykelly, he received the princely sum of 3/6 for a 24 hour day, no allowance being given for accommodation as had been the case at Camolin. Other forests of which he had charge during the second decade of the 20th century were Augher, Co. Tyrone and Ballyhoura, Co. Cork. In 1920 he was appointed District Officer at Ballygar. In this period he advised on private planting in the West. An example of his judgment was the Sitka spruce planted at Ballinahinch, Co. Galway. These grew to a height of 110 ft. before being blown. Due to the unstable political situation in Ireland in the early 1920's the British Government abolished the post of District Officer for the West. Mr. O'Donovan was offered the post of forester-in-charge of Ballygar forest which he accepted. He remained there for 13 years and the present day forest is a symbol of his skill while in charge.

From forester-in-charge at Ballygar he moved, on appointment to District Inspector in 1934, to the post of Special Acquisition and Survey Officer in the Gaeltacht. While in this post he carried out the first inspection of Nephin Beg, now one of the largest forests in the West.

In 1942 along with 30 other men dedicated to the spread of the knowledge of forestry in all its aspects he founded the Society

of Irish Foresters. From this modest beginning the Society has expanded to a membership of 400 on the eve of its 25th anniversary. The Society owes much to those dedicated men who were far-sighted enough to found the Society. After 41 years he retired from active service in 1947. He now lives in retirement at Sutton, Co. Dublin.

The motion proposing Mr. Donovan was placed before the meeting by Mr. T. Moloney and seconded by Mr. D. McGlynn.

Letters to the Editor

Sir

The paper, "The Philosophy of American Forestry Education", read by Mr. W. G. Dallas at Pomeroy School on April 22nd, 1945, and subsequently published in "Irish Forestry" Volume XXII No. 2—Autumn 1965, could have been of real benefit to Irish Forestry were it not for its complete lack of objectivity.

In these times, when there is a generally acknowledged need for an improvement in all forms of education and training, Mr. Dallas' suggestions that Foresters (Technicians he would term them) could be trained in eleven months instead of three years, is revolutionary. His assertions that graduates on the other hand should undertake even further study, shows quite clearly that he is more concerned with advancing graduate interests than in "saving taxpayers' money and the students' time".

There is very little common ground between forestry in the United States and here. American Foresters are concerned with the management of 34% of that huge land mass, much of it virgin forest, which obviously requires very different techniques, skills and training from that required for pioneer forestry in this country.

The educational systems also are entirely different. In Ireland, the availability of University education to all of those of sufficient intellectual and moral calibre necessary for posts in the higher echelons of any organisation or profession is not systematically ensured. Apart from basic educational requirements, the sole qualification for entry to University here is the ability to pay for the course. The number of University scholarships available in this country is small enough to be insignificant in a discussion on the matter. In the absence of a system of selection based on ability to benefit from a University education, the Universities do not necessarily get the most suitable students, and many of higher intellectual capacity enter walks of life not requiring University education or take other courses not requiring the high financial outlay of a University education. This is not the case in Britain or the United States, where there is much greater availability of University education to suitable students. What a golden opportunity Mr. Dallas missed by not appealing that State-run training schools be attached to one or other of our

Universities, and the course raised to degree standard—not a very big step. I am sure the students entering would gladly forfeit the weekly allowance paid to them towards meeting the increased cost incurred. The educational qualifications at entry would need to be raised, of course, but in our view this action has in any case been too long delayed.

Mr. Dallas' comparisons lack validity with remarkable consistency. The non-graduate Forester in Ireland undergoes an intensive three-year course in practical and theoretical forestry, and then spends at least a further five years as an Assistant Forester before he is considered ready to take charge of a Forest. This is the man the author seeks to equate with the American technician who gets an eleven-month course under the kind of Boy Scout programme he found in America. The subjects covered under this programme are conveniently omitted.

Those entering the Forestry profession in Ireland have done so in two ways — the University and the Forester Training Schools. Both of these sources have provided Foresters of sufficient calibre to occupy posts in the higher echelons of Irish Forestry. There is no evidence that a preponderance of the talent coming into the profession has found its way through either one of these channels of entry and it is in fact unlikely that it will, in view of the absence of a rational system of selection for the University. Both modes of entry provide the scientific background to Forestry and an introduction to Forestry as an applied science, to enable students to develop by experience, observation and further study, a fuller knowledge and appreciation of Forestry as a practice. It is obvious that such development depends to a great extent on the individual and his intellectual capacity for such development. We must recognise that not all those who enter the profession through either of these ways necessarily have the basic equipment with which they can develop themselves as fully as a profession such as Forestry requires. It should be remembered too, that possession of a University degree does not necessarily preclude one from being a technician any more than the lack of one would exclude one from being else. This is probably universally true, but in practice it is particularly true in Ireland because of the confusion in our system of education already mentioned. Mr. Dallas would have "a profession of University trained Foresters, and a separate cadre of forest technicians". Despite the fact that he wants to create this division, he expects the result to be harmony! It would not be good for any service to divide it as advocated by Mr. Dallas. The effect of his paper on the Society of Irish Foresters, the members of which are in the main professional Foresters, cannot be healthy.

While we can accept that the views expressed in the articles and notes in the journal were not necessarily the views of the Editor or of the Society of Irish Foresters, we would remind the Editor that the constitutional object of the same Society is to advance and spread in Ireland the knowledge of Forestry in all its aspects. That the

Editor should agree to publish a paper which blatantly seeks to advance the interest of one section of the Society's members at the expense of another, does him little credit, and is certainly not calculated to encourage Foresters to "chip in" and join actively in the Society—the theme of his Editorial in the same issue of "Irish Forestry".

Mr. Dallas certainly did not woo Irish Foresters to the Society's ranks when he stated that the Forester "may be seen as a truly earthy individual with gnarled and often dirty hands, rather than a scientific manager of some of the nation's most important natural resources". Does he imply that it is beneath a Forester's dignity to be proficient in the practical as well as the scientific side of Forestry? Does he fear for the graduates' inability to be practical? Or does he simply fear the cold draught of competition and wish to close the door?

Irish Forestry has developed its own tradition, a fund of experience and knowledge, and a character of its own shaped by time, reverse, successes and the dedication of its Foresters, both graduate and non-graduate. No serious flaws in the structure suggest that a radical departure from the established pattern is required. The Irish Forester of to-day is no "status quoist". There is, of course, always room for improvement within the framework, improved dissemination of literature and new information, and many other areas in which the Society of Irish Foresters could assert considerable influence. Mr. Dallas' paper is partisan and strikes a discordant note that has reverberated irritatingly through the ranks of the profession.

In conclusion, I would like to acknowledge the many letters received from Foresters throughout the country, who generously gave me leave to use their submissions in writing this letter.

Trusting you will see your way to publishing this, which sets out the views of our members.

Yours faithfully,

M. P. G. HARBOURNE,

Hon. Gen. Secretary.

Institute of Professional Civil Servants, State Foresters Branch.

In publishing Mr. Dallas' article it should be noted that it was one of three papers, together forming a symposium which, it was felt, should be reproduced in its entirety. This paper was the airing of a point of view which had certain attributes for some and unacceptable points for others—nothing is wholly condemnatory on any one side.

A provocative piece of work demands criticism—this is in its inherent nature. Criticism as such may not be a bad thing, is often desirable and is positively so when it is constructive. It was in the hope of stimulating constructive thought that this article was published. This it achieved as many of the recommendations of the Association of Professional Civil Servants, Forestry Branch, as recorded in the above letter surely testify.—Editor.

Review

THE STORY OF AUGUSTINE HENRY

THE WOOD AND THE TREES. A biography of Augustine Henry. By Sheila Pim, London : MacDonald, 1966. Pp 256, 14 photographs. 40s.

A reviewer's approach to his subject need not necessarily be critical, nor should he be too enthusiastic because it happens to be "his kind of book". Rather, a review should be a balanced appraisal from which the reader can make his own decision as to whether he wishes to read the book or not. Having said that much I am tempted to fall into both traps. My only serious criticism is not of the text but of the title. I fear the words "The Wood and the Trees", set on a very pleasing picture of an oak-wood in winter, may give the uninformed the idea that here we have yet another work on "do-it-yourself" forestry.

However, the magic is contained in small letters below — "A Biography of Augustine Henry". Whether one is interested in the Ireland of the first decades of this century, in the plants in one's garden, in the early days of forestry or in arboriculture, this book has much to offer. As a bonus we are treated to some superb descriptions of the vast and beautiful landscapes of the Chinese interior. These, like so much of the material in the book, were painstakingly gleaned from the personal correspondence of Dr. Henry with his life-long friend, Miss Evelyn Gleeson.

Miss Pim has taken immense trouble to ferret out all sources of information concerning this man of many parts, who was firstly a medical doctor and then a Customs official in the pay of the Chinese Imperial Government. It was during this service that his plant collecting developed beyond a mere hobby and he is credited with having sent over 16,000 carefully labelled specimens to Kew for their collections. Many plants shrubs and minor trees seen in Irish gardens today were Henry introductions, without which we would be very much the poorer. Names familiar to us as specific epithets, and indeed as generic titles, lace the pages of this book, reminding us of our indebtedness to the collectors of the day, not least amongst whom was this simple and gracious man, Augustine Henry. It is not difficult to associate such names as Fortune, David, Maximowicz, Balfour, Veitch and Faber with plants and trees well-known in gardens and arboreta. However, Miss Pim's work is not a botanical who's-who, but a well-told story of a man who was later to be the driving force behind the establishment of State forestry in Ireland as well as creating the Chairs of Forestry in Dublin and Cambridge. His studies to fit him for these posts took him to many parts of the

world, and in the pages of this book we can sense the beginnings of recognition of what we now know to be our bread-and-butter forestry species.

Not unnaturally, we learn of the conception and birth of that great stand-by of all who wish to verify a tree identification, "The Trees of Great Britain and Ireland", by Elwes and Henry. The fact that this work is still so sought after is proof of the thorough nature of Augustine Henry's work, as it was he who was the technical force behind the publication.

It should be a source of some pride to members of the Society of Irish Foresters that Miss Pim has included a photograph of our memorial stone at the "Henry plot" at Avondale amongst her illustrations.

Miss Pim gives us a source reference running to 383 entries, as well as appendices listing Henry's plant introductions and his publications.

All in all it is a book in which forester, gardener and layman alike should enjoy a humanly told story of a great and talented Irishman.

A.M.S.H.

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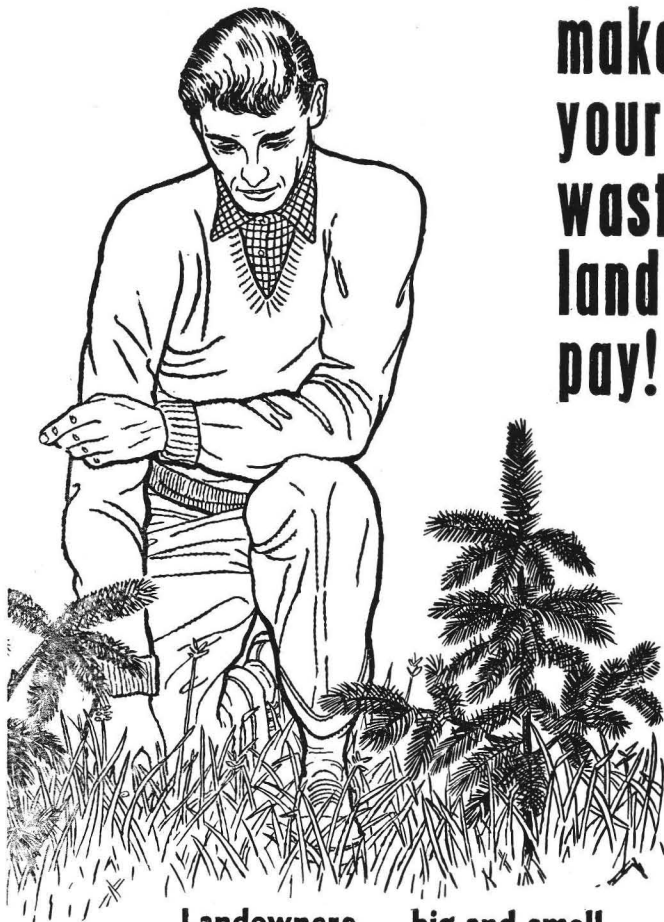
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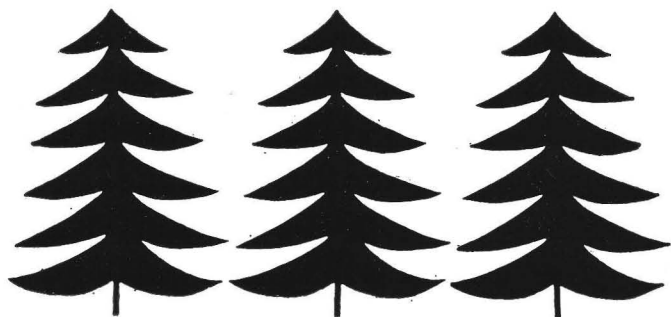
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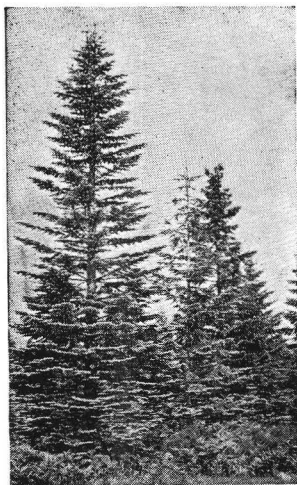
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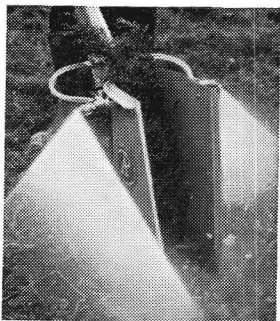
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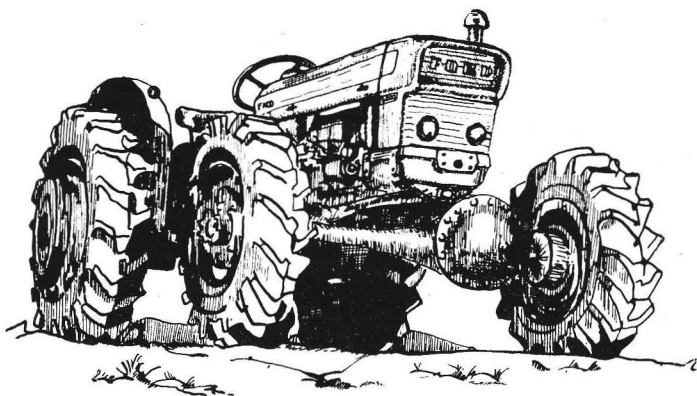
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