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## **Study Tour in the Black Forest, 1956**

*General.*

ON the evening of May 26th, 1956 the main body of members of the Society who had enrolled for the 1956 study tour left Ireland on the first lap of their journey to Germany.

They crossed the Irish Sea, passed down through England and on Sunday 27th, paused in London for some three hours during which many of the party attended Mass at Westminster Cathedral.

At Victoria railway terminus a few more members joined the party which shortly after 10 a.m. moved south to Dover and crossed the English Channel to Ostend. Having duly set foot on Belgian soil the party could fairly claim to have made history for not only was it the first time a party of the Society of Irish Foresters had crossed on to the mainland of Europe but it could also be claimed that it was the first

occasion on which any representative group of Irish foresters had crossed the English Channel. From Ostend the train brought us through Brussels and Liege on to Aachen and Köln, thence southwards along the Rhine and to our destination at Frankfurt at about 2.30 a.m. on Monday 28th. At Frankfurt railway station we were met by Oberregierungsrat Karl Oedekoven of the Forest Administration at Bonn who walked with us through the then quiet city and across the River Main to our quarters at a youth hostel. This act of kindness and great courtesy on the part of Herr Oedekoven struck the highest possible note of hospitality and goodwill which never waned throughout the six days of our stay in Germany.

At the youth hostel a few more members joined to make the main party complete which then, numbering 58 was, we were told, the largest forestry group ever to be received by the German Forest Service. And so, we were ready to look out at Germany, to meet her people and to see her forests.

Looking back now with the perspective of the mind's eye on the tour as a whole the happy recollections come crowding in and the pictures of people and places are still vivid.

Our first journey on the road from Frankfurt southwards to Baden-Baden was an enthralling experience for most who were seeing Germany for the first time. This was a long journey starting as we did about 7.30 a.m. and getting into Baden-Baden at about 1 p.m. but speeding along the autobahn in two smoothly moving buses—the "Red" and the "Blue" bus—and being absorbed by so much that was new and of intense interest the journey passed quickly and without fatigue. Early we passed through the far stretching areas of the Rhine plain, all intensively cultivated agricultural land. Perhaps we wondered why we could see so far and so clearly and then remembered our own road-side hedges and trees and raised farm fences. Here was the first striking contrast: the absence of raised fences and in fact the very vague evidence of any land divisions was a fundamental difference. The frequent passing of great towns and cities from which much of this land seemed to be worked was also strange to us. With the Rhine on our right, but seldom seen, our attention was diverted first to the Bergstrasse and then to the outer hills of the Odenwald gradually rising on our left. Crossing the river Neckar, of whose beauties we were to know later, we passed close by the famed city of Mannheim on our right and Ludwigshaven on the west bank of the Rhine which was never far away. After crossing the Neckar, though still on the plain, we passed nearer to the mountains on the east and moved away from the Rhine and it was here that we entered scots pine forests on either side of the road and saw the first evidence of forest management in Germany. Many of these stands impressed us by their heavy stocking for their height; artificially regenerated scots pine seemed too to be very closely spaced—possibly at 3 ft.  $\times$  4 ft. or 3 ft.  $\times$  3 ft. These

forests were mainly communal or privately owned. We saw too the evidence of some recent severe frosts where the foliage of all exposed young beech had been completely burned black. Very remarkable too was the fact that most of the foliage on the locust trees (*Robinia pseudoacacia*) appeared to have been stripped after the first flush. This may have been due to frost, but it was also suggested that it was possibly caused by the may bug, a cockchafer beetle which apparently causes considerable damage by eating tree foliage in Germany. But these were only passing impressions. We were introduced also on this journey to a German road-house where we enjoyed a pleasant snack and were able to stretch our legs. This was an attractive building which stood in a short by-pass of the autobahn and blended into the scots pine forest at its back; here all travellers' needs—food, drink, post cards and petrol—were to be found.

Moving on then past Karlsruhe we started to look eagerly forward and to the south-east for now we were seeing for the first time the outlying hills of the Schwarzwald. Then we were on smaller roads, then Rastatt, and finally Baden-Baden.

The ceremonial lunch at Baden-Baden was one of the big occasions of the tour and got everything off to a flying start; there for the first time we met President Kurz, Chief of the Baden-Württemberg Forest Service, Oberforstmeister Mahler, Chief of the forests in the Baden-Baden area, Forstmeister Weirich from Stuttgart, and Dr. Graf von Wallwitz. During a most convivial dinner we tasted the fresh, lively German wines and a delectable dish of venison from young roebuck. After the meal we were all presented with a most valuable memento, *Der Stadtwald von Baden-Baden*, written and compiled by one of our hosts, Oberforstmeister Otto Mahler. The photographs in this book, which are of the very highest quality, are in themselves a silvicultural treat and an education for any forester. They illustrate vividly the perfection which has been reached in utilisation, road making, game preservation and protection, and in the silvicultural application of natural and artificial methods of regeneration. Oberforstmeister Mahler pointed out all this to us in the afternoon in the forest with the aid of Dr. Graf von Wallwitz's vigorous interpretation.

At Baden-Baden a particularly impressive point of silviculture was the fact that the management was prepared to introduce douglas artificially into an already heavily stocked crop of natural regeneration of spruce and to protect each douglas individually against deer. The douglas was put in at something like a final crop spacing so that to protect each of these trees with mesh wire and four strong posts battened at the top was a costly undertaking. One could not but be impressed by the fact that here we had the most famous silviculturists in the world prepared to incur great expense in order to attain a possible state of perfection silviculturally and productively; here we had a true valuation of the worth of the forest.

We will never forget the warmth and conviviality of our reception at Baden-Baden, the high quality of the forest management and the outstanding beauty of the countryside and town, but how truly these same words could be said of so many delightful places we were to see during our tour.

Who could forget Zwingenberg and that breathtaking view of the beauty of the Neckar from the lofty battlements of the Castle of the Duke of Baden to whom we owe our best thanks for permitting us to visit his estate. Who, indeed, will forget Forstmeister Peter Hautermans and the silvicultural treat he gave us at Zwingenberg Forest. It was at Zwingenberg too that the Irish party and the Society of Irish Foresters were greatly honoured by being invited to plant an oak tree in memory of the occasion. This tree which was named St. Patrick's Oak by Forstmeister Hautermans, will strengthen the desire to return—a desire developed in this and many other places during our tour.

We will not forget either the generosity of Dr. Fischer-Zach and his co-directors and the prodigious skill and vigour of Forstassessor Clarsen's bugling. On the next day the Forstassessor showed even greater skill and vigour in his handling of the demonstration of *unimog* mechanical extraction devices at Schifferschaftswald.

Many will remember with pleasure also the kindness extended to them and the excellence of fare that they received at the country guest houses outside the town of Forbach where the main hotel in the town was unable to accommodate the entire party.

Freiburg im Breisgau, the worthy capital of the Black Forest, the "Open City," still remains open, fresh, a typical university town dominated by the splendour of the medieval cathedral in red sandstone with its unbelievable 380 foot spire which has been so aptly described as "lacework in stone." It was here on the feast of Corpus Christi that the party heard Mass in the great cathedral and later saw from the balcony of the Kaufhaus (Guildhall)—a great privilege indeed—the colourful Corpus Christi procession. Happily, the cathedral and the Kaufhaus which overlooked the market square where the procession finally assembled, came through the war with comparatively little damage.

It was here in Freiburg that Dr. Graf von Wallwitz exerted himself to the utmost in telling us everything about the old city and showing us through its narrow alleys where all the shops and windows were tastefully bedecked with interwoven fir, birch and spruce branches and wreaths in honour of Corpus Christi.

That afternoon because of a persistent drizzle, so familiar to us at home, we missed seeing the famous Feldberg (4,898 ft.) mountain at a distance. But whatever the rain may have done that day it can never efface the memory of that highlight of our tour, the oration by Praesident Kurz in the Forest at Villingen on the basic principles of



silviculture and forestry; that was a great moment indeed. Yes, we will remember Villingen, and the kind words of Forstmeister Freudenbergin too. The weather was not over gracious to us during our tour and robbed us of the full enjoyment of such views as southward from St. Margen to the Feldberg and, later, to the Alps on the road to Villingen. Imagination can almost offer the full picture of the sweeping view down across the Rhine plain to Strasbourg in France on that tremendous drive on the Black Forest highway from the Schifferschaftswald to Freudenstadt. It was at the highest part of this drive some 4,900 ft. above sea level that the spruce became very stunted and petered out and the tree cover changed to sparse mountain pine (*Pinus mugo*)—and the ground vegetation to heather (*Calluna vulgaris*) and bilberry (*Vaccinium myrtillus*). At this altitude we were at the limit of economic tree growth. Irish foresters realised here in a very impressive way—for this was one of the few times we saw heather—how very much more favourable the conditions were for tree growth in the Black Forest compared with the conditions and relative altitudes in their own country where dominant *Calluna* is a normal condition. But consideration of such a comparison is made difficult by the complex factor of relativity.

An evening drive to Stuttgart along the north western margin of the Swabian Alp and earlier along the watersheds for the Rhine to the north-west and north and the Danube to the south-west is vivid in our memories with Dr. Graf von Wallwitz ever eager that we should not miss anything, shepherding us up a side road in the fading light in order that we could see an unforgettable and haunting silhouette of the historic Hohenzollern castle in lonely and lofty isolation.

At Stuttgart our stay was short: we arrived late, had a later night, and had to leave early the next morning. Once again, however, Dr. Graf von Wallwitz made sure we did not pass along without a rapid glimpse of the dignified architecture in red sandstone in the central city area. He rushed a party round before the early departure of the bus for Zwingenberg and many were lucky enough to see the Theatre Platz and the Schloss Platz.

The Königsbau and the really ancient part of the city, the Schiller Square with its very old buildings, go back to the 12th century and were the places where the counts of old foregathered for ceremonial occasions in far-off days. Many of these fine buildings had suffered severe damage from bombing but the work of raising up these historic structures again in their original form was well under way.

We saw too from a distance the unique television tower or Fernsehturm, a slender, hollow, conical structure of concrete reaching high over the city to 690 ft. with an enlargement or "crow's nest" at 478 ft. which can be reached by lift and in which one can sit down to a meal in a glass-surrounded restaurant and look out over the city and

the countryside. We left Stuttgart wondering at the sight of vineyards sloping down to meet suburban houses and terraces.

We are grateful to our hosts for providing the opportunity for a brief visit to the historic old university town of Heidelberg where we were shown through the old castle of Heidelberg by an official guide.

At Weinheim Forest we were all astonished, to say the least of it, in being confronted in what we thought was Germany of the continental climate, with luxuriant groves of western American, Chinese and Japanese tree and shrub species.

It was here at Weinheim, in an unforgettable setting, that we offered our thanks to Forstmeister Fabricius and were presented with an Atlas Cedar (*Cedrus Atlantica Manettii*) by him which will duly find a place of honour in the arboretum at our own Avondale.

It was here at Weinheim too that we offered very inadequate thanks and appreciation to President Kurz who had so greatly honoured us by staying with us and leading us throughout the tour in Baden-Württemberg; to Forstmeister Weirich of Stuttgart who had spared no effort to make us familiar with all aspects of the Schwarzwald country which he knew so well, and who was a friend to us all; and to Dr. Graf von Wallwitz.

Count Willwitz, who must love his adopted country of the Black Forest very deeply, was able to convey to us the very spirit of its hills and valleys, and of the history of its towns. He certainly made the history of this part of Germany a living thing for us and his orations, such as on the history of Hohenzollern, were unforgettable. He worked in every way and at all hours to make our tour the happy, instructive one it certainly was.

Perhaps of all the towns we visited we should say most about Frankfurt for we dallied longer there than elsewhere, and its streets and show places were explored by most. However these explorations left a maze of personal experiences and impressions which cannot be condensed by the individual. It was at Frankfurt we first looked out at Germany and at Frankfurt we bade reluctant farewells. Of Frankfurt we must first remember the manager and manageress at the youth hostel for their patience, helpfulness, and the excellence of their fare. Our stay at the youth hostel was a very important factor in the success of our tour and a well conceived idea in the first place.

Many enjoyed boat trips up the Main, some down as far as Mainz and others were fortunate enough to be driven both through the Taunus mountains and near to the Wester Wald and the Mosel, and then down the western bank of the Rhine under the steeply sloping vineyards and Rhine castles past the Loreley Rock and the historic Rhine crossing at Kaub Die Pfalz, to the wine town of Rudesheim, then to Wiesbaden and back to Frankfurt.

In Frankfurt itself the cheerful courtesy with which we were met in all the shops was remarkable. Some saw also the children's park

which was developed from the town forest to meet the needs and demands of the ever enlarging and encircling suburbs. Here every advantage had been taken of nature to adapt it to the whims and requirements of childhood. Apart from a splashing pool with crystal-clear water there were tunnels made from hollow logs, closely stocked spinneys for "Red Indians," special climbing trees and logs for carving names on, slides and many other ingenious adaptations of nature for the pleasure of the young. The whole park was specklessly tidy. The predominance of Robinia or locust tree (*Robinia pseudoacacia*) and limes was a noteworthy feature in the streets and suburban roads as compared with the usual species in our own country.

At Frankfurt on Friday night we were entertained to dinner by the Federal Government at which we had a very good speech from Oberregierungsrat Oedekoven who, having spoken in fluent English concluded by wishing the party Slán Libh agus go n'éirighe an bhothar libh, which is a wish each and every one of us can most warmly return to him personally.

The President of the Society, Mr. Mooney, the Vice-President, Mr. Cosgrave, and Mr. McEvoy ex-President, replied on behalf of the Society.

On the evening of Saturday, June 2nd at about 11.30 p.m. we paid our farewells to Herr Oedekoven and started on our homeward journey down the Rhine via Mainz to Köln and then to Aachen and back along the same way we had come through Belgium to Ostend finally arriving home early on Monday, 4th of June.

## **Town Forest of Baden-Baden and The Wood Cellulose and Paper Mills of E. Holtzman & Co., Ltd.**

*First Day (May 29th).*

THE first forest on our itinerary was the town forest of Baden-Baden about 130 km. south of Frankfurt. On arrival at Baden-Baden after a pleasant journey down the Rhine valley we were met by President Kurz of the State of Baden-Württemberg and entertained to lunch as the guests of the town. At the lunch our party was welcomed by President Kurz, himself an eminent and internationally known forester, who hoped that our visit would be both pleasant and instructive, and he expressed his intention of accompanying us throughout our tour. Herr Meita representing the Mayor of Baden-Baden extended a welcome on behalf of the town and expressed his pleasure that their forest was to be our first introduction to German forestry. Oberforstmeister Mahler also associated himself with the expressions of welcome. Our President Mr. Mooney replied on behalf of the Society and Mr. Clear also spoke.

After lunch we were conducted by Oberforstmeister Mahler on a tour of the town forest. This forest comprises some 5,700 ha. and

ranges in elevation from 140 to 1,000 metres.\* Rainfall for the district ranges between 1,000—2,000 mm. which would correspond broadly to our own range but the average summer temperatures are higher than ours and range from 16.2° (61° F.) for Baden-Baden on the lower slopes fronting the Rhine valley to 12.9° (55° F.) for Buhlerhohe at an elevation of 900 metres and situated in the hills 8 km. due south of Baden-Baden.

The geology of the district may, in its simplest form, be divided into 3 zones. Up to 500 metres we find upper carboniferous limestone with loess drift in the valleys and on the lower slopes; from 500 to 700 metres the underlying rock is granite while above 700 metres we find the variegated sandstones.

The proportion of species at the 1949 census was silver fir 34%; spruce 30%; pines/larch 7%; beech 24%; oak and other hardwoods 5%. These were distributed in age classes as follows: gaps 8%; 1-20 years 20%; 21-40 years 10%; 41-60 years 11%; 61-80 years 4%; 81-100 years 7%; over 100 years 40%.

Fellings are based on careful assessment of growing stock and increment and the calculated coupe for 1956 is 55,000 m<sup>3</sup> or 9.9 harvest m<sup>3</sup> per hectare. This is calculated to yield a *nett* profit per hectare of approximately 200 DM. for the municipal forest budget and it is interesting to note that this is only slightly less than the return from the grazing lands of Co. Meath as shown by the recent farm survey.

In 1947 the French started exploitation fellings and clear felled large areas. Since then Oberforstmeister Mahler has endeavoured both by natural and artificial regeneration to reafforest the devastated areas. The three species mainly in use are silver fir, spruce and beech; but also included in their mixtures are douglas, *P. strobus*, oak and sycamore. The silver firs have been found difficult to manage below 500 m. elevation mainly due to the rather dry sites and devastation from bark-beetle, consequently below 500 m. douglas and *P. Strobus* are the main species filled up with silver fir, spruce, oak, beech, etc. Pure stands have fallen into disfavour and mixtures are now encouraged. Formerly the silviculture based on pure stands of silver fir yielded a mean annual increment of 10m<sup>3</sup> but now in the mixed crops the M.A.I. is estimated to be 12 m<sup>3</sup>.

Above the 500 m. elevation the silver fir comes into prominence. The slopes here were originally clothed with oak and beech and only in the last 300 years have the conifers been introduced. The present aim is to grow beech to 120 years and silver fir to 70 to 80 years all regeneration being natural. M.A.I. here is about 10 m<sup>3</sup>/ha.

Above the 700 m. mark we find the variegated sandstone, and because of the difficulty of root penetration in this medium spruce

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\* 1 metre = 39.37 inches.

1 kilometre = 0.62 mile.

1 cubic metre = 35.31 cubic feet.

1 hectare = 2.47 acres.

becomes the dominant species but again mixtures are favoured so that we also find silver fir and beech. The variegated sandstone is very acid with a pH of about 4.5 and it also has hard pan not found in the granite in these regions. The M.A.I. on these sites is 7 to 8 m<sup>3</sup> per hectare.

The control of game is very important to the management of the woods and, in fact, is the first consideration in this municipal forest, with the natural regeneration of silver fir as the second. Deer do comparatively little damage to the beech but despite the strict control of their numbers their damage to the silver fir and douglas make it necessary to have individual protection to the young silver fir and douglas plants. Bark peeling by the red deer also can seriously reduce yields but at the same time the hunt as an attraction to the tourist must not be overlooked or forgotten.

A good road system in the forest is considered essential and as a good road system can command higher prices for the produce it is also sound economy. Consequently the costs of the road system is an important item in the forest budget and the annual allowance on road construction and maintenance is between 5 and 600,000 D.M. Concrete roads are now favoured at an average cost of 43 D.M. per metre run for a width of 4½ metres. During our tour of this forest all driving was on forest roads which gives an indication of the importance placed on a good road system.

Leaving the forest we next went to see one of the important industries based on the forest produce, the wood cellulose and paper mills of E. Holtzman and Co. Ltd. At the mill we were met and welcomed by Dr. Fischer Zach and his co-directors. Dr. Fischer Zach, a fluent English speaker, who had travelled extensively in the study of modern techniques of the industry, gave us an outline of the history and development of their company, and then led the party on a tour of the Wolfsheck paper mill.

This firm was established in 1883 in the Murg river valley between Forbach and Weisenbach and now controls 3 separate mills in close proximity along the river. The site was specially chosen to utilise the steep fall of the river which in the early years provided all the power necessary. As the mills developed and were enlarged and modernised to meet the growing demands additional power became necessary and this is now supplied by a modern high pressure steam plant capable of delivering almost four times the power supply of the river. Modern equipment recently introduced into the Wolfsheck Paper Mill includes a new paper making machine, a modern debarking plant in place of the old manual methods which were found to be wasteful, and two new continuous high powered grinders for mechanical pulp bringing the total number of grinders at Wolfsheck to six.

Two of the three mills controlled by the company are concerned

with paper making; the first at Wolfsheck, which is also the largest, produces newsprint while the second at Breitwies produces better grade paper for magazines etc. The combined daily consumption of wood in these two mills is about 5,000 stères and it is interesting to note that the production of these two mills if confined to newsprint alone could supply  $\frac{3}{4}$  of our own requirements.

The bulk of the pulp used is mechanical and is produced in the mills themselves. A small proportion of chemical pulp is mixed with the mechanical to provide strength and varies with the quality of the paper to be produced. This has to be imported as there are as yet no facilities for the production of chemical pulp at the mills.

After our tour of the mills our party was entertained to dinner by the company. This was followed by light entertainment which was contributed to both by our hosts and by our members. It was on this occasion we had our first introduction to the hunting horn, when various calls were sounded by Dr. Fischer Zach and Forstassessor Clarsen, the highlight being when the former sounded the calls on two horns simultaneously.

At the conclusion Dr. F. Zach spoke words of welcome to the Irish party and mentioned the warm feelings Germans had towards our people. The President of the Society replied and was seconded by Mr. M. Flannery in offering the heartfelt thanks of the Society of Irish Foresters for having the operation of the paper mills so clearly demonstrated to them and for the magnificent hospitality the company had extended to members of the Society.

## Schifferschaftswald and the Town Forest of Freudenstadt

### *Second Day (May 30th).*

After a night of storm with a vivid and colourful display of lightning on the rugged mountainous country we rose to a morning of clear air and bright sunshine. Our first stop was to inspect the forest of the Murgfloating Company and to see a demonstration of the very adaptable *unimog* jeep.

We were met by Oberforstmeister Dr. Kanzler and Forstmeister Neukume. Before proceeding with the inspection Forstassessor Clarsen and his foresters sounded a traditional welcome on the hunting horn, an honour which we deeply appreciated.

Dr. Kanzler and Forstmeister Neukume gave us an interesting and detailed account of the history of this Company.

The Schifferschaftswald comprising about 5,000 hectares belongs to a company whose origin can be traced to the 13th century. The name "Schiffer" means raftsmen and the Murg river raftsmen were men who floated timber out of the Murgvalley to the Rhine and thence to the

Netherlands. These "floating-tenants" operated sawmills in addition to their timber exports. Even at that early date they were organised in groups or companies and developed the Murgvalley for colonisation. In the 16th and 17th centuries the Murgfloating Company was fully established with forest property amounting to 20,000 ha. and operating 30 sawmills in the Murgvalley.

Severe set backs were suffered during the 30 Years War (1618-48). A disastrous fire which burned down many of the mills, family dissension, deaths, etc. brought the company to near ruin. Only 5,000 ha. remained in the hands of the seven families which survived. They set up new sawmills and re-established the company which has survived to this day. The forest was divided into 307 properties of different sizes varying from 1 to 307 ha. One central management controlled operations over the entire area. The revenue from the different properties was paid directly to the owners but only when felling operations were carried out in his particular share did he receive any revenue. This plan proved unsatisfactory as the property owners wished to have a steady income and the management found it increasingly difficult to keep track of the properties which were constantly being subdivided in marriage settlements, inheritances, etc.

In 1892 the resources of the Murgfloating forest were pooled and the ownership of the various properties passed from private hands to the company and the share values were based on the soil expectation value of the lands surrendered.

At the end of the nineteenth century the state of Baden acquired a controlling interest in the company and, by an agreement of 1886, while they took over technical management, administration still remained in the hands of the Murgfloating company.

The area now administered by this company comprises some 5,000 ha. situated in the valleys of the Murg river and its tributaries, Schwartzenbach, Raumung, Schonmunz and Langenbach. The forest is typical of the Black Forest mountains with steep, craggy slopes and generally rugged terrain. The altitude range is from 330 m. to 1,260 m. The continental climate which might be expected in this situation is not so pronounced due to protection from the bitterly cold east winds provided by the continuing massif to the east. However, within the forest district there is a considerable variation in mean annual temperature from place to place due to altitude. Thus we find on the lower slopes a mean annual temperature of 50° F. with an average summer temperature of 68° F. while in the upper regions the corresponding figures are 43° F. and 59° F.

The area enjoys a high rainfall which is fairly evenly distributed with the greatest fall occurring during the growing season. The soils in the main are derived from granite. They are deep, free-draining, sandy soils, rich in potash and magnesium but poor in calcium. Sporadic



intrusions of crag and rock-outcrop occur. Upper and lower variegated sandstone are present on the higher regions, the former predominates giving a shallow, stoney soil with peat cap.

The selection system of silviculture had its origins in the peculiarities of ownership and dividend payment in the early days of the Murgfloating company. As each shareholder derived revenue from his woodlands only when felling actually took place in his share, he devised the system of continuous selection fellings to provide a small but steady income rather than a larger but intermittent income which would accrue from a clear felling system.

The advantages of this particular system were recognised by the company and management continued on these lines after the amalgamation of 1892. This system favoured silver fir but unfortunately the absence of adequate control of deer resulted in a severe set-back to this species, so that to-day we find it occupying a secondary place. The ideal stand is considered to be 70% silver fir, 15% spruce, 10% beech and 5% pine in order to give maximum utilization of site and under these proportions it is estimated that the site could carry 850 m<sup>3</sup> as against present actual stocking of 365 m<sup>3</sup>.

To achieve this, a rigorous system of protection against game is being pursued. The present game stocking is 7 deer (5 roe and 2 red) per 100 ha. as against a tolerable 2.5 (1 roe and 1.5 red) per 100 ha. The protective measures include reduction of the game stock, fencing of individual regeneration and valuable blocks and also by the use of chemical deterrents to browsing. In addition to protection against game the nature of the terrain necessitates special precautions against storm damage and snow break.

The increment for 1956 is estimated to be 8.2 m<sup>3</sup> total volume per ha. but it has been decided to overcut by some 2.0 m<sup>3</sup> per ha. This is estimated to yield some 50,000 m<sup>3</sup> almost 80% of which will be larger saw timber and 20% firewood and lop and top.

The forest property of the Murgfloating company is divided into 9 districts with areas ranging from 500 to 600 ha. Continuous employment is provided for some 200 workmen and seasonal employment for 150 female workers. The universal trend for labour to move from the country to industrial centres is also in evidence here with resultant scarcity of manual labour for forest operations. This has led to increased mechanisation in the forest and the most versatile machine is the *unimog*, a jeep developed by the Mercedes-Benz company. Research and development for the adaptation of this machine for forestry operations are still proceeding and the company's technicians are working in the field in collaboration with the forest officers. The main features of the *unimog* are its very efficient hydraulic system, the large variety of implements which have been adapted for use with it, its manoeuvrability and robust construction which enables it to operate with efficiency in the





The party being welcomed at Murgschifferschaftswald.

(Photo—Forstmeister Weirich).



The President (Mr. O. V. Mooney) in conversation with Oberregierungsrat Karl Oedekoven over a cup of coffee in a wayside inn.

(Photo—Gerald Scully).

**Black Forest, 1956.**



The President and Forstmeister Peter Hautermans planting the St. Patrick's Oak at the Duke of Baden's estate at Zwingenberg.

(Photo—Gerald Scully).



Forstmeister Neukume addressing the party at Murgschifferschaftswald.

(Photo—Forstmeister Weirich).

**Black Forest, 1956.**

rugged terrain of this region. This was effectively demonstrated in a variety of operations under the direction of Forest Assessor Clarsen.

Having spent a very interesting morning, we were entertained to lunch by the Murgfloating company at which our President, Mr. Mooney expressed the thanks and appreciation of the Society for the great pains taken by the company to ensure the success of the visit.

#### *Town-Forest of Freudenstadt.*

Having left the forest of the Murgfloating company we proceeded southwards through country whose natural grandeur was enhanced by the colour and fragrance of early summer to Freudenstadt, where we were accorded a civic welcome. After tea in the Spa we were conducted on a tour of the town. Following the last war this town was razed to the ground, only one house remained standing. This house has now become a public monument and the town has been completely rebuilt in its original style and architecture by the co-operative efforts of the inhabitants.

President Kurz conducted our party through the town forest. Some of the most important attractions of Freudenstadt are its scenic beauty and the hunting and winter sports facilities it can offer visitors, the considerations of which have a big influence on the management and silviculture of this municipal forest. In general, the selection system as formerly practised is adhered to by the present owners.

At the beginning of the century silver fir and spruce were the main species but due to clear-fellings practised up to 1901 and the over-cuttings necessitated by the last war and exploitation fellings during the later French occupation the silver fir population was reduced considerably and spruce has become the dominant species. Present silviculture is aimed at favouring silver fir and the success is now apparent in the one to twenty year class. The soils are generally derived from variegated sandstones and are poor in mineral nutrients with frequent hard-pan. The disappearance of beech due to the heavy demand for firewood has not helped matters and its re-introduction as a soil improver has assumed an important place in the silviculture of the district.

The estimated mean annual increment prior to the exploitation fellings of 1947-49 was approximately 6 m<sup>3</sup> per ha. of saw-timber. Exploitation fellings in the municipal forest were not quite as heavy as in other public forests in consideration of the total destruction of the town. Nevertheless some 75 ha. of the total 2,500 ha. of the forest were clear cut.

Considerable importance is placed on the forest road system and in addition to three public highways which traverse the area there are some 85 kms. of metalled road, 81 kms. of secondary roads and 22 kms. of sledge ways to serve the 2,500 ha. of forest. For the upkeep and

maintenance of this road system three road surveyors and ten workmen are employed. The labour content of the forest is some 130 men of whom 50 are skilled forest labourers working under 4 forest rangers, the entire service being under the direction of President Kurz.

### **Freiburg—Villingen—Stuttgart**

#### *Third Day (May 31st).*

Thursday, 31st May, Corpus Christi, proved a long, full and most memorable day. Members had the privilege of attending High Mass in the historic cathedral of Freiburg im Breisgau at 7 a.m., followed by a tour of the old mediæval city lovingly conducted by Graf von Wallwitz, who has made his home there and whose distinguished figure seems to be greeted heartily by most of its citizens. We were most fortunate to be able to see the decoration of the narrow streets with religious plaques and statues, precious family heirlooms, wonderful examples of traditional craftsmanship especially in wood, against a background of the fresh green foliage of birch. A balcony of the Old Diet House overlooking the cathedral square was specially reserved for the Irish party as distinguished visitors, and we had a wonderful view of the assembly of all the townspeople, council, university faculties, schools, and mediæval guilds, for the Benediction which marked the end of the traditional Corpus Christi Procession. The occasion was marked by a colourful ceremony wedded to religious fervour which left an indelible impression on our minds.

Time did not permit a visit to the town forest of Freiburg (3,722 hectares) which clothes the encircling hills and adds so much to the city's setting.

We drove for lunch to St. Margen, a village in the foothills of the Southern Black Forest which we were now entering; then westwards crossing the watershed of the Rhine and the Danube near Furtwangen (home of cuckoo clock manufacture) on our way to Villingen, an ancient garrison town enclosed within its square of walls pierced by four gates.

The visit to the state forest of Villingen was of particular interest. For one thing it was the first state forest we had encountered but more important still was its association with our renowned leader, President Kurz, who was in charge of this area for 20 years. It was a pity that the afternoon turned out rather wet, but it was not unlike Irish weather and our members were not unduly put out.

This high lying region is the source of the Danube which flows east and the Neckar which flows west to the Rhine. It is reputed to be the coldest region in Germany and is in an immense frost hollow brought about by the Swabian Jura Mountains to the east and the Black Forest Highland to the west. The climate is described as raw, and relatively

dry with the frost free period extending only to 120 days. The soil varies with the local rock formations and so also does the site productivity.

The woodlands in this district are mainly private or co-operative forest under state management together with about 30% of state-owned forest. It is purely a coniferous forest area with spruce predominating, about 70%. Silver fir (12%) and Scots pine (18%) make up the rest. It is the aim of the management to reduce the proportion of spruce to 50% by area and to have 20% silver fir, 25% Scots pine and larch and 5% hardwoods. The rotation is fixed at 110 years. The production figures for this high-lying region, are quite impressive. The mean annual increment for all sites is well over 110 cubic feet per acre *per annum*.

### *Silvicultural Management.*

This area is renowned for its silvicultural management. The aim of the silvicultural system evolved here is the maintenance of soil productivity, security of the timber crops against storm, snow and wind, elimination of weeds and disease, improved volume, value and size of produce and finally natural regeneration from healthy, perfectly grown, selected mature crops. This is achieved by a system of constant selection and freeing of high quality stems, while maintaining an understorey of soil protecting trees. The emphasis is on quality.

The spruce is the main species and the basis of all management plans is the recognition of the rôle of the spruce as the principal source of the wealth of the forest. The silver fir and pine, however, are recognised as essential ingredients for the sustained production of timber because of their soil and crop protecting qualities. It has been the aim of research to develop a suitable technique calculated to achieve the objects outlined. The wedge system seems to be the ideal one both on economical and technical grounds.

This system was adapted and perfected in the state forest of Villingen under Landforstmeister Kurz as a model form of management for the guidance and control of the forests in this area. It is claimed for this system that it guarantees sustained production of the highest yield of timber in volume and value for the lowest outlay. The wedge system aims at natural regeneration where this is desirable and possible. The process is as follows :

1. Firstly the tolerant species, silver fir and spruce, are regenerated under shade by a systematic removal of the soil-protecting understorey and a thinning in the dominants.
2. Since any attempt at a uniform opening in the stand is fraught with danger from windthrow a wedge is driven in in an east to west direction giving at one and the same time protection against

wind and conditions suitable for regeneration of the intolerant species, larch and pine.

A network of roads enables a large area to be handled at once and provides for thinning and extraction. This system is elastic, natural, simple, practical, beautiful and successful. It is a system, however, that requires a high level of technical skill and singlemindedness on the part of the management. Landforstmeister Kurz possessed the necessary skill and feeling and the purposeful outlook to carry to its present perfection the system established under his distinguished predecessors, Eberhardt and Phillips.

It was indeed a memorable experience to meet this great silviculturist on his own ground and to hear him expound the great universal principles of sound forestry.

One of the features of the forest, excellent larch regeneration, was well demonstrated and at one point we were shown the final stages of this process under the Wedge System—scattered standards of larch of good form over crowded regeneration of silver fir, spruce and larch—an example of the applied skill of President Kurz.

Our final 'stop' in this forest was of particular interest to Irish foresters. It showed the gradual evolution of a three storeyed mixed forest from low land planted about 100 years ago with pine, spruce and silver fir. The silver fir originally dominated the stand but selective felling developed an overstorey of pine which are now putting on quality increment; these are followed by spruce and occasional mother trees of silver provide by natural regeneration a soil protecting understorey. It is claimed that such stands yield about 50% more than single storey forest under Villingen conditions—M.A.I. being up to 200 H. feet per acre. The pine in this district is of the typical mountain type with narrow crown and light side branches, very resistant to snow damage and very manageable in mixed stands.

We were accompanied in Villingen by Forstmeister Freudenberger who is now privileged to manage this famous forest. At the conclusion of the forest inspection we were entertained to a "hunter's meal" of Zwillingen sausage and beer. Our President and Mr. McEvoy conveyed sincerest thanks to our hosts and guides and President Kurz replied.



President Kurz expounds a principle of silviculture.



The remainder of the day was occupied by the journey northwards of some 120 kilometres to Stuttgart. We crossed the upper reaches of the Neckar at Rottweil, an old Swabian town, paused to view the castle of Hohenzollern on its pinnacle near Hechingen etched against the evening sky, recalling memories of the Holy Roman Empire; recrossed the swelling Neckar at Tübingen and joined it again at Stuttgart at 10 p.m.

### Stuttgart—Zwingenberg—Weinheim—Frankfurt

#### *Fourth Day (June 1st).*

Before leaving Stuttgart, Graf Wallwitz, conducted a lightning tour of the city which was heavily damaged by war bombing but now contains many outstanding examples of architecture in the modern idiom.

We then drove north for some 80 kilometres, following the broadening waters of the barge-laden Neckar and admiring the vineyards on the valley slopes, until we reached Zwingenberg.

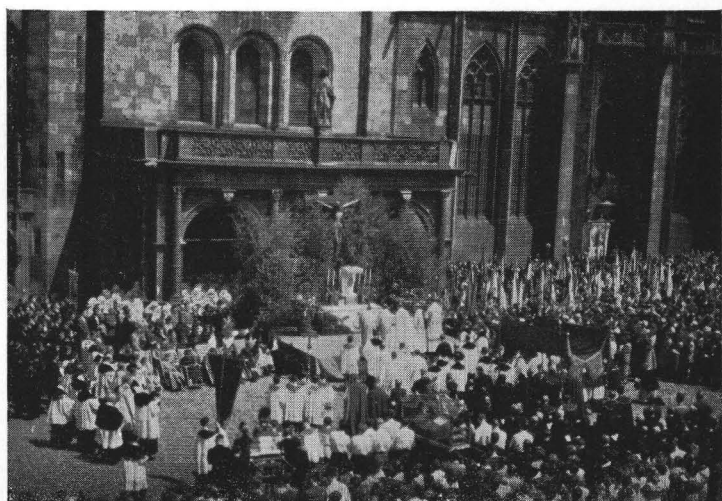
The castle of Zwingenberg, property of His Royal Highness, the Mark-Graf of Baden, which was the first stop on our itinerary is a very beautiful and impressive building towering as it does above the Neckar river. We were greeted at the castle gate by a fanfare from hunters lined up on the battlements and were welcomed, in excellent English, by Forstmeister Peter Houtermans who then conducted us over the castle. Here we were right back in the Middle Ages. Zwingenberg is the only fortress on the Neckar about which there is a very definite history. It was originally built by a robber baron and was, therefore, destroyed in the 14th century by Prince Rupprecht I. It was later rebuilt and changed several times until it finally came into the hands of the Grand Duke of Baden in 1808, in the hands of which family it has since remained.

#### *Property of His Royal Highness, The Mark-Graf of Baden*

The castle now houses the forestry office which administers the property of some 5,000 acres of forest. There is no agricultural land on the estate. The forest is widely scattered along the flanks of the Odenwald and occupies the steep and infertile slopes and high-lying glens. The land in between is farmed intensively. The soils are of local *Bunter* sandstone origin and are of excellent quality. They are lacking in lime, however, and are liable to cause shallow rooting in spruces in certain places.

The greatest problem is windthrow and snowbreak. This is best illustrated by the fact that in the period 1951 to 1955 over 37,000 cubic metres of timber was blown, equal to the allowable cut of 3 years.

The menace of widthrow is being combatted by a variety of measures; better selection of species (including the deep-rooting pine and larch), early and heavy thinning, provision of shelter zones and the reduction of the spruce crowns of endangered margins. Red and roe deer cause great damage in the pole woods and new plantations and special and expensive fencing and protective measures are everywhere in evidence. It is specially necessary to protect valuable introduced species like douglas.



Benediction of the Blessed Sacrament in the cathedral square in Freiburg on the feast of Corpus Christi as seen by our party from the balcony of the Guildhall.

(Photo—Forstmeister Weirich).

The forest is now mostly mixed coniferous, high forest resulting from the steady replacement of poor hardwood coppice since around 1800. This afforestation programme has resulted in splendid mixed mature stands of spruce, silver fir, pine, larch and beech. More recently douglas has entered the picture. The aim is to maintain mixed stands with larch, douglas and silver fir forming the long-term, valuable timber trees, the spruce the intermediate or early yielder and the beech the soil protector. The very complicated mixtures require expert treatment from the very beginning. The planting itself is rated unskilled work and can be done by casual labour but the cultural treatment is left to skilled workers. The constant cleaning and selecting goes on right through the life of the crop. All timber is felled and extracted by the forestry staff.



A unique feature of this estate is the scheme for training apprentices. At the present time there are 10 trainees under instruction. They are in the hands of two skilled instructors who have been specially trained at a Forest Worker School. There are two classrooms, where the trainees receive vocational instruction including the care of the axe and saw and other tools, the identification of timbers, common woodland plants and animals. Their work in the woods is constantly supervised and after 7 years apprenticeship they become skilled forest workers and secure permanent appointments.

Other outstanding features of this estate are a splendid system of roadways and a high degree of mechanisation. All foresters have motorcycles and most of the workers are similarly equipped. Loans are made for the purchase of these vehicles. There is also a splendidly appointed forestry office with the services of two filing clerks and a forester accountant. Timber sales are controlled by a very excellent system which is well in advance of that generally employed. There are working plans going back to 1830 and at present the working plan is being revised. To aid in this revision, the forest has been mapped by aerial photography and is also being site-mapped by a team of soil scientists and *ecologists*. Finally a team of university trained working plan experts will be called in to prepare the blueprints for the management for the next 20 years.

The party was entertained to tea by Frau Houtermans in Zwingenberg Castle and later to beer and sausages in the forest. Forstmeister Houtermanns also had an oak tree potted and ready for a ceremonial planting. Our President, Mr. O. V. Mooney, planted the "St. Patrick's Oak" which grows to-day in the Odenwald in Germany.

The outstanding feature of this visit was the emphasis on the skill and training of forest labour. We saw fully equipped workers with crash helmets and all (!), skilled extraction by *unimog* and young growth tending by trainees. It is doubtful if so much instructive matter was ever packed into so short a time on any forest excursion anywhere. The members of the Society are indeed grateful to Peter Houtermans for all the trouble he took to make our visit worthwhile.

From Zwingenberg we followed the Neckar westwards to Heidelberg where a tour of the city and Castle was laid on. This site was occupied successively by Romans, Germans and Franks and the University dates from 1386. It is a city of great tradition and great beauty rising steeply from the river to its forest clad heights.

Leaving Heidelberg and travelling westwards we were soon out of the mountains and turning northwards on to the autobahn in the plain of the Rhine with Weinheim as our next call.

#### *Weinheim.*

So far the places we were in and the forests we had visited were typically German. Here at Weinheim was something different. Walking up the approach road an Irish forester was immediately reminded

of Killeagh, or was it Galtee Forest or maybe the Battery road at Avondale? We were in the forest of the exotics, mainly Western North American conifers, all species very much a part of our home afforestation work and, to our minds, very Irish.

Weinheim Forest lies north-east of Mannheim in a glen opening westwards in the Bergstrasse range which flanks the Rhine valley to the east. It is a district noted for its mildness, the Spring, we are told, makes its appearance here three weeks earlier than in other parts of Germany and the climate permits of almond growing, allows figs to ripen and even hardy sorts of lemon trees to produce flowers. The luxuriant growth of tender plants encouraged the former owner, Baron Christian von Berckheim, to plant exotic trees in a big way. He went in for good sized plots, 0.3 to 2.5 ha. and to-day, thanks to his endeavours and those of his descendants, there is an area of about 32 ha. in close stands and ranging up to 90 years old. Sample plots have been laid down for silvicultural research purposes and these comprise 10 North American species, 8 east Asiatic species and 3 Mediterranean species.

The forest lies between 135 and 250 metres in altitude and the soil is fertile, of weathered granite from the hills above and increasing in loaminess at lower level. In places there is medium variegated sandstone and an overlay of loess loam.

No timber has yet been put to industrial use as it is considered to be too knotty. Research into possible uses is being carried out at the Forestry Institute in Hanover. The main value of the forest is as an experimental area to test the behaviour of exotic species under silvicultural conditions and as a source of seed for propagation and of material for scientific investigation.

Weinheim Forest remained in the hands of the Berckheim family up till 1955 when it became the property of the State. Since 1929 it has been under the care of State Forest Officer Fabricius who still manages it and who led us during our visit to the forest.

The soft rain fell gently as we ascended the mountain road, reminding us of Ireland and preparing us for journey's end before we began the long trek home. Overhead towered douglas, *Tsuga heterophylla* and *Abies grandis*—to right and left we caught glimpses of Sequoia and Lawson Cypress. We were told of natural regeneration springing up freely under these exiles now perfectly at home in the country of their adoption.

And then we stopped under the tallest douglas trees of them all. It was time to say good-bye. We had valedictory addresses from President Kurz and Count Wallwitz. Our President, Mr. Mooney and Mr. FitzPatrick replied on behalf of the Society. The last farewell of the green coated forester was sounded on his hunting horn, the notes reverberating up the tree-clad slopes until they were lost in the mists above.

Sadly we climbed into our buses and proceeded on our way in the wake of President Kurz's car with Count Wallwitz and Forstmeister Weirich as his passengers. Their final leave-taking was spontaneous and dramatic: as the buses took the high road leading to the Frankfurt autobahn, the car pulled up on the road below and our hosts jumped out to give us a heart warming waving of arms and hats. This was symbolical of the warm friendliness, the kindness and the courtesy we had met with everywhere under the guidance and care of President Kurz, Forstmeister Weirich and Dr. Graf von Wallwitz.

#### *Conclusion.*

In conclusion we would like to thank the West German Federal Government at Bonn for accepting the idea of this tour in the first place and then through their central direction opening the gates of the German forests to us. We offer them our best thanks too for having allocated Oberregierungsrat Oedekoven to the work of planning our tour and looking after us while we were in Germany. The Council and members would like to pay a special tribute to Herr Oedekoven for the unassuming way he went among them and advised and helped them in any sphere whenever he was called upon to do so. The Study Tour Committee leaned heavily upon him both during the tour and in the time of planning long before that, and consider that his advice and direction was one of the important factors in making the tour the success that it was.

The tour went far beyond just being a success, it far exceeded all our hopes in every respect and our only regrets were that we could not stay longer in many places.

We came home with warm feelings and happy memories of the German people, memories of their industry, resilience and durability, and of their kindness and generosity to us, and we give them full credit for making the tour a great and unforgettable experience for each one of us.