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NOTES ON OBERLAENDER TOUR - *JULIAN Mc GOWIN*

September 26, 1936

GENERAL BACKGROUND OF GERMAN FORESTRY

Land Area of Germany: 470,713 kilometers

Total Population: 67,000,000 to 68,000,000

Density: 45 per square kilometer

Density in United States: 14 per square kilometer

In Germany there is a scarcity of almost all raw materials and hence the importance of their former colonies. After the Franco-Prussian war, Prince Bismarck founded the United German State. The population then was forty-two million. In 1914 the population was sixty-five million. All of this increase went into industry and commerce. There was no increase in the number of people engaged in agriculture, so as early as 1871 the tillable land available was completely taken. Since the war there has been a decline of the possibility of increasing the export of manufactured articles. Unemployment has been a serious problem. At the beginning of 1933 there were six million unemployed plus another fourteen million who were dependent on them, so when Hitler came into power in February 1933 he was faced with the necessity of finding work for these unemployed. This has been done in four years by (1) building roads, (2) draining swamps, (3) reforestation, and (4) re-arming. This is a short-range program. A long-time program must be devised to employ these people and this will require more territory to develop. Germany will have to rely on the understanding of the rest of the world or strong armaments.

All of this shows that the forest area must be managed intensively. Germany lost two million men in the World War. Three quarters of a million died of starvation. Six and one-half million were in the territory taken away.

In spite of this the population is again as great as before the war. The population losses have been made up in twenty years. Due to overcrowding in cities, the birth rate has declined and it is one of the aims of the Nazi Party to increase the birth rate in order to maintain the proper percentage of young people. The increasing feeling of nationalism (autarchy) on the part of various countries is not an intellectual problem but a political one. This feeling has been intensified in Europe during the recent years because of the renaissance and growing power of the German Nation.

DATA ON LAND USE IN GERMANY

Land:

63% agriculture
27% forestry
10% (waste land 4% and 6% rivers, lakes, roads, railroads, cities, etc.)

Agricultural land:

46% plowed land
11.7% hay meadows
5.3% pasture land

Forestry land:

11.2% softwoods
7.8% hardwoods

The forest area is the minimum or the smallest possible relation between forestry and agriculture. The forests in general cover areas which are not suitable for agriculture. It is the result of an evolution going back 1,000 years. First, clearing took place in the eighth and ninth centuries when the population of Germany began increasing. This increase repeated in 11th and 12th centuries. Beginning of 13th century we find first laws to preserve forests -- this in Western part of Germany. Meanwhile in Central and Eastern Germany the clearing continued until 18th and 19th centuries. Result of this slow colonization was that clearing was done only in areas suitable for agriculture.

In a new country timber will be cut and attempt will be made to sell the land for farming regardless of its suitability for farming. This may (and has in many cases) result in attempts being made to farm submarginal land.

Germany could not feed such a dense population if it was not for this organic land use. The use of each piece of land according to its suitability.

In some particular locations over-exploitation took place, but it never reached much extent because owners insisted on sustained yield.

Forest Management systems date back to 1551. Land was never exploited with idea of taking fruits and leaving it, but always with the idea of making permanent settlements. There were exceptions to this in areas where the transportation facilities were good. Heidelberg is an example of this -- print of 1610 shows hills above city completely denuded while this area is now forested.

Proportion of age classes now normal which indicates that timber was not overcut even during the War, 1914-1918. Since 1865 the supply of timber has not been sufficient to supply the demands of the country. Instead of cutting more than sustained yield - the

deficiency made up by imports. In 1865, 313,000 c.m. of timber was imported. In 1875, 3,543,000 c.m.; in 1905, 9,000,000 c.m.; in 1928, 14,000,000 c.m.

FIGURES ON AREA, DISTRIBUTION AND SPECIES

Total Area (Forests): 12,654,000 hectares

This is .4% of the world's forest area. Russia owns 21%, British Empire 21%, Brazil, 13.5%, U.S. 9.1%.

England, France, Belgium and Holland have forest area which equals the forest area of Germany (12,654,000 h.) but through their colonies they control 30% of the forest area of the world. Among European countries, classified according to forest area, Germany is 4th. But according to forest area per head of population, Germany is 18th.

Force must always be accompanied by education to show the necessity of the measures employed; otherwise it cannot last long.

DISADVANTAGES OF THE CONVERSION OF BROADLEAVED FORESTS INTO PURE CONIFEROUS STANDS.

(1) Decay of forest soil. Oak and beech have lost in favor of Scotch Pine and Spruce. Now tendency is toward mixed stands. Insect dangers in pure stands.

(2) Beauty of landscape.

Prof. Gayer, in Munich was among the first to advocate mixed stands about 1890. This became national policy after advent of Hitler.

TOTAL FOREST AREA

32.65%	State Forests
15.53	Commercial Forests
1.62	belong to foundations
2.37	belong to cooperative societies

The balance, or 47.83%, are private forests. Of this, 12.9% entailed or otherwise bound; 43.9% free private forests.

This is regarded as a very desirable distribution of ownership. Private ownership has contributed many of the improvements in forest technique. Private forests have contributed progress. State Forests have contributed stability.

65% of German Forest area publicly owned or entailed - balance free 25% of total forest area is in free private small woodlots.

TYPES OF MANAGEMENT IN CONNECTION WITH OWNERSHIP

At beginning of 19th century there was no regular management

of State Forests. Many were overstocked with game, overgrazed, no working plans. At the beginning of the 19th century several great men started to build up a systematic forestry program:

Heinrich Cotta (founder of Theraudt (creator of science of management and working plans)

George Ludwig
Hartig: Director of Prussian Forests

Employed two principles (1) cut only increment, (2) reforest what has been cut.

Result of this: (1) Timber production was much increased. In some places almost trebled and on an average doubled between 1830 and 1904.

Management of State Forests directed toward creating maximum social use. Originally, forests under Minister of Agriculture or Finance, but gradually its importance was realized and appreciated until 1933 when separate Ministry of Forestry was created. Goering, first Forest Minister, is not a forester but is well advised by practical and competent foresters.

Under this Ministry:

Forestry
Parks
Game
Recreation
Timber industry

Proper use and distribution of timber products possible only under ministry of central direction. Mine props, etc. from Scotch Pine sent to Rhine area -- paper industries shifted to make use of the Spruce, etc. formerly used for this purpose.

GERMAN GAME MANAGEMENT

On July 3rd, 1934, a new hunting law was passed -- it was valid for all of Germany and it set up a centralized organization for the control of hunting. The State Hunting Master at the head of this organization is the Minister of Forestry (Goering). He has an advisory council of 74 members to advise him on hunting problems. Next there are: 5 Provincial Hunting Masters, 36 District Hunting Masters, and 759 Local Hunting Masters. All the above officers are honorary and there is no salary attached.

A person wishing to hunt must first secure a certificate. This is given only after a careful examination of (1) the character of the applicant, (2) his knowledge of hunting, (3) his knowledge of the game, breeding periods, etc. With the granting of the certificate he becomes a member of a national organization to observe and help enforce the game laws. Also, he must take out liability insurance against hunting accidents. After all this has been done, if the holder of the certificate is not a large land owner, he must buy hunting rights to a certain area.

Only holders of a certificate may hunt and peasants who own only a few hectares pool their hunting rights in order to sell them. On the other hand, groups of individuals often form clubs or companies for the purchase of hunting rights. 42,800,000 hectares or 90% of the area of Germany is under game management. Hunting rights on 52,818 units are owned by clubs or companies and hunting rights on 27,514 units are owned by individuals.

Not only are the seasons and amount of game which may be killed regulated, but the methods of hunting are also prescribed to prevent undue cruelty and unsportsmanlike practices. For example -- a stage may be shot only with a rifle. Poisoning, night hunting of hares with lights and such practices are forbidden. There are comparatively few violations of the law.

Because of the density of the population here, the reason for this organization is to improve and increase the stock of game and make it yield as much as possible. Accordingly, a game inventory is made each year and the individual land owners must submit to the local hunting master each year a plan showing the stock of game (this applies only to big game such as chamois, deer, boars, etc., and not to rabbits and partridge) on his preserve and how many of each species (male and female) he proposes to shoot. If the hunting master approves this plan -- that amount must be shot. The purpose of this is (1) to keep a preserve from being overstocked, (2) preserve the proper ratio between males and females (now 1 to 2), and (3) kill off the weak and defective stock. A private land owner is not free to handle his game as he pleases, but his land must be under game management and this must conform to the requirements set up by the National Organization. A land owner may fence an area as a deer park but if it is very large or interferes with the productivity of the timber -- it may not be permitted.

The results of the operation of this law have been very encouraging and the amount of game killed each year is large (see green book for figures). At the same time it can be shown that the quantity as well as the quality of the game is improving. Even for small game such as rabbits, partridges, pheasants, etc., where no limit except a season is fixed, the owner of the hunting rights see that enough is left to insure a sustained yield.

September 16, 1936 (Wednesday)

Near Horn, Austria (80 miles from Vienna)

ALLENSTEIG FOREST

Owned by the Government and operated by the State Forest Service. This property belonged formerly to Count Joachim Von Windhag who died in 1678 leaving the income of the forest for educational purposes. The State now acts as Trustee and Operator and the net proceeds are still used for various educational purposes.

Area: 842 hectares

Altitude: 600 meters

Rainfall:

Species: 78% spruce, 11% fir (Pectinata), 11% pine (chiefly Sylvestries) and other species.

In 1862 the management plan was changed from selective cutting to clear cutting but in 1896 selective cutting again adopted. In cutting, particular attention is paid to the prevailing winds and the danger of trees being uprooted in wind storms. Cutting is always started on the north side of a tract and in this way natural reseeding is helped. Eighty and ninety year rotation. Total stand in 1931: 273,770 cubic meters. Estimated annual sustained yield capacity: 7,470 cubic meters. Of this, 1,780 cubic meters would be in thinnings and the balance in regular cuttings.

The actual cut has been:

1876-1925:	311,000 cu.m.	- Average growth:	6,221 cu.m.	per year
1926-1935:	85,168 " "	" "	8,517 " "	" "

The average cut per year 1876-1935: 6,604 cubic meters

For sixty years the average annual cut per hectare has been eight cubic meters. This has been composed of 75% saw logs and pulp wood -- 25% firewood.

Net income for 10 years:

1926	77,325	Schillings
1927	50,439	"
1928	70,662	"
1929	127,841	"
1930	17,526	"
1931	15,176	"
1932	19,380	"
1933	105,642	"
1934	18,781	"
1935	41,687	"
TOTAL	594,463	"

Thursday, September 17, 1936

AFFORESTATION OF SAND DUNES: MARCHFELD FOREST

Location: On Plain near Vienna

Owner: Nine communes

Area: 800 hectares

Altitude

Rainfall: (about 15 inches annually, comes chiefly in thunderstorms)

Water Level: 17 meters below the ground

The forest of Marchfeld is located in a plain about forty kilometers by ten kilometers which was the bed of a prehistoric lake. It is a mixture of fertile soil and sand dunes but farming has always been difficult because the prevailing winds blow the sand into the fertile areas.

In 1770 afforestation was attempted in order to hold the sand dunes and afford a shelter belt for the land in cultivation. The species selected were not suitable but in 1880 systematic afforestation was started with Black Pine. This work was carried out by the nine communes owning the land under the supervision and with the assistance of the Government Forest Service. An area of eight hundred hectares was selected and the outside planted first. The inside area is being planted and the forest is being gradually enlarged as funds are available for this work. The plantations have been greatly damaged by rabbits but fences are now built against them. Some of the stands are now almost sixty years old and afford some revenue from timber and resin but not yet enough to pay the maintenance cost of the forest.

This forest area of two thousand acres shelters or acts beneficially on sixty-two thousand acres, which area is inhabited by fifteen thousand people. The agricultural production in an area two hundred yards around the forest is four times greater than the average of the other land. The next two hundred yards also shows a marked increase.

Black pine was selected for planting in this area because it is native to Jugoslavia where the summers are hot and dry. It will grow on almost barren soil. The natural area of Black Pine in Austria is small -- about two hundred thousand acres altogether of which seventy thousand acres are pure stands. It is the only tree yielding resin in commercial quantities.

Thursday, September 17, 1936

FOREST OF ALTHOF

Location: On Plain near Vienna

Owner: Count Fraun Abensperg

Area: 290 hectares

Altitude:

Species: 50% Black Pine, 25% Oak, 15% Birch, 10% Other Species

Like Marchfeld Forest (which is not far away) the Forest of Althof was established for the protection of the agricultural land. Scotch Pine planted first but now plantings all Black Pine. Plants are kept in seedling beds three years because of the May Beetle eating the roots of the younger trees. A sixty year rotation is used because growth rate decreased after that age.

Friday, September 18, 1936

NASSWALD: Forest Including Reistal Valley

Owned by the City of Vienna

Area: 25,000 acres (75% Forest Area - 25% Pasture Land)

Location:

Altitude: 3,000 ft.

Species: Spruce, Fir, Larch, Scotch Pine, Beech, etc.

The area was bought by the City of Vienna from Count Hoyos in 1890 and since this is the source of the city water supply, the area is managed with the primary purpose of conserving a supply of pure water. Some of the slopes above the springs are fenced and planted with a dense stand of timber. Considerable cutting is done but the yield is small as compared with commercial forests. The yield is 15,000 cu. m. per year. Also, hunting rights on a large part of this area are leased for 25,000 schillings per year. The present stock of game is estimated at:

500 Red Deer of which	100 are shot each year
600 chamois of which	70 " " " "
300 roe deer of which	45 " " " "
100 woodcock of which	20 " " " "

In some cases hunting rights are sold giving the holder permission to shoot - 1 chamois - 200 schillings
1 red deer 300 "

In this area water transport has been most important in the past and an elaborate system of canals was constructed. Now, however, road transport is becoming more important - particularly for the larger timbers. Twenty-four schillings per thousand feet b.m. is paid for felling and delivering logs and cordwood to the roads or streams.

Friday, September 18, 1936

NEUBERG STATE FOREST

Location:

Area: 30,000 acres

Altitude:

Species:

This is an example of a complete Forest Unit, entirely owned by the State, including a transportation system to bring the logs in and a complete sawmill. The average yield of the forest is four cubic meters per hectare per year. Of this, 50% is in sawlogs, 25% pulpwood, and 25% firewood. The sawmill is leased to a private operators who buys the entire output of sawlogs.

Water transportation is largely used in bringing logs to the mill. A dam and log boom is located one and one-half miles upstream from the mill and a flume brings the logs from there on to the mill. The flume flows into a separator just above the mill yard which permits the sorting of the pulp and firewood and even the logs for size.

The total cost of the flume and mill was 800,000 schillings (\$160,000) and this will be repaid in rent in ten years, eight of which have already passed. The mill pays sixteen schillings per cubic meter for sawlogs. For each cubic meter bought, sixty-two percent goes into lumber and the balance into sawdust and waste products. Three hundred families are employed in mill and woods.

An Austrian equivalent to our CCC Camp was visited in the Reistal Valley. This was a side camp of twenty men from the main camp of about sixty men.

Ages	15 to 24
Enlistment period	40 weeks
Wages	50 groschen per day plus maintenance, clothing and 10 cigarettes.

Total of 7000 to 8000 boys in these camps with more applicants than can be cared for under the budget available. Their day is divided into 6 hours work, 2 hours education, 1 hour sport. Technical education is provided to help them get a job on leaving.

Cost of maintaining men - 3.50 schillings per day.

These camps available to individuals or organizations for certain classes of work on payment of one schilling per man per day.

Saturday, September 19, 1936

FOREST OF ERNESTREITH

Owner: Count Hoyos

Location: Near town of Horn, Austria

Area: 1,200 Hectares

Altitude: 500 Meters

Rainfall; 750 millimeters per year (about 30 inches)

Species: Spruce, Scotch Pine, Silver Fir, Horn Beam,
Bass Wood, Beech, Oak, Larch and Birch.

Forests up to sixty years are pure stands of spruce, older stands are mixed. A new working plan was drawn up forty years ago and it is revised and a new inventory made every ten years. The annual yield is now 6,710 cu. m. The present stand on the mature or 100 year old areas is 60,000 ft. b.m. per acre. The average annual yield of the forest is 550 ft. b.m. Of this forty percent is sawlogs, 30% pulpwood and 30% firewood.

Count Hoyos owns altogether about 25,000 hectares. The land tax amounts to thirteen schillings per hectare per year and there are two other taxes amounting to seven schillings. In addition to this, he pays an income tax depending on the net return. Workmen receive three to four schillings per day and in addition have a small plot of land to till.

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At Gutenstein we visited one of Count Hoyos' Castles, which contains one of the world's finest private collections of hunting trophies.

There are three distinct regions in the Alps - (1) the southern, which is made up of lime rock and calcareous soil, (2) The Middle region, composed of granite rocks of volcanic origin, (3) The northern region which is the same as #1.

In the lime region the principal species are beech, silver fir, and spruce. In the middle region - spruce, larch and small amounts of beech and fir.

The Southern slopes are warm and dry and consequently more difficult to reseed naturally. Clear felling is done chiefly on the northern slopes.

Austria is one of the first countries to recognize the indirect benefits of forestry and its effects on climate, moisture, and soil conservation. It has model forestry laws but one of the main problems has been to get the cooperation of the small woodlot owners who holdings total a large percentage of the forest area. This has been met by the formation of cooperative societies for the purpose of attaining sustained yield management in areas made up of very small holdings. These societies handle sales of forest products as well as supervise the management and the acreage under this form of control is increasing in spite of opposition at first on the part of the farmers. The Government encourages and furnishes assistance to these societies.