POPULUS:
A BIBLIOGRAPHY OF WORLD LITERATURE, 1854-1963

R. E. Farmer, Jr., and J. S. McKnight

SOUTHERN FOREST EXPERIMENT STATION
T. C. Nelson, Director
FOREST SERVICE
U. S. DEPARTMENT OF AGRICULTURE

1967
Acknowledgment

The industries and associations named below, as members of the Poplar Council, contributed toward the cost of publishing this bibliography:

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This bibliography is intended as a comprehensive reference for international use by researchers and land managers.

The impetus for its preparation came from the Poplar Council, an organization formed in 1964 by U. S. industrial and public foresters to advance knowledge of poplar culture, encourage planting and management of poplars, and stimulate utilization of the wood.

The Council decided soon after its formation that an English-language bibliography would be useful. It thereupon appealed to the Commonwealth Forestry Bureau, Oxford, England, for permission to use the references and abstracts that had been accumulated in connection with the publication of Forestry Abstracts. The Bureau responded by furnishing, at nominal cost, the citations and annotations printed here. There remained the task of classifying and arranging the citations, and that was undertaken by the present authors.

The bibliography is arranged first by species or groups of species, then by subject-matter categories. About half the references deal with poplars in general or with several species; these are grouped under the head Populus spp. A conspectus of primary subject-matter heads and subheads is included as a Key to Subject-Matter Classification. Numerals in the Key and preceding the citations refer to subject-matter assignments based upon the Oxford System of Decimal Classification for Forestry, the authorized English version of which was published by the Commonwealth Agricultural Bureaux, Farnham Royal, England.

To most efficiently use the bibliography, the reader should refer first to the Table of Contents for species and then to the Key for subject matter. Information on titles of publications cited and other aspects of the citation entries will be found in Guide to the Use of Forestry Abstracts, also available from the Commonwealth Agricultural Bureaux.

The authors are on the staff of the Southern Hardwoods Laboratory, which is maintained at Stoneville, Mississippi, by the U.S. Forest Service in cooperation with the Mississippi Agricultural Experiment Station and the Southern Hardwood Forest Research Group.
Key to Subject-Matter Classification

0 GENERAL

1 FACTORS OF THE ENVIRONMENT. BIOLOGY

11 Site Factors: Climate, Situation, Soil, Hydrology
   111 The Atmosphere. Meteorology. Climate and Microclimate
   114 Soil. Soil Science
   116 Hydrology. Water Conservation, Soil Conservation and Erosion

15 Animal Ecology
   151 Mode of Life, Autecology, Habits, Adaptability
   156 Game Management. Hunting and Shooting

16 General Botany
   160 Plant Chemistry
   161 Physiology
   164 Morphology
   165 Phylogeny, Evolution. Heredity, Genetics and Breeding, Variation
   168 Histology

17 Systematic Botany
   172.8 Eumycetes (True Fungi)
   176.1 Dicotyledoneae

18 Plant Ecology
   181 Mode of Life, Autecology. Silvicultural Characters of Trees
   182 Synecology, Plant Sociology
   187 Vegetation Types

2 SILVICULTURE

22 Silvicultural Systems. Constitution and Composition of Stands; Forms of Stand
   221 High Forest Systems
   222 Coppice, Pollarding and Lopping Systems
   226 Changes of Silvicultural System. Conversion (by System or Species)
   228 Constitution and Composition of Stands; Forms of Stand

23 Regeneration and Formation of Stands
   231 Natural Regeneration
   232 Artificial Regeneration
   233 Afforestation
   234 Formation of Forest by Natural Succession
   235 Underplanting, advance Planting, etc. Nurses and Formation of Mixtures
   236 Core of Regeneration or Plantations in the Initial Stages of Establishment
   237 Amelioration of Forest Sites
   238 Timber Plantation Crops Requiring Special Treatment

24 Tending of Stands and Trees
   242 Thinnings

243 Opening of the Canopy (Increment Fellings, Overhead Release and Improvement Fellings)
   244 Climber Cuttings, etc.
   245 Tending of Trees

25 Treatment of Defective, Derelict or Very Open Stands

26 Combinations of Forestry with Agriculture
   263 Irrigated Forests
   265 Strips or Lines at Road, Rail and Canal Sides, etc.; Hedgerow Trees
   266 Shelterbelts, Windbreaks

268 Pastured Forests. Grazing on Forest and Open Ranges

27 Arboreta, Arboriculture for Ornamental Purposes
   271 Arboreta
   273 Ornamental Street and Roadside Trees

3 WORK SCIENCE. HARVESTING OF WOOD: LOGGING AND TRANSPORT. FOREST ENGINEERING

31 Logging and Transport: General
   312 Descriptions of Individual Logging Operations

32 Felling and Related Operations
   322 Preparatory Measures Other Than Marking. Felling Season
   323 Felling and Subsequent Primary Conversion

33 Degree of Utilization and Waste
   332 Clearing the Felling Site

34 Storage of Wood in the Forest and at Log Dumps ("Landings")

35 Performance Measurements for Determining Piece Rates in Felling and Related Operations

36 Tools, Machines and Equipment for Felling and Related Operations
   367 Stump-Grubbing Tools and Equipment

37 Transport
   378 Water Transport

4 FOREST INJURIES AND PROTECTION

41 General Technique of Forest Protection. Types of Injury
   412 Silvicultural Control
   414 Chemical Control
   416 Types of Injury

42 Injuries from Inorganic Agencies (Excluding Fire)
   421 Air Currents
   422 Temperature Influences. Insolation
   424 Soil Conditions; Erosion Effects
   425 Chemical Influences (Atmospheric)
Anonymous. 1947. DAS PAPPELJAHRBUCH 1947. [POPLAR YEAR-
BOOK 1947] GESELLSCHAFT FÜR FORSTLICHE ARBEITSGREDDEN E.V.,
and "Lignikultur, Gesellschaft für Holzerzeugung ausserhalb des
Waldes e.V." (Verlag M. & H. Schaper, Hannover). 150 pp. 57
refs. [G.]

Allegri. 1933. POPLAR EXHIBIT AT MILAN FAIR. L'Alpe 20: 186.

Bergogno, L. 1960. LE PEUPLIER ET SA CULTURE. [POPLARS AND
THEIR CULTIVATION. Bull. Soc. For. Belg. 67(3): 185-211. 2 refs.
[F.]

Edlin, H. L. 1963. A MODERN SYLVA OR A DISCOURSE OF FOREST
TREES. 6 POPLARS—POPLUS SPECIES. Quart. J. For. 57(3): 200-
10.

Herbignat, A. 1948. COMMISSION INTERNATIONALE DU PEUPLIER,
2ND CONGRESS, DU 20 AU 28 AVRIL 1948. [THE 2ND CONGRESS OF
SOC. For. Belg. 65(9): 336-34 [F.]

Hesmer, H. [Editor]. 1951. DAS PAPPELBUCH. [POPLAR MAN-
UAL] Verlag Dutsch, Pappelverein, Bonn. 304 pp. 10 pp. of refs.
[G.]

Houtzagers, G. 1949. EEN DEKDE INTERNATIONALL POPULIEREN
CONGRES IN BELGIUM VAN 19-28 APRIL 1949. [THE
THIRD INTERNATIONAL POPLAR CONGRESS IN BELGIUM AND THE
181-93. [Du.]

and Burger, F. W. 1947. BETREFFENDE HET VAN
19-26 APRIL 1947 TO PARIJSGEMEENDE INTERNATIONALE CONGRES
INZAKE VAN DE POUPULIERENSLUIT [ON THE INTERNATIONAL CONGRESS
Tijdschr. 19(8): 217-27. [Du.]

and Burger, F. W. 1950. VIERDE POPULIERENCON-
GRES IN DEN DECEMBER 1947. [THE FOURTH
POPLAR CONGRESS IN THE NETHERLANDS, 19-26 DECEMBER 1947.]

PEUPLIERS DANS LA PRODUCTION DE BOIS ET L'UTILISATION DES
TERRES, [THE ROLE OF POPLARS IN WOOD PRODUCTION AND LAND
USE], FAO & FOR. Prod. Stud. No. 12, 525 pp. 221 refs. [F; E.]

1958. POPLARS IN FOREST AND LAND USE. [F, A O
For. & For. Prod. Stud. No. 12, 511 pp. 221 refs. [E.]
The French version, Les peupliers dans la production du bois et
l'utilisation des terres, appeared in 1956.

Knuchel, H. 1942. REISE IN DIEN WESTERSCHWEIZ 1942. [TRAVEL
TO WESTERN SWITZERLAND.] DAS PAPPELKULTUR & DER VERWENDUNG
DES DAS PAPPHELMLAUX. [THE 1942 EXCURSION TO WESTERN SWITZERLAND
FOR THE STUDY OF POPLAR CULTIVATION AND THE USE OF POPLAR WOOD.]

Koltay, G. [Editor]. 1953. A NYARFA [THE POPLAR] MEZOG-
AXADASI Kiado, Budapest. 159 pp. 29 refs. [Hung.]

6: 22974.

50 pp. 74 refs.

Piccarolo, G. 1952. IL PIOPPO: NORME PRATICHE DI COLTIVAZI-
ONE. [THE POPLAR: PRACTICAL RULES FOR ITS CULTIVATION.] R A M o
Editoriale Degli Agricoltori, Rome. 130 pp. [It.]

Covers choice of species, propagation, planting, injuries and
protection, utilization, and economic aspects of poplar growing in
Italy.

Regnier, R. 1934. LES RECHERCHES SUR LES PEUPLIERS & R

Vincent, G., and Spalek, V. 1954. T̩POLY. JESICHKOSTANOVÁ A
DREVÍ PRODUCÈ. [POPLARS: THEIR SILVICULTURE, WOOD PROPER-
7 pp. of refs. [Cz.]

Zycha, H., Rohrig, E., Rettenbach, B., and others. 1959. DIE PAP-
PEL. ANBAU, PFLEGE, VERWERTUNG. [THE POPLAR, ITS PLANTING,
52 refs. [G.]

A guide to practice in seven sections. H. Zycha, the general edi-
tor, has contributed that on diseases; E. Rohrig, species and var-
iety, sites, injurious animals (including game and cattle), and
yield; B. Rettenbach, planting and tending; and W. Knigge, prop-
erties, harvesting, and utilization of the wood.
1 FACTORS OF THE ENVIRONMENT. BIOLOGY

11 SITE FACTORS: CLIMATE, SITUATION, SOIL, HYDROLOGY

114.351

114.5

116 HYDROLOGY. WATER CONSERVATION AND EROSION


1 16.28

163/7

16 GENERAL BOTANY

160.2

160.21

160.22

160.29

160.29

A relationship was found between the effect of extracts of twig bark of various species and varieties on germination of spores of Dothichiza popules and the resistance of these species and varieties to attack. Detailed chemical studies of the extract of Populus trichocarpa are described.


Tabulates the results of experiments on controlling silver-leaf with various chemicals including leaf and bark extracts of Populus trichocans [cf. Klopping and Kerk, 1951, P. canadensis to P. davidiana,160.29] and bark extracts of P. trichocarpa. Neither gave particularly good results.


Mapson, L. W. 1962. PHOTO OxidATION OF ASCORBIC ACID IN LEAVES. Biochem. J. 85(2): 360-9. 26 refs. Ascorbic acid was rapidly oxidized to dehydro-ascorbic acid in strawberry leaves when these were illuminated: on the removal of light, the process was reversed. Similar results were observed in other species, including poplar.

161 PHYSIOLOGY


Using H2O18, the authors found that exchange between tissue water and atmospheric water vapor was as rapid in dormant as in nondormant poplar buds.

161.1 16

Czarnowski, M. 1951. PRZECYZYNEK DO NIAZAMOSCZUIMOWEJ ZDOLNOSCI TRANSPERSYJNEJ NIEKTORYCH TRYPI. THE RATE OF WATER LOSS OF WATER FROM (TWIGS OF) SOME POPLARS) Sylwan 95(3): 338-43. 7 refs. [Pol.]


161.19

161.2/3


161.3

161.31
Barner, J. 1955. DERTAGSZEITLICHE VERLAUF VON ASIMILATION UND ATMUNG IN LICHTE STOFFPRODUKTIONSANALYTISCHER VER
161.32

Polster, H., and Neuwirth, G. 1958. ASSIMILATIONSOKOLOGISCHE STUDIEN AN EINEM FünFJAHRIGEN PAPPELBESTAND. [ASSIMILATION-ECOLOGICAL STUDIES ON A 5-YEAR Poplar Stand.] Arch. Forstw. 7(10/11): 749-85. 54 refs. [G.g. russ. e.]

161.34

161.4


161.8

During trials of various poplar varieties it was noted that Populus "Rochester" was least phototropic, followed by P. trichocarpa, P. "Oxford," P. robusta, and P. nigra. P. mirlandiaca and P. " Eckhoff" were extremely phototropic.

164 MORPHOLOGY

164.3

164.5


From a str. in Hung. Agric. Rev. 3(3): 8. 1954. [E.]

164.6

In a study of the rate of pollen disintegration in water, undertaken to elucidate the absence of poplar pollen in sphagnum bogs, poplar pollen was found to disintegrate rapidly, pine pollen least.

164.9

165 PHYLOGENY, EVOLUTION, HEREDITY, GENETICS AND BREEDING, VARIATION


Gives a short account of fossil species, and discusses the evolution of the various sections of Populus.

165.3


A short account of the indigenous poplars and natural hybrids, and the hybrid American poplars used for breeding in Spain.


Reursos the breeding now in progress to obtain Melampsora-resistan-ant poplars, Peridermium-harknessii- and Cronartium-fusi-forme-resistant hard pines, and C.-fusiforme-resistant white pines.


A review in general terms of work so far done and methods used.


Presents a short survey of the botanical and systematic charac-teristics of the genus, and gives a history of poplar breeding in Spain, reviewing in some detail the work of the regional forest departments and of the Madrid Forest Research Institute.


Houtzagers, G. 1952. FOREST GENETICS AND POPLAR BREEDING IN THE NETHERLANDS. I. THE DIFFERENCE BETWEEN BREEDING WORK IN

165.4


1938. *Increased Growth and Heterosis in Poplar*— *Zunahme des Wachstums und der Heterose bei Poplars*.

165.41


The studies concern the systematic and breeding.


Discusses conclusions reached from observation of 184 combinations of crosses (50,000 hybrid seedlings) made in 1950-55.


Presents the results of some Soviet measurements on 14 species and hybrids, and points out the excellent properties of *Populus* × *Leningrad*.


The work described was begun in 1955 as part of the program of the Croatian Institute of Forest and Game Research, Zagreb. Data on the origin and the growth of hybrids obtained by controlled hybridization and by open pollination, are tabulated, and recommendations for future research given. [Cf. Jovanovic and Tucov, 1960, this subject classification.]


A longer article than that noticed above, with illustrations.


Summarizes the experience of the authors in poplar breeding since 1958, with recommendations on methods and choice of material. Data on crosses produced and first-year growth of the most successful hybrids raised in 1960 are tabulated. [Cf. Jovanovic and Tucovic, 1960, above, and Jovanovic, 1959, Populus sp., 165.31


Maric, B., and Jovanovic, M. 1957. *Proizvodnjajasekmenatopolja*— *Production of Seedlings of Poplar*. By Water Culture and on Dwarf Branches*. [Serb.e.f.] Sumarstvo 10 (5/6): 351-7. 7 refs. [Serb. e.f.]

Describes methods of controlled crossing using the cut-branch technique and of grafting to produce dwarf plants for crossing experiments, with special reference to *Populus alba*, *P. tremula*, and *P. "Bachofeni."


Reviews work on the hybridization of poplars in 1956-57, and reports briefly on work in the same field during 1958.


A monograph on poplar hybridization in Poland, covering theoretical premises, methods, the breeding stock, and the hybrids obtained. Many of the salient points are given in the four-page English summary.


Includes a list of 50 attempted crossings made by the author in the Ukraine. 1947-49, with notes on methods used and the hybrids produced.

Reports that in small-scale experiments, crossovers of P. nigra var. Italica X P. laminata and of P. canadensis X P. laurifolia gave a good seed-set when the cut branches were kept 10 days in darkness at 5°-9°C before being brought into a light greenhouse for pollination.


1963. EXPERIMENTAL INDUCTION OF POLYPLOIDY IN POPULUS. Preslia 36(2): 101-9. 23 refs. [Cze.e.]

May, S. 1963. THE APPARENT INCREASE OF POPULUS CLONES WITH GREY AND ROUGH BARK AS AN EFFECT OF TOPOPHYSIS.] Cellulosa e Carta 14(10): 5-8. 6 refs. [It.it.f.e.g.]


1937. QUICK-GROWING POPULAR HYBRIDS. AN ACCOUNT OF RECENT AMERICAN WORK IN THIS FIELD. Skogsagearen 13(11): 274-77. [Sw.]


1940. ON THE HETEROCENETY OF THE F. GENERATION OF INTERSPECIFIC HYBRIDS OF FOREST TREES. Yarovizitseya 1940(431): 33-40. [Russ.]

165.73


A study of the structure of the leaf petiole, epidermis and mesophyll on sectorial-chimaera shoots derived from the grafting of P. nigra and P. deltoides scions on P. seuveolens stocks. [Cl. preceding reference.]


A study of the frequency and nature of reversion and sectorial-chimaera formation in vegetative (graft) hybrids already described [see preceding reference]. The stability of the reverted material is particularly examined.

168 HISTOLOGY


Chiefly based on the author's studies with poplar. [Cf. Braun, 1962, Section Aigerios, 235:28.5.1.]


The new tissue consisted of undifferentiated parenchyma with a few patches of cells whose walls contained a lignified network. Roots, shoots and leaves developed only in primary explants.

and Taris, B. 1960. AP LICATION DES TECHNIQUES DE CULTURE DE TISSUS A L'ETUDE DE QUELQUES PROBLEMES SE RAP-


Presents estimates and actual data showing developments since 1938 and the position today.


Classification, ecology, enemies, and cultivation.


Describes, with details of habitat, distribution and uses, the five species reported, of which P. sieboldii, P. tremula, and P. maximowiczii are generally held to be comparatively distinctive and indigenous to Japan. Whereas P. davidiana and P. canadensis possibly are not. A further report is planned, discussing in detail the taxonomical treatment of all five species and their full synonymy.


Subjects covered in the present paper are: questions of origin of species and varieties; use of hybrids; poplar sites; and propagation and plantation methods.

Henry, A. 1914. THE BLACK POPLEX. Gardeners’ Chron. 56.


Discusses the report of the O.E.C. mission. [CF. International: O.E.C., 1951, this subject classification.]


Hickel, M. R. 1914. UNE ETUDE EUROPEENNE DE PEUPLIERS DU GROUPE DES TURANGA. La Revue Generale de Botanique 5: 25.


A review of recent papers on the genus.

[Editor]. 1938. EERSTE BESCHRIVENNEDERENSLIJST VOORPOPULIERS. [A FIRST ADDITIVE LIST OF POPULACE.] N. d.:

Algemeen Keuringsdienst, Holland. 20 pp. [Dutch.]


A translation into Italian of a work published in Holland in 1937.


Covers statistical data, policy, silviculture, pests and diseases, logging and utilization.


Includes a key for identification, notes on silvicultural characters and uses, and recommendations for choice of species for different parts of France.


A brief account of the poplars occurring naturally, and cultivated, in Yugoslavia. The native species include two subspecies of *P. alba*, a hybrid of *P. alba* × *P. tremula* and *P. nigra*.


A summary of information with special reference to Belgian conditions and covering classification, characteristics, choice of species, pests and diseases, methods of raising, tending of plantations, and costs and returns.


The review, which is amply documented, includes a survey of species and hybrids cultivated in Argentina, methods of raising and establishing willow plantations, probable yields, pests and diseases of both poplar and willow, and work achieved in breeding.


A report on the Annual Conference of the German Poplar Society, including data on potential sites and actual plantings, a paper (followed by an excursion) on grey poplars in the Danubian bottom lands. (Krembs) describing the Ingolstadt grey poplar, a *P. tremula* × *P. alba* hybrid, site conditions, regeneration, diseases, etc.: also on afforestation with poplars and other spp. on waste land (dismantled munitions factory and rubble mounds).


A detailed general account, with volume and yield tables, and data upon which to base rotations for roundwood and sawtimber for clones of *Populus* × *eucommarica* (cv. "chopo negro de Granada") and cv. "chopo de Granada") and *Populus nigra* (cv. "chopo castellano" or "blanquilla") as found in the R. Giron vicinity.


The main object of the mission was to study the poplars in their natural habitats, and the fast growing artificial hybrids made by American breeders; the latter are reported on unfavorably.


Limited distribution. Tentatively identifies the following: *Populus ciliata*, *P. longifolia*, *P. suaveolens*, *P. thevestina*, and *P. triloba*, the last named large trees growing naturally at 2,500 m. alt. at the lower limit of the Himalaya cedar forest. All others are mostly young, their form spoilt by frequent lodging.


Describes the species grown in Persia (*Populus euphratica*, *P. alba*, *P. hybrid* M.B., *P. nigra*, *P. nigra var. italica*), their silvicultural characters, timber properties and uses, and lists insect pests and diseases. Photographs (78) have French legends.


Gives figures to show the volume of poplar and fellings in Holland during and since the war.


Describes in some detail species commonly grown, breeding and selection, nursery practice, site and soil requirements, planting, management, protection, growth and yield, and properties and utilization of wood.


A report in four parts: (1) Work of the Spanish National Poplar Commission in 1957, including 5-year plans of work and research, and a review of the present situation and possibilities for expansion in eight provinces, (2) projected work for 1958, (3) Spanish legislation governing the cultivation and exploitation of poplars, and (4) a list of Spanish publications on poplar up to the time of the report.


Reports on work achieved during 1958, the present situation, plans for 1959, and gives individual data on work in 22 provinces.


Reviews the year's activities for 1959, and includes appendices giving the text of a report to the International Poplar Commission, reports on trials in three different provinces, results obtained with experimental clones in Leon Forest District, and the present situation and outlook in seven Spanish provinces.

Spalek, V. 1951. **SYSTEMATIKA A SLECHTOSTI POPLULI. [SYSTEMATICS AND BREEDING OF POPLARS.]** Csl. Les 31(21): 466-70. [Cz.]


Summarizes papers read at a meeting of the utilization section of the German Poplar Commission on: Recent experience with poplars in the particle board and related industries (Klauditz); targets and limits of poplar growing in W. Germany (G.A. Schütze); high quality poplar pulp by the calcium-bisulphite process (T. Krause); the semichemical pulping of poplar and
POPLUS CANDICANS, P. PLANT ECOLOGY DE ALGUNOS NAME, AND VOL. A NIORT, AUTECOLOGY. U.

Barcelona EN 1951). NATIVE I. Br. 146 pp. DES PAPPELANBAUS V. REGIONAL Com-

REGION AND L. 1945. [INTERNATIONAL LITERATURE ON POPLARS Rev. For. Franc. No. 2: THE

Vicioso, 0. 1951. SALICACEAE DE ESPANA. [SALICACEAE OF SPAIN.] [Bol.] Inst. For. Invest. Exp. Madrid 22(57), 131 pp. [Span.]

A botanical study of the Spanish Populus and Salix spp. with keys for their identification.


Includes a short historical account and a description of the "Blanc du Poitou," a local variety of Populus serotina.


In addition to the main list of 1,268 titles arranged according to the Oxford System of Decimal Classification, the work contains a comprehensive summary of the main heads of the system with the Flury System and four appendices: (1) the bibliography from S. S. Pauley's "Forest trees genetics research: Populus L."; (2) subject index; (3) authors index; and (4) list of periodicals and serials cited, with abbreviations. Special efforts were made to cover the literature as completely as possible (in 1951 on; more references before that year are taken from the more comprehensive of recent works on poplars.


Contains 620 titles and a synopsis of Kollmann's classification of wood utilization and the Oxford System of Decimal Classification for Forestry.


Describes recent activities of the FAO International Poplar Commission, and lists poplar species, varieties and hybrids under their scientific names, giving where it exists, the Yugoslav name, and occasionally also the French, German, or English name, with notes on distribution.

Vujic, P. 1958. TOPOLE IN MAĐARSKOJ. [POPLARS IN HUNGARY.] Topola, Beograd No. 8: 680-6. 5 refs. [Serb.] (Cf. Joachim, 1958, this subject classification.)

Has short sections on: selection of planting material, methods of raising plantations, damage by pests and disease, and utilization of poplar wood.


Contains chapters on: the economic importance of poplar; choice of site; cultivation; propagation; breeding; planting; description of species; and pests.


18. PLANT ECOLOGY

181. MODE OF LIFE, AUTOCOLOGY. SILVICULTURAL CHARACTERS OF TREES


Gives distribution in Italy and ecological characters of 17 indigenous species, varieties, and hybrids, with numerous drawings to illustrate leaf morphology.

Fenaroli, L. 1945. NOTE SULL'ECOLOGIA E LA DISTRIBUZIONE DEI PIOPPI IN ITALIA. [NOTE ON THE ECOLOGY AND DISTRIBUTION OF POPLARS IN ITALY.] Bosco, Feb. 1945: 2. [It.]


S. Wolfenski, A. 1937. NAJSZYBIEJSZ ROSTU TOPOLE: ICH WY--


114
Discusses German literature on experience with various species on sites with different unfavorable conditions, giving some data on the Reineck trials with hybrid varieties. There, as elsewhere, the "Oxford" poplar had done very well on an originally rather heavy, acid poor soil, reaching 12 m. in height and 20 cm. d.b.h. at 7 years.


181.1


Regnier, R. 1956. \textit{distribution GEORGRAPHIQUE ET ORIGINE DES POPULUS.} \textit{[EGO-NASAL DIS-TRIBUION AND ORIGIN OF POPLAR.]}


Short notes on range and evolution.

181.21


Perry, T. O. 1953. \textit{THE GENETICS OF THE PHOTOPERIODIC RESPONSE IN POPULAR TREE SPECIES.} Abstr. in Genetics, Madison 38: 681-2. (1953 meeting, Genetics Soc. of Amer.)


181.22


A general account of trails with rooted cuttings. Some 60 species, hybrids and clones, are listed as \textit{being} highly frost-hardy in the area.


Jarvis, A., and Brown, A. W. A. 1943. \textit{the climate of Hungary is generally suitable, the author considers the demands of different species of poplar on the physical, chemical, and hydrological properties of the soil. Limiting values of single factors are not critical. Recommendations for the heavier soils, classified by type and thickness of the fertile layer, are tabulated.}


181.3

A general account of trials with rooted cuttings. Some 60 species, hybrids and clones, are listed as \textit{being} highly frost-hardy in the area.

Nowakowski, A. 1957. \textit{PILOT TRIALS TO INVESTIGATE THE SPECIFIC ADAPTABILITY OF POPLAR VARIETIES TO UTOPTIMUM SOILS.}


Data are given on the structure and the physical, mechanical, and chemical properties of the soil on Mt. Behremaginica, Bosnia, which is near a center of the cellulose industry. Recommendations are made for applying fertilizer, but in general the author does not consider the site favorable for growing \textit{poplar.}

181.33


Duchaufour, P. 1955. \textit{LES SOIXS PEUPLIER. [POPULAR SOILS.]} Rev. For. Franc. 7 (7): 539-46. 5 refs. [F.]

181.34

Krolikowski, L., and Stenze, Z. 1961. \textit{the growth of \textit{ALNUS GLUTINOSA, A. INCANA, POPULUS TREMULA AND F. x BEROLINENSIS WITH DIFFERENT GROUND-WATER LEVELS IN SANDY SOILS.}}

Roczn. Gleboznawcze, Warsz. 10 (Suppl.): 724-5 [Pol.]

Tabulates data on the d.b.h., height, and mortality of 10 different poplar species and hybrids on three sites differing in soil type and nutrient status.


Nowakowski, A. 1957. \textit{PILOT TRIALS TO INVESTIGATE THE SPECIFIC ADAPTABILITY OF POPLAR VARIETIES TO UTOPTIMUM SOILS.}

Examination of *Populus* in different parts of France leads to conclusions on the fundamental importance of the summer groundwater level. Effective rooting depth is limited by this factor, and where it is high, *poplars* (preferably cuttings) should be planted on mounds and spaced more widely to give more room for root development. Where the summer level of groundwater is low, on the other hand, plants should be set as low as possible so as to reduce the distance to be traversed by roots in order to reach permanent water.

Richard, F., and Fehr, R. 1954. **Physikalische Bodeneigen-**

**SCHAFTEN EINER PAPPELSTANDORTE IM SCHWEIZERISCHEN MITTEL-**


Analyzes density, **pore volume**, distribution of pore sizes, humus and C content.

181. 34

Nitu, G. 1962. [**The Influence of Micro-Environmental Factors** on **the Growth of Poplar.**] Rev. Padurilor 77(9): 529-33. 3 refs. [Rum.]

181. 35


**Growth of Poplars in Relation to Nutrient Content of the Soil.** Zuchter 32(3): 179-84. 10 refs. [G.f.g.]

181. 36

Joachim, H. F. 1957. [**On Pappel und die**]


181. 37


181. 38

Eiberle, K. 1957. [**Untersuchungen über den Einfluss der PH-Reaktion auf das Austreiben und die Bewurfung von *Pap-**


181. 39

Benecke, L., and Kiss, L. 1960. [**A Mycorrhiza-Outstanding Result**]

**LEHTOSEEKE.** [The Possibilities of Mycorrhizal Inoculation.] Erdo 9(7): 241-6. 6 refs. [Hu.ru.s.g.e.g.]

181. 40


1958. STUDIUM NAD MIKROFFIMEM BODZAJU **POPLUS.** [Study on the Mycorrhizae of the Genus Populus.] Prace Inst. Bad. Lesn. No. 181: 117-72. 16 refs. [Pol.ru.s.g.e.g.]

181. 41

Fontana, A 1961. [**A Study of Platan Mycorrhizae in Pied-**

**mont.**] Allioina, Torino 8:7-129. 42 refs. [It.t.e.]


181. 42

Joachim, H. F. 1953. [**Untersuchungen über die Wurzelau-**

**bildung der Pappel und die Standortsanpruche auf Pappel-**


181. 43


181. 44

Aird, P. L. 1958. **The Effect of Herbaceous Vegetation on**


181. 45


**Eretsege in a P**

**Erentje in a Per**


181. 46

Pauley, S. S. 1950. **Flowering Habits in Populus.** Abstr. in Genetics, Menasha 35: 684.

181. 47

Marjai, Z. 1960. **Nyar-hazelettan, okolégia ez magyaret.** (The Physiology of Germination, Ecology and Sowing of Poplar.) Erdekes, Kutas, Budapest 6 (3): 67-92. 8 refs. [Hu.russ.g.e.g.e.g.e.g.e.russ.g.e.g.]

A detailed investigation of the germination of poplar (mainly *P. alba* but also some *P. × murrlandica*), seed with particular reference to the relation between 'ripeness' (i.e. the state in which some seed first germinates) and maturity. Germinative capacity and energy are both low in 'ripe' seed and resulting seedlings are often not viable. Dry-matter content of seeds is related to maturity; so long as this is <30%, germinative energy is low or zero, but it suddenly increases to 60-70% in the course of a day, immediately before maturity is attained.

181. 48

Polyp, G. 1962. [**Causes of the Short Life of Poplar Seed.**] Erdol 11(2): 81-4. 4 refs. [Hu.ru.s.g.e.g.]

181. 49

Kobendza, R. 1952. **Z Biologii i Ekologi Kielkowania Nasion**


181. 50

Marjai, Z. 1960. **Nyar csiszazalettan, okolégia ez magyaret.** (The Physiology of Germination, Ecology and Sowing of Poplar.) Erd 9 (12): 471-80. 16 refs. [Hu.russ.g.e.g.e.g.e.g.]

Recommends from 7 years' research, a 30-40% cover of seedbeds with straw where the soil is friable; where it is compact, 3-4 mm of humus or ground peat instead. The danger is caking from watering. The raising of aspen should be transferred from the hills to the plains or else resort should be had to cold-frame methods.

181. 51


181. 52

Vaccarone, E. 1953. **Osservazioni sulla assimilazione diamet-**

**rica dei fusti di pioppo nell'alluvamento di Ripa.** [Observa-**zioni su la Eccentricity of Stems of Poplars Growing on Cana-**

**l Burn.**] In: Studi Ricerche sulla Pioppicultura, Entenzionale per la Cellulosa e per la Carta, Rome. Pp. 29-41. [It.t.e.]

181. 53


181. 54


36. 1840. POPULUS SPP.


2  SILVICULTURE

Anonymous. 1911. ROADSIDE POPLAR IN BELGIUM. Quart. J. For. 5: 3.

1917. POPULAR PLANTING FOR PROFIT. Quart. J. For. 11: 281.

1918. POPULAR PLANTING FOR PROFIT. Quart. J. For. 12: 56.


1948. INSTRUCCIONES PRACTICAS PARA EL CULTIVO DEL ALAMO. (PRACTICAL INSTRUCTIONS FOR THE CULTIVATION OF ALAMO.) Direccion general de Bosques, Ministerio de Agricultura de la Nacion, B. Aires. 4 pp. [Span.]


A general article covering many aspects, with figures (partly estimated from returns of nurserymen) on the development of poplar growing in various parts of the country. Populus x robusta and P. × regenerata head the list of varieties.


Describes the indigenous types of poplar chiefly grown in Syria: (1) the Roumi (a clone of Populus alba), (2) the Harmou (a clone of P. nigra), (3) the Afarsi (another black poplar), and (4) P. euphratica; and (2) account for 95% of the area carrying poplar. Results of recent experiments with clones introduced from Europe are given, with comparative data from other countries.

Cusig. 1897. NOTE ON POPLAR AS A REGULAR CROP IN SILIESIA. Allg. Forstztg. 73: 263.


Drapal, O. 1947. ZE BEDIUTUNGSPAPPEL FUR DEN WIEDERAUFBAU DER OSTERREICHISCHEN FORSTWIRTSCHAFT. [THE IMPORTANT...


Emilian. 1930. POPLAR CULTIVATION IN ITALY. L'Alpe 17: 17.


Gabotto, L. 1937. PIOPPIE CULTURA E TARTUFI CULTURA. [POPULAR CULTIVATION AND TRUFFLE CULTIVATION.] In Atti del Convegno di Pioppicultura 1937: 87-96. [It.]


A general article, advocating its expansion in Switzerland.


A general review.


A brief survey of problems and work achieved.


A conference paper reviewing briefly the advantages and technique of poplar-growing.


A handbook for landowners, covering economics of poplar planting, species, site requirements and spacing, the storage of cuttings, nursery sites, planting out and tending, pests, yields, calculating height and volume of standing trees, subsidies for planting in France, and the poplar in Italy.


A general discussion, dealing inter alia with varieties, their site requirements and spacing, the storage of cuttings, nursery sites, planting out and tending (including fertility and mulching), diseases and pests. [Cf. Joachim, 1954, Populus sp. 176.1.]


A review of Italian methods.


On the basis of practical experience a guide is given to the raising of poplars in the conditions of Bosnia and Herzegovina.

Kashyap. 1930. KANA STUDING IN POPLAR FORESTS OF PUNJAB. Indian For. 56: 177.


Semipopular, with chief reference to the main species grown in Denmark and their propagation.


14 pp. 3 refs. [Du.]
Notes on site, choice of species, site preparation, planting, protection of young trees, tending and financial results.


Account of a study tour.

Pavari. 1933. THE CULTIVATION OF POPLARS IN ITALY. L’Alpe 20: 175.


General hints on sites, cultivation, etc., with a note on trials of 4 fungicides, “Funguran,” in a young plantation where the deaths from Dothichiza populnea were reduced from 16% on control plots to 7% on stands sprayed in May, and 1% on stands sprayed in October.


[F. etc.]

[ Cf. Houtzagers, 1948, this subject classification.]


Translation by Y. Claudel of chapters 2, 3, and 4, from the original Italian [See Piccarolo, 1952, Populus sp., 6].


Survey of work done in this field, particularly during the last 10 years.


Rudulescu, M., and others. 1939. POPLARS AND FOREST. SYMPOSIUM ON THE USE OF POPLARS IN FORESTRY. Rev. Padurilor 51 (3-4): 293-309. [Rou.]


Gives a short historical account of poplar-growing in Italy and describes the progress made during the past 20 years by the cooperation of the Istituto di Sperimentazione per la Pioppicoltura and the Ente Nazionale per la Celulosa e per 14 Carta.


A general account of poplar growing in Europe and America, with more detailed notes on the indigenous Zandan species, Populus euphratica and P. ciliata.


Discusses recommended cultivars, suitable sites, plantation establishment, and the main diseases and pests, as advice for would-be growers in France.


1937. NORME DI PIOPPICOLTURA PER L’AZIENDA AGRA RIA SEI LA VALLE PADANA. [STANDARDS OF POPLAR CULTIVATION PRACTICED TOGETHER WITH AGRICULTURE IN THE CULTIVATION OF POPLARS.] Padurilor 52(10): 138-59. [It.]

In connection with a conference on poplar-growing, reviews the present practices in Italy, including notes and photographs of results of horizontal planting of branch cuttings.

[U. K.: Bryant and May] 1955. HOME GROWN POPLAR FOR MATCHES AND HAMMERS. Bryant and May Ltd., London. 14 pp. A pamphlet setting out the rudiments of poplar growing, together with its financial aspects, with a view to meeting the needs of match and basket manufacturers in Great Britain.


Gives a brief outline of the cultivation, diseases and pests, and utilization of poplar in Great Britain.


Summarizes the advice given by the Commission Nationale du Peupler to intending growers.


22 SILVICULTURAL SYSTEMS. CONSTITUTION AND COMPOSITION OF STANDS: FORMS OF STAND

222.1


228 CONSTITUTION AND COMPOSITION OF STANDS; FORMS OF STAND


Mainly a discussion of the possibility of growing poplars in mixture with other species, on various types of site.

23 REGENERATION AND FORMATION OF STANDS


231 NATURAL REGENERATION


Coppice shoots from young (2-3 year) hybrid poplars removed in summer by axe-or machette-felling were fewer and about half the size of those removed in winter.

232 ARTIFICIAL REGENERATION


Describes and illustrates some Italian tractors and how they are used for planting, felling, and extraction in Italian poplar stands.


Present in simple diagrammatic form, with captions, instructions for raising poplars from cuttings, planting out, pruning and protection, with some information on the clones cultivated in the Portuguese Forest Service nurseries.


232.1


Gives results of trials. On moist rich soils populus x berolinensis, and P. balsamifera were best, giving an m.a.r. of ca. 45 m. m./ha. On drier, poorer soils on s.e. slopes, and on poor eroded soil P. simonii and "Moscow poplar" gave the best results. The other varieties tried on some or all of the sites were P. "canadiensis," P. suaveolens, P. "Eucalyptus," and P. nigra var. italica.


Arentsen, S. 1954. ACHO ANOS DE OBSERVACIONES EN ALAMOS. [Eight years of observations on poplar.] In Bosques y Maderas (special issue of Chile Maderero). (15) [Sp.]


Notes on a few hybrid poplars recommended for planting in Great Britain.


In an endeavor to find a canker-resistant, hardy, fast-growing, straight-grained poplar for farm planting in Minnesota, trial plantings were made of some 120 clones (including 75 hybrids). Height and diameter after 6 years, degree of cankerings, and root system capacity are tabulated for the 11 best clones.


Reports on results of trials of poplar hybrids and illustrates by means of graphs the comparative height growth during 1958 of various poplar clones established in 1957. Trials of eucalypts are also in progress.


Reports trials with cuttings of 10 species of poplar. Height growth was best in P. deltoides, P. euramericana, P. trichocarpa, P. deltoides x P. euramericana, P. deltoides and P. pruetskii.


Provisional data on survival and growth of a number of poplars at Seigle in the Pyrenees.


Chief reliance should be placed on American species successful in Italy and also Populus nigra var. albida. Two places, one in the valley of the Meric (e.g. Kurtkucagı forest) and the other near Adrianople, are recommended, but would need watering in summer. No other places appear suitable.


Deals mainly with poplars for central European Russia. Various fast-growing species and hybrids are recommended for the steppe, forest-steppe, and mixed-forest zones.

Jefers, J. N. R. 1958. **Design of Poplar Experiments.** For. Rec. For. Comm. Lond. No. 39, pp 5 refs. The work carried out by the Research Branch of the British Forestry Commission since 1949 has suggested that there are special features in the design of poplar experiments that do not appear to be adequately described in published literature. It is the purpose of this record to make the conclusions reached during the past 10 years.


Graphs the height and diameter increment up to age 7 years, for seven species or cultivars of Populus.


Bulg.


This county, with the best soils in Hungary, contains only 1.1% of its forests, but important additional timber production is possible. Only 35% of the area devoted to fast growing species carries poplars, a figure which should be raised to 35-60%. The opportunity of these are tabulated within 15 years a paying fibrebroad plant of 25-30 thousand cfm. capacity is an established possibility in this region.


As between flood-plain, depressions, and areas subject to flooding, selected poplars do best on the last and less well on the first two. In depressions there is often a sticky gleys layer where canker is frequent. On the better soils, through lack of timely tending, poplars suffer much damage also. Poplars are more suited to agricultural soils where single-row or strip planting will give accelerated production.


Contains tabulated statistics of area and yield by species and their values. Cq.1/3 of the forest area is suitable for poplars, which provide the greatest volume and value yields, amenable also to augmentation. Improvements in willow cultivation lie in breeding, and the abolition of the coppice system, and timely tending. Oaks, if planted, should be mixed with poplars; game control is an important prerequisite.


Wettstein-Westerheim, 1934. **Welche Pappeln Kamen zur Festunglichen Pflanzung Empfohlen werden?** [What Poplars can be recommended for forest plantations?] Forstarchiv 10: 97-101. [G.]


2321 1

Allegri, E. 1950. **UN PIOPPETO SPERIMENTALE IN TOSCANA.** [An Experimental Poplar Plantation in Tuscany.] Monti e Boschi 8: 345-55. [It.f.e.]


Short notes on the performance of Populus spp. in Argentina, their silvicultural requirements and methods of establishing plantations.


Three-year trial of hybrid poplars. Montes, Madrid 13 (73): 16-8. (Span.)

Notes on the introduction of hybrid poplars into Uruguay, with an estimate of the susceptibility or resistance to Melampsora spp. and Septoria spp. of six different clones, and recommends the founding of a Poplar Institute in Uruguay on the lines of the one at Casale Monferrato in Italy.

Rubbo, R. 1957. Alsamos Hibridos en el Uruguay. Hybrid poplars in Uruguay. Notes on the introduction of hybrid poplars into Uruguay, with an estimate of the susceptibility or resistance to Melampsora spp. and Septoria spp. of six different clones, and recommends the founding of a Poplar Institute in Uruguay on the lines of the one at Casale Monferrato in Italy.


Branches of Populus grandidentata and P. tremuloides bearing near-mature catkins are brought into a warm, closed room with little air movement. When the catkins begin to open, the seed is collected with an usherbrode-type vacuum cleaner; the mass of cotton is then removed from the cleaner bag, placed between screens, and the seed extracted by the use of compressed air.


Describes a simple method, involving the use of a piece of cardboard tube, three superimposed sieves, and a compressed-air line (illustrated).


It was found that keeping improved and germination was relatively higher (70-80%) if moisture content of seed was held at 5-8%.

After a pilot trial with a hair-drier playing through a small scale operation showed that a fan blowing through a cylinder 20 cm. long x 50 cm. wide could dry 10 kg. of seed in 8 hours.


From abstr. in Hung. Agric. Rev. 3(2): 8. 1954. [E.

Poplar seed [species not named] stored in a desiccator (with CaCl₂) placed in an ice-box at 0.5°C, showed only slight decrease of germinative capacity from the initial 98 to 94% after 5 months.


Compares the germinative energy and germination percent of seed of 10 poplar species, collected from and around Belgrade.


Advocates large centralized nurseries, as seen on a study tour in Sweden, because large nurseries devoted to poplar growing...
would be able to obtain expert personnel, and their management, control, and mechanization would be easier than that of small, decentralized ones.


It is proposed to reduce the 1/2 of P. x serotina (26) in favor of P. x robusta (21) in the 166 ha. of nurseries concerned and raise also the proportion of new clones under test. Trials of 100 x 100 cm. spacing produced too large material in the first 2-3 years and thereby perfect material for 6-7 years. With smaller spacing the nursery soil gets exhausted in 5-6 years. Insect damage has greatly increased in several nurseries.


A practical guide to nursery work (propagation by seed, root suckers, and cuttings: tending and diseases and pests of nursery stock) and planting (choice of site and variety, planting methods, spacing, and early tending) with chief reference to the hybrid black poplars.


Data on the number of 1 + 1, 1 + 2, etc. plants produced and/or available for sale, with a note on changes in nomenclature of some cultivars.


Gives an account of the experiments and preliminary results of the first 4 years, on representative soils of Venetia. Subjects of research are nutrition of poplar, the use of compound fertilizers, and methods of application.


Reviews the results of research (mainly in England, France, and Italy) during the past 10 years on the application of fertilizers to poplars in the nursery and in the field.


When this fertilizer, containing 10% N, 7% P2O5, 20% K2O, 17% MgSO4, 10% Ca3(OH)2, was tried on 1-year old poplar plants on a rather poor, neutral sandy loam at 300, 600, and 900 kg/ha., second-year height growth exceeded controls by 36, 69, and 81% respectively.


Presents and discusses data from experiments at Rome in which nursery beds were fertilized with (NH4)2SO4 at rates of 400 and 800 kg/ha.,; mean height and mean d.b.h. increased with increasing applications of N, but mean d.b.h. of height classes diminished; moisture content increased and specific gravity diminished; Measurements were made 9 months after the rooted cuttings were planted.


Discusses the merits of propagation by seeds and by cuttings.


Describes operations with a tractor-drawn plough in poplar nurseries, including working costs. It is claimed that these heavy soils are loosened sufficiently for easy lifting, and that roots suffer fewer injuries than with manual work.


232 323

232.328.1


Describes a machine equipped with a rotary knife for cutting poplar shoots into cuttings of suitable lengths, developed at the poplar nurseries of Rosenberg, E. Germany. The cut is smoother than a scissors cut, resulting in a conservation of moisture in the cutting, and in a dry spring successful takes were 80-90% for machine-cut vs. 40% for hand-cut material.


Larsen, C. M. 1957. -ENHANCEMENTINDIVIDUAL DES BOUTURES DE PEPULIER. (INDIVIDUAL ROOTING OF POPLAR CUTTINGS.) Zuchter Spec. No. 4 : 77-84. 3 refs. [F.]


The pathogen responsible for this condition was isolated and identified as Phomopsis sp. (probably P. pallida). It is apparently favored by even slight drying of the propagation material, and it is therefore advisable to immerse cuttings in water (not cold and stagnant) for 1-2 days before planting.


Gives, in the English summary, full details of the optimum quality of cuttings (size, location, method of cutting, etc.), method and time of planting, and spacing.


An experiment was made in horizontal planting of very short (6-10 cm.) poplar cuttings, (a) in trenches 4 cm. deep and (b) in trenches 8-10 cm. deep: (a) gave 80% and (b) 19%: rooting.


Summarizes the advantages and disadvantages of cuttings without terminal buds (shoot base cuttings) and sets.

Schukin, M. 1953. CONTRASTE FRAN VIVAIDOPPOGPOOPIN- TATOKO THEA UMONOPIEPTATANORE BARBATELE. (COMPARISON OF A NURSERY PLANTED DIRECTLY WITH CUTTINGS AND ONE PLANTED WITH CUT-BACK ROOTED CUTTINGS.) In Studio Ricerche sulla Pioppicolture, Ente Nazionale per la Cellulose e la Carta, Rome Pp. 21-7. [It.]

It was found that by planting poplar cuttings in a temporary nursery, lifting them at the end of the year, and cutting back before planting out in the nursery beds, plants of better form were obtained and establishment rate 88.6%: compared with 56.1% for cuttings planted directly in the nursery.

Smith, J H G Haddock, P. G., and Hancock, W V. 1956. TOPHYSIS AND OTHER INFLUENCES ON GROWTH OF CUTTINGS FROM BLACK COTTONWOOD (POPLUS TRICHOCarpa) AND CAROLINA POPLAR (POPULUS CANADENSISVAR EUCHEN). J For 54 (7) : 471-2. 4 refs.

Strzelecki, W. 1955. ZIADNA NAD WPŁYWEN STYMULATOROW WZROSTU NA UKORZENIANIE SIĘ ZRZĘBEPOPOLO. [INVESTIGATIONS


Takagi, T. 1953. EFFECTS OF EXTERNAL H-ION CONCENTRATION ON ROOTING RESPONSES OF POPLAR STEM CUTTINGS IN NUTRIENT SOLUTIONS. J. Jap. For. Soc. 35 (10): 539-42. 6 refs. [Jap.]


Both IAA and 2,4-D stimulated rooting. The former at 70 mg/litre can be applied with excellent results but the 2,4-D had side effects precluding its use. [Cf. Joachim, 1960, this subject classification.]

Vasilev, A. E. 1962. THE EFFECT OF STIMULANTS ON CALLUS ACTIVITY. Lesn. Z. Arhangelsk'k 5 (3): 31-2. 6 refs. [Russ.]


Plants grown from cuttings buried vertically in the soil so that the top was covered with 1 to 2 cm. of soil exceeded in survival percent, height, weight of foliage and diameter growth those cuttings planted with the top bud protruding 1 to 2 cm. above ground. [R. H. Muller’s method as recommended in the “Pappelbuch” [cf. Hesmer, 1951, Populus sp. 0] for covering cuttings.]


Comments on the article by Schmitz-Lenders [1953, this subject classification].

232.328.5


Describes graftings of scions from elite ash, on minus rootstocks, and the propagation, by grafting or budding, of material from individual poplars and maples with figured grain.


232.329.9


232.4


Describes the planting. 1935-40. Of 250 ha. of selected exotic poplars (“Edelpaupeln”), ground preparation being 60 to 70 cm deep plowing with steam plows and planting at 1.5 x 1.5 m. The first tending was combined with agricultural intercropping; the first thinnings came after the 1945 liberation.


de Cheryse. 1931. NOTE ON POPLAR PLANTATIONS IN FRANCE. Bull. Forst. For., Paris 49.

Franco. 1932. PLANTING OF POPLARS IN ITALY. Rev. For. Eaux For. 70: 143.


Lotbiere. 1932. POPULAR PLANTATIONS IN ENGLAND. Quart. J. For. 26: 212.


Smith. 1925. PLANTING IN DENMARK FORSTL FORSOGSRUNN. 9: 3.

232.41 1.1


Discusses the recommendations of the Comision Nacional de Alamo, Argentina, designed to ensure that only good clones and varieties of poplar and willow planting stock, of known origin, are offered for sale. Clones recommended for planting in certain regions of Argentina, and for certain sites (e.g. along the sides of watercourses, etc.), are listed.


Standards drawn up by the executive committee of the Italian National Poplar Commission, which has recently instituted a register of poplar clones.

232.41 1.4


Describes different types of planting stock (1-year rooted cuttings, ditto stumped and transplanted for 3 years, $C+2$, and unrooted cuttings), and methods of raising and handling them.

232.412


232.421


232.425.2


232.427


232.43


A discussion, by several correspondents, of the various biological and economic factors involved in the choice of spacing.


Experience in Greece has shown that close spacing followed by thinning is best both financially and silviculturally. On good sites a spacing of 2 x 2 m. is recommended, and on inferior sites, particularly on sandy soils, 3 x 4 m.

Good results were obtained in the Leipzig region by interplanting poplars, after cultivation, with perennial lupins. Planting the poplars as cut-back I-year stock has proved successful and has reduced wind damage.


Summary results of research and experiences to planting methods, effect of fertilizers, and suitable varieties, with special attention to drought hardness.


An account of experience at two sites, Lambrecht (since 1949) and Mehlitz (since 1926), mainly with poplars.

Tikos, B. 1938. [AFFORESTATION EXPERIMENTS ON "SIEK"-SOILS--CHIEFLY WITH POPLARS ON INLAND ALKALINE SOILS.] Erdesz. Lapok 77(6): 514-21. [Hu.g.f.e.]


Since 1945 the forest area has been raised from 0.4% to 3.2%. Afforestation by area has been 51% pedunculate oak, 21% poplar, and robinia 19%. The trees preferred are P. ×robusita, P. nigra var. Italica, and P. × regenerated.


235 UNDERPLANTING. ADVANCE PLANTING. ETC.

NURSES AND FORMATION OF MIXTURES


Discusses the increasing productivity by using shorter rotations, widely spaced "intermediate stands," e.g., poplars planted before or with a main stand of pines. From abstr. in Hung. Agric. Rev. 9(2):17. 1960 [E.]

235.41


235.42


236 CARE OF REGENERATION OR PLANTATIONS IN THE INITIAL STAGES OF ESTABLISHMENT

Anonymous. 1935. DIE NACHZUCHTVONPAPPEL-ND BÄUME WIEDE IN "EN BADISCHEN AUFWALDUNG. [THE AFTER-CULTIVATION OF POPLAR AND WILLOW IN THE MEADOW WOODLANDS OF BADEN."


Discusses the reasons for the frequent failures of recent plantings in Mckelben, estimated at 75% of all poplars planted since 1945, and stresses the need for correct choice of site and for tending in early years.

236.1


Milewski, J. 1957. UPRAWA I PEELENCNAGLEBY POD PLANTAC- JAMY TOPOLYOMY. [CULTIVATION AND "ENDING OF SOIL UNDER POPULAR PLANTATIONS.] La Solski, Warsz. 31(15/16): 3-5. [Pol.]

236.1, 3


237 AMELIORATION OF FOREST SITES


237.4

[Belgium] 1953. LA PHOSPHATE THOMAS EN SYLVICULTURE. [THE "SE OF BASIC SLAG IN FORESTRY.] Services Agronomiques des Producteurs de Phosphate Thomas, 47 Canaert, Brussels, 44 PP.

Deals for the most part with the Sart-les-Spa experiment in fertilizing spruce but also gives some notes on the effects of applying basic slag at time of planting on fruit trees and poplars.


Rhier, H. 1947. LA FUMURÉDU PEUPLESEST-ELLE PRÉRÉVABLE? [DOES MANURING OF POPLARS PAY?] La Potass, Mulhouse 21(149): 186-8. 3 refs. [F.]


and Dye Corp., New York. 111 pp. 112 refs. 
Transl. from Die Anwendung von Handelsmittel und beinsondere von Stickstoff in der Forstwirtschaft: Ruhr-Stickstoff Aktiengesellschaft, Bochum.


237.417


Briefly reviews the literature and concludes that fertilizers are more effective when spread over the whole area rather than applied locally, and that best results are achieved by the use of a balanced NPK fertilizer.

237.43


237.43

Iturraralde Irigoyen, A. 1963. Use of waste liquids from sugar refineries for soil improvement on river banks. [Cf.]

Montes, Madrid 19(112): 335-7. [Span.]


A brief illustrated report of a study tour, including a description of the sawagedisposal farm of Rheims, in which the water from the city sewers, including factory effluents, are used to irrigate a poplar plantation of 115 ha., begun in 1929, which shows a mean annual yield of ca. 145 cu.m.

238 TIMBER PLANTATION CROPS REQUIREING SPECIAL TREATMENT


A lecture on practical experiences with poplars both natiive and cultivars, largely in the forests of the Rhine and its tributaries, including some figures on the extent of plantings, yield of forest products, etc., but also setbacks and disappointments.


Belgioioso, G. B. di. 1959. La poppicornicola nel logosiani. [Poplar growing in the plain of Lodigiano] Monti e Bosch 10(9): 475-85. [It.f.e.]

An account of the extensive plantations, with statistical data on area, increment, etc.


A general account of poplar growing in Slovenia, with description of silvicultural methods to be adopted with poplar (Populus × canadensis).

A report on a study tour, describing the program, which was inaugurated in 1959, and covering organization, plans, sites, varieties, plant raising, site preparation and fertilizing, planting and tending, agricultural crops, etc., with a brief note on the growing of tree willows.


Discusses the value of additional timber production to the economy of the Netherlands, makes recommendations on choice of species and culture, gives some figures of price: cm. for P. gelrica, P. serotina, and P. engelmannii, discusses the merits of line plantations along fields and roadsides and the best form of shelter plantations for the Netherlands, and urges experiments and a careful examination on the effect of shelterbelts on crops.


A summary of information on the cultivation of poplars, including notes on selective breeding, nursery practice, the establishment of plantations, choice of varieties (with notes on some Spanish, French, and Italian clones), spacing, rotation, and tending.


Presents data from Belorussia showing that Populus‘canadensis’, P. trichocarpa, and P. alba do well on such sites, and advocates that increased use be made of poplars to improve this type of land which is at present used as pasture or low-yielding hayfields.


Discusses proposals, based on experience in N. Italy, for planting poplar in Posavina and compares the site conditions, especially temperature, rainfall and soil quality, of the two regions. Recommendations are presented to compensate for the differing conditions.


Describes the chief types of softwood and hardwood flood-plain forests, and the silvicultural treatment recommended, with special reference to poplar growing. [Cf. Toth, 1960. Populus sp. 232.1.]


Describes recent experimental plantings with a number of varieties, chiefly the "Harff-Pappel," along the Haniel and on other --mostly nonforest-sites, giving details of planting methods, spacings, use of fertilizers and soil characteristics, including soil analyses [but hardly any results].


Discusses spacing and layout (e.g., single rows, rectangular, quincunx, etc.) illustrated by photographs, diagrams, and tables giving distances between plants and rows for different layouts.


Covers area of plantations, varieties grown, nursery practice, plantation techniques, and research, with full literature references.


Notes on areas planted, choice of species, planting methods, spacing, etc.


A description of the work, areas available for planting and the business of the first meeting and of the interests co-operating.


Includes tabulated data on the species, clones, and cultivars identified in Portugal.


Discusses the general problems of management in poplar plantations consisting of rossospaces well apart above agricultural crops, and gives detailed recommendations (with specimen forms) for drawing up working plans for them.


Reviews the present status of poplar-growing in Morocco, research in progress, and possibilities of expansion in the future.


Since the end of the 18th century.


A semi-popular booklet containing advice on choice of species, site, planting methods, intercropping with agricultural crops or alternate lines of other tree species, and tending.
25 TREATMENT OF DEFECTIVE, DERELICT OR VERY OPEN STANDS

Dediu, A. 1955. CONTRIBUTII LA AMELIORAREA ARBORETELOR DE-
GRADATE DIN LUNCA INUNDABILA A DUNICII SI MIORII (ZAVOALEDE DE SALCIE SI FLOP). [THE IMPROVEMENT OF DEGRADED
FOREST ON FLOODPLAND AND RIVER BANKS IN THE DUNARI REGION

26 COMBINATIONS OF FORESTRY WITH AGRICULTURE

Bauer, F. [Editor]. 1956. PAPPELANBAU IN DER LANDWIRTSCH.
11(6): 66-82. [G.] A special number devoted to poplar growing outside the forest, including articles on opportunities and experiences on Neper in Frcenoria, river valleys in Heuse, shelterbelts, etc. in the Lower Rhine region, and industrial waste lands in Bavaria. In an article on pruning (Moegling), MWC wound dressing (M. Barthel and Co., Regensburg) is recommended.


263 IRRIGATED FORESTS

Trasmuller, J. 1957. DIE VERWENDUNG DER PAPPEL BEI DER
11(6): 66-82. [G.] Briefly describes the chief site types and reports on the organi-
izations, including supply of planting stock, finance, supervision, etc., of poplar plantings in the scattered holdings of small farm-
ers, discussing establishment, varieties, mixtures, fertilizing, etc.

265 STRIPS OR LINES AT ROAD, RAIL AND CANAL
SIDES, ETC.; HEDGROW TREES

Bakker, A. 1960. VOORSLAG "AN EEN ONDERZOEK NAAR DE IN-
VOLOED "AN POPULIEREN OP GRASLAND. [THE INFLUENCE OF POPLARS ON GRASS.] Meded. LandbHogesch. Wageningen 60(9): 1-38,
16 refs. [Dutch].

Coney, D. and Lewis, W. A. 1949. THE EFFECT OF VEGETATION

Federcio, S. 1951. LA PRODUZIONE LEGNOSA DELLE ALBERATE
CAMPESTRE DELLA PIANURA PADANA. [WOOD PRODUCTION OF HEDGE-

Bleich, 1957. MOGELICHIGEN DES PAPPELANBAUS AM WASSER-
STRASSEN. [POPLAR PLANTING POSSIBILITIES ALONG WATER-COURSES.
Holz- Zbl. 83(14): 153-4. [G.] A general article by an enginer, containing as an appendix the "Cooperation on Poplar Planting on Federal Water-courses (1955)" issued by the W. German Ministry of Transport. These give official guidance on questions of site, protection of banks, flood-
water flow, protection from wind, etc., including drawbacks in-
volved.

[International: IUFRO] 1962. [SHELTERBELTS AND ALLIED SUB-
1961 Pt. 2(1): Sec. 17, 67 pp. Many refs. [E.P.G.e.f.g.]

Joachim, H. F. 1952. PAPPELANBAUASSERHEILS DES WALSDES.

Jovanovic, J. 1956. STANJE SRSUMSKE PONDA IRAN SUMSKIH
POVRSINA. [CREATING RESERVES OF TIMBER OUTSIDE THE FOREST.
Sumarstvo 9(2): 36-44. [Srb.e.f.] Sugests planting Populus' cultivars' along the network of canals in Croatia and Vojvodina; some small-scale plantations were made in Osejek in 1955 and experiences are described.

Lengyel, G. 1959. NYARFATAFELITESI PROGRAMMAL KAPCSO-
LATOS SZOLNOK-MAGYI TALAJVIZALATALK. [RESULTS OF SOIL
ANALYSES MADE IN THE SZOLNOK DISTRICT IN CONJUNCTION WITH A
POPLAR PLANTING PROGRAM.] Erdé 8(10): 395-400. [Hun.russ.g.]

Tabulated data or poplar growing trials at the banks of irrigation canals.
The draining of the flood in the 1950s for this purpose. 

For the fish population of trees and shrubs, their composition and structure, choice of species, siting, etc., and to the uses and requirements of poplars.

Poplar culture opportunities in farm lands and research on the effect of planting poplars in nearby cropped fields. Holzschutz, Lignikultur 9(2):9-10. [G.]

This indicates the importance of shelterbelts, poplars and willows as shelter and forage in dairy farms. N. Z. J. Agric. 104(3):215-220. Evaluates several native and exotic species of poplars and willows as shelter species, and outlines the important factors in shelterbelt design, with particular reference to dairy farms.

Deals with the composition, establishment, sites, tending, etc., of shelterbelt plantings in the Vienna basin. Development has
led from 3 or more rows of poplar only, to belts of ca.10 m in width, consisting of 2 or more rows of poplar flanked by rows of other trees and shrubs. Root crops, interplanted on fertile sites, proved beneficial against weeds in the early stages.


\section{2 ARBORETA, ARBORICULTURE FOR ORNAMENTAL PURPOSES}


\section{27 1 ARBORETA}


Describes the situation, soil, climate, etc., of the popletum established in March 1958 near Battipaglia (Salerno) and the collection of mountain poplars at Cucullo (Calabria) at 900 m alt., with lists of varieties and their origins.

\section{3 WORK SCIENCE, HARVESTING OF WOOD: LOGGING AND TRANSPORT. FOREST ENGINEERING}

\section{323 FELING AND SUBSEQUENT PRIMARY CONVERSION}


Notes on technique and tools, including data from time studies, where available.

\section{323 12/13}


\section{367.4}


\section{378.44}


\section{4 FOREST INJURIES AND PROTECTION}


Lists destructive diseases and fauna of Yugoslavia, with means of combating them.

\textbf{Farsky, O.} 1961. \textit{Choroby a skúdci topolu na garbkociuskách.} [Diseases and pests of poplar in the Danube floodplain for s of the garbkociusk area.] Prace Brnenske Zakladny Ceskoslovenske Akademie Ved, Brno 33(3): 113-75. 3 pp. of refs. [Cz.g.g.]


A general account of fungus and insect diseases and pests of poplar seedlings and adult trees.


\textbf{358.52}

416.1

Agenjo, R. 1960. DOS PLAGAS DE LOS ALMOS (POPULUS) ORIGINADAS POR "ARANUELOS" (YPOMENOPTERA). (TO TWO SPECIES OF YPOMENOPTERA DAMAGING POPLARS). Bol. Serv. Plagas For., Madrid 3(5); 97-114. [Span.] Describes outbreaks of H. gigas in Tenerife and of H. podella in Andauque, province of Guadalajara. Some points of taxonomy, and the distribution of Ypomoneuta spp. in Spain are reviewed.


Butin, H. 1957. DIE BLATT- UND RINDEBUNDENEN PFLUEZER PAPFEL UNTER BESSERUNGEN DER SCHUTZMUSCHER. [the leaf and bark-inhabiting fungi of poplars, with special reference to Pathogenic species]. Mitt. Biolog. Bundesanst., Land- u. Forstw., Berlin No. 91. 64 pp. 20 refs. [G.] Lists 94 leaf and 51 bark-inhabiting species, their synonomy, morphology, injures, and hosts (including differential susceptibility). A preliminary chapter presents tabulated data on the frequency and distribution over the stem, of 20 species found on 5-year-old trees of Populus "canadensis", which had been killed by Dethichaivas populares but were still standing.

with outbreaks of (1) *Phloemomyzus passerinii* and (2) *Dothichiza populea*.


Describes damage to seedlings by *Semasia spp.* in a nursery near Osljek, Croatia, by larvae feeding on and killing the terminal bud, producing a domelike growth of several shoots from a lower bud. Spraying fortnightly in spring with lindane [gammagamma BHC] and DDT did not give effective control, and silvicultural measures are recommended for the attacked plants.


Miklos, I. 1958. **POLAYA CYCRA CERES BUBALUS FABR. NA TO-POLAMA UNHRISATSKOJ.[C. BUBALUS ON POPLAR IN CROATIA.]** Topola, Beograd No. 6: 455-61. 6 refs. [Croat. g.]


The author has demonstrated experimentally that this rust fungus can overwinter in the mycelial state in the tissues of poplar shoots in the climatic conditions of Florence. [Cf. Moriondo, 1954. *P. canaden sis* to *P. davidiana*, 433, and Regler, 1957, Populus sp.: 416.15.]


Describes experiments with burning or spraying of a parasitic preparation in *Tosccana* and Lombardy, showing that treatments with concentrations not less than 0.1 active principle gave excellent control. Best time would be February-March in central, and March-April in northern Italy. [Cf. Bellis and Cavalcaselle, 1951, this subject classification.]

Regler, W. 1953. **AEUTREIEN ENNEN NUENEN PAPPELSCHADLINGS IN DENDDR.[APPEARANCE A NEW POPULAR DISEASE IN THE DDR [EAST-ERS ZONE OF GERMANY].] Wald 3(10): 312-3. 6 refs. [G.]

Reports the occurrence of *Septocephum populipersicum* in poplar nurseries in *E. Germany.* *Populus robusta*, *P. berolitennis*, *P. canadensis* *Leipzig*, *P. trichocarpa*, and *P. bachelieri* being mentioned, describes the symptoms and suggests precautions against its spreading.


Describes a new scale insect, first recorded in 1944 near Ploiesti, and since then in six other localities in Romania. It attacks poplars, robins, willow, and ash; and is particularly dangerous to the first. It is parthenogenetic and differs from *L. ulmi* in having only one generation annually.


Presenting data on biology and life history, based on observations made during a severe outbreak in 1958-59 in Frankfurt.


Gives photographs and drawings of the holes eaten in poplar leaves. Holes due to feeding by beetles of this species may be recognized by their serrated margins.


The following leafhoppers have been collected from *poplars* in the prairie provinces where they cause considerable damage: *Idiocerus lechnyaalis*, 1. *sativaub.* *Oncometopla lateralis*, *Macropis sp.*, *Oncomopis sp.*, and *Agalliasp.*


An illustrated account of leaf-mining, leaf-sucking, gall-producing, and leaf-eating insects and *mites*, *systematics, biologi-cal, economic importance, distribution, host preference*, etc.


The condition is due to the larvae of several species of *Semasia* which oviposit in the terminal buds. The parasitization of the larvae by a species of *Bracn.* is described. Control can also be effected by early removal of infested shoots, which should be cut back to a healthy bud.

1955. **NOTE BIOLOGICHESSELL’APPELARLENGER DEL PAPA-POS (PHLOEMOMYZUS PASSERINII).** [BIOLOGICAL NOTES ON THE POPULAR WOOLY APHID. P. PASSERINII.] *Cellulosa e Carta* 6(1): 7-12. [It.]

Describes the development and life history of the insect and explains the methods used to test the resistance of different poplar clones. Results of tests show that "Canadian poplar," *P. euramerican*, 1.28 and 1.63 are very susceptible, whereas 1.24 and 1.45, "Caroline poplar," and *P. alba* Lim. are almost immune.


Lists 45 lepidopterous species, where found, and on what poplar species.


The pathogen is renamed *Endacordium populin* (Vull.) comb. (Didymosphaeria populin* Vull.: Venturia populin* Fabr.). Synonyms of the conidial stage *Pollaccealeps*, are probably *Stigmata populi* and *Septocephum rhopaloeidum.*


Francke-Grosman, H. 1961. **UBER EINE BEMERKENSWERTER PAPPELFLATTE.** [PAPPFLATTE. STAUBONEMA COMPRESSICORNIS (FABR.) BENSON.]}
2015.opies of this leaf-eater's life history as observed on Populus grandidentata, other hosts already reported being P. usitaten, P. tremuloides, and P. glauca. A list of probable, and possible parasites is included.

Morris, R. C. 1956. Leaf beetle damage to poplar trees in [presumably] Inform. Sheet, Miss. Agric. Exp. Sta. No. 537. 2 pp. An infestation of Chrysomelidae in nurseries and a plant is described. The beetles were readily controlled in the nursery by spraying with endrin or dieldrin.


Illustrated description of two new species found in two places in Czechoslovakia, viz. Sarrothrius populana and S. curvula.

1954. HOUSENSKYKSIODAKLJESTEKPOLY. [LARVAE THAT DAMAGE POPULAR LEAVES [IN CZECHOSLOVAKIA].] Prace Vyzkum. Ust. Lesn. CSR No. 5: 163-282. 36 refs. [Cz.russ.g.]


Acrocenta leporina, Macrophycus rubii and Biston stratarius on poplar and Torthrix viridiana on Douglas fir.


Observations in the Rhein-Main district during 1955-59 showed no evidence of soil or age class upon susceptibility of poplars to attack by Semasia achranae, but black and Lombardy poplars suffered more severely than Populus canadensis. Observations are presented on biology and life history of the pest.


Notes on morphology, life history, and nature of damage.


An illustrated description of the insect, its biology, habitats, enemies, injuries, and control. Notes which may cause serious damage to young plants, is favored by hot, dry weather and spring. Chief enemies include pheasants and partridges, and the parasite Schizocosmus sieboldi. Dusting or spraying with DDT in spring, or, if later treatments are necessary, combined DDT and BHC are recommended.


416.12


Kozlovsky, S. 1955. CONTRIBUTION A L'ETUDE MORPHOLOGIQUE ET BIOLOGIQUE DE PHYLLOCNISTES SUFFUSELLA ZELL ST LITHECOLETTES POPULIFOLIella TR. [MORPHOLOGICAL AND BIOLOGICAL STUDY OF P.
A study of two poplar leaf-miners.


Instructions for spraying with parathion in young poplar plantations.

Lindquist, O. H. 1963. THE PARASITIC CHARACTER OF S. [it.]


L. albella is recorded, for the first time in Ontario, on Populus balsamifera, P. canadensis, P. deltoides, P. grandidentata, P. nigra, and P. tremuloides.


Observations on attacks by this leaf-miner of poplar in Slovenia, its life history, the damage it causes, and control. [Cf Schefer-Immerv below.]


A preliminary study, plants developed from cuttings that had been dipped in a carbon dust containing 44%; thimet had an excellent spread and controlled leaf-miners per shoot 44~: 179.5.


No reliable morphological differences could be found between a German and a Dutch isolate from infected leaves of Populus robur and P. canadensis 'Gelrica'.


Discoloration of leaves in the progeny of inter- and interspecific crosses with Populus tremuloides was traced to a new species, Plagiostoma populi sp. nov., which is described.


Discusses various methods of rating described in the literature, and more particularly the method now employed in Austria—a further slight modification of Schreiner's method (as modified by van der Meiden [1961, this subject classification]).


The leaf blotch was found in a nursery at Hoog Keppele in 1950: damage was slight. The fungus is described, and poplar species on which it has been found in the Netherlands are listed. [Cf. Waterman and Cash. 1950 Populusf., 443.]


Cuttings of P. candidas, P. marilandica, and P. brasanica were sprayed with suspensions of (tapespores). Leaf blottches formed only when leaf injuries were already present. P. candidas proved the most susceptible species. Spraying the uper or lower leaf surface was equally effective. Gernination of the ascospores was prevented by concentrations of Cu (Bordeaux mixture or CuSO,.) of 7-8 mg.Cu/litre.


Describes the perfect stage, identical with Drepanopezis populorum, developed in culture from leaves infected with Marssonina sp. (probably M. populina). The ascospores are probably responsible for primary infection of nursery plants and older trees in spring. Further spread is by conidia.


Discusses growth of the fungus in culture. Inoculations showed that of four species studied, Populus maximowiczii was most and P monilifera least susceptible. Injured leaves were more susceptible than sound ones. No difference was found in size and number of stomata between the poplars tested, but epidermal tissue of P. nigra var. Italic and P. monilifera (considered resistant) was thicker than in P. maximowiczii and P. korea.


A description of M. pulcherrima, which causes a leaf rust in P. alba, its intermediate host being Mercurialis annua. Experimental inoculations on a number of other poplar species and hybrid clones showed low susceptibility in all; some infections were obtained on '154, 11121,' 1455,' P. nigra, P. xerolincinis, and P. yunnanensis.


A fungus isolated from necrotic spots on leaves of P. nigra var. pyramidalis and P. xerolincinis in the nursery, and P. nigra in the field, was identified as S. populi Deam. Leaf infections on several poplar species and clones produced symptoms.


Schreiner's rating for Melampsora infection [1959, this subject classification] is modified by the addition of a further class of infection, heavy necrosis and leaf-fall, with numerical values 253-375.


Describes the symptoms of the disease caused by one or more species of Marssonina, and discusses the effect of weather, the physiological condition of the tree.
and the susceptibility of the clone. 'Serotina erecta' being the most and 'Robusta' the least susceptible of cultivars used in the Netherlands. Spraying with Cu solutions gives control in the nursery.


Of 100 clones assessed. Eckhoff, L 134, 145, 163, 174, 175, 175, 177, and Virginiana de Frigicourt were the most resistant. Six others were sufficiently resistant and 12 clones proved very susceptible to leafcast caused by Marssonia.


Reports further tests with (a)Dithane (1/400 in water) and (b) Narma-gen (1/500 in water), using seedlings of a susceptible clone P. × 'Peace.' Dithane was sprayed 5, 10, 15, and 20 times in the growing season, the last being the most effective. A mixture of (a) and (b), however, proved best of all.


Describes a disease observed on Populus marilandica, P. verimrubens, and P. robusta in the Helme district and its pathogen. The fungus is identified with Septotinia populi-perdera Waterman, and Cash, having a conidial form Septotia (syn. Septoglosum populi-perderum Moees et Smarodo). No conclusion is reached on the question whether this fungus is identical, descriptively different, or a numerical scale from 1 to 100 according to degree of infection on leaves and percent of leaves affected.


Describes a system successfully used by the author to evaluate the patho-ecological effect of the rust on hybrid poplars rating them on a numerical scale from 1 to 100 according to degree of infection on leaves and percent of leaves affected.


Describes the symptoms of attack by the fungus, which is com-

mon on species and cultivars in the nurseries at Wageningen but has been observed on older trees. Successful attack occurs only after damage to leaves, e.g., by insects, and control both of the latter and of ascospore discharge, and the use of resistant species and cultivars are recommended.


The fungus already recorded as a pathogen of hybrid poplars after transplanting has been identified as Phomopsis torricens sp. nov. (possibly identical with Fusccocidum podulrina). [Cf. Moriondo, 1955, Populus sp., 48.]

14...2


14...3

Allegri. 1959. NOTE PRELIMINARE SUI EPSITODES DEI PEULI.


Benben, K. 1954. NOWE CHORY STÓŁKI. [NEW DISEASES OF POPULI]. Sylwan 98 (2): 91-5. 7 refs. [Pol.]


14...3/5


Discuss & damage by Fomes igniauris on standing trees, and by Stereum purpureum, Polystictus hirautus and Schizophyllum commune on logs in a storage depot. Preventive and control measures are also discussed.


14...4

Allen, A. A. 1958. TRYPOPHYLLOS ASPERATUS EYLL. [COL. SCOT.

LYTIDAE]. In: TREATMENT OF S. E. For. Ent. Mon. Mag 94(1132): 216. Two records, believed to be the first for the tucofficients, of the finding of this rare Populus-feeding bark beetle.


Resistance tests were continued, but the warm, dry summer appeared to be unfavorable for the formation of canker. Many species of bacteria, one of which had some effect on Populus candicans but was not identical with Pseudomonas rimaefaciens already isolated, and some fungi were isolated from slime and diseased tissue. [Cf. Peilwijk and Brink, 1947; Populus sp., 444.1]


A discussion of symptoms, secondary injuries caused, conditions favoring infection, practical experiences, etc.


Enke, G. van den. 1956. VERSLAG VAN HET ONDERZOEK NAAR DE POPULIEREKENKER IN 1952 EN 1953. [REPORT ON INVESTIGATIONS IN 1952 AND 1953 ON CANKER OF POPLARS CAUSED BY D. populea.] Mededelingen van de Nederlandse Heidemaatschappij, Arnhem No. 21, 19 pp. [Dutch.]

1957. HET ONDERZOEK OVER DE POPULIEREKENKER VERBOORZAAD DOOR PSEUDOMONAS SYRIACENS, HALL. F. SP. POPELEA SABET. [REPORT ON INVESTIGATIONS IN 1952 AND 1953 ON CANKER OF POPLARS CAUSED BY P. SYRIACENSSP. populea.] Mededelingen van de Nederlandse Heidemaatschappij, Arnhem No. 21, 19 pp. [Dutch.]

Reports by the author [above reference] and others since 1937.


Herpka, I. 1956. POJOVAU VIGANJU KOTOPOLAR. [PHLE- ODNEVZIJEŠTJA.] [BARK DISEASE OF POPLARS (PRELIMINARY COMMUNICATION.)] Sum. List 80(8/10): 282-99. 14 refs. [Croat.]

Reports and describes in some detail cases of bark disease (not the first time reported) caused by the fungus Dothicha populea in nurseries, clones, young and old plantations, and old poplar stands in Croatia. Populus candicans was found to be relatively the most resistant species.


The disease, noted on young poplars in nurseries in N. Yugoslavia since 1956, is always found on shaded plants in excessively wet soils, and is believed to be a physiological disorder.


Describes, chiefly for the practical forester, the symptoms and course of the disease, conditions favoring infection, prophylaxis (silvicultural, chemical and by resistance breeding) and control (mechanical) and gives data on the extent of the epidemic in Austria.
Discusses its distribution in Czechoslovakia, species affected and associated pests and diseases.


Discusses the cankers caused by Pseudomonas rimefaciens and Nectria gyllenbergiae and their occurrence, so far on a relatively small scale, in Czechoslovakia.


Describes the bark disease called in Germany 'Braunfliezen-krankheit' [cf. F.A. 19, Nos. 2101, 3105] and reports in the occurrence in Serbia where it was found by the author and where it attack (the wood was most affected, F. x robusta and F. x marilandica wood less so.


Describes the species and symptoms of its attack on poplar, and discusses its distribution. conditions favoring parasitic attack, and control methods by ensuring adequate water supply especially to young trees, avoiding damage to the trees and removing all infected material.


Cytophagorhynchus spp. and Dothichiza populus did great damage to young bottom-land plantations in the exceptionally hot and dry summer of 1953. Populous pseudoindica and Populous trichocarpa frequently showed infection at the base of last year's terminal shoot. P. 'carolina' frequently at the base of the stem, where the wounds were more readily concluded. Large leaned varieties, which frequently lost their leaves that summer, were generally more susceptible. Mistakes (drying out) in planting, dryness of site, injuries and damage by fertilizers are discussed.


Reviews literature, mainly European, on its occurrence on hardwoods, especially poplars, concluding that fungi and bacteria and possibly a virus may be considered primary causative agents, and that abiotic factors (water relations and perhaps frost damage and isolation) may be important. [Cf. Joachim, 1958, and Rambault, 1959, this subject classification]


Studies on Pseudomonas infections of Populus robusta and P. serotina at Mol suggest that Pseudomonas is in symbiosis with other bacteria favorable to its development, forming a tumor-like canker. The tree's general development is not greatly affected (though the volume of damage has not been calculated), but the wounds admit secondary pests.

Petrovic, F. 1958. | STEENIGODARIU TOPOLICIMA NO ENTRIS OVALENE S Nag SWAKERS A TOPOLA. Topola, Beograd No. 6: 469-75. 9 refs. [Serb.]

Rodents destructive to the bark of poplar trees in the Danube and Tisa valleys are Arvicolinterrestis and Microtus arvalis. A rapid increase in their population has occurred recently, as natural enemies are few. The damage is caused primarily after floods and during winter when food is scarce. Suggestions are made for control by rodents.

Rambelli, A. 1959. | INTRONO IN UNA GRAYE FISIOPATIA DEL MI POPOLI IN SERIE POPLAR PER SORO K. A. BIOSCHI. Topoli e Boschi 10(1): 25-9. [It.l.e.e.]

Gives a detailed description, with illustrations of the lesions occurring in bacterial canker of poplar, now very widespread in Italy, and briefly discusses possible predisposing factors.


Cytosporus factors possibly involved in the disorder, e.g., initiation; root competition; pedological and hydrological disequilibrium; and over-wide spacing in plantations on fresh soils. [Cf. Vivani, 1959, P. canadensis to P. davidiana, 443.3]


Observations on 18 plantations of hybrid poplars confirm the nonbiotic nature of the disorder, believed to be due to root competition in soils with a gravel subsoil or rapid drainage. The influence of spacing on the severity of the disorder is stressed.


Cultures of Aphanobacterium populi sp. nov., isolated from cankers of Populus x americana and P. tremula, produced the characteristic cankers when inoculated into the trees at intervals over 2 years. Its characteristics in culture are described.


Includes data on six inoculation methods, and on the relative resistance of a number of poplar species and hybrids.


Briefly describes studies leading to the conclusion that Pseudomonas syringae f. sp. populi is responsible for bacterial dieback and canker of poplar. Details of the studies will be published elsewhere.


Sanz Pastor, J. M. 1956. | RESULTATS DE L'ENQUIETESUROTH- ICHIZA POPULAE. REPONSE A QUESTIONNAIRE FAO-CIFHEM. I SUR


Reports 2 years’ studies on the effect of plant handling, banding and individual resistance to the spread of the disease. Cutting bark is useless; banding has no effect; the connection between bark necrosis and frost is quite undetermined. The resistance of 38 clones is tabulated.


From abstr. in Hung. Agric. Rev. 7(1): 11-12, 1958. [E.]


Organisms isolated from infections were: (a) Corynebacterium sp. (b) semiparasitic fungi, e.g., Dothichiza popula, Phomopsis putator, and (c) ephipitic fungi. No antagonism was found between (a) and fungi of (b) in culture. A new Corynebacterium sp. distinct from (a), was isolated from necrotic tissues of Populus berolinensis, P. simoni and P. x robusta and this needs further study. [Cf. Oldenkamp, 1961; Meiden, 1961; and Stefanovic, B., and Canova, 1961; all this subject classification.]


Discusses distribution, symptoms, time of occurrence and location of the disease, types of poplar most susceptible, sites and water balance, prevention and control, including experiments. Spraying with CuOC12 in May and mid-August reduced mortality of Populusrubusta saplings from 13% (controls) to 1%. A Dutch preparation, Kankerdoo, and Agromycin 100 are also being tested.


Records heavy mortality in 1956 of 2 to 5-year poplar plantings as a result of attack by Dothichiza popula. The trees had suffered frost damage 3 months earlier. The most susceptible to P. rubusta, P. serotina, and P. nigra var. italic. The most resistant were P. albica, P. nigra, and P. ‘Bachofenii.’
416.5


Detailed report on laboratory cultures and successful inoculation of poplars with 5 hym. [Cf. F. A. No. 20. 2010.1]


Discusses symptoms, susceptibility of clones, and (silvicultural) control by using plants propagated from young stock rather than from old stock, by avoidance of clones highly susceptible to fungal diseases and by early cutting of infected stands.


416.5


About 10% of poplars in Whiteshell Forest Reserve, Man., were found to be infested with this so-far-unidentified fungus; it is generally prevalent in the Prairie Provinces and has also been found in Ontario. In cross section the incipient decay is light to rusty red with an undulating margin. In longitudinal section the advanced decay is made up of streaks of dark firm wood with golden yellow rotten wood. The rot has a faint cheese-like odor.

Brizi, G. 1962. [DAMAGE TO YOU POPLARS BY PAPYRHEA [SCAPTERON] TABANIFORMIS.] Informatorio Fitopatologico, Bolonia 12(6): 81-95. [It.]

Reports extensive damage to young poplar (1-4 years) in the neighborhood of Florence, with details of the injuries caused and of the life history of the insect. Control in the nursery is easily carried out by spraying repeatedly with synthetic chlorides with or without the addition of parathion. Preliminary trials indicate that control in the field can be obtained by brushing on to the stem a mixture of paraffin and parathion and repeating at weekly intervals.


A general account of the pest, its distribution, species attacked, and control measures, largely drawn from Romanian literature.


Ende, G. van den. 1951. DE KLEINE POPULICHEPBOKTOR [SAPERA POPULNEA L.] EN ZIJN BESTRIJDING. [S. POPULNEA AND ITS CON-

43
42 INJURIES FROM INORGANIC AGENCIES (EXCLUDING FIRE)

421.1


Mainly observations after severe gales in 1956 and 1957 in E. Germany. Most to suffer were trees on sites with high water tables, older or densely planted stands, and trees on the east side of roads or watercourses. Populus trichocarpa had been thrown. P. ×roborata and P. ×berolinensis broken, more easily than other poplars, but differences were small.

422.1


Discusses observations made after the hard winters of 1954-55 and 1955-56, including frost cracks, chiefly of Populus ×roborata and discolorations of bark, stem, and pith, most severe on 2-year-old nursery stock. P. ×deltoides ×masorienis and Italian cultivars suffered most. It was noted that plants which had been treated with B-containing fertilizer remained sound, while others from the same clones in similar sites, but untreated, were injured.


422.12


422.15


422 3


A study of the phenomenon caused by too much heat in the first summer. Shading or watering reduced this form of damage considerably.

424 2

Grunzl, L. 1953. Forstkulturschaden durch Eis bei Hochwasser. [Injury to forest plantations by ice on floodwater.]
Allg. Forstztg. 64 (19.20): 252-3. [G.]

Reports on the breaking and barking of all poplar saplings in a riverine forest conversion project in the March Valley by thick ice forming on water from a 2-m. flood-rise. This happened when the floods receded rapidly, causing the ice to break up and move.

424.5

The high B content of the soil in this area produces symptoms of injury in the leaves of poplars and elms but not of oaks. The symptoms are described and the B concentration of elms recorded: -1,000 p.p.m. B2O3 in leaf dry matter.

424.7

Moiden, H. A. van der. 1951. Koppegerrebij-populier. [COP-


Describes the symptoms (observed first on 5-year Populus X gelrica) occurring in the Cu content of the leaves drops below 4 p.p.m. dry matter (optimum 7 or over). Application of P, especially in combination with N, tends to cause Cu deficiency. This was controlled by application of 500 kg. Cu sulphate, or, until July, by spraying with Cu preparations.

44 DAMAGE BY HARMFUL PLANTS. VIRUS DISEASES

Anonymous. 1943. resultados de los estudios de una enfer-

madora de los arbores en La provincia de Buenos Aires. [RESULTS OF STUDIES ON A DISEASE OF POPLARS IN THE PROVINCE OF BUENOS AIRES.] Maderi 16 (186): 23 [Span.]


Citeri, R. 1944. Malattiedelpoppe. [DISEASES OF POPLAR.]

Bosco, Sept., 2. [It.]

Lansade, M. 1946. Recherches sur le chancre de feuillus.


44 45

Bazzighier, G., Fischer, F., and Martignoni, M. E. 1957. Decays
causes aux peupliers par des insectes et CSCHAMPIONS. [DAMAGE TO POPLARS BY INSECTS AND FUNGI.] Forst, Neuchat. 10 (6): 130-40. [F.]


Brief descriptions of (1) fungus diseases, and (2) sap-sucking, defoliating, bud-mining, and stem-boring insects, with recommendations for control.

Tureck, F. J. 1956. Outline of an ecological complex of the
canepopulus with regards to the Jizy island region. UN-

PUBLISHED TYPESCRIPT TRANSLATION. [1957:12 pp. Transl.]

By F. Lachman of the summary from an article in Biologische Prace(2), 1956. Emphasizes the different relationships of poplars and the organisms involved.

443 FUNGI AND BACTERIA


1932. CONTROL OF POPULAR CANKER. Dtsch. Forstw.

14: 519.

Includes notes on lay-out and technique of experimental study of Dothichiza populorum and Cytospora physodes, covering artificial inoculation, meteorological factors, method of infection, resistant and susceptible strains of poplar, and work both in plantations and in the laboratory.


Tree-breeding for resistance to fungus attack is made more difficult by the possibility of introducing new species of fungus from abroad and of the formation of new hybrids. The appearance in laboratory experiments of several physiologic -aces and a white variety of Melampsora arctici-populina not present in previous years is discussed.


Sections cover Melampsora (5 spp.) and Sphaerella sp., Phyllosticta populorum, M. corymbifera solarbica (Cercospora populorum) and Guignardia sp.

Magnani, G. 1954. Fusarium spp. alcuni casi di sepeimento di popelle in vivario. [some cases of die-back of poplar in the nursery.] Cellulosa-Carta5(12): 145-5. [Itf.e.]


Acay, A. 1959. **PAPPELSCHADLINGE IN DERTURKEL, (PESTS OF POPULUS IN TURKEY).** Anz. Schadlingsk. 32(9): 129-34. 11 refs. [G.]


List all main insect pests of pine, eucalyptus, acacia, and poplar in Palestine. Control measures except to maintain the very existence of plantations are excluded as costing more than the value of a single year's increment.


Brief notes on the pests, the type of damage they inflict, and the best methods of control.

Charvat, K., and Capek, M. 1954. **SKREDOSOBRENE CHOBARMI NAPOLOPOLICHITNEKHOOSTOYHA.** [DAMAGE BY LEAVES TO POPLARS ON INSTITUT. ISLAND.] Les, Bratislava 1(9): 20-8. 9 refs. [Slovak.]


A summary of the work achieved in Spain during the year.


Present notes on 42 species (5 Homoptera, 14 Coleoptera, 2 Lepidoptera, 2 Hymenoptera).


Lists the species found on popular in Spain.


Gives dates and places of identification of 63 species of insects on popular and willows and notes severity of infestation. Saparda populea and Melasoma populi were the most important pests.


NICE BORER ON POPULUS.** Bull. Serv. Plagas For., Madrid 2(4): 141-55. [Span.]

Makes recommendations on the number and timing of spraying operations to control insects in nurseries and young and older plantations.


List all main pest species of poplar in Bulgaria.


Some notes are given on insect pests found on poplar, with notes on control. Forty-two pathogens, mostly fungi, are also discussed with reference to the diseases caused and (where possible) suggested control measures and the susceptibility of various poplar varieties.

Vivani, w. 1955. “CORRE PROTEGGERE FIN DALL’INIZIO I NUOVI PIOPPETI VENETI DALLI INSETTI XILOFAGI. [THE PROTECTION OF YOUNG VENETIAN POPLAR PLANTATIONS FROM WOOD-EATING INSECTS.]” Cellulosa e Carta (7): 7-10. [It.]

Summary: Current methods of controlling Cossus cossus, Sphaeropsis sp., and Cryptorrhynchus lapathi on young poplars.


Illustrated descriptions with notes on the life history of a large number of Coleoptera and Lepidoptera, and also a few Hemiptera and Diptera.


Lists 14 species of insect pests occurring in dense populations in Serbia in 1956 and causing damage to poplar and willow plantations. Species belong mainly to the Coleoptera and Lepidoptera, with one species each from the Homoptera, Hymenoptera and Acari. Some notes are given on the extent of damage, and the biology of the more important of them.


Lists 69 species of various orders found in 1953-55 along the rivers Danube and Tisza, with notes on type and extent of damage by the more important of them.

459 OTHER ANIMALS


Mass outbreaks of so far unidentified tetranychid mite have occurred during recent years in poplar nurseries in Vojvodina. They have been successfully controlled by spraying with 0.15% diazinon.

48 INJURIES DUE TO UNKNOWN OR COMPLEX CAUSES


A detailed study, illustrated by 30 photomicrographs, of a disorder occurring in hybrid poplars transplanted when 4 m. high. In the following spring they developed stem cankers caused by a fungus of the Sphaeropsis, and in the following autumn extensive top-dying above hypertrophy of the bark in the neighborhood of epicormic shoots. This disorder is ascribed to inadequate root development due to transplantation shock. Anatomical changes in the affected parts are described in detail.
54 ASSESSMENT OF SITE QUALITY

541 BASED ON HEIGHT, DIAMETER, VOLUME, ETC.
Keresztesi, B. 1960. NEHAJU ADATNYIRASAI A NAGYOBBA KÖRLÉGÜ ALKOTÁSOK ELKIRALÁLTÁNA. [Some data on our poplar stands.] Erdo 8(1): 171-4. [Hu.russ.g.e.]

The county working-plan statistics and Magyar’s poplar yield table (compiled for local conditions), show that \( r \), \( r > 1 \), and almost \( r \) of Hungary’s indigenous poplar stands are respectively good, moderate, and poor. Of the exotic species the proportions are \( r = 1 \), almost \( r \) and \( r = 2 \). The good-quality stands of both categories are on the flood-plains, the moderate quality of indigenous poplars in the sand regions between Danube and Tisza, while poor qualities are generally in the hills and mountains.

56 INCREMENT; DEVELOPMENT AND STRUCTURE OF STANDS


6 FOREST MANAGEMENT


_1929. POPLAR PRODUCTION IN THE "ALLEY OF THE PO." L'Alpe 16: 393-9._

613 EXPLOITABILITY AND ROTATION


_Giordano, G. 1959._


651 CALCULATION OF COSTS AND PROFITABILITY


An analysis of quantities cut, assortments obtained and prices realized from poplars grown in a mixed bottom-land forest bordering Lake Murten (Neuchatel), over a number of years, and recommendations for making poplar-growing more profitable.

_651.6_


_1952. HERBERKENNINGEN, AN DE KOSTPRIJZEN VOOR HOUT AN GROVE DEN, DOUGLAS POPULIER ON INLANDSE EIK (RAPPORT NR. 144) IN VERBAND MED DE GEWIJZDELOOKKOSTEN, A A FRESH CALCULATION OF COST PRICE OF TIMBER OF SCOTS PINE, DOUGLAS FIR, POPLAR, AND NATIVE OAK (REPORT NO. 144) IN CONNECTION WITH THE REvised WAGE SCALES.] Nota, Landbouw-Economisch Instituut, Den Haag No. 98, 21 pp. [Du.]

_651.71_

Madas, A. 1961. NYARFATERMESZTES EGYAKOSAGA, [IN THE FREQUENCY OF POPLAR GROWTH] Erdo. 10(S): 174-80. [Hu.g.]

A thorough logging study with calculations based on yield tables shows that poplar raising on the best sites is, even by industrial standards, a very profitable investment. Its importance in soil utilization is also illustrated. Dollar and forint data are tabulated.

Schutze, G. [1959?]. ZIELE UND GRENZEN DES PAPPELANBAUS IN WESTDEUTSCHLAND. [TARGETS AND LIMITS OF POPULAR CULTIVATION IN WEST GERMANY.] Deutscher Pappelverein und Lignikultur, Bonn. 52 pp. 42 refs. [G.g.]

Examines supply of and demand for wood in W. Germany and Europe, and for poplar wood in W. Germany. Concludes that within this century demand is likely to exceed supply, and that the only limitation to poplar growing is the availability of suitable sites. [Cf. Volkmann, 1958, P. robusta to P. sukhawesi, 566, and Steigmann, 1959, Populus sp., 2.]


7 MARKETING OF FOREST PRODUCTS, ECONOMICS OF FOREST TRANSPORT AND THE WOOD INDUSTRIES

73 PRICES

8 FOREST PRODUCTS AND THEIR UTILIZATION


Reviews (1) the properties and characteristics of poplar wood, (2) its industrial uses, and (3) its management in various parts of the world.


Reviews briefly the Spanish situation with reference to the production and consumption of wood, states the need for establishing quick-growing species, and summarizes information on the properties and uses of poplar, and on its management.


81 WOOD AND BARK: STRUCTURE AND PROPERTIES

[International: FAO Conf Mech. Wood Technol.] 1952. REPORT OF SECOND CONFERENCE ON MECHANICAL WOOD TECHNOLOGY, 6-18 AUGUST 1951. Igls, Austria. FAO, Rome No. FAO/52/5: 2789, 71 pp. Reports include: (1) recommended methods of test for evaluating the properties of fibre building boards; (2) proposed standard procedure for the mechanical testing of veneer, plywood, and allied materials; (3) progress reports on timber tests; (4) stress-grading of structural timber; and (5) nomenclature of commercial timbers; with an appendix: Mechanical and industrial testing of poplar wood, by G. Giordano.


810 GENERAL INFORMATION ON WOOD

Anonymous. 1941. PAPPEL. [POPLAR] Holz 4: 231. 9 refs. [G.]


Cox, H. A. 1942. HOME-GROWN POPLAR. Wood 6(7): 117.


Species tested are P. przewalskii, P. canadensis, and P. pyra- midalis.


811 STRUCTURE. IDENTIFICATION


Schulz, H. 1962. [ON THE EFFECT OF EXTREME SPRING CONDITIONS ON THE WOOD OF VARIOUS POPLAR CLONES.] Holz Roh- u. Werkstoff 20(9): 347-51. 16 refs. [G.e.g.]


811.12


[End of text]
81.1.142


81.1.156


81.1.158

81.1.22


Paethke, G., Kramer, W., and Berger, S. 1961. [The distribution of tension wood in the stem and in coppice shoots of poplar.] Arch. Forstw. 10(4-6): 586-602. 7 refs. [G.g.fuse.e.]


812 PHYSICAL AND MECHANICAL PROPERTIES

A preliminary study on reports made by the Centre Technique du Bois at the suggestion of the International Poplar Commission, in order to determine standard methods of testing poplar wood. The study was made on 14 logs of the hybrid P. robusta, from seven trees of different provenances and including sawing, seasoning, and veneer peeling as well as mechanical strength tests.

Jayme, G., Schenck, U., and Rothamel, L. 1949. Uber gesetzmassige aenderungen der eigenschaften innerhalb des sames. [On poplarholz. on the regular changes of properties within the same stem of poplar.] Papier, Darmstadt 31(112): 1-7. 7 refs. [G.g.g.]


Contains data on green weight/c.c. of wood of individual annual rings of P. regenerate and P. trichocarpa, their lignin and cellulose content in connection with the amount of tension wood they contain. Within each annual ring green weights are fairly stable, and each piece of timber is fairly homogeneous as regards strength properties, but there are great differences between various hybrids. Chipboards from poplar wood are stronger per unit weight than, e.g., spruce chipboard, but the low weight means lower output per cliit. of wood.
position of sample in tree. Research into effects of variety, site factors, age, etc., continues.

Jayme, G. 1949. CHEMISCHER UNTERSUCHUNGEN AN PAPPEN-HOLZERN. [CHEMICAL RESEARCH ON ASH WOOD.] Papier, Darmstadt 3(17/18): 339-42. 10 refs. [G.g.]


Extractives of a liquor from the pulping of peeled mixed aspen (Populus tremuloides, P. grandidentata, and P. tacamahaca) were investigated. [Cf. Pearl and Beyer, 1960. P. tremuloides, 813.1.


813.1


813.1.1


A thorough chemical analysis of a hydroxylic lignin from poplar wood shows that it is a homogeneous preparation. The hypothesis is advanced that a diketone is present in its formula.


813.13


813.2


813 EFFECT OF GROWTH FACTORS ON STRUCTURE AND PROPERTIES


815.2


82 CONVERSION, SHAPING, ASSEMBLY AND FINISHING OF WOOD: GENERAL


FRESHLY felled poplar was drum-barked in 45 min. after receiving 4 hours' hot-water treatment at 90° C., whereas untreated poplar took 2 hours to bark.

825.71


83 TIMBER MANUFACTURING INDUSTRIES AND PRODUCTS


Tessier, 1932. NOTE ON THE GENUS POPULUS SE and QUALITY OF WOOD. Rev. Eaux For. 70: 288.

Thornehill, 1924. USES IN SOUTH AFRICA. J. Oxford Univ. For. Soc. 5: 30.

83/86

832.2

Liese. 1932. USE OF POPULAR WOOD IN PLYWOOD MAKING. Forstl. Rundschau 5: 47.


Pilot- and semi-industrial-scale experiments indicated that only the first of the three poplars is suitable for this purpose; logs of less than 35 cm. diameter are unsuitable, but larger logs peel well and no difficulties arose over gulping or presssing.

Regnier, R. 1952. IMPORTANCE DES DOMMAGES DE LA MIKUSEFU CAMBIIUM DU PEUPLIER POUR L’INDUSTRIE DU DEROUAGE. [THE IMPORTANCE OF DAMAGE BY A CAMBIAUMBORE IN POPULAR TO THE VENEER INDUSTRY.] Trans. 9th Int. Congr. Ent., Amsterdam 1951 (1); 711-4. 7 refs. [F.e.]


Populus tremuloides, P. grandidentata, P. charhokwienesi x P. robusta, P. charbokwienesi x P. caudina.

832.3


Discusses the relative merits as regards chemical and mechanical properties and ease of manufacture of spruce and different popular species.

833 TIMBER IN BUILDINGS AND ENGINEERING STRUCTURES (MANUFACTURE AND USE)


835 INDUSTRIAL AND DOMESTIC WOODWARE (MANUFACTURE AND USE)

Anonymous. 1936. POPULAR WOOD FOR STOPPERS. Dtsch. Forstw. 18(71): 876. [G.]

Kullmann. 1936. [MARKEN STOPPERS-CORKS OF GERMAN WOOD, MADE OF ASH AND ASH WOOD; SUPERIOR TO CORK IN FREEDOM FROM CORK VARIETY IN DURABILITY.] Holztechnik 16(21): 348-50. [G.]

836.1


838.7


Contents of a various strength properties for poplar wood of 12% f. c. It is suitable for cores of plywood and sandwich constructions, and for parts of gliders, light aircraft, etc., not subject to heavy stresses.

839.1

Giordano, G. 1957. LE BOIS DE PEUPLIER AU SERVICE DE LA MODE FEMININE. [POPLAR WOOD IN THE SERVICE OF WOMEN’S FASHIONS.]


Describes the manufacture of very long, rafflow shavings from the wood of American popular hybrids, used in Italy for making plated articles (mainly hats).


Torco, G. 1961. LA MODA SI FA COL PIOPPO. [FASHION MAKES USE OF PLOPSA.]

Ital. Agric. 98(6): 575-83. [It.]

An account of the chip hat industry of Carp, which chiefly uses poplar wood specially grown for the purpose and fell at not more than 8 years old. The clone “488 B” is considered the most suitable on account of its erect cylindrical stem and most from tension wood.

84 PRESERVATION AND OTHER TREATMENTS TO IMPROVE THE PROPERTIES OF WOOD. DAMAGING INFLUENCES.

844 ATTACK BY PLANT ORGANISMS


Lists the causal organisms, with literature references.

844.1


844.2


Discusses damage by Pestesignius standing trees, and by Stereum purpurum, Polystictus hirsutus, and Schizophyllum commune on logs in a storage depot. Preventive and control measures are also discussed.

844.4


85 “GRADING” OF WOOD AND WOOD PRODUCTS

852.16


This defect is found mainly in poplars grown on excessively wet sites, e.g., with stagnant water. Heartwood of x Populus gelica and P. deltoides subsp. missouriensis is generally lighter in color than that of x P. mairiandica x P. serotina, and especially P. robusta. For the most part the defect does not cause serious loss in industry.


A report of the Belgian Poplar Commission on the results of their inquiry. Most users of popular wood do not consider black heart worthy of a mention, but the Union Allumetière considers it a serious defect, resulting either in matches and match boxes of inferior quality, or by avoiding it, an unsatisfactory output per unit of timber.
Jayme, G., and Harders-Steinhauser, M. 1955. ZUHOBLZUND
SEINE AUSWIRKUNGEN IN PAPPEL- UND WEIDENHOLZ. [TENSION WOOD
AND ITS EFFECTS IN PAPLAR AND WILD LOW WOOD.] Holzforschung,
Berlin 7(2/3): 39-43. 10 refs. [G.g.e.]

Harders-Steinhauser, M., and Mohrberg, W. 1951. EINFUSS DES ZUHOBLZUNGS
AUF DIE TECHNOLOGISCH- UND CHEMISCHEN VERWENDBARKEIT
VON PAPPEL- UND WEIDENHOLZERN. [EFFECT OF THE TENSION WOOD CONTENT ON TECHNOLOGICAL AND CHEMICAL
UTILIZABILITY OF POPLAR WOOD.] Papier, Darmstadt 5(19120;
21122; 23124): 411-7; 445-7; 504-17. 18 refs. [G.g.e.]

Harders-Steinhauser, M., and Mohrberg, W. 1951. INFLUENCE OF THE TENSION-WOOD FRACTION ON THE CHEMICAL
AND TECHNOLOGICAL USEFULNESS OF POPLAR. Transl. Commun.

Reports on a preliminary inquiry on the occurrence of black
heartwood in poplar grown in Britain. There appears to be
evidence that trees grown on low, wet sites are particularly
subject to this defect. On the other hand, trees grown in Here-
fordshire and Shropshire, on Old Red Sandstone, produce par-
ticularly pale heartwood. X. P. regenerans is said to be particu-
larly subject to dark heart.

852.18

Paclt, J. 1955. ODLIV PICOVOSTOPOLOV. JEJ POVOVICA [RING-
[Slovak.]

In addition to Trichotecium roseum, preliminary studies have
isolated a so far unidentified parasite Deuteromyces (Sphaeropsi-
dales?)

853 GRADING OF WOOD IN THE ROUGH

Meiden, H. A. van der. 1961. WEREN VAN DE HOUTINDUSTRIE
TEN AANZIEN "AN DE TREKEL "AN POPLAR. [REQUIREMENTS OF THE
TIMBER INDUSTRY AND POPLAR CULTIVATION.] N. ed. Boschb.-Tijd-
schr. 33(5): 126-30. 4 refs. [Dutch.]

Discusses briefly required of various industries (e.g., veneer,
match, sawmilling, and clog) as regards clones (Populus x mari-
landica is preferred for matchboxes). pruning, a bark spot
physiological in nature, and stresses the need for
grading. [Cf. Meiden, 1957, Populus sp., 245-13.]

86 PULP INDUSTRIES

861 PULP AND PAPER MANUFACTURE. TEXTILE AND
OTHER CELLOULOSE DERIVATIVES


1930. HYBRI D POPPLARS AND PULP PRODUCTION. Nature
126: 148.

Brecht, W. 1959. GROUNDWOOD AND CHEMIEGROUNDWOOD FROM
EUROPEAN POPLARWOOD SPECIES. Tappi 42(8): 664. 9 refs.

Reviews and discusses previous European work, and presents
data on laboratory tests using various "mild" (notably the Weiss-
huhn) and "strong" (the Libby-O'Neill) chemical pretreatments.
Reference is made to pioneer work being done in Canada and the
U.S.A.

Bustamente Expeleta, L. Pedro Abello, S. de, Barbadillo Gomez,
and others. 1961. [STUDY OF DIFFERENT POPLARS AS RAW
Madrid 33(6): 103-33. 25 refs. [Span.]

Komaroff. 1930. POPPLAR AND ITS UTILIZATION FOR CELLOULOSE
SUPPLY. Forstl. Rundschau 6. 197.

McKee. 1931. POPPLARS FOR CELLOULOSE: PRODUCTION EXPERI-
MENTS. Biol. Abstr. 5: 11766.
9 FORESTS AND FORESTRY FROM THE NATIONAL AND INTERNATIONAL POINTS OF VIEW

906 DIRECT ECONOMIC SIGNIFICANCE OF FORESTS

94 METHODS TO IMPLEMENT FOREST POLICY
945 ADVISORY SERVICES, PUBLICITY, EDUCATION, RESEARCH
945.4
Allegrì, E. 1957. Rapport au gouvernement de l'Iran sur l'établissement d'un centre de recherches forestières. [Report to the government of Iran on the setting up of a forest research center.] Expanded Technical Assistance Program, FAO, Rome FAO Report No. 541, 60 pp. [F.]
Includes an appendix (40 pp.) on poplar breeding and research in Iran.

Includes data on organization, membership, and activities (research, breeding, planting programs), a bibliography, and annexes.


862.2

Describes the effect of the low density of poplar wood on the properties of the resulting chipboard, compared with those of chipboards made from spruce, birch, and beech. Poplar may be considered a suitable raw material for chipboard manufacture.


Describes the comminuting and screening of chips and discusses their suitability for making particle board, with tabulated and graphed data comparing the physical and mechanical properties of board made from the species examined.

863 WOOD HYDROLYSIS. SACCHARIFICATION

89 OTHER ("MINOR") FOREST PRODUCTS

892.49
Briefly summarizes results of research on the constituents of the bark of Populus tremuloides (used commercially for the extraction of alcalins) and P. grandidentata.


Mentions a pulverized bark product made from poplar bark fibre by a firm of match manufacturers, which has shown itself promising for mulching, as a compost component, a bulb-growing medium, etc.
On the exchanges of genetical material by the Institute at Czad Monforte, the statutes of the (co-operative) poplar protection societies, and extent, density, etc. of poplar plantations in the PO Valley.


Includes a report on heterosis observed in Populus tremula x P. alba and P. tremula x P. alba var. boleana hybrids, in contrast to the experience of W. Wettstein and C. Heimbürger, who obtained pool results with the first combination.


(I) Covers the activities of the Commission since its inception in 1954, including the plans for the erection of a Near-Eastern Poplar Research Station, well under way. (2) Surveys present conditions and possibilities of poplar cultivation for the regions of Thrace, Marmara, the Aegean, Mediterranean, Black Sea, and Central and South Anatolian areas including the competing claims of eucalyptus.


Describes the progress made at the site of the future institute at Izmit, including planting work completed, and future plans, listing the population varieties available at the experimental nurseries at Izmit and Ankara as J. and Z-2-year-old plants and 1-yearcut back rooted cuttings.


Arènes of the activities of the last 10 years, including a list of clones at the poplar garden at Glazenegro.


Given before the Forestry Section of the Deutsche Akademie der Landwirtschaftswissenschaften Berlin, March 10, 1955.


Lists varieties tried at the Populeum of Egenhoven and some growth data from trial plots, export and import statistics, etc.


Contains notes on poplar varieties introduced and on some local varieties.


Summarizes reports of 10 European countries.


A report on the organization and activities of the Commission since its inception in 1952, plus a separate account of the activities for the year 1956.


Contains a general account of organization and activities, with annexes on: the aims and activities of the German Poplar Society; the production of poplar pulpwood (F. Bauer); the Bauer, 1956, Populus sp., 238]; biological research at the year 1956 carried out at Brühl, Hannover, Mannheim, Michalembek, and Stettin (W. Muller); and at Freudenberg (F. Bauer). [Int. Bauer, 1956, Populus sp., 1761.]


Populus euphratica was successfully propagated from cuttings without special treatment. Some information on pests and on the areas under various poplars is given.


Covering research and breeding over the last 10 years.


Contains data on plantings and outturn of pulpwood and fuelwood, pests and diseases, and native or introduced species and varieties, including a description of P. euphratica.


Gives an account of the foundation, by a commercial firm (the Cartiere Burgo), of the Istituto di Pioppicultura at Casale Monferrato for research into poplar cultivation in N. Italy, the results of research to date, and the economics of poplar growing for pulp production.


Briefly reviews the Institute’s work, particularly on the clear distinction of varieties. In future it will also include comprehensive trial plantings, phenoecological, morphological, and resistance tests with different varieties, and the breeding of improved varieties.


A report in four parts: (1) Work of the Spanish National Poplar Commission in 1957, including 5-year plans of work and research, and a review of the present situation and possibilities for expansion in eight provinces, (2) projected work for 1958, (3) Spanish legislation governing the cultivation and exploitation of poplars, and (4) a list of Spanish publications on poplar up to the time of the report.


Includes reports by this National Commission on progress in breeding, pest and disease control, and pulping experiments with poplar.


Deals mainly with poplar and includes reports on exploitation, breeding trials, the occurrence of insect pests, results of strength tests and pulping trials, and weed control in plantations.


Covers briefly the organization of research and research projects for the last 10 years.

946.1


Notes on its membership, aims, and organization.

97 INTERNATIONAL FOREST POLICY AND OTHER INTERNATIONAL COLLABORATION

971 CONGRESSES AND CONFERENCES


Brief reports on the congress as a whole and on the work of the different sections.


Includes short abstracts of some of the papers presented to the Congress.


Describes some of the less usual varieties and hybrids seen, and discusses the cultivation of the cricket bat willow and the manufacture of cricket bats.


 Held 23-29 Sept. 1956 by arrangement with the Hungarian Academy of Sciences, and attended by delegates from the USSR, Bulgaria, China, E. Germany, Korea, Rumania, and also Austria and Belgium.
Includes reports on poplar identification, cultivation, diseases and pests based on a study tour in Western Germany; also notes on nomenclature—see Guinier, 1954, and Peace, 1954, both listed in Populus sp., 176.1.


Contains recommendations on sites, planting techniques, varieties, utilization, etc., and research needs, with annexed papers on fungus diseases (C. Joutch), insect pests (J. A. Pastreanu) and identification (A. Ragone) of poplars and willows in Argentina, the last dealing more particularly with the natural hybrids of Salix humboldttiana and exotic willows [Salix × argentinensis].


Includes proposals on the nomenclature of the section Aigeiros, notes on field trips in France and Switzerland, notes on a poplar timber study in Switzerland, and observations on poplar growing in Iraq, Syria, and the Lebanon.


**POPULUS SPP., SECTION AIGEIROS**

### 1 FACTORS OF THE ENVIRONMENT. BIOLOGY

165.3


165.62


168 HISTOLOGY


Results (tabulated) of studies on three cultivars of P. × canadensis and one of P. deltoides showed that in favorable conditions the resumption of cambial growth is independent of season. Proliferation was pronounced in May-June and October-November. Some difference between the cultivars was found.

176.1


181.8


Tučovic, A. 1956. VAZNOST POZNAVANJA FENOLLOGIJE CRNIH TO- POLA I FENOLLOGIJE ZIMNOG TOPOLOGIJA. [THE PHENOLOGY OF BLACK POPLARS IN YUGOSLAVIA AS A GUIDE TO IDENTIFICATION.] [Croat. E. G.] [Cf. Tučovic, 1954, P. laiocarpa to P. nigra and var. 181.8.]

Gives a key based on height and flushing date (in Belgrade and its environs), supplemented by some other characters. Includes P. nigra var. pyramidalis, P. deltoides, × P. robusta, × P. mari- landica, P. virginiana, × P. brabantica, × P. regenerata, and × P. gelrica, and × P. serotina.

### 2 SILVICULTURE

232.32


Presents information on the nursery soils and methods and costs of raising plants, and gives figures for height and diameter growth of eight cultivars of Populus × canadensis and of P. deltoides cv. "Missouriensis."

Pourtet, J. 1963. QUELQUES REGLES POUR LA CULTURE DES PEU- PLIERS NOIRS EN PEPINIERE ET LEUR MAINTIEN EN PLACO. [SOME RULES

232.328.5


263 IRRIGATED FORESTS


Gives some preliminary information on irrigated plantations of poplar (× Populus regenerata, × P. serotina, P. deltoides var. missouriensis, and P. nigra) established in recent years in various parts of Spain.

271 ARBORETA


The collection contains 12 species and 12 hybrids in Section Tacamahaca, and 3 species in Section Leucoides. All are described with notes on performance.

4 FOREST INJURIES AND PROTECTION

443.3


5 FOREST MENSURATION

56 INCREMENT; DEVELOPMENT AND STRUCTURE OF STANDS


583.47 IRRIGATION OF STANDS.

Tkacenko, V. I. 1962. [NEW SPECIES OF PLANTS IN THE COLLEC-

8 FOREST PRODUCTS AND THEIR UTILIZATION

81 1.52

Meiden, H. A. van der. 1958. KERNHOUT BIJ POPULIEREN EN ZIJN PRAKTISCHE BETEKENS. [HEARTWOOD OF POPLARS AND ITS PRAC-

514.27 VIRUS DISEASES


814.28 POPULUS: SECTION TACAMAHACA

176.1


The section in America contains three spp. and five varieties. The section hybridizes easily with those of the section Aegiros and has produced five hybrids.

181 MODE OF LIFE, AUTECOLOGY. SILVICULTURAL CHARACTERS OF TREES


2 SILVICULTURE

232.1.1

Bugala, W. 1957 (1958). POLONCICHNOAMERYKINSKIE TOPOLE SEK-

Describes Populus tianschanica and Lonicera psorothamnus spp. nov. (in Russian and Latin), and P. tremuloides microphyll var. nov. (in Russian only).

271 ARBORETA

e.e.]

The collection contains 12 species and 12 hybrids in Section Tacamahaca, and 3 species in Section Leucoides. All are described with notes on performance.
4 FOREST INJURIES AND PROTECTION

Dance, B. W. 1961. LEAF AND SHOOT BLEED OF POPLARS (SECTIONS TACAMAHACA and SPACH) CAUSED BY VENTURIA POPULINA (VUILL.)


8 FOREST PRODUCTS AND THEIR UTILIZATION

Dull, G. G. 1957. THE INVESTIGATION OF CERTAIN ANTIBACTERIALS IN POPLUS TACAMAHACA MILL. AND HYPERICUM PROLIFICUM.

Two sesquiterpene alcohols isolated from the buds of P. tacamahaca showed activity in vitro against Mycobacterium tuberculosis.

POPULUS: SECTION LEUCE

1 FACTORS OF THE ENVIRONMENT. BIOLOGY


Describes, with illustrations, the differences in the shape of bracteoles of male and female flowers of Populus alba, P. tremula, P. canescens, and P. tremuloides.


Presents, in tables and graphs, the results of biometric studies on floral bracteoles of poplars in section Leuce.


165.9


1952. UEBERSPALTMACHUNGEN "NO PHOTOPERIODIC KINNSAUSEMIE KREUZUNGEN INNERHALB DER SEKTION POPLUS LEUCE." [SEGREGATION AND PHOTOPERIODIC INFLUENCES IN CROSSES WITHIN THE POPULUS SECTION LEUCE.] Z. Forstgenet. 1(3): 61-9. 20 refs. [G.g.]


Schobach, H. 1957. DIE EINBEHERRSCHENDEN KREUZUNGEN IN DER SEKTION LEUCE. Holz-Zbl. 88(41): 823-4. 7 refs. [G.g.]

Briefly discusses published results, along with some not yet published in detail, of extensive crossing and selection at Schobach, referring to a very promising P. tremula x P. tremuloides hybrid which showed excellent height growth in N. and S. Germany, triploid progeny of a grey poplar [cf. Seitz, 1954. P. alba to P. barchenfii. 165.41, etc.]


176.1


From study of many clones of Populus alba, P. canescens and P. tremula presents descriptions and identification keys based on morphological, color, and physiological characteristics. The method is similar to that for black-poplar identification [see Muller and Sauer, 1958. P. canadensis to P. dividiana, 176.1], but takes additional leaf and petiole characteristics into account.


2 SILVICULTURE

232.1

Comments are presented on the suitability of Populus tremula, P. tremuloides, P. grandidentata, P. alba, P. alba var. boleena, and P. × canescens for cultivation in Spain. Particular reference is made to P. × canescens, its origin, characteristics, and suitability for Spain.

232.12/13


232.3

Notes on harvesting, storage, treatment, and sowing of seed, and protection of the seedlings.

232.312

232.232.2

232.328
Pesina, K. 1962. VEGETATIVE PROPAGATION OF POPLARS OF SECTION LEUCE BY WINTER CUTTINGS AND BY LAYERS.] Lesnictvi, Praha 8(12): 957-74. 27 refs. [Cz.Cz.rus.e.e.e.]

232.33


Observations in 1959-62 on irregular foliation patterns, in which the bursting of one or more buds of a single shoot is delayed or accelerated compared with that of the immediate neighbors, on one or more shoots of Populus tremula, P. tremuloides and their hybrids, suggest that the irregularities may be connected with insufficiently low temperatures during dormancy.

4 FOREST INJURIES AND PROTECTION

443.3

Bark extracts of Populus tremula, P. tremuloides and the hybrid described trials with stem cuttings, root cuttings, and layers, of eight different species, varieties, and hybrids.


A review of literature, mostly German.

232.328.1/2

The method is to take root cuttings 24 mm. thick and 5 cm. long, which will root and produce shoots in the same year; these shoots can then be taken as stem cuttings to form extra stock, without impairing the original root cuttings. By leaving a part of each root cutting above the soil, they remained healthier and could assimilate.

232.328.1/3

Suzka, B. 1959. MOZENIE TOPOLI Z SEKCJI LEUCE DURY Z SAD- ZONEK ZIELNYCH UZYSKANYCH PRZEZ PODPADOWANIE KORZENI. [PROPAGATION OF POPLAR SECTION LEUCE BY SHOOTS FROM FORCED root cuttings.] Sylwan 103(9): 45-57. 8 refs. [Pol. rus.e.e.]

232.329.6
Vaage, T., and Borresen, E. 1962. INTERIM REPORT ON TESTS WITH JIFFY-POTS IN FOREST. Experimental Research, Jiffy-Pot Ltd., Bergen No. 47, 9 pp. 8 refs. [E.e.]

271 ARBORETA


A general outline, with description of 15 species, varieties, and hybrids in the Section Leuce.


The collection contains 12 species and 12 hybrids in Section Tocumbea, and 3 species in Section Leucoideae. All are described with notes on performance.

4 FOREST INJURIES AND PROTECTION

443.3

Bark extracts of Populus tremula, P. tremuloides and the hybrid varied in contents of sugars, sucrose being absent from the parents. Strains of V. niveae varied considerably in their ability to decompose the sucrose molecule enzymatically and to use the sugar. The relationship between this and pathogenicity is discussed.
P. ALBA TO P. BACHOFENI

1 FACTORS OF THE ENVIRONMENT. BIOLOGY

160.29

165 PHOROGENY. EVOLUTION. HEREDITY. GENETICS AND BREEDING. VARIATION

Describes, with illustrations, examples of P. alba var. angustifolia, P. alba var. macrophylla × P. canescens var. pyramidalis, and P. rogalinensis (probably a hybrid P. tremula ×alba) from the Arboretum at Kornik.

165.3

165.41

Includes a report on heterosis observed in Populus tremula × P. alba and P. tremula × P. alba var. bolehard hybrids, in contrast to the experience of W. Wettstein and C. Heimburger, who obtained poor results with the first combination.

165.5

Discusses the importance of fastigiate poplars for green-belt and street and roadside planting in the U.S.S.R.; their distribution in cultivation; trials in the breeding of quick-growing, frost-hardy varieties; and propagation.


165.62
Kopecky, F. 1960. EXPERIMENTELLE ZUR HAPLOID PARISAPPEL (POPLUS ALBA L.) [EXPERIMENTAL PRODUCTION OF HAPLOID WITHE POPLAR.] Silvae Genet. 9(4): 102-5. 27 refs. [G.g.e.]


Vojtus, M. 1961. NEKTERKOS TYPYCH BIELYCH POLOPOL (POPLUS ALBA, A POPULUS CANESCENTS S M.) V PODUNAJSKUJ SLOV. NICHNOCHYCHOD. [SOME TYPES OF WHITE POPLARS (P. ALBA AND P. CANESCENTS) IN THE DANUBE FLOOD-PLAIN FORESTS OF CZECHOSLOVAKIA.] Cesk. Lesn. Cas. 7(3): 61-74. 8 refs. [Slovak.russ.g.e.]

165.71
HYBRID POPLARS. [Europe.] de Agriculture SOO) TURNING INTO WHITE AND STUDIES ON THE SPECIES IN THE ARBOREAL TRAUMA 1954. [Russ.]


Cites map references in where for two stands of Populus grandidentata × alba of good form, rapid growth and apparent disease resistance, for one of which a stand and stock table is given (600 trees and 3,500 cu.ft./acre, 3-9 in., diam, 34-74 ft. with m.g.i. of 145 cu. ft. at 24 yrs., 3-7/2 times as fast as oak of same age.

165.72

Saatcioglu, F. 1956. BOZKAVAK (POPULUS CANESCENS SMITH) MELEZINIM SUN' CIPARAZLAM A METOZIYEL DE EDILMESI. [Artificial production of Populus canescens by crossing.] Istanbul Univ. Orm. Fak. Derg. 6(2): 70-91. 13 refs. [Turk. g.g.]

Gives details of the laboratory hybridization and culture of P. alba × P. tremula, P. tremula × P. alba, the early nursery growth of which was 20% greater than that of P. alba. Leaves of the two crosses and of pure P. alba are illustrated.


Among plants at Ekebo where Mercurialis perennis, the alternate host of Melampsora rostrupii, was abundant, P. tremuloides was completely resistant, and P. tremuloides × P. tremula slightly, P. tremuloides × P. davidiana moderately, and P. tremula × P. davidiana very susceptible.

176.1


Gambi, G. 1958. IL PIOPPO BIANCO DELLA LUCCHESIA. [The white poplar of the Lucca region.] Moni e Boschi 9(12): 659-65. [It. e.e.]

Describes the two local varieties [Populus alba var. nivea and perfeva], which are much more resistant to insect damage than the hybrid black poplars, and give a satisfactory yield (mean annual yield ca. 20-25 cu.m./ha). Mixed stands of this poplar and Alnus glutinosa are recommended.


Notes on the poplar, its nomenclature, silvicultural characters, cultivation, growth in Argentina, diseases in Argentina, and properties and uses of the wood.


Describes its silvicultural characters, and gives some data on the increment of Italian plantations.


18 PLANT ECOLOGY

Slavonic, z. 1952. EKOLOGII BAHOFENOV TOPOLE. [Eco-

logy of Populus bahoveni.] Sum. List 78(1/3): 35-42. 5 refs. [Croat. e.erg.]

181 MODE OF LIFE, AUTECOLOGY, SILVICULTURAL CHARACTERS OF TREES


18 1.69


Of Populus alba var. bolleana and Fraxinus potamophila in Frazn, Kriguz S.S.R.; a branch of the latter having formed a natural graft with the former's trunk some 30-40 years ago. [No sections appear to have been taken.]

181.71


Illustrated description of a 35-m. high, 4.2-m. d.b.h. white poplar tree, probably 120-140 years old, growing in the valley of the river Khoshta, on the Black Sea shore of the Caucasus. The tree seems to have coalesced from three lateral shoots following the destruction of the apical shoot.

182.21


[18]
2 SILVICULTURE

232.1

232.1

232.3 15.2

From abstr. in Hung. Agric. 6(3): 7. 1957. [E.]


When air-dried seeds stored in closed vessels at +5°C, were soaked for 15, 35, and 60 min. in distilled or tap water, the percent of abnormal seedlings was 40.2, 40.0, and 45.9 vs. 11.8 in controls. The percent of seeds not germinating also rose slightly.

232.32

232.32.3

To allow for culling, 0.5-0.7 g. (1.0-1.5 cm) per sq.m. should be sown, to yield 30 seedlings with a collar diameter of 4 mm. Natural suppression of the rest occurs early. If density is 70/sq.m., artificial thinning (to 20-25 stems/sq.m.) appears necessary only if particularly strong plants are required; it should be done when dominants are 25-35 cm. high.

232.32

232.32.1


From abstr. in Hung. Agric. Rev. 3(3): 8. 1954. [E.]


Trials at Tashkent, with cuttings 25 cm. long and 1 cm. in diameter, showed that rooting and growth were better at air temperatures of 11°-23°C. (glasshouse) or 11°-28°C. (outdoors) than at 1°-4°C. (indoors), and were better in soil kept at 75% of maximum water-holding capacity in soil kept at 60 or 45% (Cf. Samzie, 1959, Popolus sp., 232.32.1.)


From abstr. in Hung. Agric. Rev. 6(4): 8-9. 1957. [E.] In April, planted cuttings were exposed to half their length in the soil, which was then rammed and irrigated twice. A week later the cuttings were buried under 2 cm. of soil and after a month, when new shoots were 2-3 cm. uncovered to expose 2-3 buds. In summer, irrigation was done as required. The rooted cuttings were 73% against 50% by normal methods.


Cuttings of P. alba were treated with different concentrations of potassium alpha-naphthalene acetic acid. When treated with 5 and 1 mg/g. concentrations, normal cuttings treated at the apex produced roots at the apex and buds at the base, and verted cuttings treated at the base produced buds at the apex and roots at the base. This did not occur with concentrations of 0.9 mg. or 20 mg/g., and the latter proved toxic.

232.32.4

232.32.5
Gambi, G. 1959. Promettenresultatodellinnerstodel populus tremula". L. su populus alba". [Promising Results from the Grafting of P. tremula on to P. alba.] Monti i c Boschi 10(12): 623-7. 3 refs. [It.f.e.]

On March 31, 1959, P. tremula scions were grafted on to 39 one-year rooted cuttings of P. alba. By July 3, 26 of the grafts had set, with a mean scion shoot length of 1.2 m. Crown grafts were more successful than slit grafts.


232.41.5

Presents the 1st-year's results of trials in establishing plantations of Populus x ‘A.M.’ using different kinds of planting stock.

232.43
Tusef, R. 1962. [Growth Data from Widely Spaced Poplar Plantations.] Silviculura, Uruguay No. 17: 15-27. [Span.e.f.]

233 AFFORESTATION


234 FORMATION OF FOREST BY NATURAL SUCCESSION


236.1

238 TIMBER PLANTATION CROPS REQUIRING SPECIAL TREATMENT

4 FOREST INJURIES AND PROTECTION

416.17


Superficially the brows resemble brows of parasitic origin, but it is suspected that they are regrowths following the killing of the original branches by severe spring frost. Brows on both species are characterized by unusually large leaves, e.g. 7 in. long on aspen vs. 2-3 in. for normal leaves.

443 SALVAGE AND DISPOSAL OF FIRE-DAMAGED TIMBER


List of rusts of the Haute-Garonne including Melampsora musaeospermae on Populus angustifolia and Gymnosporangium juniperi on Sorbus domestica.


443.3


Extension of a former report (see Domański, above) with colored illustrations, both macro- and microscopic, of the affected tissues. The material examined was 2 trees of P. alba and 2 of P. canescens.


5 INSECTS


Presents data on the life-history of S. tabaniforme damaging white poplar, particularly in the region of Vojvodina. All ages are attacked, but most frequently 2- to 5-year-old trees. Stems, particularly the lower part, suffer more than branches, though heavy attack on branches has been observed in old overgrown stands. [From author’s summary.]

5 MENSURATION

524.12


The form factor (tree volume/cylindrical volume) does not vary between the two species, it varies in both with diameter as well as height, and is constant (0.427) for all trees of >50 cm. d.b.h. These conclusions are drawn from analysis of 40 black and 1,100 white poplars from different parts of Romania.


568 OTHER MENSURATIONAL STUDIES OF STAND CONSTRUCTION AND CHANGES THEREIN. DISTRIBUTION OF GROWTH BY TREE CLASSES, ETC.


Cites map references in [Hw.russ.]

8 FOREST PRODUCTS AND THEIR UTILIZATION


811.142/143


Describes an anatomical study of the frequency, distribution, and diameter of vessels in shoots and stems of Salix spp. pendula and Populus alba.

812 PHYSICAL AND MECHANICAL PROPERTIES

Horvat, I. 1960. PRLOG POZPANJAVANJU NEKIH FIZIKIČNIH MEHANIKIČNIH VOJESTAVANJA I CRNE TOPOLOVINE [POPLUS ALBA L.,]
P. BALSAMIFERA TO P. BEROLINENSIS

1 FACTORS OF THE ENVIRONMENT. BIOLOGY

160.22


A method is described for the separation and identification of 21 phenolic acids. A very brief survey of species [including Populus tacamahaca, Betula alba, and Tsuga canadensis] indicates that the distribution of some of these compounds is much more extensive than has been supposed. [From authors' summary.]

161.4


165.41


Presents results of chemical analyses of wood of Eucalyptus obliqua, Pinus pinaster, and Populus balsamifera.

827.1


832.2


[U.S.A.: Veneers & Plyw.] 1936. THE MYSTERY OF THE ASPEN. Veneers & Plyw. 30(12): 10. Deals with the origin and incidence of silver poplar, the veneer from which is known as aspen, on the eastern shores of the United States.

861.0


9 FORESTS AND FORESTRY FROM THE NATIONAL AND INTERNATIONAL POINTS OF VIEW

907.1

P. BALSAMIFERA TO P. BEROLINENSIS

69

2 SILVICULTURE

443.3

Wallin, W. B. 1954. WETWOOD IN BALSAM POPLAR. Minn. For. Note No. 28, 2 pp.

543 INSECTS


Larvae were found at Mount Pearl, Newfoundland, in 1952, boring into the stem of an injured Populus balsamifera—probably the first record of this European species in N. America.

524.3 15


525.1

Georgiev, Z. 1956. OPICTNO-SORTIMENTNII TABLICI ZA KANADSKATA TOPOLA. [ASSORTMENT TABLES FOR POPULUS X CANADENSIS (IN BALSAM]).] Gorsko Stepanstvo 12(5): 231-3. [Bulg.] For ages 5, 10, 15, 20, 25, and 30 years, and site classes I, b, la, and I.

532 QUANTITY AND AREA OF FOLIAGE

Danilov, M. D., and Stepanov, V. S. 1960. LISTOVAYA MASSA I EFFEKTVNOST’ DEJATELI’NOI V P’YATNAKATELEI’NIEM NASHA-

181.342

Krolikowski, L., and Baranski, R. 1961. [EFFECT OF DIFFERENT SOIL MOISTURE CONTENT ON POPULAR GROWTH.] Roczn. Gleboz-
noweze, Warsz. 10 (Suppl.): 719-21. [Pol.] P. maximowiczii × P. berolinensis cuttings grew best at soil m.c. 75%; then 100%; then 50%; and finally 25%. The leaf mass and its efficiency in stands of Populus balsamifera 15 years old.

181.41


181.63

Korovin, V. A. 1960. “VETKOPAD’ U TOPOLI. I TWIG SHED-
DING IN POPLAR.” Priroda, Moscow 49(6): 68. [Russ.]

234 FORMATION OF FOREST BY NATURAL SUCCESSION


235.347-22 [F.]

A short account of this section of Populus, and an estimate of their suitability for planting in France.

4 FOREST INJURIES AND PROTECTION

551 IN SINGLE TREES WITH ANNUAL RINGS

Kirby, C. L. 1953. ACCURACY OF RING COUNTS ON POPULAR. Silv. Leafl. For. Br. Can. No. 85, 2 pp. Eighty-seven percent of ring counts in the field on 23 representative sample discs of P. tremuloides and P. balsamifera were below those made in the laboratory. This may be attributed to indistinct demarcation between early and late wood and to the presence of decay.

566 YIELD TABLES AND THEIR CONSTRUCTION


Describes the data and construction of the tables, extracts from which are given for 3 out of the 5 yield classes. Some comparative data from Germany, Czechoslovakia, Bulgaria, and Hungary are also given. Tables cover ages 4-26. The poplars most frequently planted in Romania are Populus xmaximowiczi and P. x regenerata.

Avram, C. 1959. TABELE DE PRODUCERI PROZVORII PENTRU PRIN-

Gives tables of pollarded willows, oisiers, hybrid black poplars, and Fraxinus penncinulica.

181.525

Buc, T. G. 1961. [COMPARATIVE STUDY OF THE BIOLOGICAL FEAT-

Compares the dependence of germination on temperature; the change in the content of SH-groups during germination; and the distribution of physiologically active substances and of the activity of respiratory enzymes during germination.

181.8

6 FOREST MANAGEMENT

810 GENERAL INFORMATION ON WOOD UTILIZATION


811.156


811.22

Wallin, W. B. 1954. WETWOOD IN BALSAM POPULAR. Minn. For. Note No. 28, 2 pp.

812.7


813 WOOD CHEMISTRY


613 EXPLOITABILITY AND ROTATION

Kallay, J. 1962. ECONOMICS OF POPULAR GROWING, PARTICULARLY ON SHORT ROTATIONS. [ECONOMICS OF POPULAR GROWING, PARTICULARLY ON SHORT ROTATIONS.] Erd. 11 (9): 394-402. [Hu.g.russ.]

Compares data on volume, quality, and financial yields of final fellings in robinia, oak, and poplar. Poplar rotations of 20 years, or possibly even less, are considered economic and it is recommended to plant one or two short generations of poplars after robinia or oak on suitable sites. [From author's summary.]

Toth, B. 1962. [POPULAR STANDS WITH SHORT ROTATIONS.] Erd. 11 (9): 385-90. 3 refs. [Hu.g.russ.]

Argues, with some growth and soil data for illustration, that on a number of sites, frequently oak sites, unsuitable for long poplar rotations but whose top 50 cm. of soil can support poplars, pulp-

wood rotations of 12-15 years would be economic. Populus × 'Robusta' and, for wet sites, P. × 'maritandica' are suggested.

651.5


653 VALUE INCREMENT OF THE STEM: DEVELOPMENT AND STRUCTURE OF THE STAND AS REGARDS VALUE


BALSAMIFERA TO P. BEROLINENSIS
P. CANADENSIS TO P. DAVIDIANA

1 FACTORS OF THE ENVIRONMENT. BIOLOGY

160. 29

161. 7

164. 3

164. 5

164. 4

164. 9
Sauer, E. 1956. STACHELHÄNCHENBILDENDE BAUARDEN ZWISCHEN ZWEI BALSAMPPAPEL. (Thorn-like formations on a hybrid between two balsam poplars.) Z. Forstgenet. 5(4): 103-4. [G.e.f.]

165. 3

165. 3

165. 41
Bugula, W. 1951. EURO-AMERIKANSKE MICSZANSA ETOPOLOGICZNYCH, I CH ZNAZENIE ORAZ KROTKI PRZESLAL DOTYCZĄCYCH MOSŁAWSKIEGO LINÓW P. CANADENSIS. (Euro-American hybrid poplars, their practical value, and a short review of achievements to date in poplar breeding in the USSR.) Sylwan 95(3/4): 324-38. 24 refs. [Pole.]


165. 42

165. 43

165. 5
Vojsina, M. 1961. ONIEKTORYCHTUPOCHIBIELYCHITOPOLOVYI (PO- PULUS ALBA L. X POPULUS CANESCENS S.M.) V PO-STUJNYCH LUX- NYCH LESCH CERB. (SOME TYPES OF WHITE POPLARS (P. ALBA AND P. CANESCENS) IN THE DANUBE FLOOD-PLAIN FORESTS OF CZECHOSLOVAKIA.) Lesn. Cas. 7(3): 161-74. 8 refs. [Slovak.russ.g.]

165. 62
Wettstein, W., and Vieghofer, L. 1958. PHYSIOLOGISCHEN UNTERSUCHUNGEN DER KREUZUNGSPOTENTIAL. (Physiological investigations of the so-called DRAPOS POPLE.) Holzforschung, Berlin 11(5/6): 139-42. 2 refs. [G.e.f.]

165. 62

165. 72

165. 72

165. 72
Describes its ZF (male), habit, nursery cultivation, wood properties, health, increment, etc. Data from ordinary and 'linear' plantations aged 2 to 14 years from planting indicate that weights of green stemwood of ca. 15 quintals/tree or 4200/ha, at 6 months spacing are obtained. Though occasionally doing well on poorer sites, it is best for good sites.

Saaticigolu, F. 1956. BOZKAVAK (POLULUS CANESCENS SMITH) MELEZINDIRI SUNU'U KAPALAMAN MEBTALIYI ELDE EDILMESI. (a n- FICIAL PRODUCTION OF POPULUS CANESCENS BY CROSSING.) Istanbul Univ. Orm. Fak. Derg. 6(2): 70-91. 13 refs. [Turk.g.e.]

Gives details of the laboratory hybridization and culture of P. alba x P. tremula and P. tremula x P. alba, the early nursery
growth of which was 20% greater than selfed P. alba. Leaves of the two crosses and of pure P. alba are illustrated.

1657-72/73


Brief notes on Populus suaveolens × P. canadensis—the "Leningrad poplar," and a "vegetative hybrid" taken from buds at the graft union of P. suaveolens and P. canadensis. Both are said to be fast-growing, and resistant to cold, and the "vegetative hybrid" is not susceptible to leaf rust.

1761


Upholds the validity of the name P. × canadensis Moench and rejecting P. × euramericana Guinier, for the hybrids of P. deltoides × P. nigra.


Describes a poplar (probably P. canescens) that occurs in some abundance in this region of Morgen. It is recommended that it should be tried for planting on cold sites and alkaline soils in other parts of Europe. It suckers freely.

Gerhard, H. 1957. DIE GRAU-PAPPEL IN SCHLESWIG [POPULUS CANESCENS IN SCHLESWIG. Alig. Forstzeitshr. 12 (27/28): 333-6. 5 refs. [C.C.]

Discusses the history of the species and concludes that the specimens found in Schleswig are, with but few exceptions, from a single clone; also mentions propagation by root and shoot cuttings, grafting, layering, and suckers.


Includes an article by J. Pourret, tracing the history of nomenclature and rectifying recently advanced arguments in favor of Populus canadensis, and concluding that the correct name for the group should be Populus × euramericana Guinier [cf. Boom, 1957, this subject classification].


A general discussion of the nature of 'old stock varieties,' particularly the significance of the climatic range of the parents on disease resistance, growth, etc., advocating more widespread use of some of P. × suaveolens and P. × euramericana in breeding of new varieties. [Cf. Muller, 1957, P. canadensis to P. dasy-


The 'Eckhof' poplar includes some clones designated as P. 'regenerata Hutenfeld.' Varieties going under the names 'Topolove' are considered resistant to rust, canker, and extremes of temperature, and recommended for cultivation outside Bavaria. The 'misouriensis Holland' poplar, which resembles P. × robusta; listed by the International Poplar Commission as P. deltoides cv., 'misouriensis imp. hollandaise,' but considered to be a hybrid, not identical with P. deltoides subsp. missouriensis.


and Sauer, E. 1958. ALSTAMMsorten DERSCHWARZ-PAPPELBASTARDE FUR DEN ANBAU IN DEUTSCHLAND. II. DIE EINZELN EN PAPPELSORTEN. (A) EINLEITUNG: UBERSEHR DER MERKMALE DER SCHWARZ-PAPPELBASTARDE. (B) DIE 'DROMLING'-PAPPEL. (C) DIE 'DROMLING'-PAPPEL. (D) DIE 'BRABANTICA'-PAPPEL. (E) DIE 'BRABANTICA'-PAPPEL. (F) DIE 'BRABANTICA'-PAPPEL.
181.23

Rohrig, E. 1959. **Untersuchungen über das Erscheinungsbild und die Entwicklung der Eigenarten von Poplarhybriden auf verschiedenen Standorten.** (Early growth of black poplar hybrids on different sites.) Silvae Genet. 8(1): 24-30. 17 refs. [G.g.russ.e].

181.31


181.32

Giordano, A. 1959. **Nota Pedologica Sui Terreni della Tenuta Nobili-Nichetti.** (A pedological note on the soils of the Nobili-Nichetti estate.) Cellulosa-Carta 10(9):17-20. [It.f.e.g.]

Soil profiles were investigated, to determine the differences of soil, if any, between vigorous and poor poplar stands on deep sands. Growth was found to be closely correlated with humus content.

181.341


181.32

Giordano, A. 1959. **Nota Pedologica Sui Terreni della Tenuta Nobili-Nichetti.** (A pedological note on the soils of the Nobili-Nichetti estate.) Cellulosa-Carta 10(9):17-20. [It.f.e.g.]

Soil profiles were investigated, to determine the differences of soil, if any, between vigorous and poor poplar stands on deep sands. Growth was found to be closely correlated with humus content.

181.341


181.23


Three plots, each of a single clone, planted 10 and 7 years ago in apparently uniform conditions, show increasing differences between trees within the plots. Trees appear sensitive to micro-variations in environment that instruments cannot record. The clones were ‘robusta’, ‘virginie de frigicouest’ and ‘1-214’.

181.21


181.3

Rohrig, E. 1959. **Untersuchungen über das Erscheinungsbild und die Entwicklung der Eigenarten von Poplarhybriden auf verschiedenen Standorten.** (Early growth of black poplar hybrids on different sites.) Silvae Genet. 8(1):24-30. 17 refs. [G.g.e.f.]
IN GROWTH OF POPLAR CUTTINGS IN RELATION TO THE MAIN ELEMENTS IN THE NUTRIENT SOLUTION. Agricultura, Louvain 8(4): 663-87. 15 refs. [Du.d.u.f.e.]

181.342

Jaro, Z. 1963. STUDIES OF POPULAR SITES IN PUSZTAVACS. Erdő 12(4): 145-50. [Hu.russ.g.]


181.52

Gamble. 1897. FLOWERS OF CILIATA IN INDIA. Indian For. 23: 256.

181.521

Sauer, E. 1954. BEOBACHTUNGEN AN ZWITTERNEN PAPPEN. [OBSERVATIONS ON ANDROGYNOUS POPLARS.] Z. Forstgenet. 3(5): 89-91. 6 refs. [G.g.e.f.]

A study of the androgynous flowers of a young Populus tremula at Stuttgart. Mention is also made of another androgynous flower on an adult P. alba (or possibly P. alba × P. davidiana) and a young P. candidans. [Cf. Solt, 1954, P. candidans to P. davidiana, 165-42.]

181.525


181.561

Sauer, E. 1956. ÜBER DIE BEASTRUNGSVERHALTENDE VON 1-JAHRE- NIGEN BAUMSCHULPFLANZEN DER 16 WIRTSCHAFTSPAPPEN-ALTER- TREN. [BRANCHING IN 1-YEAR-OLD NURSERY PLANTS OF 16 WOODS-PAPPEL-LIESES COMMERCIAL POPLAR VARIETIES.] Silvae Genet. 8(6): 161-72. 2 refs. [Hu.g.g.f.]

Number of branches, height of first branch from the ground, length of branches, angle between branch and stem, and height of tree were measured on three individuals of each of 16 varieties of Populus × 'canadensis', and a statistical analysis of the data is presented and discussed.

181.62


181.64


A brief history of the stands of Populus 'canadensis' in this area

2 SILVICULTURE


and a short account of the present state of the stands with notes on propagation maintenance, protection, and yield.

Schmitz-Leenders, B. 1956. MEIN-PAPPFELL-TESTAMENT. [MY POPULAR TESTAMENT]. J. D. Sauerlanders Verlag, Frankfurt a./M. 188 pp. 87 refs. [G.]


231.5


232.1


P. canescens, hitherto neglected because its discolored heartwood was not suitable for paper-making, is suitable for fibroboard. Its planting should be encouraged and breeding should aim at the elimination of the heart defect and of bole sweep. From an abstr. in Hung. Agric. Rev. 4 (3): 7. 1955.


The first part discusses general considerations with reference to the cultivar commonly grown in the Netherlands. The second part considers the suitability of Populus x serotina to disease and especially to crown dieback (primary cause unknown), which makes it unsuitable for general planting.


1962. DE PRAKTISCHE BETERKENIS "AN ENSCHELLENDE POPULUSKULTIVATIES. V. POPULUS CANADENSIS CV. ROBUSTA. [THE PRACTICAL IMPORTANCE OF DIFFERENT POPULUS CULTIVARS. V. P. x CANADENSIS CV. ROBUSTA]." Ned. Boschb.-Tijdshr. 34 (4): 139-44. 11 refs. [Du.e.e.]

Thirty-five percent of all certified poplar plantations in the Netherlands consist of 'Robusta' (including cvs. "Zeeland", "Bacheller", and "Verminrubens"). Its resistance to diseases and wind damage, silvicultural characteristics and wood are briefly discussed.


VIII. Populus 'canadensis' cvs. II 24 and Keppe's glorie (=Serotina de Champagne). IX. A review of the value and properties of the cultivars already discussed, stressing the need to increase the use of cultivars other than "Gelrica" and "Robusta," which make up nearly 60% of poplars planted annually in the Netherlands.


Includes an account of the striking early development of imported clones (Italian and French) of P. x euramericana in various Greek nurseries and sites; data on survival, height growth, and insect susceptibility are tabulated. The Greek climate favors a long growing season. [Cf. Georgopolous, 1952, Populus sp., 232.43.]


Discusses the suitability of poplar for this region and presents some figures for timber production from Populus euramericana in Italy.


Describes an experimental plantation of poplar (clone 214) in the province of Salerno, where poplar has not hitherto been much planted. Particular emphasis is laid on the spacing (6 x 6 m) which was much wider than usual in central and southern Italy (1.5 x 15 m), staking, and cultivation of garden crops between the rows.


232.13


Tabulates data on standing volume and volume c.f. for some plantations of Populus x regeneratea, P. x mariandica, and P. x serotina at various ages and on various sites in Bulgaria.

Glisin, M. V. 1963. [PRELIMINARY RESULTS OF RAISING FAST-CROWING EURAMERICAN HYBRID POPULUS ON ALLUVIAL SOILS OF LARGE RIVERS.]. Sumarstvo 16 (1/2): 41-7. 10 refs. [Serb.f.]

Cuttings of P. x regeneratea, P. I-214, and P. I-154 planted directly in three sub-plots showed that P. I-154 gives greater height and diameter growth in the first 2 years than P. I-214, and P. I-214 greater than P. x regeneratea. Studies are continuing.

In spring 1930, 1,000 rooted cuttings were planted at 6 × 8 ft. spacing on a lake-side site in New York State that is flooded for 2-3 weeks each year in spring. After 25 years, 299 survived with a comparable girth of 195 sq. ft. and mean d.b.h. of 10.4 in., mean h. to 4-in. top 52 ft. Trees are of excellent form and natural pruning has been good. The identity of this poplar is uncertain (possibly Populus ×eugenei or P. × robusta).


Gives the results of a preliminary study of the development of 10 different clones. Mainly hybrid black poplars, in the nursery over the first 6 months. Height and diameter measurements of 50 individuals are presented, along with climatic data. The plants were watered weekly.

May, S. 1958. SVILUPPO DI ALCUNI CLONI NEL PIOPPO NATURALE. [Development of Some Poplar Clones in the Experimental Poplar Plantings at Tahviscosa]. Cellulosa e Carta 2(9): 9-12. [It. f.e.g.]


Miletic, S. 1960. ITALIANSKI KLONOVI POPOL A NA PODRUCU LJ. G. "KOSUTNJAK" - BIJELE. [Italian Clones of Poplar in the Region of the "Kosutnjak" Game and Forest Estate at Bilje (Vrh.)]. Topola, Beograd No. 10-14: 14-6. 1 ref. [Serb.f.]

Describes the introduction and performance of Italian clones in Yugoslavia since 1956. Clones 214 and CBD (Cartiers BeninumDonzelli) are considered particularly suitable for large-scale use, as they are resistant to disease and grow faster than native species.

Milovanovic, M. 1960. PODACI O USPJEHU JUZNIK ITALIJANSKIH KLONOVA TOPOLA U DONJEM PODNURU. [Data on the Success of Some Italian Clones of Poplar in the Lower Danube Region]. Topola, Beograd No. 17-18: 8-11. [Serb.f.]


Saategul, F. 1953. DIE BEDEUTUNG DES PAPPENFÖLSUNDUER ANBAUVERSUCHES UND NACHSANPFLANZENS PAPPENPFLANZERSTANDEN IM DER TURKEI. [The Importance of Poplar Wood and Silvicultral Research on Quick Growing Poplar Species in Turkey]. Schweiz. Z. Forstw. 104(7/8): 289-96 [G.f.g.]

The importance of poplar for the pulp industry is stressed. Clones imported from Italy (P.euramericana IT 214 and IT 154) have been widely used. The pulp industry has now developed three new clones named P. euramericana Turkey Sumerli, which is said to give good results. Growth data are given for these three clones.


232 22


Briefly describes the Lamanalpa and Povina lifting ploughs. With the latter a tractor driver and one worker lifted 1,000 two-year old poplars near Belega Monferrato in 40 minutes. Some performance data are also given for the small Kicken's Detkier 508 D and the K.D. Bolithi tractor-drawn sprayers, which respectively treated 1. and 5-year poplars at 1.5 hr./ha. and mature poplars spaced 6 × 6 m. at ca. 1 hr./ha.

232 328


Tative propagation of aspen and grey poplar and its importance for silviculture. [Alg. Forstzeitzhr. 12(14): 197-8. 3 refs. [G.]]


A short, illustrated, general account, based mainly on German literature.


Describes two methods. (a) Taking root cuttings from the root-stocks of rooted trees. (b) Stimulating shoot development from annual buds by layering 1-year-old coppice shoots from an old root-stock. 232 328.1


The optimum shoot spacing, for producing shoots 15-18 cm. long and 7-10 mm. thick, was 66-76 cm. for P. canadensis, and 50 cm. for P. nigra var. italica. 232 328.1


Frombalt. in Hung Agric Rev. 3(3): 8. 1954. [E.]


Podhorczyk, I. 1951. vegetable propagation of topola spojeni reznica in sinuvinu pritovitina. [The vegetative propagation of poplar by (1) notchgrafted (stem) cuttings and (2) bent shoot cuttings.] Sum List 75(3/4): 157-64. [Croat.]


The use of very short (6-8 cm.) cuttings. planted horizontally, gave very good results. The process of callus- and root-formation were described in detail with numerous drawings. Treatment of cuttings with an emulsion of hormone increased the take from 25 to 72.5%; treatment with a hektolizin was less successful. Plants obtained in this way from short cuttings closely resembled seedlings. 232 328.2


Cuttings of Populus trubosta and P. × regenerata gave best survival percent when soaked for 48 hours before planting; soaking for 24 hours also gave much better results than no soaking at all. Thick cuttings (9-12 mm. diam.) gave better survival than thin (7-9 mm.) ones. 232 328.2


Concludes on a basis of a detailed analysis of quality and costs, that young stock provides better material for vegetative propagation than old stools, and that nursery production of plants having a 2-year shoot on 3-year roots (grown for 2 years in a transplant bed from 1-year-old stubbed rooted cuttings) is qualitatively and economically superior to that of plants having a 2-year shoot on 2-year roots (produced without transplanting). [Cf. Sekuun, 1953, Populus sp.: 232-328.1]

232 328.1/2


232 328.2/3


232 328.4


232 328.4


232 41


Suggests the use of 1-year-old stock raised from cuttings spaced 25 x 15 cm. in the nursery and cut back to the lowest bud on lifting the shoots to be used again as cutting material. Such plants would usually not need root pruning and the planting hole could be 40 x 40 x 30 cm. This might reduce costs to 1/15 of those for the usually 2-year plants raised at a spacing of 25 x 70 cm. and planted in a hole 50 x 50 x 40 cm.


Briefly reviews Forestry Commission experiments which indicate that hybrid black poplars planted in holes made by explosive cartridges grow more vigorously (for the first 4 years at least) than those in normal hand-dug pits. Also discusses the use of very deep or very large planting pits and of post-hole borers in Italy.


Describes the Italian method of planting poplar cuttings in holes made to reach groundwater level [cf. May, below].

May, S. 1959. LA TENUTA AGRARIA NELLE NICCHETTI CULLA DI UN ORIGINALE SISTEMA DI CIVITAZIONE DEL FIORRO. [THE NOBILI-NICCHETTI ESTATE. CRADLE OF AN ORIGINAL SYSTEM OF POPLAR-GROWING.] Cellulosa e Carta 10(9): 5-16. 4 refs.[It.g.e.f.]


Mainly a review of Italian reports [cf. May, above] on the plantations of the Nobili-Nichetti estate, using rooted cuttings and planting holes ca. 4 m. deep. Photographs of excavated root systems are included. [Cf. Costin, 1959, P. Isotócares to P. nigra and ega., 232.5.]


Prevosto, M. 1963. [A CONTRIBUTION TO THE ECONOMIC STUDY OF SPACING IN POPULAR PLANTATIONS.] Cellulosa e Carta 14(3): 5-20. [It.e.g.]

From a study of several plantations of poplar (clone '1.24'). it was deduced that, of timber from (a) dense stands (1,252 trees/ha., on a 6-year rotation, was greater than that from (b) a similar stand on a 10-year rotation, much greater than that from (c) a widely spaced (357 trees/ha.) one on a 10-year rotation; but the mean financial return of (c) was markedly superior to that of (b), and still more superior to that of (a) (Lire 223, 6, 165, 150, and L. 107, 818, respectively).


Soules, B. 1960. PHITINOPORINE AS EARINE PHYTAE THE EYRUM.


Recent small-scale experiments indicate that autumn planting (November 21) gives more vigorous growth than spring (March 10). Results of 1 year are tabulated. 232.5


3 3 AFFORESTATION


The plains north of the Hartz Mts. have high contents of Pb and Zn washed down by the rivers. Soils having also a high clay and humus content are suitable for intensive agricultural cropping but not sandy and gravelly soils. However experimental plantations of hybrid black poplars established on the latter in 1944 have proved successful.


A brief note on Populus fraxeriacea, which shows promise for fixing and afforesting moving sands.

234 FORMATION OF FOREST BY NATURAL SUCCESSION


235 UNDERPLANTING ADVANCE PLANTING. ETC.


235.5


235.6


From abstr. in Hung. Agric. Rev. 6(4): 7: 1957. [E.] General deep tillage has turned in the grass and weeds for manure, and pit planting of Scots pine and the indigenous Populus canadensis among the existing scrub and poplar coppice has been done.

236 CARE OF REGENERATION OR PLANTATIONS IN THE INITIAL STAGES OF ESTABLISHMENT


237.4


Experiments in the application of a complete N.P.K. fertilizer, to 1-year-old plantations of three different clones of Populus 'canadensis', (1) scattered on the surface, in a radius of 50 cm. from each tree, and (2) put in holes at a depth of 20-30 cm. and 40 cm. distant from the tree at a rate in each case of 2 kg./tree, showed no significant difference between the two methods. Fertilizer treatment produced striking increases in diameter and height growth over controls.
CONSIDERAZIONI NELL'IMPIEGO DI METOTI STATISTICI NELL'4 ESPERIMENTAZIONE FORESTALE [THE USE OF STATISTICAL METHOD IN FOREST RESEARCH.] Monti e Boschi 7 (8): 374-81. [Itt.e.]

After a brief discussion in a general manner, the author illustrates the subject by an account of the use of statistical method in an experimental study of the efficacy of fertilizers, broadcast or dug in, applied to a poplar plantation.

237.41


238 TIMBER PLANTATION CROP REQUIRING SPECIAL TREATMENT


Advice on planting sites and general site conditions is given with special reference to U.K. conditions. Varieties mentioned are Populus euramerica, P. gelrica, P. robusta, P. serotina, and P. serotina erecta.


Describes planting techniques, spacing, intercropping, etc. Of 5 cultivars, the clone 1214 had best height growth after 2 years.


242 THINNING


Hybrid black poplars are physiologically ill adapted to make use of extra growing space provided by thinning. Any thinning will involve loss of increment; early thinning involves little loss but will usually not pay; thinning should be delayed until the crown growth after 5 years has ceased. When thinning is delayed too long, the crown growth can be extra growing space, and with late thinning they will never fill the space available. Thus unless prices for pulpwood should ever justify the raising of more than unthinned stands, the initial spacing must be wider enough to eliminate the need for thinning.

25 TREATMENT OF DEFECTIVE DELERIC OR VERY OPEN STANDS


263 IRRIGATED FORESTS


Briefly discusses, on the basis of practical experience, soil requirements, diseases and pests, planting methods, etc., and recommends suitable cultivars.


A lecture describing site conditions, particularly near Ingolstadt, where this poplar, which can be grown on sites unsuitable for black poplars, occurs naturally. Its variability suggests its being a post-glacial hybrid of P. tremula and P. alba. Selection and breeding trials are discussed, including the clone 'Ingol 7,' which can be propagated from cuttings.

265 STRIPS OR LINES AT ROAD, RAIL AND CANAL SIDES, ETC.: HEDGEROW TREES


(Suppl. to Holzschutz, Reibn 14 (4), 1960.)


266 SHELTERBELTS, WINDBREAKS


(Suppl. to Holztschutz, Reibn 15(4/5), 1960.)


Reports on the successful establishment and growth of P. nigra var. austriaca ball-planted at SO-100 cm. high on poor, inland sand-dunes near the southwest coast of Schleswig-Holstein, and suggests using this species (preferably with Syringa vulgaris) and grey poplars in 'Knicks,' the traditional windbreaks of the region.

3 WORK SCIENCE. HARVESTING OF WOOD: LOGGING AND TRANSPORT. FOREST ENGINEERING

352 PERFORMANCE STUDIES IN FELLING AND RELATED OPERATIONS

Giordano, G. 1954. [TEMPERATURE NELL'UTILIZZAZIONE DEL PIOPO.-] Cellulosa e Carta 5 (9): 7-15. [Itt.e.]

A study of working times and yield, by assortments, in the exploitation of a 9-year-old stand of hybrid poplar (1214).


4 FOREST INJURIES AND PROTECTION


Magyar, P. 1938. [THE QUESTION OF CANADIAN POPLAR.] Erdesz. Lap. 77 (5): 432-45. [Hu.g.f.e.]

Control of red heart.
414.4

416.1
S. populiperda has been found in Germany on Populus neri-rubens, P. balsamierii, P. genera, and P. robusta.


416.5

422.1


422.12
Describes injuries caused by the severe frost of 1952 (down to -18°C in March) in 19-year-old plantations of Populus × euramericaica on deep alluvial soils at 80 m.alt. Co. 30 percent of the trees displayed frost cracks-17 percent typical and 13 percent superficial.

44 DAMAGE BY HARMFUL PLANTS. VIRUS DISEASES


443 FUNGI AND BACTERIA

443.2

Further experiments in the artificial inoculation of poplar seedlings showed that D. pulpea is unable to infect even sickly plants during the growing season. Infection takes place only when the plants are dormant and the temperature is favorable to fungal development (above 0°C).

Poleac, E. 1961. SCARE.4 PEITULOR DE PLOP NEGHI HIRIZI PRODUSA DE CIUPERCILE DOITICHA-PULPEA SI CYTOPSORA CHRYSO-


443.3
81 sample trees of P. canadensis in three plantations in different districts were cross-cut in 2-m. lengths to ascertain the extent of incipient decay as judged by discoloration; 74 were affected despite growths of 2 to 5 m. in height and 2-5 cm. diam. a year. The decay is ascribed to too high a water table, damage to roots by tractor plowing, other insect and disease (Saperda carcharias, Triochilium apifera, Melanophiloelaisma) providing ports for decay.


Describes the disease caused by, and morphology and life history of, Rosellinia necatrix, Pholiota aergerita, Armillaria mellea, and Viaicula radicicia on "Canadian" poplars.

Georgescu, C. C., and Clonari, A. 1959. APAERITIA CANCERULUI BACTERIAN AL PLOPULUI IN H.P.R. [THE OCCURRENCE OF BACTERIAL CANCER IN HYBRID BLACK POPULUS IN ROMANIA.] Rev. Padurilor 74(3): 169-71. 8 refs. [Rom. russ. g.f.e.]

Discusses recent poor results in the cultivation of hybrid black poplars in Yugoslavia, largely as a result of infection by Dothichia populae. Aspects considered poplar site requirements, the location of nurseries, seedling quality, and poplar degeneration. The planting of willow is suggested on very moist sites unsuitable for poplars. Some data also given on the biology of D. populae. [cf. F.A. 19, No. 3175.3]


A bacterium isolated from cankers of Populus candidans was identical with A. pulpea [cf. F.A. 20, No. 734]. Cuttings of P. candidans inoculated with bacteria through freshly made leaf scars showed typical symptoms of the disease.

Magnani, G. 1963. TESTS OF THE RESISTANCE OF SOME EURAMERI C POPULUS TO DOPTHICHA-PULPEA. [PUBBL. CENT. SPE R. Agric. For., Roma 6: 155-78. 10 refs. [It.,f.e.]
Inoculation tests made on four hybrid clones and on Populus alba confirmed that the best protection against the disease in Central Italy is provided by the use of vigorous planting stock, care in planting and irrigation. 1 '54 proved to be moderately resistant, '1 2'4 and '1 455 moderately susceptible, '1 2'6 highly appreciable and P. alba highly susceptible.


80 

P. CANADENSIS TO P. DAVIDIANA
Summary.


Pasek, V. 1954. PTEROCOMMA TREMULAE CB. 1940, NOVYSKODC KANADSKOYO TOPOLO M. IN TREMULAE, A NEW PEST OF "CANADIAN" POPULUS.] Prace Vyzkum. Ust. Lesn. CSR. No. 5: 151-61. 5 refs. [Slovak. Russ. g.]


Quiro, M. A. H. 1951. A PRELIMINARY STUDY OF THE POPULAR LEAF BEETLE—NOODOSTOMA SP. Pak. J. For. 1(2): 119-21. Life history, damage, etc. of the most important pest of Populus ciliata and P. nigra on the Murro hills. It has not yet been identified and is possibly a new species.


A note on Phucosemyz pusateris and Lepidosaphes ulmi, both found on poplar near Drama, Macedonia (the former brought on stock imported from Italy) where local damage has resulted; with brief notes on control.


54 INJURIES DUE TO UNKNOWN OR COMPLEX CAUSES


524 DETERMINATION OF THE VOLUME OF TREES AND STANDS


On the basis of measurements of 1,283 trees of Populus regenerata (P. marilandica, P. serotina, the author constructs an volume table and a table of form factors, and compares these with Rumanian figures for P. alba and P. tremula.


524.12


524.13


In pursuance of his studies on the form of "Canadian" poplar, the author presents a table of form quotients.

541 BASED ON HEIGHT, DIAMETER, VOLUME, ETC.


56 INCREMENT; DEVELOPMENT AND STRUCTURE OF STANDS

Anonymous. 1927. GROWTH FIGURES FOR CANADIAN POPLAR. Silva 15: 46.


Measurements were made on a plantation of _Populus_
P. CANADENSIS TO P. DAVIDIANA

810 GENERAL INFORMATION ON WOOD


Investigation on a 10-year-old tree showed little variation in the volume percent of fibres, vessels and rays, within the growth ring either radially or longitudinally or radially across the stem. [Cf. Scaramuzzi, 1955, P. canadensis to P. davidiana, 811.156.]


812 PHYSICAL AND MECHANICAL PROPERTIES


Fourteen fluorescent constituents were obtained, some naturally colored, and also a nonfluorescent, colorless substance giving a positive reaction with phloroglucin/HCl. None of the fractions obtained in the previous study is a pure substance.


The study showed similar but not identical curves for the native lignin and four fractions from it. It is concluded that the native lignin is a mixture of substances very closely related chemically.

832.15

Senzeyn, P. 1962. *Yield of sawn timber from poplar thin-nings*. Silviculturna, Uruguay No. 18: 38-47. [Span.f.e.]

*Presents the results of a mill study to estimate yield of sawn timber from small-size *Populus* 'canadensis' cp. 1-154 (diam. 9-17.8 cm.). Yield was \( <50\% \), but costs were low enough to justify the utilization of thinnings of this kind, given reasonably straight stems.*

~

832.2


*Gives the results of experiments in rotary cutting of veneer from Romanian-grown *Populus* × marilenicola and *P. × robusta*, and discusses the effects of log storage, peeling parameters, and drying of veneers.*

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847.1

Curro, P. 1962. *Producing poplar boards*. Cellulosa eCarta 13(11): 21-3. [It.f.e.g.]

*Gives tabulated and graphic data showing the changes in mc. in *Populus × euramerican* cp. '1-455' boards 35 mm thick, stacked (3 x 3 x 3 m.) in the open with stickers and a roof, over a period of 44 weeks at Caale Montferatto. Mc. fell from ca. 191% in November to 23% in the following September.*

861 PULP AND PAPER MANUFACTURE, TEXTILE AND OTHER CELLULOSE DERIVATIVES


9 FORESTS AND FORESTRY FROM THE NATIONAL AND INTERNATIONAL POINTS OF VIEW

907.3

1 FACTORS OF THE ENVIRONMENT. BIOLOGY

Stetskal, G. C. 1949. THE DIPTEROUS FAUNA OF TREE TRUNKS. Pap. Mich Acad. Sci. 35: 121-34. 4 refs. Notes on *Diptera* gathered on or under the bark of trunks of Populus deltoides and Robinia pseudocacca.


165.51 Gabriel, W. J. 1956. PRELIMINARY NOTE ON CLONAL DIFFERENCES IN THE WOOD AND PHLOEM OF POPULUS DELTOIDES AND P. TRICHOCARP. Proc., 3rd Northeast. For. Tree Improve Conf., Ithaca 1956: 33-4. Data from individual trees indicated statistically significant differences in fibre length and sp. gr. between clones of the two species studied. Variations were also apparent in the fibre arrangement in the phloem. The material was from trees 5 years. Studies should be made on more mature trees to determine whether these juvenile traits are permanent or temporary.


168 HISTOLOGY

Pelet, F., and Hildebrandt, A. C. 1957. GROWTH IN VITRO AT VARIOUS TEMPERATURES AND ACIDITYS OF TISSUES ISOLATED FROM GALLS AND NORMAL STEM OF ELM, GRAPE, POPULAR AND WILLOW. Abstr. in Phytopathology 47(9): 531.

Optima for growth on two synthetic media with growth-promoting supplements are given from tests covering the temperature range from 16° C. by 4° to 36° and the acidity range from pH 3.5 to 8 at 26° C.


Upholds the validity of the name *P. x canadensis* Moench, recognizing *P. xeurameicranica* Guier, for the hybrids of *P. deltoides* x *P. nigra*.


Mocine. 1931. notes on COTTONWOODS IN U.A.A. Amer. For. 37: 353.


181 MODE OF LIFE. AUTECOLOGY. SILVICULTURAL CHARACTERS OF TREES


Notes on silvicultural characters with a botanical description.

Joachim, H. F. 1954. Beitrag zur KENNTNIS VON POPULUS EURAMEICRANICA FORMA GELIRICA HOUTZAGERS. INFORMATION ON P. EURAMEICRANICA (GELIRICA). Arch. Forstw. 3(1,2): 23-36. 9 refs. [G.g.e.]


Analyzes data as to stand and site characteristics including site index, soil texture, moisture, aeration and nutrient content, pH, etc., collected on 66 plots in pure even-aged stands in the flood-plains of W. and S.W. Iowa. Available moisture and N-production capacity of the soil were the most important factors for growth.
2 SILVICULTURE


Gammage, J. L., and Maisenbelder, L. C. 1960. SEEDLINGS OF POPULUS DELTOIDES: VIABILITY OF COTTONWOOD SEEDLINGS. U.S. For. Serv. Tree Plant. Notes No. 43: 5-6. Seed was stored (a) in a refrigerator at 40° F., (b) in nylon mesh bags indoors at ca. 75° and (c) as (b) but hung in the shade of a cottonwood tree. The seed had been collected in July from partially opened catkins. Germination was tested daily for 25 days. Seed in lot (c) deteriorated rapidly, germinating poorly after less than 1 week of storage; (b) maintained viability for ca. 1 week; (a) maintained viability for 3-5 weeks.


Experiments showed that optimum conditions of storage were a temperature of 10° F. with a relative humidity 25%. The data suggest that at low temperatures humidity is a critical factor.


Describes a method of sowing P. deltoides, by suspending catkins from slatted covers over the seedbeds. Burlap is placed over the covers to confine the cotton, and irrigation does not begin until enough seed had been dispersed over the bed.


Stem cuttings from young P. deltoides, Salix nigra, and P. tristyla were collected monthly. All species root every month, but March was best and June worst. Basal cuttings rooted better than top cuttings. S. nigra rooted and grew faster than P. deltoides which grew faster than P. occidentalis.

Brockhuizen, J. T. M. 1961. HET STEKKEN VAN ENKELBOOMSOORTEN Onder WATERNETEL, IOORING CUTTINGS OF SOME TREE

238 TIMBER PLANTATION CROPS REQUIRING SPECIAL TREATMENT


May, S. [1960?] *culture inter v. du peuplier dans une propr. sur du terrain de bonification a codigoro.* [Intensive poplar cultivation near Codigoro (Ferrara) on reclaimed land.] Istituto di Sperimentazione per la Pioppicultura, Casale Monferrato, Italy. 10 pp. [F.]


242 THINNINGS


Sample plots of two very dense stands of poplar (probably *P. deltoides var. montifera*) were thinned at about 10 years old and remeasured 2 years later. Mensurational data are given. The residual stands reacted very favorably. Thinings should be made early and often, the last taking place before the trees have finished their height growth (20-30 years).


Johnson, R. L. 1961. *PAINING COTTONWOOD AND WILLOW OAK.* U. S. For. Serv. Sth. For. Exp. Sta. Sth. For. Notes No. 136, p. 2. In willow oak aged 25-30 years, pruned to 17.4 ft., healing was slower than in cottonwood. Cuts from live branches healed faster than those from dead ones; 96 and 98% of wounds had healed after the 4th year. Insect and rot damage were also more prevalent in the oak. Oak developed epicormics to an extent that degraded many butt logs.

244 CLIMBER CUTTING, ETC.


245.1


In a 14-year stand spaced 8 x 8 ft. in Mississippi, 13 trees averaging ca. 9 in. d.b.h., and 50 ft. in height, were pruned to 17.4 ft. Wounds, mostly from live branches less than 2/4 in. in diameter, nearly all healed within 2 years. Rot and infection, and growth of epicormics, were slight. Growth was not affected, but in other, younger, stands it was reduced by pruning, suggesting that no more than half the living crown should be removed.
4 FOREST INJURIES AND PROTECTION

441 FOREST WEEDS

443 FUNGI AND BACTERIA

443.3

Butin, H. 1955. ÜBER DEN EINFÜLLE UND WASSERGEHALTES DES PAPPELS AUF IHRE RESISTENZ GEGENÜBER CYTOPHORA CHRYSSOSPERMA (PERS.) FR. (EFFECT OF THE WATER CONTENT OF POPLAR ON ITS RESISTANCE TO C. CHRYSSOSPERMA.) Phytopath. Z. 24(3): 245-64. 18 refs. [G.g.]

Nagel, C.M. 1949. LEAF RUST RESISTANCE WITHIN SPECIES AND VARIETIES OF POPULUS. Abstr. in Phytopathology 39(?): 18.


554.315

553 CROWN DIMENSIONS, CROWN AREA, CROWN VOLUME, CROWN RATIO

54/56

5 FOREST MENSURATION

-30 years, based on measurements on 176 sample plots and 20 sample trees in Soviet Central Asia.

541 BASED ON HEIGHT, DIAMETER, VOLUME, ETC.

Two keys are given: (a) applicable only to sites in the Mississippi floodplain, based on soil texture, drainage, and moisture; and (b) requiring determination of the soil series.


Data were collected from 172 trees, mainly 1-3 years old, in four States. The curves, presented as straight lines, show the heights attained by the trees at 25 years. Average site index was 98 for bottomland, and 78 for upland and spoil-bank areas.
56 INCREMENT; DEVELOPMENT AND STRUCTURE OF STANDS


6 FOREST MANAGEMENT


61 FOREST MANAGEMENT: GENERAL, THEORY AND PRINCIPLES


80 GENERAL INFORMATION ON WOODS


81 WOOD AND BARK: STRUCTURE AND PROPERTIES


811.156

Boyce, S. G., and Kaeiser, M. 1960. SMALL INCREMENT CORES CAN BE USED FOR SAMPLING COTTONWOOD FIBERS. J. For. 58(6): 484-5. 3 refs. It was found that mean fibre length in Populus deltoides can be accurately determined from small increment cores (5.2 mm. diameter). Measurements were the same from these small cores as from large cores or wedge-shaped sections. The method is rapid and easy, does little damage to trees, and can be applied to species where the minimum length of the fibre does not exceed 2 mm. and Kaeiser, M. 1961. ENVIRONMENTAL AND GENETIC VARIABILITY IN THE LENGTH OF FIBERS OF EASTERN COTTONWOOD (POPULUS DELTOIDES). Tappi 44(5): 363-6. 15 refs.


613 EXPLOITABILITY AND ROTATION

Anonymous. 1926. COTTONWOOD CUT IN 40-YEAR ROTATION. Amer. For. 32: 636.


8 FOREST PRODUCTS AND THEIR UTILIZATION


832.1


An account of the types and dimensions of timber (mainly Acacia arabica and Populus eurhamica) used in the coal mines of Baluchistan, consumption, supplies, and the need for plantations to ensure a sufficient supply.

832.3

Pratt, E. R. 1954. ROTARY VENEERS. Quart. J. For. 48(4): 297-9. Comments on the Report of the Matchwood Working Party, dealing mainly with available supplies of logs suitable for rotary veneer cutting for matchboxes and match stock. The writer questions the statement that it is impossible to grow sufficient quantities in Britain. Populus eurhamica is almost as satisfactory as aspen for this purpose, and grows much faster and larger.

834.1


847.2


852.16


Describes tests with matched samples from the upper and lower sides of five Populus deltoids stems having leans of >10°. The upper, tension-wood side was generally heavier, tougher, and slightly more elastic, but weaker in compression. Toughness was apparently more related to position than to specific gravity, being greatest near the bark (i.e., where there was the greatest amount of gelatinous fibres).


Recommendations for reducing losses in Populus deltoids caused by tension wood, include: (1) to remove in thinnings all trees with a lean >4°, (2) to mark during logging the upper face of trees with such a lean and to discard in the sawmills that portion under the upper face.

— 852.17


861.11


861.15


9 FORESTS AND FORESTRY FROM THE NATIONAL AND INTERNATIONAL POINTS OF VIEW

902 HISTORY OF FORESTS AND FORESTRY


A review based on literature.

945.35

Giordano, E. 1959(1960). IL POPULUS DELTOIDES BARTH. NEL SUO PAESI DI ORIGINE. NOTA PRELIMINARE SU UN VIAGGIO DI STUDIO.

[P. DELTOIDES IN ITS NATIVE HABITAT. PRELIMINARY NOTE ON A STUDY TOUR.] Pubbl. Cent. Sper. Agric. For., Roma No. 8: 127-80. 55 refs. [It. it. e.]

Notes on a tour made by the author in the U.S.A., in 1958, giving particular attention to natural stands of P. deltoides in the lower Mississippi, Louisiana, Arkansas, and Illinois. Visits were also made to stands of natural hybrids of P. alba × P. grandidentata and plantations of artificial hybrids.

P. GRANDIDENTATA TO P. JAPONO-GIGAS

1 FACTORS OF THE ENVIRONMENT. BIOLOGY

114.351


160.22


216.2

164.5

164.6

165.1

165.41
A brief description of the hybrid, produced by crossing Populus tremula male with P. jabłowi (i.e. P. tremula × P. bollana), with notes on its propagation. It is a decorative, frost-resistant tree, of interest for park and street planting.

165.5

165.71


Describes a natural hybrid developed under fairly open conditions on a moist sandy site. Height at 17 years was 70 ft., d.b.h. 13.7 in., p. gr. 0.389, fibre length 0.98 mm., chromosome number 38. The tree is bisexual. Sprouts propagated from this tree are being studied.


216

Cites map references in Iowa for two stands of Populus grandidentata × alba of good form, rapid growth and apparent disease resistance, for one of which a stand and stock table is given (800 trees and 3,500 cu.ft./acre, 3-9 in. diam., 34-74 ft. with m.g.i. of 145 cu. ft. at 24 yrs.), 3% times as fast as oak of same age.


176.1


181.3

181.521


Describes and illustrates branched staminate catkins and hermaphroditism in Populus tremuloides, and late flowering in P. grandidentata and P. tremuloides.

— and Joranson, P. N. 1960. LATE FLOWERING IN ASPEN AND ITS RELATION TO NATURALLY OCCURRING HYBRIDS. For. Sci. 6(3): 221-4. 8 refs.

Reports, with illustrations, the flowering of $|$ and $|$ catkins of P. tremuloides 10 days later than the rest and providing thereby the necessary time bridge to explain local hybridization with P. grandidentata. [See Pauley, 1956, P. grandidentata to P. japono-gigas, 165.71.]

2 SILVICULTURE

221.1

Recommends clear felling for aspen (both bigtooth and trembling aspen) at maturity, which is reached in Wisconsin stands at ca. 40-50 years. Yields vary from 5 to 25 cords/acre depending on the soil moisture and fire history of the stand.

231 NATURAL REGENERATION


The size of small bigtooth aspen pockets in low-grade hardwood stands can be increased by clear-felling existing aspens and cutting or killing (depending on merchantability) the adjacent hardwoods. After 3 years, this treatment increased aspen sprout and seedling populations on treated areas from 40 to 5,000/acre, diskng the areas did not affect the results. Weed competition is usually overstripped.


221.6
216.2


221.6
216.2
A study was made on Populus tremuloides (a) and P. grandidentata (b) root suckers. On the whole, (a) suckered nearer the soil surface and from smaller roots than (b) which occupies the whole A horizon more completely. This difference probably accounts for the advantage of (b) over (a) on shallow dry sites.
one season by sowing in sterilized seedbeds covered with a layer of acid sand; daily watering and screening against rain drops are necessary until early July, when the screens are removed and watering done twice weekly.

232.328.1

Negisi, K., Yagi, K., and Satoo, T. 1958. STUDIES IN THE GROWTH OF YOUNG PLANTS OF [POPLUS JAPONO-GIGAS] FROM CUTTINGS OF VARIOUS THICKNESSES, as observed mainly by their changes in weight in the first season of growth.


3 WORK SCIENCE. HARVESTING OF WOOD: LOGGING AND TRANSPORT. FOREST ENGINEERING

322.3
Lohrey, R.E. 1959. PLANTING ASPEN WITH 2,4-D AMINE SALV. U.S. For. Serv. Lake St. For. Exp. Sta. Tech. Note No. 550, 2 pp. Tests showed that 2,4-D applied weekly at full strength or in a 50% water solution to frill girdles was an effective substitute for Na arsenite, and loosened aspen bark until the end of July. A 25% concentration was effective only during treatments in June.

33 DEGREE OF UTILIZATION AND WASTE

Ralston, R.A. 1953. COMPARISON OF MAN HOURS REQUIRED FOR THINNING AND CLEAR CUTTING POLE-SIZE ASPEN. U.S. For. Serv. Lake St. For. Exp. Sta. Tech. Note No. 407, 1 p. Results of a time study showing logging time per cord for low thinning (diam. below 7 in.) crown thinning (diam. above 7 in.), and clear felling in a 50-acre block of Populus grandidentata averaging 22 cords/acre are tabulated. Figures were 4.0, 3.6, and 3.0 man-hr./cord respectively.

4 FOREST INJURIES AND PROTECTION

443 FUNGI AND BACTERIA


443.3
Graham, S.A., and Harrison, R.P. 1954. INSECT ATTACKS AND HYPOXYLON INVOLUTIONS IN ASPEN. J. For. 52(10): 741-3. In ca. 92% of 138 Hypoxylon pruinatum cankers on the main stems of Populus tremuloides and P. grandidentata the original seat of infection was insect damage (Saperda calcara 30%, Dicerca tenebria 15%, Agrilus 15%, Lepidoptera 14%). Silvicultural control is suggested.


453 INSECTS

Nishiguchi, C. 1958. ON THE COMMUNITIES OF POPULUS DEFOILATORS AND THEIR SEASONAL CHANGE. Bull. Tokyo Univ. For. No. 54: 191-8. 19 refs. [Jap.e.e.] A study was made on Populus japono-gigas throughout the growing seasons of 1956 and 1957, to analyze the communities of defoliators (in the larval stage) and their seasonal change. The most important defoliators were: June Malacosoma neustria, July Lymantria dispar, August Melalopha anastomosis, Sept. and Oct. Notodonta tritophus.

5 FOREST MENSURATION

Tabulates site quality data for Populus grandidentata on well-drained sandy soils, expressed as total height at 30 years, which varies from 30 ft. on the poorest to over 90 ft. on the best sites.

56 INCREMENT; DEVELOPMENT AND STRUCTURE OF STANDS

810 GENERAL INFORMATION ON WOOD

81.12
Under the electron microscope, the cambial wall of Populus grandidentata showed a random dispersion orientation of microfibrils.

813.11

813.14

815.3
Inokuma, T., Shimaji, K., and Hamaya, T. 1956. STUDIES ON POPLARS. (I) MEASUREMENT ON FIBER-LENGTH AND SPECIFIC GRAVITY OF JAPANSE GIANT POPLAS (POPULUS JAPONO-GIGAS). Misc. Inform. Tokyo Univ. For. No. 11: 77-86. 7 refs. [Jap.e.g.]
The general trend in fibre length (I) with distance from the pith in a 3-year plant agreed with the findings of Sanio (1872) and Amos et al. Length decreased constantly from soil level up. No regular variation in specific gravity was found. Both length and sp. gr. were extrapolated for the 1 0-year plant for comparison with those of 6 softwoods and 8 hardwoods used in the Japanese pulp industry.

839.9

892.49

P. LASIOCARPA TO P. NIGRA VARS.

1 FACTORS OF THE ENVIRONMENT. BIOLOGY

160.29
Segments of branches were placed in sawdust, erect, horizontally, and upside down. Analysis of dehydrogenase activity revealed the presence of definite gradients which appeared to be related to the intrinsic polarity of the branches, the translocation of stimulating substances, and the appearance of meristematic apices. The stimulating action of shoot apices was much more intense that than of the root primordia.

161.23

161.4
Preliminary experiments indicate that this poplar, which is common in Macedonia, can easily be crossed with other black poplars. It is proposed to experiment further in crosses with southern forms of P. deltoides. Attempted crosses with poplars of the section Leuce failed.


165.5


[Serb.]

165.51

Kraayenoord, C. W. S. van. 1959. THE CHILEAN OR SEMI-EVERGREEN LANZER BOK. Farm For., Wellington 1(4): 89-9. [Cf. F.A. 5, p. 22.] This variety was introduced into New Zealand from South America in 1948. Its semi-evergreen habit makes it an excellent tree for shelter purposes, and cuttings grew 8 to 10 ft. in 1 year vs. 6 ft. for the common Lombardy poplar. It has so far been given no special botanical name. [Cf. Reinecke and Wicht, 1942, P. laciarcu to P. nigra and var., 176.1.]


165.62


A review of progress to date in the selection of elite individuals in Czechoslovakia and their use in breeding.

165.7


165.71


Records a case in Yugoslavia of presumed natural fertilization of P. x mariandica by P. x serotina (no other male trees existed within a radius of 4-5 km.), and recommends planting these varieties in mixture to form a hybrid seed for progeny trials.

176.1


This poplar has recently been identified in the South of Rumania, where it is common on poor, sandy soils. All trees appear to be female. Its value as a source of pulpwood is discussed.

Davy, Burtt. 1930. ON THE LOMBARDY POPLAR. Emp. For. 9: 269.


A study of the taxonomy, morphology, distribution, and ecology of varieties and forms of P. nigra native to Macedonia.


A preliminary account of an apparently new pubescent form of P. nigra, of spreading habit, found in the Neretva valley near Capojina.]


Li, H. -L. 1958. THE NIGRA WILLOW AND LOMBARDY POPLAR. Morris Arbor. Bull., Philadelphia 9(7): 3-9. 12 refs. Discusses their habit, origin, taxonomic position, introduction into various countries, diseases, etc., including, for the poplar, clonal senescence (the evidence for which is not now considered so strong as it appeared to be earlier).


The most widely cultivated poplar in Chile is Populus nigra var. italica. Brief notes are presented on the soils in which it grows, uses of the wood, establishing and tending plantations and yields of timber.

Vasile, V. 1957. JEDNO OBABESTENJE O T.ZV. BITISEVSKOJ TOPOLI. O KORNIK On the ‘BITISEVO’ poplar.] Topola, Beograd No. 4: 298-301. [Serb.]

This variety, existing in both sexes, is said to show better rooting ability and height growth, but a more crooked stem, than P. x serotina, which it was at first taken to be. No firm data can yet be given on its wood properties, as it has only been grown in nurseries and plantations for 10 years.

Vill. 1936. NOTE ON POPULUS MONILIFERA. Dtsch. Forstw. 18 (79): 975-8. [G.j]

97. 8 refs. [Du.due.e.] Discusses its distribution and uses (e.g. for avenues, boundaries and on sand-dunes) in plantings in the Netherlands, site requirements, identification (in some detail), variability of the material, and the potential value of the collection of clones in the Netherlands for breeding.

Zederbauer. 1908. FEMALE LOMBARDY POPULAR. Centraalb. f.d.g. Forstw. 34: 118.

181 MODE OF LIFE, AUTECOLOGY, SILVICULTURAL CHARACTERS OF TREES


Jovanovic, B. 1957. O JEDNOJ MALO POZNATOJ TOPOLI (POPULUS THEVESTINA DODE) [A LITTLE-KNOWN POPULAR (P. NIGRA "AR. THVESTINA).] Sumarsto 10(1/2): 63-70. 16 refs. [Serb.e.f.]

Notes on the morphological characters and ecology of this poplar, which is found in S. and S.W. Yugoslavia.


181.1


181.31


Discusses the effect on height and root growth of Betula tauchiss and Populus marimonrovici growing on forest loam, peat and mixed soils, of different heights of underground water. [From authors' summary.]

181.3


Re-examination of the trial plots showed a recovery particularly in height and volume increment, in the last 3 years, though not quite to the former level, and confirmed the previous yield forecasts.

181.35/36

Truszkowka, W. 1961. ORIENTACJ NIEBADANIA MIKOFOLNY NA JMOODSSYCHCESZSистемUMGHERENDENWEGO TOPOL. (POPULUS EURA MERICANA MARILANDICA BOS C) Z ROZNYCH STANOWISK W TURW.
2 SILVICULTURE


This poplar has probably been used more than any other for planting in the region, chiefly in shelterbelts. Brief data on distribution, future planting programs, timber production, price, etc., are given.

228.7


23 REGENERATION AND FORMATION OF STANDS


231 NATURAL REGENERATION


232 ARTIFICIAL REGENERATION


Discusses the ecological requirements and rate of growth of budded forms of P. nigra in the Trans-Carpathian region, and also the possibilities of establishing plantations in order to increase the supply of burr material for furniture veneers.

223.1


Safar, J. 1962. PROBLEM PROIZVOSNOSTI KULTUARA CRNOGORA U SUBMEDIJERANSKOJ ZONI. [The problem of productivity of Pinus nigra "ar. austriaca plantations in the submediterranean zone.] Sum. List 86(1/2): 32-40.[Croat.e.e.]

223.1 1


Some tabulated phenological data (flowering, flushing, leaf-fall, and fruiting) are given for the local Populus nigra, P. nigra var. pyramidalis, the same with female catkins, P. nigra var. betulifolia, and P. nigra var. plantierensis.


232.13


Of the 50 clones used on two sites (data on parentage and growth tabulated), 7 can be recommended for planting in a similar climate on soils of low pH in W. Virginia. All are hybrids of P. maximowiczii, and maintained an annual height increment of > 3.6 ft. for 9 years on a well-drained site. The largest single tree was of clone NE-50 (P. maximowiczii x P. xberolimnensis) with a height of 50 ft. and diameter of 6 in. after 9 growing seasons.

232.328


232.328.1


The optimum stool spacing, for producing shoots 15-18 cm. long and 7-10 mm. thick, was 60-70 cm. for P. canadensis, and 50 cm. for P. nigra var. italica.


Rooting percent after 84 days was best on volcanic ash soil, then or peat and sand, and loam, clay and sand, in that order. Greatest root growth occurred in peat and sand.


and Ogasawara, K. 1957. STUDIES ON THE CUTTINGS OF FOREST TREES (V). INFLUENCE OF AMOUNT OF LEAF, HORMONE


232.328.1/2


232.328.2


Batches of cuttings were made at regular intervals over a period of a year, and cuttings from each batch planted in several different environments. The only woody species tested, Populus nigra, showed a seasonal variation in capacity to regenerate from root cuttings, this being greatest in winter.

232.43

Palotas, F. 1963. DATA FOR MODERN TENDING OF POPULAR STANDS.] Erdö 12 (4): 150-5. 2 refs. [Hu.russ.g.e.g.]

Among controlling factors, the forester’s most potent influence is through manipulation of stem number. Close and open-stock-inning regimes of Populus × marilandica are compared in detail. The timing, interval, and intensity of thinnings are delicate questions in these fast-growing stands. Close planting and subsequent regulation of stem number in consonance with the objects of management are advocated.

232.5


It was found that cuttings of Populus nigra var. the verna 1.5 m. long, planted vertically so as to be completely covered by sand, gave 85%, survival at the end of the second year when all other types of planting (both cuttings and seedlings, with and without the addition of humus) had failed completely.

233 AFFORESTATION


Tabulates data on height, diameter and volume increment of the poplar plantations, some of which are 42 years old, in the sandy areas to the west of the Caspian.


235 UNDERPLANTING, ADVANCE PLANTING, ETC. NURSES AND FORMATION OF MIXTURES


Recommends underplanting pure poplar stands (e.g. P. × marilandica) with hornbeam and regenerating them naturally. Oaks, if many in the upper story, should be reduced to allow entry of hornbeam, thus encouraging also the value and volume increment and natural regeneration of the oaks. Where valuable stems are few, they should be reserve-marked at the first thinning or else at 45-55 years.


238 TIMBER PLANTATION CROPS REQUIRING SPECIAL TREATMENT


Describes large-scale plantings of Populus × marilandica begun in 1920 and now giving large intermediate and valuable final yields. Areas are clear-felled and planted with 2-m. saplings at 2 x 2 m, for final espacement of 5 x 5 or 6 x 6 m at a rotation age of 25-30 years. Thinnings are made every 2-3 years. From the abstr. in Hung. Agríc. Rev. 4(3): 7. 1955.

242 THINNINGS


3 WORK SCIENCE. HARVESTING OF WOOD: LOGGING AND TRANSPORT. FOREST ENGINEERING

378.44


Populus nigra and Salix arrived were floated in 1954 in large quantities on the Volga over a distance of 1,500 km. without using softwood floats. The buoyancy of bundles made of these species is the greater the longer the logs, and the higher the proportion of large diameters, the basic condition being the presence of bark.
4 FOREST INJURIES AND PROTECTION


Describes the method whereby the fundatrixes of some Pommepius species (P. bursarius, P. protospira, P. spirtochae, P. filaginis, and P. phenax) form their galls on Populus nigra var. italica.


Presents notes on (1) Pommepius spirothecae, producer of galls on leaves of Populus pyramidalis, and on three of its predators, and (2) Lepidosaphes ulmi and a parasite.

Kloft, W. 1960. BEOBACHTUNGEN ZUM ZEITLichen VERLÄUF der ABWURFS VEGALLER UND NORMALER PAPPELB.LATTEN. THE TIME-SEQUENCE OF LEAF SHEDDING OF NORMAL AND GALLED POPULAR LEAVES. Marcellia, Napoli 30 (Suppl. publ. in Strasbourg) : 125-6. 3 refs.[G.]

Leaves from under a Populus nigra var. italica were counted on an area of 2 sq. m. from 19 Oct. to 27 Oct. Of 370 leaves having Pommepius bursarius galls, 213 dropped in the first, 141 in the second, and 16 in the last third of the period, whereas the sequence for healthy leaves was 293, 756, 450.


The N fractions in cankered tissue of Datura stramonium, Populus nigra and Quercus robur were considerably higher than in healthy ones; but in crown galls tumors of oak, they were significantly lower than in the leaves. [From authors’ summary.]

Rafes, P. M. 1955. HOLOSINNOVÝ STĚRKIJANIVY I TOPOLOVÝ PJATNIISTOTO ZLATKI V GIBELI OSOKOREJ V AČIKULAKSKOM LESHZOE. [THE ROLE OF SCAPETEROTABANIFORMIS AND MELANOPHILOPICTA IN THE MORTALITY OF POPULUS NIGRA ON THE AČIKULAKLESZHOZ.]

Soobsc. Inst. Les. No. 5: 84-95. 22 refs. [Russ.]

Observations in the steppe between the Terek and Kuma Rivers [Pre-Caspian lowland] indicated that the drop in the Vitality of trees is the principal cause of the heavy poplar mortality.


Briefly discusses research in Israel on leaf necrose (accompanied by a great rise of Cl content in eucalyptus and Na in Populus nigra cv. 'Chile'), on soil effects, particularly under and, less so, to the lee of trees, and on windbreaks.


Describes and illustrates with photomicrographs anatomical aspects of the attack by P. tetradrus on Populus nigra var. italica.


443 FUNGI AND BACTERIA


Records for the first time in Greece the occurrence of Melampsora allo-populina on Populus nigra.


Describes an attack by Valanotispora on 20-year-old Populus grown in Germany. P. robusta growing on the same site was unaffected.

Sinadse, J., and Bondareva, M. A. 1956. MALOZHESTVNYE TRUHOTVIVKA NA POPULUS I TAMARISK I ZNACENIE V KGZ- SKOY ASSR. [LITTLE KNOWN SPECIES OF INONOTUS ON POPLABS AND TAMARISK, AND THEIR SIGNIFICANCE IN THE KARA-KALPAK ASSR.]

Bot.Z. 41(8): 1177-83. 3 refs. [Russ.]


451.2


Describes and illustrates crown deformations in a 14-year stand of Populus x marilandica attributed to the feeding of mice which were observed to climb into the trees for safety during a severe flood when the poplars were 8 years old and 8 m. high. The species responsible were not ascertained.

4 5 3 INSECTS


Describes the galls and their causal agent, Eucrotothrix sp., with notes on its biology.
5 FOREST MENSURATION


In thinning a 10-year-old sample plot of P. xmarilandica, it was discovered that 10% of the trees removed were infested with A. carbonaria. The larval galleries, illustrated and described, were infected with bacteria producing a brown stain.


Life history, damage, etc., of the most important pest of Populus ciliata and P. nigra on the Murree hills. [A corrected reprint gives Phyllocladus abandinus as the name of the beetle.]

52 MEASUREMENTS OF THE STEM DIMENSIONS AND VOLUME OF TREES, STANDS, FORESTS AND TIMBER

Anonymous. 1917. MEASUREMENT OF POPULUS MONOFILLERA (P. SEROTINA). Quart. J. For. 11.

524.12


The form factors (tree volume/cylindrical volume) does not vary between the two species, it varies in both as well as height, and is constant (0.427) for all trees of ≥ 50 cm. d.b.h. These conclusions are drawn from analysis of 404 black and 1,100 white poplars from different parts of Rumania.


524.315


56 INCREMENT; DEVELOPMENT AND STRUCTURE OF STANDS


Gives details of d.b.h., height, volume, etc., from natural stands of black poplar averaging 36 years and willow averaging 37 on the Danube plain near Sombor, N. Vojvodina.

561.21


561.3


Data are given and discussed for increment of a plantation of P. marilandica, measured at 14, 19, 24, and 32 years. C.a.i. culminated at 22, and m.a.i. at 25 years; the latter age is recommended for exploitation.


566 YIELD TABLES AND THEIR CONSTRUCTION


Stands of Doro-poplar (Populus maximowiczi), four kinds of willow, elm, ash, and alder aged 33 years carry volumes of 225-249 cu.m./ha. Regressions are given for height and diameter and number of stems/ha, in the main crop on age. A m.a.i. of 7 cu.m./ha. can be expected. A yield table is included.

8 FOREST PRODUCTS AND THEIR UTILIZATION

81 WOOD AND BARK: STRUCTURE AND PROPERTIES


810 GENERAL INFORMATION ON WOOD


Includes three photomicrographs and data on physical and mechanical properties.


811.12

Necesany, V. 1959. ANOTE ON THE STRUCTURE OF MICROFIBRILS IN NATIVE CELL WALLS. Svensk PappTidsn. 62(3): 73-6. 11 refs. [Swe.g.w.]

81 1.22


The author studied the differentiation of tension wood from the cambium in artificially bent young branches of a young tree of Populus

P. LAISOCARPE TO P. NIGRA VARS.
nigra, and describes the different stages of anatomical development with illustrations from photomicrographs.


812 PHYSICAL AND MECHANICAL PROPERTIES


Tabulates results of detailed studies of the chemical, physical, and mechanical properties of Populus wood grown in Poland. (Cf. Kubiak, Rogalinski, and Michalak, 1962, P. lasiocarpa to P. nigra and var., 844.2.)


812.7


Presents tabulated results of standard tests on P. tremula var. davidiana (separately for green-, orange-, and grey-barked forms) and P. marimo-owiczii, from trees 28-40 years old; aefofoi/2 Japanese, Manchurian, or Korean provenances of P. maximowiczii.


Gives the results of tests on P. deltoides ("carolinensis"), P. regenerata, and P. tremula.

813 WOOD CHEMISTRY


813.1


The author summarizes work already published on chemical changes in the wood of cankers occurring on pine and beech, and presents and discusses data from a similar study of an elm tumor and a poplar (Populus nigra). The results confirm previous findings that in cankered wood there is an increase in lignin and a corresponding decrease in cellulose, the sum of lignin and cellulose remaining constant at 75.53-74.85 percent.

813.11


Data on hydrolysis products from Picea jezoensis, Gafuscrenata, and Populus nigra wood meal.

813.14


814.1


826.1


Describes tests on Tilia japonica, Populus maximowiczii, and Liriodendron tulipifera.

832.20


Tests to determine the effect of the knife and pressure-bar positions on the woody appearance of poplar veneer.

844.1


844.2


Tabulates and graphs data on the effect of pure cultures of the fungus on the properties of P. x marilandica specimens exposed to them for various periods. The fungus caused rapid deterioration 4 months' exposure rendered the wood useless.


845.3

Schultze-Dewitz, G. 1957. VERSCHIEDENARTIGER TERMINEN- GRIFE AN FELLAPPEL- UND DUGLASIENHOLZ. [SPECIFIC DIFFERENCES IN TERMITES' ATTACK ON POPULAR AND DOUGLAS WOOD.] Arch. Forstw. 6 (11/12): 933-41. 8 refs. [G.r.gus.]

861 PULP AND PAPER MANUFACTURE, TEXTILE AND OTHER CELLULOSE DERIVATIVES


861.8


883
9 FORESTS AND FORESTRY FROM THE NATIONAL AND INTERNATIONAL POINTS OF VIEW

907.1
Arnold. 1928. LUMBAR POPULAR AS AMERTY TREE IN UTAH.
Amer. For. 34: 491.

P. ROBUSTA TO P. SUKASHEWI

161.16
Jovanovic, M. 1962. 
[MEASUREMENT OF IN TAKEN OF TRANSMISSION IN SOME BROADLEAVED SPECIES (CEBS, OAK, BEECH).] Topola, Beograd 6(27): 189-9. 5 refs. [Srb.f.]

Transpiration was measured on detached leaves by weighing in an electric balance immediately after detaching and after 45 minutes.

Results are given in g of water transpired/sq. m, leaf area/hr. Transpiration in Populus x serotina was 2-3 times as great as in Quercus robur or Fagus sylvatica.

165.71


Records a case in Yugoslavia of presumed natural fertilization of P. x marilandica by P. x serotina (no other male trees existed within a radius of 4-5 km), and recommends planting these varieties in mixture to form a source of hybrid seed for progeny trials.

165.72


165.72/73

Brief notes on Populus suaveolens x P. canadensis—the "Leningrad poplar," and a "vegetative hybrid" taken from buds at the graft union of P. suaveolens and P. canadensis. Both are said to be fast-growing, and resistant to cold, and the "vegetative hybrid" is not susceptible to leaf rust.

176.1
Anonymous. 1912. POPULUS SEROTINA. Quart. J. For. 6: 263.

1929. NOPE on P. ROBUSTA. Dtsch. Forstw. 11: 63.


A brief general account covering, inter alia, distribution, stand volume, and height.


181 MODE OF LIFE. AUTECTION. SILVICULTURAL CHARACTERS OF TREES


181.21

Includes a note on trials with Populus trichocarpa and the 'Rochester' poplar (P. trichocarpa x P. nigra) which showed themselves more tolerant to shade when planted in narrow gaps, narrow gulleys or in close spacing, than black poplar hybrids.

181.34
2 SILVICULTURE

226 CHANGES OF SILVICULTURAL SYSTEM. CONVERSION (BY SYSTEM OR SPECIES)
Glavac, V. 1962. [INCREASING WOOD PRODUCTION BY INTRODUCING AMERICAN POPLARS INTO CERTAIN TYPES OF NUTS CLUSTERING COPPICE.] Samostavio 8(5): 266-72. 2 refs. [Serb.g.]

Presents data for both species on the height, number of stems, b.s./acre, volume, and soil conditions in three 20- to 22-year-old stands in a Pruno-Frequinetum area, where the growing stock of older coppice has been greatly increased by the introduction of Populus × serotina.

231.5 Mutibaric, J. 1955. PRIHODNOPODMLADJANJE KANADSKO POPOLE. [NATURAL REGENERATION OF POPULUS "CANADENSIS"]. Sumarstvo 8(5): 266-72. 2 refs. [Serb.e.f.]

231.5 Bajin, I. 1956. PRIHODNOPODMLADJANJE KADARKE POPOLE. [NATURAL REGENERATION OF POPULUS SIEROTINA.] Sumarstvo 9(112): 69-90. 1 ref. [Serb.]

Cites several examples of its regeneration by root-suckering in Yugoslavia. No general conclusions can be drawn as suckering will be influenced by site conditions and each stand must be considered separately.

232 ARTIFICIAL REGENERATION


A further report on Stout and Schreiner hybrids, planted in 1935 as unrooted cuttings. The first 5 years' growth was reported in an earlier note [cf. Baldwin, 1941, Populus sp., 232.13. Growth was in the following descending order of clones: Geneva, Oxford, Androsceggin, Rochester, Straightg.

Bialobuk, S., and Bugala, W. 1951. PRZEGŁADPRAC HODOW-
LANTECH NAD TOPOLAMI I WNYTKI DOTYCZCZASOWYCH OBSEWACJ PRZEProwadzonych NAD NIEJESTETYCMI MIEJSCAMI TOPOLI W KORNI.

232.14 Frances, J. J. 1947. AANWASVERLIKEN ALSGEVOLG VAN KAAL-
VRETELI BILJOPOLOSSEROTINA HART. EN POPULUS MARIANDIZCA BOC. [LOSS OF INCREMENT IN P. SIEROTINA AND P.MARANDICZA AS A RESULT OF DEPOLATION. ] "Mededeelingen" van den Directeur van den Tuinbouw April 1947: 210-3. 7 refs. [Du.e.]


232.1 Inokuma, T. 1960. FOSSIL. POPULUS BIEBOLDII FOUND IN SHIBARA CHAUTION. JAPAN. Poplars, Japan 9: 8. [Jap.]

The morphology of a fossilized leaf found in this famous Pleistocene bed coincided exactly with that of a present-day sample of P. sieboldii. This is the first record of the species in a Japanese fossilized flora.


Further experiments with P. robusta confirm the better rooting obtained from cuttings kept for 14 days in darkness and then given long-day treatment.

232.324.3 Gunther, H. 1958. WIRKUNG DER VERMANSCHWEITEN AUF DIE ERZEI-
HUNG "AM POPULIER. PLANTS IN THE WOODS." Forst u. Jagd 8(1): 10-5. [G.]


Further work with P. robusta confirms the better rooting obtained from cuttings kept for 14 days in darkness and then given long-day treatment.

232.328.9 Haisissig, B. E. 1963. EXTERNAL VARIATION IN ROOT AND SHOOT FORMATION FROM LEAF CUTTINGS OF POPULUS SIMONII "AR. FASTI-
GIA SCHNIED. Silvae Genet.12(1): 31-5. 21 refs. [E.e.f.g.]


232.43 Comte25(8): 316-22. [F.]

232.4 Becking, J. H. 1958. HET PLANTVERBAARD VOOR POPULIEREN- OP-


232.43 Zosiadzici, I. 1960. TOLNASZIGET KESZENVAR HALOZATKISERLET. [A SPACING TRIAL WITH POPULUS × SEROTINA IN TOLNASZIGET.] Erdos 9(7): 247-51. [Hun.g.s.]

Trials at 2 x 2, 4 x 4, 6 x 6, and 8 x 8 m, showed (at the 10th year in local conditions) 2 x 2 to yield greatest volume, and 4 x 4 the greatest value. Where hand labor is used, 2 x 2 thinned to 4 x 4 m, in the 3rd or 4th year is recommended; for mechanical cultivation, planting at 3 x 15 m.

232.5


233 AFFORESTATION


4 FOREST INJURIES


416.11

Pourret, J. 1958. **Le déperissement des peupliers dans le nord-est de la France.** [Dieback of poplars in the northeastern part of France]. Rev. For. Franc. 10 (8/9): 521-5. [French]

The severe die-back described was found to be mainly in Populus *x* *robusta* plantations more than 20 years old, in regions with a predominantly continental climate, and situated in valley bottoms. It is ascribed to the severe frosts of Feb. 1956 followed by unfavorable conditions (mild winters with late frosts) in 1957 and 1958.


Further examination of Populus *x* *robusta* plantations affected by the severe frosts of 1956 followed by mild winters and late frosts in 1957 and 1958 showed 3 types of reaction: (1) irreparable dieback in old or sickly trees; (2) a sharp reduction in increment and striking, but repairable, dieback in young (15-20 years) trees on good sites; (3) reduction in increment with no visible signs of ill health in quite young (10 years) and vigorous trees.

424.7


In 1955 “needle-tip-burn” on Sitka spruce seedlings grown at Wareham was shown to be due to Cu deficiency. The black dis- coloration of the leaves of Populus *x* *robusta* cuttings grown on the same soil has now been diagnosed as a deficiency on the same micronutrient. Symptoms were greatly reduced by a soil application of a frittered trace-element material containing Fe, Mn, Cu, Zn, Mo, and B, and by foliar sprays of Cu applied as a lime/CuSO₄ mixture.


In two series of open-air pot trials in a sandy soil with high humus and little Cu content (2.1 or 0.8 p.p.m.) plus an N/P/K fertilizer, the addition of 7.5 kg. Cu ha, greatly increased height growth and improved habit over the excessively bushy controls. Three years after planting as cuttings, the treated plants were 159 vs. 116, and 118 vs. 82 cm, respectively.

435.3


A note on a fire by neglect of drainage ditches and consequent provision of fuel in the form of dense growth of Phragmites communis. Some 30 trees (Populus *x* *robusta*) were killed and 30 more suffered fire wounds.

Describes the successful afforestation of spoil from sand and gravel works with Sitka spruce and unrooted cuttings of Populus robusta.


238 TIMBER PLANTATION CROPS REQUIRING SPECIAL TREATMENT


416.16

Braun, H., and Hubbes, M. 1957. **Antibiotics, spore infectivity and antagonismus between Populus.** [Spore infectivity and antagonismus between Populus]. Natuursch. 9 (11): 333. [German]


Describes the symptoms of an unidentified bark necrosis attacking J- and 2-year-old sets of Populus *x* *robusta* and P. *x* *serotina* in at least two areas in Yugoslavia. Laboratory studies on the physiology of the pathogen are outlined.


The cause of a new bark necrosis of poplar [see preceding abstract] has been identified as *Chaetomella tortilis* (Sphaeropsidales), which normally lives in the soil as a saprophyte. Its pathogenicity is considered to be the result of abnormal soil conditions (soil exhaustion, inadequate water regime, etc.). Further details of its physiology and life history are given.


Discusses possible causes of mass infections of 2-year planting stock (not cut back) of *P.* *x* *serotina*, developing at many different sites in Bavaria. No obvious mistakes in tending or transport could be found, and 1-year plants at the supplying nursery showed no symptoms. From examination of roots and root collars, and preliminary experiments on the germination of *Cytophthora* spores in soil, root infection from infected soil is considered the most likely cause.

444 CLIMBER CUTTING, ETC.


Threadlike particles, with a normal (weighted average) size of 626 × 12μ, found on leaves of Populus *x* *serotina* exhibiting typical mosaic symptoms, are thought to represent the virus.


Reviews the literature on *P.* cryptogena, and describes its morphology, culture, and biological characteristics. A new species in Argentina, it has caused the death of many large specimens of Populus simoni, killing the roots and causing active localized cankers on the root collar and stem.

453 INSECTS


The author's suggestion is based on an observation made on indi-
5 FOREST MENSURATION

56 INCREMENT; DEVELOPMENT AND STRUCTURE OF STANDS


566 YIELD TABLES AND THEIR CONSTRUCTION


811 STRUCTURE: IDENTIFICATION


563.25

548 RELATION OF FOREST SITE QUALITY TO TOTAL PRODUCTION OF VEGETABLE MATTER


584.315


Presents volume and taper tables (both o.b and u.b.) for 4-cm. diam. classes up to 60 cm. for P. suaveolens, and 52 cm. for C. macrolepis, both on quality sites in Yakutia.

48 INJURIES DUE TO UNKNOWN OR COMPLEX CAUSES


812 PHYSICAL AND MECHANICAL PROPERTIES


A preliminary report on studies made by the Centre Technique du Bois at the suggestion of the International Poplar Commission, in order to determine standard methods of testing poplar wood. The study was made on 14 logs of the hybrid P. robusta from 7 trees of different provenances and included sawing, seasoning, and veneer peeling as well as mechanical strength tests.


812.8


Tests carried out at the Centre Technique du Bois on wood 22-32 years old indicates that veneer can be cut from logs of 35-40 cm., but not satisfactorily from smaller ones. The arrangement of branches makes it possible to cut two logs clear of all knots. The wood nails well and is suited for box manufacture. Owing to its short life, however, it is difficult to obtain large sound logs, and pulpwod is probably its best use.

810 GENERAL INFORMATION ON WOODS


Pallay, N. 1938. INFORMATI9NYERES RESEARCH ON THE TECHNICAL QUALITIES OF POPULUS CANADENSIS AND P. ROBUSTA. Erdesz. Lapok. 77(10): 850-61. [Hu.g.f.e.]

811.14


811.156


812 FOREST PRODUCTS AND THEIR UTILIZATION


812.8


Tests carried out at the Centre Technique du Bois on wood 22-32 years old indicates that veneer can be cut from logs of 35-40 cm., but not satisfactorily from smaller ones. The arrangement of branches makes it possible to cut two logs clear of all knots. The wood nails well and is suited for box manufacture. Owing to its short life, however, it is difficult to obtain large sound logs, and pulpwod is probably its best use.
1 FACTORS OF THE ENVIRONMENT. BIOLOGY

P. TREMULA

813.17

815.3


From abstr. in Biol. Abstr. 35(8): 20335. 1960. Experiments showed that hare and elk collect to feed where aspen are felled, and that elk can be kept away from pine seedling stands by making aspen available. For continuous winter feeding, felling must be planned so that an average of only 1/40 of the aspen area is taken.

160.2
Andersson, S. E., and Enander, J. 1948. OM PRODUKTIONEN A'. LOFVARNA OCH DENNES SAMMANSATTNING I ETT MELLANSVENSK ASPESTAND [ON THE PRODUCTION OF LEAF LITTER AND ITS COMPOSITION IN A CENTRAL SWEDISH ASPEN STAND.] Svenska Skogsv. Forntidskr. 48(4): 263-70. 5 refs. [Sw.g.]


Discusses the distribution of both these characters in a 25-year stem, illustrating each with a stem-analysis diagram. Fibrelength ranged from 800 to 1260, mean 967.1, and sp. gr. from 0.28 to 0.64, mean 0.422. [Cf. Inokuma, Shimaji, and Hamaya, 1956. P. grandidentata to P. japonica-gigas, 815.31]

832.3


Summarizes provisional results of observations on the morphology and anatomy of flowers of Populus tremula.

165 PHYLOGENY, EVOLUTION, HEREDITY, GENETICS AND BREEDING, VARIATION

Johnsson, H. 1956. HETEROISIERSCHEINUNGEN BEI HYBRIDEN ZWISCHEN BREITENABRASSEN \"ON POPULUS TREMULA. [HETEROISIERSCHEINUNGEN BEI HYBRIDEN ZWISCHEN BREITENABRASSEN \"ON POPULUS TREMULA.]" Z. Forstgenet. 5(5/6): 156-60. 5 refs. [G.e.f.]


1942. **Möglichkeiten der Zuchtung neuen Okotypen**. *نحن،* 298-33. 14 refs. [G.r.g.e.f.]

Barnes, B. V. 1958. **Erste aufnahme eines sechsjährigen bestandes on aspenhybriden**. *Preliminary data from a 6-year-old stand of aspen hybrids*. Silvae Genet. 7(3): 98-102. 14 refs. [G.r.g.e.f.]


Dimpfmeier, R. 1963. **Results of 5 years of combinative breeding experiments with populustremula**. *Forest Sci. Chi. 82(9/10): 293-304. 10 refs. [G.r.g.e.f.]


Janson, L. 1960. **Analiza przyrostu sieker mienszowanych toplowi analisis of growth of hybrid poplar seedlings**. Sylwan 104(1): 77-89. [Pol. russ. e.]


Kouček, J. 1960. **Ural'skaja fraklama na poza osina.** [The Ural'skaja fraklama on poplar in Russia]. Lomn, Z., Arhangelsk 3(3): 156-7. 4 refs. [Rus.]

Rash, G. 1955. **A brief description of the hybrid, produced by crossing Populus tremula 0 with P. jellikovii (i.e. P. tremula x P. balsam).** With notes on its propagation. It is a decorative, frost-resistant tree, of interest for park and street planting.

Nilsson-Ehle, H. 1938. **Franstallning av skogstred med okat kromosomat och okad virkesproduktion.** [Production of forest trees with increased chromosomal number and increased timber yield]. Svensk PappTidn, No. 2. 8 pp. [Sw.]


1962. **Erzeg die Kreuzung populustremula x Populus alba (i.e. reciprocal crosses) produce hybrid vigor?** (Ein Beitrag zum Heterosis-Problem mit Waldrauten). [Do crosses of P. tremula x P. alba and reciprocal crosses produce hybrid vigor? (A contribution to the problem of heterosis in forest trees.)] Silvae Genet. 11(1): 3-11. 26 refs. [G.r.g.e.f.]

and Dahe, B. 1962. **Results of 12 years' breeding work with indigenous aspen an**. Proposals for practical application. [G.g.e.f.]

Seitz, F. W. 1954. **Ueber den Selection- und Kreuzungserfolg in der pollen- und, zuchtung von hybrid aspen**. [Results of crossing and breeding of hybrid aspen.] Abstr. in Z. Forstgen. 3(6): 141. [G.g.e.f.]

Srivastava, H.R. 1959. **Fruktneubforbeispiele mit Bluemzweigen der aspe.** [Some experiences in early development of flowering branches of aspen]. Silvae Genet. 7(3): 102-5. 8 refs. [G.r.g.e.f.]

1959. **Einige Erfahrungen bei der Anzucht on aspen**. Silvae Genet. 8(4): 124-5. [G.g.e.f.]


Wettstein, W. 1954. **Curze information über die zitterpappel.** [Note on Populus tremula]. Allg. Forstztg. 65(21/22): 263-4. [G.g.e.f.]

A general description of distribution, site requirements, growth characteristics and uses, with an account of earlier (1935-39) experiments in crossing plants from widely distant habitats, followed by a table, with explanations, giving 15-year growth results for 26 inter- and intraspecific crosses of P. tremula, P. alba, P. grandidentata, and P. tremuloides. All hybrids showed better growth than P. alba, and local combinations were better than combinations with American species. Hot-house ripened seeds lengthened the vegetation period and resulted in bigger 1-year seedlings.

Zorbin, A. I. 1951. **Povysejenie krozvonekologu populya.** [Increasing the capacity of poplar species for hybridization by previous grafting of one parent upon a stock of the other]. Prirod. Moskva 45(5): 96. [Russ.]


1959. **Kaksa triploidista haapaa ja koivua**. [Two triploid clones of Populus tremula and P. grandidentata.] Commun. Inst. For. Fenn 49(7): 25 pp. 21 refs. [Fi.e.e.g.]

An account of the growth characteristics and chromosome complement of two Populus tremula clones and two specimens of Betula pendula, the only triploid trees of these species so far discovered in Finland.


Describes a spontaneous haploid form, characterized by its bushy and stunted growth, and small leaves. Chromosome numbers in the root tips were 2n = 20.
165.7


165.71


168 HISTOLOGY


Includes details of the requirements of C. betuloides, Ulmus campestris, Betula verrucosa, Tilia parvifolia, and Populus tremula.


In vitro cultures from three aspens from different parts of France showed that the ease of rooting cuttings of a clone in direct relation to the ease of root formation by cambial tissue. Tissue that does not readily form roots can be stimulated by the proximity of one that does.


Provides details of the laboratory hybridization and culture of P. alba X P. tremula and P. tremula X P. alba, the early nursery growth of which was 20% greater than selfed P. alba. Leaves of the two crosses and of pure P. alba are illustrated.


176.1


181 MODE OF LIFE, AUTOECOLOGY, SILVICULTURAL CHARACTERS OF TREES

Borset, O., and Haugberg, M. 1960. OSIA. (POPULUS TREMULA.) Det Norske Skogseid, Oslo. 176 pp. 6 pp. of refs.[Nor.]
A comprehensive handbook covering its position in Norwegian forestry; botanical description; ecology; diseases and injuries; natural and artificial regeneration; tending; increment; properties and uses of the wood; felling and transport; marketing and grading; economic aspects; and breeding.


Reviews European work on propagation, breeding, and increment of Populus tremula, comparing it with other poplars of the section Lutea, and gives some data on increment and yield from plots at Zurich.


Dansecre, P. 1940. @ @ @ @ @ Valais @ @ L’Aire du Populus Tremula var. Freyni Hervier. Extension of the Range of Populus Tremula var. Freyni in Valais. Bull. Soc. Bot. Geneve. Ser. 2(30): 221-9. Bblg. [F.]


A number of young trees, the tallest 2 or 3, high, have been found in heavily-grazed birch scrub. This is the 2nd record of P. tremula growing naturally in Iceland.


Discusses briefly the type of Norwegian soil and site where natural regeneration of aspen might be more profitable than spruce plantations.


From abstr. in Przeh. Lesn. Lit. 5(10): 3852. 1954. [Cz.]


Describes the discovery of the clone, which consists of 33 trees 30-35 years old, in the Murmansk region. Experiments showed that protogyny occurred in the monoecious flowers of aspen catkins.


Cites an example of P. tremula growing in a private garden in Belgrade, on which, in addition to Q. catkins, Q. flowers were found.


Describes a case of monogamia in P. tremula buds.


A study of the androgynous flowers of a young Populus tremula at Stuttgart Mentions also made of the occurrence of androgy nous flowers on an adult P. alba (or possibly P. alba, P. canadensis) and a young P. candicans. [Cf. Seitz, 1954, P. alba to P. bacheseni, 165.41.]


181.69
Describes apparent natural grafting at three points on the stems of an oak and an aspen of copice and sucker origin respectively. No anatomical study has been made of the tissues at the "unions," but an attempt is to be made to prove true grafting by using tracer atoms.

181.71
Austral, T. 1957. STORE OPASPER [ASFEN ASPENS]. Norsk Skogbr. 3 (22): 597, 609. [Nor.]
Three trees, the tallest examples recorded in Norway, have measured heights of 31.74, 31.16, and nearly 30 m., and d.b.h. of 42.6, 41.7, and 46.3 cm. respectively. The green crown in all three occupies about half the stem height. The trees are ca. 60 years old.

182 SYNECOLOGY. PLANT SOCIOLOGY

182.21

182.3

182.58
and Wenmark. 1925. SOME INVESTIGATIONS IN ASPEN FORESTS. SvenskaSkogsFor. Tidskr. 23: 80-104, 125-42.

182.59


187 VEGETATION TYPES
Describes nine types in the Leningrad, Pskov, and Novgorod regions, characterized by: Calamagrostis lanceolata; Filipendula ulmaria; "herbae magnum;" "herbae memoraes;" Oxalis acetosella; C. arundinacea; Vaccinium myrtillus; V. vitis-idaea; Sphagnum; C. arundinacea (dry type).


2 SILVICULTURE

Summarizes the results of Norwegian research aiming at producing high quality aspen (Populus tremula) for matchstock.


Johnsson, H. 1948. ETT PAR TINDINGSBUKLIPP OM JATTEASPEN. [TWO NEWSPAPERS CUTTINGS ON THE GIANT ASPEN.] Skogen 35(9): 107, 4 refs. [Sw.]

P. TREMULA


232 ARTIFICIAL REGENERATION


232.1


Fromabstr. in Przh. Lesn. Lit. 5(9): 3541. 1954. [Cz.]


Fromabstr. in Przh. Lesn. Lit. 5(9): 3560. 1954. [Cz.]


Seed from a 25-year-old aspen was stored in a partial vacuum (25 mm. Hg) at 25°C, (1) with, and (2) without seed-coat, and tested (a) for germinative capacity and (b) ability to reach the prickling-out stage (development of primary leaf). After 2 years (a) was still 98% for (1), 79% for (2), while (b) was 79 and 60% respectively. Controls stored at room temperature had lost all viability after 6 months, though (2) kept a little better than (1).

The importance of (b) as a criteria is stressed.


Pospisil, J. 1951. JAKZISKAMEISTE OSIKOVYRZEMEN. [HOW TO OBTAIN CLEAN ASPEN SEEDS.] Cs. Les. 31( 18): 593-4. [Cz.]

Schenbach, H. 1961. ERGEBNISSE EINESANBAUVERSTESCHES MIT ASPEN [POPULUS TREMULA]. AUFGLEICHVERDIEMOGEN. [RESULTS OF A CULTIVATION TRIAL WITH P. TREMULA ON A PSEUDOGLYSE SOIL] Ar ch. Forsthun. 10(2): 150-70. 3 refs. [G.g.russ.e.]

232.13

Barnes, B. V. 1954. ERSTE AUFNAHME EINES SECHSJAHRIGEN BEZ- TANDES "ON ASPENHYBRIDEN B.E. MELITINIS DATA FROM A B-YEAR O- OLD STAND OF ASPENS HYBRIDS] Silvae Genet. 7(3): 98.102. 14 refs. [G.g.e.f.]

Haugberg, M. 1954. NOEN RESULTATER FRÅ AVKOMMFSORSK MED ASF. [SOME RESULTS OF PROGRESS TRIALS WITH ASPEN.] Norsk Skogind. 8(5): 195-5. 3 refs. [Nor.nor.e.]


Graumann, K. 1933. OBEHRVÆGJE NAD CHWASTAMI ŠZKOLSKI ŠKOLKIOWEJ. [OBSERVATIONS ON WEEDS IN AN ASPEN NURSERY.] Sylwan 98(2): 144-8. 7 refs. [Pol.]

Wolak, J. 1954. OBERWACJE NAD CHWASTAMI ŠZKOLSKI OSIKOWEJ. [OBSERVATIONS ON WEEDS IN AN ASPEN NURSERY.] Sylwan 98(2): 621-5. 11 refs. [Fte.g.]

Wolak, J. 1954. OBERWACJE NAD CHWASTAMI ŠZKOLSKI OSIKOWEJ. [OBSERVATIONS ON WEEDS IN AN ASPEN NURSERY.] Sylwan 98(2): 621-5. 11 refs. [Fte.g.]


3 WORK SCIENCE. HARVESTING OF WOOD:
LOGGING AND TRANSPORT. FOREST ENGINEERING

32 FELLING AND RELATED OPERATIONS

Ankudinov, A. M. 1944. FAUTNOSTI' METODNO RATIONAL'NOY RASKHAYAZHEYKI OSINTI. [DEFECTS AND METHODS OF RATIONAL CROSS-CUTTING OF ASHES]. Lesn. Prom. No. 9: 8-10. [Russ.]

332 CLEARING THE FELLING SITE


416.13

Kuster, E. 1952. CECIOLOGISCHE NOTIZEN. V. UBER DAS ERNEIN VON POPULUS TREMULA. [CECIOLOGICAL NOTES. V. ERNEIN POPULUS TREMULA]. Flora, Jena 139(4): 540-5. 22 refs. [G.r.e.]

Notes on the character and formation of galls of E. populueae caused by the activity of Phyllocopetapospoudia on P. tremula.

416.3/5


Mikalaikevivus (Mikalajkevivus), V. 1958. KAUHIIREDIEBU-


433 SALVAGE AND DISPOSAL OF FIRE-DAMAGED TIMBER


441 FORST WOODS

Eliasson, L. 1963. THE TOXIC EFFECTS OF CHLORINATED PHENOXYCARBONIC ACIDS ON ASPEN. Physiol. Plant., Copenhagen 16(2): 253-68. 46 refs. [E.e.]


Lundberg, H. 1952. LOVSOVIN SUM FLYCPLATEN. [KAINIGI-
NING HARDWOODS FROM AIRCRAFT]. Skogen 39(11): 221-2, 234. [Sw.]

[Note: The text continues with various research references and studies related to forest science, but the format and content are consistent with the overview given.]
443 FUNGI AND BACTERIA


[U.K.] 1951. Aspen an alternative host to pine rust. Rep. For. Comm. Lond. 1949-50: 42. A serious outbreak of Melampsora pinitorqua on Scots pine has pointed the way to growing of this species where aspen, the alternative host to the fungus, is present.

443.2


443.3


Andersson, R. L., Johanson, P. N., and Einspahr, D. W. 1960. Hyopsylon canker on European aspen. U. S. Dep. Agric. Plant Dis. Rept. 44(2): 132. Cankers caused by Hyopsylon pruinautum were found on Populus tremula in Wisconsin. This is the first report of this disease on P. tremula in N. America or western Europe, though it has been reported in the U.S.S.R. In crossing with native species, P. tremula cannot be regarded as a source of resistance to H. pruinautum. [From authors’ summary.]


An account of the biology of V. tremulae, and the extent and severity of the damage it causes to leaves and shoots. It is one of the most harmful parasites of aspen in Poland, especially in nurseries.


Persson, A. 1962. [Populus tremula x P. tremuloides and Valsalaneva.] Skogen 49(24): 458-60. 3 refs. [Sw.]

Symptoms of the disease and its development in the field are described. Repeated experiments failed to establish it on unwounded branches. Inoculations in May or June gave much higher percentages of symptoms than those made later in the year, and those made on thin (3 mm. diam.) than those on thick (12 mm.) branches. Systematic studies begun in 1959 on different progenies of the hybrid have shown considerable variation between them as regards disease resistance.

Persson, E. 1955. Kronenykmose der Hybrides. 1. Untersuchungen uber auftretende, selektive Wirkung und Pathogeni-
6 FOREST MANAGEMENT

8 FOREST PRODUCTS AND THEIR UTILIZATION

811 STRUCTURE. IDENTIFICATION


811.12

Asunmaa, S. 1955. ELECTRON MICROSCOPE STUDIES ON SECTIONS OF ASPEN SULPHITE PULP FIBRES. Svensk PappTidn.58(2): 33-4. 5 refs. [Eg.sw.e.] Results are shown in photomicrographs.

811.144

Huhrjanskaja, T. P. 1953. VLIJANIE EXPRESSOVANIIA NA STRUKTURU DREVZINTOSINY I OSNYY. [THE EFFECT OF COMPRESSION ON THE WOOD STRUCTURE OF ASPEN AND PINE.] Trud. Inst. Lesohoz. Nauki Arm. 9: 444-7. X-ray spectra showed that the cellulose structure was the same in both species, and does not change until the volume is reduced by 40%. The cellulose is more orientated in pine wood irrespective of orientation, while in aspen the change of orientation depends on the direction with regard to the direction of compression.

811.156


812 PHYSICAL AND MECHANICAL PROPERTIES


812.7


Gives the results of tests on P. deltoides ("carolinensis"), P. regenerata, and P. tremula.
Aalton, E. 1958. INVESTIGATIONS ON THE MODE OF COMBINATION OF LIGNIN IN WOOD, WITH SPECIAL REFERENCE TO ASPEN (PULP TREMULA) WOOD. Ann. Acad. Scientiarum Fennicae, Helsinki (Ser. A. II) No. 88, 58 pp. 92 refs. [E.e.]

831.1

Aalton, E., and Roschier, R. H. 1954. LIGNININ KEMIALIIEN SITOUKUMINNAHAPAAPUUSSA FUSKUROIUTIJEN BUTANOLI-VESIKEKETTOV

JASOIN VALOSSA. [THE CHEMICAL COMBINATION OF LIGNIN IN ASPEN WOOD WITH REFERENCE TO BUFFERED BUTANOL/WATER COOKS.] Pap. ja Puu 36(4a): 157-74. 41 refs. [Fl.e]

Holmgren, B. 1947. ESSENKHOLZ UND MERCAPTAUSEN. [LIG


Larsson, A. 1943. SULPHITE ETX. LIGNOSU.


831.15


831.2

Larsson, S. E., and Selleby, L. 1960. ASPEN WOOD CONSTITUENTS. Svensk PappTidn. 63 (18): 506-8. 7 refs. [E.e.sw.g.]


The following were tentatively identified: a sitosterol glucoside, cero tic (hexacosanoic) acid, and lignoseric (tetraacosanoic) acid.


Reviews literature on saturated fatty acids in other woods and on methods of analysis, and gives photomicrographs of sections showing the location of extractives soluble in diethyl ether as such but insoluble in diethyl ether as bismuth salts, mainly in the medulary rays of both species.


Analysis of the C6H10 and CH2O extracts of aspen sawdust showed that aspen contains a fatty oil resembling linseed oil, and extractives similar to tannins and phlobaphenes and containing free and combined sugars.

831.3


815 EFFECT OF GROWTH FACTORS ON STRUCTURE AND PROPERTIES

Savina, A. V. 1939. VLITANIE RUBOK UKHODA NA STROENIE BREVES.


83 TIMBER MANUFACTURING INDUSTRIES AND PRODUCTS

Jakowleff. 1932. UTILIZATION OF ASPEN TIMBER DAMAGED BY WOOD MT. Forstl. Rundschau 5 178.


Table data on the physical and mechanical properties of sound and decayed wood, and weathered wood. The possibilities of using defective aspen wood in building, box-shok manufacture, pulp, pulp, chipboard, etc., are discussed, and some machines for removing decayed wood are described.

832.2


Gorinsky. 1893. P. TREMULA FOR MATCH MANUFACTURE. Rev. Eaux For. 52: 249.

835 INDUSTRIAL AND DOMESTIC WOODDWEAR

(Paper AND USE)


839 MISCELLANEOUS

Chevedaev, A. A. 1945. KLESHCHEVAYA BOLIVANKA ZA NOVYES

POROD. [NAME BLANKS FROM NEW SUBSTITUTE WOOD.] Lesn. Prom. 1945(10/12): 10-1. [Russ.]

443.1

Gambogi, P. 1957. ALTERAZIONI CHROMATICHE IN LENO DI P.


Xvi. 33 refs. [It.it.e.]

444.2

Ryckova, A. G. 1958. O HAMICKESKOM SSTOVAE GNOLO PRevesen


444.47

Bjorkman, E. 1953. THE OCCURRENCE AND SIGNIFICANCE OF STOR.

AGE DECAY IN BIRCH AND ASPEN WOOD WITH SPECIAL REFERENCE TO EXPERIMENTAL PREVENTIVE MEASURES. Skr. K. Skogshogsk., Stockh. No. 12/19-53. 90. 15 refs. [E.e.sw.]

Tuvonen, A. 1955. KOIVU- JA HAAPAPUUN PILAAJMINEN. [DAMAGE TO BIRCH AND ASPEN WOOD.] Pap. ja Puu 37(2): 36-41. 5 pp. 8 refs. [Fl.e.]

Reprinted as Tied., Metaehto, Helsinki No. 112. 1955. A review of previous research, especially that by E. Bjorkman (see preceding reference).

484.8/5


Bitumen emollients applied to the ends of logs gave good protection against cracks and, with the addition of phenolic antiseptics, against fungi.

861 PULP AND PAPER MANUFACTURE. TEXTILE AND OTHER CELLULOSE DERIVATIVES

Masirevic, D. 1958. OSINENI : UPOTREBLJIVOST NASE TOPOLE ZA PROIZVODUJU CELOIDE III. JAS版本 (PULP TREMULA L.) KAO SROVINJE ZA PROIZVODUJU

SULFITNI CELOIDE ZA PAPIR I ZA DALJU HEMIJSKI PREFRADU. [THE PROD,

ERIES AND POSSIBILITIES OF USING YUGOSLAVIAN PAPERS FOR CELOIDINE. PRODUCTION III P. TREMULA AS A RAW MATERIAL FOR SULFITE PULP FOR PAPER AND FURTHER CHEMICAL PROCEEDINGS.] Topola, Beograd No. 7: 595-603. [Serb.g.]
Comparing ease of pulping, and pulp yield and properties of
Betula verrucosa, Populus tremula, and Alnus incana pulped
by the sulphite and various sulphite processes. Results are
given in graphs.

Kalistratov, G. A. 1960. Puln FROM ASPEN. Bumaznaja Promy-

Ljaman, V. A. 1962. [GASIFICATION OF SMALL CHIPS OF VARIOUS
[Russ.russ.]
Gasification trials were made with small chips of 10-50\% m.c.
from aspen fuelwood containing 16% bark and 10% decayed
wood (Fomesignarius). Yields of liquid products fell with in-
creasing chip m.c., while gas yield rose. A chip m.c. of 25\% proved
optimum, but chips of less than 25\% m.c. could be used.

9 FORESTS AND FORESTRY FROM THE NATIONAL
AND INTERNATIONAL POINTS OF VIEW

P. TREMULOIDES

1 FACTORS OF THE ENVIRONMENT. BIOLOGY

Stegeman, L.C. 1954. The production of aspen and its util-
ization by beaver on the huntington forest. J. Wildlife Mgmt.
18(3): 348-58. 11 refs.

Westell, C.E., Jr. 1954. AVAILABLE AND MOW FOLLOWING ASPEN
LOGGING IN LOWER MICHIGAN. J. Wildlife Mgmt. 18(2): 266-71.
2 refs.

Euler, H. Von., and Hahn, L. 1948. Nukleinsaure-gehalt gru-
ner blatter. [Nucleic acid content of green leaves.] Arch.
[G.g.]

Pearl, I. A., Darling, S. F., and Justman, 0. 1962. STUDIES ON
THE LEAVES OF THE FAMILY SALICACEAE. I. POPULIN FROM
THE LEAVES OF POPLUS GRANDIDENTATA AND POPLUS TREMULOIDES.
J. Organ. Chem.27(7): 2665-7. 11 refs.

Pridham, J. B. 1960. OLIGOSACCHARIDES AND ASSOCIATED GLYCO-

Hubbes, M. 1962. TWO GLYCOSIDES FROM ASPEN FUNGISTATIC
AGAINST HYPHOXYLON PRUNATUM (KLO.) CKE. Bi-m. Progr. Rep.
The two additional fungistatic substances isolated from Populus
tremuloides bark extracts are both glycosides. The highest con-
centrations of one occurred in the lower half of the crown, and of the other in the branch-free portion of the stem.


Aspen tissue, originally isolated from the approximate cambial region of triploid stem sections, yielded substances producing inhibitory zones when the culture plates were inoculated with Fusarium roseum, Saccharomyces cerevisiae, Bacillus spp., Penicillium roqueforti, Torula utilis, Sarcina lutea, Flavobacterium aquatile, Pseudomonas stutzeri, and Staphylococcus aureus.

161.19


Investigations into the moisture content of living trees of Populus tremuloides in Minnesota showed that the c. was at its lowest from June to Sept. inclusive, and high from Nov. to April inclusive, May and Oct. being transitional periods. There were also considerable variations between different parts of Minnesota.

161.23


161.32


161.4


161.6


In a survey in natural stands of Populus tremuloides in Michigan and Wisconsin, in which nonflowering trees were girdled to produce flowers, the sex ratio did not differ significantly from 1:1. [Cf. Pauley and Mennel, below.] None of the characters studied differed significantly between the sexes over the whole area.


Analysis of the flowers of 206 trees in a native Minnesota population showed a sex ratio of 3 male: 1 female tree. Incidence of hermaproditism in female trees was 20.6%, and in male trees 4%. [Cf. Santamour, below.]


Examination of 10 catkins from each of some 600 trees (300 female and 354 male) of P. tremuloides, both wild and artificially bred, showed that ca. 48.7% of males bore some male flowers, and 2.8% of males some female flowers. These probably represent minimum figures since only 1 out of the 10 catkins from many trees showed abnormal flowers, and no doubt some of the apparently unisexual trees did in fact have both kinds.

161.9


164.3


164.4


164.6


Describes and illustrates branched staminate catkins and hermaphroditism in Populus tremuloides, and late flowering in P. grandidentata and P. tremuloides.


164.5


A general review and discussion of the genetic approach in (mainly) Populus tremuloides production, with special reference to pulp and paper technology.

164.42


Of 28 staminate individuals of P. tremuloides, 6 were found to have a heteromorphic chromosome pair, but a heteromorphic condition was not found in the others. It is unlikely, therefore, that the male sex in P. tremuloides is determined in this way.


An account of their discovery in several locations in the Lake States, 1956, of the methods used in searching for them and of the first data obtained on their morphology and fibre dimensions.


165.5


165.52

P. TREMULOIDES

165.71

176.1

181 MODE OF LIFE, AUTECOLOGY, SILVCULTURAL CHARACTERS OF TREES


181.2

181.21
A study of the root systems of aspen on prairie in Mahnomen County, Minn., suggests that, whereas in the past fire has kept the aspen groves reduced and the trees small, settlement and the practice of harvesting wild prairie hay has protected the groves and resulted in vigorous growth of aspen and of their long, propapating roots.

181.312

Marston, R. B., and Julander, O. 1961. PLANT COVER REDUCTIONS BY POCKET GOPHERS FOLLOWING EXPERIMENTAL REMOVAL OF ASPEN FROM A WATERSHED AREA IN UTAH. J. For. 59 (2): 100-2. 5 refs.


181.319

181.32

181.343

181.36

181.51

Summarizes the results of two studies: (1) on the phenomena of suckering in populus tremuloides, (2) on the conditions favoring the regeneration of P. tremuloides stands by suckering.

181.52

181.521
Einspahr, D. W., and Johanson, P. N. 1960. LATE FLOWERING IN ASPEN AND ITS RELATION TO NATURALLY OCCURRING HYBRIDS. For. Sci. 6 (3): 221-4. 8 refs.
Reports, with illustrations, the flowering of male and female catkins of P. tremuloides 10 days later than the rest and providing thereby the necessary time bridge to explain the local hybridization with P. grandidentata. [See Pauley, 1956, P. tremuloides, 181.71.]


181.8


182 SYNECOLOGY. PLANT SOCIÖLOGY


182.3

Fetherolf. 1917. ASPEN AS A PERMANENT FOREST TYPE. J. For. 15: 757.


182.47
Ellison, L., and Houston, W. R. 1956. PRODUCTION OF HERBACEOUS VEGETATION IN OPENINGS AND UNDER CANOPIES OF WESTERN ASPEN [POPULUS TREMULOIDES]. Ecology 39 (2): 337-45. 19 refs. Heavier grazing by livestock in openings is believed to be responsible for the poorer production and species composition of the herbaceous vegetation commonly noted in openings than under the aspen canopy.

187 VEGETATION TYPES


187 X 164


Of the existing 19.5 million acres of aspen/birth, present trends indicate that, by 1990, 2.1 will have reverted to northern hardwoods, 1.43 to spruce/fir, 0.75 to mixed types and 0.08 to pine. Low value types will cover more than 1.0 million acres, 2.6 are already partly converted to other types and 9.5 do not give much promise of conversion in the foreseeable future.
2 SILVICULTURE

231 NATURAL REGENERATION


231.5


A study was made on Populus tremuloides (a) and P. grandidentata (b) root suckers. On the whole, (a) suckered nearer the soil surface and from smaller roots than (b) which occupies the whole A horizon more completely. This difference probably accounts for the advantage of (b) over (a) on shallow dry sites.

228 CONSTITUTION AND COMPOSITION OF STANDS; FORMS OF STAND

Eyre, 1933. ASPEN CONTESTION IN OKLAHOMA PINE PLANTATIONS. J. For. 31: 318.


228.1


228.12


228.3


No growth data have previously been available for this important forest type (Picea glauca/Populus tremuloides). In spite of the difficulty of preparing yield tables for mixed stands, an attempt is made on the basis of 127 temporary sample plots, to provide tables suitable for the present stage of management in the area.

23 REGENERATION AND FORMATION OF STANDS


An account of the original conditions, and changes in plant and animal ecology that have taken place since white settlement of the Prairie Provinces, as a result of hunting, fire, cultivation, etc. The aspen parkland lies between the great plains and the boreal forest; the land is in many places poorly drained and covered with small bodies of water; on the drier parts grassland and aspen-dominated forest are intermixed.
Three methods of sowing *Picea glauca* at the base of *Populus tremuloides*. (a) in the humus layer, (b) in moss, and (c) on scalded patches, were tested in dense young, and open mature stands. Results indicated that (c) was more favorable than (a) or (b) for germination, and better for survival than scalded patches between trees.

242 THINNINGS


Results of thinning two stands, one at 11 and the other at 20 years showed that costs are much lower for the early thinning, even at compound interest. Later thinning involves heavy work.

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Tabulated results of observations over 20 years on three plots given different thinning treatments at 35 years.

243 OPENING OF THE CANOPY (INCREMENT FELLINGS, OVERHEAD RELEASE AND IMPROVEMENT FELLINGS)


243.8


Stump treatment or notch treatment of living P. tremuloides with Ammata (NH, sulphamate) was effective in killing trees and preventing sprouting. Many untreated trees were killed through the connecting root system. Trees less than 1 in. d.b.h. were harder and more expensive to kill. The poison was more effective when applied in late summer or autumn.


268.1


3 WORK SCIENCE. HARVESTING OF WOOD: LOGGING AND TRANSPORT. FOREST ENGINEERING


No tree was found whose death could be attributed solely to defoliation. In general the extent of crown dieback was directly related to vigor of the tree. The collapsed tissues were surrounded by xylem cells and cambial region and adjacent phloem material that accompanied collapse and disintegration of cambial and phloem cells results in the formation of a belt of weakened material that can be ruptured very easily. Collapse of cells seems to be partially caused by a contraction of the whole phloem region.


Shiue, C. -J., Brown, R. M., and Ree, L. W. 1958. ASPEN DERRING WITH 2,4-D. J. For. 56(7): 503-7. 10 refs. 378.44


4 FOREST INJURIES AND PROTECTION


Shiue, C.-J., Brown, R. M., and Ree, L. W. 1958. ASPEN DE-RERRING WITH 2,4-D. J. For. 56(7): 503-7. 10 refs. 378.44


4 WORK SCIENCE. HARVESTING OF WOOD: LOGGING AND TRANSPORT. FOREST ENGINEERING


No tree was found whose death could be attributed solely to defoliation. In general the extent of crown dieback was directly related to vigor of the tree. The collapsed tissues were surrounded by xylem cells and cambial region and adjacent phloem material that accompanied collapse and disintegration of cambial and phloem cells results in the formation of a belt of weakened material that can be ruptured very easily. Collapse of cells seems to be partially caused by a contraction of the whole phloem region.


Shiue, C.-J., Brown, R. M., and Ree, L. W. 1958. ASPEN DE-RERRING WITH 2,4-D. J. For. 56(7): 503-7. 10 refs. 378.44


CANKER OF ASPEN AND T. TREMULOIDES. THE EF-


A leaf-spot disease of Populus tremuloides has reached epidemic proportions in Alberta. The causal fungus has been identified as Marssonina tremuloides.


Populus tremuloides reproduction having a girdled bulbous base are common in the Prince Albert area of Saskatchewan. Examination of affected trees disclosed extensive tunnelling in the heartwood of the rootcollars, apparently due to a Saperda sp. closely resembling S. calcirata.

1963.5/3


A study of decay in Populus tremuloides in N. Ontario showed that R. casearius caused 20% of all cull losses from decay, and an even higher percent was found in Manitoba. Laboratory experiments with the fungus showed that optimum temperature for growth was 30°C and optimum pH between 5.1 and 6.0. The fungus has never been found on balsam poplars and it is suggested that the pH of sap of balsam poplars may be inhibitory to its growth.


1958. ASPEN CANKER OF ASPEN IN THE LAKE STATES. U. S. For. Serv. Lake St. Exp. Sta. Tech. Note No. 400, 3 pp. Correlations between incidence of canker and such factors as site quality and tree density are discussed. Practical conclusions are that stands on poor sites should be converted to other species at a lower density. Carried on in 3-5 years a discomycete, here named Canadium singular (Rehm.) comb. nov. fruits abundantly in the canker. It may appear in the centers of the cankers before they girdle and kill the tree but it is most abundant in the diseased bark of dead trees.


Steuckler, J. H. 1955. DEER, MICE AND HARES DAMAGE YOUNG ASPEN AND PAPER BIRCH PLANTINGS IN NORTHEASTERN WISCONSIN. U. S. For. Serv. Lake St. For. Exp. Sta. Tech. Note No. 441, 1 p. Most of the loss in the first 3 years was due to browsing by Microtus pennsylvanicus.


Discusses the seasonal periodicity of canker growth, fungus development and ascospore ejection, the effect of bacteria on ascospore germination and its possible significance in nature, a
technique of inoculating stem sections and its use in studying natural infection, and the production of conidia by single ascospore lines.


Describes basidiocarps and cultures of four fungi already discussed, plus Peniophora russa (on Populus tremuloides). Picea engelmannii is reported as additional host for all three conifer fungi, and Pinus contorta for Helicosbasidium corticoides.


Silverberg, S. B. 1953. STERILE CONKS OF FOMES IGNARIUS ON ASPEN. Phytopathology 43(12): 699-700. Three sterile conks were found on recently killed, standing Populus tremuloides in New York State. The fungus was identified by cultural characteristics and by comparison with known isolates of F. igniarius from quaking aspen.


5 FOREST MENSURATION

523.1

524.12

525.3

524.315

526 LOG MEASUREMENT. "SCALING"

532 QUANTITY AND AREA OF FOLIAGE

54 ASSESSMENT OF SITE QUALITY

541 BASED ON HEIGHT, DIAMETER, VOLUME, ETC.

A study based on more than 450 sample plots and more than 800 stem analyses indicated that in three forest types examined, differences in the structure and composition of the vegetation corresponded to differences in yield of conifers or aspen, though total site productivity and site class was the same.


Two species found feeding on the foliage of Populus tremuloides have been tentatively identified as Platyctamus americanus and P. albostigmus.
drainage, topography and climate, showed highly significant correlations between site index and the silt and clay content of B and C horizons, and between site index and pH of the C horizon (the latter being correlated with its silt and clay content).


... and other references

**65 IN SINGLE TREES WITH ANNUAL RINGS**


Eighty-seven percent of ring counts in the field on 23 representative sample discs of P. tremuloides and P. balsamifera were below those made in the laboratory. This may be attributed to indistinct demarcation between early and late wood and to the presence of decay.

56 INCREMENT: DEVELOPMENT AND STRUCTURE OF STANDS


Birch leader growth started in late May and continued till early July (43-47 days). Radial growth of all three species started in early June and was continuous. Mean leader growth per tree (b) was 4.70 in. at Richardson Highway (a) and 0.82 in. at Elliott Highway (b). Mean total radial growth at (a) was: birch 0.012 in., spruce 0.028 in., and at (b) birch 0.002 in., aspen 0.030 in.


**66 YIELD TABLES AND THEIR CONSTRUCTION**


A review of literature.


644.5 '6


561 74


Applies to **Picea glauca/Populus tremuloides** stands undisturbed by fire or felling, with emphasis on the growth and yield of P. glauca. Subjects covered include prediction of increment and deduction for cut. Shelterwood and strip felling of **P. glauca** appear to be promising ways of obtaining the desired regeneration of that species.

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651.21


651.24


652.2

Hubbard, J. W. 1956. **GROWTH AND MORTALITY IN A NORTHERN MINNESOTA PESKEY.** Minn. For. Note No. 50, 2 pp. Data derived from remeasurement, after 5 years, of 558 permanent 1/5-acre plots are presented and analyzed. A separate growth tabulation was made for **Populus tremuloides,** which has an almost straight-line growth curve, and **Abies balsamea,** which grows slowly up to 6 in. d.b.h., then accelerates greatly until about 10 in. d.b.h., when the growth rate levels off.

567 STAND TABLES


666 YIELD TABLES AND THEIR CONSTRUCTION


672 PRICES

8 FOREST PRODUCTS AND THEIR UTILIZATION


810 GENERAL INFORMATION ON WOOD


811.12


Presents a series of electronmicrographs of sections of wood of Ochroma lagopus and Populus tremuloides and comments on the organization of cellulose fibrils in the cell walls.

811.156


A study on 10-mm increment cores at Wisconsin and Michigan. Fibre length increased with the logarithm of age from the pit; it was not related to direction, but fluctuated at random. The correlation coefficient of fibre measurements from pulped b.h. cores and from whole-tree pulps of 2.5 trees was 0.8.


Changes in fibre length were determined across the radius of the stem for five trees in each of four natural clones. The results indicate that fibre-length increases across the stem are more closely related to annual ring number than to distance of the sample from the pit.

811.7


Discusses physical properties, morphology and anatomy, chemical composition [cf. Brown and Dubits, 1953; P. tremuloides, 813.21, including the distribution of components in the tissue elements, pulping characteristics, and potential other uses. Pulping results are poor. At present fibres are only included in low-grade products where barking before pulping would not be economically justified.

812 PHYSICAL AND MECHANICAL PROPERTIES


812.31


Study of 200 randomly selected trees demonstrated that a relatively large variation in sp. gr. is present in the P. tremuloides population of this area.

812.7

The nature of the process and the substances obtained are discussed and it is suggested, from the character of the residual wood and the nature of the identifiable low molecular weight degradation products that aqueous solutions of pure NaHS are specific agents for the cleavage of protolignin linkages in aspen.


Beyer, D. L. 1957. NEW DEVELOPMENTS IN THE CHEMISTRY OF ASPEN LIGNIN. Tappi 40(1): 45-48. 7 refs. The average OCH3 content of Populus tremuloides lignin was found to be much less than the commonly accepted figure of 21%. Results of fractionation by means of isopropanol, ethyl ether, and ion-exclusion processes are presented.


Busche, L. R. 1960. STUDIES ON THE CHEMISTRY OF ASPENWOOD. XI. THE KLASON LIGNIN DETERMINATION AS APPLIED TO ASPENWOOD WITH SPECIAL REFERENCE TO ACID-SOLUBLE LIGNIN. Tappi 43(12): 961-70. 47 refs.

Busche, L. R. 1960. STUDIES ON THE CHEMISTRY OF ASPENWOOD (POPULUS TREMULOIDES). XII. STUDIES ON THE PREPARATION OF MILLED LIGNIN FROM ASPENWOOD. Tappi 43(12): 970-4. 19 refs. Describes the method of preparing milled wood lignin, using a vibratory ball mill specially constructed for sub-zero grinding temperatures, and presents the data obtained from fractions (isolated at 78°C) examined on the basis of chemical analyses and ultraviolet and infra-red spectra. [From authors' summary].


1961. The relatively large amounts of extractives of resins in the wood, not easily removed during pulping or bleaching, may later cause such problems as pitch or loss of absorbency. Little is known of the nature of these resins, and this thesis investigates the neutral portion of the benzene extract of Populus tremuloides.

815 EFFECT OF GROWTH FACTORS ON STRUCTURE AND PROPERTIES

831 ASPEN ON DIFFERENT EASTERN
1917.

832 TIMBER MANUFACTURING INDUSTRIES AND PRODUCTS


832.2 Fehl, A. 0. 1958. VENEER AND PLYWOOD FROM ASPEN POPULUS. Canad. Woodworker, Toronto, Jan. 3 pp.


841 3 Trenk, F. B. 1955. INDICATIONS OF SERVICEABILITY OF FENCE POSTS TREATED WITH WATER OR WATER-BASED PROCESSES—SPONNER, MINNESOTA EXPERIMENT STATION. FOR. Res. Note Wis. For. Prod. Lab. No. 24, 2 pp. Reports a small-scale experiment with aspen, jack pine, and white cedar (Thuja occidentalis). A treating schedule given. Absorption was good in all species, and after 8 years in service, 11 out of 13 aspen, and all the jack pine and white cedar posts were sound while all controls had rotted off.

847 DRYING (SEASONING)

852.15 Hosfeld, R. L., Oberg, J. C., and French, D. W. 1957. THE APPEARANCE AND DECAY RESISTANCE OF DISCOLOURED ASPEN. For. Prod. J. 7(10): 378-82. 3 refs. Observations in fence-post trials and soil-block decay tests indicate that discolored woods associated with knots, Nectria canker, and "wetwood" were more resistant to decay than ordinary sapwood. Alcohol extracts from fluorescent wood were more toxic towards test fungi than those from nonfluorescent wood.

Hosfeld, R. L., Oberg, J. C., and French, D. W. 1957. THE APPEARANCE AND DECAY RESISTANCE OF DISCOLOURED ASPEN. For. Prod. J. 7(10): 378-82. 3 refs. Observations in fence-post trials and soil-block decay tests indicate that discolored woods associated with knots, Nectria canker, and "wetwood" were more resistant to decay than ordinary sapwood. Alcohol extracts from fluorescent wood were more toxic towards test fungi than those from nonfluorescent wood.

852.16 Clermont, L. P., and Bender, F. 1958. THE CHEMICAL COMPOSITION AND PULPING CHARACTERISTICS OF NORMAL AND TENSION WOOD OF ASPEN POPULUS AND WHITE ELK. Pulp Paper Mag. Can. 39(7): 470-7. 6 refs. Extractives from discolored zones in the wood of Populustremuloides have been shown by paper partition chromatography to include a well defined group of strongly fluorescent compounds. Their nature and composition appear to be independent of the nature of the associated types of injury (e.g. by Saperda calcarata).


854 “GRADING” OF CONVERTED TIMBER
861 PULP AND PAPER MANUFACTURE. TEXTILE AND OTHER CELLULOSE DERIVATIVES


Hyttinen, A., Martin, J. S., and Keller. E. L. 1960. PULPING AND PAPERMAKING EXPERIMENTS ON QUAKING ASPEN FROM COLORADO. Rep. U. S. For. Serv. For. Prod. Lab., Madison No. 2180, 5 PP. Describes and discusses groundwood, sulphite, sulphate, and semimechanical pulping experiments made at Madison. Magazine coating-base papers made from the pulps showed that the sulphite pulp was stronger than that made from Lake States aspen, while the other pulps were almost as strong as the corresponding pulps made from Lake States aspen.


861 x 13


861 X 16


861.1


861.11


A study using a specially designed apparatus, of the frictional resistance to sliding of rigid cylinders over Picea mariana, Abies balsamea, and Populus tremuloides wood in the presence of water and through a range of specific loading conditions embracing those employed in commercial grinding.


861.12


Studies the effects on pulp yield, quality, and production costs of adding various wetting agents to Populus tremuloides chips to enhance the penetration of cold soda liquor into hardwood. Narrowline sulphonate appeared the most suitable of the surfactants examined.


Discusses the results of pulping aspen and mixed hardwoods by the neutral sulphite semichemical method.


Tabulates the effects of various cooking factors on the characters of the paper, describes a commercial operation and compares 100% aspen with spruce/aspen groundwood pulp, concluding that the former (45% being treated with NaOH) is equal in quality to the mixed pulp. Other tests compare aspen from four localities and the effect of varying wood moisture.


Trivedi, S. A., and others. 1948. EXTRACTION TREATMENTS IN BLEACHING ASPEN NEUTRAL SULPHITE SEMICHEMICAL PULP. Pop. Indus. 29: 1445-52. 20 refs.

861.121'16


861.13

861.14


861.15


861.16


Covers work to date on an F.P.R.L., Madison, project designed to develop economic methods of separating and solubilizing the major wood components (lignin, hemicellulose, and cellulose), and includes descriptions of the experimental techniques developed and some rate-yield data for the Na-m-xylene-sulphonate-sulphuric acid-water system acting on Populus tremuloides. Results are reported on a few degree-of-polymerization measurements made on residues of low lignin content.

861.17


861.41

862 COMPOSITE MATERIALS MADE WHOLLY OR PARTLY OF WOODY MATTER

863.9

864 UTILIZATION OF LIGNIN

866 UTILIZATION OF WOOD EXTRACTIVES

892.43

Gives pulp yields from the three barks, the Na₂SO₃ consumption, the former being less and the latter greater than for wood fibre. In mixed bark and wood pulp, as the proportion of bark increased, the strength and density of standard test sheets decreased, aspen pulp being most and hickory least sensitive to the addition of bark.

892.49

Ten aromatic compounds were identified in the methanol extracts of aspen inner phloem and stone cell layers, and data on the seasonal variation of such substances as salicin, populin, tremuloidin, and ferulic acid in the various extracts, were obtained.


9 FORESTS AND FORESTRY FROM THE NATIONAL AND INTERNATIONAL POINTS OF VIEW

905 FOREST STATISTICS AND RESOURCES
P. TRICHOCARPA TO P. YUNNANENSIS

1 FACTORS OF THE ENVIRONMENT. BIOLOGY


165.5 Muller, R. 1955. BEITRAG ZUR BEURTEILUNG DER [POPULUS] TRICHOCARPA. [CONTRIBUTION TO A REVIEW OF P. TRICHOCARPA.] z. Forstgenet. 4 (1) : 16-7. [G.e.f.]


Data from individual trees indicated statistically significant differences in fibre length and sp. of between clones of the two species studied. Variation were also apparent in the fibre arrangement in the phloem. The material was from trees 5 years of age or younger. Studies should be made on more mature trees to determine whether these juvenile traits are permanent or temporary.


Whereas short-growing-season ecotypes from high latitudes are characterized by precocity, short-growing-season ecotypes from high altitudes, when grown under uniform temperature and day-length conditions, proved significantly less precocious than low-elevation, long-growing-season ecotypes. [Cf. Pauley, 1954, P. trichocarpa to P. yunnanensism, 181.21.]


Includes a note on trials with Populus trichocarpa and the 'Rochester' poplar (P. trichocarpa x nigra) which showed themselves more tolerant to shade when planted in narrow gaps, narrow gullies or in close spacing, than black poplar hybrids.


2 SILVICULTURE


Bloomberg, W. J. 1959. ROOT FORMATION OF BLACK COTTONWOOD

[POPULUS TRICHOCARPA] CUTTINGS IN RELATION TO REGION OF PARENT [G.e.f.]. For. Chron. 33 (1) : 13-7. 1 ref.

Larsen, C. M. 1948. EXPERIMENTS WITH SOFTWOOD CUTTINGS OF BLACK'S POPLAR. Aarskr. Vet.-Landbohojsk 1948: 42.63. 20 refs. [E.e.]

4 FOREST INJURIES AND PROTECTION


1962. ACTIDION AND NATURAL BARK EXTRACTS IN THE CONTROL OF HYPOXYLON CANKER OF POPLAR. For. Chron. 38 (3) : 363-5. 4 refs. [E.e.]

542 BY ECOLOGICAL METHODS

Smith, J. H. G. 1957. SOME FACTORS INDICATIVE OF SITE QUALITY FOR BLACK COTTONWOOD (POPULUS TRICHOCARPATA) AND TRICHOCARP A TO P. YUNNANENSIS

5 FOREST MENSURATION

FOREST PRODUCTS AND THEIR UTILIZATION

81 1.13

81 1.156

The lengths of fibres from fast- and slow-grown trees were measured at comparable height and ages. Fibre length was found to vary directly and significantly with both growth rate and age from pith. An additional investigation showed that fast-grown stool-shoots had longer fibres than slow-grown ones from the same stump. The mechanisms regulating fibre length in trees are discussed briefly. [From author's summary.]

812 PHYSICAL AND MECHANICAL PROPERTIES


813.1 1
Farmer, R. E., Jr., and McKnight, J. S.


A partially annotated list developed from citations furnished by the Commonwealth Forestry Bureau and arranged according to The Oxford System of Decimal Classification for Forestry.