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Seminar on the Furniture
and Joinery Industries
Lahti, Finland
29 July - 17 August 1974

FURNITURE AND JOINERY INDUSTRIES IN BRAZIL ✓

by

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* Assistant to Commercial Manager, Cimbarra S.A., Rio de Janeiro

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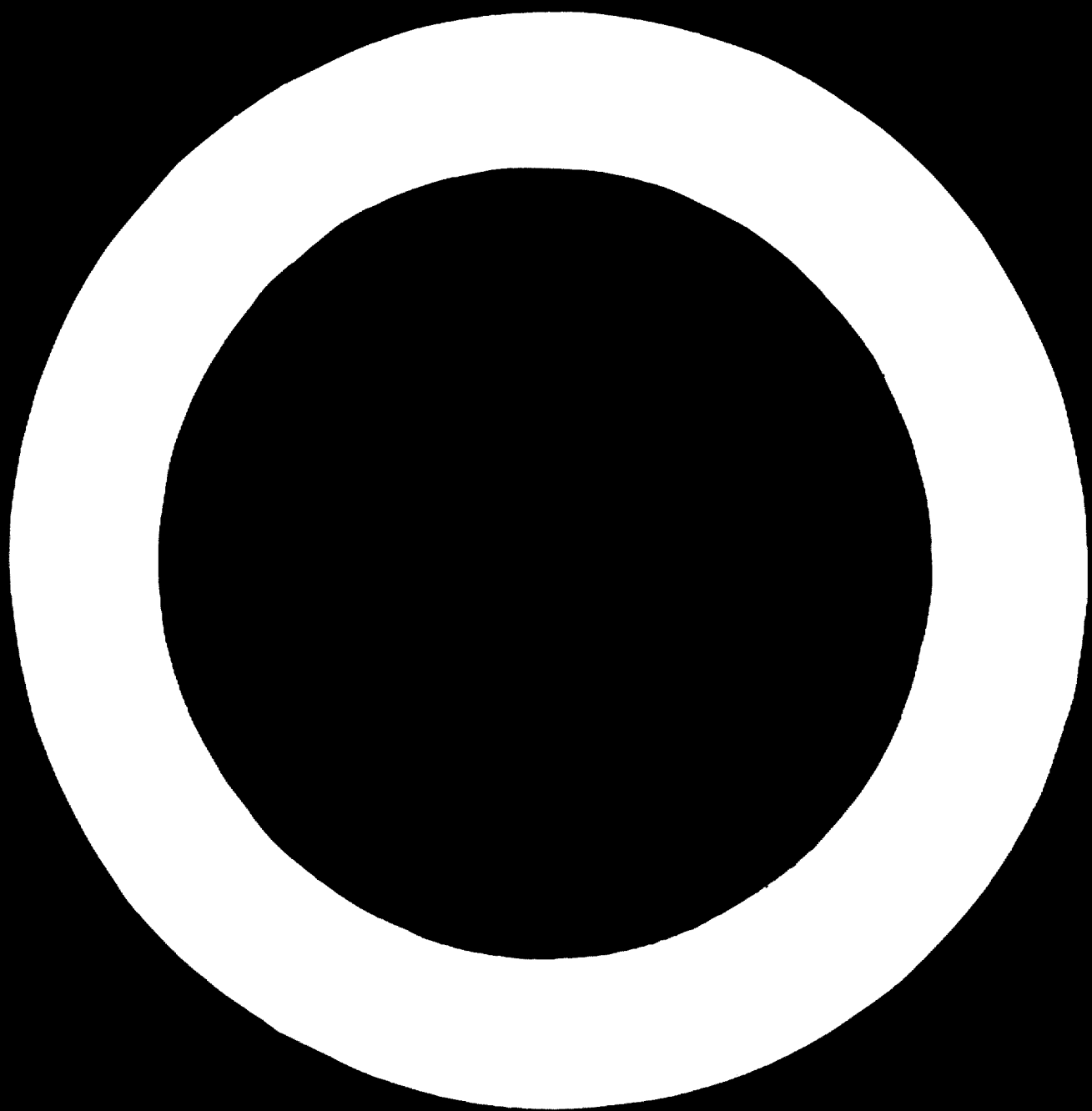
by

Alfredo Schaeffer *

ADDENDUM

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During 1973 (January - December) Brazil exported a total of US\$ 2,729,061 F.O.B., distributed to many countries.

WOOD FURNITURE

INDUSTRIES	US\$ FOB	%
LAFER	301,105	11.03
CINCOZ	180,884	6.63
LATELIER	180,292	6.60
OCA	152,224	4.48
ITALIA	88,766	3.25
ESCRIBA	45,616	1.67
BERGAMO	44,061	1.61
KASTRUP	36,021	1.32
MOBILI: CONTEMPORANEA	21,615	0.79
HOUJETO	18,997	0.70
ESTILC	11,017	0.40
CELINA	9,849	0.36
OTHERS	1,669,413	61.15
TOTAL	2,729,061	100.00

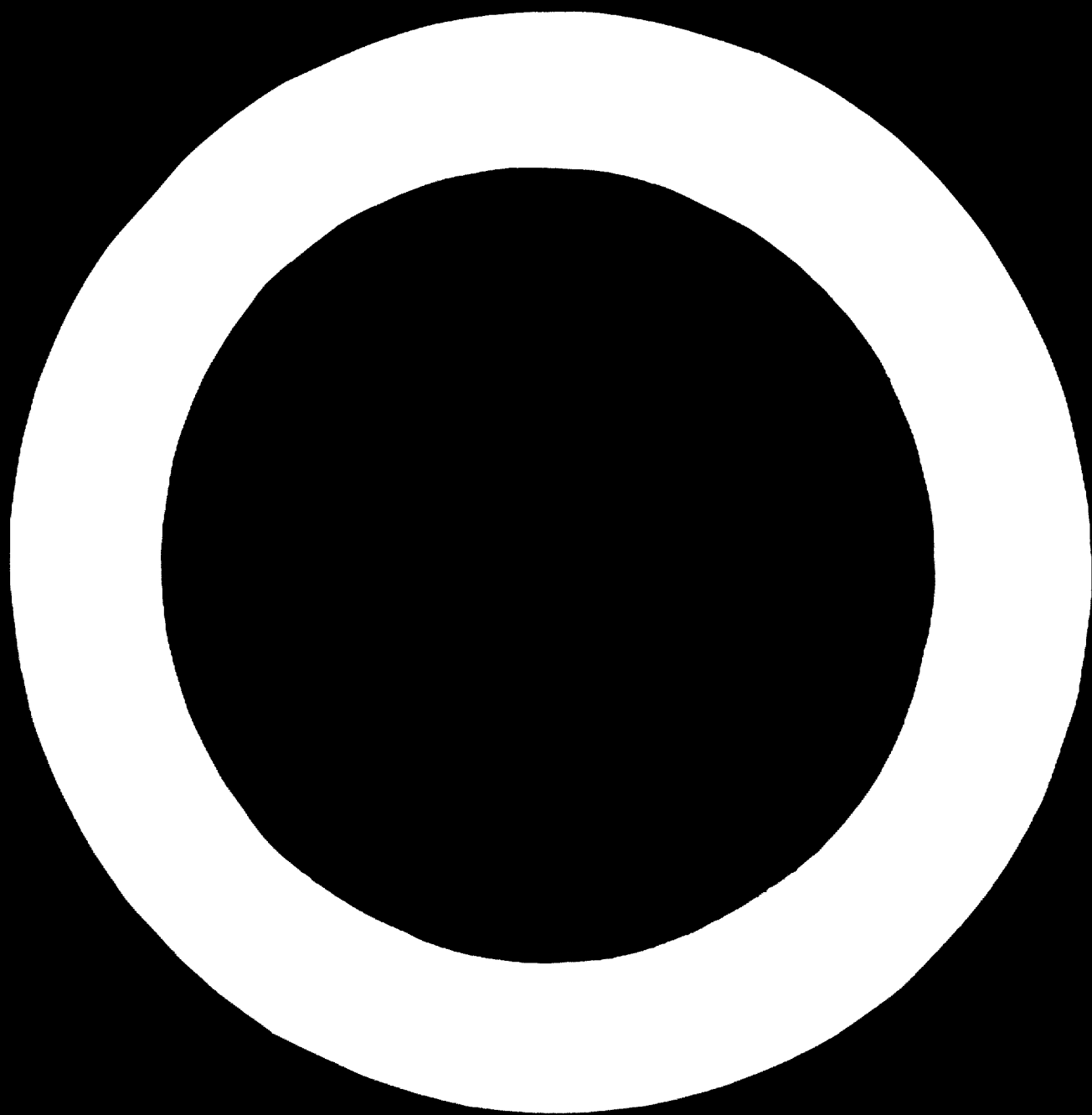
Wood furniture by "Lafer" means only 7.18% of Lafer's export, that in 1973 was up to US\$ 4,194,240 FOB.

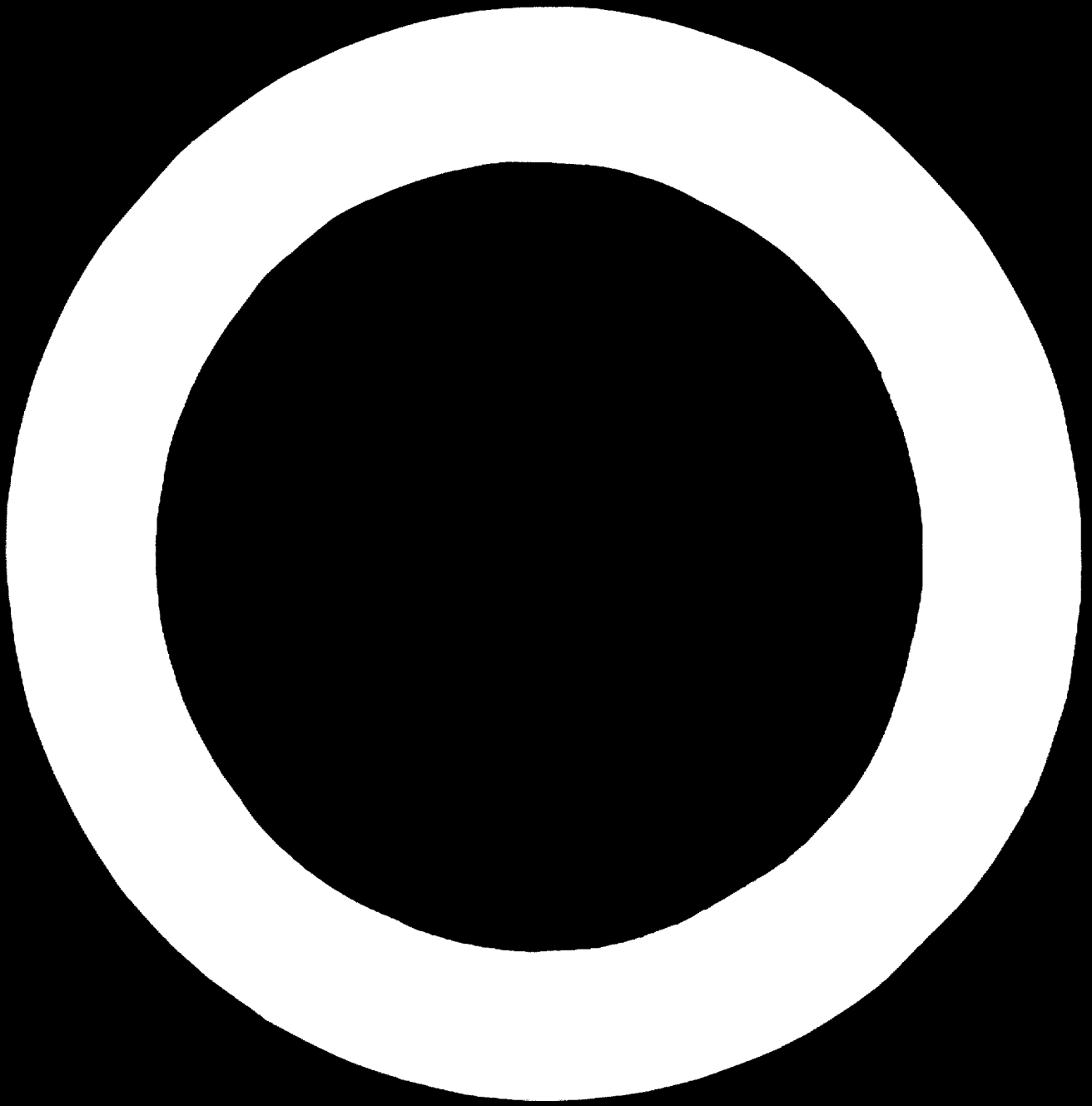
Some of the "Others" industries are:

Teperman, Habitat, Gelli, Probjeto, Forma, Fergo, Fatima, Mobilina.

Steel furniture exportation was US\$ 198,745 FOB. Data were not available for furniture made from other materials.

SOURCE: CICEX, Bank do Brasil





Introduction

The data of Brazilian timbers were obtained from IBDP (Brazilian Institute for Forest Development).

The data collected about furniture are not up to date, since the figures obtained are dated 1969.

The IBGE (Brazilian Institute of Geography and Statistics) responsible for this matter was not prepared to give such data. Really, accurate figures including the whole country could only be obtained in about a month's time, in order to collect from other sources.

Climate

Brazil is a tropical country. It has three distinct climatic zones:

Average temperature of 30°C - north zone

Average temperature of 25°C - central zone

Average temperature of 18°C - south zone

The relative air humidity is between 30% and 80%. In this case it is easy to conclude that even ignoring the air conditioning problem there is a need of kiln drying for wood applied in furniture.

Furniture and Joinery Industries

The figures available refer to 1973 survey concerning the Guanabara and Rio de Janeiro states, where furniture and joinery industry have 1,091 establishments.

Number of persons employed in the furniture and joinery industry in the above states: (source - IDEG [Guanabara Development Institute])

joinery	-	2,875
furniture	-	12,820
total	-	15,695

The above figures are applied to the majority of classified workers of the two sectors studied, representing a total of 58.9% of all persons in this trade.

Perspective on the Trade

The amount of manufactured wood products including furniture in Rio de Janeiro and Guanabara has increased in the last five years at an average rate of 4.3% per year.

<u>Activities</u>	<u>Companies</u>			<u>Workers</u>		
	<u>Qb.</u>	<u>RJ</u>	<u>Total</u>	<u>Qb.</u>	<u>RJ</u>	<u>Total</u>
Wood	127	144	271	2,700	1,515	4,215
Furniture	531	269	820	11,047	3,886	14,933
Total	658	433	1,091	13,747	4,501	19,148

Timbers

Country Forest Supply

Brazil has an area of 8.5 million km², 40% of which is covered by forests. The main forest areas are shown in Appendix I. The Amazonian forests are located in Region 1, with about 3 million km² (it is the largest tropical forest in the world). The remaining tropical forests of the coast area are located in Region 2. In Region 3 is located the only coniferous (araucaria) forest existing in the country.

Brazilian Export Timbers

(See Appendix II). Brazil does not use imported timbers.

Seasoning

Generally, big industries have their own kiln drying. The drying system still in use is drying with boilers.

A new system now being used on a small scale is the dry air circulating inside a chamber, that avoids the heating and consequently wood cracking in the heating process.

Wood Production

1973

<u>Pine (araucaria)</u>	<u>M³</u>
Sawn wood	3,900,000
Finished	720,000
Plywood	250,000
Veneer	370,000
	<hr/>
	5,240,000
<u>Hard wood</u>	
Sawn wood	3,850,000
Finished	780,000
Plywood	250,000
Veneer	360,000
	<hr/>
	5,240,000
	<hr/>
Totals:	10,480,000

<u>Wood-based Panels</u>	<u>Tons</u>
Particle board and fibreboard	450,000

Wood Exportation

Pine wood exportation in 1973 was 708,859 m³, amounting to US\$ 101,114,773 - meaning a unit price of US\$ 142.64/m³ F.O.B., detailed as follows:

<u>Pine (auracaria)</u>	<u>m³</u>	<u>US\$</u>	<u>Unit Price US\$/m³</u>
Sawn wood	491,325	59,804,213	121.73
Finished	197,379	37,970,324	192.37
Plywood	16,246	2,761,124	169.96
Veneer	3,909	579,112	149.14
Total	708,859	101,114,774	142.64

In the same period of 1972 product export reached 856,606 m³, amounting to US\$ 71,618,007, resulting in a unit price of US\$ 83.61/m³ F.O.B.

The total exportation 1973 (percentages) was distributed as follows:

Argentina	-	36.79%
Europe	-	48.13%
Uruguay	-	3.62%
Others	-	11.46%

Hardwood exportation 1973 was 933,675 m³, amounting to US\$ 83,477,229 meaning a unit price of US\$ 89.12/m³ F.O.B., while 1972 total was 449,376 m³, amounting to US\$ 43,557,255, resulting in a unit price of US\$ 96.92/m³ F.O.B.

For covering upholstered furniture we use leather first and then others like resins based on polyester and woven fabrics.

Problems: The greatest problem concerning upholstered materials, polyurethane foam and covering material, etc. is the difficulty in importing raw materials, which increases the cost.

Professional Training: In Brazil there is no problem concerning joiners manual work, but the class specialized in manual work is very restricted, as the professional schools do not train enough labourers for the demands of the industry. There are very few professional schools in Brazil, and those that do exist are located in the big centres (capital cities).

The large supply and skill of joiners and craftsmen in our industry has meant that automatic installations have been unnecessary.

In fact 67.6% of employees have their professional training without any other assistance than their own place of employment. Vocational training and technical education are very limited.

The demand factor for additional requirements in labour work for the period of 1974-76 reached the amount of 3,393 employees, whereas only 2,267 have been engaged with production.

Furniture Industry - Manufactured Products - 1973

<u>Manufactured Products</u>	<u>Number of Factories</u>
Various furniture	33
Various furniture ordered	29
Bedroom furniture	20
Others	9
Upholstered furniture	8
Mattresses	6
Commercial installations (plants)	6
Furniture for pantry and kitchen	5
Furniture for offices	5
Furniture for "livings"	5
Furniture for schools	2
Furniture for gardens	1
Wall cabinets, cupboards, etc.	1
Naval furniture	4

Design in the Furniture Industry

The principal factor delaying the progress in the exclusively national design area is the influence of the period furniture, such as Louis XV and Colonial, so much admired by Brazilians. This influence is almost psychological. This factor retards the creation and development of our own works, in our own market.

The purchasing power of the people has very little to do with this situation because it is not expensive to manufacture a line of a good design. On the other hand, good period furniture, nearly all hand made, is actually expensive. In general, people seek "status" in period furniture, which they will not find in the modern furniture. Anyone would feel like a "nobleman" surrounded by a Louis XV atmosphere. Furthermore, the origin of the styles are simply ignored as for the modern or contemporary furniture, the Brazilian middle class opinion is that it "ages very quickly".

In the furniture field, Brazil already possesses some good technicians which are step by step becoming successful in the internal market, considering that the demand for Brazilian furniture is already important in the foreign market. Being aware of its receptivity, as shown by the fabulous increase in the volume of furniture exported, the industry turns to the foreign market.

In Brazil, modern furniture with good design is already competing half and half with the period furniture, considering as modern the Brazilian contribution and the imported designs.

The competition from foreign designs in our country stems largely from the prevailing idea that if it is imported, it is better than the native products. The imported furniture, or even only the design adapted to our climatic, psychologic, economic and cultural conditions, will definitely serve to influence the tastes of the Brazilian people.

A Brazilian design is trying to find its own form, but buying foreign "know-how", in an attempt to save research, culminates in a lack of furniture technicians.

Designers

Brazil reckons with still a small number of experts already well known here and abroad to integrate our team of designers. Here are some of them: Michel Arnoult, Sergio Rodrigues, Lucio Costa, Paulo Casé, Jorge Zalazupin, Kari Heinz Berguille, Alexandre Welner, Aurélio Martins Flores, Mario Rambelli and Geraldo Barros. The foreign furniture for sale on the Brazilian market is from designers such as: Mies van de Rohe, George Nelson, Saarinen, Charles Eames, Bertola, Florence Knoll, Robin Day, etc.

We arrive at the conclusion that the competition is quite great at present, if we take into consideration the time when this new form of expression started in Brazil.

Marketing

The domestic furniture market operates with three kinds of sales systems:

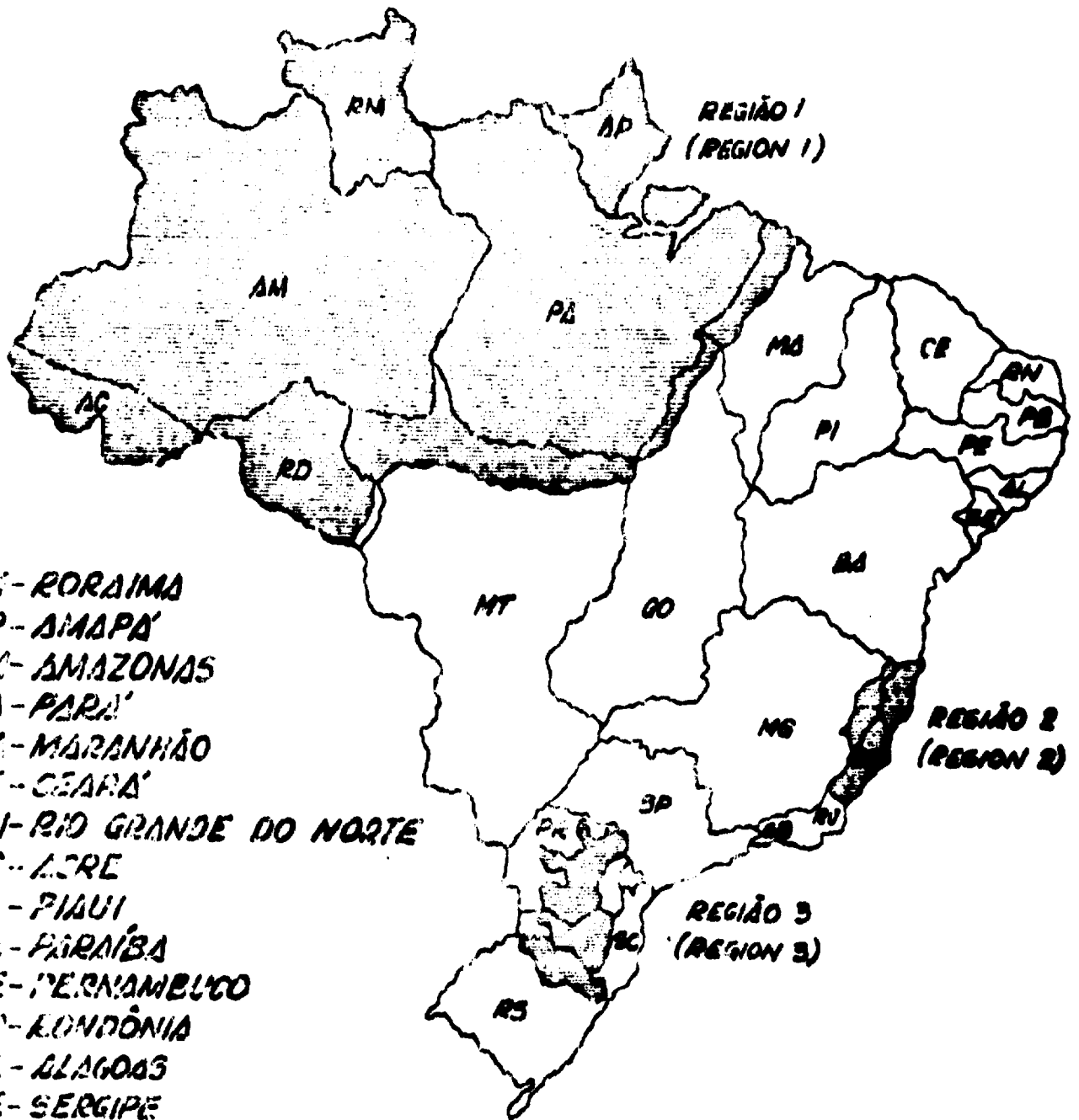
- (1) Factories with their own sales department and stores which distribute directly to the consumer.
- (2) Factories that do not sell their product in stores but have a number of representatives, store owners.
- (3) Factories which work by order specially for naval furniture.

About foreign trade, there are no data as far as I could reach, but Brazil is and will be willing to trade with good external markets. The orders are far greater than the manufacturing capacity, which causes a gradual development in the field of furniture manufacturing. In the furniture industry field, the development is evident because both the internal and the external market is a great success. Our factory, for instance, started as a sawmill and wood finisher; presently we are entering the field of furniture manufacture. We are now taking advantage of the almost complete lack on the internal and external market of solid wood furniture manufacturing.

Our government is encouraging the establishment of new factories, but first urgently starting a systematic operation in order to maintain the country's forest supply, and also has re-forestation plans for the entire country.

APPENDIX I

BRAZILIAN FORESTS



- RR - RORAIMA
- AP - AMAPÁ
- AM - AMAZONAS
- PA - PARÁ
- MA - MARANHÃO
- CE - CEARÁ
- RN - RIO GRANDE DO NORTE
- AC - ACRE
- PI - PIAUÍ
- PB - PARAÍBA
- PE - PERNAMBUCO
- AL - ALAGOAS
- SE - SERGIPE
- BA - BAHIA
- MT - MATO GROSSO
- GO - GOIÁS
- MG - MINAS GERAIS
- ES - ESPÍRITO SANTO
- SP - SÃO PAULO
- RJ - RIO DE JANEIRO
- GB - GUANABARA
- PR - PARANÁ
- SC - SANTA CATARINA
- RS - RIO GRANDE DO SUL

1. ACACU
Hura crepitans
Commercial Names: Arenillero, Catauá, Ochoo, Poison Wood, Rakuda, Sablier, Sand Box
Uses: Packing boxes, interior trim, plywood
Regions: Amazônia

2. ACAPU
Youacoua americana, Leg. Casalp.
Commercial Names: Amazonwood, Partridge Wood, Wacapour
Uses: General construction, carpentry, furniture beams, flooring, billiard cues, sleepers
Regions: Pará, Amapá

3. AGOITA CAVALO
Luehea divaricata, Tiliaceas
Commercial names: Asota caballo, Sota caballo
Uses: Interior trim, carpentry, furniture, brushes, gunstocks, shoe moulding
Regions: Minas Gerais, Rio de Janeiro, Paraná, Santa Catarina, Rio Grande do Sul

4. AGUANO
Syzygia macrophylla, Meliaceas
Commercial names: Araputanga, Acajou, Caoba, Mahogany, Mogno
Uses: Similar to the true mogno of Antilles. Used for furniture, interior trim, panelling, light boats; also for the manufacture of fancy objects and carved work.
Regions: Amazônia, Mato Grosso, Goiás

5. AMENDOIM
Pterogyne nitens, Legum. Casalp.
Commercial names: Amendoim-bravo, pau-amendoim, óleo branco, virapó, ibirapó, etc.

In view of its light brown colour, this wood remarkably resembles the Mogno species, but differs especially where heaviness is concerned, Amendoim being heavier. It has an average specific gravity of 0.80. The tree is otherwise very different, belonging to the Leguminosae family, while Mogno is of the Rutaceae family. Botanically, it has the oddity of being a unique species of the Pterogyne genus. From the geographical point of view it is interesting to note that it only grows in limited areas in São Paulo, Paraná and Mato Grosso states, i.e. a little far from the three numbered regions shown on the map (page 6).

Uses: Fine furniture, panels, carpentry, flooring, turnery, carts, tool handles, stairs

6. ANDIROBA
Carapa guianensis, Meliaceae
Commercial name: Crabwood
Uses: Furniture, little boats, masts, carpentry,
musical instruments
Regions: Pará, Amapá
7. ANGELIM ROSA
Platycyanus regnellii, Legum. Papil.
Commercial name: Pau Pereira
Uses: General construction, ceilings, beams,
tool handles, barrels
Regions: Minas Gerais, Espírito Santo, São Paulo, Goiás
8. ANGICO
Piptadenia sp., Legum. Papil., Legum. Mimos.
Commercial names: Angico branco, preto and vermelho
Uses: General and naval construction, joinery,
furniture, keels, posts, sleepers (second quality),
exposed work (dry places)
Regions: Minas Gerais, São Paulo, Paraná, Santa Catarina,
Rio Grande do Sul
9. ARAPUTANGA
(See Aguano)
10. ARARACANGA
Aspidosperma desmanthus, Apocynaceae
Uses: All kinds of heavy and durable construction.
Regions: Amazonas
11. ARARIBA
Centrolebium sp., Leguminosae
Commercial names: Araribá amarelo, putumujá amarelo, arco iris,
pau rainha, Zebra wood
Wood of light colour, ranging from yellow through orange-red. It
grows in Region 2. Specific gravity 0.75 - 0.95.
Uses: General construction, masts, canoes, outdoor works,
fine furniture, sleepers
Regions: Bahia, Espírito Santo, Rio de Janeiro, São Paulo,
Paraná, Santa Catarina

12. BICUIBA

Virola bicuhyba, Myristicaceae

Commercial names: Bicuiba-vermelha, bicuiba-cheirosa

Bicuiba is a sturdy tree which often yields logs of large dimensions. It ranges mainly in Rio Doce valley and vicinity (Region 2).

The wood differs from the majority of the species of the same group existing in Amazonas (Region 1), where they are known as Ucuuba, a heavier and darker wood (average specific gravity 0.65), its colour ranging from brown to dark brown.

Part of its production is locally consumed and part is exported.

Uses: Carpentry and joinery in general, where Cedar is applied.

13. BRAUNA

Melanoxylon brauna, Leguminosae

Commercial name: Braúna

Uses: Beams, posts, bridge cross-ties, sleepers, wheel spokes, flooring, fine furniture

Regions: Bahia, Espírito Santo, Rio de Janeiro, São Paulo

14. CABRIÚVA

Myroxylon balsamum, Legum. Papil.

Commercial names: Cabriúva vermelha, óleo vermelho, óleo, bálsamo, pau de bálsamos, etc.

The main characteristic of this wood is its fine, lasting aroma. Average specific gravity 1.00. It has a uniform red brown colour.

The resin-oil (balm) of this tree of a peculiar fragrance protects it against insects and renders it highly commendable where strength and durability in frameworks, structures, bridge structures and under water level works are required. It is also used in furniture, railway sleepers, truck bodies, tool handles, flooring, etc.

Regions: It grows mainly in Region 2, but is also found in São Paulo, Goiás and other states.

15. CAIXETA

Tabebuia cassinoides, Bignoniaceae

Commercial names: Pau-paraíba, cacheta, tabebuia

A fast-growing tree, common in the swampy areas, with variable specific gravity from 0.3 to 0.4.

Uses: Pencils, wooden shoes, design planks, musical instruments, toys, shoe heels, boxes

Regions: Espírito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina

16. CANAFISTULA

Cassia ferruginea, Legum. Gesalp.

Commercial names: Cassia, guaracáia

Uses: General construction, beams, flooring, sleepers

Regions: Minas Gerais, São Paulo, Paraná

17. CANELA PRETA

Nectandra mollis

Commercial names: Canela escura, ferrugem, parda, laurel

Uses: Furniture, frames, general construction

Regions: Minas Gerais, São Paulo, Paraná, Santa Catarina, Rio Grande do Sul

18. CANELA SASSAFRÁS

Ocotea pretiosa, Lauraceae

Commercial names: Canela Funcho, sassafrás

Uses: Furniture, frames, general construction

Regions: Minas Gerais, São Paulo, Paraná, Santa Catarina, Rio Grande do Sul

This wood is easily recognized by its pleasant flavour. Specific gravity is 0.60 to 0.70.

19. CANJERANA

Cabralea canjerana, Meliaceae

Commercial names: Canjerana, Canjarana, Canjerana vermelha

Uses: General construction, joinery, carved work

Regions: Minas Gerais, Rio de Janeiro, Santa Catarina, Rio Grande do Sul

20. CANOBA

Jacarandá semiserrata, Bignoniaceae

Commercial names: Carobeira, carobinha, pau de colher, pau santo

Uses: Carpentry, boxes, sleepers, general construction, lathes

Regions: Rio Grande do Sul

21. CAVIUNA

Machaerium scleroxylon, Legum. Papil.

Commercial names: Cabiuna, jacarandá-caviuna, cabiúva

Although the names Caviuna and Jacarandá-caviuna are sometimes applied to Jacarandá da Bahia (Lilbergia nigra), Caviuna corresponds to Machaerium scleroxylon.

In view of its extremely variable colouring, from light brown to dark brown or reddish, streaked with very narrow lines or rather wide lines of a darker colour, it could be taken as a different species. Presently the reddish Caviuna is in fashion for furniture. It has an average specific gravity of 0.90.

Uses: Fine furniture, turnery, frames, fancy objects
Regions: Minas Gerais, São Paulo, Paraná

22. CEDRO

Cedrela spp., Meliaceae

Commercial names: Cedro-rosa, cedro-vermelho, cedar, cêdre, etc.

In view of its large geographical distribution, not only in Brazil, where it ranges from north to south, and in almost all Latin American countries, and because of its bitter taste that protects it against insect attack, this wood (of an average specific gravity of 0.55) is in great demand. The specific gravity varies according to species. The colour also varies from light to dark brown.

Uses: It is favoured where a relatively light and lasting material is required.
Carpentry, joinery, general construction, moulding, carved work, ceiling (interior trim), cigar boxes.

Regions: Amazonas, Bahia, Minas Gerais, Espírito Santo, São Paulo, Paraná, Mato Grosso, Santa Catarina

23. CEREJEIRA

Amburana cearensis, Legum. Papil.

Commercial names: Ambarana, cumaru-de-cheiro, trêbol

This wood ranges among those chosen for their better effect for light coloured furniture manufacturing. The colour is white grayish pink or white grayish yellowish, with narrow lines. Relatively light (average specific gravity 0.55) it is out satisfactorily and sustains comparison with Cedar by its yielding to carving. Another characteristic of this wood is its fine aroma. The tree yields fruit with a high cumarina content. However, in view of its being a dispersed tree, it is not commercially regarded.

Uses: Fine furniture, panelling, balcony, vessels for wines and other drinks

Regions: Bahia, Mato Grosso, Amazonas

24. COPAIBA

Copaifera langsdorffii, Leg. Cesalp.

Commercial names: Cupay, coabi, copauva, óleo copaiba, pau de óleo

Uses: General joinery, veneer, farm implements, spades shafts, etc.

Regions: From Amazonas to Rio Grande do Sul

25. CORACAO DE NEGRO

Poeccilanthe parviflora, Leguminosae

Commercial names: Pau-ferro, pau-jantar

This wood resembles Jacarandá Pardo in appearance and is used in furniture, layer finishing and civil construction. It grows in São Paulo and Paraná states. Specific gravity is 0.80 to 0.90.

26. FREIJO

Cordia goeldiana, Boraginaceae

Commercial names: Frei Jorge, Cordia Wood, South American Walnut

Of plain brownish yellow colour, this wood is used in furniture, interior wall covering, barrel work, civil and naval construction and airplane framework due to its high resistance in relation to its specific gravity, which is 0.40 to 0.70.

It grows in Region 1.

27. GONCALO ALVES

Astronium macrocalyx, Anacardiaceae

Commercial names: Gonçalves, pau-gonçalo, guarubu or guaribu-rajado, guaritá, guaritá-rajado, jibatão-rajado, adorno-preto, gomável, arecira, etc.

For a long time classified as Astronium fraxinifolia (a small tree), it is a wood of variable colouring from light to dark brown, with large spots of variable widths and shapes of a darker colour, sometimes almost black. Of an average specific gravity of 0.95, it has considerably high physico-mechanical strength properties.

Uses: railway sleepers, wall covering, de luxe furniture

Regions: Grows mainly in Region 2, but can be found in Region 1, where it is known as Gomável.

28. GRUMIXAVA

Micropholis gardnerianum, Sapotaceae

Commercial names: Bacumixá, bacumixaba, bacumixava, bacumixava-branca, bacumixava-vermelha, gumbijava, romero, salgueiro, etc.

As most of the Sapotaceae species, Grumixava has a compact structure, easy to saw, plane, carve, and especially turn, which makes it particularly favoured for spools, blocks, articles for the textile industry and other workmanship. It is also used in furniture in view of its nice light pink or light pink-yellowish colour.

The tree is generally of medium size, but under favourable conditions it can reach large dimensions. Specific gravity is 0.65. It grows mainly in São Paulo and Espírito Santo states, especially in Serra do Mar.

29. QUAJUVIRA or QUATUVIRA

Patagonula americana, Burseriaceae

Commercial names: Quajubira, quajubira, guayabira

Uses: Tool handles, cars, fine furniture, carved work, billiard cues

Regions: Maranhão, Santa Catarina, Rio Grande do Sul

30. QUATAMBU

Aspidosperma olivaceum, Apocynaceae

Commercial names: Quatambu Branco, Amarelo

Uses: Carpentry, wood engraving, shoe moulding, rulers, tool handles.

Regions: Rio de Janeiro, São Paulo

31. IMBUIA

Phoebe porosa, Lauraceae

Commercial names: Imbuia, Imbuia-clara (or amarela or parda), Brazilian Walnut, etc.

This wood, of an average specific gravity of 0.70, has a colour varying from nut yellowish to dark nut, uniform when in straight trunks. In tortuous or knotty trunks, especially in those showing protruberances known as pouches, the wood is nicely figured, which accounts for its high value for furniture making, either in veneer or solid wood. It is used for flooring, laminates, frames, bridges, railway sleepers and in civil construction.

Being a Lauraceae it has a special aroma and is durable. The tree generally grows, mixed with Brazilian Pine, in Region 3, particularly in Paraná and Santa Catarina states.

32. IPE PARIL

Tecoma ochracea, Bignoniaceae

Commercial names: Ipe amarelo, Ipe, Lapacho amarillo

Uses: General construction, beams, outdoor works, sleepers, posts, flooring

Regions: Minas Gerais, São Paulo, Paraná

33. IPE PEROLA or PEROLA DO JUPÓ

Paratocoma perola, Bignoniaceae

Commercial names: Perobinha

Uses: Carpentry, carts, panelling, interior trim, flooring

Regions: Bahia, Minas Gerais, Espírito Santo

34. IPE TABACO

Tabebuia longiflora, Bignoniaceae

Commercial names: Pitva-amarela, pau d'arco

Wood of a uniform colour, which is much used in flooring, billiard cues, cooperage, civil construction, external works, railway sleepers, naval construction. Specific gravity 0.80 to 1.00.
It grows in Region 2.

35. ITAUBA

Mezilaurus itauba, Lauraceae

Commercial names: I. Amarela, preta, etc.

Uses: Carpentry, naval construction, sleepers.
Indicated for exposed works.

Regions: Amazonas

36. JACARANDÁ DA BAHIA

Dalbergia nigra, Legum. Papil.

Commercial names: Jacarandá, Brazilian Rosewood, Rio Palisander, Palissandre de Rio

Brazilian Rosewood is presently the highest priced native wood in the Brazilian export trade and highly esteemed for its nice figures. Although belonging to a single botanical species, it greatly varies where colour and figures are concerned. Colour ranges from red to brown, streaked with black lines and from light to dark chocolate to almost black, with the most varied types of figures. Specific gravity varies from 0.75 to 1.10. Next to Parana Pine, the bulk of the Brazilian export trade consists of Brazilian Rosewood, which, because of its value, renders the major revenues - whether in veneer or in lumber.

Uses: Fine furniture, boxes, carved work, pianos, veneers

Regions: Bahia, Espirito Santo

37. JACARANDÁ PARDO

Machaerium villosum, Legum. Papil.

Commercial names: Jacarandá-paulista, jacarandá-amarelo

The grain of this species is similar to other Machaerium family species, but largely differs from the Jacarandá da Bahia (Dalbergia genus) species. It has a specific gravity of 0.85. It is of uniform light brown yellowish or light nut brown or, sometimes, with streaks or spotted with darker colour. Where beauty is required, it finds increasing favour in de luxe furniture, wall covering, flooring and joinery.

It ranges closely to the State of São Paulo borders (north of Region 2) but grows also in Minas Gerais and Goiás states and occasionally farther.

38. JACARANDA VIOLETA
Dalbergia cearensis, Leguminosae
Commercial names: Bois de violete, Brazilian Kingwood, pau violeta
Uses: Interior trim, marquetry, fancy objects, turnery
Region: Ceará
39. JACAREUBA
Calophyllum braziliensis, Guttiferae
Commercial names: Guamandi, G. Cedro, G. Carvalho, G. Rosa, Viraró del Brasil
Uses: Carpentry, frames, oars. Used for wine barrels.
Regions: Região Litorânea da Bahia, Santa Catarina, Minas Gerais, Amazonas
40. JEQUITIBÁ ROSA
Cariniana brasiliensis, Lecythidaceae
Commercial Names: Jequitibá vermelho, Jequitibá
Uses: Boards, school articles, shoe heels. Much used in the plywood industry. Joinery, carpentry.
Regions: Bahia, Espírito Santo, Estado do Rio, São Paulo, Minas Gerais
41. LIMOEIRO
Fagara rhoifolia, Rutaceae
Commercial names: Limãozinho, arruda do mato, espinheiro, laranjinha, mamica de porca, tamanqueira, maruparana
Wood typically yellowish, becoming superficially brown upon exposure. It is soft and its specific gravity is about 0.60. It has excellent working properties.
It grows in many Brazilian regions, but mainly in the Amazon Basin.
42. LOURO PARDO
Cordia alliodora, var. tomentosa (-trichotoma), Borag.
Commercial name: Louro
Several woods are known in the country, especially in the Amazon region under the commercial name of Louro (bearing several qualifying names), the majority being in the Lauraceae family. Louro pardo, which grows mainly in the Rio Doce valley (Region 2), belongs to another family, but its wood resembles the wood of certain Lauraceae.
Its average specific gravity is 0.60, with a very fine yellow brown colour resembling that of Pardillo (Cordia alliodora), a wood highly valued in Venezuela and neighbouring regions. Cordia alliodora has already been identified in Amazonas, where the similar species most common is Cordia goeldiana (Freijó).
Uses: Joinery, boards, furniture, frames, rulers, light boats

43. LOURO PRETO

Cordia gemscantus, Boraginaceae

Commercial name: Louro rajado

This wood is used in laminates, furniture, cooperage, interior finishing in the same way as Louro Pardo, and also in external work such as bridges, posts, railway sleepers and naval construction.

Specific gravity is 0.80 to 1.00.

It grows in Mato Grosso and Goiás states.

44. LOURO VERMELHO

Ocotea rubra, Lauraceae

Commercial name: Red louro

Uses: Boards, general construction, furniture

Regions: Amazonas, Amapá

45. MACACAUBA

Platymiscium ulei spp., Leg. Papil.

Commercial name: Macacawood

Uses: General construction, flooring, billiard cues, carpentry, furniture

Regions: Amazonas, Bahia

46. MACARANDUBA

Manilkara spp., Sapotaceae

Commercial names: Balata, bullet wood

Uses: Outdoor work, general construction, sleepers, flooring, billiard cues, violin bows. Very resistant to decay agents.

Regions: Pará, Bahia, Espírito Santo, Rio de Janeiro, São Paulo, Paraná

47. MOGNO

Swietenia macrophylla, Meliaceae

Commercial names: Aguano, cedro-i, araputanga, caoba, mahogany, acajou, mogano, etc.

Mogno grows in Amazonas (Region 1) and is a different species than that of Central America used by the Spanish to build (in 1514) the still existing São Domingos cathedral and by Fernando Cortez, the celebrated Spanish navigator, to build several of his ships. However, this wood has all the exceptional qualities that have made Caoba or Mahogany one of the best woods, highly favoured for furniture and interior wall coverings.

Its colour varies from light to dark brown and it has an average specific gravity of 0.60.

48. PAU AMARELO

Euxylophora paraensis, Rutaceae

Commercial names: Pau cetim, muirataud, pequiá cetim, cetim wood

Uses: Interior trim, flooring, furniture, panelling

Regions: Pará and Amazonas

49. PAU BRASIL

Caesalpinia schinata, Leguminosae (Guilandina cohinata)

Commercial names: Pau pernambuco, Bahim wood, Brasil wood, Pernambuco wood

Use: Violin bows

Regions: Amazonas and Bahia

50. PAU FERRO

Caesalpinia ferrea, Leguminosae

Commercial names: Juca, muirapixuma

In view of its nice features, similar to Jacarandá da Bahia, this wood is being used very much as veneer and in furniture and it has come to be accepted in world markets.

It grows in the São Francisco valley and, with less frequency, in the northern sparse forests. Specific gravity is 0.90 to 1.20.

51. PAU MARFIM

Balfourodendron riedelianum, Rutaceae

Commercial names: Marfim, pequiá-marfim, farinha-seca, pau-liso

Pau Marfim is the unique species of the Balfourodendron genus. The wood is of a fine grain, is light cream-like ivory, resembling Sugar Maple (Acer saccharum) and has an average specific gravity of 0.85. In view of its many valuable qualities, it is frequently selected among the light coloured Brazilian woods for de luxe furniture. It is also used for propeller construction, loom parts, shoe upper forms, tool handles, wall covering, billiard cues, ceilings, doors, flooring, etc.

It is a native tree, especially in the state of São Paulo (northern of Region 3).

52. PAU ROSA

Aniba roseadora, Lauraceae

Commercial names: Pau rosa verdadeiro

This wood has a pink yellowish colour streaked with narrow red lines of a beautiful effect. Its small diameter limits its use on a larger scale. Specific gravity is 0.70 to 0.80. It is used in furniture, especially in veneer for inlaying wood. Essential oil to make perfumes.

It grows in south Amazonas and Bahia.

53. PAU ROXO

Pterogyne spp., Legum. Caesalp.

Commercial names: Roxinho, castanigaua, etc.

What makes it an interesting wood is its unusual violet colour. Light coloured when first cut, it darkens with age. Although a hard and resistant wood, it yields easily to cut and has great durability, having an average specific gravity of 0.95. It finds wide use in railway sleepers, carpentry, flooring, parquetry, etc.

This is quite a common tree of Amazonas (Region 1), where some species are peculiar to dried soils (terra firma), while others are peculiar to the low flat soils, alongside the water courses. It also grows in the Rio Doce valley.

54. PAU MULATO

Apuleia praecox, Leguminosa

Commercial names: Garapa, graphiapunha, G. branca, guarapiapunha, jutahy amarelo

Uses: General construction, beams, posts, sleepers, beer barrels

Regions: Bahia, Minas Gerais, São Paulo, Paraná, Goiás, Santa Catarina, Rio Grande do Sul

55. PAU PERNAMBUCO

(See Pau Brasil)

56. PAU VIOLETA

Dalbergia cearensis, Lucke

Commercial names: Violeta

A wood finely striped, being composed of alternating concentric layers of violet-brown and black or blackish violet. Logs of small diameter used in inlaying.

It grows in Ceará state. Specific gravity is 0.90 to 1.10.

57. PEROBA DO CAMPO

(See Ip? Peroba)

58. PEROBA ROSA

Aspidosperma peroba, Apocynaceae

Commercial names: Peroba, peroba-rajadã, peroba-açú, sôbro

In many treatises this species appears as Aspidosperma polyneuron. However, both classifications are correct. It grows in Region 2, but ranges mainly in the São Paulo state, where it used to be one of the most impressive species. It also grows in the north of Region 1 and in Goiás and Mato Grosso states.

It belongs to a botanical genus comprising several other known woods, generally light coloured and fine grained. However, Peroba Rosa is less smooth; its colour varies from pink yellowish to red, uniform or spotted with brown. Specific gravity is 0.80. It is largely utilized in roofing, scaffolding, carpentry, flooring, sleepers, etc.

Next to Brazilian Pine, it is the most used wood on a large scale in São Paulo.

59. PEROBINHA

Paratecoma peroba, Bignoniaceae

Commercial names: Peroba-do-campo, peroba-de-campo, ipê-peroba, peroba-amarela

The major characteristics of this wood are its moderate specific gravity (average 0.60), its considerable latitude where constructions are concerned and its remarkable physico-mechanical strength properties of all kinds. It also has great durability. Colour varies from light yellow to yellow brownish, uniform or moderately figured. In a few rare cases the swirled grains give the texture a very peculiar and attractive effect and then it is called "trembling Peroba", highly increasing its value in furniture woodworking.

This tree grows mainly in Region 2. Besides its considerable domestic use in furniture and plywood, it is also the object of export trade.

60. PESSEQUEIRO

Prunus brasiliensis, Rosaceae

Commercial names: Pessegueiro-bravo, pessegueiro-do-mato, caraçao-de-negro, etc.

Native tree of long region from Rio Grande do Sul state to São Paulo state, spreading up to north and down to south of Region 3. It is unfrequent, for it belongs to a botanical genus whose trees, in their majority, grow in other countries. The wood has a particular beauty, its colour ranging from pink yellowish to light brown yellowish, with longitudinal darker grains. Specific gravity 0.65. It is favoured for furniture, wall covering, flooring and parquetry.

61. PEQUIÁ

Aspidosperma sp., Apocynaceae

Commercial names: Guatamburani, peroba-amarela

The colour of this wood is of various shades of yellow with lemon predominating, without the roseate hue. The timber is fairly plentiful and is used mainly in carpentry. The harder grades make excellent flooring.

It grows in tropical America with most of the forms native to the drier South American regions. Specific gravity (air dry) is 0.80 to 0.90.

Uses: General construction, carts, sleepers. Very resistant to decay. Timber of great durability.

62. PINHO BRASILEIRO

Araucaria angustifolia, Araucariaceae

Commercial names: Pino Parana, Parana Pine, Brazilian Pine

For long Pinho has been the most important wood in Brazilian export trade, not only because of its excellent qualities (it is the only softwood plentiful in the country) but also because it grows in homogeneous forests.

The sap is white, while the heartwood is generally reddish or grayish streaked. Average specific gravity is 0.50 to 0.60.

Uses: General construction, furniture, boxes, plywood, toys, fancy objects, planks for concrete, musical instruments, pulp, matches, pre-fabricated houses, bookcases, broomsticks and brush handles. Pinho produces one of the best celluloses (long-grained and on-resinous).

Regions: Paraná, Santa Catarina, Rio Grande do Sul, Minas Gerais, São Paulo.
It is practically extinct in São Paulo State and south of Minas Gerais State.

63. QUARUBA

Vochysia sp., Vochyniaceae

Commercial names: Brazilian okoumé
Uses: General construction, boards, boats
Region: Amazonas

64. SEBASTIÃO ARMUDA

Delbergia frutescens, Leguminosae

Commercial names: Pau Bravo, Pau rosa, tulipwood, Brazilian tulipwood, bois de rose, tulpenholz
Uses: Fine furniture, marquetry, handles and backs of brushes, turnery, musical instruments (marimbas)
Regions: Bahia, Nordeste

N.B. This timber, also called Pau Rosa in some places, must not be confused with the true Pau Rosa (*Aniba rosadora*), a timber which gives by distillation an odoriferous oil used in perfumery.

65. SERINGUEIRA

Hevea Guianensis

Commercial names: Seringa Itaúba, Seringa Madba, Seringa da Terra firme, Seringa vermelha and Seringa amarela
Uses: Toys, packing boxes
Region: Amazonia

66. SUCUPIRA AMARELA

Ferreira spectabilis, Leg. Papil.

Commercial names: Angelim pedra, gracui, maracaiba, guicara, sucupira, etc.

The heartwood of this wood is brownish yellow when first cut, becoming darker upon exposure. A very hard, heavy and strong tree, its uses are in wall covering, furniture, flooring, interior finishing, railway sleepers, etc. Specific gravity 0.90 to 1.10.

Regions: Minas Gerais, Espírito Santo, São Paulo

67. SUCUPIRA PARDA

Bowdichia virgilioides, Leguminosae

Wood of chocolate to reddish brown heartwood, sharply demarcated from the whitish sapwood. Very hard, heavy, tough and strong. Specific gravity 1.00. Irregularly grained. Highly resistant to decay.

Uses: General construction, sleepers, furniture, flooring, billiard cues

Regions: Pará, Bahia, Mato Grosso, Espírito Santo

68. TATAJUBA

Bagassa guianensis, Moraceae

Commercial names: Amaparana, bagaceira

Uses: General construction, carpentry, furniture

Regions: Baixo Amazonas

69. UCUUBA

(See Virola)

70. VINOLA

Virola spp., Myristicaceae

Commercial names: Bicuíba, B. branca, B. vermelha, ucuuba, bocuva, bocuvucu, banak

Uses: Furniture, carpentry, veneers, beams

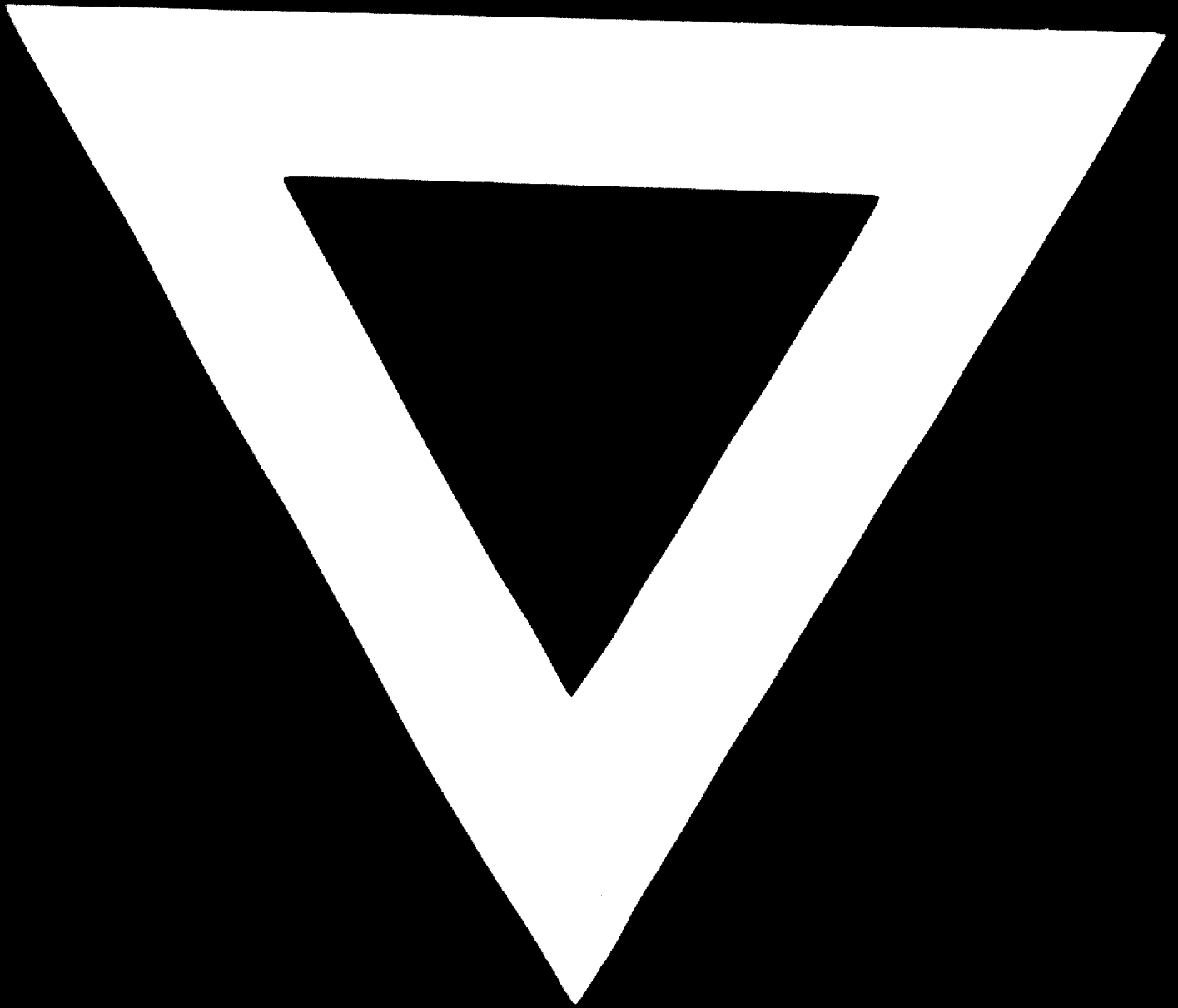
Regions: Amazonia, Norte do Maranhão, Nordeste do Ceará, Parte Central de Mato Grosso, Goiás, Nordeste São Paulo, Maranhão

71. VINHATICO

Plathymentia foliolosa, Legum. Mimos.

Uses: General construction, fine furniture. Used in outdoor works because of its great durability.

Regions: Estado do Rio, Minas Gerais, Bahia



74.10.1