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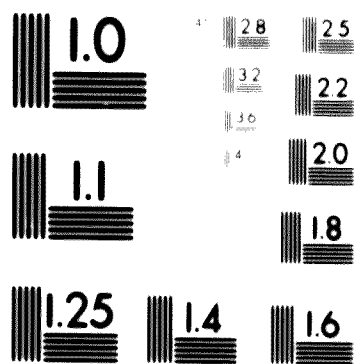
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Philippines. Furniture
and woodworking industry.

F I N A L R E P O R T .

Manila 23.6.1971

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2947

"This report has not been cleared with the Bureau of Technical Assistance Operation of the United Nations which does not therefore necessarily share the views expressed."

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1. INTRODUCTION

The Government of the Philippines has requested the United Nations Industrial Development Organization (UNIDO) for Special Industrial Service to advise it on the modernization and expansion of the furniture manufacturing industry in the country and to explore the industry's export potential.

During the early part of March, the United Nations Industrial Development Organization sent two Experts, Messrs. BOZIDAR MACESIC, Furniture Industries Adviser (Team Leader), and JENS H. HJORTH, Woodworking Expert (Furniture Designer) to the Philippines to prepare for the Philippine authorities and the Chamber of Furniture Industries of the Philippines a survey of the country's furniture industry sector and recommend measures for its development. Specifically, the experts were expected to:

- undertake a survey of the existing industry, its production facilities, range of products, production techniques and qualifications of available labour in the Philippines' furniture industry;
- undertake a market survey of the country's needs in various types of furniture and investigate also the possibility of exporting it to its neighboring countries;
- assess the raw material situation;
- assess the growth rate of the market for the various products;
- assess the present situation with respect to the:
 - . existing equipment, plant layout, and maintenance of cutting tools, equipment and machines;
 - . selection of timber, its seasoning, glueing and surface finishing;
 - . selection and utilization of other inputs (textiles, hardware, synthetic frames, etc.);
 - . production techniques, training, and quality control;

~~Interim~~ Final Report. . . .

- investigate also the:
 - . quality of product designs;
 - . introduction of new designs and preparation of their prototypes and the utilization of jigs for their production;
 - . training of furniture designers and promotion of design consciousness;
- recommend the measures, to be taken by the authorities, as well as the factories, to ensure the modernization of this industrial sector in order to increase its productivity and the range of products produced.

The survey had to be founded on:

- factors outside the direct control of individual plant managers (and should include personnel training, financing as well as Government regulations, controls and incentives; and
- internal factors (such as management and labour skills, productivity, quality control, design and marketing).

The duration of the Experts' assignment was four (4) months. Manila was their duty station.

Both experts are greatly indebted to the many people of different institutions who collaborated with them during their assignment and who offered their helpful advice and assistance. They are especially grateful to the Director and the Deputy Director of the Institute for Small-Scale Industries of the University of the Philippines for their professional and personal care; to the liaison officer for his organizing ability in preparing numerous contacts, plant visits including his personal attendance to them which was extremely efficient and valuable; to all other Institute's officers for their most cordial, friendly and successful cooperation and finally, to the Bureau of Census and Statistics for their utmost promptitude in providing them with any kind of information requested.

2. FINDINGS

2.1 The Philippines belong to the group of world richest countries in broadleaved forests, having an annual production of about 11 - 12,000,000 m³ of logs.

2.2 The country is the world largest one in exporting logs. At the same time, she export considerable quantities of the other semi-final products as well. By quantity and value, her export in 1970 was as follows:

	<u>m³</u>	<u>000 US\$</u>
logs	9,374,000	240,365
sawntimber	184,000	11,175
plywood	253,000	25,400
venner	77,000	8,100
other wooden products	-	9,204

2.3 Wood and wooden products belong to the best and biggest country's Dollar earning items, participating in the Philippines' total export with 26% in 1970.

2.4 The present structure of the Philippines' timber industry, excluding the logs being exported, is absolutely unfavourable for the furniture production in general. It participates in that industrial activity with some 7% to 10% as a maximum. Had the exported logs been remanufactured within the country as well, the actual participation of the furniture industry would have been only at about a third of the aforesaid percentage.

2.5 The existing furniture industry is badly underequipped. The greatest part of its present efficiency is based on the handwork. Therefore, it is the value of grossoutput per one employee the lowest one among the major groups of industries in the country.

2.6 Production of furniture in the Philippines during the past 15 years had a very vacillating tendency. Its rate of growth was one of the lowest among the other industrial activities.

2.7 The present home consumption of wooden furniture is extremely low. According to the information available, less than one Peso per capita has been annually spent on that kind of products belonging to the basic necessities of the standard of living.

2.8 Almost exclusive way of buying furniture within the country is done on "by order" basis. That custom probably was the main reason for an evident stagnancy in the production of furniture.

2.9 Nearly all factories complain over difficulties in timber supply. The furniture factories here in the Philippines very seldom carry stock of timber, so air-seasoning is out of question. The factories are not having kiln drying equipment and only a few are having some sort of kiln facilities in a very primitive way. Particle board with fancy veneer is not used in the production.

2.10 Lack of adequate technical know-how on wood finishing poses a major problem in the industry.

2.11 Manufacturers complained of lack of sufficient supply of local made textiles and of high prices on imported. It seems also to be a matter of fashion and prestige to prefer materials of all kind to local made.

There exist handwoven fabric in merely unlimited quantity.

2.12 The production technique is mostly adapted for hand-made furniture since the design is not very often suited for machine production. The furniture seems to be considerably expensive.

Apprenticeship programme for cabinet makers do not exist within the factories. Quality control as a tool for production is very seldom used.

2.13 There exist very good "design" of furniture, contemporary rattan and cane is beautiful and rich in design as a result of already existing business contacts with foreign customers.

The wooden furniture are all more or less copied from abroad. The furniture manufacturers say that local consumers are very individualistic and somehow do not like to buy mass produced furniture.

There are no local efforts in "creating" furniture in a way which might be by the time considered as Philippine own style.

3. RECOMMENDATIONS

3.1 Since there exists an optimum of conveniences for a rapid expansion of the country's furniture industry, among them:

- real richness in valuable hardwood species;
- rapidly growing home consumption on furniture;
- prospective possibilities for an expansion in export of wooden furniture and for a considerable increase of the export earnings;

efforts have to be undertaken by the authorities concerned to encourage such a necessity;

3.2 To assist the authorities concerned in their endeavor, the establishment of a Centre for promotion of the existing and to assist in building up a new, most modern furniture industry is highly recommended;

3.3 To keep the present activity, initiated by the University of the Philippines Institute for Small-Scale Industries (UP-ISSI), both experts are of the opinion that an early assignment of an expert who may later be the Project Manager will be helpful both for the Institute and the Chamber of Furniture Industries in their preparation for the earliest possible start of the respective Project. A draft job-description for that expert is given as Appendix No. 2;

3.4 To enable an other approach to the full understanding of the market situation in the country, a comprehensive study on the actual present requirements and expected demand on furniture in the near future should be carried out. Such a study will provide sufficient data and indicate how to solve to-day's anomalies, controversial standpoints and reasons why the Philippines furniture industry has such a vacillating trend resulting in an evident stagnancy;

3.5 It goes without saying that the forthcoming efforts in building up a modern and efficient furniture industry should bear in mind the necessity of having very specialized manufacturing units with a highest possible level of mutual cooperation wherever it offers better results;

3.6 Such an expansion of furniture industry should be based, of course, on much larger participation of the mechanized work. The new industry will need a new type of manufacturing equipment with an incomparatively higher working performance.

Having the chance to be to a great extent an export orientated industry, it needs a strong support of the governmental Institutions and authorities concerned. Support should be given through:

- abolishing of all taxes and other kind of obligations, having the same privileges as its direct competitors on the world market;
- availability of investment loans, including necessities on working capital, at least under the same conditions as its competitors enjoying. The furniture industry has to be fully responsible and obliged for the realization of the programmed export;
- giving the respective Bank guarantees to the external creditors for the imported equipment;

3.7 For the successful expansion of the Philippines' furniture industry, it will be necessary that the College of Forestry extends its present curriculum enabling the specialized professional education in timber industries technology.

3.8 Selection of machinery, equipment and power tools for new woodworking factory should be based on a careful study of their performance, quality and supply in the market. Good equipment, instruments and tools for the finishing department and some testing facilities are essential for high quality products.

3.9 Introduction of the use of particle board with thin veneer also of lesser known species of wood, seems to be most important to avoid the use of expensive solid timber, where it is not necessary to use it. Introduction of the use of lesser known timber, and carrying a stock for air-seasoning could also prevent production stop owing to difficulties in timber supply.

3.10 Only few people engaged in wood business recognize the problems and the requirements for proper wood finishing. There is a need, no doubt, for a closer cooperation with the Forest Product Research Institute to train the factory people on the present finishing and also on allied problems of these industries.

Spray cabins or lacker coating machines, kiln driers, revolving tables, etc. should have a bigger spread. Glueing equipment and fast drying glue should be introduced.

3.11 It is at least for the export furniture and added value for the customers if local made textiles are used. It is worthwhile to try to change the trend of the present use of imported materials using local textiles or other woven or braided materials which the Philippines has in plenty.

Instead of the intensive use of foam rubber, the use of coirflex (coir impregnated with latex) locally made of coco-fiber could replace foam rubber in many cases.

For some furniture, it will even add to the value if screws and hinges are partly replaced by constructions utilizing wooden plugs, bamboo splits, etc. instead of using poor quality metal screws, etc.

3.12 Quality control has to be introduced immediately since that is the only way to survive both on export and home market.

3.13 Attractive and acceptable designs have to be used in the forthcoming furniture production based on the most efficient technology.

3.14 Similar attention as mentioned under 3.7 has to be paid to the necessity of introducing lecture of industrial designing into the present curriculum of the College of Architecture or eventually of other educational institutions concerned. This will certainly cover the country's requirements on furniture designing as well.

4. Survey of the existing industry, production facilities, range of products, production techniques and qualifications of available labour in furniture industry.

4.1 During their assignment, the experts visited:

- 23 Wooden furniture plants**
- 5 Rattan furniture shops**
- 2 Plywood factories**
- 2 Particle board factories**
- 1 Coconut fiber production (impregnated with latex rubber)**
- 4 Weaving shops**
- 1 Textile factory**
- 1 Pencil factory**
- 1 Match factory**
- 1 Logging activity**
- 2 Sawmills, one attached to the furniture plant, and the other to the particle factory.**

A list of them has been attached as Appendix No. 1.

A visit was paid to the Forest Product Research Institute and its laboratories aimed to get necessary information about their activity and current engagement in research work and their direct contacts with the existing timber industry as well.

According to the Bureau of Census and Statistics (BCS) preliminary information for 1968, (See Table No. 1) there were 360 furniture establishments having five and more employees. Among them there were 90 furniture establishments with 20 and more establishments.

Indicated number of the above-mentioned firms represent, of course, only those being included into the BCS evidence.

The status and role of the furniture industry in the national economy in 1968 may be seen from the figures in Table No. 1.

According to them, the furniture industry in the Philippines was not only below an average of the country's industrial achievements but was placed somewhere at the end of the list of main industrial groups.

Experts' Final Report. . .

Furniture industry participates in the country's total industrial production with 0.5%, by the value of gross output (1968 being considered). Bearing in mind the BCS preliminary information for 1969, (see Table No. 2) the share of the country's wooden furniture is roughly at about of a half of that percentage, say at 0.27%.

For a country being in 1967:*

- the third or fourth world largest producer of broad-leaved logs (5.3%);
- the second world largest exporter of broadleaved logs (28.5%);
- the twelfth world largest producer of broadleaved sawntimber (1.4%);
- the second in world as veneer producer;
- the eighth world largest producer of plywood (1.12%).

Such a low production of timber industries' final products and their more than symbolical participation in the world trade inevitably asks for serious consideration to be paid by all of country's institutions responsible for the further development of the Philippine timber industry. Necessary changes within the present structure of the timber industry are the matter of a real urgency.

It is the experts strong belief that to ascertain the exact number of the existing wood working shops all over the country will be an extremely difficult task under the present conditions.

* Source: FAO Yearbook of Forest Products, 1968.

B. Macesic's Final Report. . .

4.2 Production Facilities.

They are very different. From respectively large and fully equipped plants and well-organized industrial production ranging down to small shops having only one circular saw.

Even large shops, bearing in mind the number of carpenters and other semi-skilled labour, were poorly equipped. Some of the reasons to that will be mentioned later under 4.4.

The woodworking shops visited are to the great extent underequipped. The installed machines are usually those of a very common use as circular saws, small simple bandsaws and planners. More rare the thicknessers, sanding machines, and routers can be seen. Some bigger plants are equipped with the spraying cabins, usually with inefficient exhausting facilities leaving with the inside air highly saturated with the lacker dispersion. There is too little attention whether paid to the fire preventive measures or to the sanitation and industrial safety.

Working space is in general too small for a normal flow of any kind of a continuous furniture manufacturing.

Storing facilities with some rare exceptions practically don't exist.

Only one among the other wooden furniture plants representing Woodworking Division of the Singer Industries, Philippines, Inc. is to be considered as a real and respectively complete wooden furniture factory. Even there, an evident tendency in limiting the building costs as much as possible can be noticed.

The other plants are differently equipped both by number of machines and their technical efficiency. Most of them are very old and obsolete types, but the experts found some new and highly capacitated machines as well. In the last case, their production function was unfortunately not utilized at all or to some extent only. From an economical point of view, that was certainly a missinvestment.

Furniture plants usually are not equipped with their own kiln drying facilities and therefore are completely dependent on timber suppliers in providing them with properly seasoned sawntimber. The successful expansion of the Philippines' wooden furniture is closely conditioned with that necessity.

B. Macesic's Final Report

4.3. Range of products.

Besides the Singer's furniture factory and two other plants (Del Rosario Industries, Inc. and Mandaluyong Woodcraft, Inc.) being very specialized in the production of only one type of products, all other shops manufacture any kind of furniture. From very simple products up to the most complicated designs, including style furniture.

The Singer's furniture factory has been specialized for the production of very limited number of basic models of sewing machine cabinets. For the time being, the monthly program has been capacitated within the range of 10,000 cabinets. The other two mentioned plants are manufacturing TV and Stereo cabinets. The present capacity of the Del Rosario Industries, Inc. is up to 800 cabinets per month. Achievement of the other plant is about more than double one, including the small boxes.

The intention of another visited woodworking shop is to be specialized in the production of an assortment of wooden gifts. Everything seems to speak in favour of the firm's success. Attractive design, very good quality of products, variety of beautiful timber species available, existence of the market interested for that kind of products, etc.

4.4. Production Techniques.

With the exception of three already mentioned specialized furniture factories, in all other plants a handwork is extensively used with very restrictive participation of the mechanized work. Producing mainly on "by order" basis, irrespectively where those orders are coming from, this is certainly the easiest and with regard to the investment required the cheapest way to adapt the woodworking shops to the existing custom of buying furniture. This seems to be the main reason why the furniture industry is among the lowest paid-in capital investment industries, even in newly registered business organizations during the last three years (See Table No. 3).

Wherever was normally expected to find an entirely realized idea of an advanced solution, that part, enabling both the quality and highest efficiency within the whole phase, but being at the same time the most expensive one, was simply omitted.

4.5 Qualifications of available labour in the Philippines' furniture industry

As previously mentioned, the country's furniture industry is entirely based on carpenters, qualified in some respective schools or on an in-plant training, working more or less permanently in the existing plants. Carpenters, cabinet-makers and carvers are therefore the skillest labour. Woodcarving is the tradition in a number of regions within the country.

The expected expansion and growing mechanization of the furniture industry in the country will certainly be very soon faced with the problem of a total lack of well-trained industrial labour. This theme was discussed both with furniture manufacturers and some local authorities where the furniture industry has already an important industrial role and is considered to be a prospective one in the future as well. Working discipline of labour in the visited plants was on surprisingly high level, and quality of their direct work performed was absolutely satisfying.

5. Market survey of the needs of the country in various types of furniture and the possi- bility of exporting it to neighboring countries.

5.1 Home Consumption of furniture

It is the experts' strong impression that the manufacturing of furniture on the aforesaid "by order" basis caused a very vacillating tendency, resulting in an evident stagnation in that industrial activity, as showed in the following official information referring to the growth of physical volume of the production of furniture in 1956-1969:

<u>Year</u>	<u>Index</u>	<u>Year</u>	<u>Index</u>
1955	100.0	1963	131.7
1956	120.1	1964	170.8
1957	128.6	1965	154.1
1958	106.9	1966	114.1
1959	106.7	1967	145.6
1960	85.3	1968	124.3
1961	115.7	1969	119.4 (for 3 quarters)
1962	120.3		

(Under the term "furniture", it has to be understood here all kinds of it, that is, furniture produced of rattan, bamboo, buri, wood, metal, as well as the parts of it).

¹ Source: Statistical Bulletin, Central Bank of the Philippines, Vol. XXI, No. 4, December, 1969

Macesic's Final Report. . . .

According to the official information gotten from the Bureau of Census and Statistics, although still a preliminary one, it seems the production of furniture in 1969 may be less than expected, having an index of 113.0 only.

Since the range of any production activity in a certain period of time usually corresponds to the consumption demands for respective products, one may draw a conclusion from the figures above that there was only the period 1961 - 1964 indicating a normal increasing trend in the furniture production. Consequently, a logical assumption strikes that some anomalies happened both in earlier and in the later period. Namely, in analyzing the trend of the country's export achievements just in the years after 1964 (see Table No. 4 and 4a), everything was speaking in favour of retaining the increasing trend of the production of furniture since the export of it entered in an apparently expanding era. The production abruptly dropped instead.

There is no doubt that the scarcity of a larger assortment of wooden furniture on the home market makes it very difficult to estimate an actual consumption demand of those products.

The assortment of furniture production in 1969 is given in Table No. 2. Wooden furniture participates with 53%. Almost whole production has been consumed locally, about 99%. There is an import of wooden furniture, even small one, amounting approximately the same value as that one being exported. It means, in fact, that the entire quantity of the produced furniture is locally consumed.

Insignificant amount of people's income spent on furniture not only on wooden one but on all kinds of it proves the experts' opinion that the actual demand for furniture on the home market was never met by the manufacturing activity. Namely, a bit more than one Peso per capita was spent on furniture in 1969.

There is an evident expansion of the Philippines' economy in general. In other words, it is quite realistic to expect a permanent increase of the inhabitants' buying potentiality, an obvious growth of their standard of living, hence, a bigger demand on furniture as well. According to the Four-Year Development Plan, FY 1971 - 1974 (Section IV - Chapter 8) "the annual housing need is currently estimated at about 470,000 dwellings and is anticipated to rise to about 490,000 dwelling units during the 1971 - 1975 period". The same increasing tendency is being expected up to 1980 as well.

Experts' Final Report . . .

The National Housing Corporation's programme in low-cost houses production has already been set up to 1,000 dwelling units per month.

It is quite clear that the furnishing of those newly built houses has to be solved on an other way, completely different to the present custom. Otherwise, there will be an acute shortage of furniture in the country and need for a significant import. Namely, supposing that a newly built dwelling unit will in average have only 3 rooms, it means a demand on 1,410,000 different sets of furniture. Calculating with an average price for such a set as per 500 ₪, total value of furniture represents an amount of 705,000,000 ₪, about 19 times higher than the country's production in 1969 registered by BCS.

Apart from the above-mentioned expected demand on furniture for dwelling purposes, there are in addition many others. Among them:

- business offices for the expanding industrialization of the country;
- newly built schools;
- tourism (hotels, motels, restaurants, etc.);
- new hospitals and other health institutions, etc.

A significant quantity of furniture has usually been required as the substitution for that one already worn out.

5.2 Export possibility to neighboring countries

For years, wood and wooden products represent the Philippines best and the biggest Dollar earning items. Their participation in the total country's domestic export achievements in some of the past years was as follows:

1964	24.8
1965	24.8
1966	28.7
1967	32.1
1968	32.5
1969	33.8
1970	25.9

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Indicated percentage of the timber industry's share in the Philippines' total domestic export in 1970, although less than previously, is still high since the country's total export increased for more than 34% compared with 1969. The export of timber industry rose by 15% at the same time.

Furniture industry's role in the above mentioned participation of wood and wooden products in the Philippines export is practically insignificant. In particular that one of the wooden furniture.

The furniture industry's share and that one of the wooden furniture in the country's total export in the period 1964-1970 was as follows: (See Table No. 4a)

year	%	
	of furniture in whole	of wooden furniture
1964	0.06	0.004
1965	0.05	0.005
1966	0.07	0.006
1967	0.08	0.005
1968	0.10	0.004
1969	0.12	0.003
1970	0.11	0.005

No further comment is necessary.

To a quite justified question whether there are some prospective possibilities for an increase in exporting wooden furniture from the Philippines, the experts definitely say, "Yes, there are".

So far, the export of Philippines wooden furniture has been orientated to a limited number of neighboring countries, United States, including Hawaii and Guam, with other U.S. Insular Possessions, are predominant buyers. Japan and Australia are the next, but far behind.

5.2.1 The Export to Japan seems to have an evident increasing tendency. According to the official information*, for the last three years, the trend of the Japan's total import of wooden furniture and that one from the Philippines* was as follows (in 000 US\$):

* Foreign Trade Reports of Japan and Philippines

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				Index		Rate of growth
	1968	1969	1970	1968/69	1970/68	
Total wooden furniture import to Japan *	264	395	437	150	166	28.8
Import from Phils. of all kind of furniture **	2	3	8	150	400	100.0
Import from Phils. of wooden furniture	2	1	6	50	200	73.2

The Philippines' participation in Japan's total import of furniture was:

<u>Year</u>	<u>Wooden furniture</u>	<u>All kind of furniture</u>
1968	0.6%	0.9%
1969	0.3%	0.7%
1970	1.3%	1.8%

Japan has to be considered as a very prospective market for the Philippines wooden furniture, as well as for the other timber products since about 78% of the Philippines logs export has been orientated to Japan, representing more than 50% of Japan's total import of logs.

Share of other countries in Japan's import of furniture can be seen in Table No. 5.

5.2.2. The Philippines export of furniture to Australia shows a completely different and a real collapsing tendency. Even the remarkable export expansion of the rattan and buri-furniture cannot be an acceptable justification for such a desisting of the wooden furniture export.

The present trend of the Australian import of furniture and that one from the Philippines is shown in the following figures (in 000 US\$):

Experts' Final Report. . .

	1968	1969	1970	Index 1969/68	Index 1970/68	Rate of growth
Total import of furniture to Australia *	4,084	5,549	6,380	136	156	24.5
Australian import of furnitures from the Philippines **	56	101	153	66	37	
Import of wooden furniture from the Philippines**	1,513	0.838	0.248	55	16	

The Philippines as a developing country has a real opportunity to be very firmly on Australian market with her wooden furniture products. The Australian system of tariff preferences for developing countries offers a remarkable privilege to the Philippines' wooden furniture industry. Namely in the list of the furniture exporting countries to Australia (see Tables No. 6-7) there are only few of them being developed countries as the Philippines. Within the quantities of furniture under the present quota system, the Philippines may find her chance. In the other hand, a large group of products, named as "woodwork, carved or inlaid", where exist neither any rate nor quota limitation, is a very interesting possibility for a prospective Philippines exporting initiative, but an aggressive one!

The existing trend in importing the Philippines hardwood sawntimber being in 1966 - - - - - 13,400 m³ and reaching in 1970 - - - - - 31,000 m³ indicates the Australian need on Philippines wooden products.

5.2.3 Hongkong is an additional and very interesting possibility and chance for the Philippines export of wooden furniture.

Importing increasing quantities of wooden furniture (~~see Table No. 6-7~~) and being the nearest market for the Philippines wooden products, Hongkong on no account can be ignored.

* CIF prices
** FOB prices

Experts' Final Report. . . .

The following figures (in 000 US\$) unfortunately indicate on just the opposite approach of the Philippines furniture manufacturers to that market:

	1968	1969	1970	Index		Rate of growth
				1969/68	1970/68	
Hongkong's import of wooden furn.**	3,970	5,010	5,430*	126	137	17.1
Import of rattan furniture from the Phils.***	3	1	1	30	19	

Wooden furniture is not even with a symbolic quantity represented on the Hongkong's market. Any commenting is very difficult prior to having that market carefully investigated.

5.2.4. United States' large market, as previously mentioned, is far predominant one where the Philippines exports her furniture products. In spite of that fact, no actual respect has been paid to the market affairs there. No wonder that the increase of the Philippines' export to that side of the world market during the last years was at a lower rate than that one of the total US import of furniture.

The following figures (in 000 US\$) show it very expressively:

	1968	1969	1970	Index		Rate of growth
				1969/68	1970/68	
Total US Import for furniture *	132,903	202,786	243,145	153	183	35.0
US Import of furniture from the Phils.**	868	915	1,054	105	121	10.0
US Import of wooden furn. from the Phils.**	36	20	53	56	147	21.2

* CIF prices

** FOB prices

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Neglecting the calculative rate of growth rate of the Philippines' wooden furniture export to that market, more illustrative information is that one of its participation in the US furniture import, as follows:

	Wooden furniture	All kind of furniture
1968	0.027%	0.65%
1969	0.010%	0.45%
1970	0.022%	0.44%

Table No. 8 shows the structure of the U.S. import of furniture and the Philippines participation in particular groups of furniture, compared with achievements of all other Asian countries. Those figures explicitly point out what has to be and must be done within the Philippines furniture industry in gaining much bigger share of that large market. At least such a participation to be in a logical correlation with the Philippines' raw material resources.

Bearing in mind that particular market, the Philippines furniture industry as a whole and the firms concerned, will have to act in a way of the closest possible cooperation and collaboration, both in technological and commercial matters concerned, since the competition there is without doubt the strongest one.

5.2.5 Canada is obviously an interesting market for the Philippines furniture industry as well. The Philippines' large variety of the attractive hardwood species is certainly able to excite the consumers there.

5.2.6 Europe would surely, in some other way, be interested for the Philippines' resources. A system of cooperation on a long term basis might be acceptable for both sides. Similar and successful initiative already exist in the Philippines between an establishment in Davao and the U.S. market in supplying an overseas partner with some prefinished joinery elements. Its whole capacity is orientated for export. The same method but adapted to a number of particular requirements could be satisfyingly solved. That way of the industrial expansion is the easiest way in getting both the experience in the industrial technology and in the use of most efficient equipment.

6. Assessment of the raw material situation.

Lumber, decorative veneer and wood-based panels will briefly be considered here.

6.1 The Philippines' forest area of 12.6 million hectares, where 8.5 million hectares comprise commercial forests, having a volume of m^3 1,857,801,000 (trees of 20 cm. dbh up), indisputably represents self-sufficient raw materials basis for any kind and any size of furniture industry based on timber as the principal industrial raw material.

In the other hand, there is a real richness of timber species available, almost suitable for any kind of remanufacturing activities. An abundance of different but very attractive timber species is at furniture industry disposal here. More than 3,700 of them are growing in the country. It is stated in the official publications that about 100 species have commonly been utilized. Much less of them are actually on market. In the General Paper prepared for the presentation at the 6th World Forestry Congress held in Madrid, 1966, was stated:

"Majority of the species are not now utilized due to the lack of knowledge of the properties of wood."

This problem was discussed with the representatives of the Forest Products Research Institute. The situation proved to be less serious than it seemed to be. Namely, the Institute already published results of the research work performed, investigating properties and utilizing characteristics of more than 100 timber species, most commonly grown in the Philippines. A copy of: Mechanical and Related Properties of Philippine Woods; Grain, Texture, Color, Figure, Odor, Taste, Hardness, Whittling and Splitting Properties of Philippine Woods; Uses of Philippine Woods, is attached to this report as Appendix 4, 5, and 6. It is now up to the other people, institutions, and business organizations concerned to intensify the use of lesser known timber species.

6.2 The most common species group is that one of Dipterocarpaceae, participating with about 67% (88,488,148 m^3) in the total net volume of sound trees in the old growth stands, having DBH 15 cm. and more. Among the well-known species are:

White Lauan	(<i>Pentacme contorta</i>)
Red Lauan	(<i>Shorea negrosensis</i>)
Tangile	(<i>Shorea polysperma</i>)
Almon	(<i>Shorea almon</i>)
Mayapis	(<i>Shorea squamata</i>)
Bagtikan	(<i>Parashorea plicata</i>)
Apitong	(<i>Dipterocarpus grandiflorus</i>)
Yakal	(<i>Shorea gisok</i>)
Narig	(<i>Vatica manggachapui</i>)

In the group of other species (456, 579, 705 m³), the most known are:

Narra	(<i>Pterocarpus indicus</i>)
Dao	(<i>Dracontomelum dao</i>)
Ipil	(<i>Intsia bijuga</i>)
Pahunan	(<i>Mangifera altissima</i>)
Kamagong	(<i>Diospyros discolor</i>)
Molave	(<i>Vitex parviflora</i>)
Tindalo	(<i>Pahudia rhomboidea</i>)
Dangula	(<i>Teijsmanniodendron ahernianum</i>)

Species of that group are much less represented in the higher DBH class (55 cm and up). The net volume of that group of timber species in the old growth stands is estimated to be at about 113,000,000 m³, compared with 638,000,000 m³ of Dipterocarpaceae species.

6.3 Greatest part of the above-mentioned forest resources is situated in Mindanao, about 54%. Luzon participates with 28%, Visayas with 10% and Palawan with 8%.

Production of logs and export of them is distributed by regions in the following quantities: ✓

Region	Production m ³	%	Export m ³	%	% (4:2)	Popu- lation %
1	2	3	4	5	6	7
Mindanao	8,301,564	74.5	7,048,789	81.8	84.9	20.0
Luzon	1,508,917	13.9	1,056,924	12.3	69.1	50.0
Visayas	1,222,483	10.2	464,650	5.4	38.0	28.6
Palawan	51,345	1.4	45,715	0.5	89.0	0.6
Total	11,084,309	100.0	8,562,078	100.0	78.3	100.0

✓ Source: Philippine Forestry Statistics

The annual cut of logs has principally been fixed at about 11,000,000 m³. Exported quantities amount about 8,600,000 m³. The rest is being remanufactured within the country.

The following table ^{1/} shows products in which logs have been processed, their quantity, exported portion of them and the remaining part for the home consumption:

Products	Produced	Exported	For Home Consumption
Sawntimber	1,340,000	185,000	1,155,000
Plywood	240,000	150,000	90,000
Veneer	58,000	54,000	4,000

Import of those products has not been considered being practically insignificant.

There is no doubt that the production of all mentioned products will have to rise. Proposed intensifying of the building activity in the FY 1971-1974 Plan, simultaneously followed by a strong expansion of the furniture industry, will certainly require much more of that kind of raw material. The only sound solution is in the expansion of the country's own primary wood conversion (sawmilling, plywood and other wood-based panels and veneer production). Obviously, this has to be done mostly on the account of a restrictive logs exporting policy, bearing in mind the necessity for a very wide promotion activity for a most extensive use of lesser known timber species.

For the time being (as per June 30, 1970 ^{2/}), there are:

- 352 operating sawmills with an annual input capacity of about 5,300,000 m³
- 74 inactive sawmills having an annual input capacity of about 666,000 m³
- 28 plywood factories, with a daily capacity of about 1,900 m³
- 7 pre-finishing plywood factories with a daily capacity of about 480 m³

^{1/} Source: Philippine Forestry Statistics, 1970

^{2/}

- 4 sliced-veneer factories with a daily capacity of about 26 m³ (1 mm. in thickness)
- 15 rotary veneer factories, having a daily capacity of about 400 m³ (1.5 mm. in thickness)
- 2 particle board factories with a daily capacity of about 80 t

One of them is a new Hildebrand factory in running-in operation. The other one (Siempelkamp) was for 4 years inactive and is likely soon to resume its operation.

According to the indicated capacities of the listed factories, there is an evident necessity for a considerable increase of their production, having as a direct benefit in a higher profitability or in competitive ability or even both.

6.4 Almost everywhere when the raw material availability was discussed, the present situation in this regard was explained by the furniture manufacturers as a fairly unsatisfying one. Sometimes, as being a very alarming one. At the beginning, it was a completely surprising information. Later on, a memorandum of the meeting attended by some representatives of the plywood and lumber manufacturers, held under the auspices of the Philippine Chamber of Industries' Committee on Furniture and Wood Industries explained the whole problem. Due to its actuality, a copy of the memorandum is attached to this report as Appendix ③.

Complaints of the furniture industry in ultima linea were not absolutely appropriate. Once the industry is having a continuous and fairly firm production programme, it is very easy to conclude a long term agreement for the supply of the raw material concerned under conditions most convenient for both interested sides.

For the time being, there is a serious problem in inter-island shipping transport. Since the Philippines' primary wood conversion has been located mostly in Mindanao, manufacturing of final products, in other words the furniture industry, has been very often affected by an indirect shortage of the basic raw material.

As a matter of fact, sawmilling all over the world becomes more and more direct producer of various components used in many other manufacturing activities to convert them in a variety of final products. Readiness of Philippines' lumber and plywood producers to follow this way of a direct collaboration may only be welcome by the furniture industry here.

7 Assessment of the rate of growth of the market for various products

7.1 For the time being, the most important product in the Philippines' timber industry, by quantity and value, are the logs in the quantity for plywood production, for the production of decorative veneer or for other purposes, and for the production of sawntimber.

As already stated under 6.3, the production of logs as the essential raw material for a number of important primary wood conversion activities, being the vital basis for further remanufacturing possibilities, has been fixed at about 11,000,000 m³ annually.

The following figures show the trend in the production, export and home consumption of that product (in 000 m³) *:

<u>Year</u>	<u>Production</u>	<u>Export</u>	<u>Home Consumption</u>
1956	4,304	1,493	2,901
1957	4,631	1,942	2,689
1958	4,826	2,101	2,725
1959	5,452	3,027	2,425
1960	6,315	3,404	2,911
1961	6,596	3,028	3,468
1962	6,772	3,749	3,023
1963	7,668	4,593	3,075
1964	6,536	4,543	1,993
1965	6,175	3,487	2,688
1966	8,047	5,534	2,513
1967	7,843	6,649	1,194
1968	11,114	7,511	3,603
1969	11,584	8,649	2,935
1970	11,005	9,374	1,631

Rate of growth in the export of logs in the last 10 years was 10.64%. In the home consumption was a decreasing tendency at a rate of 5.63%.

The most predominant importing country for logs is Japan, followed by Republic of Korea and China (Taiwan). Their participation in the Philippines' total export of logs in the last five years was the following:

* Source: Philippine Forestry Statistics and BCS

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Japan	84%	80%	77%	78%	78%
Korea	7%	7%	8%	8%	9%
China (T)	6%	6%	8%	6%	7%

Hongkong is becoming more and more bigger importer of Philippines' logs. Her import was in 1966 at about 0.3%. In 1970 it reached 2.1%, being already the fourth biggest.

European countries import the remaining part of the Philippines' valuable logs.

Home consumption of logs for the three main remanufacturing activities is to be considered as more the result of an export orientated policy in the basic raw material, since only about one quarter of the total production has been locally used and consequently preventing the development of the Philippines' timber industry.

7.2 Plywood is the most valuable exporting product in timber industry. Production, export and home consumption is shown in the following figures (in 000 m³)*:

<u>Year</u>	<u>Production</u>	<u>Export</u>	<u>Home Consumption</u>
1956	44	4	40
1957	56	10	46
1958	71	25	46
1959	125	76	49
1960	135	75	60
1961	109	47	69
1962	133	61	72
1963	167	81	86
1964	190	168	22
1965	250	135	115
1966	226	86	140
1967	218	122	96
1968	291	180	111
1969	219	138	81

Rate of growth in the plywood export in the last ten years was 6.17%, in home consumption 5.14%.

U.S.A. with her Insular Possessions is almost the exclusive buyer of the Philippines' plywood, importing

* Source: Philippine Forestry Statistics and BCS

between 94 - 98% of the Philippines' total production.

In 1970, the Philippines' manufacturers made first steps in searching for other markets. That time it was Europe, seems successfully.

Home consumption is evidently increasing one, but at present dependent again on export. However, it is up to the country's development policy whether to expand that industrial activity and meet both the demand on world market and the local requirements, or to decrease the export giving the preference to the domestic necessity, keeping the plywood production on the present level.

7.3 Sawntimber produced in the country is mostly aimed for the home consumption. About 10% only has been exported in the recent years.

The following figures* show the trend in home consumption (in 000 m³):

<u>Year</u>	<u>Production</u>	<u>Export</u>	<u>Home Consumption</u>
1960	906	113	793
1961	1,040	99	941
1962	958	99	859
1963	1,137	89	1,048
1964	1,180	92	1,088
1965	1,253	82	1,171
1966	887	113	805
1967	759	114	645
1968	1,021	153	868
1969	1,465	178	1,287
1970	1,340	185	1,155

Rate of growth in the home consumption of sawntimber for the last 10 years was at 4.28%. In export, 2.09%.

The following table shows the biggest importers of the Philippines' sawntimber and their respective participation (in %):

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
U.S.A.	61	54	49	47	25
Japan	5	17	49	21	24
Australia	12	11	14	12	17
South Africa	6	9	8	7	10
Denmark	6	7	6	5	6
Hongkong	-	-	-	-	3

* Source: Philippine Forestry Statistics

7.4 The home consumption of the veneer in the last 10 years was as shown in following figures (in 000 m³):

<u>Year</u>	<u>Production</u>	<u>Export</u>	<u>Home Consumption</u>
1959	63	19	44
1960	35	29	6
1961	33	31	2
1962	55	39	16
1963	103	47	56
1964	85	62	23
1965	103	74	29
1966	110	53	57
1967	116	63	53
1968	168	78	90
1969	87	75	12

The export of veneer products, with some few exceptions, has an evidently increasing tendency. There are more oscillations both in production and home consumption. The production is obviously limited by the raw material availability for the home remanufacturing, while the home consumption is the result of a limited production and an increasing export tendency.

During the last five years, the U.S.A. participated with 88 - 93% in the total Philippines' export of veneer products, Japan was the next with 3 - 15%.

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- 8. Measures to be taken by the authorities as well as the factories to ensure the modernization of this industrial sector in order to increase its productivity and the range of products produced.**

There is no doubt that a number of problems and difficulties in the furniture industry here have to be considered as a result of organizations' own weaknesses. But, there are serious inconveniences outside their influencing power and ability to solve them as well. To eliminate that part of problems involved, the President of the Philippines created, some months ago, a Committee on Wood Industry Development, commissioned to study the problems of the industry and recommend alternative courses of action. The Committee is composed of representatives from the government and the private sectors. According to the information available, there is a necessity to a major revision of the government's fiscal and monetary policies vis-a-vis the wood industry.

8.1 For the time being, there is only 8% tax on FOB profits of the export of lumber. (See Appendix No. 8) Furniture industry of the Philippines has a real chance to enter very strongly in the existing more than cruel world's trade rivalry. Its entering has to be done at least under the same home supporting tendency as that one being given to its direct competitors. Otherwise, there is no chance for a success.

8.2 Since the furniture exporters all over the world are selling their products on the world market under very convenient paying conditions (paying by Letter of Credit, generally speaking, belongs already to the past), there is a necessity for a favourable system of crediting the export orientated industry, particularly when making its serious debut.

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8.3 Needful working capital for the export-aimed production dare on no account be a problem, since its is a question of a serious responsibility of the exporting firms, extremely important in the foreign trade.

8.4 Expansion and development of the Philippines' furniture industry will require significant funds for the local expenditure. Rate of interest for the respective loans cannot be higher than that 'ome offered to Philippines' direct competitors on the world market.

8.5 There will be necessary to import new and very efficient equipment for the furniture industry. Problems with regard to the Bank guarantees have to be solved in due time. Board of Investment's approval for such an investment has to be considered as the green light both for the investing company and for the Bank.

8.6 Forthcoming promotion of the present furniture industry and its further expansion will only be possible provided that the industry is having highly educated, technical and managerial staff in that particular industrial line. It is therefore necessary that the College of Forestry extends its present curriculum in covering all needed disciplines in the field of the industrial wood processing. The Chamber of Furniture Industries must be the initiator for such an action.

8.7 A comprehensive study on the current home consumption and the expected country's requirements on furniture in the near future would be very useful orientation for a large number of furniture manufacturers. Such a study should be sponsored, in the first instance, by the Chamber of Furniture Industries.

8.8 Chamber of Furniture Industries is the most responsible place where a concentrated action in investigating the possibility for a programmed export expansion activity of the Philippines furniture industry may and has to be initiated from.

D. Lawrence

9. Existing equipment, plant layout,
and maintenance of cutting tools

9.1 The present situation with regards to equipment, maintenance and plant layout presents the factor that apart from very few factories which the standard is low. Out of 23 factories visited, only a few were having equipment and layout for a real mass production. The use of sufficient machinery was not common. The machines are mostly of older types, and badly kept. It is here to be mentioned that the utilization of the machinery is very difficult when most factories carry out a wide range of products, and for this reason, do not use a machine for years. It easily deteriorates. Selection of machinery, equipment and power-tools for new woodworking factory should be based on a careful study of their performance, quality and supply in the market.

At the present, most of the factories were only equipped with the more simple machinery as circular saws, bandsaws, simple planners, only few having equipment for sucking the sawdust away which also make the work more difficult, unhealthy, and lower the quality of the product. Spraying cabins and revolving tables for the finishing were seldomly seen. The working overall light is mostly not sufficient.

Good equipment, instruments and tools for the painting shops, finishing departments and testing equipment are essential for high quality products. Modern kiln equipment does not exist within the furniture factories. In a properly run kiln, conditions can be set to those known from investigation and previous experience to be the optimum for the wood in question.

9.2 A very few factories are running a production line, making T.V. cabinets and radio cabinets, and do not accept order on other items.

The present situation is, as it was many years ago in Europe, mostly the factories have too little machinery, and too little space and too many workers who work hard and cleverly. One gets the feeling of overcrowd activities where it is difficult to a real plan, and for this reason, the machines are difficult to place in the right position and production is often disturbed.

Maintenance of cutting tools are generally poor and it is seldom to see an automatic saw sharpener.

9.3 The proposed Center for the Development of the Furniture Industry will meet the need of improving the plant layout and maintenance, and being asked, most of the manufacturers admit that this consultancy help they will be willing to pay for.

10. Selection of timber, its seasoning

10.1 The quality, cost and supply of raw materials for wood-working factory play a decisive role of the business.

Nearly all factories complain over difficulties in timber supply and the quality not being homogenous. Narra (the Philippine national tree), which is identical to Padouk, Burma) and Lauan (red lauan mahogany) are very good timber for furniture and cabinet work of all kinds of veneer and plywood.

Narra is also a very beautiful looking wood for furniture, unfortunately, the wood is misused in heavy construction and shipboard and particle board are hardly seen in the cabinet making. Mahogany, tangle and apitong are used for the less expensive furniture.

Bureau of Forestry possesses an excellent collection of Philippine hardwoods. Many of them grow in quantities sufficient for furniture industries and are especially suitable for the export market. Apart from Narra, Lauan, Tangle, and Apitong, the use of Almon, Mayapis, Bagtikan, Yakal, Narig, Dao, Ipil, Pahutan, Kamagong, Molave, Tindalo, Dangula could help the industry in its present difficulties of getting sufficient timber. Introduction of the use of particle board with thin veneer also of lesser known species of wood, seems to be most important to avoid the use of expensive solid timber, additional cost of production when using the solid timber in items where it is unnecessary and use it for chairs, table legs and the like where particle board can not be used.

Rattan which belong to the Bamboo family but are solid, are the raw material of the so-called "Manila" furniture or rattan-furniture, which represents the biggest part of the furniture export. Rattan have to be mentioned here as some furniture factories are combined wood and rattan furniture manufacturers. Bamboo and Sica for cane work plays an important role for the design of the final furniture piece as material for seats and backs or doors in cabinets. Bamboo is a strong and common local material, whereas Sica is imported. Wooden products occupy a wide range from tiny articles to pre-fabricated houses, and for this reason, the industry has a unique place in the development of style and craftsmanship. Uses of wood will be seen in Appendix No. 6).

1022 Seasoning

Most of the manufacturers buy their timber unseasoned or seasoned kiln drying from the dealer, but only few have equipment (moisture meter) to control the moisture content. Ideally, the moisture content should be the average value it will attain in service. In most damp, humid, tropical condition as in the Philippines, the average moisture content of wood articles are very high compared to Europe. The furniture factories here in the Philippines very seldom carry stock of timber, so the air-seasoning is merely that the wood sometimes are dried of and conditioned in the work shop, or under the sun.

Very few have kiln drying equipment. Kiln seasoning of timber and the thought of carrying a stock of timber well-stocked (natural seasoning) are one of the means to avoid waste and production stops.

Processes in chemical impregnation to minimize swelling, shrinking, warping and wacking have to be introduced.

11. Surface Finishing, Glueing

11.1 Surface finishing and glueing are often poor and most manufacturers cover their plain furniture with heavy coats of finish - to hide saw or plain marks on the surface and to cover variations in texture and colors of the wood used. Pigmented coating obscure the grain of narra and other timber species instead of being accented by proper finishing methods.

Most of the local finishing practice consist of some combination of the following fundamental operations: sanding, staining, filling, sealing, surface coating, rubbing and polishing.

Having visited a number of homes, with high class furniture locally made, the housewives always complain that the finish, even independent of high price and sometimes with nice look are highly impractical, coffee table where you can not place a coffee cup without their being a spot, etc.

Mass finish is done by hand and in a very primitive way, even when using spray equipment, most of it goes in the open air, and it would be very easy to introduce revolving tables (a few have them already) and other ways depending on the article produced. Spray cabins with ventilation, kiln dries.

The volume of finished wood work is increasing, but only few people engaged in wood business recognize the problems of and the requirements for proper wood finishing. Lack of adequate technical know-how on wood finishing poses a major problem in the industry.

There is a need, no doubt, for a closer cooperation with the Forest Product Research Institute to train the factory people on the present painting, finishing practices and also on allied problems of these industries.

11.2 Glueing

Locally made glue of a good quality exist, but the one mostly used has the disadvantage that it takes a long time to dry. The glue is usually added with a brush. Glueing equipment are seldomly seen. Glue that can withstand the transition from the moist climate to the dry climate of export markets (for example, the United States) are necessary. Glueing equipment and fast drying glue may be introduced.

12. Selection and utilization of textiles,
synthetic materials and hardware

12.1 Manufacturers complained of lack of sufficient supply of local made textiles and of high prices on imported textiles. The intensive use of plastic cover for chairs, sofas seems to be a matter of fashion and prestige. Also imported textiles are generally preferred than local made.

In the province of Negros, they have produced Hablon - a handwoven fabric that "captures the enchantment of the East and the excitement of the West". This material, even being handwoven, is being produced in a width up to 72 inches at a reasonable price in nearly unlimited quantity. It is at least for the export furniture "a must" to use local made textiles, and try to change the trend of the present use of imported materials, instead of using local textiles, or other woven or braided materials which the Philippines has in plenty.

12.2 Synthetic foams

For upholstery material, foam rubber is very used in high class furniture and locally grown capok for cheaper furniture. Only very few use coirflex (coir impregnated with latex, locally made of coco-fiber). Instead of the intensive use of foam rubber, the use of coirflex could replace foam rubber in many cases.

12.3 Hardware

Nozag springs are very often used for office chairs of the more expensive type. Revolving stands for office chairs are locally made often of poor quality because they are only ordered in small quantity or they are made by the furniture factory themselves. The furniture is mostly made as copies from abroad and the screws and hinges for assembling are often made by the manufacturers, who complain that the imported are too expensive and the local hardware industry are of a more cottage industry type (even in Manila) to be able to deliver reasonable quality to a reasonable price. With the introduction of other types of glue, the heavy use of nails can be avoided. The screws and hinges can partly be replaced by construction utilizing wooden plugs, bamboo splits, etc. For export furniture, this will even add to the value of the items.

13 **Production techniques, training,
and quality control**

13.1 The larger manufacturers have quite a number of machines and power equipment, but to maintain maximum output, all machines must be kept busy by employing a machinist for each machine. The productivity suffered from the fact that they are using designs which are conceived for handmade furniture and are not suited for machine production. The production they turn out are mostly small quantities of special "made to order designs" on contractual basis, which require a great deal of hand planning and hand carving. So long as everything is made on contractual basis and made to order, it is impossible to talk about production and factories, and a big task of the proposed Centre is to change the attitude of the manufacturers on a more realistic point of view. The idea is to split the production or enable the manufacturers to establish workshops that are designed either for mass production of doors, screens, etc. - low-cost furniture, or for individual items. This also involves a change in the thinking of the manufacturers if real mass production shall be attained. It is necessary to concentrate on few items in bigger quantities, and to be willing to produce for stock, and not as it is now, where usually production is first started when the product is sold (and partly paid for). Most of the factories are producing or making at the same time: office furniture, chairs, sofas, all kinds of table, cabinets and upholstery work - all in a wide range, and even in many cases, tiny objects and figures are sold as handicrafts.

13.2 **Training**

Apprenticeship programme for cabinet makers are not used within the factories. One manufacturer intended to try to introduce some system to train boys. And in Cebu, the experts visited a school having two years training in cabinet making and carpentry.

There are no tradition (as for example in India) where the father trains the son, so here in the Philippines, you are not "born" to be a joiner or cabinet maker. Within the carving sectors, there may be some sort of father to children training. The introduction of training programme as well for

the machine operators as for the cabinet makers, will help to better the quality of the final product, and to raise the wages paid at the moment to the workers in the furniture industry. Instruction in carpentry, in finishes, and wood treatments could be given under the furniture centre programme.

13.3 Quality control

Apart from a few bigger firms, the procedures of quality control as such, are not common among the furniture manufacturers. Each factory of course depending upon the type of furniture, are making a final control before sending their product out of the factory and at that stage, the rejects might be very costly.

A product of consistently good quality has undoubtedly a considerable advantage in a competitive market. The precise problems of achieving this consistent quality vary from industry to industry. The furniture industry, and especially in the view of thinking of export, quality control is necessary.

14 Quality of Product Design

14.1 There exist very good "design" of furniture, contemporary rattan and cane furniture is beautiful and rich in design. It has a "tropical look" and enjoys great popularity not only in the Philippines, but also all over the world. The wooden furniture are all more or less copied from abroad. With exception of a few exact copies, it is rather rare to find a perfect designed piece of furniture with respect to proportion, weight, looks, (and price). In a country where there are no industrial tradition, and local consumers are very individualistic and somehow do not like to buy mass produced furniture, it is well understood how every new consumers private whim deteriorate the original piece of furniture.

The furniture manufacturers are not paying very much attention to this design problem as long as they sell the furniture. But there is a great interest in good design among producers, but also it seems that there are no designers of furniture, but draftsmen who copy from magazines, books, etc., plus some sort of interior decorators, with sometimes very good taste and big skills regarding room decoration, but without any knowledge of mass production of furniture.

The quality of the furniture with respect to appearance and suitability are chaotic. There exist some very nice furniture items of rattan and wood combined. There exist also furniture made out of wood imitating rattan. All styles of furniture are being produced, also a big variety of expensive "conversation pieces" as chess tables, with a stand carved as the head of a horse. Fancy bars, some heavily carved on the front, some with a combination of bamboo and wood.

As most of the models are copied from abroad and furniture cabinets are carried out as if they were made of veneer faced artificial board, particle board, but are actually made of solid plywood or solid wood. Carved chairs originally designed for walnut are carried out in wood, which need much thicker construction, and are consequently made much thicker, which sometimes result to some rather grotesque expensive and useless piece of furniture. On the other hand, all factories are able to

make beautiful furniture and do it depending on the customers' wish and supervision. The furniture are usually very expensive, because it is not mass produced or designed for it.

If different designs were used and a careful plan for streamlined production were developed, it would be more possible to utilize much more the expensive imported machinery. Even many of the present models could, with slight alteration, be as well-beautified as more suitable for mass production. Intensive use of particle board with thin veneer, for cabinets, tables, bookracks, etc. is recommended for the entire industry's development and also to save the precious wood. Introduction of unknown wood as a veneer on table tops, etc. would be very attractive to the market not only the export market, but also for the home market. The use of particle board with thin veneer (below one millimeter) will also make the furniture cheaper in production-cost, and lighter in weight.

Low-cost furniture in reasonable design may be introduced.

15. Introduction of new designs

15.1 Drastic steps should be taken in developing designs for furniture which is of good quality, attractive in appearance and well-sellable. This can be achieved in various ways. Education, scientific laboratory research, and forestry cultivation, followed by merchandising, possibly through cooperatives.

The National Housing scheme included production of 1,000 low cost dwelling units at about 70 m² each with 3-4 small rooms. In this connection, there would be a big opportunity for mass production of low cost wooden furniture if there exist designs and models suitable for this type of houses. Therefore, contact with designers and manufacturers is necessary.

Up to now, there seems to be a little interest among interior decorators and architects living in the Philippines for the design of this type of furniture.

If manufacturers would pay for the design and give royalties to the designers, both architect and interior decorators could benefit greatly in developing a new market and then an export market too.

The Chamber of Furniture Industries could promote a furniture-competition.

A competition should give results in comparatively short time. It may give new hints also to modernize production.

The increasing demand of consumers in the future will cause new demand on industry. The more the product is sold to retail consumers, the more there is a need for good designs. The more necessary export markets are, the greater the role of good designs play.

Mass production of furniture is always cheaper than the ones made by pieces. The manufacturers have known this all the time, so it is the industry's own fault for not looking after the necessity of consumers' information.

The experts believe that local people would accept mass produced furniture because, cars, radios and other every day items are known by them to be mass produced.

16. Training of furniture designers and promotion of design consciousness

16.1 The furniture produced, apart from some of the rattan furniture, are mostly copied from all styles and countries. To export this furniture, it has to compete in price and quality only, whereas the rattan furniture can obtain better prices -- owing to richness and beauty in design.

For this reason, it is very important to develop an urge for design and experimentation now lacking. Within the present production, "low-cost" furniture of wood is not existing, apart from the types of the more cottage industries level.

In any case, design and designers have to play a very important role in the future furniture industry in the Philippines. It is impossible to cooperate with capable designers for two reasons:

- they are not available
- and if they were -- paying them adequately, as manufacturers say is not economic, because of the fear of competitions in copying the models.

There are several ways to cover design needs:

- education of local designers
- the UP College of Architecture is not presently equipped with the personnel and physical facilities for such a curricular program. (See appendix No. 7)
- the ability to think creatively and artistic aptitudes are the main criteria when selecting an applicant, who must at least graduated from high school.
- local education of designers will guarantee the future needs of the industry.
- the competition in worldmarkets demand better design standards. If the products could have the "exotic touch" that only designers, knowing tradition can give, perhaps there would be a better selling possibilities in foreign markets.

- consumers are becoming more and more critical with design in selecting furniture.
- There will be difficulties in finding really good, capable up-to-date teachers and designers, even from abroad. Sending talented people abroad to get education is recommended, but it takes time to utilize their education and it would hardly cover up the needs of the industry.
- education abroad needs the same time as it takes when taught locally. The proposed Centre for the Development of Furniture Industry would in a rather short time be able to create designs and with new designs, to modernize factory production, in a very misused term, increase "know-how".

16.2 As a start, a set of basic designs for the most often used types of furniture had to be developed. A thorough study of these basic designs should be introduced as the first step in a design and crafts education at the higher levels. This should be combined with a study of the basic elements of furniture construction with particular reference to the characteristics of Philippine raw materials. Such study of the basic elements of furniture construction and of basic design would then lead to further experimentation in design and materials.

It is always important to make small-scale and full-scale models enabling the designer to study the various parts and proportions of a piece of furniture under actual use, with special emphasis on size, comfort, functional correctness, raw materials and manufacturing principles. Therefore, the possibilities to make models and practical experimentation must be present. Much is to be said for a study of the human body and knowledge of materials and manufacturing process, instead of utilizing designs previously developed elsewhere.

A designer who should be connected with the proposed center might be able to train talented designers to create a Philippine style. This can be achieved only after careful studies and long term education.

Yusuf H. H. H.

Table No. 1

SCMI COMPARISONS BETWEEN ESTABLISHMENTS HAVING 5 and 20 EMPLOYEES (1968)

Major Group	No. of establishments		No. of employees (Paid in 000)		Value of Gross-output (in Min. pesos)		Census value added (in Min pesos)		Total Book value of fixed assets					
	: 5 >	20 >	% :	20 >	% :	5 >	20 >	% :	5 >	20 >	% :			
Food Product	2,977	377	19.3	59.6	77.1	2,777.5	2,543.3	92.0	1,057.7	990.1	94.8	186.4	181.5	97.0
Beverage	96	63	64.1	12.6	98.5	626.2	624.0	99.2	368.3	367.3	99.3	18.8	18.0	96.0
Tobacco Product	63	52	82.5	19.0	99.5	594.9	594.2	99.9	288.0	287.6	100.0	20.3	20.3	100.0
Textiles	197	117	60.0	46.5	98.0	800.5	759.9	95.0	313.9	302.9	97.0	74.4	70.8	95.0
Footwear	2,864	283	9.9	35.9	54.0	305.7	179.4	58.2	120.3	74.0	61.7	10.3	8.5	82.5
Wood and Cork prod.	565	259	45.6	38.9	92.5	575.2	543.4	95.0	251.3	236.7	94.2	22.0	20.3	92.5
Furniture	366	90	25.0	7.1	73.0	58.9	47.6	81.0	27.5	22.2	81.0	1.5	1.1	73.5
Paper & Paper Prod.	141	68	58.2	7.6	93.5	321.2	307.7	96.0	122.8	117.4	95.5	10.8	10.8	100.0
Printing & Al. Ind.	470	139	29.5	14.5	81.5	239.3	207.3	87.0	130.2	115.6	88.0	12.8	11.1	87.0
Leather & Leather prod.	56	31	55.2	2.2	86.5	29.3	27.5	93.5	11.2	10.3	92.2	0.5	0.4	80.0
Rubber Products	106	49	46.1	9.0	97.0	258.1	252.7	97.5	127.5	125.3	98.3	15.5	14.7	94.5
Chemicals & Chem. prod.	275	166	60.3	23.6	93.0	1,598.1	1,544.8	97.0	543.1	515.4	94.5	87.1	52.5	60.2
Products of Petroleum	11	8	72.7	1.1	100.0	767.9	765.8	98.3	231.0	230.4	99.8	20.4	20.4	100.0
Non-metallic Prod.	308	98	24.5	16.4	86.5	403.3	382.5	95.0	232.3	223.3	96.6	179.3	179.2	100.0
Basic Metal Indst.	98	58	59.5	7.7	87.0	341.4	306.0	89.7	102.9	95.6	92.9	9.3	9.3	100.0
Metal Products	502	162	32.3	23.8	92.5	565.2	526.7	93.5	216.1	202.7	94.0	20.1	19.1	95.0
Machinery	293	63	21.4	7.2	65.2	186.0	137.6	74.0	88.3	66.8	75.5	9.4	7.5	80.0
Electrical Mach.	215	95	43.3	12.9	92.0	347.1	333.2	96.0	147.0	141.0	95.0	10.5	10.4	99.0
Transport Equipment	667	126	18.9	14.6	79.0	599.2	557.5	93.0	160.5	147.1	92.0	28.4	24.1	82.0
Miscellaneous Man.	299	97	32.5	7.3	75.0	34.4	81.7	86.5	44.5	38.6	37.0	6.3	5.5	87.5
All Industries. Total	10,664	2,401	22.5	335.5	84.5	11,489.5	10,723.0	93.0	4,584.5	4,310.3	94.0	744.3	695.6	92.0

Source: BCS Preliminary Annual Report of Manufacturers, 1968

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ASSORTMENT OF FURNITURE PRODUCED IN 1969 *

Table No. 2

I t e m s		Quantity	Value in 000 ₱	Total
1	Tables of wood	11,539 pcs.	2,186	
2	Headboards of wood	1,806 pcs.	295	
3	Chairs, benches, stools, rockers, settees, lounges, sofas of wood	50,149 pcs.	3,681	
4	Beds of wood	2,555 pcs.	407	
5	Sala, dining, bedroom sets of wood	4,481 pcs.	1,680	
6	Chests, desks, dressers, aparadors, trunks, cupboards, plateras of wood	6,992 pcs.	2,026	
7	Showcases & other partition fixtures of wood	8,321 pcs.	1,664	
8	Wood furniture not specified in detail	- no figures-	4,262	
9	Miscellaneous wood furniture and fixtures not elsewhere specified	- no figures-	656	
10	Cabinets for radio, phonograph, radio phonograph, television sets of wood	21,599 pcs.	2,225	
11	Cabinets for household sewing machine of wood	42,965 pcs.	<u>2,284</u>	21,366
12	Tables of rattan	6,904 pcs.	424	
13	Chairs, benches, stools, rockers, settees, lounges, sofas of rattan	32,384 pcs.	1,846	
14	Sala, dining, bedroom, lawn sets of rattan	3,438 sets	2,507	
15	Beds and other rattan furniture and fixtures, not specified including rattan furniture parts	- no figures-	<u>2,200</u>	6,977
16	Box beds and mattresses	27,650 units	<u>5,602</u>	5,602
17	Tables of metal	3,225 pcs.	157	
18	Chairs, benches, stools, rockers, settees, lounges, sofas of metal	83,915 pcs.	1,052	
19	Beds, sala sets, dining sets, bedroom sets, lawn sets, desks, chests, trunks dressers, buffets, cupboards of metal	- no figures-	876	
20	Lockers, shelves, counters, showcases and other partitions and fixtures of metal	4,065 pcs.	618	
21	Miscellaneous household metal furni- tures & fixtures including metal furniture parts	- no figures-	574	
22	Office filing cabinets of metal	11,157 pcs.	2,107	
23	Office & store lockers, shelves, counters of metal	2,133 pcs.	448	
24	Miscellaneous office, store showcases, restaurant metal furniture & other partition & fixtures plain & podded	- no figures-	241	
25	Cabinets for radio, phonograph, radio phonograph, television sets and other furniture & fixtures, n.e.c. of metal	- no figures-	115	6,188
T o t a l			40,133	40,133

Source: Industry Division, Bureau of Census and Statistics

Table No. 3

CAPITAL INVESTMENT IN NEWLY REGISTERED BUSINESS ORGANIZATIONS (in P000)

Major Groups	No. of newly registered business organizations			Paid-in capital Investment per newly reg. business organ'n		
	1968	1969	1970	1968	1969	1970
Total Industries	1,585	1,225	1,476	51.7	39.4	35.7
Food Manufacturing	378	267	337	37.0	33.5	25.2
Sugar Refineries	8	8	6	920.0	235.0	163.3
Coconut Product	5	8	5	85.0	107.1	73.0
Beverages	4	10	6	112.0	23.0	45.5
Tobacco Manufacturing	14	3	8	88.0	27.3	81.0
Textiles	35	9	13	102.0	191.0	28.0
Footwear Wearing Apparel (Except rubber)	110	138	180	29.3	24.8	32.5
Wood manufacturing	85	54	111	65.5	67.5	52.7
Furniture and fixtures	41	25	46	16.0	25.0	29.0
Paper and Paper Products	11	10	14	49.7	82.8	47.7
Printing & publishing ind	302	287	343	27.7	21.8	24.7
Leather and leather prod. (Except footwear)	4	7	6	53.0	46.7	63.0
Rubber products	11	8	8	18.3	24.1	22.1
Drugs and elem. prod.	57	39	59	92.0	66.0	50.6
Non-metallic products	-	85	69	-	55.0	30.3
Metal products	75	67	75	115.0	41.0	44.1
Machineries	31	65	66	74.0	54.5	89.5
Transportation Equipment	9	9	16	47.5	38.5	79.5

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INDEX OF THE PHYSICAL VOLUME OF PRODUCTION IN MANUFACTURING*
(1955=100)

Table No. 4

YEAR	M A J O R										G R O U P					MISC.			
	FOOD	BEVERAGES	TOBACCO	TEXTILES	FOOTWEAR	WOOD & COOK	FURNITURE	PAPER & PRODUCTS	PRINTING & ALL IND.	LEATHER	RUBBER	CHEMICALS	PETROLEUM & COAL PRODUCTS	NON-METAL LIG PRO-DUCT	BASIC MET		METAL PRODUCTS	MACHINERY	ELECTRICAL MACH
1956	115.9	113.5	89.7	132.7		117.5	120.1	118.3	109.0	141.5	110.2	124.2	130.7	111.1	150.6	82.8	118.8	116.6	
1957	126.4	117.0	102.9	167.1		145.6	128.6	121.6	109.5	223.6	160.8	127.3	140.0	130.1	154.9	118.2	164.8	114.3	
1958	121.2	124.3	116.1	207.7		138.1	106.9	136.7	121.8	177.0	166.2	134.3	170.3	154.8	169.2	107.8	162.2	85.4	
1959	139.2	137.4	118.2	254.2		171.1	106.7	152.5	130.8	245.5	245.6	135.4	172.5	168.0	200.4	85.4	168.1	79.6	
1960	148.3	152.5	119.9	278.3		133.1	85.3	172.4	127.9	162.1	255.6	135.7	182.3	171.8	166.9	67.3	196.4	80.8	
1961	157.5	157.5	117.8	282.4		114.8	115.7	183.4	116.6	158.7	254.1	144.3	184.8	199.7	253.9	123.6	278.8	82.4	
1962	172.4	177.4	123.5	296.2		121.7	120.3	211.0	103.6	154.5	222.3	155.4	175.8	204.8	272.5	122.5	273.4	97.3	
1963	177.4	205.0	120.9	321.7		167.9	131.7	250.7	83.4	159.0	229.5	167.9	173.0	210.0	269.7	121.8	316.7	196.1	
1964	184.9	217.9	186.2	338.9		142.1	170.8	254.1	77.7	158.9	254.6	173.8	181.8	238.8	304.2	178.0	356.7	196.1	
1965	201.1	226.6	159.6	328.9		151.2	154.2	154.1	75.9	147.2	268.5	187.9	161.0	269.2	330.2	97.3	323.6	145.2	
1966	209.7	249.4	187.1	328.6		188.3	114.1	263.7	80.6	131.5	265.2	196.1	208.4	287.9	347.2	151.1	340.4	154.8	
1967	224.3	251.2	181.1	344.0		214.1	145.6	269.1	78.8	127.9	323.6	199.4	231.5	297.3	347.5	181.9	412.5	173.4	
1968	227.1	323.3	210.3	332.4		277.1	124.3	227.3	72.3	122.9	392.0	197.0	282.7	226.4	335.9	211.5	437.5	234.1	
1969**	235.6	335.6	197.9	339.4		244.7	119.4	232.9	70.8	126.2	421.6	205.3	326.2	335.2	356.8	91.9	497.7	242.7	

* Source: Statistical Bulletin (Central Bank of the Philippines)

** Only for 3 quarters

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Table No. 4-a

PHILIPPINES EXPORT OF FURNITURE 1967 - 1970 in 000 \$

No.	Items	1966	1967	1968	1969	1970
1	Chairs (excl. barbers') of wood	0.9	2.9	0.6	6.7	0.1
2	Other furniture of wood, u.e.s	19.5	40.6	32.3	16.0	58.3
3	Parts of furniture of wood	26.0	0.2	0.8	0.1	-
4	Total	46.4	43.7	33.7	22.8	58.4
5	File Cabinets and other office furniture of metal	-	-	-	-	4.4
6	Other furniture of metal	-	6.7	-	3.6	3.8
7	Total	-	6.7	-	3.6	8.2
8	Chairs (excl. barbers') other than wood and metal	-	7.0	1.1	9.5	2.6
9	Furniture of bamboo	2.8	-	2.2	-	-
10	Parts of bamboo furniture	-	-	0.1	-	-
11	Total	2.8	-	2.3	-	-
12	Furniture of rattan	328.4	458.7	586.0	624.1	857.3
13	Parts of rattan furniture	124.4	107.9	181.8	261.8	167.6
14	Total	452.8	566.6	767.8	885.9	1,024.9
15	Buri furniture	8.8	5.7	20.3	69.5	83.2
16	Parts of buri furniture	-	-	0.4	-	-
17	Total	8.8	5.7	20.7	69.5	83.2
18	Other furniture of other material	41.3	22.1	28.9	4.6	34.6
19	Parts of furniture of other material	/-	1.4	-	0.7	-
20	Total	41.3	23.5	28.9	5.3	34.6
21	Mattresses and supports	-	25.2	-	2.4	36.3
22	Cushions and pillows	-	-	-	-	11.6
23	Total	-	25.2	-	2.4	47.9
24	Grand Total	552.1	678.4	854.5	998.8	1,259.8
25	Total Export of Phil. Industry	826,913.0	800,124.0	846,797.0	851,501.0	1,141,651.0
26	Total Export of Phil. Timber Ind.	237,614.0	256,735.0	274,822.	287,866.0	295,511.0
27	4 : 24 in %	8.4	6.1	4.0	2.3	4.7
28	4 : 25 in %	.006	.005	.004	.003	.005
29	4 : 26 in %	.020	.017	.012	.008	.020
30	24 : 25 in %	.067	.085	.109	.117	.113
31	24 : 26 in %	.23	.27	.31	.35	.43

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Table No. 5

IMPORT OF WOODEN FURNITURE IN JAPAN 1967-1969* (000\$**)

	Chairs and other seats and parts			Other furniture and parts thereof			Total		
	1967	1968	1969	1967	1968	1969	1967	1968	1969
Belgium	6.5	8.7	19.2	-	6.0	19.1	6.5	14.7	38.3
China C.	34.7	11.0	20.6	5.6	61.8	103.6	40.3	72.8	124.2
China R.	2.3	41.4	23.6	28.3	39.9	81.9	30.6	81.3	105.5
Denmark	30.2	34.5	81.3	14.2	28.3	75.8	44.4	62.8	157.1
Finland	-	21.7	-	-	-	-	-	21.7	-
France	18.7	29.3	22.1	15.4	31.4	14.1	34.1	60.7	36.2
Germany F.R.	69.3	134.1	63.5	15.5	-	17.8	84.8	134.1	81.3
Germany D.R.	-	-	-	1.1	-	-	1.1	-	-
Hongkong	22.3	28.6	82.4	4.2	12.0	62.5	26.5	40.6	144.9
India	0.4	3.8	0.8	11.6	31.2	64.6	12.0	35.0	65.4
Indonesia	-	-	0.9	-	-	6.4	-	-	7.3
Ireland	-	-	-	-	-	0.6	-	-	0.6
Italy	-	32.3	-	-	-	-	-	32.3	-
Korea R.	0.8	-	-	1.6	5.8	19.7	2.4	5.8	19.7
Malaysia	-	-	-	0.7	0.7	-	0.7	0.7	-
Netherlands	10.8	3.6	15.2	2.4	-	-	13.2	3.6	15.2
Norway	5.2	5.4	28.4	4.1	5.1	14.5	9.3	10.5	42.9
Pakistan	-	-	-	2.4	2.4	9.3	2.4	2.4	9.3
Philippines	-	0.3	1.4	-	2.3	0.6	-	2.6	2.0
Singapore	-	-	0.4	-	2.4	0.6	-	2.4	1.0
Spain	-	5.8	-	-	-	-	-	5.8	-
Sweden	6.4	8.8	18.1	3.6	3.1	20.7	10.0	11.9	38.8
Thailand	1.4	-	-	0.6	0.5	0.9	2.0	0.5	0.9
United Kingdom	54.7	26.1	59.2	138.5	20.1	65.3	193.2	46.2	124.5
Vietnam R.	-	-	-	-	-	0.3	-	-	0.3
Total	263.7	395.4	437.1	249.8	253.0	578.3	513.5	648.4	1,015.4

* Source: Annual Foreign Trade of Japan

** Exchange Rate: 1 yen = .0028 US\$

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AUSTRALIA'S IMPORT OF FURNITURE 1969/70 * (in 000 AS)

Products	Canada	China (Mainland)	China (Taiwan)	Czechoslovakia	Denmark	F.R. Germany	Hongkong	Italy	India	Japan	Mexico	Netherlands	New Zealand	Norway	Philippines	Spain	Sweden	United Kingdom	U. S. A.	Yugoslavia	Other Countries	TOTAL
1 Chairs, lounges, settees of wicker, bamboo or cane							209								74						16	299
2 Chairs, lounges, settees of other material	11						27			25			12		11			18			23	151
3 Chairs, lounges, settees of wood with seats or backs		19	10	58	30		17	116	193				39	25		37		85	27	15	37	713
4 Chairs, lounges, settees of wood designed for office use						54			20				13					47	14		13	101
5 Chairs, lounges, settees of metal with seats and backs		14						14	26									144	17		31	246
6 Chairs, lounges, settees of metal designed for off. use						18												66	14		15	113
7 Chairs, lounges, settees for office use of other material						10	21								20			29	18		1	99
8 Tables, complete and table tops without legs		19			10		29	111	79	16			23		19	64	11	163	19		36	599
9 Chests and beds carved							82											13			18	113
10 Legs of metal or wood							15			119											21	155
11 Other parts u.e.i. for furn. of wood & principal of wood			36								18		77				12				23	166
12 Other furniture being complete articles of wood			41				14	148	22	21		11	51			34		163	13	16	41	575
13 Mattress supports						17			40				35					53	61		32	230
14 Cushions							53	59		61								15	33		2	223
Total	11	52	87	58	40	99	467	448	101	526	18	11	250	25	124	135	23	796	240	31	319	3651

Total

July

IMPORT OF FURNITURE BY AUSTRALIAN STATES IN 1969/70 * (in 000 A\$)

Table No. 7

Products	New South Wales	Vic-toria	Queens-land	South Aus-tralia	Western Aus-tralia	Tos-mania	Northern Territory	Australia's Capital Territory	Total
1 Chairs, lounges, settees of wicker, bamboo or cane	98	94	53	27	23	3	1	-	299
2 Chairs, lounges, settees of other material	91	36	6	4	13	1	-	-	151
3 Chairs, lounges, settees of wood with seats and backs	278	278	36	42	78	-	1	-	713
4 Chairs, lounges, settees of wood designed for office use	37	60	4	44	16	-	-	-	161
5 Chairs, lounges, settees of metal with seats and backs	46	156	8	10	24	2	-	-	246
6 Chairs, lounges, settees designed for office use of metal	51	56	2	2	2	-	-	-	113
7 Chairs, lounges, settees of other material designed for office use	38	42	2	11	6	-	-	-	99
8 Tables, complete and table tops without legs	293	181	35	28	60	2	-	-	599
9 Chairs and beds carved	40	49	8	5	9	2	-	-	113
10 Logs of metal and wood	56	34	54	7	4	-	-	-	155
11 Other parts n.e.i. for furniture of wood or principally of wood	108	32	4	20	2	-	-	-	166
12 Other furniture being complete articles of wood	259	197	21	15	79	2	1	-	575
13 Mattress supports	99	115	10	5	8	1	-	-	238
14 Cushions	51	138	20	10	4	-	-	-	223
Total	1,545	1,468	253	231	328	13	3	-	3,851
Other kind of furniture	875	433	134	53	96	20	1	1	1,613
Grand Total	2,420	1,901	397	284	424	33	4	1	5,464

* Source: Australian Foreign Trade 1969/70

July

US GENERAL IMPORTS OF FURNITURE PRODUCTS 1968-1970* (in 000 US\$)

	1968				1969				1970 : 1968			
	Total	Asian Countries	Philippines	Total	Asian Countries	Philippines	Total	Asian Countries	Philippines	Total	Asian Countries	Philippines
Furniture & Parts of, for medical etc. use including Dentists & Barbers rotating chairs, etc.	2,612	1,729	-	2,877	1,756	-	2,242	1,411	3	85	80	-
Altars, Communion Tables, Baptismal fonts and shrines etc. for religious institutions	1,908	32	1	1,949	81	-	1,699	73	-	89	288	-
Furniture & parts of bentwood	1,871	11	-	2,122	31	-	2,956	15	3	158	102	-
Chairs, wood NSPF, including folding (No)	20,009	4,391	17	25,221	5,435	9	27,874	5,963	6	139	140	43
Furniture wood NSPF	35,553	4,318	22	47,197	6,051	15	51,554	5,738	54	145	133	291
Furniture parts, wood NSPF	7,390	3,028	58	10,750	4,245	236	11,113	4,945	150	151	163	221
Furniture NSPF & parts of, of unspun fibrous vegetable materials	4,391	2,957	581	5,912	3,792	721	6,978	5,055	696	159	171	120
Furniture & parts, NSPF, also mattresses, cushions, pillows and sim. furnishings	50,751	2,765	1	95,804	7,927	6	126,492	11,397	24	219	409	2,400
T O T A L	124,485	19,277	687	191,832	29,372	987	230,898	34,627	946	185	180	138

*Source: US Foreign Trade Statistics

July

LIST OF FACTORIES/OFFICES VISITED
by the
UNIDO FURNITURE EXPERTS

- | | | |
|--|---|--|
| 1. Cancio Calma (Philippine School of Interior Design) | - | 2240 Pasong Tamo, Makati Rizal |
| 2. G. Puyat & Sons (wood and rattan) | - | 190 Rodriguez Aries San Miguel, Manila |
| 3. Office Interiors | - | 3751 Paseo de Roxas St., Makati, Rizal |
| 4. Trinica, Inc | - | 1831 Otis St., Paco, Manila |
| 5. Litton Industries | - | 30, Rosario, Pasig, Rizal |
| 6. Singer Industries, Phils. Inc | - | Taytay, Rizal |
| 7. (2) Furniture production and carvings activity | - | Angeles City |
| 8. Wood Elite | - | 7451 Bagtican St., Makati, Rizal |
| 9. Laguna Coco By-Products | - | San Pablo City |
| 10. Easter House (Handloom weaving) | - | Baguio City |
| 11. Delton Furnishing Interiors | - | Baguio City |
| 12. Balliwan Art & Furniture Shop | - | Baguio City |
| 13. Pineda Brass Furniture | - | Baguio City |
| 14. Emilson Furniture House | - | Baguio City |
| 15. Sarmiento Enterprises | - | Davao City |
| 16. Royal Industries | - | Davao City |
| 17. Rosario S. Ancheta Furniture | - | Davao City |
| 18. Jaime Tecson Rattan Factory | - | Davao City |
| 19. Timex (chipwood & plywood plant) | - | Zamboanga |
| 20. Climaco Woodcraft, Inc. | - | Cebu City |
| 21. Allied Woodcraft Industry | - | Cebu City |
| 22. Echaves Furniture | - | Cebu City |
| 23. Mehitabel Rattan Factory | - | Cebu City |
| 24. Cebu Rattan | - | Cebu City |

Appendix No. 1

Page 2

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|----|--|---|--|
| 25 | Don Bosco Mission's School | - | Cebu City |
| 26 | Bacolod Weavers Industrial Cooperative, Inc. | - | Bacolod City |
| 27 | Espina's Hablon | - | Bacolod City |
| 28 | Del Rosario Industries | - | General Mascardo St., Makati, Rizal |
| 29 | UP Engineering Services | - | UP Cpd., Diliman, Quezon City |
| 30 | National Housing Corporation | - | Tala Novaliches, Quezon City |
| 31 | Rattan Arts | - | Km. 21 South Superhighway, Paranaque, Rizal |
| 32 | Amalgamated Specialties Corporation | - | Km. 22 South Superhighway, Paranaque, Rizal |
| 33 | Mandaluyong Woodcraft | - | Sgt. Bumatay St., Mand., Rizal |
| 34 | Weinstein Bros. Piano Mfg. Inc. | - | 1553 J.P. Laurel St., Sta. Mesa, Manila |
| 35 | Pacific Woodworks | - | Riverside Mills Compound, Ortigas Ave., Pasig, Rizal |
| 36 | Wood Patterns, Inc. | - | 2350 Taft Ave., Manila |
| 37 | Philippine Match Co., Ltd. | - | Punta, Sta. Ana, Manila |
| 38 | Plywood Manufacturers Association of the Philippines, Inc. | - | 1360 Leon Guinto St., Manila |
| 39 | Interwood Logging | - | Pakil, Laguna |
| 40 | Domus Furniture | - | 2325 Taft Ave., Manila |
| 41 | Presidential Economic Staff | - | Arlegui, Manila |
| 42 | Board of Investment | - | 5805 Ayala Ave., Makati, Rizal |
| 43 | National Export Trading Corporation | - | Netracor Bldg., Makati, Rizal |
| 44 | Bureau of Forestry | - | Isabel Bldg., Manila |
| 45 | Productivity & Development Center | - | Mirasol Bldg., Taft Ave., Mla. |
| 46 | Plywood Manufacturers Association of the Philippines, Inc. | - | 1360 Leon Guinto Sr., Manila |
| 47 | College of Architecture Eng'g
Manuel Luis Quezon University | - | R. Hidalgo, Manila |
| 48 | League of Philippine Architects | - | Catalina Bldg., Quezon City |

**DRAFT JOB DESCRIPTION
FOR A
FURNITURE INDUSTRIES EXPERTS POST**

- **Take an active part in the final formulation of activities and services of the proposed Center, in particular with regard to:**
 - a) **number and specialities of foreign experts, job-description and necessary duration of their assignment;**
 - b) **kind and scope of the equipment the Centre will be provided with;**
 - c) **programme of work of the Center's actual activities and services for each particular year of its duration;**
 - d) **performance of any other activity that may be necessary for the successful operation of the proposed Centre;**

- **Assist the implementing Government Agency in selecting the counterpart staff;**

- **Assist the Chamber of Furniture Industries in strengthening its role in promoting and further developing the country's furniture industry;**

- **Collaborate with the other related wood associations concerned in coordinating efforts on a synchronized development of all wood producing and processing activities in the country;**

- **Assist the Chamber of Furniture Industries in initiating, organizing and carrying out a comprehensive home market study on the current and future furniture consumption potential of the country;**

- **Assess the present consumption of the basic raw material in the wooden furniture industry and estimate the future requirements of it in relation to the most realistic rate of growth of the industry concerned.**

MEMORANDUM

T O : Chamber of Furniture Industries
FROM : A. F. CONSTANTINO, President
Office Interiors, Inc.
DATE : March 25, 1971

In a meeting attended by some representatives of the plywood and lumber manufacturers in the Philippines, held under the auspices of the Philippine Chamber of Industries' Committee on Furniture and Wood Industries, we have come to a dialogue with plywood and lumber producers regarding our problems on raw materials for the furniture industry, more particularly plywood and sawn lumber. Some of the important points discussed in this dialogue are as follows:

1. The furniture industry should adopt standardized sizes for their requirements for plywood. In other words, some plywood manufacturers may be very willing to manufacture standard sizes and quality, specifically for the furniture industry. We do not have to purchase the 4' x 8' sizes as is presently sold in the commercial market. The industry could study the correct sizes and thicknesses that they want and with minimum production volumes which can be determined from the members of the Chamber, we can make arrangements with some of the plywood manufacturers in Luzon for them to make our own standard sizes and quality. Crown Plywood and Gotaco Plywood may be persuaded to manufacture for us. It has been said that the Luzon Plywood mills would be the best suppliers for the furniture industry because Luzon plywood mills are the only ones who can make good narra plywood and also TBM and ordinary tanguile plywood according to our sizes requirements.
2. For dimensional lumber, it has been brought out that some of the larger logging companies with processing plants, such as Bislig Bay Lumber, Nasipit Lumber and Insular Lumber, have been shipping dimensional lumber good for furniture to the United States. Therefore, it follows that if our industry can also come out with necessary industry standards as to sizes and grades, including length and type of cut for sawn lumber for furniture manufacturers, and if the industry can determine quantity volumes, it would be possible to talk to the same producers who are exporting to the U.S. to supply the local industry correct type of lumber.

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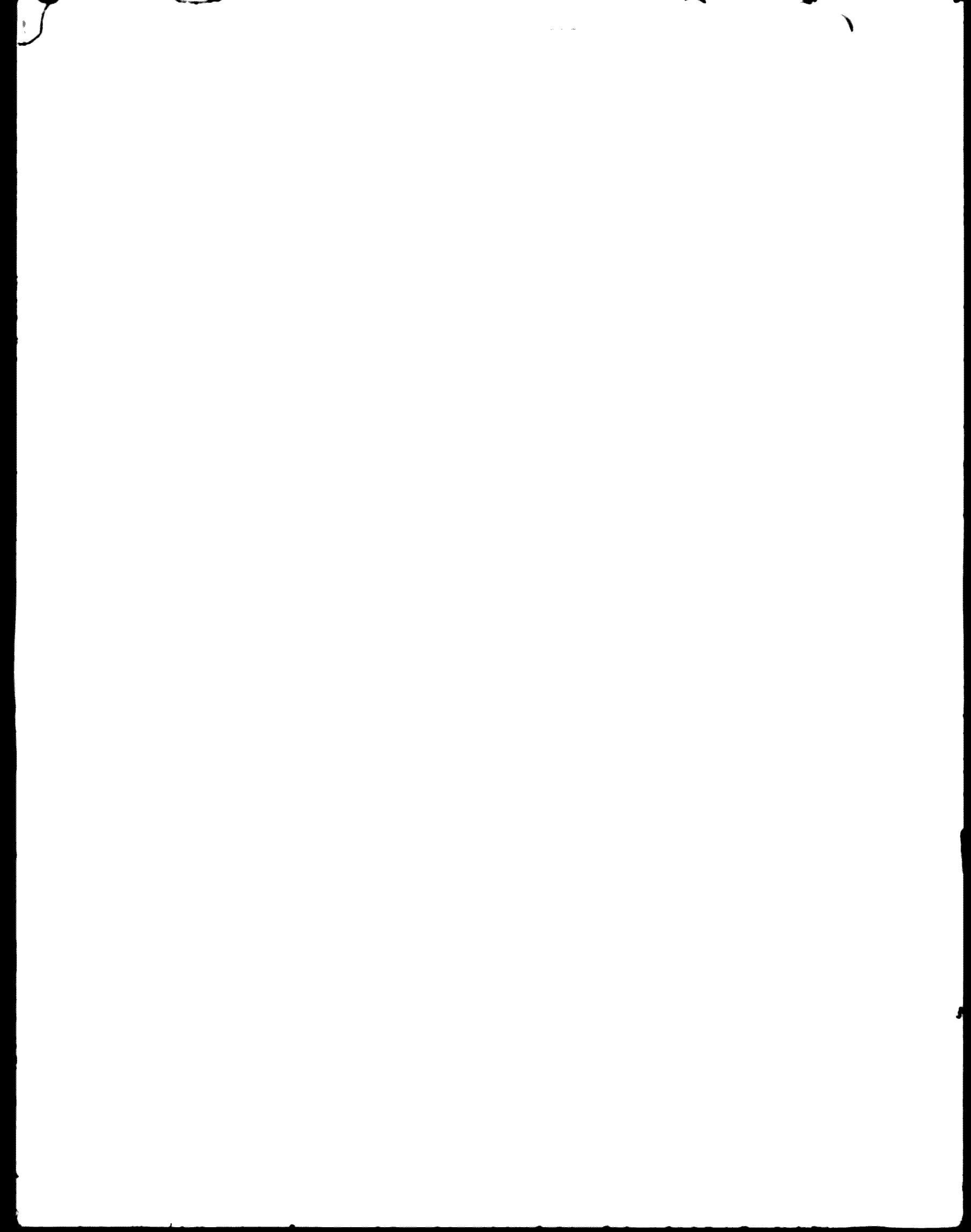
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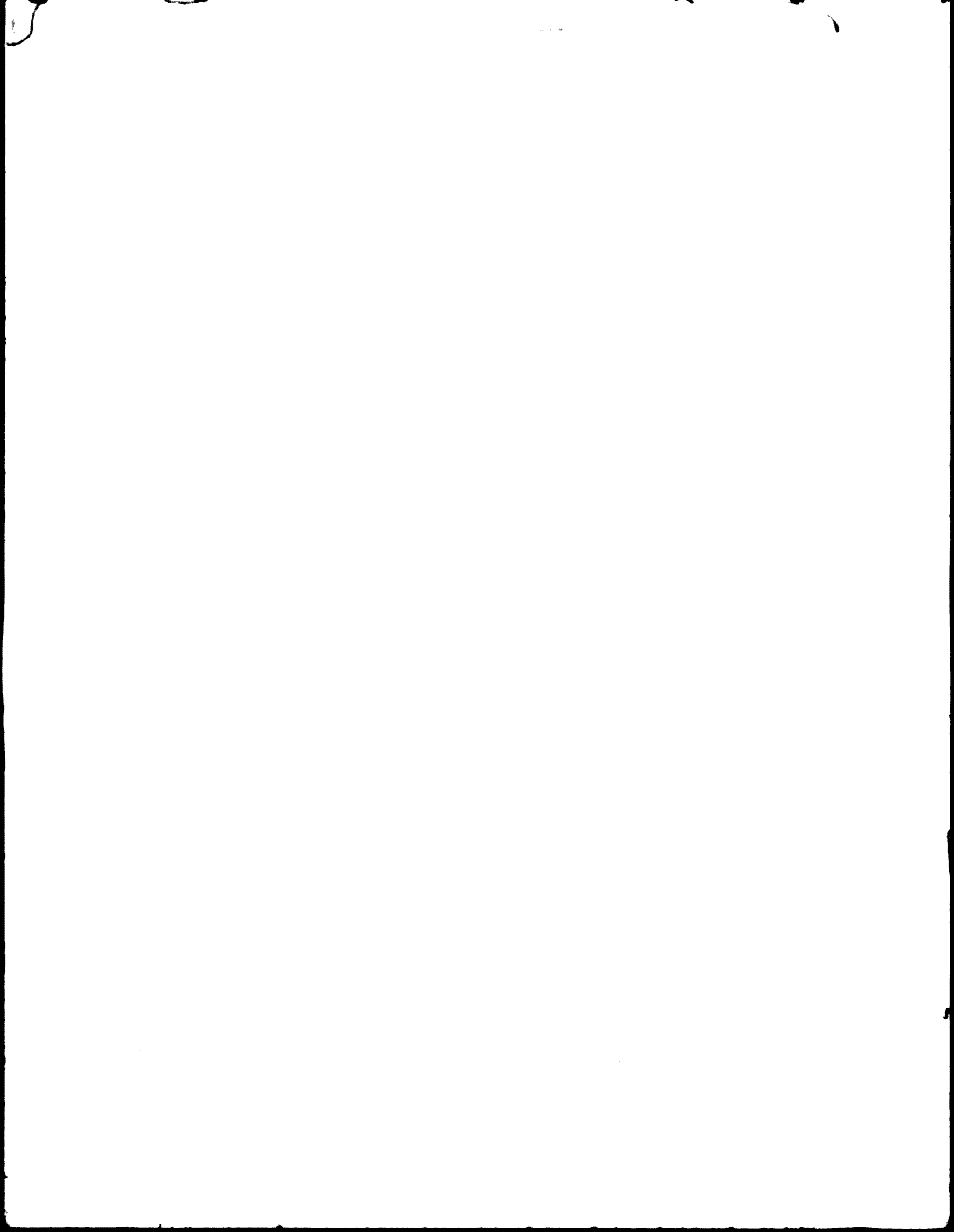
- 3. The determining factor also with regard to the above is the willingness of our industry to pay competitive prices vis a vis export prices in view of the fact that at the present time any plywood or lumber producer can get a bigger return for his product by exporting instead of selling in the domestic market. It will have to be understood therefore, that the "price" of getting a guaranteed supply of good quality and standardized furniture raw plywood and sawn lumber material would necessarily mean our paying higher prices (at least up to the level of export prices) but that the advantages of doing so may outweigh the additional price we have to pay considering that we are now paying for plywood and lumber which is not up to our grade standards and sizes which result in lot of waste in production.**

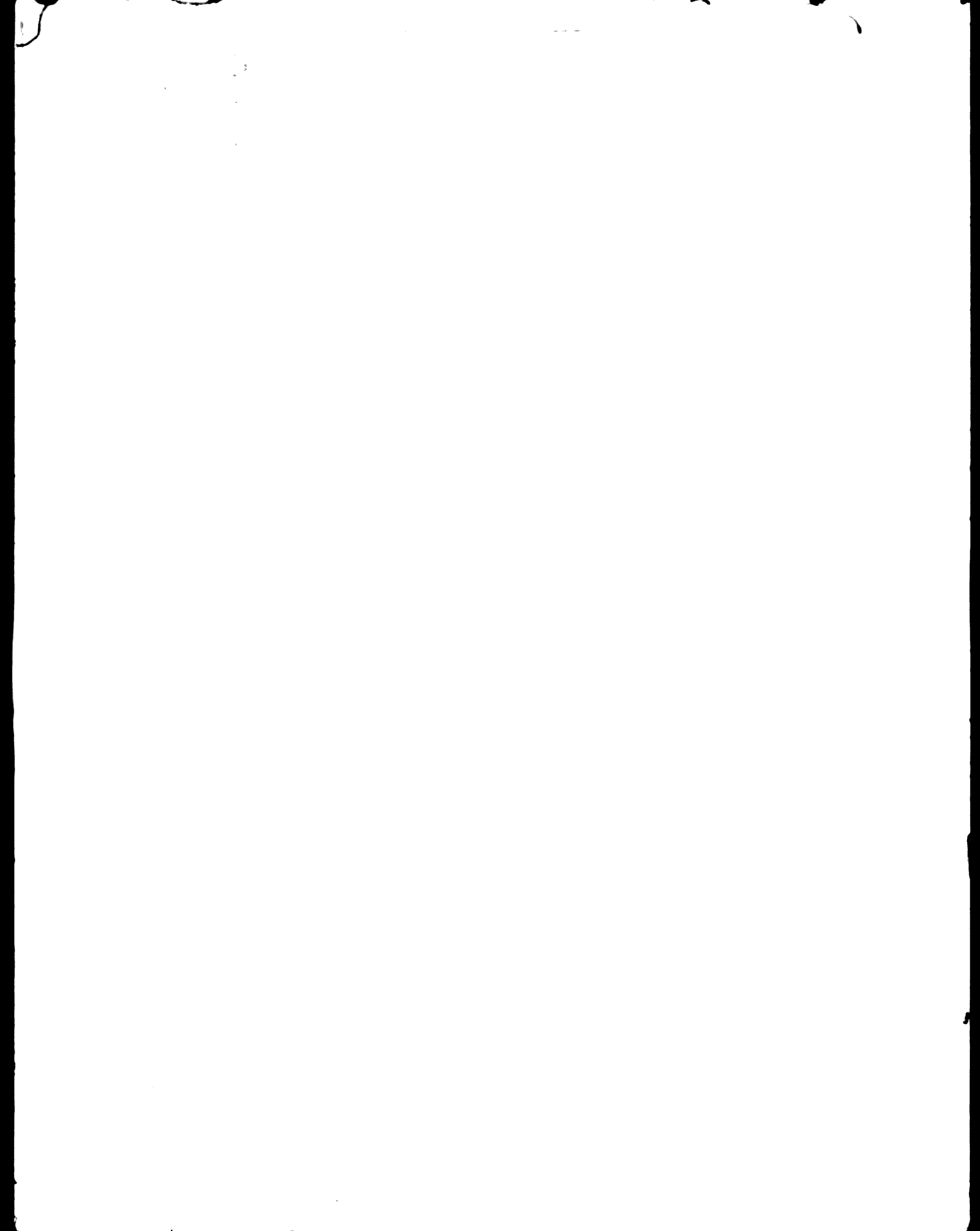
The above matter is being submitted for discussion by the Chamber and its members

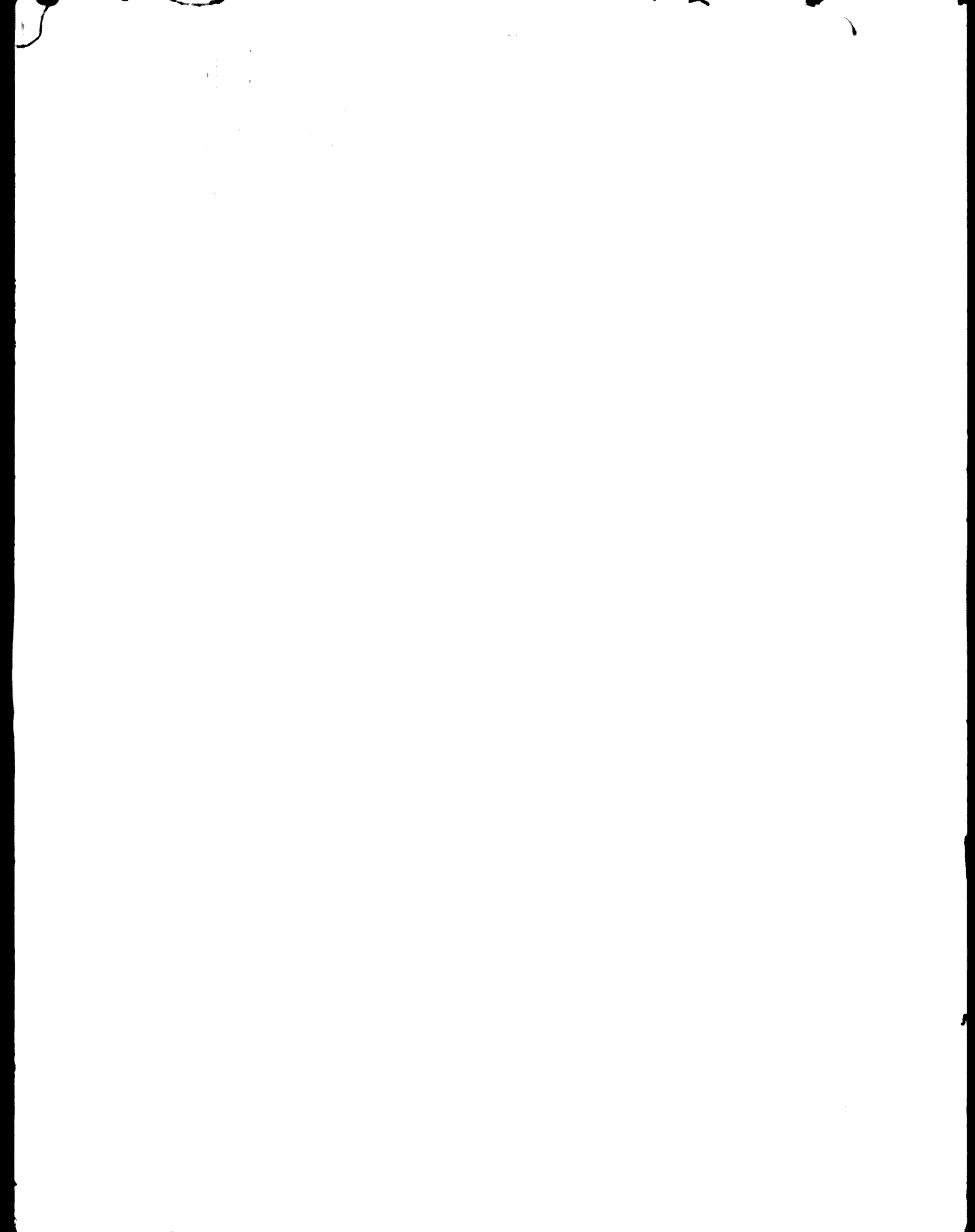
(SGD) A. F. CONSTANTINO

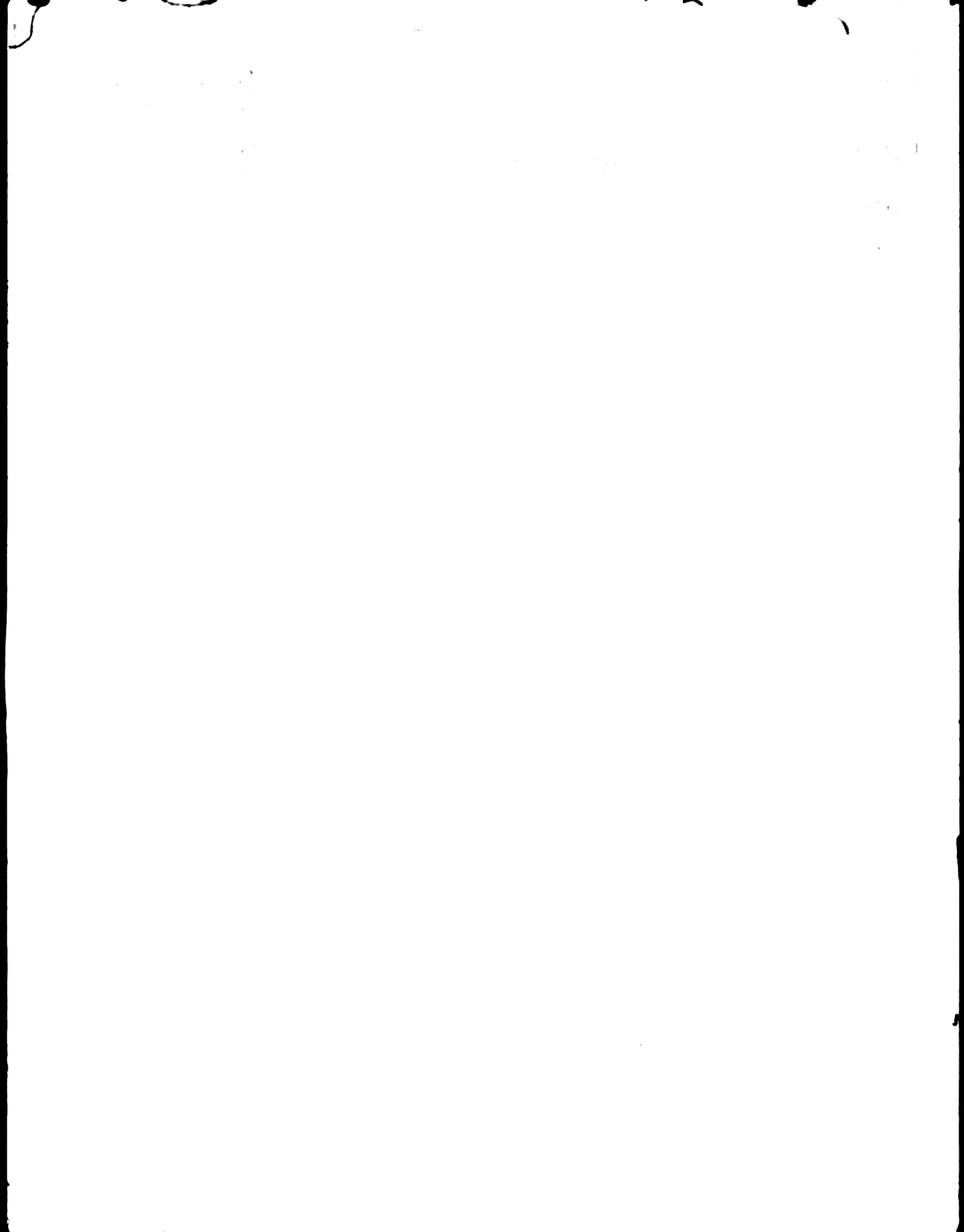
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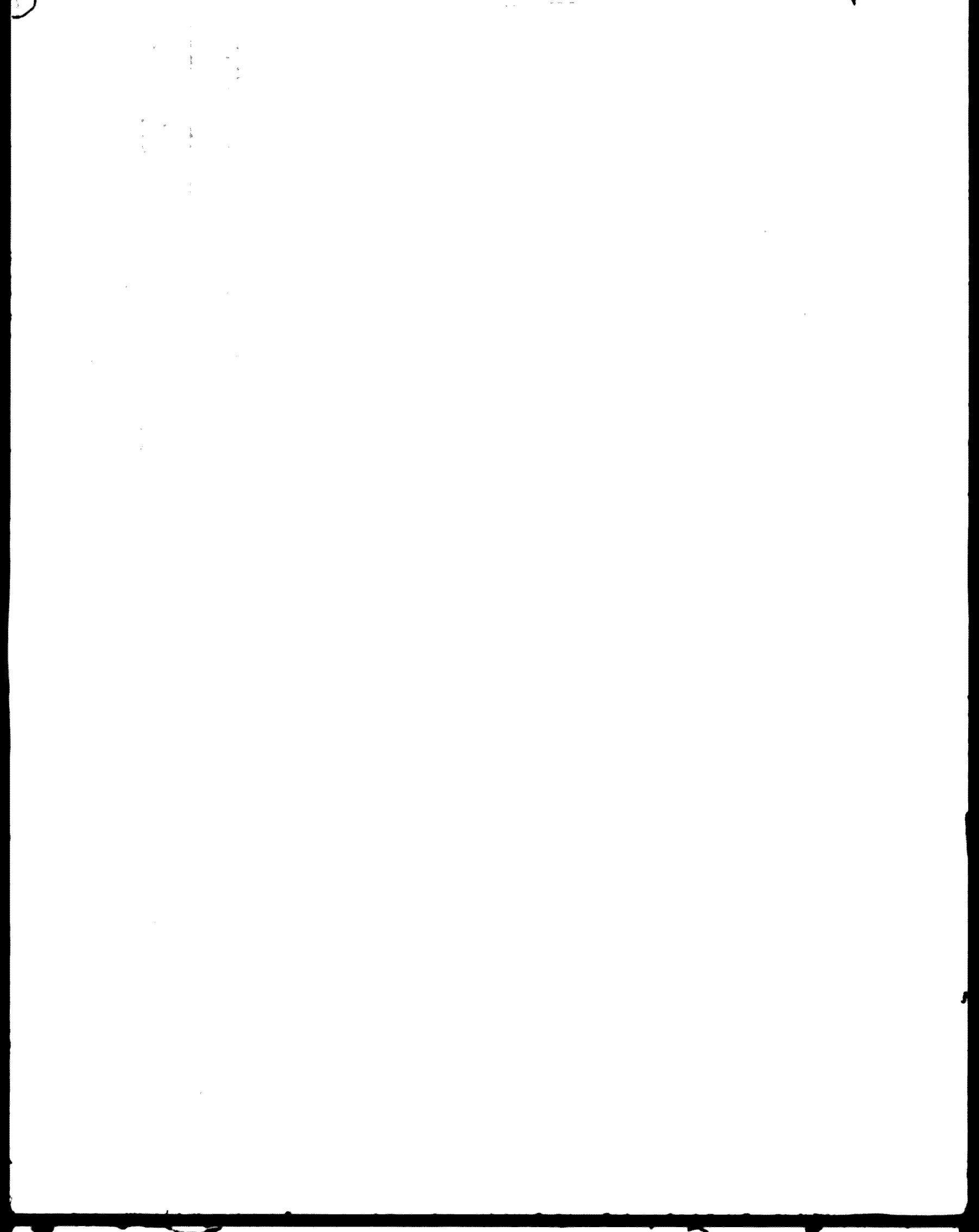












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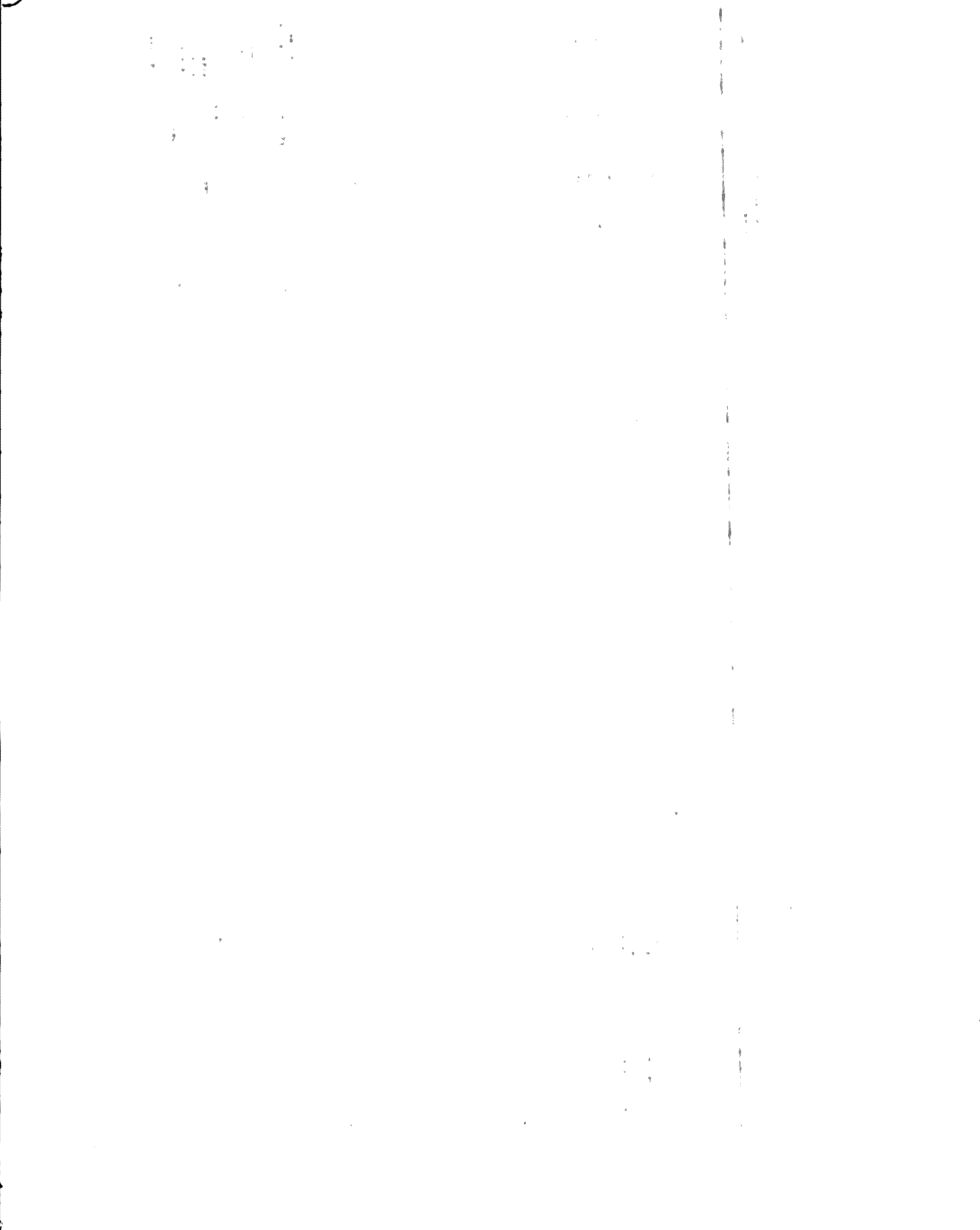
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Appendix 2. - Types of grain in wood

Straight grain	Interlocked grain	Wavy (curly grain)	
1. Akleng-parang	African tulip	Lanutan-bagyo	Dita
2. Anilau	Agoho	Lingo-lingo	Kapok
3. Anonang	Akle	Lisak	Loktob
4. Bagalunga	Alim	Lomarau	Pakutan
5. Bagarbas	Anabiang	Ludek	Para rubber
6. Bakauan-lalaki	Anongo	Lahogany big-leafed	Philippine
7. Balakat-gubat	Antipolo	Magabuyo	teak
8. Balikbikan	Antsoan-dilau	Malaanonang	
9. Balsa	Apanang	Malak-malak	
10. Benguet pine	Api-api	Malapanau	
11. Binunga	Ayangile	Kalasaging	
12. Bok-bok	Dabulo	Malabago	
13. Bunya pine	Dagila-ban	Marang	
14. Gabas	Balilang-uak	Manggis	
15. Ka-imbang	Banai-banai	Moloccan sa	
16. Hinibu-o	Banlo	Narig	
17. Ilang-ilang	Bayak-bayokan	Paguringon	
18. Katoan bangkal	Bigat-kalabau	Panau	
19. Kaitana	Binggas	Pangi	
20. Kapuling	Binuang	Panglongoien	
21. Kato	Ditaog	Pingka-pingkahan	
22. Katong-lakihan	Dolon	Pinkshower	
23. Kubili	Broad-winged Apitong	Putian	
24. Kupang	Buta-buta	Salakin	
25. Lindog-ilanan	Coconut palm trunk	Santiki	
26. Lembang	Duktulan	Sigai	
27. Malabalak	Dalitan	Sudiang	
28. Kalakauayan	Duyok-duyok	Tangisang-bayawak	
29. Kalatapai	Earpod	Tapinag-bundok	
30. Katang-arai	Firetree	Thick-leafed narig	
31. Peruvian parasol	Gisok-yakal	Trai	
32. Santol	Golden-shower	Unaki	
33. Tadiang-anunag	Bagit	Usuang-saha	
34. Taingang-babui	Ipil-ipil		
35. Taluto	Karachile		
36. Teak	Kangko		
37. Tulo	Kolalabang		
38. Vidal lanutan	Kuling-babui		

Appendix 3. - Type of texture in wood

Very fine

- | | |
|-------------------|------------------------|
| 1. Bignai-kalabau | 37. Salakin |
| 2. Bunya pine | 38. Santiki |
| 3. Duyok-duyok | 39. Santol |
| 4. Malakauayan | 40. Sigai |
| 5. Sudiang | 41. Taingang-babut |
| 6. Tadiang-anuang | 42. Thick-leafed narig |
| | 43. Usuang-saha |
| | 44. Vidal lanutan |

Fine

1. Agoho
2. Anilau
3. Anongo
4. Ayangile
5. Babulo
6. Bagarbas
7. Bakauan-lal ki
8. Balikbikan
9. Banai-banai
10. Bolon
11. Buta-buta
12. Duktulah
13. Dulitan
14. Gisok-yokal
15. Halindang
16. Hinlaumo
17. Ipil-ipil
18. Kaatoan Bangkal
19. Kaitana
20. Kamachile
21. Kamuling
22. Kangko
23. Kubile
24. Lanutan-bagyo
25. Lingo-lingo
26. Ludek
27. Malak-malak
28. Malasaging
29. Malatapai
30. Malubago
31. Narig
32. Paguringon
33. Panglongbien
34. Philippine teak
35. Pingka-pingka-an
36. Putian

Moderately coarse

1. African tulip
2. Aklang-parang
3. Alim
4. Ambiong
5. Anonang
6. Antipolo
7. Anson-dilau
8. Apanang
9. Bagilumbang
10. Balakat-gubat
11. Balilang-uak
12. Balsa
13. Banalo
14. Bayok-bayokan
15. Benguet pine
16. Binggas
17. Einuang
18. Binunga
19. Bitag
20. Bok-bok
21. Dita
22. Golden shower
23. Gub s
24. Haginit
25. Ilang-ilang
26. Kipon
27. Kolalabang
28. Kupan
29. Lindog-ilanan
30. Lisak
31. Loktob
33. Lomarau
34. Lumbang
35. Mahogany big-leafed

36. Magabuyo
37. Malaanonang
38. Matang-arau
39. Marang
40. Moluccan sau
41. Pahutan
42. Para rubber
43. Pinkshower
44. Teak
45. Tuai
46. Tulo
47. Unaki

Coarse

1. Akle
2. Board-winged apitong
3. Coconut palm trunk
4. Earpod
5. Firetree
6. Kato
7. Katang-lakihan
8. Malapanau
9. Manggis
10. Panau
11. Pangi
12. Paruvian parasol
13. Taluto
14. Tangisang-bayawak
15. Tapinag-bundok

Uneven Texture

1. Api-api
2. Bagalunga

Appendix 4. - Color of the heartwood

Light Colored

1. African tulip
2. Alim
3. Anabiong
4. Anonang
5. Anongo
6. Antipolo
7. Antsoan-dilau
8. Apanang
9. Bagilumbang
10. Balakat-gubat
11. Balikbikan
12. Balilang-uak
13. Balsa
14. Benguet pine
15. Bignai-kalaban
16. Binuang
17. Bok-bok
18. Bunya pine
19. Buta-buta
20. Dita
21. Dulitan
22. Firetree
23. Gubas
24. Hagimit
25. Hinlaumo
26. Ilang-ilang
27. Kaatoan bangkal
28. Kaitana
29. Kamuling
30. Kangko
31. Kapok
32. Kolalabang
33. Kupang
34. Lanutan-bagyo
35. Lingo-lingo
36. Loktob
37. Lumbang
38. Malaanonang
39. Malabulak
40. Malakauayan
41. Malubago
42. Matang-arau
43. Marang
44. Moluccan sau
45. Para rubber
46. Peruvian parasol
47. Philippine teak
48. Pingka-pingkahan
49. Putian
50. Santiki
51. Santol
52. Sigai
53. Tadiang-anuang
54. Taingang-babui
55. Taluto
56. Tangisang-bayauak
57. Tapinag-bundok

Dark Colored

1. Agoho
2. Akle
3. Akleng-parang
4. Anilau
5. Api-api
6. Ayangile
7. Babulo
8. Bagalunga
9. Bagarbas
10. Bakauan-lalaki
11. Banai-banai
12. Banalo
13. Bayok-bayokan
14. Binggas
15. Binunga
16. Bitag
17. Bolon
18. Broad-winged apitong
19. Coconut palm
20. Duktulan
21. Duyok-duyok
22. Earpod
23. Gisok-yakal
24. Golden shower
25. Hamindang
26. Ipil-ipil
27. Kamachile
28. Kato
29. Katong-lakihan
30. Kubili
31. Kuling-babui
32. Lindog-ilanan
33. Lisak
34. Lomarau
35. Ludek
36. Mahogany, big-leafed
37. Magabuyo
38. Malak-malak
39. Malapanau
40. Malasaging
41. Malatapai
42. Manggis
43. Narig
44. Paguringon
45. Pahutan
46. Panau
47. Pangi
48. Panglongboien
49. Pinkshower
50. Salakin
51. Sudiang
52. Teak
53. Thick-leafed narig
54. Tuai
55. Tulo
56. Unaki
57. Usuang-saha
58. Vidal lanutan

Appendix 5. - Species with ribbon figure

- | | |
|--------------------------|--------------------------|
| 1. African tupip | 25. Kato |
| 2. Agoho | 26. Katong-lakihan |
| 3. Aile | 27. Kelalabang |
| 4. Anabiong | 28. Kuling-babui |
| 5. Antipolo | 29. Lisak |
| 6. Antsoan-dalau | 30. Loktob |
| 7. Apanang | 31. Ludak |
| 8. Ayangile | 32. Mahogany, big-leafed |
| 9. Balilang-unak | 33. Magabuyo |
| 10. Banai-banai | 34. Malaanonang |
| 11. Banalo | 35. Malak-malak |
| 12. Bayok-bayokan | 36. Malapana |
| 13. Binggas | 37. Narig |
| 14. Binauang | 38. Paguringon |
| 15. Bitag | 39. Panau |
| 16. Broad-winged apitong | 40. Pangi |
| 17. Duktulan | 41. Panglongboien |
| 18. Dulitan | 42. Pingka-pingkahan |
| 19. Duyok-duyok | 43. Pinkshower |
| 20. Gisok-yawal | 44. Tangisang-bayawak |
| 21. Golden shower | 45. Thick-leafed narig |
| 22. Hagimit | 46. Tuai |
| 23. Ipil-ipil | 47. Unaki |
| 24. Kamachile | 48. Vidal lanutan |

Appendix 6. - Fissility (Cont'd)

a. Split with difficulty in radial direction

1. African tulip
2. Agoho
3. Akle
4. Alim
5. Arabion
6. Anongo
7. Antipolo
8. Antsoan-dilau
9. Apanang
10. Api-api
11. Ayangile
12. Babulo
13. Bagarbs
14. Bakauan-lalaki
15. Bala-lang-uk
16. Banai-banai
17. Bignai-kalabau
18. Binggas
19. Bitag
20. Broad-winged apitong
21. Buta-buta
22. Coconut palm trunk
23. Duktulan
24. Kulitan
- 25/ Duyok-duyok
26. Firetree
27. Gisok-yakal
28. Golden shower
29. Hagimit
30. Ipil-ipil
31. Kamachile
32. Kangko
33. Kato
34. Katong-lakihan
35. Kolalabang
36. Kuling-babui
37. Lanutan-bagyo
38. Lingo-lingo
39. Lisak
40. Lomrau
41. Ludek
42. Magabuyo
43. Malak-malak
44. Malapanau
45. Malasaging
46. Malatapai
47. Malang-arau
48. Manggis
49. Moluccan sau
50. Narig
51. Paguringon
52. Panau
53. Pangi
54. Panglongboien
55. Philippine teak
56. Pinkshower
57. Putian
58. Salakin
59. Santiki
60. Sugai
61. Sudiang
62. Taping-bundok
63. Teak
64. Thick-leaved narig
65. Unaki
66. Usuang-saha
67. Tui
68. Vidal-lanutan
- 69.

B. Split with difficulty in tangential direction

1. African tulip
2. Agoho
3. Anonang
4. Api-api
5. Ayangile
6. Bakauan-lalaki
7. Banai-banai
8. Binggas
9. Bitag
10. Binggas
11. Bok-bok
12. Broad-winged apitong
13. Coconut palm trunk
14. Duktulan
15. Firetree
16. Gisok-yakal
17. Hagimit
18. Kamachile
19. Kato
20. Katong-lakihan
21. Magabuyo
22. Malatapai
23. Malapanau
24. Manggis
25. Narig
26. Paguringon
27. Panau
28. Pangi
29. Panglongboien
30. Sudiang
31. Taping-bundok
32. Teak
33. Thick-leaved narig
34. Vidal-lanutan

Appendix 6. - Fissility

A. Split readily in radial direction

1. Akleng-parang
2. Anilau
3. Anonang
4. Bagalunga
5. Bagilumbang
6. Balakat-gubat
7. Balikbikan
8. Balsa
9. Banalo
10. Bayok-bayokan
11. Benguet pine
12. Binuang
13. Binunga
14. Bok-bok
15. Bolon
16. Bunya pine
17. Dita
18. Earpod
19. Gubas
20. Hamindang
21. Hinlaumo
22. Ilang-ilang
23. Kaatoan bangkal
24. Kaitana
25. Kamuling
26. Kapok
27. Kubili
28. Kupang
29. Lindog-ilanan
30. Loktob
31. Lumbang
32. Mahogany, big leafed
33. Lamaanonang
34. Malabulak
35. Malakauayan
36. Malubago
37. Marang
38. Pahutan
39. Para rubber
40. Peruvian parasol
41. Pingka-pingkahan
42. Santol
43. Tadiang-anuang
44. Taingang-babui
45. Taluto
46. Tangisang-bayauak
47. Tulo

B. Split readily in tangential direction

1. Akle
2. Akleng-parang
3. Alim
4. Anabiong
5. Anilau
6. Anongo
7. Antipolo
8. Antsoan-dilau
9. Apanang
10. Babulo
11. Bagalunga
12. Bagarbas
13. Bagilumbang
14. Balakat-gubat
15. Balikbikan
16. Balilang-uak
17. Balsa
18. Banalo
19. Bayok-bayokan
20. Benguet pine
21. Bignai-kalabau
22. Binuang
23. Bolon
24. Bunya pine
25. Buta-buta
26. Dita
27. Dulitan
28. Duyok-duyok
29. Earpod
30. Golden-shower
31. Gubas
32. Hamindang
33. Hinlaumo
34. Ilang-ilang
35. Ipil-ipil
36. Kaatoan bangkal
37. Kaitana
38. Kamuling
39. Kangko
40. Kapok
41. Kolalabang
42. Kuling-babui
43. Kupang
44. Kubili
45. Lanutan bagyo
46. Lindog-ilanan
47. Lingo-lingo
48. Lisak
49. Loktob
50. Lomarau
51. Ludak
52. Lumbang
53. Mahogany, big-leafed
54. Malaanonang
55. Malabulak
56. Malauayan
57. Malak-malak
58. Malasaging
59. Malubago
60. Matang-arau
61. Marang
62. Moluccan sau
63. Pahutan
64. Para rubber
65. Peruvian parasol
66. Philippine teak
67. Pingka-pingkahan
68. Pinkshower
69. Putian
70. Salakin
71. Santiki
72. Santol
73. Sigai
74. Tadiang-anuang
75. Taingang-babui
76. Taluto
77. Tangisang-bayauak
78. Tuai
79. Tulo
80. Unaki
81. Usang-saha

USES OF PHILIPPINE WOODS

Compiled from "Philippine Woods" by L. J. Reyes

GENERAL HOUSE CONSTRUCTION:

- (1) Akle; Akleng-parang; Ipil; Tindalo; Narra; Sudiang; Narek; Saplungan; Gisok; Yakal; Narig; Betis; Duyok-duyok; Bansalagin; Urong-Sasalit; Molave; Kalulot; Anubing; Ipil-IPil;
- (2) Makapilit; Panapotien; Supa; Banuyo; Tukang-kalau; Kato; Kayatau; Manggachapul; Dalingdingan; Aranga; Batitinan; Banaba; Lamog; Makaasim; Bolong-eta; Batino; Teak; Bangkal; Kalamansanal; Antipolo; Tamayuan;
- (3) Agoho; Pangnan; Salingkugi; Caña-fistula; Batoto; Manggis; Bahai; Acacia; Bogo; Malasaging; Malatumbaga; Gisihan; Kuling-manok; Miao; Malakamanga; Tabigi; Piagau; Anislag; Dao; Lamio; Amugis; Malibayo; Lanutan; Lumbayau; Katmon; Bitanghol; Bitag; Palosapis; Bagtikan; Guijo; Red Lauan; Tahgile; Tiaong; Bakauan; Tabau; Binggas;
- (4) Malapina; Malabuña; Kamatog; Maranggo; Santol; Nangka-nangka; Bayit; Arangen; Bayok; Apltong; White Lauan; Almon; Mayapis; Malapinggan; Pagatpat; Toog; Kalumpit; Sakat; Bagras; Nato; Mangkas; Gatasan; Malugal;
- (5) Benguet pine; Bolon; Anagap; Pahutan; Balakat; Balobo; Kamuling; Kalumpang; Kalunti; Manggasinoro; Tiaui; Bakauan-gubat; Putian;

POSTS:

- (1) Kalulot; Anubing; Tambulian; Akleng-parang; Ipil; Tindalo; Sudiang; Dufgon; Dufgon-late; Natek; Apltong (treated); Saplungan; Gisok; Yakal; Narig; Bantigi; Malabayabas; Mancono; Betis; Duyok-duyok; Bansalagin; Urung; Sasalit; Molave;
- (2) Antipolo; Tamayuan; Malakadlos; Dugkatan; Tanglin; Makapilit; Panapotien; Kato; Alupag; Alupag-amo; Dufgon-late; Araga; Batitinan; Banaba; Lamog; Makaasim; Manggachapul;
- (3) Malakadlos; Kulilistiau; Salingkugi; Caña-fistula; Nahai; Malasaging; Gisihan; Kuling-manok; Tabigi; Piagau; Anislag; Lanutan; Katmon; Bakauan; Tabau; Binggas (above stump); Guijo; Amugis;
- (4) Kamatog; Gatasan; Pagatpat; Mangkas;

BEAMS:

- (1) Agoho; Tambulian; Tanglin; Ipil; Manggis; Dalinas; Makapilit; Panapotien; Bahai; Sudaing; Salakin; Malakamanga; Mangkanangka; Bayit; Anislag; Amugis; Alupag; Alupag-amo; Malibayo; Katmon; Narek; Manggachapul;

Saplungan; Dalingdingan; Gisok; Guijo; Yakal; Narig; Aranga; Malapinggan; Batitinan; Tamog; Bakauan-gubat; Bakauan; Binggas; Makaasim; Mangkas; Urung; Batino; Anubing; Arangen; Bahau; Bansalagin; Duyok-duyok; Sasalit; Malasaging; Oak; Salakin;

- (2) Malakadios; Cana-fistula; Kamatog; Batete; Bahai; Supa; Tukang-kalau; Malatumbaga; Gisihan; Kato; Miao; Kayatau; Tabigi; Piagau; Balikbikan; Amugis; Malugai; Dungon-late; Bitanghol; Guyong-Guyong; Gatasan; Palosapis; Apitong; Banaba; Toog; Bagras; Betis; Antipolo; Balakat; Bangkal; Binukau; Bogo; Kalumpit; Logo; Red Lauan; Yellow Lanutan; Benguet pine;

RAFTERS:

Tanglin; Cana-fistula; Kamatog; Ipil; Batete; Manggis; Makapilit; Bahai; Panapotien; Supa; Sudiang; Tukang-kalau; Malatumbaga; Gisihan; Kato; Salakin; Miao; Kayatau; Malakamanga; Nangka-nangka; Bayit; Tabigi; Piagau; Balikbikan; Anislag; Balinghasai; Dao; Lamio; Amugis; Alupag; Alupag-amo; Malugai; Malibayo; Lanutan; Bayok; Lumbayau; Dungon; Dungon-late; Katmon; Bitanghol; Gatasan; Palosapis; Narek; Apitong; Manggachapui; Saplungan; Dalingdingan; Gisok; Guijo; Yakal; Narig; Aranga; Malapinggan; Batitinan; Banaba; Toog; Lamog; Bakauan-gubat; Bakauan; Binggas; Kalumpit; Bagras; Makaasim; Betis; Urung; Batino;

JOISTS:

- (1) Tambulian; Tanglin; Dao; Alupag; Alupag-amo; Malugai; Lanutan; Dungon; Dungon-late; Narek; Manggachapui; Saplungan; Dalingdingan; Yakal; Narig; Lamog; Bakauan-gubat; Bakauan; Aranga;
- (2) Agoho; Dalinas; Cana-fistula; Kamatog; Ipil; Manggis; Bahai; Supa; Miao; Sudiang; Tukang-kalau; Malatumbaga; Gisihan; Kato; Salakin; Kayatau; Anislag; Lamio; Pahutan; Malibayo; Bayok; Lumbayau; Bitanghol; Guyong-guyong; Gatasan; Palosapis; Gisok; Guijo; Aranga; Batitinan; Toog; Urung; Binggas; Kalumpit; Bagras; Makaasim; Anubing; Anislag; Balau;
- (3) Batete; Bogo; Amugis; Katmon; Apitong; Malapinggan; Banaba; Batino;

STAIRS:

Ipil; Tindalo; Tambulian; Cana-fistula; Makapilit; Panapotien; Supa; Kato; Sudiang; Kayatau; Malibayo; Narek; Manggachapui; Saplungan; Dalingdingan; Gisok; Guijo; Yakal; Narig; Aranga; Batitinan; Betis; Urung; Sasalit; Molave;

FLOORING:

- (1) Tanglin; Cana-fistula; Ipil; Manggis; Bahai; Tindalo; Narra; Acacia; Supa; Sudiang; Kuling-manuk; Salakin; Kayatau; Malakamanga; Bayit; Dao;

Amugis; Alupag; Alupag-amo; Malibayo; Narek; Manggachapui; Saplungan; Dalingdingan; Gisok; Guijo; Yakal; Narig; Aranga; Urung; Sasalit; Molave; Kalamansanal;

- (2) Kamatog; Batete; Dogo; Tukang-kalau; Malatumbaga; Gisihan; Kato; Miao; Maranggo; Tabigi; Piagau; Balikbikan; Lamio; Pahutan; Malugai; Bayok; Lumbayau; Katmon; Bitanghol; Bitag; Gatasan; Palosapis; Apitong; Red Lauan; Tangile; Tiaong; Malapinggan; Batitinan; Banaba; Pagatpat; Lamog; Tiaui; Bakauanggubat; Binggas; Kalumpit; Bagras; Makaasim; Putian-Nato;

CEILING:

- (1) Margapali; Malabunga; Maranggo; Kalantas; Pahutan; Malugai; Lumbayau; Katmon; Bitag; Palosapis; Red Lauan; Mayapis; Manggasinoro; Tangile; Tiaong; Binuang; Banaba; Kalumpit; Bagras; Nato; Bangkal
- (2) Batete; Manggis; Anagap; Bogo; Santol; Balinghasai; Bayok; Kalumpang; Bagtikan; White Lauan; Almon; Kalunti; Balakat; Baniti;

SIDINGS, PANELS AND PARTITIONS:

Phyllocladus; Malambingan; Antipolo; Sandit; Batikuling; Malabunha; Akle; Akleng-parang; Kamatog; Narra; Supa; Banuyo; Tukang-kalau; Maranggo; Kayatau; Malakamanga; Dao; Pahutan; Lumbayau; Palosapis; Narek; Manggachapui;

Dalingdingan; Bagtikan; White Lauan; Almon; Guijo; Kalunti; Red Lauan; Mayapis; Tangile; Tiaong; Balu; Banaba; Lamog; Kalumpit; Bagras; Nato; Batino; Teak; Oaks; Molave; Kalamansanal; Malakauayan;

Margapali; Salingkugi; Ipil; Batete; Manggis; Bahai; Tindalo; Anagap; Acacia; Sudiang; Bogo; Malatumbaga; Gisihan; Kuling-manuk; Kato; Miao; Salakin; Santol; Kalantas; Nangka-nangka; Bayit; Tabigi; Piagau; Lamio; Balikbikan; Amugis; Malugai; Bayok; Kalumpang; Katmon; Bitanghol; Apitong; Saplungan; Gisok; Manggasinoro; Yakal; Narig; Aranga; Urung; Malapinggan; Batitinan; Makaasim; Sasalit;

WINDOW FRAMES:

Dalingdingan; Gisok; Guijo; Akle; Akleng-parang; Cans-istula; Ipil; Manggis; Bahai; Tindalo; Narra; Acacia; Supa; Banuyo; Sudiang; Bogo; Tukang-kalau; Malasaging; Malatumbaga; Gisihan; Kuling-manuk; Kato; Salakin; Miao; Kayatau; Malakamanga; Nangka-nangka; Bayit; Tabigi; Piagau; Balikbikan; Dao; Lamio; Amugis; Malugai; Katmon; Bitanghol; Bitag; Palosapis; Narek; Tangile; Red Lauan; Tiaong; Yakal; Narig; Aranga; Malapinggan; Batitinan; Banaba; Lamog; Binggas; Makaasim; Urung; Batino; Sasalit; Molave; Kalamansanal;

DOOR FRAMES :

Manggachapui; Dalingdingan; Gisok; Guijo; Yakal; Phyllocladus; Kaburo; Akle; Akleng-parang; Salingkugi; Cana-fistula; Ipil; Batete; Bahai; Narra; Tindalo; Supa; Banuyo; Sudiang; Bogo; Tukang-kalau; Malasaging; Malatumbaga; Gisihan; Kuling-manuk; Kato; Salakin; Miao; Kayatau; Malakamanga; Nangka-nangka; Bayit; Tabigi; Piagau; Dao; Lamio; Amugis; Malugai; Bitanghol; Bitaan; Narek; Saplungan; Narig; Aranga; Malapinggan; Batitinan; Banaba; Lamog; Binggas; Makaasim; Urung; Sasalit; Molave; Kalamansanal;

HOUSEHOLD U TENSILS:

Phyllocladus; Malaalmaciga; Bai-bai; Kulilisiau; Akle; Unik; Akleng-parang; Salingkugi; Cana-fistula; Kamatig; Ipil; Manggis; Makapilit; Panapoton; Bahai; Tindalo; Narra; Banuyo; Sua; Sudiang; Salai; Kayatana; Tukang-kalau; Malasaging; Malatumbaga; Gisihan; Kuling-manuk; Kato; Salakin; Kayatau; Malakamanga; Santol; Nangka-nangka; Bayit; Anislag; Balinghasai; Dao; Lamio; Amugis; Malugai; Malibayo; Gapas-gapas; Gisok; Guijo; Yakal; Narig; Aranga; Guava; Batino; Lanete; Malasanbang;

INTERIOR DECORATIONS:

Phyllocladus; Sandit; Yellow Lanutan; Tanglin; Akle; Unik; Akleng-parang; Salingkugi; Cana-fistula; Kamatog; Ipil; Batete; Manggis; Bahai; Tindalo; Anagap; Narra; Acacia; Supa; Banuyo; Sudiang; Bogo; Tukang-kalau; Malasaging; Malatumbaga; Gisihan; Kuling-manuk; Kato; Salakin; Maranggo; Miao; Kayatau; Malakamanga; Santol; Kalantas; Nangka-nangka; Bayit; Tabigi; Piagau; Bok-bok; Tuai; Banau; Balikbikan; Balinghasai; Dao; Lamio; Amugis; Pahutan; Malapabo; Malugai; Malibayo; Lanutan; Bayok; Lumbayau; Bitanghol; Bitao; Kalinas; Palosapis; Narek; Apitong; Manggachapui; Saplungan; Dalingdingan; Bagtikan; White Lauan; Gisok; Almon; Guijo; Kalunti; Red Lauan; Mayapis; Manggasinoro; Tangile; Tiaong; Yakal; Narig; Aranga; Malapinggan; Batitinan; Banaba; Lamog; Binggas; Kalumpit; Bagras; Makaasim; Nato; Urung; Batino; Lanete; White Nato; Duklitan; Teak; Sasalit; Molave, Kalamansanal;

TEMPORARY CONSTRUCTIONS:

Malaikmo; Tagisang-bayawak; Kanapai; Kalukoi; Baleta; Anonlog; Tanbalau; Dugman; Alibang-bang; Batete; Kupang; Pagsahingin; Kamingi; Igiu; Bokbok; Tuai; Banau; Balinghasai; Malabog; Kamiring; Lanutan-bagto; Taluto; Almon; Kalunti; Mayapis; Manggasinoro; Binuang; Loktob; Anonang; Malasambang;

SHEATING:

Pahutan; Maranggo; Malugai; Lamog; Kalantas; Batete; Kamatog; Bayok; Katmon; Bitao; Antipolo; Bangkal; Banuyo; Batikulin;

BRIDGE TIMBERS:

Apitong (treated); Gisok; Guijo; Yakal; Narig; Aranga; Betis; Duyok-duyok; Bansalagin; Urung; Sasalit; Molave; Anubing; Malakadios; Tambulian; Tanglin; Akleng-parang; Salingkugi; Cana-fistula; Ipil; Makapilit; Panapotien; Bahai; Tindalo; Supa; Sudaing; Tukang-kalau; Gisihan; Kato; Salakin; Kayatau; Bayit; Malibayo; Dungon; Dungon-late; Bitanghol; Narek; Manggachapui; Saplungan; Dalingdingan; Batitinan; Banaba; Makaasim; Malabayabas; Betis; Kalamansanal;

MINE TIMBERS:

Benguet pine; Akleng-parang; Ipil; Batete; Supa; Sudiang; Tukang-kalau; Kato; Gisihan; Salakin; Kayatau; Apitong (treated); Saplungan; Dalingdingan; Gisok; Guijo; Yakal; Narig; Aranga; Batitinan; Banaba; Makaasim; Betis; Bansalagin; Anubing; Alupag; Binukau; Bolong-eta; Dungon; Dungon-late; Malabayabas; Malakadios; Molave; Bitanghol; Sasalit; Tabau; Tamayuan; Tambulian; Urung; Tindalo; Busain; Langarai; Pototan; Duyok-duyok; Kalamansanal;

RAILROAD TIES:

Ipil; Apitong (treated); Gisok; Yakal; Urung; Sasalit; Betis Urung; Molave; Anubing; Malakadios; Tambulian; Amayan; Tanglin; Akleng-parang; Salingkugi; Cana-fistula; Makapilit; Panapotien; Bahai; Tindalo; Supag; Sudiang; Tukang-kalau; Gisihan; Kato; Kayatau; Alupag; Alupag-amo; Malibayo; Dungon; Dungon-late; Gatasan; Narek; Manggachapui; Saplungan; Dalingdingan; Guijo; Narig; Aranga; Batitinan; Pagatpat; Makaasim; Duyok-duyok; Bansalagin;

TELEPHONE AND TELEGRAPH POLES:

Benguet pine; Anubing; Ipil; Sudiang; Tukang-kalau; Gisihan; Kato; Apitong (treated); Narig (treated); Pagatpat; Tabau; Makaasim;

PILES:

Amayan; Giusin; Alupag; Alupag-amo; Dungon; Dungon-late; Apitong (treated); Batitinan; Pagatpat; Busain; Langarai; Pototan; Bakauan; Tabau; Makaasim; Malabayabas; Mancono; Betis; Duyok-duyok; Bansalagin; Mangkas; Urung; Anubing; Dalinas (submerged); Tambulian; Ipil; Sudiang; Narig (treated); Malakalumpit (foundation); Agoho (foundation);

SHIP STERNS:

Gisok; Yakal; Bitag; Aranga; Duyok-duyok; Bansalagin; Betis;

SHIP BUILDING:

Yakal; Ipil; Tindalo; Narra; Supa; Banuyo; Sudiang; Tukang-kalau; Gisihan; Kato; Marango; Miao; Kayatau; Kalantas; Bayit; Dao; Lamio; Amugis; Malugat;

Lumbayau; Dungon; Dungon-late; Bitanghol; Bitag; Palosapis; Narek; Apitong; Manggachapui; Saplungan; Dalingdingan; Bagtikan; White Lauan; Gisok; Almon; Guijo; Kalunti; Red Lauan; Mayapis; Manggasin-oro; Tangile; Tlaong; Narig; Aranga; Batitinan; Banaba; Pagatpat; Lamog; Binggas; Bagras; Makaasim; Betis; Duyok-duyok; Bansalagin; Nato; Mangkas; Urung; Batino; Teak; Sasalit; Molave; Kalamansanal;

BOAT PLANKING:

Malamingan; Unik; Kamatog; Ipil; Narra; Tindalo; Supa; Banuyo; Sudiang; Tukang-kalau; Gisihan; Kato; Marango; Kayatau; Kalantas; Bayit; Tabigi; Piagau; Amugis; Malugai; Lumbayau; Palosapis; Narek; Manggachapui;

SPARS:

Malaalmaciga; Narra; Banuyo; Kalantas; Malugai; Bitanghol; Guijo;

MASTS:

Malaalmaciga; Malugai; Bitanghol; Guijo;

KEELS:

Gisok; Yakal; Sasalit; Ipil; Tindalo; Sudiang; Alupag; Alupag-amo; Dungon; Dungon-late; Narig; Betis; Duyok-duyok; Bansalagin; Molave;

SHIP RIBS:

Gisok; Guijo; Yakal; Bitag; Narek; Saplungan; Narig; Batitinan; Lamog; Betis; duyok-duyok; Bansalagin; Tanaua;

KNEES:

Bitag;

CABINET TIMBERS:

Akle; Tindalo; Narra; Supa; Banuyo; Dao; Lamio; Kamagong; Ebony; Bolong-eta; Kalamansanal;

Lupisan; Malambingan; Antipolo; Sandit; Malakadios; Kalingag; Tanglin; Akleng-parang; Salingkugi; Cana-fistula; Kamatog; Ipil; Batete; Manggis; Makapilit; Panapottien; Bahai; Acacia; Bogo; Tukang-kalau; Malatambaga; Gisihan; Kuling-manuk; Kato; Salakin; Marango; Miao; Kayatau; Malakamanga; Kalantas; Nangka-nangka; Bayit; Tabigi; Piagau; Balikbikan; Amugis; Pahutan; Malapaho; Taingang-babui; Malugai; Lanutan; Bayok; Lumbayau; Bitanghol; Bitag; Kallos; Narek; Manggachapui; Saplungan; Dalingdingan; Bagtikan; White Lauan; Gisok; Almon; Guijo; Kalunti; Red Lauan; Mayapis; Manggasinoro; Tangile; Tlaong; Yakal; Narig; Aranga; Malapinggan; Batitinan;

Banaba; Pagatpat; Nato; White Nato; Duklitan; Urung; Batino; Lanete; Balu; Teak; Sasalit; Molave; Banai-banai; Bangkal; Acacia

FURNITURE:

Akle; Ipil; Tindalo; Narra; Supa; Banuyo; Dao; Kamagong; Ebony; Bolong-eta;

Malambingan; Antipolo; Sandit; Malakadios; Dugkatan; Margapali; Koron-koron; Lago; Tanglin; Akleng-parang; Salingkugi; Cana-fistula; Kamatog; Batete; Manggis; Makapilit; Panapotien; Bahai; Acacia; Salai; Kautana; Bogo; Salakin; Marango; Miao; Kayatau; Malakamanga; Kalantas; Nangka-nangka; Bayit; Tabigi; Piagau; Balikbikan; Lamio; Amugis; Pahutan; Malapaho; Taingang-babui; Malugai; Lanutan; Bayok; Lumbayau; Bitanghol; Bitag; Kalinas; Palosapis; Narek; Manggachapui; Saplungan; Dalingdingan; Bagtikan; White Lauan; Gisok; Almon; Guijo; Kalunti; Red Lauan; Mayapis; Manggasinoro; Tangile; Tiaog; Yakal; Narig; Aranga; Malapinggan; Batitinan; Banaba; Pagatpat; Lamog; Bakauan-gubat; Binggas; Kalumpit; Bagras; Makaasim; Malatapai; Nato; White Nato; Duklitan; Urung; Batino; Lanete; Balu; Tanaua; Teak; Sasalit; Molave; Banai-banai; Bangkal; Kalamansanai; Acacia;

NOVELTIES:

Nangka; Margapali; Kulilistiau; Kaburo; Akle; Akleng-parang; Salingkugi; Ipil; Sibukau; Makapilit; Panapotien; Bahai; Tindalo; Narra; Acacia; Supa; Banuyo; Uto; Kamuning (chess men); Salai; Kayutana; Gisihan; Kuling-manok; Miao; Kayatau; Malakamanga; Kalantas; Dao; Lamio; Sangilo; Malugai; Narig; Urung; Bantigi; Kulasi; Malabayabas; Mancono; Mangkas; White Nato; Duklitan; Kamayan; Ebony; Bolong-eta; Lanete; Balu; Teak; Sasalit; Molave; Kalamansanai;

MUSICAL INSTRUMENTS:

Antipolo; Nangka; Narra; Kalantas; Lanutan; Lanete;

Malambingan; Koron-koron; Sibukau (violin bows); Banuyo; Kamuning (flutes); Marango; Malabago; Bitag; Red Lauan; Tangile; Bakauan-gubat; Makaasim; White Nato; Duklitan; Kamayan; Ebony; Bolong-eta; Balu;

CARVINGS:

Malaalmaciga; Sandit; Malakadios; Margapali; Batikuling; Malabunga; Kaburo; Akle; Akleng-parang; Anagap; Banuyo; Narra; Uto; Kamuning; Bogo; Miao; Dao; Santol; Kalantas; Lamio; Sangilo; Malibayo; Gapas-gapas; Malatapai; Urung; Lanete; White Nato; Duklitan; Teak; Sasalit; Molave; Banai-banai; Bangkal; Kalamansanai; Malasambong;

SCULPTURE:

Sangilo; Sandit; Malakadios; Margapali; Batikuling; Kulilistiau; Malabunga; Kaburo; Akle; Anagap; Bogo; Santol; Kalantas; Teak; Sasalit; Molave; Bangkal; Banai-banai; Malasambong;

PATERNES:

Phyllocladus; Sandit; Batikuling; Malabunga; Anagap; Banuyo; Nato;

DUMB-BELLS:

Malabayabas; Mancono;

PICTURE FRAMES:

Malakadios; Akle; Akleng-parang; Salingkugi; Cana-fistula; Kamatog; Ipil; Makapilit; Panapotien; Bahai; Tindalo; Narra; Supa; Banuyo; Uto; Bogo; Kato; Malatumbaga; Gisihan; Kuling-manuk; Marango; Miao; Kalantas; Bayit; Dao; Tabigi; Piagau; Lamio; Amugis; Sangilo; Malugai; Malubago; Manggachapui; Dalingdingan;

TOOL HANDLES:

Bolon; Dalinas; Yellow Lanutan; Amayan; Akle; Akleng-parang; Salingkugi; Ipil; Makapilit; Panapotien; Bahai; Narra; Supa; Banuyo; Kamuning; Bogo; Kuling-manuk; Kato; Kayatau; Bayit; Anislag; Sangilo; Malugai; Malibayo; Lanutan; Bayok; Dungon; Dungon-late; Saplungan; Gisok; Guijo; Yakal; Aranga; Bantigi; Guava; Makaasim; Malabayabas; Mancono; Betis; Duyok-duyok; Bansalagin; Kamayan; Ebony; Bolong-eta; Urung; Tanaua;

GUN STOCKS:

Akle; Malambingan; Akleng-parang; Ipil; Narra; Supa; Banuyo; Kamuning (revolver handles); Gisihan; Dao; Lamio; Pahutan; Sangilo; Lanutan; Bitag;

BOWLING BALLS:

Guava; Malabayabas; Mancono; Kamayan; Ebony; Bolong-eta; Anang;

BOWLING ALLEYS & PINS:

Bolon; Ipil; Makapilit; Panapotien; Tindalo; Supa; Kayutana; Gisihan; Kato; Kayatau; Bayit; Dao; Amugis; Dungon; Dungon-late; Bitag; Narek; Saplingan; Gisok; Guijo; Yakal; Narig; Aranga; Batitinan; Duyok-duyok; Bansalagin; Betis; Bolong-eta; Urung;

CANES:

Sibukau; Narra; Kamuning; Salai; Kayutana; Bogo; Gisihan; Kayatau; Dao; Sangilo; Dalingdingan; Bantigi; Kulasi; Duyok-duyok; Bansalagin; Betis; Ebony; Kamayan; Bolong-eta; Lanete; White Nato; Duklitan;

INLAYING:

Sibukau; Kamuning; Salai; Kayutana; Kamagong; Ebony; Gapas-gapas; White Nato; Malatapai; Duklitan; Bolong-eta; Lanete; Api-api;

AGRICULTURAL IMPLEMENTS:

Bolon; Dalinas; Yellow Lanutan; Kulilisau; Akleng-parang; Salingkugi; Cana-fistula; Ipil; Makapilit; Panapotien; Bahai; Tindalo; Narra; Supa; Pagsahingin; Bogo; Tukang-kalu; Malasagio; Malatumbaga; Gisihan; Kuling-manuk; Kato; Salaket; Kayatau; Malakamanga; Santol; Bayit; Tuai; Anislag; Dao; Lamio; Amugis; Pahutan; Alupag; Alupag-amo; Malugai; Malibayo; Balobo; Kamuling; Bayok; Dungon; Dungon-late; Guyong-guyong; Gatasan; Narek; Manggachapul; Sapiungan; Dalingdingan; Gisok; Guijo; Yakal; Narig; Aranga; Batitinan; Banaba; Guava; Makaasim; Betis; Duyok-duyok; Bansalagin; Sasalit; Molave;

ENGINEERING INSTRUMENTS:

Malaalmaciga; Almaciga; Maranggo; Kalantas; Haras; Narig; Kulasi; Kamayan; Ebony; Bolong-eta; Lanete; White Nato; Duklitan; Tanaua; Teak;

BENTWOOD WORK:

Lamog; Dungon; Dungon-late; Lanutan; Tanaua;

CHESSMEN:

Kamuning; Salai; Kayutan; Gisihan; Kayatau; Dao; Haras; Narig; Mangkas; Kamayan; Ebony; Bolong-eta;

SHUTTLES & BOBBINS:

Tamayuan; Salai; Kayutana; Narig; Kulasi; Mangkas; Kamagon; Ebony; Bolong-eta;

SPINDLES:

Kamagon; Ebony; Bolong-eta;

TENNIS RACKETS:

Malaikmo; Tanaua;

INSULATOR BOARDS:

Dapdap;

HELMETS:

Dapdap;

WOODEN SHOES:

Malapapaya; Anabiong; Balete; Kupang; Malakamias; Lumbang; Baguilumbang;
Tan-ag; White Nato; Taluto; Duklitan; Dita; Lanete; Tui;

WOODEN CLOGS:

Gyrocarpus; Koron-koron; Kupang; Lumbang; Baguilumbang; Gubas; Malasambong;

BATH TUBS:

Baibai; Antipolo; Kanapai; Balete; Kupang; Malakamias; Kalantas;

DUGOUTS AND BANCAS:

Kalukoi; Kupang; Malakamias; Bagalunga; Maranggo; Kalantas; Lanutan-bagio;
Bagtikan; White Lauan; Kalunti; Red Lauan; Tangile; Tiaong; Binuang; Loktob;

CIGAR BOXES:

Unik; Maranggo; Kalantas; Balinghasai; Mayapis; Nato;

BOXES AND CRATES:

Balete; Anoniog; Tambalau; Duguan; Batete; Kupang; Malakamias; Pagsahingin;
Kamingi; Gubas; Balinghasai; Kamiring; Lanutan-bagio; Malabulak; Taluto;
Bagtikan; White Lauan; Almon; Mayapis; Manggasinoro; Tangile; Tiaong; Nato;
Binuang; Loktob; Dita;

FISH NETS FLOATS:

Anabiong; Balete; Sandit; Ilang-ilang; Koron-koron; Dapdap; Kupang; Tanpag;
Malabulak; Taluto; Binuang; Loktob;

PAPER WEIGHTS:

Malabayabas; Mancono; Mangkas; Duyok-duyok; Bansalagin; Kamagon; Ebony;
Bolong-eta; Sasalit; Molave;

DRAWING BOARDS:

Koron-koron; Malakamias; Maranggo; Kalantas; Nato; Teak;

WARDROBES - TRUNKS AND FANCY BOXES:

Narra; Januyo; Margapali; Akle; Akleng-parang; Salingkugi; Cana-fistula;
Manggis; Bahai; Supa; Salai; Kayutana; Gisihan; Kuling-manuk; Kato; Maranggo;
Miao; Kayatau; Malakamanga; Kalantas; Dao; Lamio; Sangilo;

PAVING BLOCKS:

Apitong; Gisok; Yakal; Tanglin; Ipil; Makapilit; Panapotien; Tindalo; Sudiang;
Supa; Tukang-kalau; Gisihan; Kato; Kayatau; Alupag; Alupag-amo; Dungon;
Dungon-late; Gatasan; Narek; Manggachapui; Saplungan; Guijo; Narig; Betis;
Batitinan; Makaasim; Duyok-duyok; Bansalagin; Urung; Sasalit; Molave;

TREE NAILS:

Sibukau; Alupag; Alupag-amo;

SHAFTS AND CARRIAGES:

Maladanglin; Lanutan; Bayok; Bitanghol; Lamog;

DYE WOOD:

Sibukau; Narra;

PULLEYS:

Malabayabas; Mancono;

SCABBOARDS:

Sibukau; Narra; Kamuning; Malubago; Balu; Tui;

SHEAVES:

Malabayabas; Mancono;

BUTCHER'S BLOCK:

Santol;

HUBBS OF CARRIAGES:

Dungon; Dungon-late; Bitag;

MANUFACTURE OF VENEER:

Lago; Tindalo; Akle; Akleng-parang; Narra; Supa; Banuyo; Gogo; Gisihan; Dao;
Kuling-manuk; Marango; Lamio; Amugis; Pahutan; Taingang-babui; Balakat;
Lumbayau; Palosapis; Narek; Apitong; Manggachapui; Dalingdingan; Bagtikan;
White Lauan; Almon; Guijo; Kalunti; Red Lauan; Mayapis; Manggasinoro; Tiaong;
Tangile; Red Lauan;

CAPSTAN BARS:

Malugai; Dungon; Dungon-late;

MANUFACTURE OF CHARCOAL:

Agoho; Liusin; Guyong-guyong; Tangal; Ipil-Ipil; Alibangbang; Kakawate;
Manggis; Binayuyu; Busain; Langarai; Pototan; Bakauan; Guava;

LEVERS:

Malugai;

ROLLERS:

Malabayabas; Mancono;

FIREWOOD:

Guyong-guyong; Tangal; Ipil-IPil; Alibang-bang; Kakawate; Banayuyu; Busain;
Langarai; Pototan; Bakauan; Guava;

PEAVIES:

Malugai;

RADIO CABINETS:

Tindalo; Akle; Narra; Supa; Banuyo; Akleng-parang; Maranggo; Kalantas; Dao;
Lamio; Tangile; Nato; Kalamansanai;

BASEBALL BATS:

Bayok;

PIANO CASES:

Akle; Narra; Supa; Banuyo; Kalantas; Dao; Lamio;

STERN BUSHINGS:

Mancono;

MATCH BOXES AND STICKS:

Malakamias; Lumbang; Paguilimbang; Gubas; Taluto; Binuang; Malapapaya; Dita;

BEARINGS:

Malabayabas; Mancono;

MANUFACTURE OF PLYWOOD:

Pagsahingin; Kamingi; Dogo; Gisihan; Kato; Maranggo; Gubas; Dao; Lamio;
Amugis; Pahutan; Taingang-babui; Balakat; Taluto; Lumbayay; Palosapis; Narek;
Apitong; Dalingdingan; Jagtikan; White Lauan; Almon; Guijo; Kalunti; Mayapis;
Red Lauan; Manggasinoro; Tangile; Tiaong; Teak;

SINGLE TREES:

Lanutan;

TABLE TOPS:

Dao; Narra;

BARREL HOOPS:

Malubago;

BILLARD TABLES AND CUES:

Tabigi; Piagau;

SAW GUIDE BLOCKS:

Malabayabas; Mancono;

BURRS IN RICE MILLS:

Alupag; Alupag-amo; Dungon; Dungon-late;

FOUNDATION SILLS:

Dungon; Dungon-late; Betis;

TEETH OF COGWHEELS:

Alupag; Alupag-amo; Dungon; Dungon-late;

PRESSES:

Alupag; Alupag-amo; Dungon; Dungon-late;

BEARINGS:

Alupag; Alupag-amo;

WOODEN ANCHORS:

Alupag; Alupag-amo; Dungon; Dungon-late;

COMBS:

Alupag; Alupag-amo; Bayok; Kamagon; Ebony; Bolong-eta;

HARROW TEETH:

Alupag; Alupag-amo; Dungon; Dungon-late;

RUDDERS:

Dungon; Dungon-late; Saplungan;

MALLETS:

Dungon; Dungon-late;

SPOKES:

Dungon; Dungon-late;

FELLOES:

Dungon; Dungon-late;

AXLES:

Dungon; Dungon-late;

BEADS OF ABACUS:

Mangkas;

WARDROBES, TRUNKS AND FANCY BOXES:

Manggachapui; Saplungan; Dalingdingan; Guijo; Kalunti; White Lauan; Tangile;
Tiaong; Nato; White Nato; Duklitan; Kamagon; Ebony; Bolong-eta; Urung; Teak;
Lanete; Kalamansanat;

VEHICLE WORK AND AUTOMOBILE BODIES:

Manggachapui; Dalingdingan; Gisok; Guijo; Betis; Palosapis; Ditanghol; Narek;
Apitong; Saplungan; Tangile; Red Lauan; Bagtikan; White Lauan; Tiaong; Yakal;
Narig; Aranga; Malapinggan; Batitinan; Banaba; Binggas; Duyok-duyok; Nato;
Bansalagin; Urung; Teak; Kalamansanai;

BOAT PLANKING:

Dalingdingan; Bagtikan; White Lauan; Almon; Guijo; Kalunti; Red Lauan; Urung;
Mayapis; Manggasinoro; Tangile; Tiaong; Batitinan; Banaba; Kalumpit; Sakat;
Nato; Tanaua; Teak;

PICTURE FRAME:

White Nato; Duklitan; Kamagon; Ebony; Bolong-eta; Urung; Lanete; Balu; Teak;
Kalamansanai;

COLLEGE OF ARCHITECTURE

Office of the Dean

April 14, 1971

**The DIRECTOR
Institute for Small-Scale Industries
University of the Philippines
11th Floor, SSS Building
Diliman, Quezon City**

S i r :

In my initial conference with your UNIDO Experts on the furniture industry last Monday, April 5, 1971 at your premises I wish to convey to you the following pertinent facts and/or information, to wit:

- 1. There is a justifiable national need for a FURNITURE CENTER by way of research and development in furniture designing and utilization of materials;**
- 2. The FURNITURE CENTER must be the fountain-head of creative and novel ideas starting from the designing through manufacturing to marketing, hence such a center must be situated in a university setting;**
- 3. The U.P. College of Architecture, in its basic objective to promote aesthetics and to enhance Philippine culture, is willing to organize a curricular program of study to produce designers and experts in the furniture industries;**
- 4. In detail, the B. S. Architecture and the B. Landscape Architecture programs are being offered on such common grounds as creative design concepts, functional systems building and practical end-users requirements to which a curricular program of study in furniture design will find relevance and collaboration; and**
- 5. The U.P. College of Architecture, not presently equipped with the personnel and physical facilities for such a curricular program, expects external assistance and support to initiate and implement the program upon approval by higher university authorities.**

I am certain that the proposed FURNITURE CENTER would be an area of mutual collaboration and cooperation between your institute and our college.

Truly yours,

**(SGD) AURELIO R. JUGUILON
D e a n**

**A True Copy
abb 6:10:71**

EXPORT TAX ON LUMBER

8% on the FOB profits of the export on or after the date of effectivity of the Act - June 30, 1971.

6% will be the obligation from July 1, 1971 to June 30, 1972.

4% will have to be paid from July 1, 1972 to June 30, 1973.

2% will have to be paid from July 1, 1973 to June 30, 1974

We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards even though the best possible copy was used for preparing the master fiche.

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