

# Congolese Wood in the Antwerp Interwar Interior

M. Jaenen, M. de Bouw, A. Verdonck, M. Leus

**Abstract**—During the interwar period artificial materials were often preferred, but many Antwerp architects relied on the application of wood for most of the interior finishing works and furnishings. Archival, literature and on site research of interwar suburban townhouses and the Belgian wood and furniture industry gave a new insight to the application of wood in the interwar interior. Many interwar designers favored the decorative values in all treatments of wood because of its warmth, comfort, good-wearing, and therefore, economic qualities. For the creation of a successful modern interior the texture and surface of the wood becomes as important as the color itself. This aesthetics valuation was the result of the modernization of the wood industry. The development of veneer and plywood gave the possibility to create strong, flat, long and plain wooden surfaces which are capable of retaining their shape. Also the modernization of cutting machines resulted in high quality and diversity in texture of veneer. The flat and plain plywood surfaces were modern decorated with all kinds of veneer-sliced options. In addition, wood species from the former Belgian Colony Congo were imported. Limba (*Terminalia superba*), kambala (*Chlorophora excelsa*), mubala (*Pentaclethra macrophylla*) and sapelli (*Entandrophragma cylindricum*) were used in the interior of many Antwerp interwar suburban town houses. From the thirties onwards Belgian wood firms established modern manufactures in Congo. There the local wood was dried, cut and prepared for exportation to the harbor of Antwerp. The presence of all kinds of strong and decorative Congolese wood products supported its application in the interwar interior design. The Antwerp architects combined them in their designs for doors, floors, stairs, built-in-furniture, wall paneling and movable furniture.

**Keywords**—Antwerp, Congo, furniture, interwar.

## I. INTRODUCTION

**N**EW, modern and artificial materials were promoted during the interwar period, but many Antwerp architects preferred to use wood for the interior design of their new-built middle-class single-family suburban townhouses. The development of veneer and plywood gave them the possibility to create interior elements with flat, long and plain wooden surfaces which could be decorated with all kinds of veneer-sliced options. Additional Congolese wood species were imported to Antwerp. Within this context the question on the impact of the wood industry on the modernization of the

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interwar interior design rises. For instance, which elements were preferred to be constructed in wood and which Congolese wood species were available and applied?

The focus of this research is based on the interwar interior design of four Antwerp architects namely Nachman Kaplansky (1904-1945) [6], Léon Stynen (1899-1990) [1] [22], Walter van den Broeck (1905-1945) [2] and Eduard van Steenberghe (1889-1983) [3]. Building specifications, correspondence with cabinetmakers and clients, drawings and archival records of their interwar interior designs were examined and 23 preserved interiors were mapped on site. In addition, information of the harbor of Antwerp [5], the archive of cabinet manufacture *Vanden Berghe-Pauvers of Ghent* [4], the wood merchant *De Beukelaer & De Jong* [4] and information found in the library of the Royal Museum for Central Africa [21], [24] and a part of the archive of the former Belgian Ministry of Colonies at the Royal Academy of Overseas Science gave new insight on the application of wood and on the species of wood used during the interwar period. The results of this research is structured on tree topics, the modernization of the use of wood during the interwar period, the import of Congolese wood species from the former Belgian Colony and the application of this Congolese wood into Antwerp interwar interior design.

For this research was chosen to use the commercial names of the wood species that were established during the interwar by the *Union Professionnel des Producteurs de Bois du Congo Belge* (UPPBC). If the botanical name of Congolese wood species is mentioned in Fig. 5, it will not occur in the text.

## II. MODERNIZATION OF WOOD FOR INTERIOR DESIGN DURING THE INTERWAR PERIOD

The wooden interior designs at the International Exposition of Modern Industrial and Decorative Arts held in Paris in 1925 emphasized the importance and beauty of materials. Modern furniture had no architectural embellishments. For the first time the expression of wood became more important than the decorative detailing. Modern wooden furniture did not have columns, pilasters, panels or mouldings, but plain wooden surfaces. Wood as material was chosen with a view to exhibiting its intrinsic value [7]. As Adolf Loos (1870-1933) stressed, accordance to the rules of aesthetics of materiality, *'the simpler it is, the more distinguished the material has to be for compensating the display of its appeal for the lack of decorative ornaments'* [8].

This modern design was only possible by the application of a recent industrialized material: plywood. The development of veneer and plywood gave the possibility to create strong, undeformable, flat and plain surfaces. It provided architects and furniture designers with opportunities to create and

construct new furniture consisting mainly of entirely straight surfaces, devoid of mouldings, architraves and cornices; free of any superimposed enrichment [9]. However, the concept of plywood – so-called ‘scale board’ - was patented in the U.S. in 1865 by John Mayo; it was not yet commercialized [10]. The invention of the peeling machine in 1890 which produced veneer was a milestone for further modernization and led to the commercial production of plywood from 1907 onwards [11]. The term plywood – used to describe a material made up of an odd number of veneers glued together with the grain of each perpendicular to the next – was adopted in 1919 by the Plywood Manufacturers’ Association. By 1930 improved mass production techniques were emerging allowing the manufacturing of plywood, mainly made out of softwood, as a uniform and standardized commodity. It was primarily used in the car industry and the manufacturing of doors and cabinets. The benefits of plywood included a high strength-to-weight ratio, dimensional stability, resistance to splitting and an ability to be molded into compound curves [10], [19], [20].

The modernization in the wood cutting machinery made it also possible to create high-quality veneer from hardwood. [20] The manner in which a log segment is cut with relation to the annual rings will determine the appearance of the veneer. So next to rotary cutting or peeling - mainly used for plywood - there were other modern methods of producing veneers such as flat and quarter slicing. For flat slicing the half flitch is mounted with the heart side flat against the flitch table of the slices and the slicing is done parallel to a line through the center of the log resulting in a combination of straight grain patterns. For quarter slicing the quarter flitch is mounted on the table so that the growth rings of the log strike the knife at the approximately right angles, producing a series of stripes. [11]. So the plywood panels could be finished and decorated with a final layer of veneer from a more exclusive and exotic wood species. The decoration of the furniture was concretized in the visual effect by the manner in which the veneer leaves were arranged. Even today, rotary cut veneers are difficult to match; therefore, most matching was done with sliced veneers. There the grain in any sheet of veneer must be very similar to that of the sheets lying immediately above or below it. [11] A skilled cabinetmaker could create unique effects by the simple expedient of taking two adjacent veneers, cutting them down in the center and disposing them in such a way that the markings are symmetrical on either side of a central line. [7] Depending on the colour and graining or mottling of the veneer the most preferred arrangements were the book, slip, end and center matching for doors, wall panels or cabinets. (Fig. 9) The table and cabinet tops could also have eight piece sunburst, box or diamond match. This new material and corresponding techniques gave the interior designer and cabinetmaker the possibility to create unique customized made furniture. In addition, a well-made plywood panel veneered with a figured hardwood was not only beautiful, but it also had outstanding qualities of resistance [9]. It was therefore intensively used by architects to design harmonious, modern and timeless interiors. For many houses they created a unique interior design with an abundant presence of wooden elements

such as doors, floors, stairs, built-in-furniture, wall paneling and movable furniture. This contemporary fashion and demand forced a lot of carpentry and cabinet manufactures to modernize their workshops and working methods. From the 1930's onwards, the city of Antwerp received a lot of demands for the permission to install new electric driven machines in local wood companies [12]. These firms consisted out of separate working spaces such as a large working hall, furniture hall, drying space, storage, offices and a showroom. Also new books were published explaining the operation of the new machines and techniques. This modernization gave the wood manufactures the opportunity to develop their own veneers and plywood. Nevertheless, a lot of imported plywood was available in different sizes and shapes at the harbor of Antwerp. For example, the Antwerp wood merchant *De Beukelaar & De Jong* sold Finish (*Pinus sylvestris*) and parana pine (*Araucaria angustifolia*), oak (*Quercus robur*), and Congolese limba and kambala plywood. The firm also offered cabinet makers a range of veneers in different thicknesses and sizes such as oak, mahogany (*Khaya*), avodire (*Turraeanthis africanus*), walnut (*Juglans nigra*), okoumé (*Aucoumea klaineana*), limba (white and black) and kambala. In addition, they sold a lot of quarter and plain sawn oaks, assie (*Entandrophragma utile*), grand bassam (*Khaya*), kalungi, parana pine and limba (white and black) [4]. This information clearly shows that different Congolese wood species were available in Antwerp during that period.

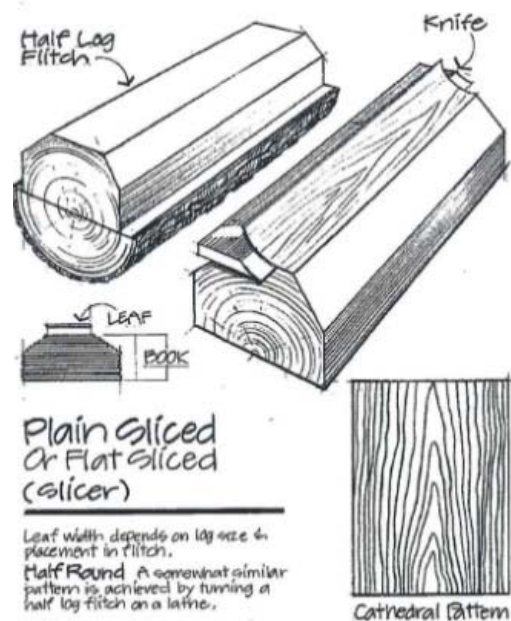


Fig. 1 (a) Drawing of flat [11]

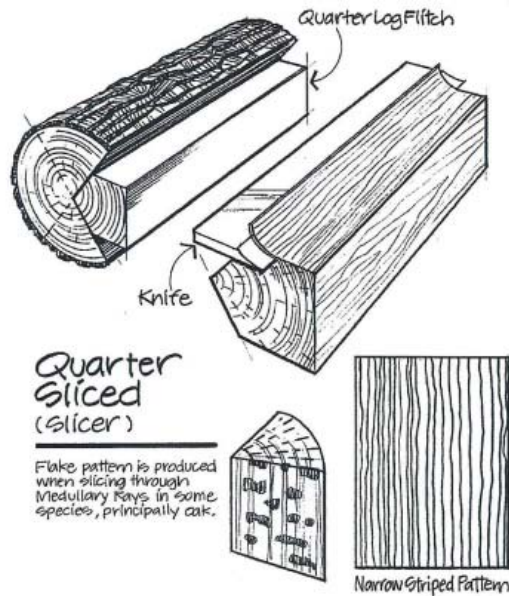


Fig. 1 (b) Quarter slicing. [11]

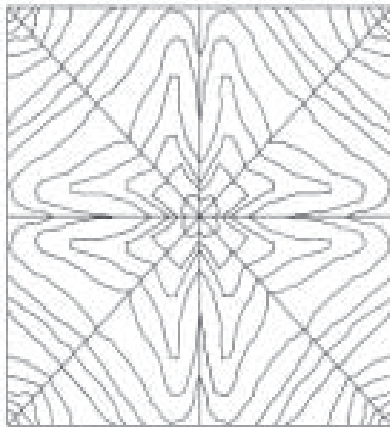


Fig. 2 (a) Box match [11]

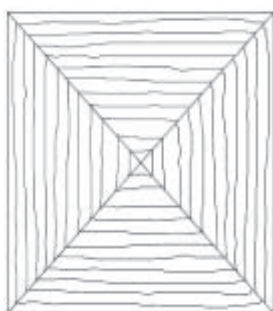


Fig. 2 (b) Eight piece sunburst [11]

### III. IMPORT OF WOOD SPECIES FORM FORMER BELGIAN COLONY CONGO

In 1885 the Belgian King Leopold II attained Congo Free State as a personal colony. From that new state, the first

Congolese wood arrived in Belgium to be exhibited at the International Exhibition in Antwerp in 1894 [21]. In around 1900, the violence used by the Free State Officials against the indigenous Congolese population and a ruthless system of economic extraction, led to intense diplomatic pressure. Belgium had to take official control and created the Belgian Congo in 1908. After the First World War priority was given to copper, cobalt, diamond and gold mining, and palm oil and cotton production, as well as to the local transport infrastructure. To obtain the necessary capital, the colonial state gave private companies a free hand. Some private companies started to invest in forestry operations [13]. In 1926, a first mechanical sawmill was installed in Mayumbe (Congo) by the Brussels firm F. Jassonge. Several private industrial forest holdings followed the example of Jassonge and the export of Congolese woods to Antwerp slowly started. [14] These new private timber firms were equipped with modern mechanical sawmill facilities. The newest mechanic cutting machines were transported from Belgium to Congo. Those experienced timber firms soon understood that dry wood was necessary for their business and for the quality and preservation of the Congolese wood. The use of insufficient drying methods resulted in serious setbacks. Natural drying had many disadvantages. Not only being very time-consuming and the inability to reach and maintain a specific degree of humidity, the wood was also attacked by fungi and insects [14]. Specially, the wood species limba was sensitive to insect attacks and received an extra treatment with 'Permatox' pest control [4]. To overcome these inconveniences, by the end of the 1920's firms developed machines to dry wood artificially [13]. This treatment process made it possible to guarantee the quality of wood from 1930 onwards, which also led to the development of a plywood industry in Congo. This whole modernization led to an increase of the export of Congolese wood to Belgium from 1,000 tons in 1926 and to more than 80,000 tons in 1938. Jassonge in 1938 studied the consumption of imported wood to Belgium and came to the conclusion that Belgium annually consumed more or less 3,750,000 m<sup>3</sup> of wood, of which nearly 2,200,000 m<sup>3</sup> is imported mainly from Northern Europe. The Belgian Congo is therefore only a little more than 1% of the total imports of wood to Belgium [14].

In 1936 UPPBC and in 1938 Jassonge, created a list of wood species that were imported to Belgium (Fig. 5) [24], [14]. While investigating both lists, it was noticeable that a lot of scientific research on the properties of the wood species still needed be done. The local names were established and consistently used by UPPBC and Jassonge, but the botanical names were clearly not yet determined for all species. Also the information on the resistance was missing. Postwar publications on Congolese wood show that scientific research increased after the Second World War and gave more accurate scientific information [21]. In 1934 and 1936, the harbor of Antwerp experimented with some Congolese wood species such as azobe, limbali, mukulungu, dimpampi and wamba for the construction of bridges. The results of these experiments showed that only azobe was most suitable as a construction



material. [5] If more scientific information was available in the 1930's, then some wood species, such as limbali, would never have been used for the construction of bridges. During the interwar period, the emphasis clearly was on the economic and the sale of wood. Both original lists focused on the resistance, color, texture, application and on the substitution for other better known wood species. In 1939 Jassonge published an article in the Belgian interwar architectural magazine *Bâtir* to promote the use of Congolese wood in the interior and construction of new buildings [15]. Not all wood species from his list of 1938 were quoted. Only the application possibilities of lifaki, tshimaye, bossasa, diambi, bomanga, corail, ditshipi, fuma, kambala, limba, lusamba, mubangu, mukulungu, tshibudimbu and wengé were explained. From 1938 onwards all sources point out that Congolese wood was primarily intended for cabinetmaking, fine carpentry and special work and not for construction [13]-[15], [21].

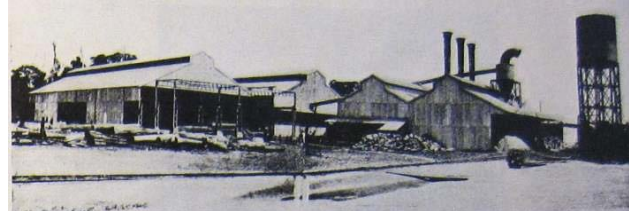


Fig. 3 A view on new installed timber firm in Mayumbe [14]



Fig. 4 Letterhead of F. Jassonge (1936) showing a ship unload Congolese wood at the harbor [5]

Import	Name			Properties				Use in Antwerp										Architects			Firms							
	Congolese	Botanic name	Other	Colour	Durable	Kg/m <sup>3</sup>	Substitute exotic wood (1930')	Cutting		Interior								Kaplanky	Stymien	Van den Broeck	Van Steenberghe	Bâtir	Cabinet maker	Parquet. Industry	De Beukelaer			
UPPBC 1936					I: very high VII: very low		Plain	Quarter	Wooden elements																			
Jassonge 1938								Multiple	Veneer	Floor	Door	Panel	built-in-furniture	Stairs	Closet	Table - chairs	Sola	Harbor										
	Kalungi	Entandrophragma angolense		red	III	675	acajou																					
	Lifaki	Entandrophragma congoense		pink	III	700	d'Amerique et																					
	Tshimaye	Entandrophragma SP		dark red	III	750	sapelli																					
	Bossasa	Guarea cedrata		pale pink	II	675	acajou Tabasco																					
	Diambi	Guarea shompsonii		pale pink	II	695	acajou Honduras																					
	Sapelli	Entandrophragma cylindricum		pink grey	III	659	acajou																					
	Afzelia not Doussé	Afzelia pachyloba	Bobala	brown red - ochre	I	800																						
	Azobe	Lophira Alata Ochnaceae		brown red	I-II	1050																						
	Angu	Cynometra alexandri	Muhimbi	vivid red	I	800	acajou																					
	Bomanga	Brachystegia zenkeri		yellow light brown	III	700	limba																					
	Bosenge	Uapaca guineensis	Riko	red brown	I	725																						
	Corail	Pterocarpus soyauxii	Padoek	blood red	I	775																						
	Dimpampi	Baillonella toxisperma	Moabi	brown red	I	850	makoré																					
	Ditshipi	Macrolobium Dewevrei	Limbali	brown red	III	850	teak, oak, jarrah																					
	Fuma	Ceiba pentandra	Ceiba	light yellow	V	375	balsa																					
	Kamashi	Staudtia gabonensis		orange - ochre	I-II	800	deco - rosewood																					
	Kambala	Chlorophora excelsa	Iroko	brown yellow	I-II	750	teak																					
	Kankaté	Chlorophora regia		yellow	I-II	750	lemon																					
	Kassusu	Macrolobium macrophyllum		brown red	I	900	jarrah																					
	Limba	Terminalia superba	Fraké	yellow, amber, black	V	625	oak, walnut																					
	Limbali	Gilbertiodendron dewevrei	Ditshipi	red brown	III	800																						
	Lusamba	Turraeanthis africana	Avodire	light yellow	V	850	avodire																					
	Mubala	Pentaclethra macrophylla	Essiri	brown red - light yellow	III	950	jarrah, oak																					
	Mubangu	Microberlinia brazzavillensis	Zingana	pink - red brown	III	850	rosewood																					
	Mukulungu	Autranella congolensis De Wild		old pink	I	950	acajou Cuba																					
	Musasae	Albizia gummifera		bright brown	VI	750	oak																					
	Tola	Gossweilerodendron balsamiferum		light red brown	II-III	500	limba																					
	Tshibudimbu	Oxystigma oxyphyllum	Tchitola	bright pink brown	III	725	acajou - rosewood																					
	Tshilunga	Mammea africana	Oboto	red brown	I	800	acajou																					
	Vuku	Hallea stipulosa Leroy	Abura	white - light pink	V	500	lime																					
	Waka	Copaifera demeusei	Bubinga	red brown - black	I	700	walnut																					
	Wamba	Tessmannia claessensii		dark red	I	875	greenhaert																					
	Wengé	Millettia laurentii		black - brown	II	950	rosewood																					
	Wulo	Petersianthus africana	Essia	pink - red	III	800	bubinga																					

Fig. 5 Wood species listed by UPPBC [24] & Jassonge [14]. The properties deal with the colour, durability classification (2016), kg/m<sup>3</sup> (2016) and for which other wood specie it could substitute (1930's). Also an overview of the available cutting options and the application of the wood specie in the interior elements designed by the four Antwerp architects on which this research is based and the correspondence between cabinetmakers, architects and clients are given. The wood species are also connected to the four architects, the architectural magazine *Bâtir*, Antwerp cabinetmakers, parquet industry and the wood merchant *De Beukelaer & De Jong*. [4], [5]

While most woods such as sapelli, kambala, mubala and limba were meant for interior design, they were on-site processed to veneer and plywood and shipped to Belgium [15]. As mentioned before, the wood merchant *De Beukelaer & De Jong* sold a range of imported Congolese products to cabinetmakers. The most available wood species in the harbor of Antwerp were corail, mubala, kambala, limba, sapelli, and waka [4]. Although Fig. 5 shows a long list of imported wood species during the interwar, only a few were mentioned in the communication between the wood companies, cabinetmakers', architects and clients. Why were the other wood species not mentioned? This is not clear, but it could be possible that they were sold under a more commercial name or not consistently available in large number in the harbor of Antwerp. The African 'acajou' such as kalungi, lifaki, tshimaye, bosasa, tshilunga, ange, mukulungu, and diambi, could also simply be sold as 'acajou' and not specified as Congolese wood [4].

#### IV. CONGOLESE WOOD APPLIED IN THE ANTWERP INTERWAR INTERIOR

During the interwar period a lot of furniture was sold in big furniture department stores. Their catalogues offered a wide range of designs and styles finished with oak, walnut or rosewood veneer. Contrary to this, the Antwerp architects and clients preferred unique interior design for their new build interwar middle-class single-family houses. During the 1920s they mainly relied on oak, but from the 1930s onwards, the evolution to Congolese wood was notable and seen in the finishing of doors, floors, stairs, built-in-furniture, wall panels and movable furniture [15]. The preference for Congolese wood would be strengthened by the availability, but probably also by the intense promotion of Congolese products in Antwerp. Different colonial fairs and exhibitions and a yearly colonial day was organized in the city center of Antwerp [25]. In addition, the prestigious Colonial School was established in the suburb of Antwerp in 1923. Unfortunately the school burned down in 1930, but its reconstruction immediately started. The renovated interior of the school was, of course, executed in a rich diversity of Congolese wood species. The doors, floors, wall paneling and furniture were executed and finished in different wood species to exhibit the Congo's wealth [26]. Thus, it is not surprising that the Antwerp architects relied on Belgian firms like *Blitz et Bonte* and UNIMAS which manufactured their own standardized plywood doors decorated with Congolese wood. The Brussels Company *Blitz et Bonte* produced the door, COLOMB, available in different models with a first class white limba veneer [16]. Also the door, UNIMAS, is Belgian workmanship and design. It is a non-deformable solid door formed by two foils of massive sawn wood, available in kambala and limba [16], [2]. In addition to these standardized doors, most living rooms received a fishbone parquet floor (30-40cm long x 6-8cm wide) in oak or kambala. During the interwar period new wooden flooring was developed, namely parquet Noël. Unfortunately information about this type of flooring is limited, although it was used in a large number of buildings [17]. Parquet Noël was used by well-known modernist

architects like Robert Mallet-Stevens (1886-1945) at *Villa Cavrois* (1932, Croix), Pierre Chareau (1883-1950) in *Maison de Verre* (1928-1930, Paris), but also by Nachman Kaplansky [6]. Parquet Noël was based on the Noël procedure, named after its inventor. This procedure connects tiles, parquet floors and the monolithic floor by permanently removing the specific disadvantages of each of these systems. It is a mosaic parquet of wooden slats inserted with colored cement based on magnesium.

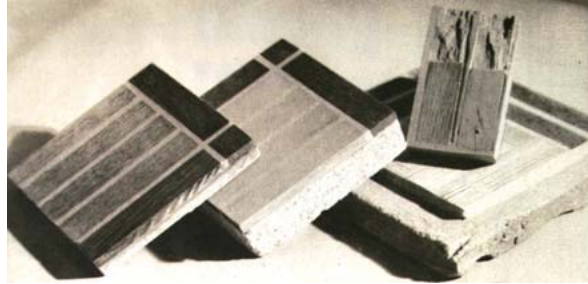


Fig. 6 Advertisement by *Société Anonyme Belge des Parquets Noël* for parquet Noël in the architectural journal *Bâtir*, showing the wooden slats on concrete or terracotta [18]

The Belgian *Société Anonyme Belge des Parquets Noël* offered this parquet made with Congolese hardwood like wengé, wamba, kambala and corail. The 'tiles' were mainly produced in squares 12cm x 12cm or 48cm x 48cm or in single slats to create strips. They came in a wide variety depending on the combination of different wood sorts, on the amount of slats (24mm x 120mm) or adhesion (on concrete, on special soundproof concrete or on terracotta). Next to the wealth of unique colors, this parquet should be totally soundproof and fully monolithic [17], [18].



Fig. 7 Entrance hall with parquet Noël and different finishes of wall panels at House Speyer (1934, Antwerp, demolished) designed by Nachman Kaplansky [6]

In the interwar design of the interior of a house, the stairs and more specifically its parapets and railings, had an importance equal to the parapet in the architecture of the 17<sup>th</sup> and 18<sup>th</sup> centuries.

Although many modernists preferred that the parapet was conceptualized as a continuation of the wall surface, some Antwerp architects preferred it in wood. During the 1930s, Léon Stynen applied the form of a corkscrew staircase with a full parapet in limba panels [23], [1].



Fig. 8 Corkscrew stairs with a parapet in limba panels and Oak fishbone parquet with wengé boarder



Fig. 9 Built-in furniture in limba at House Janssens (1934, Antwerp) by Léon Stynen, O. Pauwels & M. Jaenen [22]

Some architects and clients also preferred to use panels to cover walls and/or ceilings; because of the durability and intrinsic qualities of the material [23]. These panels mostly had a square (145 cm<sup>2</sup>) or rectangular shape (68 cm x 90 cm) in plywood veneered with wood chosen by the architect. They were fixed on the walls through the adoption of a modern form of framing and paneling, using standardized units as far as possible. The variety in the effects which could be created by the careful choice of woods, the proportions of the parts and the grain pattern were endless. Edward Van Steenberghe and Nachman Kaplansky (Fig. 7) played with the orientation of the veins of wood to create a pattern or a division of the room [3], [6]. A wall surface covered with wooden panels, with horizontally used veins, gives an entirely different spatial effect than with veins that run vertically. It was easy to

produce a zoning effect by using veneer bands of varying tones in thoughtfully considered designs [23].

Walter Van den Broeck chose to decorate the living room of house Olieslagers (1934, Antwerp) with panels in sapelli [2]. The variation of cuttings created a very vivid and rich interior decoration. He combined horizontal placed quarter sliced slip together with vertical oriented flat sliced book matching panels. The built-in-furniture and doors were integrated in the whole wooden concept and were finished with veneer panels to match with the walls. Van den Broeck designed unique movable furniture in kambala within this interior. In the end, the entire interior design was executed in plywood covered with a rich variety of different sapelli or kambala veneers [2]. For all Antwerp architects, the built-in-furniture - made especially for a place or function like bookshelves, sitting corners, sideboards, lounge areas, closets for tableware - became characteristic for the interiors of the interwar houses. The construction of the built-in-furniture was done in plywood with veneer, mainly limba (Figs. 10 and 11) or kambala.



Fig. 10 The sapelli wall panels in the living room at House Olieslagers designed by W. van den Broeck. The movable furniture is not original (1934, Antwerp), M. Jaenen



Fig. 11 The combination of horizontal placed quarter sliced slip matching with vertical placed flat sliced book matching panels creates a rich decorated interior design [11]



## V.CONCLUSION

It can be concluded that from the 1920s onwards that the material 'wood' was brought to a new dimension and became the primary feature in avant-garde interwar interiors. The modernization of the plywood industry and the exploration and exploitation of Congolese forestry offered the interwar client, architect and cabinetmaker new possibilities in interior design.

During the 1930s, a variety of 34 wood species were shipped from Congo to Antwerp. Archival and on-site research of the interwar interior designs of Nachman Kaplansky, Léon Stynen, Walter van den Broeck and Eduard van Steenberghe showed that only six Congolese wood species seemed to be applied for the finishing of doors, floors, stairs, built-in furniture, wall panels and movable furniture. In addition, mainly limba, sapelli and kambala consistently were chosen and combined. Kambala was preferred for the wooden flooring and movable furniture, such as tables and chairs, because of its durable qualities. Sapelli had a rich vein pattern which offers a lot of decoration options and limba had a rich amber colour and was a substitute for oak. They were also available in a wider range of cutting varieties.

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