新織事

前言

物質元素的組成秩序與意義傳遞了環境架構的自然法則，生物的演化自是從簡單到複雜，即便人類的演化不及其他物種的專長特化，卻在雙手與大腦發展出製作(Making)的思考與邏輯能力下，獲得截至目前為止地球物種排名的通才冠軍。因此在許多古老的技藝以及人造物理，我們可以觀察先人的智慧反映在對自然形態的模仿發展，其表現的不僅是自然秩序下所衍伸的美感、功能與形式和諧，共重要的是對於環境的在乎。

從環境到自然組成的元素，我們從工藝的角度返回在地意識的思考，因此，工藝材質自造實驗室(Craft Application with Material Experience Lab,CAMEL.)以材料(Materail)、製作(Making)以及意義(Meaning) 為架構，並在國立台灣工藝研究發展中心(以下簡稱工藝中心)肩負臺灣在地工藝的保存、復原與轉化使命下，推動發展在地工藝材料試驗與設計的探勘研究，企圖透過工藝的文化基礎展開臺灣傳統工藝的永續傳承與社會延續價值。

繼2018年工藝中心邀請荷蘭MDD(Material Driven Design)計畫主持教授Elvin Karana以台灣東部花蓮新社葛瑪蘭族香蕉絲纖維工藝作為CAMEL.實驗室示範先導工作化並出版《新纖維》一書後，2019年隨即由CAMEL.實驗室再次策畫為期8天協同設計工作坊，邀請法國巴黎布勒學院École Boulle Antoine FERMEY教授並帶領14位法國的設計系學生來台，與臺灣資深纖維工藝家邱秀蓮、王梅容老師、檳榔工藝推廣劉大衛老師以及徵選的14位臺灣工藝家，共同以跨國界分組的方式，從工藝技術與設計方法並行來探索臺灣構樹與檳榔材料的在地文化與價值轉化。

不同於2018年《新纖維》計畫在材質修補(Material tinkering)的階段性，這一次的協同設計工作坊，以更完整的材料性質瞭解來展開工藝技術性的可能發展，並在14位法國設計學生的巧思以及14位工藝家的巧手下，實現更具體的臺灣當代工藝表現，並以此書完整本次工作坊在工藝、設計與合作產出的過程紀錄，以期待CAMEL.實驗室下一次的再創新能量。

Foreword

The elemental composition and meaning of materials reflect the natural structure of the environment. Creatures become more complicated as they evolve, so do humans. Although human beings did not develop unique characteristics or abilities during evolution as other species did, we top the ranking of all living creatures as a multitalented species through the thoughts and logic linked to “making” things, which is attributed to our hands and brains. We can observe from the ancient skills, crafts, and physics how our ancestors developed their wisdom by mimicking nature. Such creations not only present the aesthetic sense, functions, and harmony stemming from the natural order, but also, and more importantly, embody our ancestors' concerns about the environment.

From the perspective of crafting, we return to localism and think about the environment as well as natural elements. With “material”, “making”, and “meaning" as its foundation, the Craft Application with Material Experience Lab (CAMEL) shoulders the mission to preserve, restore, and transform Taiwan’s crafts at the National Taiwan Craft Research and Development Institute (hereinafter referred to as “NTCRI”), while promoting research on the development, experimentation, and design of local crafting materials at the same time. It is hoped that the inheritance of Taiwan’s traditional crafts can be sustained and their social values extended based on the foundation laid down by the crafting culture.

In 2018, the NTCRI invited Elvin Karana, the leading professor of the Material Driven Design (MDD) Project in the Netherlands, to initiate work at CAMEL by working on banana fiber from the Kavalan tribe in Shinshe, Hualien, and published the book “New Fiber.” Immediately after that, CAMEL organized an eight-day collaborative workshop in 2019 and invited Product Design teacher Antoine FERMEY and 14 design students from École Boulle in Paris, France. Grouping with senior fiber artists Chiu Hsiu-Lien and Wang Mei-Jung, betel nut crafting advocator Liu Ta-Wei, and 14 selected Taiwanese craftsmen, the French participants explored the cultural value of paper mulberries and betel nuts as a crafting material and how to transform its value through crafting skills and design methods.

The collaborative workshop this time distinguishes itself from the New Fiber project in 2018, which emphasized the phasing of material tinkering. It enables the potential development of crafting skills through a better understanding of the quality of materials, as well as the embodiment of Taiwan’s contemporary crafts through the creativity of the 14 French design students and the refined skills of the 14 Taiwanese craftsmen. This book serves as a supplementary record of the process in which the participants designed, crafted, and jointly produced the results. Hopefully, it can also energize CAMEL’s next creation.

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Craft Application
with Material Experience Lab

CAMEL 合作交流計畫

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在地工藝的探索與本土工藝家的智慧實錄

（當在地工藝遇見當代設計-本土工藝家的智慧實錄）

繡蓮染織工房 邱繡蓮老師

在台14線路途的南投縣中寮鄉，不若附近的清境農場有著大量的觀光人潮，是個低調許多的小鎮。出生於此的邱繡蓮老師，小時候便被自然還境擁抱著，熱愛著天然植物。

2003年，繡蓮老師因緣際會在國立臺灣工藝研究發展中心（以下簡稱工藝中心）接觸到藍染及構樹工藝，激發起手作的熱情，也憑著對家鄉及自然的熱愛，在中寮鄉創立了繡蓮染織工房，除了提供給觀光客各種DIY體驗課程，也開辦社區工藝課程，就是希望推廣天然纖維相關的工藝，讓更多人能夠重新認識天然材質，喚醒對環境的尊敬，同時也很好地傳承臺灣的傳統工藝。

這次的跨國交流工作坊，聯結起繡蓮老師及法國École BOULLE產品設計系的學生，從一開始的構樹採集到處理、打製，憑著專業的翻譯與親身示範，打破語言的隔閡，將臺灣工藝家的精神在法國學生心中留下深刻的印象，這也是工藝與設計碰撞出的美好火花。透過訪談，我們得以了解繡蓮老師對於工藝與設計內心的想法以及她對天然材質應用循環再應用的期望。

Discovering the Local Crafts and Recording the Wisdom of Local Craftsmen

(When Local Crafts Meet Contemporary Design – A Record of Local Craftsmen's Wisdom)

Hsiu-Lien Dyeing and Weaving Workshop　Teacher Hsiu-Lien Chiu

Jhongliao Township of Nantou County, along the Provincial Highway 14, is a much quieter small town than the nearby famous destination Qingjing Farm that attracts large crowds of tourists. Ms Hsiu-Lien Chiu was born in this small town and has been surrounded by nature since she was young. She loves natural plants.

In 2003, Ms Chiu came to learn about indigo dye and paper mulberry arts at National Taiwan Craft Research and Development Institute. This has sparked her passion for the handicraft. Also, out of love for her hometown and nature, she founded Hsiu-Lien Dyeing and Weaving Workshop in Jhongliao Township, which offers various DIY programs for tourists as well as community arts and craft programs. She intends to promote natural fiber-related crafts, so that more people may have a renewed understanding of natural materials and their respect for the environment would be awakened! Moreover, Taiwan's traditional crafts can be carried on properly.

This transnational exchange workshop links Ms Chiu with the students from the Department of Product Design of École Boulle Academy of Fine Arts, France. The French students are deeply impressed with the spirit of Taiwanese craftsmen from the very beginning in the picking, processing, and striking of paper mulberry material; the language barrier between them is overcome through the professional service of an interpreter and the instructor's personal demonstration. This gives an awesome spark in the encounter of craftsmanship and design. We've also had a chance to uncover Ms Chiu's inner thoughts on crafts and design, as well as her expectation for the use and reuse of natural materials in an interview.

老師為什麼會選擇天然材質當作創作媒材呢？

可能跟生長環境有關係，我從小在鄉下長大，常時間沉浸在自然環境中，久而久之植物就變成我最喜愛的事物之一。我時常在思考，身邊有那麼多天然的材料怎麼不拿來運用，舉例來說，我家附近有許多檳榔園，偶爾看到檳榔的葉鞘自然落下，狀態其實是很完整也乾淨的，就會冒出「這是不是可以拿來做些什麼」的想法，仔細觀察的話，身邊有很多天然材質是有發展潛力的。

老師為什麼想設立工作坊？

成立工作坊其實跟社區比較有關係，最初是開課給社區媽媽們，希望可以讓她們學到一技之長，一開始大家都很有興趣，認真上課，但漸漸地很多人學一學之後就放著沒有繼續做了。我才發現到偏遠的鄉下其實是很需要經濟來源的，做工藝要花很多時間，一開始沒辦法穩定，未來發展會不太明確，工藝當作興趣是很棒的，但要當成職業真的是另外一件事了。

但後來我也觀察到很多學生放著一段時間沒做，等到上課時再回頭來做，一動手染布及敲打構樹，臉上往往不自覺地流露喜悅，上課的氣氛都是很好的，工藝能夠療癒人們，有娛樂性且富學習成就感。我們也嘗試透過在小學開一些暑期的營隊或活動，觸及到更小的年齡層，讓孩子們學習傳統工藝及認識天然材質，

再加上中寮鄉也在推行休閒觀光，觀光客來到一個城鎮，希望的是更豐富的活動，如果有一個地方讓所有人都能夠DIY，染染布、敲敲樹皮或是拓拓葉子，那再好不過了！所以我創立了繡蓮工作房，為的就是要讓所有的人能夠接觸到天然材質傳統工藝，同時也讓社區能走出特色。

Why have you chosen natural materials as the media of artistic creation?

It may have to do with my growth environment. I grew up in a rural area and had been immersed in the natural environment, and in time the plants became a favorite thing of mine. I’ ve always thought about making use of the natural materials around me. For example, there are many betel nut plantations near my home. Sometimes I see the betel nut sheaths falling off, and they are very much intact and clean. Then this thought comes up in my mind: maybe I can used them to make something. If we take a closer look, we may find a lot of potential natural materials around us.

Why do you want to set up the workshop?

Setting up a workshop is in fact an attempt to establish relationship with the community. In the beginning, I targeted at mothers in the community, wishing to give them a chance to learn a skill. Everyone found it very interesting at first, and was serious about the class, but then some discontinued after learning. Then I realize that people in the desolate rural areas have a very high demand for income, and crafting is very time consuming. It is impossible to earn a stable income in the beginning and future development is not secure. Crafting can be a very good hobby, but it’ s different thing when you have to make it a career.

But it’ s also nice to see some students returning to class after suspending for a while, and their faces unconsciously shine with happiness once they get their hands down to dyeing and striking the paper mulberry bark. The class has a very good atmosphere. Crafting has a healing effect; it is fun and offers a sense of achievement through learning. We have tried to offer camp activities during the summer for elementary schools as well, so we can approach some younger learners and children have the chance of learning traditional craftsmanship and understanding natural materials.

In addition, Jhongliao Township has been promoting tourism. When tourists visit a town, they usually want a lot of activities. If there is a place where everyone can do DIY activities, such as dyeing, striking bark, or rubbing leaves, wouldn’ t it great? That’ s why I started Hsiu-Lien Workshop. It is for all people to get in touch with the natural materials and traditional crafts, as well as for the community to develop its own characteristic.

越來越多設計師跨入工藝領域，老師如何看待？

設計師與工藝家相對起來實際操作的時間較少，對材質的掌握不若工藝家那麼熟悉，但設計師能夠透過了解材質之後去發想其他的應用，這是工藝家比較不會去設想的一塊。像以前我參加過一個構樹工作坊，指導老師是一位國外的工業設計師，他覺得我敲打的構樹皮很漂亮，希望我能把它發展成音箱，但對我來說音箱的製作過程是完全陌生的，這時候可能就需要設計的專業來協助，然後再透過工藝家的雙手去完成這個作品，工藝及設計需要相輔相成，作品的完成度才能提升，發展性也能更開闊。

請老師談談構樹這項材質的特性？

構樹其實是我們都很熟悉的一種植物，臺灣各地不管是北中南去到哪裡都可以看到，常生長在廢棄的農園及路旁，大家一定曾見過，只是不會放在心上罷了。我們從小就會拿構樹葉來養豬、鹿，也會將構樹皮拿到山上去，很多人會去收購。構樹皮有相當漂亮的纖維，透過雙手耐心敲打，雖然要花一點時間，但隨著敲打慢慢延展開來的纖維很有特色，耐久性佳，每一片樹皮也都有不一樣的紋理，譬如說如果拿來做燈罩，保存得當的話，其實是可以放很久的。敲打的人會相當有成就感，接觸過的學生，蠻常有”敲上癮的人”，會欲罷不能想一直敲下去，除非是時間不允許，這也說明了構樹的天然特性及製作過程相當吸引人。

More and more designers are crossing over the crafting discipline; what do you think about that?

Designers usually spend relatively less time on their professional operation than craftsmen, and so they may not be as familiar with the material they’re handling as craftsmen. But designers can develop other applications of the material after they thoroughly understand it; this is what craftsmen don’t usually do. I went to a paper mulberry workshop before and the instructor was a foreigner with an industrial designer background. He thought I’d done a good job in striking the paper mulberry bark and suggested I may make it a speaker box, but I was a total stranger to the process of making a speaker box. At that point, I’d probably need the help of a professional designer, and then I can finish the craftwork with my craftsman’s hands. Craftsmanship and design are mutually complementary in making improved craftwork and allowing a broader path of development.

Would you tell us the characteristics of paper mulberry as a crafting material?

Paper mulberry is actually a very common plant; we can see it anywhere in northern, central, and southern Taiwan. It grows in idle plantations or by the roadside. Everybody must have seen it before, but no one might have paid attention. We used paper mulberry leaves to feed pigs and deer when we were young; we also brought paper mulberry bark up the mountain, where there were people buying it. Paper mulberry bark has very beautiful fiber and great durability, but it takes time and patience to strike it with your hands, and as you strike it, its fiber slowly develops into unique pattern. Each piece of bark has different pattern. Say you make a lamp shed with the bark; it can be kept for very long if properly preserved. It will also give a strong sense of achievement for the person who strikes it. Oftentimes, some learners become “addicted” to the striking process and wouldn’t stop unless they don’t have the time. It shows that both the natural properties and the crafting process are very enticing.

構樹工藝的進一步運用及未來發展性？

我很希望構樹工藝能夠被更多人看見及欣賞，現在的農民是把構樹當成雜木，若要開墾種植新的農作物，構樹部分是會全部清掉的，不過我覺得構樹是一個很好的天然材質，纖維很美，韌性也夠，不同年齡的構樹，都有不一樣的紋理表現，這些特性其實都讓它能夠廣泛地被利用，舉例來說，我們之前有拿來做皮夾、燈飾等各種生活用品，發現構樹若能被妥善利用的話，其實是有不錯的發展潛力。

在這次工作坊有沒有令老師印象深刻的事，或是老師有沒有對工作坊有一些期待？

有一個法國女學生看起來是第一次拿長鋸子鋸樹，感覺相當吃力，如果是臺灣的學生，可能同學們就會開始過去幫忙，但我發現法國學生跟老師比較像是觀望跟在旁鼓勵，像是要讓她獨立完成這件事，雖然女同學看起來很辛苦，但她也有一種堅持要自己把它完成的態度，這是我看到國外學生跟臺灣學生比較不一樣的地方。

我觀察到法國學生帶來的作品看起來都很細緻，精準度很高，然而構樹皮是一個很天然的材質，相對自由奔放的材質，它的紋理是非常具有變化的、鮮活的，我會很好奇設計師透過新的思維，能夠用這樣的材質做出什麼樣的創新，也期待傳統材料對於設計學生們有什麼刺激，可能會改變及跳脫他們以往設計的作法也不一定。

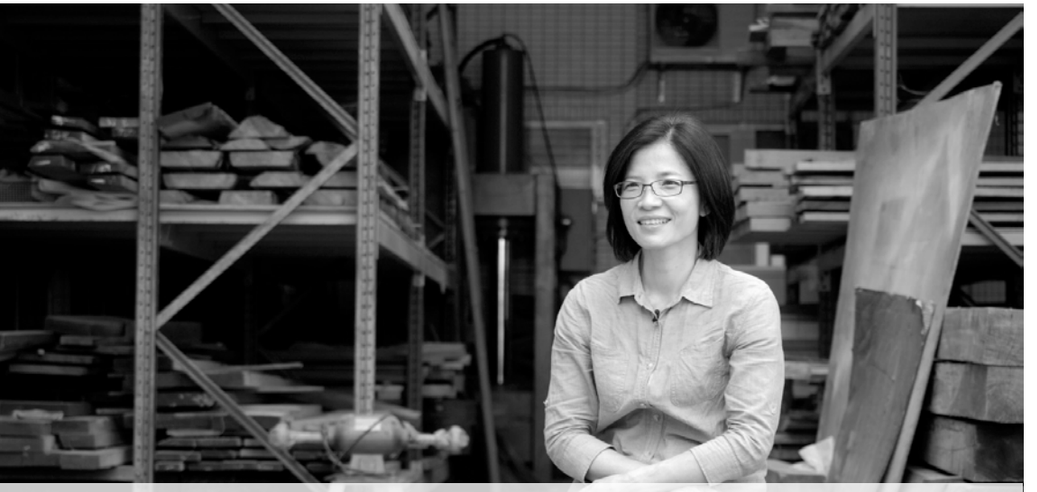
What would be the next application and future development of the paper mulberry art?

I would very much like the paper mulberry art to be acknowledged and appreciated by more people. Farmers still see it as weed-tree now. When land is cultivated for new plants, paper mulberry usually gets all cleared. But I think paper mulberry is a very good natural material, with pretty fiber and good resilience. Paper mulberry appears in different patterns at different ages. These properties make the tree suitable for widespread use. For example, we’ ve used it for making daily articles like wallets or lamp décor, and found that paper mulberry has a good potential if put into appropriate use.

Is there anything that impresses you in this Workshop? Or what kind of expectation do you have for this Workshop?

There was a female French student who seemed to be using a long saw for the first time; it looked very difficult for her. Taiwanese students may have come up to help her, but I saw that French students and teachers would rather wait and see, and give encouragement. It seems they’ d let her finish the job on her own. Although it looked hard for her to do it, she also insisted on finishing it on her own. This attitude is what I see the difference between foreign students and Taiwanese students.

As I watch the French students, their works are meticulously made, with a high level of precision. But paper mulberry bark is a natural material, which is a relatively free-flowing and unrestrained material. Its patterns vary greatly and are lively. I’ m curious what novel things the designers may come up with it with their innovative mind, and I look forward to seeing what inspiration the design students may get from this traditional material, which may change their conventional approach to design and make them think out of the box.



布藍泥手染工坊 王梅容老師

座落在陽明山及金山的交界，布藍泥手染工坊以工藝承襲大地之美，在這到處長滿了大菁-藍染工藝原料的地方，梅容老師與先生有著古道樂腸的積極態度，以古老的工藝開起染坊，想將藍染這件美好的事傳播給大家。

梅容老師最一開始是在石碇的藍染課程接觸到藍染技法，除了技術上的精進外，也探索藍染的文化層面。為了拓開視野及擴展人脈，梅容老師報名參加工藝中心的藍染種子教師訓練，在那裡遇到許多不同領域的工藝家，因而接觸到像是竹、天然染等其他工藝，使得梅容老師相當懂得運用異材質的結合，為人豪爽的她也很樂於分享她創作的過程及知道的工法。

在這次工作坊梅容老師的角色相當特別，除了教授法國設計學生檳榔染的技法之外，熱愛創作的她也與法國設計學生組隊，希望能親身參與設計及工藝的共創過程，期待自己能與隊友們激盪出精彩的成果。

老師是如何踏入染織工藝領域，建立起工作坊的？

剛開始是在石碇接觸藍染工藝，後來參加工藝中心的師資培訓，才正式踏入工藝的專業領域。我的工作坊目前在陽明山上，之前在做藍染文化相關研究時，發現藍染工藝原料大菁的發源地就是在陽明山，所以就在那邊開始，開墾、種植及培育，也持續不斷地有相關課程的教授。

TW Indigo Dye Workshop Teacher Mei-Rong Wang

Situating between Yangmingshan and Jinshan, TW Indigo Dye Workshop embraces the beauty of the earth through craftsmanship. In this place where Hill Indigo – the raw material for indigo dyeing craft – grows everywhere, Ms Mei-Rong Wang and her husband established this dyeing workshop with their warmhearted attitude and ancient craftsmanship, in the hope of bringing the beauty of indigo dyeing to everyone.

Ms Wang came across the indigo dyeing technique in a course held in Shiding District at first. She not only learned and improved her technique, but also explored the cultural aspect of indigo dyeing. To broaden her vision and expand her connection, she enrolled in related courses such as the National Taiwan Craft Research and Development Institute's seed teacher training for indigo dyeing. There, she met a lot of craftsmen from different disciplines, and hence got in touch with other crafts such as bamboo and natural dyeing. This made Ms Wang well verse in using combined materials. With a forthright character, she is happy to share her work process and knowhow.

In this Workshop, Ms Wang plays a very special role. As a passionate creator, she not only teaches the French design students the technique of areca nut dyeing, but also forms a team with the French students, so that she may personally participate in co-working process of design and crafting. She enthusiastically looks forward to the outcome of her brainstorming with her teammates.

How did you start your engagement in the dyeing and weaving craft and set up your own workshop, Ms Wang?

In the beginning, I learned the indigo dyeing technique in Shiding, and then I joined the teacher training course offered by the National Taiwan Craft Research and Development Institute. That's my official commencement of this crafting career. My workshop is now up in Yangmingshan. When I was doing research related to the culture of indigo dyeing in the past, I found that Yangmingshan is the origin Hill Indigo, the raw material for indigo dyeing. That's why I started my workshop there. I cultivated the land, planted, and nurtured the plants. I've also been teaching related courses.

老師如何看待設計方法導入工藝領域？

我非常開心能夠參與這次與法國師生的交流，法國老師講授的設計方法讓我印象最深刻的是「極大化」，這句極大化讓我充滿了無限的想像及空間，有時候臺灣的工藝家往往會比較拘泥在單一工藝、這項產品，但是沒有想到說可以極大化，擴展到其他的方向，再來我發現他們對材料及品質的要求很高，尤其法國又是引領世界時尚的國家，品味跟品質可見一斑。可以學到設計方法對我來說幫助蠻大的，有點像是打開了另一扇窗的感覺。

這次國際交流工作坊令老師難忘的事？

法國設計學生實際上對檳榔是非常陌生的，在取材的時候他們會一直反覆地去看這個植物，仔細觀察各個細節，包括種子等部位…，當他們聽到檳榔子可以吃又可以染色時都覺得相當新奇。不論是我在教導學員們檳榔染的過程或是與他們共同創作時，我發現他們對於試驗，是非常慎重跟嚴謹的，他們不斷嘗試各種可能性，這件事情對我來說非常震撼。在創作思考方面，法國組員也比較重視文化的發想及產品的思維，尤其是很注重品質這件事，我從這些層面也得到了不少收穫。相對來說，我覺得臺灣的「頂真」這件事情是他們可以學習的，例如構樹，要從採集到變成樹皮布，法國學生認為這是需要毅力及耐力的過程，他們也從中看到臺灣工藝家的精神。

What do you think about introducing the design approach to the crafting discipline?

I’m very glad to be able to participate in this exchange with the French students and teachers. What impresses me most is the “maximization” concept the French instructor imparted about their design method. This maximization concept has given me a limitless room for imagination. Sometimes, craftsmen in Taiwan tend to confined to a single craft or product, which prevents them from thinking about extending to other directions, or maximization. Besides, I see that they have a high demand for the material and quality, which is obviously because France is the leader of the world’s fashion; you can see it from their insistence on taste and quality. Having this opportunity to learn about the design methods is a great help for me. It feels like I’ve opened up a window to the new world.

Would you tell us some memorable things about this international exchange workshop?

Betel nut is actually a strange thing to the French design students. When they got the material, they’d look at this plant carefully, paying attention to every detail including the seed and other parts. When they heard that betel nut can be eaten and used as dye, they thought it’s a novel thing. Whether in the process of instructing students about areca nut dyeing or at the time of co-working with them, I found that they made a very serious and strict effort in experimenting. They never stop trying every possibility. This is a great shock to me. In terms of creative thinking, the French team members tend to place a greater emphasis on cultural ideas and product-based thinking; quality is also a great concern of them. I’ve benefited a lot from these observations. On the other hand, I think they may learn from the “persistence and concentration” of Taiwanese. For example, from the picking of paper mulberry bark to making it a bark cloth, the French students think it is a process that requires high level of persistence and patience, and this gives them a glimpse of the Taiwanese craftsman’s spirit.

老師對天然材質再創新以及國際交流的未來展望？

我期望這些天然材料的再利用可以永續經營，甚至於發展為能夠被傳承的一項工藝。現在非常強調環保及永續這些議題，各種永續或是有機會被再利用的天然材質，都有推行的必要，像這次工作坊植物染色、檳榔子染色、構樹皮的再利用就是很好的範本，天然的材質能夠被用來創作是一件相當棒的事情。

工藝中心有意識地去舉辦國際交流及培育人才的計劃，尤其未來能讓更多國家參與這樣的計劃是非常值得鼓勵的，我自己也期許像檳榔、構樹這些天然循環材料，能夠有朝一日品牌化，打進國際，讓更多人看見。

What is your expectation for the future of remaking natural materials and for international exchange?

I hope these natural materials can be reused and sustainable, and even be developed into a legendary craft. Issues such environmental protection and sustainability have become very popular nowadays, all natural materials that can be sustainably supplied and reused must be promoted. Like what we do in this Workshop, plant dyeing, areca nut dyeing, and the reuse of paper mulberry bark are very good examples. It is awesome that natural materials can be used for creating craftwork.

I appreciate the National Taiwan Craft Research and Development Institute’s initiative to organize international exchange and talent training program; it should be encouraged. And I hope that more countries will be invited to participate in similar programs like this in the future. I also aspire to develop a brand for the natural and recyclable materials like betel nut and paper mulberry, and show them to more people in the international market.

拿鞘Nature 劉大衛老師

談吐斯文、親切的劉大衛老師，在2016年成立了拿鞘Nature，這個將檳榔葉鞘優雅地詮釋成當代生活物件的品牌，他們希冀透過研究傳統工藝發展的脈絡，找出天然材質能夠被再利用的可能性，甚至被帶入消費性市場，創造新的產品生命週期，將工藝設計、傳統文化及社會經濟聯結，透過這樣的方式反轉檳榔帶給人們的負面印象，挖掘天然材質專屬的美好。

在品牌研創的過程中，大衛老師與夥伴們發現檳榔葉片既硬又厚，非常難塑形，檳榔葉相關的研究也非常少，只能靠著原住民口耳相傳的傳統方式，一步步地去嘗試及調整各種變因，包括泡水軟化、染色等…，才慢慢找到訣竅，同時也領悟到檳榔葉鞘最適合原本的狀態，只需要簡單的巧思，其實就能呈現出具有特色的產品了。

大衛老師在這次工作坊中分享了他的心得及檳榔葉鞘成形的技法，老師也對於檳榔葉鞘如何被學員們再創新充滿興奮與期待，大家集思廣益及腦力激盪一起為檳榔找到新的發展方向。

為什麼會選擇檳榔來當作創作主要材料呢？

檳榔是我一開始就很想做的東西，部落裡面有構樹、月桃葉、苧麻等…，唯獨檳榔葉鞘比較少人去發展成工藝，我們覺得或許有機會能透過不同的嘗試去改變大家對它的想法：在臺灣提到檳榔，常常都是負面的印象，口腔癌、土石流等…，但其實拉回到原住民文化來探討，檳榔的果實、樹幹、樹葉其實都跟部落的生活有很大的關係，當初想做品牌就是想用文化的層面去做翻轉，讓大家能透過不同角度去看待事物，好比說如果以文化的角度去看待檳榔的話，我覺得它其實是非常豐富及有趣的。

Nature Teacher Da-Wei Liu

Mr. Da-Wei Liu speaks and acts in a gentle and friendly way. He established Nature in 2016, a brand that interprets betel nut sheath elegantly as daily-use articles. Through the research on the development context of traditional crafts, they aspire to find out the recycling possibilities of natural materials, and even bring them to the consumer market, create new product life cycles. By linking up craftwork and design, traditional culture, and social economy, they intend to turn around the negative image of betel nut in people’s mind and discover the exclusive niceness of natural materials.

In the process of brand creation, Mr. Liu and his partners found that betel leaf is thick and hard, making it very hard to be shaped. Studies on betel leaf are rare; the craft can only be passed down by the indigenous people’s word of mouth, and the knack can only be grasped by trial and error in adjusting different variables, including processes like softening by immersion in water, dyeing…, etc. It is also then realized that betel leaf is best to be used in its original status. By exerting some ideas, very special products can be made.

Mr. Liu shared his experience and the technique of shaping the betel leaves in this workshop. He also excitedly expected how the students would re-innovate the betel nut leaf sheath and find a new direction for betel nut through collective wisdom and brainstorming.

Why would you choose betel nut as the main material for your creation?

I’ve always had the betel nut in mind when making craftworks. There are paper mulberry, shell ginger, ramie, etc. in the tribe, but only betel nut leaf sheath is rarely used for making craftworks. We think that maybe we can change people’s opinion on it through different attempts: Betel nut usually gives a negative impression in Taiwan, causing oral cavity cancer and debris flow, etc., but when put into context of the indigenous culture, the betel nut, whether the fruit, trunk, or leaf, is closely related the tribal life. When we thought of creating a brand at first, we actually intended to turn around the impression on a cultural level, so that people would look at things from a different angle. In fact, I think betel nut is very prolific and interesting when seen from a cultural perspective.

檳榔創作的劣勢及轉機？

在臺灣大家一定都知道檳榔，可是我發現使用它來創作的人真的很少，雖然現在不鼓勵種植，但先前留下來的廢棄檳榔園或是混合種植的農林地，每年都還是有相當多的素材，為什麼不能拿這些來去做一些使用跟回收呢？像折成湯匙、置物盒、盛食器皿等都是很好的方式。如果能多留心生活週遭的在地素材，其實都會有很多想法的。

怎麼看待設計與傳統工藝的碰撞？

我在指導過程時發現法國設計學生會專注探索材質本身的特質，舉例來說，檳榔葉鞘上有一些薄膜，我會將它撕下來以便有空間可以黏合，薄膜對我來說是會捨棄的剩料，但他們反而發現薄膜其實是可以透光的，也許可以成為創作的一項素材，這些都是我以前沒有看到的。

再來是彎折的部分，我們品牌之前所做的燈具靈感來源是阿美族製作石頭火鍋容器的技巧來，現在的產品鞘盒子也是，但法國設計學生就會把這項彎折的技巧再去做延伸:把葉鞘反折、不打洞或是再接線等。除了容器之外，我也引導他們以葉鞘做出湯匙，先前我們會綁線順著材質的特性去塑形，但有一個法國學生嘗試用竹片去加強葉子的結構，看起來還蠻有趣的，等於透過異材質的結合去強化檳榔鞘的結構，我發現他們的想法會更多元，也更著重在設計思考的層面上。

在原住民部落裡有很多技藝精湛的工藝家，如果能嘗試將現代設計概念帶入傳統文化的一些器物或是一些裝置來做結合，這些都是具有發展可能性的。

What is the weakness and opportunity of betel nut creation?

Everyone in Taiwan must know about betel nut, but rarely did people use it for creative craftworks. Although planting betel nut is not encouraged now, many abandoned betel nut plantations or mixed crop farmland left behind from before still produce considerable amount of materials every year. Why can’t we recycle and use them for something useful, like spoons, boxes, and food containers? If we pay more attention to the materials around us in daily life, we may come up with a lot of ideas.

What do you think about the clash of design with traditional craftworks?

In the process of instructing the French design students, I’d focus on exploring the characteristics of the material. For example, there are some thin films on the betel nut sheath; I’d tear them off so that the sheath can be glued together. For me, the thin films are scraps that I’d discard, but they notice that the films are translucent and may be used a medium for creative work. This is what I didn’t see in the past.

Another noteworthy point is the use of bending technique. We get the inspiration for our branded lamp products, as well as the sheath boxes now, from the technique used in making the Amis stone hotpot container, but the French design students extend this bending technique – backfolding the leaf sheath, no hole-punching or wiring. Apart from making containers, I also guided them to make a spoon with the leaf sheath. At first we’d tie wire to shape the material according to its characteristics, but a French student tried to use bamboo to reinforce the leaf structure. It is interesting. It means reinforcing the betel nut sheath structure through the combination of different materials. I think they have more diverse thoughts and stress more on the design ideas.

There are many highly skilled craftsmen in the indigenous tribes. If we try to fuse modern design concepts with some articles or devices of the traditional culture, we may find the potential for further development in these items.

檳榔工藝除了日常生活物件之外，未來有沒有其他應用的可能？

我覺得是有的，這幾年我們品牌比較專注在葉鞘上，的確有時候會碰到一些瓶頸，透過這次的交流也激發了我，多了不少靈感及新的想法，譬如說檳榔葉有沒有可能去跟月桃葉做結合，或者是葉鞘能不能做染色處理，有不同的顏色呈現等…，甚至我認為檳榔葉是有機會發展成家具的，之前看到有位荷蘭設計師使用葉鞘來製作椅背，將運用的尺度擴張，牽涉到結構硬度及強度，這些都非常具有挑戰性且同時看得到發展空間的，接下來我也希望能做這樣的嘗試。

Other than everyday articles, is there other possible application of the betel nut craft?

I think there is. Our brand has focused on the leaf sheath in the last few years, and yes, we came across some bottlenecks sometimes. This exchange activity inspires me, giving me a lot of insights and new ideas. For example, is it possible to combine betel nut leaf with shell ginger leaf, or can leaf sheath be dyed and processed to present different colors? I’ ve even thought about the possibility of making betel nut leaf into furniture. I’ ve seen a Dutch designer using leaf sheath to make seat back. Extending the scope of applications involves consideration of the hardness and strength of the structure. This is very challenging and also gives us a vision of the potential for development. I’ d also hope to make such attempts in the future.

Picking, Handling, Processing, and Applications of Paper Mulberry

古老祖先的智慧傳承與在地工藝家的技藝精萃
構樹和檳榔的取材、處理、加工及應用

臺灣樹皮布工藝的主要素材-構樹

也許只是路過瞥見，人們不曾留心，那一棵棵生長於道路兩旁、廢耕地的樹，不若其他樹種有粗壯的枝幹，卻流露出頑強的生命力。偶爾可見幾株樹上結著紅色的果實，前來採食的生物絡繹不絕，看得出來深受鳥兒及各類昆蟲喜愛。這個低調，卻給大家熟悉感的樹木，便是臺灣原住民打製樹皮布的主要原料-「構樹」。

構樹，桑科樹種，學名為：Broussonetia papyrifera，英文常以Paper Mulberry稱之，多分佈於中低海拔的山野，富含大量的乳汁，曾經用來製作工業用糊劑，乳汁乾燥後再加工，也可以成為金漆的原料。構樹纖維含量高且質地優良，早期常作為造紙、鈔票的原料，有一俗名為鈔票樹，葉子更是野生梅花鹿的最愛，老前輩們常以閩南語稱之鹿仔樹，內皮韌性強，經適當的處理及槌打後纖維得以延展，是原住民用來製作服飾、繩索的主要材料。根據文獻研究，以構樹製成的樹皮布與臺灣原住民（南島語族）生活文化及習慣有著密不可分的關係（註1），時至今日，儘管紡織產業已經能滿足人們對布品的需求，臺灣各地仍有人致力於樹皮布的研究及創作，試圖找到構樹應用的新出路，南投中寮鄉繡蓮工房的邱繡蓮工藝師便是一個很好的例子，她嘗試以構樹敲打塑型為燈飾、信箱等，運用傳統工藝製作日常生活用品，美好地傳承古老祖先的智慧。

Heritage of Ancient Wisdom and Essence of Local Crafters' Skills
Picking, Handling, Processing, and Applications of Paper Mulberry and Betel Nut Tree Materials

Main Ingredient for Taiwan's Bark Cloth Craft – Paper Mulberry

People may just pass by them and never pay attention to them. They are trees grown by the roadsides or in idle farmland; they don't have sturdy trunk like other trees, but they show resilient vitality. Red fruit is sometimes seen in a few trees and many creatures come for food. It is noticeable these trees are deeply loved by birds and different insects. This modest but familiar tree is the main ingredient for bark cloth made by Taiwan's aborigines – "paper mulberry".

Paper mulberry belongs to the family Moraceae and its scientific name is Broussonetia papyrifera. It is mostly found in low-altitude mountains and plains. The tree contains profuse latex, which was once used for making industrial glue. The latex can also be made into the raw material for gold lacquer after drying and processing. Paper mulberry has a high fiber content and good fiber quality, which was used as the raw material for making paper and banknote. Therefore, it has a colloquial name as the "banknote tree". Since its leaf is the favorite food for wild sika deer, elders often called it the "deer tree" in Taiwanese dialect. The tree's phloem is very stiff, with its fiber having good ductility after proper processing and beating; this is used as the main material for making garments and ropes by aborigines. According to past studies and literature, bark cloth made of paper mulberry is closely related to the life, culture, and habit of Taiwanese aborigines (Austronesian) (Note 1). To date, although the textile industry has been able to fulfill people's needs for cloth products, there are still people in different parts of Taiwan working diligently on the research and creative arts of bark cloth, trying to find new directions for paper mulberry applications. Ms Hsiu-Lien Chiu of Hsiu-Lien Workshop in Zhongliao Township, Nantou County is a good example. She tries to beat and shape paper mulberry into lamp décor, mailbox, and other everyday items using the traditional craft. It represents a nice succession of the ancient wisdom from the ancestors.

構樹的取材及樹皮布製作過程

1. 採集

挑選構樹時，通常以紋理清晰且佈滿白色斑點、樹幹筆直的年輕植株為主，樹齡小的樹皮纖維具有活力，敲打出來的紋理較為豐富，取材時，避開樹節及側枝取得的材料較無節點，在後續的打製過程中能得到相對完整的樹皮布。下刀時，避開樹基及根部，只鋸取生長源以外的部位，這樣的方式使構樹得以再生，材料自然源源不絕，創造永續工藝的可能性。

2. 刮皮

取下的材料在浸泡隔夜後，以刀具將褐色的表皮層刮除，保留乳白色纖維較細緻的內皮層，但有些創作者，會選擇保留部分的褐色表皮層，敲打出來的紋理別有野地況味，呈現不一樣的天然質感。

3. 剝取

刮皮後，自上而下在樹皮上劃一刀，深度需透至木質部，再以搥打的方式破壞形成層，將樹皮與木質部分離，再以手小心剝下樹皮。

Main Ingredient for Taiwan's Bark Cloth Craft – Paper Mulberry

1. Harvesting

When picking paper mulberry, young trees with a perfectly straight trunk, clear pattern, and fully covered with white spots are usually chosen. Fibers of younger trees are full of life and will make richer patterns when beaten. When picking the material, branch knots are avoided and side branches without knots are picked, so that relatively complete bark cloth can be obtained in the subsequent beating process. Butt logs and roots are avoided when cutting the wood; only the part other than the source of growth is taken. In this way, the paper mulberry tree can be kept growing and the natural material can be taken endlessly, thus creating the possibility of sustainable crafts and arts.

2. Peeling

After soaking the taken material overnight, the brown outer layer is peeled with knife, keeping the milky inner layer of phloem with finer fibers. However, some craftsmen would choose to keep the brown outer layer, so that the beaten pattern shows a flavor of wildness, displaying a unique sense of naturalness.

3. Stripping

After peeling, apply the knife in one stroke on the bark from head to toe. It must reach the depth of the wood tissue. Then, destroy the cambium layer through beating to separate the bark and the wood tissue, and then carefully strip off the bark with hand.

4. 槌打

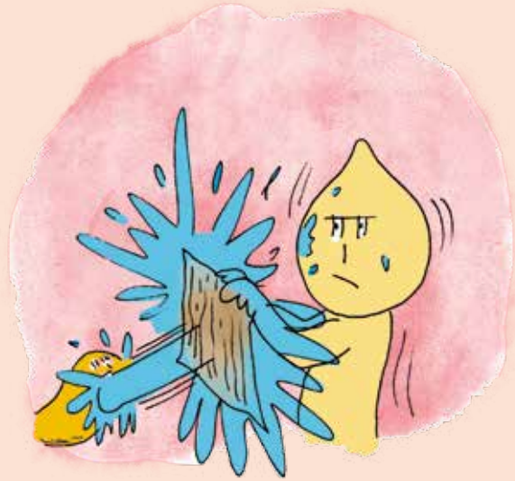
這是最須耐心的一個步驟：順著紋路反覆槌打剝下來的樹皮，長度會隨著槌打得以逐漸延伸，一般可以延展為原長度的三到五倍，槌打的工具以槌面有凹凸紋理的工具為佳，更易於將纖維延展開來。

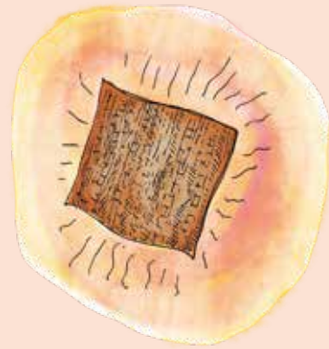
5. 水洗

浸泡槌打完成的樹皮約20-40分鐘後，用清水沖洗除去樹汁、蛋白質等雜質，須注意浸泡時間不可太久，否則樹皮纖維會散解。

6. 日曬

清洗乾淨的樹皮，攤放在陽光下曬乾便自然成形，乾燥後的樹皮便猶如布料般柔軟且有韌性。





4. Beating

This is the step that requires greatest patience: Beat the stripped bark repeatedly along the grain, and the bark will be gradually lengthened with the beating, generally up to 3 to 5 times the original length. A beating tool with convex-concave pattern is ideal, which makes lengthening of the fibers easier.

5. Washing

After soaking the beaten bark for about 20-40 minutes, wash away impurities such as the latex and protein with water. Note that the soaking time should not be too long, otherwise the bark fibers will dissolve.

6. Basking

The washed and cleaned bark should be exposed to the sun for drying and natural forming. The dried bark will be soft and supple like cloth.

構樹工藝的當代樣貌與未來展望

樹皮布的製作工序繁複，每一個步驟都可一窺老祖宗對大自然的體悟，同時也承載著古老的物質文化記憶。近代學者以人類學角度探索樹皮布工藝與南島語民族的淵源，發現常伴隨我們左右的構樹不但是臺灣樹皮布工藝的要角，臺灣也是太平洋構樹的故鄉（註二），使大眾得以透視傳統工藝的文化脈絡及人類、生物學上的意義。

近年來環境議題成為全球不可忽視的重要焦點，世界各地開始探求永續循環概念，從生活型態、物件的創造，人們有意識地尋找與自然環境更友善的共存方式。而臺灣原住民的天然材質工藝，讓許多人看到了可能性，來自各個部落的原住民工藝家，除了遵循前輩的經驗傳承致力於傳統工藝復育外，也希望基於傳統上再創新，從原本以樹皮衣為主的應用，發展為手工書皮、包袋、燈飾類的生活物件，甚至與其他的材質結合如竹、天然染織等…，傳統工藝逐漸呈現當代樣貌及美學，以大眾所熟悉的方式慢慢被看見。

當創新成為趨勢，設計方法的導入及材質試驗成為突破口，傳統技術整合現代方法，從中探索構樹纖維可能的新用途，使構樹工藝以當代語彙重新詮釋，增添在地工藝多元的創造性，未來也能透過行銷及相關平台建構與市場接軌，使天然材質永續運用的概念以最溫暖的方式貼近人們的日常生活。

(註一 《東南文化》1997 年第1 期，頁30—33. 古代香港樹皮布文化發現及其意義淺釋，鄧聰)
(註二 <民俗植物訴說的「出臺灣說」？臺灣是太平洋構樹的原鄉〉，作者：鍾國芳)

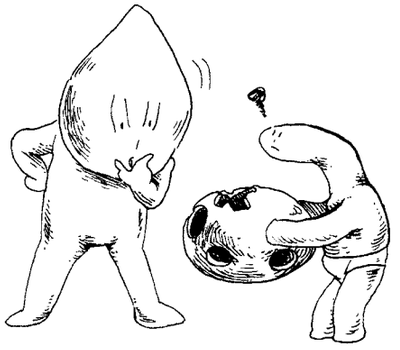
Current Status and Future Prospect of the Paper Mulberry Craft

The making of bark cloth requires complicated procedures. In each step, the ancestors' contemplation of the mother nature can be seen; the processes also carry the ancient memories and culture of the material. Probing into the relationship of the bark cloth craft with the Austronesian from an anthropological perspective, contemporary scholars not only found that the paper mulberry around us has played an essential role in Taiwan's bark cloth craft, but also that Taiwan is the native place of the Pacific paper mulberry (Note 2). This gives the general public a clear vision of the cultural context of the traditional craft and its anthropological and biological implications.

The environment issues have become an important global focus that cannot be ignored. People around the world begin to examine the concept of the sustainable cycle. From the lifestyle to the creation of articles, people consciously seek a more friendly way to co-exist with the natural environment. In the natural material craftworks of Taiwan's aborigines, many people see this possibility. Indigenous craftsmen from various tribes not just follow their ancestors' experience to restore the traditional craft, but also further innovate the craft base on the tradition. The applications, mainly as bark clothing originally, are extended to other daily articles such as book skin, handbag, lamp décor, etc. The material is even combined with other materials like bamboo and natural dyes, etc. The modern style and aesthetics of the traditional craft gradually show up and become noticeable by the public in familiar ways.

When innovation becomes the trend, the introduction of the design method and material experimentation become the ways to break through the traditional skill and consolidate it with the modern method. New applications of the paper mulberry fibers are explored to give a brand-new interpretation of the paper mulberry craft in contemporary terms, adding more diversities to the creativity of local crafts. Connection with the market can also be established in the future through marketing and creation of relevant platforms, so that the natural material can be brought close to people's daily life in the coziest way with the concept of sustainable application.

Picking, Handling, Processing, and Applications of Betel Nut Tree



天然材質的再應用-檳榔

提到檳榔，人們常會聯想到口腔癌及土石流，咀嚼檳榔的人有「紅唇族」之稱，看似滿滿的負面觀感，事實上在90年代，檳榔是臺灣相當重要的經濟作物，曾為農業產值的佼佼者，有著「綠寶石」之名，撐起不少家庭的生計，卻也因為臺灣產業轉型、環境議題的重視及健康衛生的考量，漸漸地沒落，風光不再。

檳榔的學名Areca catechu，英文為Betel nut，閩南語常俗稱為「菁仔」，原產於馬來西亞，為熱帶及亞熱帶植物，喜生長在潮濕多雨、高溫的環境，與椰子樹同為常綠喬木棕櫚科，樹最高可長至15-20公尺，樹幹細瘦，根淺且多為氣根，抓地力弱，不利於水土保持。食用上以檳榔果實為主，搭配荖藤葉或花，嚼食檳榔會有紓緩壓力、提神、欣快感、體溫升高等效果。除了食用外，由於檳榔落葉在乾燥後質地堅韌，早期被阿美族原住民彎折後成為石頭火鍋的容器；檳榔子透過媒染劑的輔助也可作為天然染織的一種原料，檳榔漸漸開始成為工藝上可運用的材質。

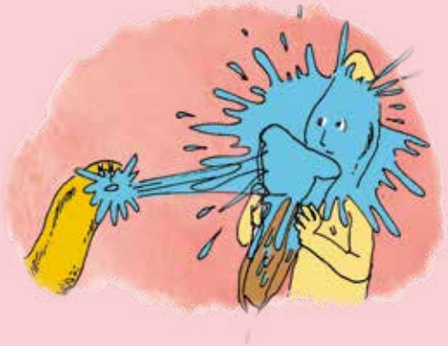
拿鞘Nature工藝品牌負責人，工藝師泰雅族劉大衛與阿美族林駿逸以生活經驗發現檳榔落葉創新的潛能，嘗試將檳榔鞘化身為當代生活用品，不僅將自然材質循環再利用，也訴說著檳榔在原住民文化的重要性；布藍泥手染工坊王梅容工藝師，除了傳統藍染工藝之外，也經常運用檳榔果實作為天然染色的原料，這些工藝家們透過商品的方式，讓大眾重新認識檳榔，開啟檳榔工藝創作新的視野。

Reusing the Natural Material – Betel Nut

People often associate betel nut with oral cavity cancer and debris flow. People chewing betel nut are called the “red-lips”. All these contribute to the negative image of betel nut. In fact, betel nut was a very important cash crop of Taiwan in the 1990s. With a value of farm output once outperformed all other crops, betel nut was honored with the name of “Emerald” (the green gem) and had supported the livelihood of many families. However, as Taiwan undergoes industrial transformation and awareness of environmental issues and healthcare concerns increases, planting of this crop has gradually declined and the prosperity is never restored.

Betel nut, scientific name as “Areca catechu”, is colloquially called “Tshinn-á” in Taiwanese dialect. It is a tropical/subtropical plant originated from Malaysia, usually grows in rainy, humid, and warm environment. Same as coconut tree, it is a conifer tree belonging to the family Palmaceae. The tree may grow up to 15-20 meters high, with slim trunk, swallow root that is mostly aerial root. Thus, it has weak grip and is not good for soil conservation. The part used for food is mainly the fruit, together with betel leaf pepper or flower. Chewing betel nut has the effects of releasing stress, refreshing oneself, giving an elevated feeling, and increasing body temperature. Betel nut is not only used for food, the betel nut leaves are also folded to become the stone hotpot container by the Amis tribe in early days, because the dried leaf is stiff. Betel nut can also be used as an ingredient of natural dyes with the help of mordant. Consequently, betel nut has gradually become a material to be used for making craftworks.

Owners of the “Nature” brand, the Atayal crafter Da-Wei Liu and the Amis Jun-Yi Lin, found new potential for the fallen leaves of betel nut through their life experiences. They try to transform the betel nut sheath into everyday tools. It is not just an attempt to recycle and reuse the natural material, but also a narration of the importance of betel nut in the indigenous cultures. Crafter Mei-Rong Wang from TW Indigo Dye Workshop works not only on the traditional indigo dying, but also uses the betel nut fruit as ingredient to make natural dye. These crafters re-present betel nut to the public by means of different commodities and open up a new horizon for creative betel nut craftworks.



檳榔葉鞘的處理

1. 葉鞘蒐集

檳榔樹每年六至九月為落葉旺季，挑選尚未發霉、腐爛的葉片，將葉鞘修整只保留較完整的部份。

2. 清洗

剛蒐集到的檳榔葉鞘表面仍有雜質及髒污，須以清水洗淨。

3. 日曬

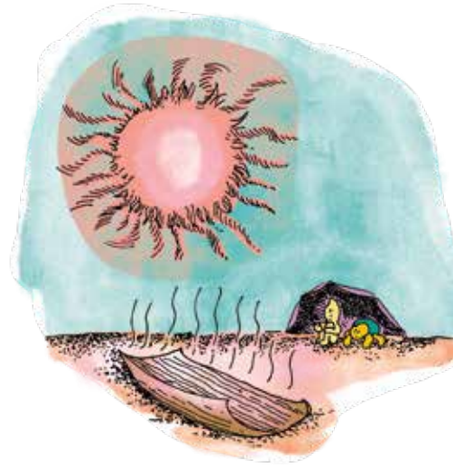
將洗淨後的檳榔葉鞘曝曬在陽光下通風處，在使用前須保持乾燥以避免發霉。

4. 整平

曬乾後的葉鞘因水份散失會有些微翹曲，這時候可以利用熨燙、工業熱壓的方式將葉鞘整平，以便儲存及後續的應用。

葉鞘纖維韌性強，厚實且硬，進行創作前，可將處理過的葉鞘材料稍微浸濕軟化以利塑型，順著葉鞘紋路方向彎折較不易斷裂。成型後的作品，也須再次日曬至乾燥狀態，避免潮濕而腐爛。

除了葉鞘較常被創作者使用之外，檳榔果實也是天然植物染的原料之一，染織出來的赤褐色，溫潤且質樸，是大自然色盤中的柔和色相。



Processing of Betel Nut Leaf Sheath

1. Collection of leaf sheaths

The period between June and September is the high season for leaf falling of betel nut trees. Unmildewed, unrotten leaves are picked. Only relatively complete leaf sheaths would be kept for trimming.

2. Washing

Impurities and dirt on the surface of the collected betel nut leaf sheaths should be washed with water.

3. Basking

The washed betel nut leaf sheaths are exposed to the sun in places of good ventilation, and should be kept dry before use to avoid becoming mildewed.

4. Flattening

After basking and drying, the leaf sheaths will become slightly bent because of the loss of water content. The leaf sheaths can then be flattened by ironing or industrial autoclaving for ease of storage and subsequent application.

Leaf sheath fibers are very stiff, solid, and tough. Before making the craftworks, the processed leaf sheaths may be mildly soaked and softened for ease of shaping; bending along the leaf sheath pattern would make it less likely to be broken. The formed works should be basked to dryness again the next day to avoid perishing due to moisture.

Not only the leaf sheath is often used by creative crafters, betel nut fruit is also one of the ingredients of natural dyes. Dye made with the fruit gives a reddish brown color, a warm and plain look which is a gentle hue in the natural palette.

利用檳榔果實的染色流程

1. 萃取原料

取檳榔過熟果實去殼，裡面的種子搗碎後便是染色的原料。

2. 熬煮

將搗碎的檳榔種子倒入鍋中熬煮約30分鐘，過程中適時地攪拌，過濾萃取染液，將過濾出來的檳榔種子重複前述步驟共可萃取二至三次，將所有萃取出來的染液調和即完成此步驟。

3. 紮綁

將棉、麻、絹、絲等天然材質皆適合作為染布，依設計的圖騰及形狀以麻繩或橡皮筋紮綁。

Using Betel Nut Fruit in the Dyeing Process

1. Extracting material

Take over-ripen betel nut fruit and shell it. Mesh the seed inside to make the raw material for the dye.

2. Boiling

Pour the meshed betel nut seed into a pot to boil for about 30 minutes, stir as appropriate in the meantime. Filter the extracted dye liquid, and repeat this step two to three times with the filtered betel nut seed. Blend all the extracted dye liquid to finish this step.

3. Binding

Natural materials such as cotton, linen, and silk are all suitable to be used as dye cloth. Bind the cloth with linen ropes or rubber bands according to the designed pattern.

4. 染色

染布先浸泡清水擰乾後，投入染液逐漸加溫染色約40-50分鐘，因檳榔富含紅色素及茶單寧，易局部氧化造成染斑，染色過程中須不斷攪拌使得染色均勻。除了葉鞘較常被創作者使用之外，檳榔果實也是天然植物染的原料之一，染織出來的赤褐色，溫潤且質樸，是大自然色盤中的柔和色相。

5. 媒染

將染布取出投入媒染液（常見的媒染劑有醋酸鋁、醋酸銅、醋酸鐵），媒染後可再投入染液做二次染色。

6. 清洗

將染布以清水充洗乾淨。

7. 晾曬

取下紮綁的麻繩或橡皮筋，曬乾後即得到成品。

4. Dyeing

Soak the dye cloth in clear water first and then wring it out. Then, put it into the dye liquid with gradually increasing temperature to dye the cloth for about 40-50 minutes. Since betel nut is rich in red pigment and tea tannin, which would easily give rise to specks due to local oxidization. Continuous stirring is required during the dyeing process to produce even dye color.

5. Mordant dyeing

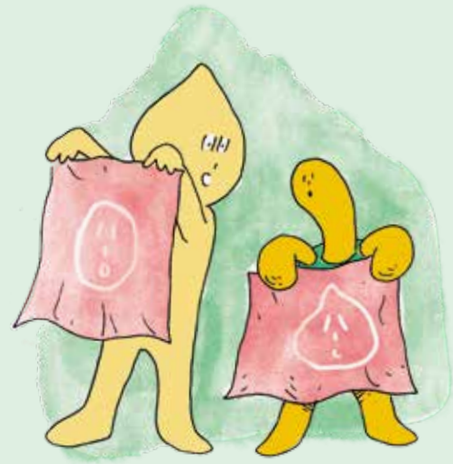
Take the dye cloth out and put it into the mordant liquid (commonly used mordants include aluminum acetate, copper acetate, and ferric acetate). After mordant dyeing, the cloth may be put into the dye liquid again for second dyeing.

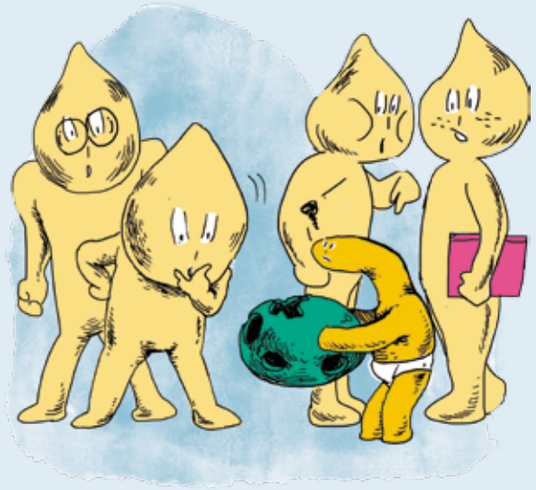
6. Washing

Wash and rinse the dye cloth with water thoroughly.

7. Basking

Take off the binding ropes or rubber bands, and dry the cloth in the sun to get the finished product.





檳榔材質的創新應用及文化探索

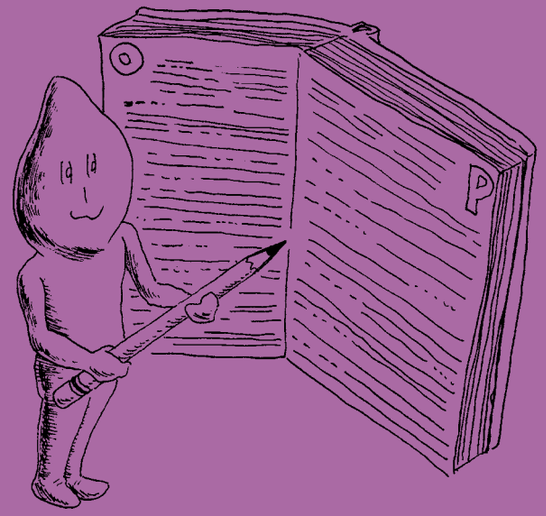
儘管大眾對檳榔的印象負面居多，但事實上檳榔在臺灣原住民傳統中有著相當重要的角色，用途相當廣泛，包括：表達友善、情意、婚嫁、祭祀及巫術等…，例如:阿美族女子會在豐年祭的最後一夜將檳榔放入心儀對象的檳榔袋中，若對方也有情意，可將檳榔吃下，成為交往的證明；卑南族在進行狩獵前，會由巫師以檳榔為祭品向祖靈祈福，祈求豐收，而東海岸的噶瑪蘭族在出發採收香蕉前，巫師也會以檳榔、米酒等向祖先、土地溝通，除了原住民文化上的象徵，近年來創作者也開始使用檳榔進行創作。

檳榔葉鞘不但有防水性，韌性夠具有塑型的潛力，工藝家發掘檳榔落葉的優點，與設計師合作運用古老彎折技法整合材質研究，設計出燈具、拖鞋、筆記本、容器等，賦予自然材料新的生命週期。在循環經濟的概念之下，在地工藝家們透過與國際設計師的交流，以當代世界觀及全面性的材質試驗，開發檢視檳榔材質的嶄新觀點，挖掘與以往不同的運用可能與設計語彙。

Innovative Applications of Betel Nut Material and Cultural Exploration

Despite people’s negative impression of betel nut, the plant has in fact played a very important role in Taiwan’s indigenous tradition. It is widely used in many occasions, such as expressing friendliness, love, being used in marriage ceremony, sacrifice offering, and sorcery rituals, etc. For example, an Amis girl will put betel nut into her admired boy’s betel nut bags on the last night of the Harvest Festival. If the boy likes the girl too, he’ll eat the betel nut to show the proof of their relationship. The Puyuma wizard will offer betel nut as sacrifice to the ancestors’ souls before hunting to elicit blessing for harvest. The Kavalan wizard will also communicate with the ancestors and the land with betel nut and rice wine before the people depart for harvesting bananas. In addition to symbolizing the indigenous cultures, betel nut has been used by crafters for craftworks creation in recent years.

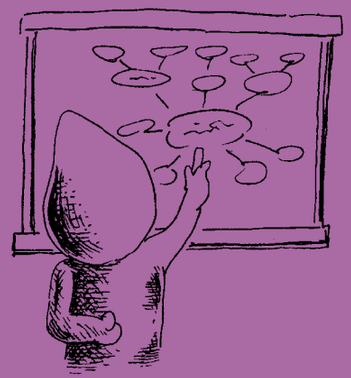
Betel nut leaf sheath is not only water resistant, but also stiff enough to present a potential for shaping. Craftsmen have discovered the strengths of fallen betel nut leaves, and worked with designers to study the combination of materials using the ancient bending technique. They have designed lamp décor, slippers, notebooks, containers, etc. to give new life cycle to the natural material. Under the concept of circular economy, local craftsmen try to develop and review a brand-new perspective of the betel nut material with a contemporary world view and comprehensive material experimentation through exchanges with international designers, and application possibilities and design vocabulary different from the past are explored.



FIBER WITH CRAFTS

設計方法及流程

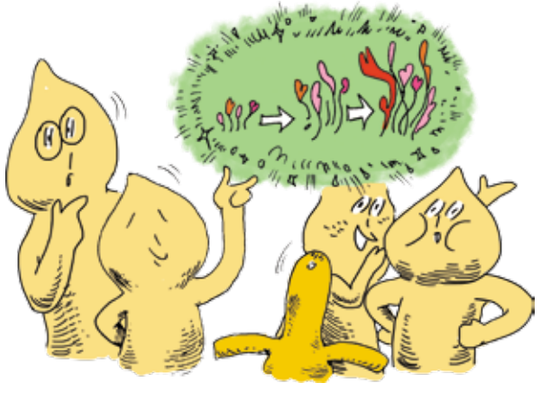
Design Method and Procedures



日本當代設計大師深澤直人曾說過，工藝與設計的界線是模糊的，任何物件都無法說是”完全”屬於設計或是工藝。現今全球有越來越多設計師跨入工藝領域、工藝家也導入設計思維，設計師不再只是動腦及紙上談兵，透過自己的雙手實際觸碰材料、參與製作過程，設計師與物件的聯結越來越親密，工藝家也透過設計思考，將原本的創意更邏輯及系統化的統整，打開工藝的全新道路。

位於法國巴黎的ÉCOLE BOULLE是一間歷史悠久的藝術設計學院，從傳統木工技術、家具發展到近代成立了時尚、產品設計、室內設計部門等，該校可說是傳統工藝與當代設計整合最好的一個例子。

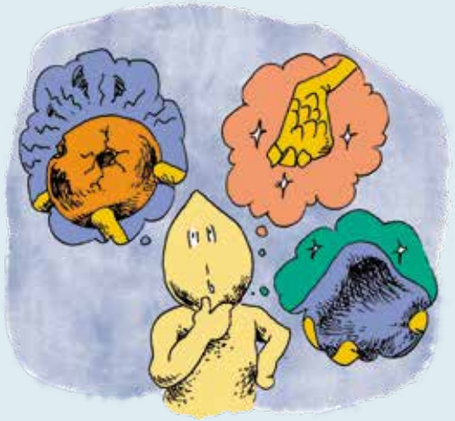
這次國際交流工作坊，透過產品設計系的Antoine Fermey教授分享設計方法，嘗試將當代設計導入在地工藝，臺灣工藝家們可以透過不同觀點，重新檢視天然材質的再利用，傳統工藝得以創新及轉化。Antonine教授也強調，設計方法是理論上的原則，每個流程都可以針對不同的專案去做調整及增減，靈活地運用設計方法，試著將自己的創意極大化，一定可以建立起個人創作語彙及世界觀。



Fukasawa Naoto, the contemporary Japanese master designer, said that the boundary between craftwork and design is ambiguous; nothing can be said “purely” design or craftwork. More and more designers around the world are now stepping into the realm of crafting, and craftsmen are introducing the design thinking. Designers no longer just engage in empty talk and generate ideas only; they also get their hands on the materials and involve themselves in the crafting process. Designers are having closer and closer relationship with the articles, and craftsmen are integrating their creative ideas a more logical and systematic way by applying design thinking, thus opening up a spanking new path of crafting.

COLE BOULLE Academy of Fine Arts is a time-honored arts and design school in Paris, France. From the traditional carpentry and furniture making, the school has developed new departments in recent years including fashion, product design, and interior design. The school can be said the best example for combination of traditional crafts and contemporary design.

In this international exchange workshop, Professor Antoine Fermey from the Department of Product Design shared the design method and thereby tried to introduce contemporary design to local crafts. Taiwanese craftsmen may review anew the reuse of natural materials from a different perspective, thus innovating and transforming the traditional crafts. Professor Antoine also emphasizes that the design method is just a theoretical principle, but each step may be adjusted, added or deleted according to individual projects. By using the design method flexibly and trying to maximize one’s creativity, one must be able to develop his or her individual creative language and world view.



一、概念孵化階段

當新的專案展開時，必須去理解客戶及專案的需求、脈絡、時空背景，盡可能地深入探索當地文化、民俗信仰、風土民情等，從中將有趣的部分汲取出來，透過這樣的方式找出概念的雛型。

概念孵化階段的要點：

1. 分析專案的時空背景

理解專案所在的環境及當下的狀況，解析蒐集到的資料。

2. 在地文化的理解及發現

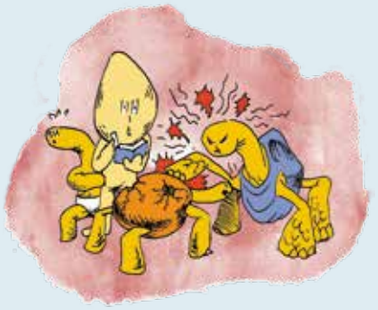
於實地考察時，觀察週遭環境，發現有趣的觀點及深刻的感受。

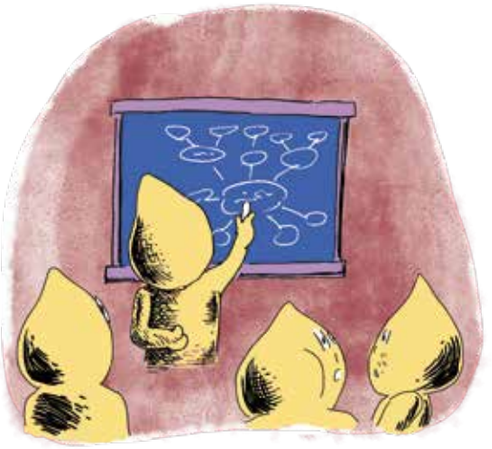
3. 基準評價

將得到的觀點、發現以及感受，以自身觀點評價出個人最感興趣的部分。

4. 故事及發展意向

構思產品故事及接下來的發展意向，概念逐漸成形。





A. Elucidation of Concept

When starting a new project, we must understand the needs, the context, the temporal and spatial background of the customer and the project, and try our best to dig into the local culture, customs and beliefs, folk traditions, etc. Extract the interesting part thereof and identify the conceptual prototype in this way.

Essentials in the elucidation of concept stage:

1. Analyze the temporal and spatial background of the project

Understand the environment and moment under which the project is executed, and analyze the collected data.

2. Understand and discover the local culture

Observe the surrounding environment at the time of field trip; find interesting observations and profound feelings.

3. Benchmark evaluation

Evaluate the acquired observations, findings, and feelings from your own point of view and identify the part that interests you most.

4. Story and direction of development

Conceive the product story and the direction for subsequent development; the concept should be gradually formed.

二、構想深潛

初步的概念成形後，接下來需要透過各種方式進行腦力激盪，深入地去探索構想，Antonine教授強調這個階段沒有特定規則的步驟，設計師們可以自身擅長的工具去執行，此階段的目的是使想法聚焦及具體。

1. 經驗

以自身過往的體驗及實地探訪的經驗去描述概念，從中找出個人的設計語彙。

2. 草圖

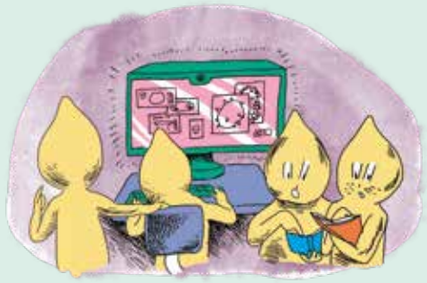
利用繪圖的方式快速描繪出心中構想的樣貌、情境。

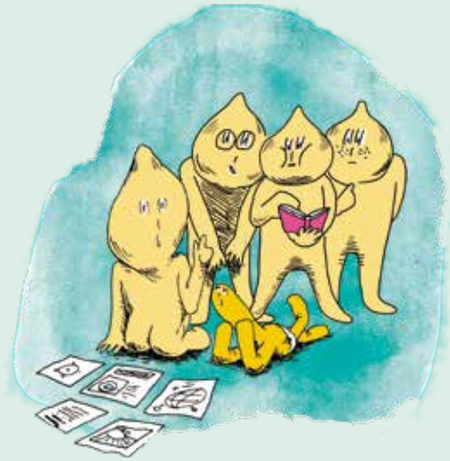
3. 情境示意版

蒐集圖片、照片、產品圖等，呈現出概念的情境。

4. 故事力

以敘事的方式去闡述概念。





B. Ideation Deep Dive

After the initial concept is formed, the next step is to probe deeply into the ideas through all sorts of brainstorming practices. Professor Antoine stresses there is no specific rule or step in this stage; designers can execute this with the tools they’re good at. The objective of this stage is to make the ideas more focused and specific.

1. Experience

Describe the concept reference to one’s own past experience and the field trip experience, and identify one’s personal design language therefrom.

2. Sketches

Make a quick profile of the look and mood in mind by means of sketching.

3. Moodboard

Collect pictures, photos, product images, etc. to present the mood of the concept.

4. Storytelling

Elaborate the concept in a narrative way.

三、產出

概念經過發展後，須透過具體的方式去表達，這個階段將概念轉化為實際，訂定產品的主要架構。

1. 概念的故事（描述）

定義概念的故事及脈絡。

2. 發展意向定位

明確化產品發展方向及市場定位等。

3. 產品原則

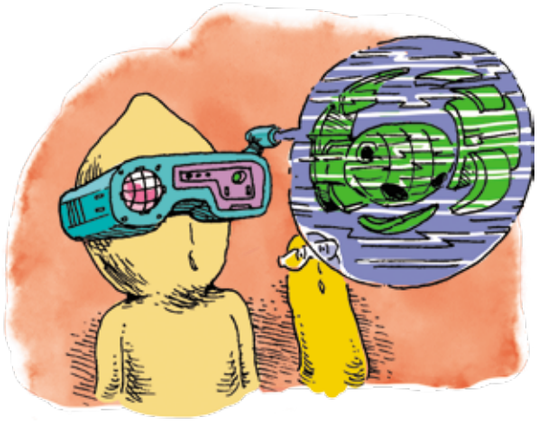
制定產品的各項原則及使用情境。

4. 彩現模擬圖

以數位工具輔助，將產品具象化，清楚表示外觀、色彩、材料。

5. 產品細節

包括結構、尺寸、材質及表面處理等。



C. Output

After being thoroughly developed, the concept shall be expressed in concrete way. The concept is turned into reality in this stage, and the product’s mainframe is defined.

1. Story of the concept (Description)

Define the story and context of the concept.

2. Positioning and direction of development

Specify the direction of product development and positioning in the market, etc.

3. Product principles

Draw up the principles and usage scenario of the product

4. Rendering of schematic drawing

Substantiate the product with the help of digital tools, clearly indicating the appearance, colors, and materials.

5. Product details

Include structure, size, material, and surface finishing, etc.

四、溝通

有了具體的產出，若沒有良好的呈現方式，那麼概念便不能被很好地傳達，須謹慎選擇適當的溝通工具。Antonine教授認為這個階段具有相當的重要性，若好的概念沒有被正確地傳達，常常會因此大打折扣，相當可惜。

1. 概念的故事（描述）及定位

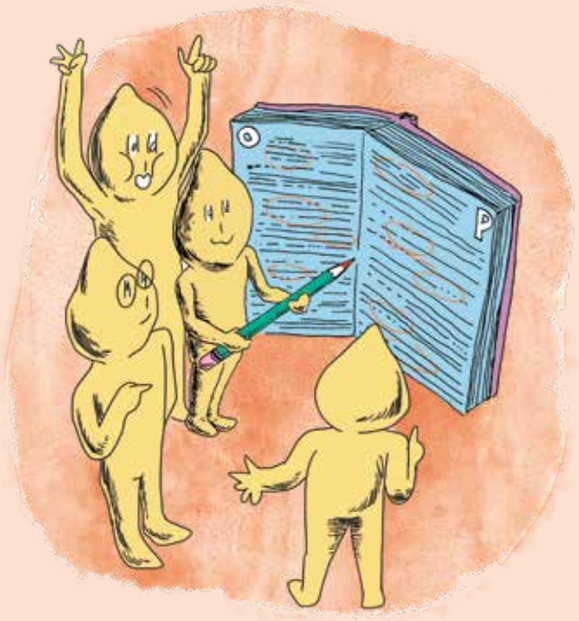
清楚且正確地描述產品故事，包括使用的辭彙、語句等，都須慎重挑選。

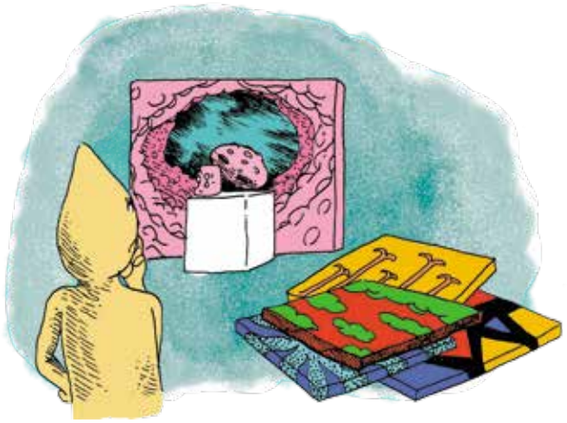
2. 視覺化呈現

以切合產品概念的圖片表達情境。

3. 產品意向

明確闡述產品的方向及使用情境。





D. Communication

The specific output cannot adequately communicate the concept without a good presentation, and so an appropriate communication tool must be carefully selected. Professor Antoine believes this is a very important stage. A good concept not correctly communicated will be greatly compromised, and it’ s a pity.

1. Story (Description) of the concept and positioning

Clearly and correctly describe the product’ s story, including the language and phrases used must be carefully chosen.

2. Visualized presentation

Present the mood with images appropriate for the product concept.

3. Product intention

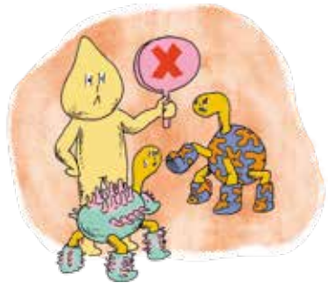
Specifically elaborate the product’ s direction and usage scenario.

五、資訊匯報及回饋

與客戶、目標對象溝通及討論後，取得更多資訊包括：實際成本考量、技術製程分析、市場等，將回饋系統化整理，使得接下來的實際發展目標明確。

1. 發展流程簡介

制定產品實際發展流程。



2. 外觀、細節、技術製程、成本分析

蒐集資訊，成為產品實際發展時重要依據。

E. Information Reporting and Feedback

After communicating and discussing with the customer and the target demographic, more information can be acquired, including actual cost consideration, analysis of technical process, and the market. Feedback is systematically organized to further clarify the subsequent actual development objective.

1. Introducing the development process

Formulate the actual development process of the product.

2. Appearance, details, technical process, and cost analysis

Collect information to become important reference for the actual development of the product.

六、發展（過程展開）

取得實際資訊及回饋後，針對前期發展做調整及修正，將產品實體化。

1. 調整、產品草模、使用者經驗、外觀、細節

透過實際打樣，使產品尺寸、外觀及細節實體化，更進一步去取得感官及使用經驗，得到反饋後再進一步調整。

2. 產品定義、細節、規範

明確制定產品的各項使用方式及情境。

F. Development (Process Expansion)

After getting the actual information and feedback, the early development is adjusted and rectified for materialization of the product.

1. Adjustment, sketch model, user experience, appearance, and details

Materialize the product size, appearance, and details through actual proofing; by further acquiring sensory and usage experiences, further adjustment can be made after getting the feedback..

2. Product definition, details, and specifications

Specifically set down the methods and scenarios of application for the product.

七、概念定案

經過發展過程，反覆調整之後，產品及概念拍板定案。

1. 產品計劃、細節、最適當的情境圖

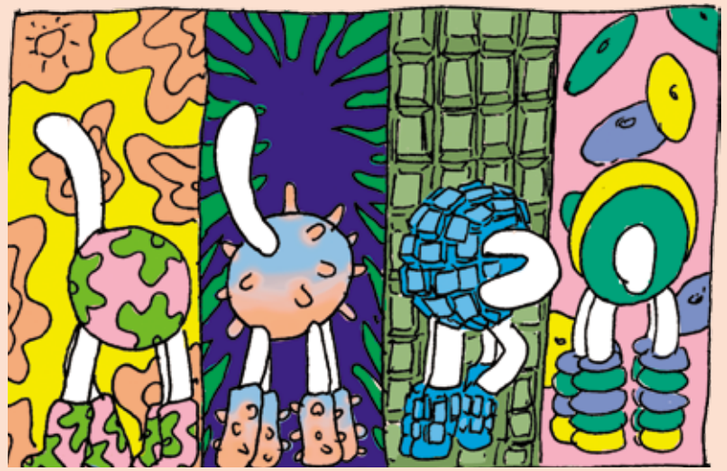
制定產品的各項計劃及細節，慎重挑選與產品最有關聯的情境圖。

2. 溝通元素及模板

呈現最完整的概念元素及樣板。

3. 發表要素

包括措詞、語彙等，慎選用詞及反覆練習發表。



G. Concept Finalization

The product and concept are finalized after the development process and repeated adjustments.

1. Product planning, details, and perfect mockup

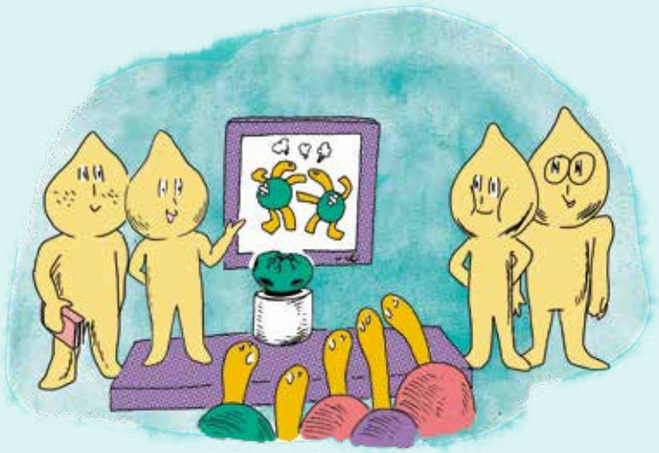
Define the plans and details of the product, and carefully choose the most relevant mockup of the product.

2. Communication element and module

Present the most comprehensive conceptual element and template.

3. Presentation elements

Include the wordings and language; carefully pick the words and practice the presentation repeatedly.



八、產品發表

產品發表階段須統合所有資訊及概念，以最精準的方式將概念完整呈現出來，可謂是物件被創造後與人類溝通的第一座橋樑。

1. 發表情境建置

2. 最終視覺呈現

3. 發表

H. Product Presentation

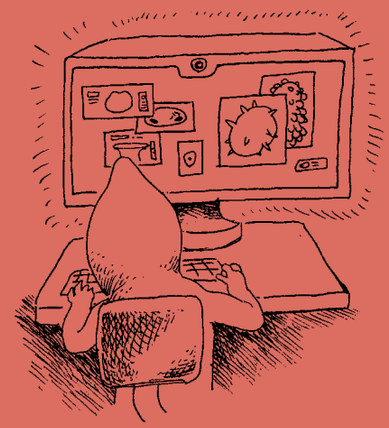
In the product presentation stage, all information and concepts have to be integrated to thoroughly present the concept in the most precise way. This represents the first link of communication with human beings after the product is created.

1. Creation of presentation scenario

2. Final visual display

3. Presentation

ÉCOLE BOULLE產品設計系



FIBER WITH CRAFTS

Antoine Fermey教授

在循環經濟的概念下，老師認為工藝家及設計師要如何運用天然材質去創作？

我認為對參與工作坊的學員來說，第一件事情是必須要找到與自然環境的聯結，要以天然材質做創作，你必須去了解這些材質是從哪裡來的、怎麼生長的，了解材質的時空地理背景，尤其是這次創作的材質是臺灣在地的天然材質，學員們必須對週遭的環境有共感，大至地景小至花草，從中汲取創作靈感及能量，而這次工作坊也會跨越天然材質及日常物件的邊界、找出聯集去創作。

設計方法如何與在地工藝交融？

這次工作坊對於所有學員來說都是一個打開視野的好機會，一開始我並不會去侷限他們發展的方向，在學員們對於材質及文化層面的吸收及轉化後，讓他們實際動手去試驗，但當然隨著工作坊的進行，我還是會試著協助他們收斂，讓創作更聚焦，作品故事更明確。

我想像過一個有趣的情境：工作坊中的所有作品都是以天然材質創作，轉化成物件或產品之後，在工作坊發表的最後一天，我們拿到戶外去，就把作品放在自然環境中，取之於自然，回歸於自然，以最直白的方式表達”循環”這件事，像是諷刺漫畫的手法，有些強烈，但我認為是相當有意思的情境。

Professor Antoine Fermey from Department of Product Design, ÉCOLE BOULLE Academy of Fine Arts

Under the concept of circular economy, how do you think craftsmen and designers should use natural materials in their creative works?

For the students participating in this workshop, I think their first concern should be to find their connection with the natural environment. When you have to use natural materials for your creative works, you must go find out where these materials are from, how they are grown, and understand the temporal and geographical background of these materials. In particular, the materials for this creative project are all local natural materials from Taiwan; students must develop a sense of empathy with the surrounding environment, ranging from the landscape to the plants and flowers. They need to get their creative inspiration and energy from there. And this workshop intends to transcend the boundaries of the natural materials and everyday items and tries to identify their underlying linkage to facilitate creation.

How does the design method fuse with local crafts?

This workshop is a great opportunity to open up the horizon of all students. I wouldn’t confine the directions of their project development at the beginning; students are allowed get their hands on the materials to experiment them after getting profound understanding of the materials and the related culture. Of course, as the workshop progresses, I would try to help their ideas converge and make their works more focused and the underlying stories more distinct.

I’ve imagined an interesting scenario: All works in the workshop are made with natural materials, and after they are transformed into articles or products, they are presented on the last day of the workshop. We bring them to the outdoor and display these works in the natural environment – taking from nature and returning to nature; it’s the most straightforward way to present the practice of “recycling. It is like the approach of caricature; it’s intense but I think it is a very meaningful scenario.

What expectation do you hold for this workshop?

As to expectation, I’d expect to see good materials being transformed and new materials being created more than seeing the actual products. By experimenting with and transforming the natural materials, their properties and qualities are exhibited. This is of prime importance to me. What’s next is to explore how these new materials can be used. I would love to see the “directions” and “opportunities” of applying the new materials rather than directly making a particular product or article.

對於這次工作坊有沒有什麼期許？

說到期許的話，比起實際的產品，我更期待的是看到有好的材質轉化及新材質的創造，透過試驗及轉化將天然材質的特性及品質表現出來，這對我來說是最優先的。接下來再去探討如何運用這些新材質，我認為與其很直接的做出單一產品或物件，我更希望看到的是能夠為新材質去找到運用的”方向”及”機會”。

材質試驗研究的重要性？透過這樣的試驗過程，會對設計及工藝帶來什麼樣的影響或改變？

材質試驗事實上是一個長時間的研究過程，很多性質跟特性需要反覆及精確地去驗證，當然在工作坊這樣有限的時間情況下，我認為比較重要的是讓學員們了解材質試驗的流程，以及在一開始如何訂定材質試驗轉化的方向，建立了基礎概念之後接下來學員們可以運用學習到的試驗方式更進一步地去探索材質及各種可能運用，我認為這是材質試驗最大的用意所在。

就過去工作坊的經驗，歐洲學生及亞洲學生最大的區別？

在工作坊期間，大家必須得在試驗及創作過程中做一些選擇，我觀察到臺灣工藝家們可能是文化及生長環境的關係，相對害羞也比較謙遜，有時候反而不容易有決斷性的選擇，儘管他們提出的東西都是不錯的。相信這也是透過工作坊讓臺灣工藝家們學習到的一部分，透過設計方法使他們能夠更聚焦，做出有自信的選擇。

What is the importance of material experimentation and research? How would this experimenting process affect or change “design” and “craftsmanship”?

Material experimentation is in fact an extended process of research. Many properties and attributes need to be repeatedly and precisely experimented and verified. Of course, in the limited time of this workshop, I think it’s more important to let students understand the procedures of material experimentation, and how to determine the direction of material transformation through experimentation at the beginning. After establishing a clear concept, students may use the experiment method they’ve learnt to further explore the materials and various possible applications. I think this is the most important purpose of material experimentation.

What is the biggest difference between European and Asian students according to your experience in the past workshop?

During the workshop, everyone must make some choices during the experimentation and creative processes. According to my observation, Taiwanese crafters are relatively shyer and humbler, probably because of their culture and upbringing. Sometimes, that makes it more difficult to arrive at decisive choice, even though their works are nice. I believe this is an area that the Taiwanese craftsmen can learn through this workshop – making confident choices by staying focused by adopting the design method.

ÉCOLE BOULLE副校長

ÉCOLE BOULLE副校長一直以來致力於推廣該校學生與國際之間的交流，說話斯文親切的他，對於設計師與工藝家的合作充滿了強烈的企圖心及期望，他認為者兩者之間有著重要的關係，共同激盪出的火花往往可以使作品有著不一樣的詮釋。

這次工作坊印象比較深刻的事？

在作品簡報時，臺灣工藝家們的作品讓我印象相當深刻，他們能夠很嫻熟地使用天然材質來進行創作，我認為透過這個工作坊讓工藝家們及設計學生們共同以天然材質來創作是一件非常好的事情，相信可以激盪出不少火花。

工藝及設計跨國交流的重要性？

我認為跨國交流是相當棒的一件事，把不同背景的學員們聚集在一起，文化上能夠有碰撞及交流，法國設計學生們必須要學習及尊重臺灣的在地風土人文，向臺灣工藝家們學習如何運用天然材質、尊敬大自然，因為在某種程度上，歐洲已經越來越失去這樣崇敬自然的精神了。臺灣工藝家能透過法國設計學生外來的視野重新解讀臺灣在地材質及文化；法國設計學生能在完全陌生的環境探索當地材質及文化，我認為這樣的交流過程對雙方來說都是很重要的，這也是我一直致力於推廣國際交流的原因。在循環經濟的概念下，您認為創作者扮演的角色是什麼？

Vice Principal of ÉCOLE BOULLE Academy of Fine Arts

The Vice Principal of ÉCOLE BOULLE has always been committed to engaging students in international exchange. Speaking in a gentle voice, the Vice Principal expressed his intense ambition and expectation for the designer-craftsman cooperation. He believes there is an essential relation between the two, and they may jointly spark off different interpretation of the craftworks.

What impresses you most in this workshop?

At work presentation, Taiwanese craftsmen’s works impressed me very much. They’re able to use natural materials for creative works very adeptly. I think this workshop serves a very good purpose to allow craftsmen and design students to work cooperatively on creative works with natural materials. I believe they’ll spark off beautiful ideas.

What’s the importance of international exchange for crafting and design?

I think international exchange is a great thing that it brings together students from different backgrounds; they’ll have clashes and exchanges culturally. French design students must learn and respect the Taiwanese customs and culture, and learn from the Taiwanese craftsmen about how they use the natural materials and respect nature. To some extent, this “respect for nature” spirit has been gradually lost in Europe. Taiwanese craftsmen may re-interpret the local materials and culture from the French design students’ foreign perspective, while these students from France can explore the local materials and culture in a completely alien environment. I think this exchange process is important for both sides, and this is why I’ve been committed to promoting international exchanges.

在循環經濟的概念下，您認為創作者扮演的角色是什麼？

我發現新一代的創作者們，對永續及環境越來越關注，他們發現到全球暖化及氣候變遷、環境汙染等…都是非常嚴重的問題，使得他們傾向於運用天然的材質、在創作過程中盡可能地減少環境汙染，回歸到以自然為本的創作方式。

您如何看待工藝家與設計師的共同創作？

工藝家與設計師有著密不可分的關係，兩者必須協同合作，我很難想像他們沒有互相合作的狀態，我認為工藝家及設計師是需要彼此、也需要互相學習的，工藝家們透過設計師去學習到設計思考及創新的過程；設計師從工藝家身上學習到實作的過程，如何處理材質及各種工法。

我認為這次的工作坊是非常重要的，它會是一個引子，在接下來會有更多這樣的交流合作機會誕生，我覺得這對法國及臺灣雙方非常重要且必要的，樂見其成。

Under the concept of circular economy, what role do you think the creative workers play?

I think the new-generation creative workers are more and more concerned with the issues of sustainability and environment. They’ ve realized that global warming, climate change, environmental pollution, etc. are very serious problems. As a result, they tend to use natural materials, minimize polluting the environment in the creative process as much as possible, and return to a nature-based creative approach.

What do you think about the co-creation by crafters and designers?

Crafters and designers are closely related; they must cooperate. I can hardly imagine a status where they do not cooperate with each other. I think crafters and designers need each other and they have to learn from each other. Craftsmen learn about the design thinking and innovation process from designers, while designers learn about the process of practical work, the way to handle the materials, and various practical methods from craftsmen.

I think this workshop serves a very important purpose. It will be a prelude, and there will be more such exchange and cooperation in the future. I’ m happy to see this as it’ s essential and necessary for both France and Taiwan.

設計創作紀實

（材料：構樹及檳榔樹）

Descriptive Chart for workshop participants

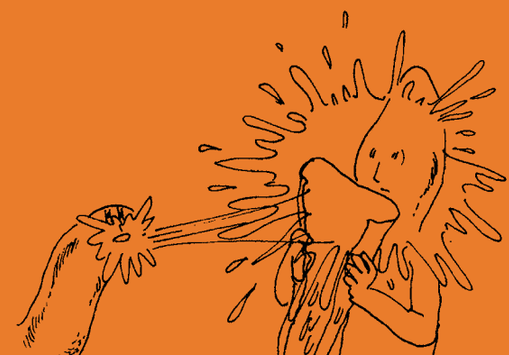
（Material : paper mulberry , betel nut tree）

F I B E R

W I T H

C R A F T S

Team I



分析的手法

從材料採集到材質試驗，你如何從最一開始去解析材料

檳榔葉：質地厚實，乾燥時堅硬，潮濕時難以塑形。葉上圖紋非常有趣，有些黑色的部分讓人感覺像是因為燒傷或鐳射雕刻造成的痕跡，看起來非常堅硬、粗糙，有著史前物件的時代感。

由於葉質地很厚，我們試著分層解構，讓它們層層暴露在陽光下，顯現葉片仿若塑膠的質感。

構樹皮：我們對於構樹皮具有多種製作方法感到印象深刻，透過不斷嘗試並獨立處理材料的過程中，獲得很多成就感。使用鐵鎚不斷敲打、以刮板刮下構樹皮和做植物染染色，讓樹皮產生特別質感的質地和顏色，這個過程非常有趣，尤其是做出棕色、綠色和白色之間漸層色。另外發現染色能讓表面的質感更顯著，例如：構樹皮經過藍染後的效果非常漂亮。構樹皮的優點是蘊含著豐富的質地變化與運用的可能性（比如：可塑性、可繪圖、可染色和厚薄度變化等…）。

Analysis method

Harvest to experiment-How do you analysis the material from the very beginning?

Betel nut leaf: It is thick and solid; it is hard when dried and difficult to shape when wet. There are interesting patterns on the leaves and some dark parts look like marks caused by burn or laser engraving; they look very hard and coarse, which gives the modern feel of prehistoric objects.

Since the leaf is thick, we tried to decompose its structure in order to expose the layers under the sun and display the plastic-like texture of the leaf.

Paper mulberry bark: We are deeply impressed by the numerous crafting methods for paper mulberry bark. Through trial and error and the process of individually handing the material, we acquired a great sense of achievement. The processes of continuous beating with a hammer, scratching the bark with a scraper, and performing natural dyeing to give the bark special texture and colors are very interesting, especially when the gradually changing color gradient from brown to green to white was achieved. In addition, we found that dyeing makes the surface texture of the bark even more conspicuous; for example, the paper mulberry bark becomes very beautiful after indigo dyeing. The paper mulberry bark has the advantage of embracing abundant possibilities in its texture variations and applications (e.g., being formable, allow painting and dyeing, and variations in thickness, etc.)

你們怎麼去設定材料的故事及情境敘述（Moodboard）

我們致力於研究如何組合染色過程後呈現不同顏色層次與透明度的紙張。所以我們找了這類的參考資料。此外，我們試圖以產品最後的型態賦予其意義。

Deep dive Ideation

How do you develop the material story and moodboard?

We strove to study how make paper presenting different color layers and levels of transparency after a mix of dyeing processes. Therefore, we found this kind of reference material. Moreover, we tried to bestow meanings to the final forms of the products.

材料試驗的困境及轉機

請以圖文說明每個嘗試的問題及機會（提供實驗照片）

檳榔葉：由於這種材料很難重製和轉化，它的潛力僅限於裝飾物，或簡單的用途。整體來說，它和構樹皮有著類似的特性，但它的塑膠感的質地使它與眾不同，檳榔葉在乾的時候變得更硬，也更有粗獷感。

構樹皮：藉由材料的特性，去嘗試製作不同厚薄度或透明度並相互疊加，再使之與光互動，實驗出的效果蠻有趣的。因此，我們嘗試把構樹皮結合在有光的產品上，如桌燈、壁燈或螢幕，以不同的構樹皮顏色組合起來，嘗試出不同效果。

我們也在材料濕潤的狀態下，以模具塑型（也許符合物件循環的特質），乾燥後材料就會產生模具的形狀。這種材料也許可用於食品領域，但我們沒有做足夠的實驗可以詳述它的防水性或其他特質。

Outputs (description. photos)

What is the opportunity and values with each and every material experiment?
(Please also include sketches and phtots)

Betel nut leaf: Since this material is difficult to be replicated or transformed, its application is limited to decoration or simple usage. In general, it has similar properties as paper mulberry bark, but its plastic-like feel makes it unique. Betel nut leaf becomes even tougher and coarser when it’ s dry.

Paper mulberry bark: Considering the properties of the material, we attempted to make it into pieces of different thickness and level of transparency and overlying them, and then add the lighting element for interaction. The experiment results are interesting. Therefore, we tried to combine paper mulberry bark with illuminant products, such as desk lamp, wall lamp, or screen. Pieces of bark in different colors are combined to try out different effects.

We also tried to shape the material with molds when it is wet (maybe in compliance with the cyclic feature of the object), and the shape of the mold would be formed after the material dries. This material may be used in food-related products, but we haven’ t done sufficient experiments to describe its waterproofness or other properties.The experimental results are quite interesting. Therefore, we try to combine the bark of the bark with products with light, such as table lamps, wall lamps or screens, and combine different bark colors to try out different effects.

正在發展中的概念和方向（期中發表）及相關的轉化過程說明
（草圖、圖文說明、Visual option）

我們試驗了許多不同顏色的染料和不同厚度的紙張，改變此材料的質地，讓紋理更突出，並創造出不同的組合與紋樣，透過光的照射下產生更豐富的感官效果。

為了表現這些材料組合，我們嘗試把它們在空間中配置與陳列，使物體間產生互動與連結。

Direction in progress
Idea presentation and relevant transformation
(elaborate with sketch, writing and visual options)

We experimented with dyes of many different colors and paper of different thickness; we changed the texture of this material to make the pattern stand out, and we created different combinations and patterns which give vibrant sensational effect under the light.

To exhibit these material combinations, we tried to place and display them in spatial context to create interaction and connection with the other objects.

修正後的調整，及明確的發展形式（圖文說明）

我們決定將試片壓平、拉伸和染色，過程中不斷用光檢視效果，將所有的試片以不同方式排列、疊加並配置在空間中。

剛開始用不同厚度的構樹皮做試驗，也用解剖刀把檳榔葉切成不同厚度的試片，觀察光照射後的效果。我們還測試了加上染料的效果，有時可以做出幾個層次的色調與漸層。

我們的第一個想法是研究試片和顏色的組成，並且試圖在單一組成中去發掘紙張的不同層次和質感，希望能顯現出形式和顏色的層次感。

我們最終決議製作一個移動和旋轉的木製雕塑來回應上述想法，這個雕塑會由框架和銅棒和我們的試片所組成。

Debrief & Feedback

Idea modification, and brief development

We decided to flatten, stretch, and dye the test pieces, while continually review the effect with lighting during the process, by aligning, stacking, and arranging all test pieces in different ways spatially.

At first, we tested with paper mulberry bark of different thickness, and used a scalpel to cut the betel nut leaves into test pieces of different thickness to observe the lighting effect. We also tested the effect after dyeing. Sometimes several layers of color tone and gradient are made.

Our first idea was to study the combinations of the test pieces and colors, and we attempted to discover different layers and textures of the paper in a single composition, wishing to highlight the layers in form and color.

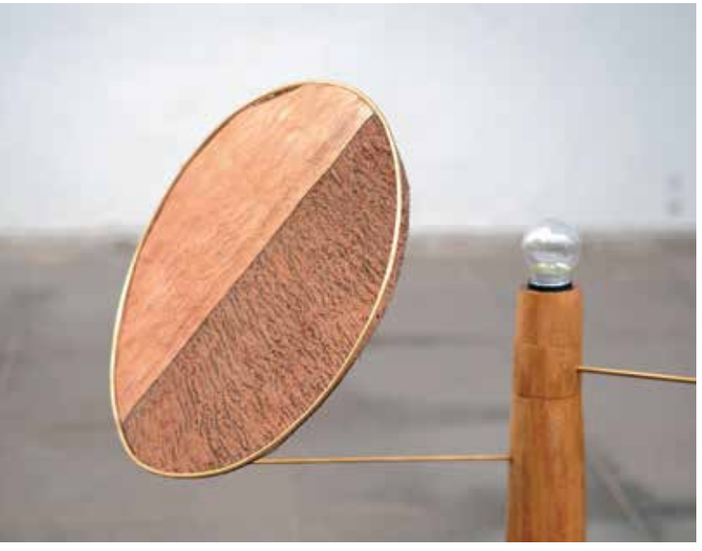
At last, we made the decision to make a movable and rotating wooden sculpture in response to the above idea. This sculpture comprises of a frame, a copper bar, and our test pieces.

分工計畫（請簡明敘述為什麼這樣分工）

我們根據每一位成員的專長來分配工作。佳鈺的專長是木工藝，負責製作和塑造木頭支架，這是物體的主要部分。擅長金工的安淇負責研究和實驗銅框的形狀，而Tanguy和Quentin則忙於製作與染色紙張，並決定試片的組成、顏色和形狀。工作坊接近尾聲時，我們也進行分工的溝通與調解。大家專注於自己熟悉的領域，我們的效率高了許多，必要時我們也互相幫助。

The plan of job division (Describe why)

We divided the work according to each member’s expertise. Jia-Yu is good at wooden craft. She was responsible for making and shaping the wooden frame, which is a major part of the craftworks. An-Qi who specializes in metalwork was responsible for studying and experimenting the shape of the copper frame. Tanguy and Quentin was busy making and dyeing the paper; they also decided the composition, colors, and shapes of the test pieces. When we approached the end of the project, we also communicated and coordinated for division of labor. We also focused on the area we’re good at. We had much better efficiency and we helped each other when necessary.



最終概念敘述（圖文說明）

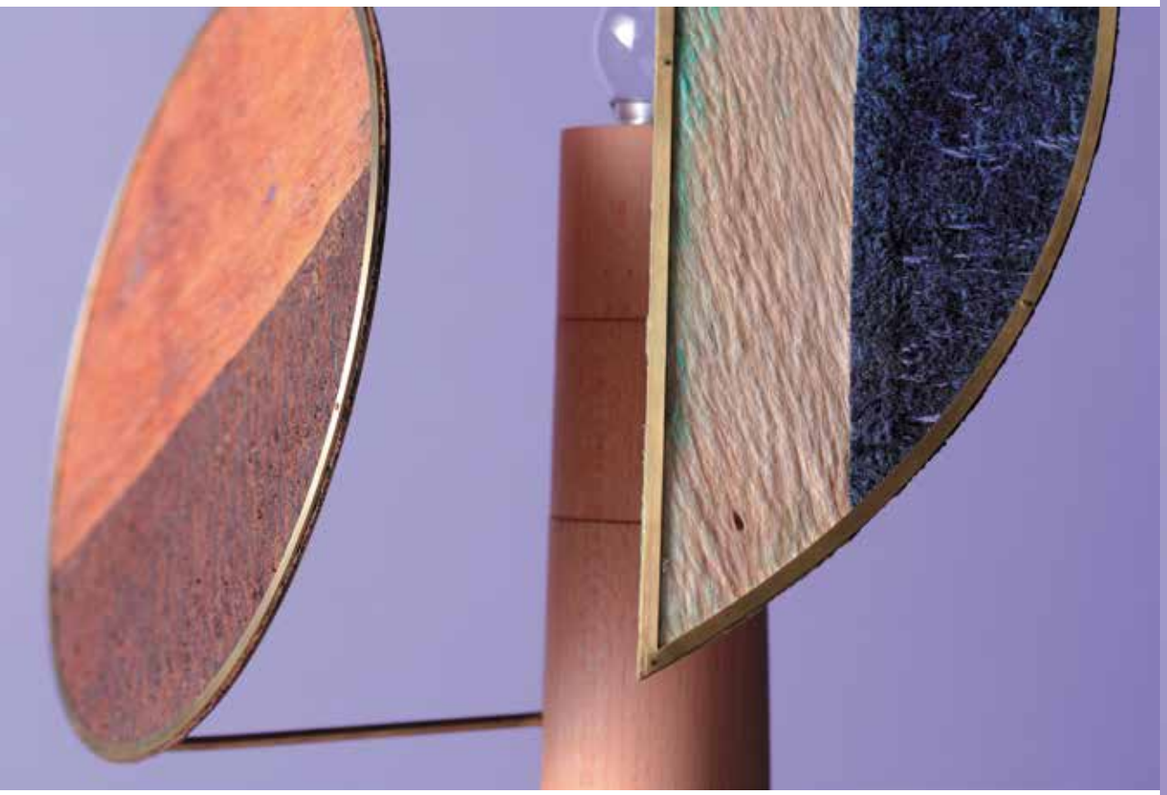
我們的作品是一個可移動和旋轉的結構體，主體是一個圓柱木底座，頂部有一個發光的燈泡（電線與機構藏在底座內）。這個底座由三個獨立的部分組成，頂部有兩個小部件，可以朝相反的方向轉動。兩個部件上都固定了銅棒，銅棒的末端有相連的銅框架，框架內黏貼上我們製作出的紙張。

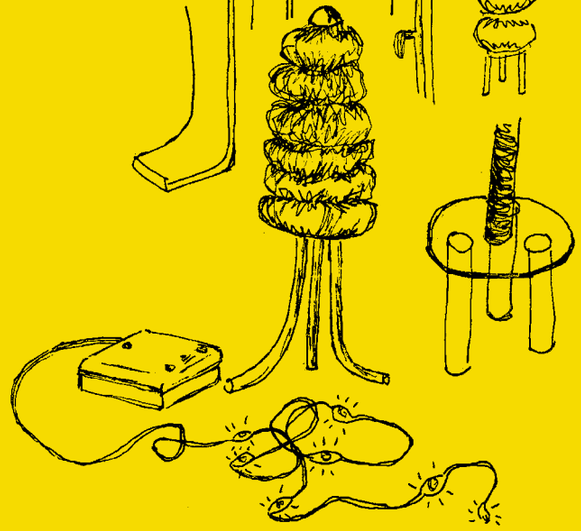
創造這個物體的目的，是透過改變旋轉部件的相對位置，讓材質在空間中來回互動。兩部件在相反的方向轉動時，框架內形狀最終會相遇並重疊在一起，紙張的質地也會隨著透光或重疊的部分而產生不一樣的動態變化。

Finalized design concept (Elaborate in sketches, photos and in writing)

WeOur work is a movable and rotating structure, with a cylindrical wooden stand as the main body, plus a light emitting bulb at the top (wires and mechanical parts are hidden inside the stand). The stand is consisted of three separate parts, plus two small components at the top which may rotate to the opposite direction. Both parts are fixed with a copper bar, and at the end of the bar is the connecting copper frame. Our self-made paper was glued inside the frame.

The purpose of making this object is to allow the materials interact with each other in the spatial context by changing the relative position of the rotating part. When the two parts rotate in opposite directions, the shape inside the frame will overlap in the end, and the different textures of the paper will give dynamically changing effects when light comes off it through the varying overlapping parts.



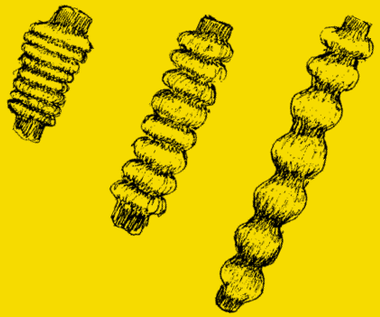


FIBER

WITH

CRAFTS

Team Ⅱ



分析的手法

從材料採集到材質試驗，你如何從最一開始去解析材料

構樹必須先透過刷洗方式，刮除殘留於樹皮表層（咖啡色及綠色）的部分，接著再將顏色較淡的樹皮剝下，進行敲打動作。我們發現透過不斷地敲打能夠再造纖維的形態：在逐漸延展開的樹皮中，有著粗細不同的纖維，其中呈現出虛實、厚薄、平面、曲面等特性，經過日曬後，纖維呈現出堅挺立體曲線，我們發現了構樹纖維具有自由成形的可能性，我們也試著透過藍染，讓構樹纖維有不同的顏色表現。

在探索檳榔樹的過程中，我們發現檳榔葉堅韌且延展性低，內膜纖維薄透顏色深淺不一，材料堅硬雖具豐富性但纖維束短，較耗費工作時間，檳榔葉韌性高適合作為編織的材料；葉鞘浸泡水後可使纖維較軟化且具彈性，裁切後可折疊成簡單容器；檳榔葉鞘表層纖維非常薄且有透光性。

組員們在分析材料後，一致對構樹的各種條件較感興趣，進而聚焦在構樹材料的發展。

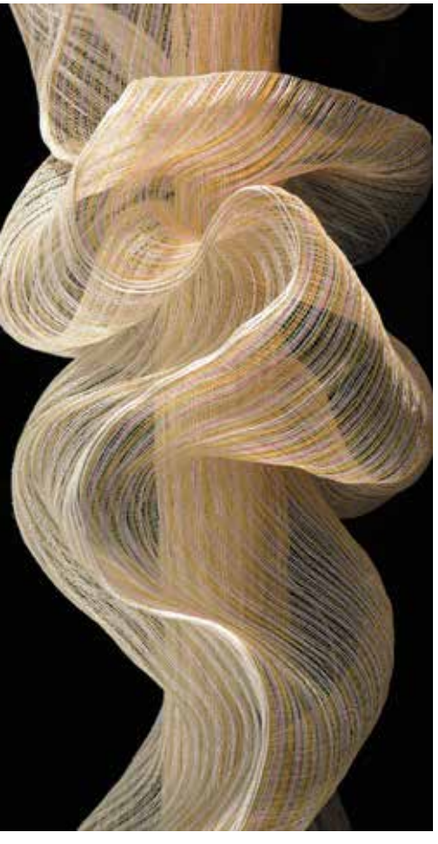
Analysis Method

Harvest to experiment-How do you analysis the material from the very beginning?

The bark residue on the surface (the brown and green part) of paper mulberry must be scrubbed away through washing. Then, the bark of lighter color should be removed for beating. We found that the form of the fiber can be remade through continuous beating: In the gradually extending bark, fibers of different sizes are shown, displaying the features of being solid and tenuous, being thick and thin, and being flat and curvy. After basking, the fibers show firm dimensional curves. We saw the possibility of free forming of the paper mulberry fibers, and we tried to give different color presentations of the paper mulberry fibers through indigo dyeing.

In the process of understanding the betel nut tree, we found that betel nut leaves are firm, tenacious, and poorly ductile, with thin and translucent inner fiber of differing color tone, lighter or darker. The abundant material is hard and firm but the fiber tracts are short; working on it is time consuming. Betel nut leaves are tenacious and suitable for weaving; after soaking the leaf sheaths in water, fibers can be softened and made flexible and can be folded into simple containers after cutting; surface fibers of the betel nut leaf sheath are very thin and translucent.

After the team members have analyzed the material, we all agreed that we’ re interested in the features of paper mulberry, and thus we focused on developing the paper mulberry material.



你們怎麼去設定材料的故事及情境敘述 (Moodboard)

材料故事：

容易生長的構樹在台灣無所不在，林間鄉野處處可見。樹皮含有很高的纖維質，有凸起腺點。葉形有兩種：分心形、另一為三至五個深裂像張開的手指；葉背佈滿細毛茸，觸感十分柔軟，但葉面 卻很粗糙。

經過實作的實驗討論後，發現樹皮延展性佳，塑出的造型在乾燥後相當具韌性及彈性，立體的構成可建構長短、大小不一的如燈籠般效果，也可延展成立體球形/圓柱體的構面，我們也發現構樹的粗細不同會呈現出不同的纖維特質，敲打後極薄的樹皮也能呈現許多細緻的孔洞。

我們對於構樹皮感性自然的纖維肌理感到興趣，我們還發現在不同延展效果所形成的對比也十分有趣，不論是透不透光、厚與薄、最外層顏色紋理與內部纖維的差異等等，讓我們發現構樹皮效果豐富多變的特性。對於材質的對比性與無法複製性，讓我們覺得他適合做成一些具情感性的作品。

Deep dive Ideation

How do you develop the material story and moodboard?

Story of the material:

The easy growing paper mulberry is everywhere in Taiwan, both in the wilderness and in villages. The bark has high fiber content, with bulged glandular dots. There are two kinds of leaf shapes: heart shape and three-point or five-point finger shape with deep cracks. The back of the leaf is full of fine fur, giving a soft touch but the front surface of the leaf is very coarse.

After discussion of the practical experiment, we found that the bark has very good ductility, and the form it is shaped has very good tenacity and flexibility after it is dried. The three-dimensional makeup can be made into something like lanterns of different lengths and sizes, or be stretched into ball shape/cylinder shape. We also found that paper mulberry trees of different sizes display different fiber features. The thin bark also shows many fine holes after beating.

We are very interested in the sensibly natural fiber texture of the paper mulberry bark. We found the contrast resulted from the different ductile effects very interesting, like such properties as being translucent or opaque, thick or thin, the color and pattern of the outer layer, and the difference in internal fibers, etc. These reveal the richly varied characteristics of the effects of paper mulberry. Considering the contrastive difference and irreplicability of the material, we think it is suitable for making some affective articles.

材料試驗的困境及轉機

請以圖文說明每個嘗試的問題及機會（提供實驗照片）

當對材料的應用有了共識時，發現構樹已經短缺，採集的構樹皮不敷使用。討論後需要再外出採集構樹。但因於鄰近區域採集回來的構樹品種不同，無法敲出較細纖維，因此認識到：老樹皮纖維較粗，敲打後較不易保留細纖維。因緣際會下我們得以認識同科不同種的構樹，待下次製作時須特別注意品種與老樹纖維的認知。

此外在製作過程中，我們也發現了：構樹若泡水太多天，纖維會變得脆弱，在敲打過程較易斷裂；樹形圓形的樹皮敲打難度高，需要有較好的耐心與經驗，才能有曲面球形的呈現；清洗樹皮時，樹皮容易受擠壓，纖維較易受到破壞。

過程中發現樹皮纖維要敲打至具有通透感費時也耗工，施作中成員從各自的工藝角度嘗試不同敲打方法，例如敲打出極薄多孔的纖維，或以不同延展程度形成的厚薄差異與皺褶起伏，亦或是直接敲打樹幹取出管狀的樹皮，並運用不同的延展程度，發展出利用纖維粗細虛實之間，可以有彈性的伸縮立體造形。而經過討論後，我們決定以管狀球體造型為之後發展的方向。

Outputs (description. photos)

What is the opportunity and values
with each and every material experiment?
(Please also include sketches and phtots)

When we have reached a consensus on the use of material, we found that we’ re short of the paper mulberry trees and the bark collected was not enough. After discussion, we went out to harvest paper mulberry again. However, due to the different breeds of paper mulberry material collected from neighboring areas, we could not beat it into refined fiber. We realized that older bark fibers are coarser and could hardly keep the fine fiber after beating. We became aware of different breeds of paper mulberry in the same family by chance, and special attention should be paid to the breed and old tree fiber when we make our craftworks next time.

In the process of crafting, we also found that: paper mulberry fibers will become fragile if soaked in water for too many days, and so may be easily broken in the beating process; it is more difficult to beat the bark of round-shape trees and greater patience and better experience are required to make it into a curvy ball shape; the bark may be easily squeezed and fiber easily damaged when it is washed.

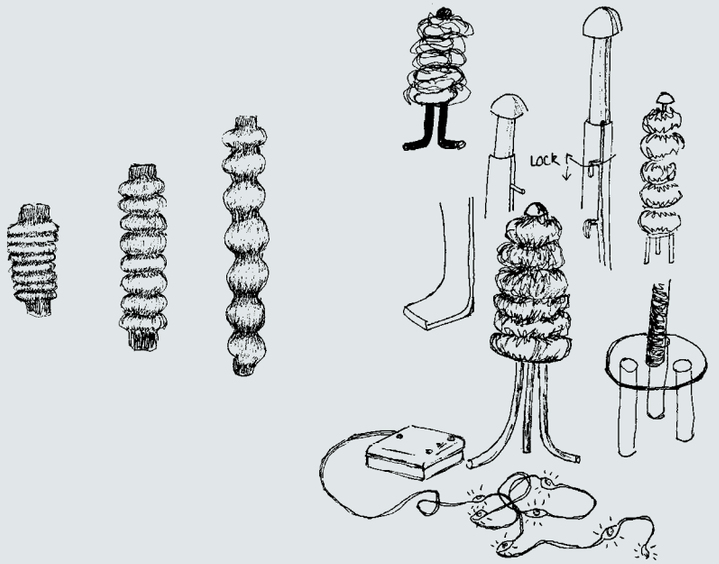
It was found in the process that beating the bark fiber until it becomes translucent is time and effort consuming. When working on it, each member tried different ways of beating from his or her own artistic perception, for example, beat until it becomes very thin and shows many holes, or show the difference in thickness or folding patterns by using its different ductility, or beating the trunk directly to get the tube-shape bark. Also, taking advantage of the different ductility, flexible, retractable, three-dimensional forms can be made by using the thick and thin, solid and tenuous contrast of the fibers. After discussion, we decided to develop towards the direction of tube-shape ball form.

正在發展中的概念和方向（期中發表）及相關的轉化過程說明
（草圖、圖文說明、Visual option）

在最一開始時我們其實是想做一系列的袋子，由於考量到構樹皮的纖維不夠堅固，支撐性與強度的不足，作為袋子可能沒有那麼的合適，會有破掉的風險，再者我們也沒研擬出如何將底部漂亮的收尾，以及大小會受限於本身材質等問題，感覺可行性不太高，迫使我們必須朝其他可行的方向前進，並且著重在三種不同的造型：橢圓形、蓬鬆的圓柱形和有三個氣泡形段落的柱形。

起初我們不太想製作燈具，這類已經很普遍類型的產品，但經過老師的指導後，我們把注意力集中到中段被延展的管狀試片上，由於中段比較薄，上下擠壓會形成橢圓狀的小空間，乾燥後如彈簧有彈性可伸縮，中段樹皮纖維的間隙也會隨著伸縮開闔，於是我們想運用光線表現這樣的特性，做出不同光線亮度所透出樹皮的效果。

透過能夠延伸的金屬結構，燈具得以表現出纖維的延展性，因為纖維的折疊，在不同的纖維厚度下光影會呈現出不一樣的對比以及營造出柔和的氛圍。



Direction in progress
Idea presentation and relevant transformation
(elaborate with sketch, writing and visual options)

At the beginning, we wanted to make a series of bags, but considering the fact that the paper mulberry bark fiber is not tough enough and unable to offer sufficient support and strength, it is not suitable for making bags, as the bags may easily break. Furthermore, we could not figure out how to round up the tail part beautifully, and since the size of the object may be restricted by the material itself, we thought the idea was not feasible. It forced us to shift to other directions and focus on three different forms: oval shape, puffy cylinder shape, and column shape with three bubble-shape sections.

At first, we did not want to make lighting devices, because these are already very common products. But with the instructor’ s guidance, we focused on the extended tube-shape test piece in the middle section. Since the middle section is relatively thinner, it forms a small oval-shape space when pressed on two ends, and it becomes flexible and retractable like a spring after being dried. The gaps in between the middle-section bark fibers can also open and close as it lengthens and retracts. We wanted to highlight this feature by using the light to show the effect of different luminance levels going through the bark.

Through the extendable metal structure, the lighting device reveals the ductility of the fiber, because when the fibers are folded, the light and shade will show different contrast under different fiber thickness and a placid ambience can be created.ductility of the fiber. Because the fiber is folded, the light and shadow will show different contrast and create a soft atmosphere under different fiber thicknesses.

修正後的調整，及明確的發展形式（圖文說明）

由於構樹皮在結構韌性上不適合承重，發展包袋類相對困難，所以我們選擇比較有興趣的立體造形切入，並加入我們喜歡的多孔洞纖維感，最後想出多節球型柱狀的造型，並做成燈具。

設計相關的細節上，我們的色彩方案為將部分樹皮透過藍染，並利用構樹皮原色深淺，作為自然原色和藍色的多層次交疊，產生的內外顏色差異透過光線襯托，產生不同層次的光影效果。

可伸縮的金屬結構富操作趣味性，與纖維的韌性相輔相成，使得伸縮燈具得以實踐。

Debrief & Feedback

Idea modification, and brief development

Since the structural tenacity of the paper mulberry bark makes it unsuitable for load bearing, it is difficult to be used for bags. Therefore, we chose to start with things of three-dimensional design in which we’re more interested. And we added the idea of porous fiber. Finally we came up with the design of multi-knot ball-shape cylinder lighting.

Regarding details of the design, we made our color scheme by using the darker and lighter original colors of the paper mulberry bark plus some indigo-dyed bark to create multi-layer of natural colors and indigo blue. Thus, layers of light and shade effect are created with the different light transmission through different colors in the inner and outer layers.

The retractable metal structure is fun to operate, and it complements with the tenacious fiber to make the retractable lighting possible.

分工計畫（請簡明敘述為什麼這樣分工）

我們這組希望大家都能夠共同參與，所以大部分是一起做，可以同時互相學習。在剛開始時，大家各自試做構樹皮試片，每位成員都能充分感受樹纖維的可塑性，並試著探索出自己喜歡的肌理效果與造型，再以現有的各種試片討論並選出想要繼續發展延伸的效果，最後定案為探索球形纖維和樹節間歇虛實的纖維。

接著我們搜尋相關的參考圖與情境圖，並提出想法與草圖，透過小組討論後，來決定大致的方向。Juliette與Zoé運用她們產品設計系的所學，負責設計燈具的細節與草圖，但因為原本設定的造型很多種，必須大家通力合作才能達到所需的造型種數量。

具有陶瓷專業的淑婉利用烘坯機使敲打後的樹皮能快速乾燥，而金工專長的耕弘負責金屬燈座及結構，零件的銼修、打磨再由淑婉、Juliette與Zoé協助，同時也能體驗金工製作流程，最後作品由Zoé負責攝影並輸出，大家發揮各自的專長完成共同創作。

The plan of job division (Describe why)

We wish every team member may participate in the process to jointly accomplish the work while learn from each other at the same time. Each of us worked on the paper mulberry test piece individually at first, so each member may have a full grasp of the tree fiber’s formability and a chance to try out our favorite texture effect and style. Then, discussions were made with reference to the various test pieces, and the desired effect was picked for further development. Finally we decided to explore the ball-shape fibers and the solid and tenuous fibers between the tree knots.

Next, we searched for the relevant reference images and scenarios, raised our ideas, and made the sketches. After group discussion, we came to a general conclusion for the direction of development. Juliette and Zoé used their knowledge learned from the product design department and became responsible for designing the details and sketches of the lighting device. But since we’d come up with many different styles of appearance, everyone’s effort and cooperation were required to accomplish the required styles and quantities.

Shu-Yuan, a pottery professional, used the ceramics dryer to dry the beaten bark rapidly. Geng-Hong specializing in metalwork was responsible for making the metal lamp stand and structure, with Shu-Yuan, Juliette, and Zoé assisting with the filing and polishing of parts so that they had a chance of experiencing the metalwork process. Lastly, Zoé undertook to photograph and output the craftworks. Each of us contributed our specialty and accomplished the works together.

最終概念敘述（圖文說明）

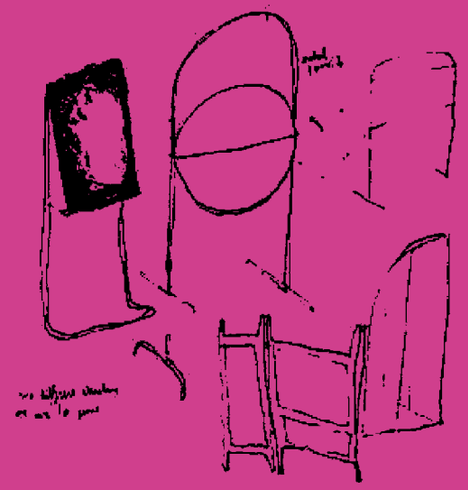
我們的作品是一系列能夠呈現出材料韌性及透光性的燈具，使用者能夠透過拉伸燈管使光線在纖微厚度不同的情況下，營造出不一樣的氣氛，使空間能夠增添自然的氛圍，增添使用上的樂趣。

在造形上樹皮紙呈現出生動感性的有機型，並結合簡潔幾何的金屬結構作為支撐，以兩種不同溫度的材質形成有趣的對比，呼應著我們想強調的對比性。而中心的金屬軸心為三段式伸縮的結構，有三種不同的高度設定，並用旋轉頂端轉盤的方式來調整所設定的高度。每件作品的形狀都是獨一無二的，無法複製，不但呈現大自然的特性，也能使大眾更能感受到工藝的溫度。

RFinalized design concept (elaborate in sketches, photos and in writting)

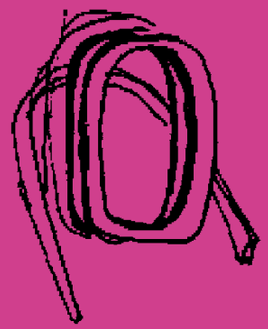
Our works are a series of lighting devices that can present the tenacity and translucency of the material. Users can create completely different atmospheres by lighting transmitting through fibers of different thickness by extending and retracting the tube. The interesting device may add to the natural feel of a place.

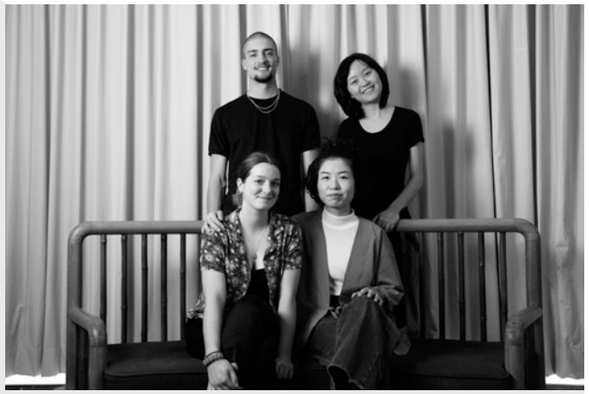
In the exterior design, the bark paper displays a vivid and sensational organic form, combined with the simple geometric metal structure as a support. The two materials of different temperatures constitute an interesting contrast, echoing our emphasis on the contrastive difference. At the center of the metal shaft is the three-sectional retractable structure, with three height options that can be adjusted by rotating the top wheel. Each piece of works is in a unique irreplicable shape. It not only exemplifies the feature of nature, but also allows the users to feel the warmth of craftworks.



FIBER WITH CRAFTS

Team III





分析的手法

從材料採集到材質試驗，你如何從最一開始去解析材料

從最一開始時我們便知道正在探索非常具有變化性的材料。

在工藝老師指導如何加工構樹皮後，我們另外進行了不同的變量嘗試，例如：記錄每一次敲打構樹皮的頻率和每一次染色的過程，透過各種變量，比較出中間的差異，同時我們也嘗試了高溫熱壓。

這樣的過程主要是利用有限的材料進行定量研究，探索自然材質能夠呈現出哪些不同的樣貌。

Analysis method

Harvest to experiment-How do you analysis the material from the very beginning?

From the very beginning, we know that we’ re studying some highly changeable materials.

After the craftwork instructors taught us how to process the paper mulberry bark, we performed trials on other variables, for example, recording the beating frequency on the bark and the dyeing process in each occasion. By comparing the various variables, we found out the differences. We also tried the high-temperature autoclaving.

The major task in this process is performing quantitative study with the limited materials, in order to find out what are the different appearances that the natural materials can present.

你們怎麼去設定材料的故事及情境敘述 (Moodboard)

我們分享了臺灣及法國的文化，例如食品、禮物、政治等…去對比和臺灣和法國的文化有哪些不同。透過這樣的討論，有了一些很有趣的發現：法國人和臺灣人最大的不同是，臉部的表情是非常豐富的；而在臺灣的街道上常常可以看到家門是敞開而可以看到內部生活空間的，這對於法國人來說是無法想像的，法國人大多將私人生活隱藏起來。

基於這些發現，我們希望能用一個物件來表達雙方文化的反差，而且能夠聯結傳統、自然、臺灣材料與現代西方造型。最初的想法利用簡單且看起來工業化的結構來呈現天然材料之美（我們選擇用檳榔葉來發展）。

Deep dive Ideation

How do you develop the material story and moodboard?

We shared the cultures of Taiwan and France in different aspects, including food, gifts, politics, etc. and compared them to identify differences in the Taiwanese and French cultures. Through such discussion, we have some interesting findings: French differ from Taiwanese mainly in having more varied facial expression; in Taiwan’s streets, people may often see households leaving their doors open and their living space is exposed. This is unimaginable for French, who usually keep their personal life secret.

Based on these findings, we wish to express the cultural difference with an object, and to link the traditional, natural Taiwanese materials with Western exterior designs. In our initial idea, we want to express the beauty of the natural materials via simple and industrial looking structure (We choose to use betel nut leaf for further development.)

材料試驗的困境及轉機

請以圖文說明每個嘗試的問題及機會（提供實驗照片）

檳榔枝和檳榔種子：

我們壓碎檳榔枝和檳榔，發現兩種纖維都很容易散掉，但透過高溫熱壓可以使它們交合在一起；檳榔種子纖維較短，並不易黏接起來。以隨機的方式去地碾壓纖維會得到很曠野的效果，壓碎後的種子呈現綠色，以鐵為基底的染劑能夠很輕易地使纖維染色。

檳榔樹葉：

我們針對檳榔葉的底面做試驗，發現浸泡一夜之後，可以很輕易地取得檳榔葉薄片，這些試片如果在順紋的情況之下非常具有韌性，反之，在逆紋時則易碎，這也是為什麼我們以不規則的方向交疊這些試片，這樣使得大形的片狀材質具有強度。以100度的高溫熱壓兩小時後，製作出帶有棕色和橙色交錯的透光片。

構樹皮：

我們對構樹皮進行了不同的轉化和試驗，對構樹皮用不同的拋光方式以及透過敲打5、10或20分鐘去取得不同厚度的構樹皮，構樹皮隨著敲打的過程越變越薄看起來相當有意思。我們還嘗試了以銅和鐵為基底做染色，得到了不同色調的暖棕色、橙色和暖灰色。

Outputs (description. photos)

What is the opportunity and values
with each and every material experiment?
(Please also include sketches and phtots)

Betel nut branch and betel nut seed:

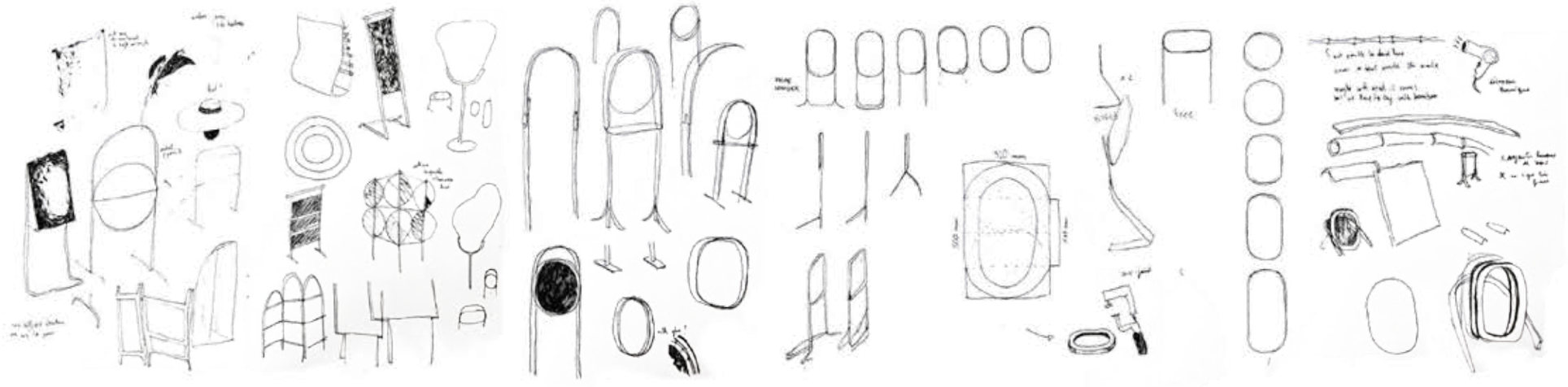
We crushed the betel nut branches and seeds and found that both have easily dissipated fibers, which can be bound together through high-temperature autoclaving. Betel nut seeds have shorter fibers that could not be easily attached together. Crushing the fibers randomly would give effect that looks very wild.

Betel nut tree leaf:

We tested the back surface of betel nut leaves and found that the thin film on betel nut leaves could be easily taken after being soaked overnight. These test pieces are very tenacious if in parallel-grain pattern, but become fragile when they’ re cross grain. This is why the large-piece material has good strength when we stacked these test pieces in irregular way. After autoclaving at 100 degree Celsius, translucent pieces with intertwining brown and orange colors were made.

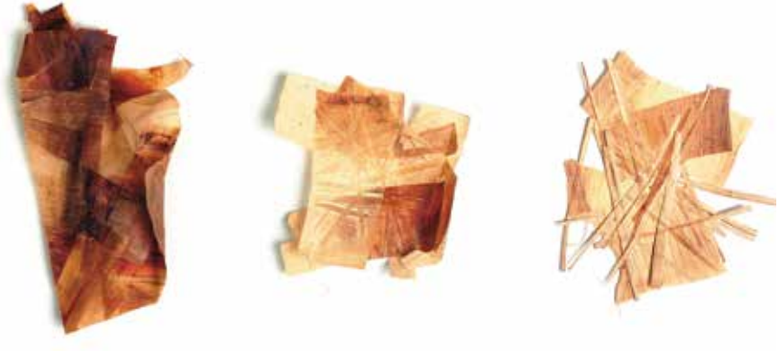
Paper mulberry bark:

We carried out modifications and tests on paper mulberry bark, by adopting different polishing methods and beating the bark for 5, 10, or 20 minutes to get bark of different thickness. Paper mulberry bark becomes thinner and thinner as we beat it and the process is intriguing. We also tried copper- and ferric-based dyeing, and got results of warm brown, orange, and warm grey colors.



正在發展中的概念和方向（期中發表）及相關的轉化過程說明
（草圖、圖文說明、Visual option）

我們的目的是將天然材質和以當代造型做呈現，最一開始是希望能用具有一定高度的金屬物件來做結合。



Direction in progress
Idea presentation and relevant transformation
(elaborate with sketch, writing and visual options)

Our goal is to display the natural materials in modern style. Initially, we wanted to use metal object of certain height in conjunction.

修正後的調整，及明確的發展形式（圖文說明）

當我們發現金屬框架在有限的時間內是不可能實踐的，取而代之地，我們使用竹子。但是我們沒有足夠的竹材可以做預定尺寸的框架，所以我們決定做一個桌上型尺寸的草模。

我們也意識到我們並沒有足夠的時間和技能來彎竹，所以我們以木料夾板做為框架的替代材料。

Debrief & Feedback

Idea modification, and brief development

When we found that a metal frame is impracticable within limited time, we used bamboo instead. But we did not have sufficient bamboo material to make the frame of the preset size. We therefore decided to make a desktop-size mockup.

We also realized that we didn’ t have enough time and skill to bend the bamboo, and so we used plywood as a substitute material for the frame.

分工計畫（請簡明敘述為什麼這樣分工）

試驗：

在過程中，我們每人負責一項材料及一種試驗方法，每小時我們都會做分享及討論。在每一次討論後，我們會互換探索的材料，所以每個成員都能對於每一項材料提出自己的觀點。

思考：

當試驗過程結束後，我們聚集在一起共享我們的想法，在取得大方向上的共識後，我們開始各自去描繪心中所想的樣子，在兩個小時的草圖繪製後，我們針對所有成員的草圖一起整理出交集。

實踐：

最終的設計圖定案後，我們就開始製作了。為了提高效率，我們分成兩個同時有臺灣人及法國人的工作小組，以便與法國老師或臺灣老師討論時能夠互相協助。在每一個關鍵步驟中，我們也會聚在一起做決定。

The plan of job division (Describe why)

Experiment:

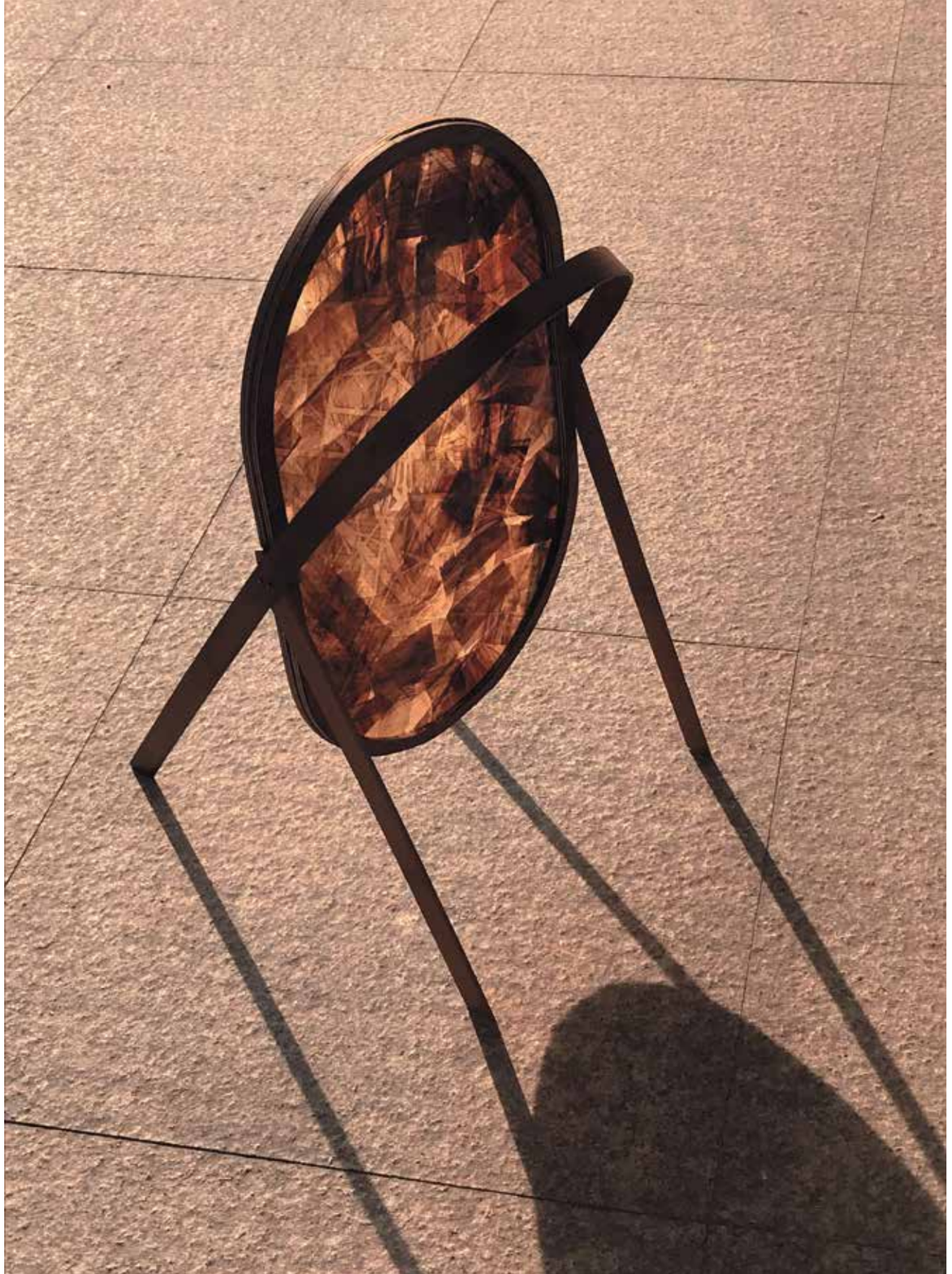
In the process, each of us was responsible for a material and for experimenting a method. We shared our findings and discussed each hour. After each discussion, we exchanged the material with each other for further exploration. Therefore, each member may voice their opinions on each material.

Reflection:

At the end of the experimentation, we gathered and shared our views. Having reached a general consensus, we individually described what were on our mind. After the two-hour drafting time, we went through all members' sketches and worked out the commonalities.

Practice:

After finalizing the design drawing, we started the practical work. To increase efficiency, we divided ourselves up into two working groups, both consisting of Taiwanese and French members, so that we may help each other when communicating with either French or Taiwanese instructors. In each critical step, we made the decisions together.

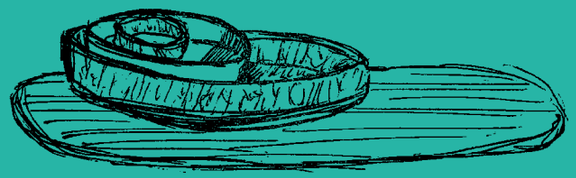


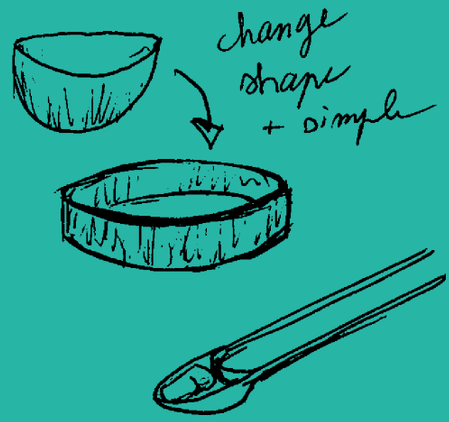
最終概念敘述（圖文說明）

Hublot是一個能呈現出檳榔材質之美的桌上型屏幕。光線穿過屏幕能夠有不同的陰影表現，它也同時體現出傳統材質及當代造型的交融，透過這個像飛機窗戶的屏幕，我們可以看見臺灣的天然材質及景色。

RFinalized design concept (elaborate in sketches, photos and in writting)

Hublot is a desktop screen that shows the beauty of the betel nut material. When light passes through the screen, it shows different shade expression. It also manifests the harmonious fusion of traditional materials and the modern style. Through this screen resembling the look of an airplane window, we may see Taiwan’ s natural materials and scenery.





FIBER WITH CRAFTS

Team Ⅳ

分析的手法

從材料採集到材質試驗，你如何從最一開始去解析材料

在檳榔園採集的時，我們發現乾燥的檳榔葉底部與木材紋理很相似，這樣有趣的紋理相當吸引我們。而在採集構樹時，我們並沒有預設要採收什麼樣的樹枝，但同時也注意到，用樹皮紙可以創造出不同的紋理。另外，在取材時，只砍伐構樹的一小部分，剩下的部分使得樹木得以再生，這樣永續循環的概念我們也相當欣賞。在參訪竹工廠時，我們也蒐集了一些中等直徑但不算長的竹子，當時我們並沒有預設這些材料要做些什麼。

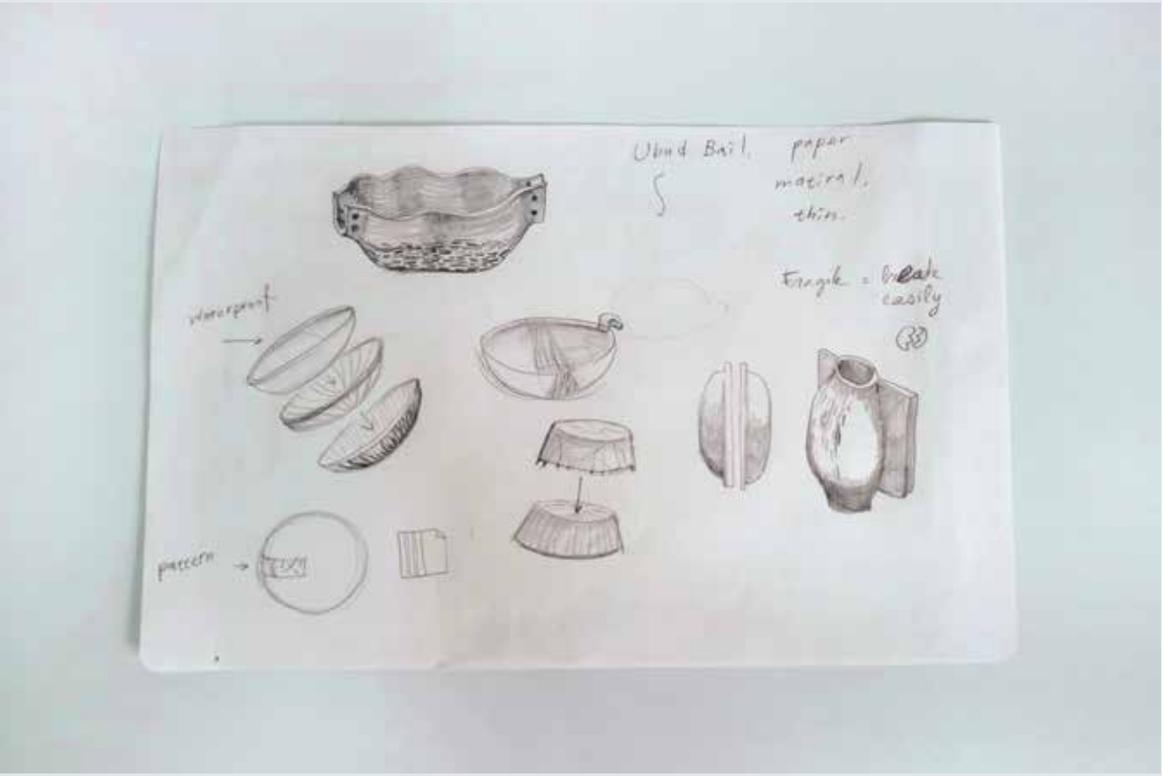
透過實地採集，用身體的直覺試著操作材料，並且從這個過程進入材料質地的微觀世界，發現其特性與材料本質。例如，我們在處理構樹時，看見它會產生相當大的延展性和圖樣；檳榔樹葉表面透明，並且每一層在局部編織的結構上表現皆不同，兩種材料的顏色效果具備一定的差異性，但是在搭配使用上是有其可能性的。

Analysis Method

Harvest to experiment-How do you analysis the material from the very beginning?

When harvesting in the betel nut farm, we found that the bottom of dried betel nut leaves has a very similar pattern as timber. This interesting phenomenon has deeply attracted us. And when harvesting paper mulberry, we had no precondition as to what kind of branches to pick. However, we noticed that bark paper can be used to create different patterns. Also, when picking the material, only a small part of the paper mulberry is taken, and the remaining part of the tree will enable it to continue growing. We admire this concept of sustainable cycle. When visiting the bamboo factory, we also collected some bamboo sticks of medium diameter that are not too long. We had no preset idea what we should make with these materials at that time.

In this field harvesting process, we handle the materials through the direct bodily touch and enter the microcosmos of the texture of these materials, realizing their properties and nature. For example, when we handled the paper mulberry, we saw the considerable ductility and pattern diversity it may generate; we saw that betel nut leaves have a transparent surface and display different local interlock texture on each level. The two materials show difference to a certain extent in their color effects, but there are possibilities for mix-and-match use.



你們怎麼去設定材料的故事及情境敘述 (Moodboard)

竹子、檳榔葉和構樹皮是臺灣很早期就開始使用的天然材質。我們想在作品之中帶入自然、生態和文化的語彙，同時也能呈現出材質本身的美及質感。

構樹皮同時有綠色、棕色和白色的不同表現，使我們聯想到臺灣的風景和傳統陶瓷。而在臺灣傳統文化中，竹子常被用來製作餐具和筷子，檳榔葉則能折成盒子和容器。

Deep dive Ideation

How do you develop the material story and moodboard?

Bamboo, betel nut leaf, and paper mulberry bark are some of the natural materials put into practical use in Taiwan since early days. We want to include the natural, ecological, and cultural languages in our works, while also present the materials' own beauty and texture.

Paper mulberry bark displays different appearances in green, brown, and white colors, which are associated with Taiwan's scenery and traditional ceramics in our mind. In traditional Taiwan culture, bamboo is often used for making tableware and chopsticks, while betel nut leaves can be folded into boxes and containers.

材料試驗的困境及轉機

請以圖文說明每個嘗試的問題及機會（提供實驗照片）

在實驗的過程中，我們發現構樹皮在濕的狀態下很容易塑型，因此我們利用陶瓷模具為輔助再加上糯米漿糊，經過日曬和工業烤箱乾燥後，就得到我們想要的形體。我們也嘗試在保留竹節的情況下，以竹子去雕製各種造型。

除此之外我們也利用檳榔葉在濕潤的情況下去製作造型，葉子表面的薄層也被我們萃取出來用以當作容器的表面薄膜。

在實驗構樹後，發現纖維有延展的效果，但拿來做編織，其實有點脆弱，因為在嘗試製作繩子時，斷裂的情況經常出現，不過在風乾後，樹皮變得具有彈性，可以做不同的造型。在構樹的敲打過程中，我們喜歡材料自然延展開來的圖案，於是專注在保留圖案並使它能有雙面的效果。若要製作容器並拿來裝盛食物的話，必須有一定的防水性，在自然材料的選擇當中，天然的蜂蠟會是我們很好的選擇。

Outputs (description. photos)

What is the opportunity and values
with each and every material experiment?
(Please also include sketches and phtots)

In the experimentation process, we found that paper mulberry bark can be easily shaped when it is wet. Therefore, we made use of the ceramic mold and glutinous rice paste to get the shape we wanted through basking and applying the industrial oven. We’ d also tried to make different carvings with bamboo while keeping the bamboo knots.

In addition, we’ d tried to make betel nut leaves into designed shapes when they are wet. We also extracted the thin film on the leaf surface to be used as the surface film of a container.

After experimenting with the paper mulberry, it was found that its fibers are ductile, but they’ re a bit too fragile when used for weaving, because fractures were often found when we tried to make ropes with the fibers. However, after air drying, the bark became more flexible and could be used to make different appearances. In the process of beating the paper mulberry, we like the naturally extended patterns of the material. Thus, we focused on keeping the pattern and making it double-sided. If we try to make a food container, it must be waterproof. So the natural beeswax would be a very good choice among various natural materials.

正在發展中的概念和方向（期中發表）及相關的轉化過程說明
（草圖、圖文說明、Visual option）

我們一開始就朝容器這個方向發展，容器可以做相當廣泛的應用，舉凡食器、保存物件等…，我們也嘗試在容器塗上一層蜂蠟，增加其防水耐用性。這個階段我們嘗試去置作不同形狀、紋理、厚度的容器。

Direction in progress
Idea presentation and relevant transformation
(elaborate with sketch, writing and visual options)

At the beginning, we tended towards the direction of making containers. Containers can be widely used for different applications, such as holding food and other articles. We also tried to add a layer of beeswax on the container surface to enhance its water resistance. In this stage, we attempted to make containers of different shapes, patterns, and thickness.

修正後的調整，及明確的發展形式（圖文說明）

在期中發表得到反饋及建議後，我們決定將集中精力在食品容器和餐具上。我們想要創造出一種全新的食用方式：一系列天然材質製作、可自然降解的的容器及餐具，用餐完畢後所有物件可以在大自然中自然分解。我們想像出一個情境：大家都使用著檳榔葉和竹材所製作出的湯匙、筷子、叉子。

Debrief & Feedback
Idea modification, and brief development

After getting feedback and advice upon mid-term presentation, we decided to focus on food container and tableware. We want to make a brand-new eating approach: with a series of naturally degradable containers and tableware made of natural materials; all items can be naturally decomposed in nature after people finish eating. We came up with an imaginary scenario: Everyone is using spoons, chopsticks, and forks made of betel nut leaves and bamboo.

分工計畫（請簡明敘述為什麼這樣分工）

我們全組都有共識要創作可降解的食品容器。每個人都嘗試用構樹皮做容器。在在期中發表之後，大家進行明確的分工：Coline和Clara負責草圖，描繪出容器的形狀和顏色；Jennifer有過操作機具的經驗，因此她專注在製作竹子的用具；由陶藝家Elllа繼續用構樹皮及陶瓷製作容器，這樣的配置讓我們的工作效率增加不少。

在後續調整的部分，Coline負責竹子用具的細節，Jennifer、Ella和Clara一起完成容器及相關的周邊物件，最後發表是由大家協力完成整個情境的配置。

The plan of job division (Describe why)

All our team members agreed that we should make biodegradable food containers. Everyone tried to use paper mulberry bark to make containers. After the mid-term presentation, we came up with clear division of labor: Coline and Clara were responsible for generating the sketches to depict the shapes and colors of the containers; Jennifer has experience in handling the machine, and so she focused on making bamboo tools; Ella is a ceramist, and she continued to make containers with paper mulberry bark and ceramic clay. This arrangement greatly increased our work efficiency.

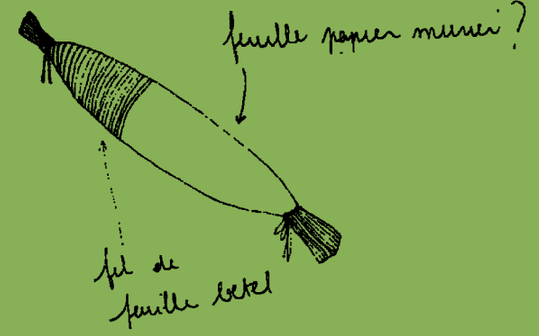
For the subsequent adjustment, Coline was responsible for details of the bamboo tools; Jennifer, Ella, and Clara finished the containers and related items together; and we all worked together to complete the overall scenario arrangement for the final presentation.

最終概念敘述（圖文說明）

我們的概念是創造一個全新的食用方式：使用可生物降解的盤子和餐具來吃東西，這也有助於減少臺灣的塑料容器的使用。我們的設計還有一個獨到之處：儘管是很容易量化的造型，但由於天然材料的使用，使得每個物件都是獨一無二的。

RFinalized design concept (elaborate in sketches, photos and in writting)

Our concept is to create an innovative eating approach: Using biodegradable plates and tableware to eat. This also helps reduce usage of plastic containers in Taiwan. Our design has a distinctive feature: Although the designs are in easily mass producible forms, each item is unique and unmatched because they are made of natural materials.



FIBER WITH CRAFTS

Team V

分析的手法

從材料採集到材質試驗，你如何從最一開始去解析材料

首先，我們研究了檳榔樹和構樹的所有部位（樹幹、纖維、樹葉等…），發現這些材料具有柔軟性、韌性和耐用性及延展性，我們想聚焦在這些特性，使它們能夠被看見。

由於材質本身的尺寸均不大，我們想到了利用編織的技法來擴張材質本身的使用面積及增加其可能延伸的變化性，而編織的表面，材料因重覆交疊，會型成循環出現的格子網狀，中間不緊密，甚至縷空，進而構成一個平面或立體。除此之外編織技法正好能使這些材質更加的堅韌且細緻，不同的編織方式可以產生出不同的使用功能，所以我們選擇編織的技法來成形，將材質切割成各式尺寸的條狀及預備相當數量的材質成為我們的目標。

除了以編織方式來延伸及加強材質的使用率，我們從檳榔樹取纖維時，發現檳榔鞘觸感絲滑，密度高，因此利用刮青刀去除多餘的纖維留下內側薄膜、另外敲打構樹皮使之自然延展，增加其使用面積，利用檳榔鞘內部內側薄膜及敲打過後的構樹皮的強韌，使用高溫熱壓的方式將各種材料混合壓製，成為另一種新的媒材。

Analysis Method

Harvest to experiment-How do you analysis the material from the very beginning?

First of all, we studied all parts of the betel nut tree and paper mulberry tree (trunk, fiber, leaf…, etc.) and found that all these materials are soft, resilient, durable, and ductile. We wanted to focus on these properties and reveal them to all.

Since the materials are of moderate sizes, we came up with the idea of enlarging the usable area of the materials and increasing the possibilities of variation by adopting the weaving technique. The woven surface would form circular grid-shape net, not tightly knitted or even hollow in the middle, and hence constitute a two- or three-dimensional object. In addition, the materials are made even tougher and finer by using the weaving technique. By using different weaving methods, products serving different practical functions can be made. This is why we chose to use the weaving technique for forming our works. Cutting materials into strips of different sizes and keeping considerable amount of the materials became our objectives.

We not only extended and strengthened the usage of the materials by the weaving technique, but also discovered the silky touch and high density of the betel nut sheath when taking the betel nut tree fibers. Therefore, we removed the excessive fibers left on the inner film using a scraper. We also beat the paper mulberry bark to naturally lengthen it and increase its usable area. Using the inner thin film inside the betel nut sheath and the tenacity of the beaten paper mulberry bark, all materials were mixed and pressed together to form a new material by means of high-temperature autoclaving.

你們怎麼去設定材料的故事及情境敘述 (Moodboard)

我們以材料的彈性做一系列編織研究之後，也發現到材料透過不同的折法能呈現出有趣的面貌，基於上述的發現，我們以”包裝”作為主要的方向。

贈禮是亞洲文化中非常重要的習俗，在宮崎駿的電影《豆豆龍》中，小女孩用香蕉葉包裝禮物。在臺灣，食物也常用竹葉包裹，同時也能帶給米飯不同的風味，由此可見”包裝”在贈禮中具有舉足輕重的地位。

我們的目標是重新定義”包裝”，這個在亞洲已經習以為常的事物，讓它重新被大家所看見，提升包裝的價值，使之甚至與禮物本身一樣重要。

Deep dive Ideation

How do you develop the material story and moodboard?

After we’ve made a series of weaving studies on the flexibility of the materials, we found that the materials showed interesting appearances by using different folding methods. Based on this finding, we focused on “package” as the main direction for development.

Gifting is a very important custom in Asian culture. In Hayao Miyazaki’s movie TOTORO, the little girl wraps her gift with a banana leaf. In Taiwan, food is often wrapped with bamboo leaves too, which also gives the rice a special taste. From these we can see “packaging” plays a pivotal role in the gifting practice.

Redefining “packaging” is our objective. We want to re-present this well-accustomed thing in Asia, promoting the value of packaging to make it even as important as the gift itself.

材料試驗的困境及轉機

請以圖文說明每個嘗試的問題及機會（提供實驗照片）

探索構樹及檳榔對於所有組員來說都是全新的體驗，我們透過試驗的過程得以去了解材料本身以及去思考更多應用的可能性。

構樹皮只需要透過泡水及不斷敲打就能逐漸延展成可用的材料：少量的材料以及簡單的工具就能創造出材質，這樣的過程使我們非常驚豔，在敲打的過程中也磨練著耐性及規律性。但是自然素材的取得往往會受限於空間及時間，因此在實驗階段中無法完成符合設計的理想尺寸，此外我們還利用製作竹片的方式去萃取出檳榔葉上的薄膜。蒐集素材的過程中我們嘗試以不同的工具來有效取得更多可用的材料，例如劈刀、刮青刀……等工具，每一種工具所帶來的效果都不太一樣，除了利用不同的手工具取材外，高壓高溫的大型機具也是我們嘗試獲得新媒材的方法，不同溫度及時間所呈現出來的材質效果也略有不同，透過外在強力的加壓，構樹皮及檳榔鞘的薄膜完美結合。

在試驗的過程當中，因為過度的專注於材質本身，而忽略了材質與其他媒材搭配的可能性，在我們蒐集的媒材中，他們的顏色均屬於大地色系的本色，對於以包裝為出發點來說似乎少了一點亮點及畫龍點睛的效果，於是我們一起到戶外甚至整個城市，嘗試在生活日常中尋找靈感，意外發現了許多能襯托出作品的元素，包括女孩子的紅點髮夾、常用的文具用品、甚至是衣物上的小鈕扣，這些都意外地成了單色媒材上新亮點。

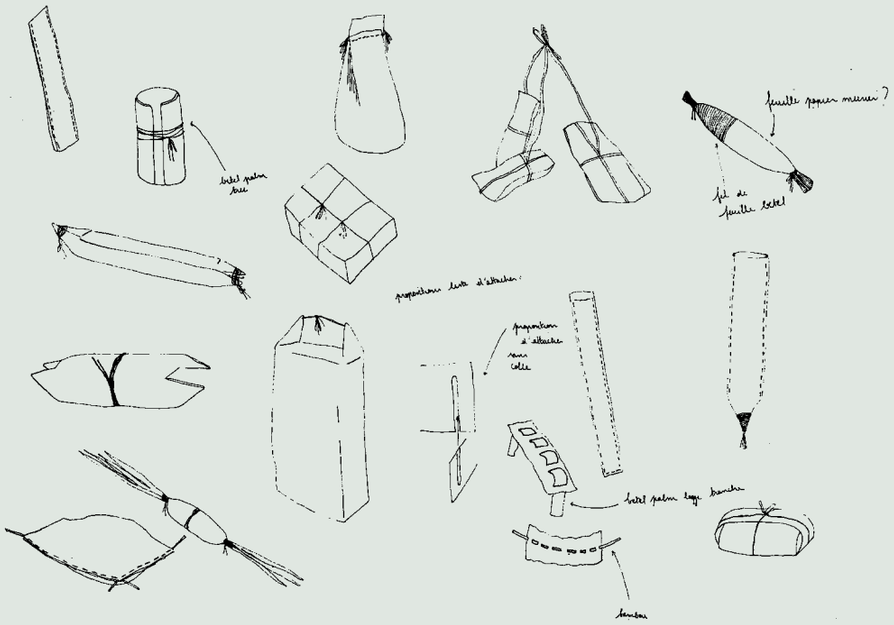
Outputs (description. photos)

What is the opportunity and values
with each and every material experiment?
(Please also include sketches and phtots)

Examining paper mulberry and betel nut trees is a completely novel experience for all team members. We get to understand the materials themselves through the experimentation process and have the chance to think more about possible applications.

Paper mulberry bark only needs to be soaked and beaten repeatedly to be stretched out into usable material. Only few ingredients and simple tools are needed to make the material. This process is very amazing, and the beating process hones our patience and discipline. However, acquisition of natural materials is often restricted by time and space. So the works were not made up to the ideal sizes as designed in the experimentation stage. Also, we extracted the thin film on the betel nut leaf using the method for making bamboo pieces. In the process of collecting the ingredients, we tried different tools to acquire more usable materials effectively, for example, chopper and scraper…, etc. Each tool brings somewhat different effects. Apart from using different hand tools to acquire materials, we also tried to use large high-pressure high-temperature machines to get new materials. Materials obtained at different temperature and length of time may also present slightly different effects. Paper mulberry bark and the thin film from betel nut sheath are perfectly combined by applying strong external pressure.

In the experimentation process, we focused too much on the materials themselves that we neglected the possibilities of materials' combination with other media. In the ingredients we collected, their colors are basically original earth colors, which seem to lack some highlighting and eye-catching effects for packaging purpose. Thus, we went out together to wander around the city, trying to seek inspiration from daily life, and unexpectedly found many elements that may match with our works, including a red dot hairpin for girls, common stationery, and even buttons on clothing; all these may become new highlights on the single-color materials.



正在發展中的概念和方向（期中發表）及相關的轉化過程說明
（草圖、圖文說明、Visual option）

期中發表前，我們發現檳榔葉薄膜具有防水性，可用來做為食品包裝。在小組討論過後，我們希望把贈送和接受禮物（可能是食物）的情境帶進作品中，而臺灣的關廟麵，它的製作過程和構樹皮非常相似，都必須經過日曬，同時也都是臺灣特有的事物，因此我們將方向收斂到麵條的包裝。

Direction in progress
Idea presentation and relevant transformation
(elaborate with sketch, writing and visual options)

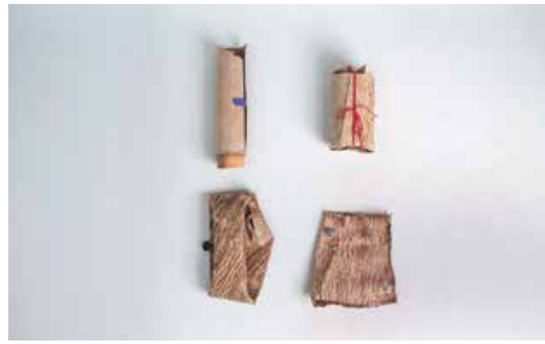
Before the midterm presentation, we found that the betel nut leaf film is waterproof, which may be used as food package. After group discussion, we wish to bring giving and receiving gifts (probably food) into the scenario of our works. As for Taiwan’s Guanmiao Noodle, the production process is very much like that for paper mulberry bark; both require basking in the sun and both are Taiwan’s specialty products. Therefore, we narrowed down our direction towards the noodle package.

修正後的調整，及明確的發展形式（圖文說明）

在期中發表之後，我們一致認為包裝上缺少一些關鍵的因子，我們應該放下材料的傳統應用以及倫理禮俗，試著去創造一種更清新、更現代的樣貌，使物件能夠更貼近大眾，因此我們想到添加工業化製品，這樣的材料對比能使得天然材質更可以被強調，在構樹皮和塑料之間、在自然和人造之間創造出二元性。例如，我們生活中看似微不足道的日常必需品成為強調天然材料的媒介，我們使包裝不再是一個包裝，通過我們的設計巧思，人們會渴望去擁有這樣鮮明意象的物件。

Debrief & Feedback
Idea modification, and brief development

After the midterm presentation, we all agreed that some critical elements were missing on the packaging. We should give up the traditional applications of the materials and the ethical customs, and try to create something more refreshing and with more modern look, so that the products can be brought closer to the people. Therefore, we came up with the idea of adding some industrial products, which constitute a stark contrast with the natural materials. The duality of paper mulberry bark versus plastic and of natural versus man-made articles is emphasized. For example, some insignificant but necessary everyday items can be used to highlight the medium made of natural materials. We use the package not just as a package, but through our design idea, as features that entice people to possess the product with a conspicuous image.



分工計畫（請簡明敘述為什麼這樣分工）

在實驗過程中，我們希望每位成員能親自了解這些材質，所以通常都是一起動手，也一起討論，這使得大家都能共享經驗。

決定了媒材的發展方向後，在有限的時間內為了提升製作效率及增加實驗的多元性，我們分成兩小組：一組持續製作構樹皮材料，大量的媒材可以讓我們運用更多不同的編織方法去設計可能的包裝方式，取得足夠的材料可以增加不同媒材的組合；另一組研究各種不同的編織及包裝方式，蒐集不同形狀的物品來模擬被包裝的商品，也利用媒材本身強大的可塑性發展出不同的包裝方式。

最終我們也一起去商店採買要添加的工業元素，每個人都可以自由地挑選想要的物件，做各種不同的嘗試。

The plan of job division (Describe why)

In the experimentation process, we hoped every member had a chance to learn about these materials. Therefore, we usually handled them together and discussed with each other. This allowed each of us to share our experiences.

Having decided the direction for development concerning the medium, we divided ourselves into two groups in order to enhance production efficiency and increase diversity of experimentation within limited time: One group continued to work on the paper mulberry bark material. A large amount of ingredients would allow us to apply more different weaving techniques for the design of possible packaging methods. Acquiring sufficient materials may increase the possibilities of different media combinations. The other group studied the various weaving and packaging methods, collected objects of different shapes to simulate the commodities to be packaged, and developed different packaging methods by drawing on the powerful formability of the materials themselves.

At the end, we also went shopping together to buy the additive industrial elements. Each of us was free to pick the things he or she wanted for making different attempts.

最終概念敘述（圖文說明）

我們的作品是一系列反映”贈禮”這項亞洲傳統文化的包裝。

這些包裝呈現出高溫熱壓構樹皮材質的韌性、色調及紋理，保留材料的傳統及倫理象徵的同時，也帶入了現代工業元素，使得作品能夠更貼近大眾。

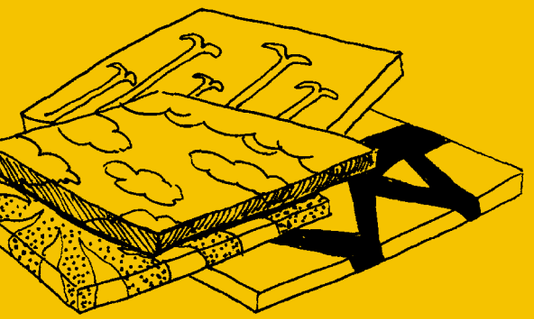
日常生活物件與天然材質的交融，是我們想透過這個作品所傳達的故事。

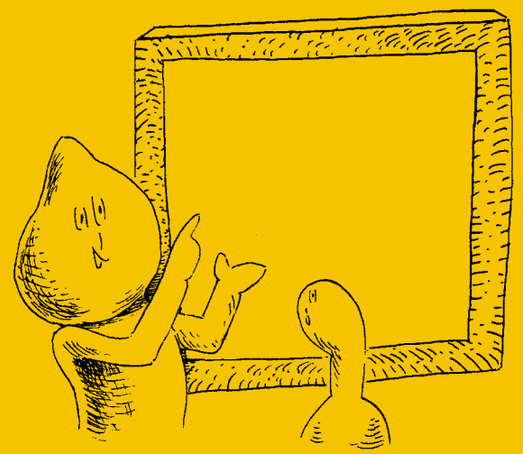
RFinalized design concept (elaborate in sketches, photos and in writting)

Our works are a series of packages that reflect this traditional Asian culture of “gifting”.

These packages present the tenacity, color tone, and pattern of the high-temperature autoclaved mulberry bark, which keeps the traditional and ethical symbol of the materials, while also bringing in the modern industrial elements to get the works closer to the public.

Fusion of daily life articles and natural materials is the story we’re trying to communicate with these works.





FIBER WITH CRAFTS

Team VI

分析的手法

從材料採集到材質試驗，你如何從最一開始去解析材料

在採集的時候，我們必須要謹慎地挑選可以使用的材料，同時也必須採集足夠的份量以供實驗及製作作品使用。構樹的採集有不少需要注意的細節：要注意所取的段落不能有節點、樹齡適當以得到足夠強韌及豐富紋理的材料。

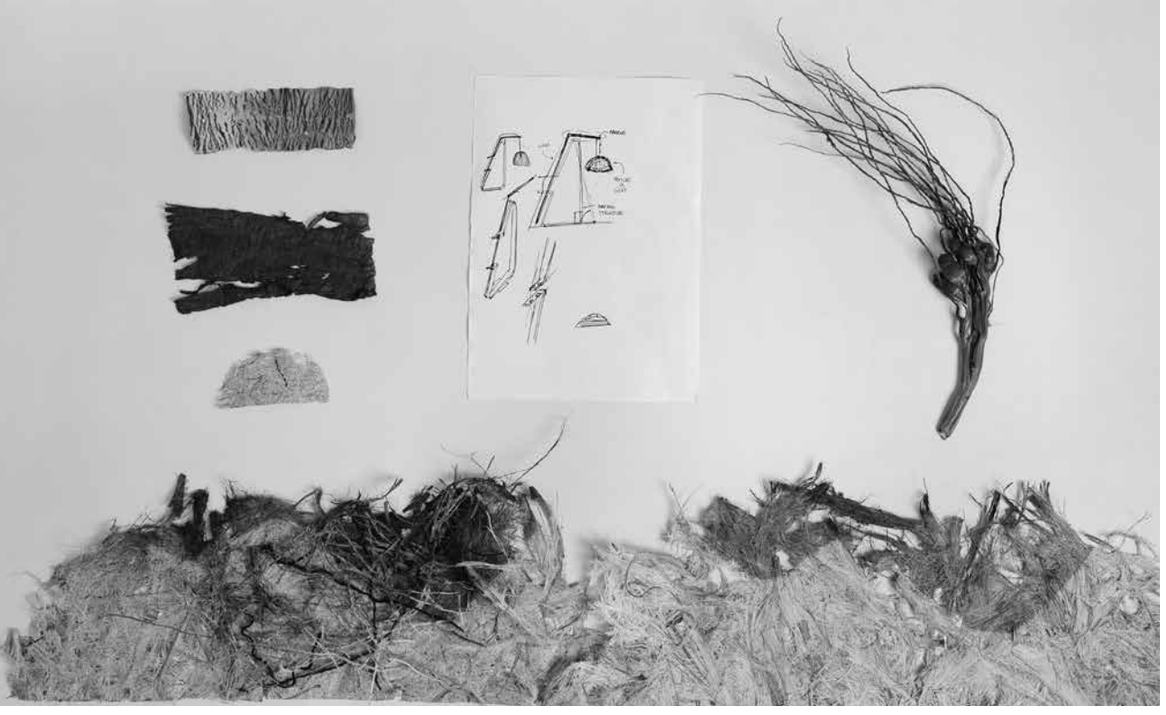
我們從材料的耐用性、特性（顏色、紋理、透光性等）著手分析，在分析的過程中也對材料有了更多想像（材料具有足夠的韌性去做編織嗎？它是可以被切割的嗎等…）及可能應用方式。

Analysis Method

Harvest to experiment-How do you analysis the material from the very beginning?

When harvesting, we must carefully pick the materials that are useful, and we must collect sufficient amount for experimentation and for crafting our work. Harvesting paper mulberry requires attention to many details: No knot should exist in the section taken; the tree should be old enough to develop sufficient toughness and robust pattern.

We analyzed the materials in terms of durability and properties (color, pattern, translucency, etc.) In the analysis process, we’ ve thought more about the materials (Whether the materials are tough enough for weaving? Can the materials be cut? ...) and the possible applications.



你們怎麼去設定材料的故事及情境敘述 (Moodboard)

對於法國組員來說，來到臺灣是全新的體驗，能與臺灣工藝家一起利用在地素材來創作是令人興奮的一件事，尤其在探索材料的過程中，檳榔樹葉受到風吹搖曳造成的自然光影令我們印象深刻。

將臺灣的意象代入創作中也是整組的共識，我們希望能夠透過作品來表達臺灣綿延不斷的山景。

Deep dive Ideation

How do you develop the material story and moodboard?

For the French team members, visiting Taiwan is a novel experience, and the opportunity to work with Taiwanese crafters using local materials is particularly exciting, especially in the processing of exploring materials. The swaying light and shade of the betel nut leaves in the breeze impressed us very much.

Adding the Taiwan image in our creative work is also a consensus of the team members. We wish to reveal the continuous mountain view of Taiwan in our work.

材料試驗的困境及轉機

請以圖文說明每個嘗試的問題及機會（提供實驗照片）

我們嘗試以籃編的技術來成型，例如與竹片交織、用檳榔的不同部分編織。在探索材質的強度和透光性時，我們發現高溫熱壓所製作出的試片，纖維互相交織，形成一種新的紋理，而且具有一定的強度及透光性，我們相當喜歡這樣的成果。另外我們還嘗試了具有臺灣工藝代表性的藍染，試片也相當有趣，非常符合我們的”臺灣地景”概念。

Outputs (description. photos)

What is the opportunity and values
with each and every material experiment?
(Please also include sketches and phtots)

We tried to shape our work with basket weaving technique, for example, weaving with bamboo slices, and weaving with different parts of betel nuts. When exploring the strength and translucency of the materials, we found that the fibers of the high-temperature autoclaved test piece are interwoven to form new patterns and are quite strong and translucent. We liked this result very much. Moreover, we also tried the indigo dyeing that is representative of the Taiwanese crafts. The test piece is interesting too, which matches our concept of the “Taiwan landscape”.

正在發展中的概念和方向（期中發表）及相關的轉化過程說明
（草圖、圖文說明、Visual option）

我們相當喜歡檳榔葉及纖維透過高溫熱壓的方式所取得的成果，所以想以這樣的試片為基底去創作。具有透光性的試片在流動的光影下相當美，因此我們想做一個可以隨風擺動的裝置，光影能夠與試片有很棒的互動。此外，一個可以分隔房間及工作空間的屏風也曾在我們的提案之中。

統合這些想法後，我們認為最佳的方案是以試片作為燈罩的燈具，透過燈罩散射出來的光影，完美地呈現出檳榔材質試片的透光性。

Direction in progress
Idea presentation and relevant transformation
(elaborate with sketch, writing and visual options)

We like the result of the high-temperature autoclaved betel nut leaf and its fibers, and so we wish to make our creative work based on this result. The translucent test piece was very beautiful under the light. Thus, the idea of making a device that sways in the wind; the light and shade interacts very well with the test piece. Besides, a screen that separates the bedroom and the working space was one of our proposed items.

Having considered these ideas, we believe using the test piece as a lampshade is the best proposal. The light and shade coming through the lampshade perfectly presents the translucency of the betel nut test piece.

修正後的調整，及明確的發展形式（圖文說明）

在發展的過程中，我們發現要在有限時間下呈現出優美的平衡狀態相當困難，因此捨棄了擺動裝置的提案；如果沒有光源，屏風也沒辦法很好地呈現出材質特性，所以我們也放棄了這個提案。我們最後定案製作以彎竹做為結構、燈罩可以微微晃動的燈具，使用者能輕輕擺動燈罩而得到有趣的光影變化，也充分發揮了檳榔纖維試片的透光特性。

Debrief & Feedback
Idea modification, and brief development

In the process of development, we found that it is very difficult to achieve the elegant balance under limited time, and so we abandoned the proposal of a swinging device. But a screen cannot reveal the feature of the material very well if there is no light source, and so we abandoned this proposal too. We concluded that we’ d make a slightly rocking lampshade with bamboo-made structure, so that users may gently move the lampshade to see the interesting variation of light and shade; this also perfectly shows the translucent property of the betel nut fiber test piece.




分工計畫（請簡明敘述為什麼這樣分工）

在兩天的實作過程中，我們目標使每個人都能參與到作品的製作，以及共同有效率地製作出作品。其中一位組員負責處理泡過水的檳榔枝幹，再拿去高溫熱壓以製作出兼具紋理及延展性的檳榔纖維試片。另外兩個組員必須製作彎竹所需的模具，最後一個組員研究燈罩和竹結構的轉動機制，尋找試合的五金件及解法，大家分工合作，以將效率最大化。

而工作分配則是以各自的專長與想嘗試的方向為原則去分配，Juliette對於美的靈敏度高所以負責研究檳榔纖維片的美感表現與透光性，Hugo雖然是第一次使用竹材，但對於竹材的彎曲性非常感興趣，所以與具有竹材經驗且實作能力強的梅容一起進行竹架構的製作，而士爵則對於可動機關與光影流動有興趣，所以負責燈罩與轉動機制。各自進行負責的工作時會不時互相討論並交換意見，最後統合成此次作品。

The plan of job division (Describe why)

In the two-day process of practical work, our goal is to involve everyone in the making of the craftwork cooperatively and effectively. One of the team members is responsible for handling the soaked betel nut branches, which are then autoclaved at high temperature to make the betel nut fiber piece the encompasses both unique patterns and ductility. Two other members must work on the mold required for bending the bamboo. Lastly, one member studied on the rotating mechanism of the lampshade and bamboo structure, trying to find suitable hardware pieces and solutions. Everyone was involved in the division of labor to maximize efficiency.

Work allocation is based on each individual’s expertise and desire. Juliette has a strong sense of beauty, and so is responsible for studying the esthetic expression and translucency of the betel nut fiber piece. Although it’s the first time Hugo uses the bamboo material, he is very interested in its bendability. So he worked with Mei-Rong who has experience dealing with the bamboo material and very strong practical capability to make the bamboo structure. Shi-Jue is interested in the movable mechanism and the flow of light and shade, and so he’s responsible for the lampshade and rotating mechanism. Members discussed and exchanged opinions from time to time when they worked on their respective parts, and then their efforts were consolidated to finish the craftwork.

最終概念敘述（圖文說明）

隨著工業發達、經濟快速成長及資源不當開發，造成環境日趨劣化，此結果也讓我們省思應如何有效地來經營 環境資源，以符合人類的需求，包括現在及未來的永續發展。樹木和我們的生活相當親近與密切，或栽植於庭園之中，或種植於道路兩旁，或成林於近郊、遠山，皆有其不同的功能。種樹造林自古以來就被視為是一種美德，所以有「前人種樹、後人乘涼」之說，當大家感受到樹木帶來的恩惠乃前人辛勤栽植的成果，這也反映了林木生長期需很長的一段時間，並非立竿見影能帶來即時的貢獻。環保纖維，廣義而言，是指(1)原料資源能被再生或是重複使用；(2)在生產加工過程中不會對環境造成不利影響(3)消費者在使用過程中，對人體無害。就狹義而言，可以由國際環保紡織品研究和檢驗協會Oeko-Tex（這是一個由德國、瑞士等歐洲13個國家所組成的研究機構）為代表，而Oeko-Tex的概念是認為紡織品只要有符合標準的要求和達到標準的指標，或者是特別注重原料、生產、消費、廢棄物處理之某一部分的環保性，通過標準的紡織品就可算是環保紡織品。

我們想在這次專題中加入台灣精神，我們想用這個島嶼擁有的素材去做一件反映群山的作品。作品的基礎在於我們對自然的律動與檳榔樹因風而產生的光影非常有興趣。

在材質試驗中，我們嘗試了檳榔纖維的熱壓，而實驗得到的成果也讓我們非常喜歡，所以我們想做出一個強調素材透明度與美感的物件。

我們完成的作品是整合檳榔纖纖維再利用的織片和彎竹的燈具。隨著風的帶動，燈罩將檳榔纖維紋理光影散射到周圍，投射在四周牆面的光影會產生出猶如台灣森林意象的畫面。

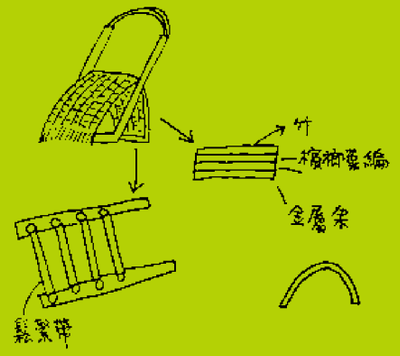
RFinalized design concept (elaborate in sketches, photos and in writting)

As industries prosper and the economy grows, resources may be improperly exploited, leading to ever-deteriorating environment. This consequence may make us reflect on how we should manage the environmental resources effectively to meet the human needs, including the present and future need for sustainable development. We live in a very close and intimate relationship with trees; we may plant them in the courtyard, or beside the street, or in the suburb or mountain to make a forest. They all serve different purposes. Planting trees and making forests have always been considered a virtue since the ancient time, and there is an old Chinese saying: “Someone is sitting in the shade today because someone planted a tree a long time ago.” When we feel the grace of trees as the result of the ancestors’ work, this reveals the fact that it takes a long time for trees to grow. Such contribution (by ancestors) is not an immediate result. Eco-friendly fiber, in a broad sense, refers to (1) a raw material or resource that is regenerative or can be reused; (2) something that does not cause unfavorable effect on the environment during the process of production; and (3) it causes no harm to the consumers in the using process. In a narrower sense, it meets the requirements of Oeko-Tex, an international research and certification association that concerns environmentally friendly textile, formed by 13 European countries including Germany and Switzerland. In Oeko-Tex’s concept, textile that is up to the standard or meets the standard indicators, or for which special attention is paid to the eco-friendliness of the raw material, production, consumption, or part of the waste disposal process, and passes the standard certification should be considered eco-friendly textile.

We want to include the “spirit of Taiwan” in this project; we want to use materials on this island to make a work that reflects the mountains of Taiwan. The idea underlying the work is our intense interest in the natural movements and the wind-blown light and shade of the betel nut trees.

In the process of material experimentation, we tried to autoclave the betel nut fibers, and we liked the experiment result very much. Therefore, we want to make an article that stresses the translucency and beauty of the material.

Our completed work is a lampshade that integrates woven fabric made of recycled betel nut fibers and bamboo pieces. As the wind blows, the lampshade radiates the light and shade of the betel nut fiber pattern to the surrounding, and the light and shade will project the image resembling the Taiwan forests on the walls.



FIBER

WITH

CRAFTS

Team VII

分析的手法

從材料採集到材質試驗，你如何從最一開始去解析材料

我們採集了檳榔葉、檳榔葉鞘和檳榔子，也蒐集了很多構樹的枝幹，一開始按照老師教授的方法，把構樹皮剝下來，用鎚子敲打成輕薄的紙片，過程中我們發現大部分的人都把剝完皮的構樹枝幹丟棄，我們卻認為這些是很有趣的材料，於是開始思考要如何運用它們。有些剝下來的構樹皮有很多節點，一個洞接一個洞突起來有如細刺滿佈，這樣的質感很特殊，我們也覺得有發展的空間。

我們嘗試用檳榔細長的葉片來做編織，編織出來的物件非常強韌，我們也發現檳榔葉鞘及構樹本身的材質都頗具韌性，可以用來承載重物。

Analysis Method

Harvest to experiment-How do you analysis the material from the very beginning?

We harvested the betel nut leaves, leaf sheath, and betel nuts; we also collected many paper mulberry branches. At first, we took off the paper mulberry bark according to the instructor’s instructions, and beat it into thin paper. In the process, we found that most people discarded the branches after taking the bark; we thought it’s interesting material though. Therefore, we started to think about how we should them. Some peeled paper mulberry bark has many knots on it, leaving holes and bulges on the branches like tiny pins. This is a very special texture, and we think we can develop something from this feature.

We tried to weave with the narrow and long leaves of betel nut trees, and the woven objects are very strong and tenacious. We also found that both the betel nut leaf sheath and paper mulberry materials are tenacious, capable of bearing load.

你們怎麼去設定材料的故事及情境敘述 (Moodboard)

我們嘗試以「組合」作為核心去做心智圖的發散，發現簡單與對立是兩個很有趣的觀點，所以我們每個人開始畫一些簡單的形狀，並用自然材料的特性去創造形狀上的紋理；最終我們設定了四個類型去發展我們的作品，分別為：

1. 纖維與陶瓷
2. 簡單與對比
3. 小型物件
4. 座具（例如：瑜珈椅）

接著，我們以這些類型為基礎，使用陶土、構樹皮、檳榔葉等自然材質嘗試做出模型並整理成一個研究過程。 我們想讓這些試驗的模型之後可以像樂高積木一樣自由組合，讓座具能有更多可能性。

我們希望系列作品所取用的材質都是來自於自然，像是一個人走進一片叢林，他可能撿拾了各種各樣的東西，一開始也許不知道能做什麼，但透過手去捏塑、拉扯等動作，將這個材質的功能性呈現出來，是我們人為最能體現出文化與地方連結的象徵。

Deep dive Ideation

How do you develop the material story and moodboard?

We tried to develop our mind-mapping divergence based on the core idea of “combination” and found that simplicity and contrast are two interesting views. Therefore, each of us began drawing some simple shapes and created patterns on these shapes with reference to the characteristics of the natural materials. Finally, we determined four categories to develop our craftworks; they are:

1. Fiber and Ceramic
2. Simplicity and Contradistinction
3. Small scale
4. Seating

Next, we attempted to make models with the natural materials such as ceramic clay, paper mulberry bark, and betel nut leaf based on these four categories, and then worked out research process. We wanted to make these test models like Lego pieces that can be freely combined afterwards, in order to make more possibilities for supporting stands.

We hope the materials for making this series of works all come from nature. It is like someone walking into a forest, where he may pick up all sorts of different materials. He may not know what he can make with those at first, but the features of a material will be revealed through his actions such as touching, shaping, pulling, and drawing. This is the best way we may exemplify the connection of the culture and the place.

材料試驗的困境及轉機
請以圖文說明每個嘗試的問題及機會（提供實驗照片）

一開始我們的設定是把陶和纖維結合，用陶土捏塑小物件，彼此可以組合起來像積木一樣，然後在物件上結合纖維做變化，但後來覺得這些東西好像只是擺設，沒有實用性，於是嘗試發展具實用性的物件。

Niels發現構樹和檳榔鞘的纖維很強韌，或許可以作為椅面的替代材質，於是我們朝椅子這個方向去發想，考量到陶土要乾燥、燒製，有很多變數，而且窯爐的大小也限制椅子的尺吋，所以我們後來決定做體積較小的矮凳。

Outputs (description. photos)
What is the opportunity and values
with each and every material experiment?
(Please also include sketches and phtots)

At the beginning, we intended to combine ceramics and fibers. We can make small articles with ceramic clay, which can be put together like blocks, and then fibers can be added to make variations. But then we thought these may only be used for decoration, with no practical value, and so we tried developing something practical.

Niels found that paper mulberry and betel nut sheath have particularly strong fibers, which may be used as a substitute material for chair surface. Therefore, we develop our ideas towards this direction. Considering the numerous variables for drying and firing ceramic clay and that the size of the kiln would limit the chair’ s size, we decided to make low stools of smaller size.

正在發展中的概念和方向（期中發表）及相關的轉化過程說明
（草圖、圖文說明、Visual option）

我們用陶土做成各式各樣的小椅子和凳子模型，並把纖維結合在上面，不過我們也發現其實陶土本身就能捏塑成椅凳，纖維只是平鋪在上，淪為裝飾。失去了把纖維做成椅面的意義。

經過試驗後，我們覺得可以利用這些天然材料做為聯結元素，去創造出較大的物件，並同時將臺灣意象帶入我們的概念。

我們在街上撿到一些台灣的日常用具：黑色網籃、角鋼架、塑膠椅凳，這些都是台灣隨手可得的物件，便宜、到處買得到、使用的人很多，頗具台灣意象。

我們希望能將天然材料應用在廢棄的椅子和凳子上，使它們能夠重生。

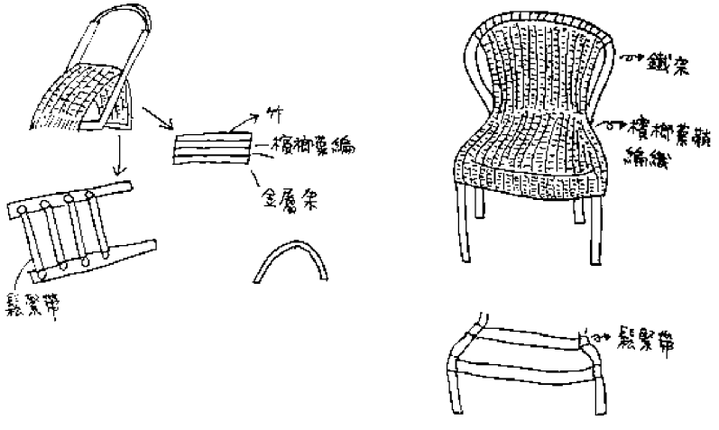
Direction in progress
Idea presentation and relevant transformation (elaborate with sketch, writing and visual options)

We made small chair and stool models of various styles and shapes with ceramic clay, and combine them with fibers. But we found that ceramic clay alone can be shaped into chairs and stools and the fibers are just for decoration. Our intention to make the chair surface with fibers is lost.

After experimenting, we came up with the idea that these natural materials could be used as linking elements to create something bigger, while at the same time introducing the Taiwan’s image into our concept.

We picked some everyday tools from the market, like black net, slotted-angle rack, plastic stool. These are things we can readily get in Taiwan, inexpensive, widely used, and easily available anywhere. They may symbolize the concept of Taiwan quite well.

We hope to apply the natural materials to discarded chairs and stools, in order to revive them.



修正後的調整，及明確的發展形式（圖文說明）

如前所述的概念，我們用陶土、構樹皮或檳榔等材料來做試驗，嘗試做異材質的結合以產生有趣的對比。透過這樣的試驗，我們發現到纖維有些非常有趣的特性：具有韌性且可塑型，也非常容易取得一定的數量。

在期中發表過後，我們得到的回饋是如何將這些纖維特性應用到一個更具體的物件上。

我們找到了木椅、塑膠凳、角鋼、鐵椅、折疊椅等六種不同型態的物件。

將竹片、檳榔葉、檳榔葉鞘用編織的方式固定在椅子上，形成堅固的椅面。

將構樹皮敲打延展後，固定在角鋼架上，成為像皮革一樣堅固有彈性的椅子。

將竹子燒烤彎曲，固定在塑膠椅凳上，增加結構的穩定性。

將竹籃倒置，鋪上構樹紙漿，做成圓形的椅面。

Debrief & Feedback

Idea modification, and brief development

As described in the above concept, we experimented with materials like ceramic clay, paper mulberry bark, and betel nut, attempting to make mixed-material combination for creating interesting contrast. Through these experiments, we found interesting properties of the fibers: tenacity and formability. We are also able to get a considerable amount of fibers.

After the midterm presentation, we got feedback about how to apply these properties of the fibers to a more specific object.

We identified six different forms of objects, including wooden chair, plastic stool, angle steel, iron chair, and foldable chair.

Fix bamboo pieces, betel nut leaves, betel nut leaf sheath on a chair by means of weaving, making a sturdy chair surface.

Paper mulberry bark, after beating and elongation, is then fixed onto the slotted-angle rack to make a sturdy and flexible chair like a leather chair.

Burn and bend the bamboo, then fix it onto the plastic stool for enhanced structural stability.

Reverse the bamboo basket and cover it with paper mulberry pulp to make a round-shape chair surface.

分工計畫（請簡明敘述為什麼這樣分工）

我們每個人在各個階段都有參與，在原則清楚的情況下，剩下就是實際去做，所以基本上組員們並沒有固定負責的區塊，比較像是機動性地去分工合作。在最後呈現的部分我們則是一人挑一張廢棄椅，並且嘗試用不同的方式結合自然材質。作品的攝影與簡報排版是法國組員的強項，所以交由他們負責。

The plan of job division (Describe why)

Each of us participated in all stages of the work. With a clear idea of the principle, we proceeded with the practical work. Therefore, we made no specifically defined areas of responsibility for the team members; we’ re more like dividing work and cooperating in a dynamic way. In the final presentation, each of us chose a discarded chair and tried different ways of combining the natural materials. The French members are good at photography and presentation layout for the works; so they are given the duty.

最終概念敘述（圖文說明）

我們共做出六張不同型態的椅子，每張椅子的樣貌形式都不同，有鐵背椅、摺疊椅、鐵椅凳、木椅、塑膠凳、角鋼架。每張椅子使用的工藝也不同，有檳榔葉編織、檳榔葉鞘編織、竹材彎曲、構樹工藝等，透過歐洲的設計思考方式：反覆的試驗材料、尋找各種可能性，讓我們習以為常的日用家具，有了不同的面貌，也讓廢棄家具重生、得到循環經濟的目的。

RFinalized design concept (elaborate in sketches, photos and in writting)

We made six different styles of chairs, each in different form and appearance. They include a chair with ferric back, a foldable chair, a ferric stool, a wooden chair, a plastic stool, and a slotted-angle rack. Each chair requires the use of different techniques too, including betel nut leaf weaving, betel nut sheath weaving, bending bamboo, and paper mulberry crafting. By means of the European design thinking (repeated experimentation with the material, identification of different possibilities), we gave our everyday household tools a different appearance. This may also help the revitalization of discarded furniture, so that the objective of circular economy can be achieved.

結語

當代的設計已不再是局限於思考會突或者物件的世代，設計以及設計師同時間被賦予思考人類未來在世界危機中日常生活方式的責任。特別是以身為一個設計教育者而言，他們都極其渴望透過具有意義性的設計教育來參與當代的議題。假使在這個複雜的世界裡沒有簡單的問題以及相對應的特定答案，那麼，設計可能會帶來一些關於這些意義性的問題以及相關危機，特別是關於自然以及理解自然的方式。簡言之，我們，人類也是屬於這個龐大的生物體組織系統。

除此之外，歐洲人是否已經失去與自然連結的能力？他們也許是。然而，亞洲的前景又如何？因此，來自於工藝中心的跨國際邀請是一個讓我可以帶領學生透過台灣的在地文化與自然特質去思考這樣一個議題機會。而在工藝中心的安排下，來自法國的學生與台灣在地工藝家在亞洲這塊土地上共同探討與感受屬於台灣檳榔樹以及構樹材質有形與無形的價值，包含在不同尺度（景觀、樹木、樹葉、樹枝、樹葉）上的讚然探索、自然媒材的蒐集以及手作工具的使用甚至於是聽取台灣工藝家們的經驗等，學生們必須拋開當代舒適的生活背景以不同的角度去思考自然與廢棄物的價值。

不論是台灣工藝家或法國的設計系學生的背景為何，在這次的工作坊裡，他們共同努力將蒐集來的天然素材轉化為可能的材料並探索材料的專有特質，然後階段性地提出具有觸發意義性的成果以及其所蘊含的故事。每一個工作團隊都首要性地關注在材料的原生特質與價值，企圖在探索過程中提出一種新的設計體驗，並嘗試性地透過日常物品的設計來表達這樣的訊息，而這些看似不起眼的日常物件所欲傳遞的正是這次專案參與學員們共同對於思考自然以及社會願景的反饋。

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Summary
Ecole BOULLE – NTCRI Taïwan

Today design can not only be just considered as drawing and making objects anymore ; design and designers are also responsible about for our way of living today and tomorrow in a world in crisis. Very especially design teachers wonder about the meaning of teaching design today to young students' generations pining for creation and involved in our contemporary times. If there are no simple issues and unique answer, design may bring to mind some meaningful questions and relevant critics in a complex world, particularly here about the role of nature and the way to read it. The fact is that we all belong to a large same biotope.

Despite this, have European people lose the connection with nature ? They probably have. What about the Asian outlook ? Therefore the NTCRI international invitation was a great opportunity to run a field project through Taiwanese nature and to question it. By considering Taiwanese natural matters like bethel nut leaf and mulberry bark, French students were allowed to immerse themselves with Taiwanese craftsmen right in the Asian landscape and feel a tangible and tactile value. Exploring nature on different scales (landscape, trees, foliage, branches, leafs), harvesting natural elements, handling tools, listening to Taiwanese craftsmen expertise, students had to leave their usual modern comfort background and meet a different way of considering nature and waste.

Regardless of their backgrounds, Taiwanese craftsmen and French design students both worked together to transform harvest natural matter into material, exploring sensitive qualities, and then proposed new stories with meaningful objects to feel. Each team was involved in this desire to propose a kind of design experience by focusing first on the value of the collected raw matter, and then by trying to transmit these qualities through daily objects. These humble and touching projects/objects are meant to show the vision of our students as far as nature and society are concerned.

Ecole BOULLE would like to thank the NTCRI. Jan 2020.
Antoine FERMEY

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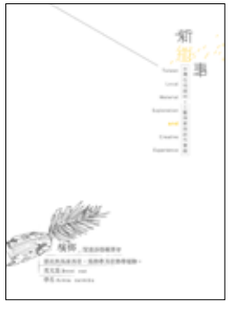

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