

THE RELATIONSHIP IN SWEDEN BETWEEN FORESTRY AND WOODCRAFT EDUCATION

MALMSTENS
LINKÖPINGS UNIVERSITET



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Gottstein Fellowship Report 2022

Evan Dunstone

ACKNOWLEDGMENT

I would like to personally thank the Gottstein Trust for funding and supporting my research trip to Sweden. Without the generous support of the Trust, I would not have been able to attend the Symposium in Stockholm, nor visit the schools that informed my studies.

The Joseph William Gottstein Memorial Trust Fund, known as the Gottstein Trust, is a unique national educational trust fund that began in 1971. The Trust promotes the development of Australia's wood products and forestry industry through the pursuit of excellence in people, processes, and products. The Gottstein Trust is all about people – it invests in motivated people so they can learn and innovate in support of the advancement for Australia's ultimate renewable wood products and forestry industry.

The Trust is a living legacy which honours Bill (Joseph William) Gottstein who died in a tragic accident in 1971. He was an exceptional, innovative man, internationally respected as a scientist and a leader in the CSIRO Forest Products division. The Gottstein Trust is governed by seven (as at 2023) Trustees. Each year the Trust calls for applications from interested candidates for Gottstein Fellowships, Scholarships and Skill Development grants. The Trust also regularly runs short courses on forestry and wood science.

BACKGROUND

Rasmus Malbert, a Swede studying at Malmstens, visited me at Dunstone Design for a 7-week period in 2006. Rasmus was doing the workshop placement section of his study prior to embarking on his Gesäll piece. To my shock, I realised that Rasmus knew more and had better skills than any Australian-trained maker I knew, including myself and my own staff.

On his return to Sweden, Rasmus completed his Gesäll piece and worked in private practice for a while. He became a senior teacher at Stenebyskolan and transferred to become head teacher at HDK Valand. In 2021, at the age of 43, Rasmus died suddenly of heart failure while on a run. He is survived by his wife Jenny and their two little boys, Enar and Abbe.

As a result of Rasmus' brief visit, I radically changed many of our approaches to staffing, training, design, production, and safety. Rasmus instilled in me a life-long interest in Swedish woodcraft training. How could a student who hadn't even graduated be so productive and knowledgeable? – ***Evan Dunstone, 2023.***

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EXECUTIVE SUMMARY

This project investigates the relationship between the Swedish forestry industry and Swedish woodcraft education.

Swedish forestry is a big employer and an important source of export revenue for the nation. Under normal circumstances, Sweden is the world's 5th largest exporter of sawn lumber. With the war in Ukraine and the subsequent reduction of Russian timber exports, Sweden is currently the 3rd largest exporter of sawn lumber. Swedish forestry is focused firmly on the construction industry, with up to 90% of Swedish forests consisting of either spruce or pine. Forestry and the associated industries constitute as much as 20% of Sweden's total economy.

Woodwork in Sweden is a highly respected craft with a long tradition. Sweden has three premier centres of woodcraft training: Stenebyskolan, Malmstens and Capellagården. All three schools are state owned and offer world-class facilities and tuition. Steneby teaches in English and attracts an international student body. Malmstens offers the most traditional training in cabinetmaking and is taught in Swedish. Capellagården offers a balance of art and technique. The main tuition is in Swedish, but many of the subjects are taught in English and they encourage overseas students.

In addition to these three schools is HDK Valand in Gothenburg. This design school places a heavy emphasis on a sound knowledge of woodcraft, but it is not considered a wood school in the same spirit as the other three. That said, the woodworking facilities at HDK Valand were on-par with the other three schools.

All the schools conduct a rigorous selection process, with many more applicants than there are places.

The Swedish furniture and wood craft industry does not rely on Swedish timbers. Despite efforts to link forestry with furniture production, the primary species of spruce and pine are not good furniture timbers. There is little incentive for Swedish forestry to put any real effort or money into furniture grade timbers and species, as the consumption scale of the furniture industry is insignificant next to the rapacious international appetite for construction timbers.

By contrast, the relationship in Australia between forestry and the Australian furniture industry is complex. Australia has a combination of old growth and regrowth native forests, as well as native and non-native plantations. Small, high-end workshops like mine seek access to a modest volume of high-quality native timbers. The few larger manufacturers left are more flexible about quality. Like Sweden, construction drives Australian forestry, but there is still scope for Australian makers to use Australian native timbers to create unique products.

The fact that there's not a mature high-end Australian furniture industry exporting to the world market is due to a lack of training, vision, and investment, not due to a paucity of access to unique timber.

STENEBSKOLAN AND HDK STENEBY, ACADEMY OF DESIGN AND CRAFTS, UNIVERSITY OF GOTHENBURG.

“Steneby has united hands and materials for almost a hundred years and is today a creative centre for education in art, design and crafts.” – from the Steneby website.

Stenebyskolan and HDK Steneby, described colloquially as “Steneby” is a single institution with two education streams. Steneby is in the relatively isolated village of Dals Långed, Bengtsfors Municipality, roughly 2.5 hours’ drive North-East of Gothenburg. The region is known as Dalsland, which is as much an idea as it is a specific location, much like “The Monaro” or “The Snowy Mountains” in Australia. The area has many lakes and is roughly 2/3 covered in forest. It is a popular summer destination for Swedes.

Stenebyskolan offers vocational training in cabinetmaking, furniture restoration and upholstery. HDK Steneby (which is affiliated with the University of Gothenburg) offers design and craftsmanship training in furniture (wood), upholstery, textiles and metalwork. There is some sharing of facilities and staff but the targeted pedagogic outcomes of the two streams are distinctly different.

HDK Steneby’s workshops are located within the main centre, near the accommodation and other student facilities. Stenebyskolan vocational training takes place in separate workshops about 5km from the village in a semi-rural setting. All the student cohort across both streams live on campus at the main centre within the village, but the vocational students must travel out to their workshops daily. This physical separation is a source of frustration for both streams. It would be ideal if they were co-located in a primary facility with separate workshops.

Stenebyskolan’s vocational training has similarities to the Cabinetmaking courses provided in Australia by TAFE. Unlike the Australian apprenticeship/TAFE system, the students do not work for an employer while they study. Rather, they study full-time for two years in a “simulated company” environment, learning the skills required to work as a cabinetmaker in the furniture and/or joinery industry. The training is very thorough but does not place any emphasis on design. The school often takes in “real” projects from outside, such as bench seating for a regional gallery. A graduate of Stenebyskolan is theoretically “industry ready” on graduation. The training prepares them to be a skilled employee, but they also get some training in business management.



Figure 1 - This pneumatic press gives an indication of the range of equipment available to the HDK Steneby students.

HDK Steneby offers a path that leads towards design and art, rather than traditional cabinetmaking. The first stage of the education is called Pre-university Art and Culture Education. This two-year course gives students a foundation in technique, hand skills, drawing, materials, and an understanding of machinery. After two years, they can leave the school to study or work elsewhere or undertake a further year of specialisation focused on design.

HDK Steneby attracts a significant number of international students and is taught in English. There are typically 8 new students in the woodworking stream every year. The training is not designed to prepare a student to work as an employee in a joinery shop, but provides a broader, more creative woodcraft training. A small number of students transfer between HDK Steneby and Stenebyskolan as their understanding of the opportunities develops.

I was shown around the school by Luka Jelusic, one of the teachers at HDK Steneby. Luka observed that the biggest pedagogic challenge they currently face is the lowering entry-level skills displayed by the students. In times past, Swedes had casual and formal contact with tools, workshops, timber and machines. With a decline in school-based woodwork programs and a more urbanised lifestyle, current students have not had a chance to develop a relationship with materials and tools in the same way as students from the past. The staff are finding it increasingly challenging to complete the planned course outcomes in two years.

It's common in Swedish universities for the teachers to work part-time (typically a 40% or 60% load), to maintain their private practice. This creates an environment where the teachers can stay current in their areas of expertise.

Both the students and the staff of HDK Steneby have a strong interest in sustainability. When considering "design", they are often putting sustainability at the top of the brief. The school sources timber locally and has a kiln at the workshop. Students are involved in the milling, transport and drying of timber. Most of the timber used by the students has been sourced in this way.

A recurring theme at Swedish educational institutions is the concept of collaboration and shared experience. At Steneby, students are expected to eat lunch in the communal dining room. The metalworkers, woodworkers, textile workers and restorers are expected to interact and share their experiences over a meal. In Sweden, Fika, which could be translated as Coffee Break (or even Smoko), is an important concept. The students in each discipline are expected to take Fika together, as a chance to discuss what they are doing and

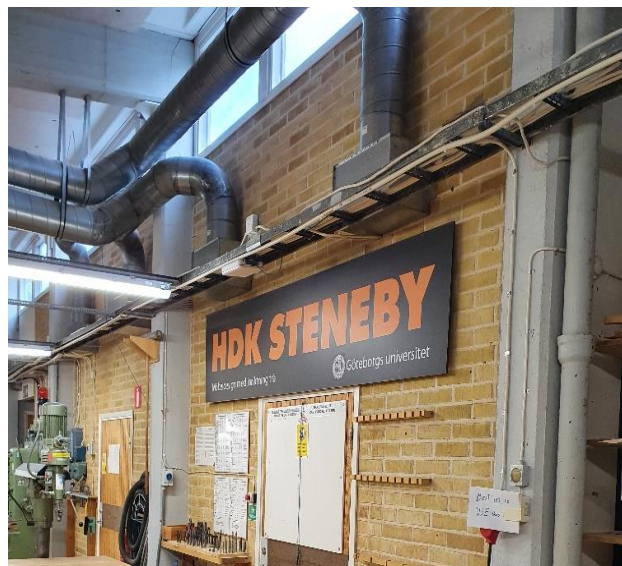


Figure 2 The main building at HDK Steneby was designed as a wood workshop, with high roofs and natural light.

share ideas. Fika is consciously thought of as an important part of the student's educational day.

From a practical perspective, the quality of the infrastructure for both the vocational and HDK streams at Steneby were exceptional. The machine rooms were large and filled with excellent modern machines. The bench rooms were well lit and spacious. The HDK students had a dedicated drawing room and a meeting/recreation room. I have taught at The Australian School of Fine Furniture (now defunct) the Canberra School of Art (now defunct) and the Sturt School for Wood (extant). None of these schools have (or had) anything approaching the quality of either the buildings or the equipment.



Figure 3 HDK Steneby looks out over the heavily forested region of Dalsland. The region is sparsely populated and about 2.5 hrs drive from Gothenburg.

HDK VALAND – ACADEMY OF DESIGN AND CRAFTS, UNIVERSITY OF GOTHENBURG

On the 1st of January 2020, Valand Academy and HDK – Academy of Design and Crafts merged to form HDK-Valand – a new University of Gothenburg department for Design and Art. The Design and Crafts campus is in the very heart of the city.

HDK Valand and HDK Steneby are both part of the University of Gothenburg, but their goals and focus are different. HDK Valand's furniture design course is less focused on traditional craft skills and wood than HDK Steneby. The students are encouraged to use a wide range of materials and processes, with an emphasis on what could be described as Industrial Design. HDK Valand places an emphasis on 3D computer rendering and the use of Computer Numerically Controlled (CNC) equipment.



Figure 4 Part of the machine room at HDK Valand. This space is a re-purposed older building in the heart of Gothenburg. Note the modern machine and the timber floors, but the low ceiling. This image was taken at night and the windows face on to another building. The natural light is somewhat limited.

The physical setting is starkly different to HDK Steneby, as the Valand campus is very urban and set in an old building that has been re-purposed. As a result, the facility lacks the same logical flow as the Steneby campus. The space reminded me

of the old Australian School of Fine Furniture in Launceston, where every nook and cranny accommodated whatever equipment that fit, rather than equipment that necessarily made sense from a work-flow perspective. The HDK Valand main machine room was excellent, with wooden floors, impeccable dust extraction and modern machines/equipment.

There is a clear choice for students between HDK Valand and HDK Steneby. It's extraordinary that one university should offer two such well-equipped and resourced workshops within such proximity to each other. Either campus offers better facilities and equipment than any similar facility in Australia.



Figure 5 Kacper Adam, technical assistant at HDK Valand and Fenella Dunstone at the main entrance of HDK Valand. Critics claim that the cost of repurposing and maintaining an old building is a waste of resources. The proponents claim that a design school should be in the heart of the urban culture.

MALMSTENS - LINKÖPING UNIVERSITY, STOCKHOLM

“The hand and mind must engage in creative collaboration.” – Carl Malmsten

Carl Malmsten (1888 to 1972) was a Swedish furniture designer, architect, and educator known for his devotion to traditional Swedish craftsmanship (slöjd) and his opposition to functionalism. He is Sweden’s most celebrated furniture designer, with many of his designs still in production.

Malmsten established his first training school in 1930. In 2000, Malmstens was absorbed by Linköping University. After the initial incorporation, the University realised the true cost of training high craft, and there was a funding crisis. The school was saved by two sisters, Kerstin Skarne and Ann-Sofie Mattson, daughters of master builder John Mattson.

With the financial and moral aid of the sisters, Malmstens future is ensured and the school is now located in a state-of-the-art purpose-built workshop on the island of Lidingö, just outside central Stockholm. Here Linköping University offers undergraduate programmes in Furniture Design, Cabinetmaking and Furniture Upholstery.

It is remarkable to see a modern building that has been carefully designed and constructed with woodcraft in mind. The spaces are logical in size and the layout is conducive to safe and efficient work. There is extensive use of natural light throughout the building, but especially in the hand work areas. Connecting doors are wide and have windows, giving makers spatial awareness. The dust extraction is fully integrated and whisper quiet. The floors are timber.

Malmstens Linköping University provides training in furniture design, cabinetmaking, and upholstery as part of the Department of Management and Engineering. The cabinetmaking stream must undertake 2 years of pre-education, which brings the student’s basic skills up to a tested standard. If the student passes and is accepted, they go on to study for a further three years, culminating in a Gesäll piece (see below).

Entry into the furniture stream of Malmstens is highly competitive, with many more applications annually than places. The course is taught in Swedish, so any foreign student wishing to study must first have their fluency in Swedish assessed.



Figure 6 The high ceiling, timber floors, modern machines, integrated dust extraction, extensive natural light, humidity-free heating and generous layout epitomises the Malmstens philosophy.

CAPELLAGÅRDEN – ISLAND OF ÖLAND

"The hand - our extremely finely constructed instrument..." - Carl Malmsten

Capellagården was established in 1960 by Carl and Siv Malmsten in the village of Vickleby, southern Öland. Capellagården occupies a picturesque set of old farm buildings, beautifully modernised to be fit-for-purpose. Capellagården's courses include wood, ceramics, textiles and organic gardening.

Like Steneby, Capellagården embraces the notion of a wholistic approach to craft. All the students live on campus and share meals together. Interactions between the different intakes and class bodies are encouraged. The school runs like a village, with every member of the community contributing as well as learning. Capellagården has been described as a Creative Monastery by its detractors and its enthusiasts alike.

The layout of the furniture workshop is smaller and more compact than either Steneby or Malmstens. With only six new students admitted each year, the atmosphere is close rather than crowded. There are roughly 90 students across all disciplines and intakes on campus at any one time. The quality of the equipment and machinery is roughly comparable to Steneby, HDK Valand and Malmstens, although Capellagården appeared to have both older machines and fewer machines. That said, the workshop was much better equipped than, for example, the Sturt School for Wood in Australia.

The teachers at Capellagården claim that their graduates have the highest average Gesäll mark in Sweden. I am not able to independently verify this. Interestingly, Capellagården does not share close links with either Malmstens or Stenebyskolan. There is no significant crossover of students or staff that I am aware of.

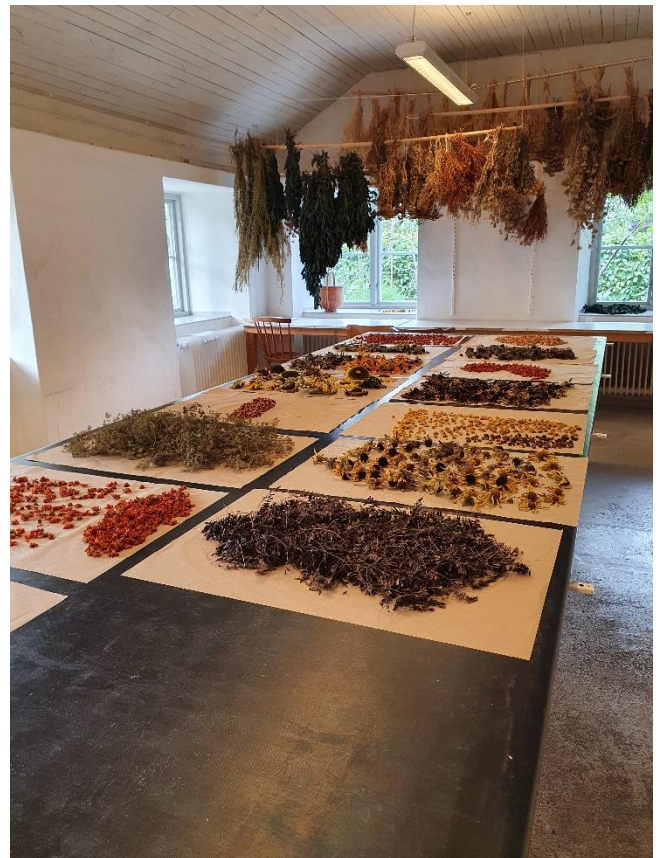


Figure 7 The organic gardening cohort grows flowers and plants on-campus to be used as dyes by the textile cohort. They also grow most of the plant based food consumed by the students.

GESÄLL PIECE

Traditionally, a Gesäll Piece was submitted by an apprentice to the cabinetmaking guild to qualify as a Journeyman. A Journeyman was qualified to work for any master in any location within Sweden. A Swedish Journeyman was usually recognised through Western Europe, but few were mobile in this fashion.

In its modern form, the Gesäll Piece has become the pinnacle of achievement for a furniture craftsman. It is perhaps akin to a master's degree, or even a Doctorate.

The design of a Gesäll piece must include a range of specified techniques and elements. Every stage of the design is submitted for assessment by the Guild. First, the craftsman must submit complete drawings along with a time estimate for construction. The drawings are graded, and the time estimate assessed. If the board decides that the time estimate is too generous, they will reduce the allowed hours. The student's time in the machine shop and hand work area is monitored, to ensure that the construction time claimed is accurate. The finished piece is assessed by the Guild and an over-all mark is issued. A student has a maximum possible grade of 5, which represents a perfect score.

SWEDISH SOCIAL ATTITUDES TO FINE FURNITURE

From a cultural perspective, Swedes have no expectation of commissioning fine furniture. I spoke to many teachers, curators, students and private citizens on this matter, and the answer was consistent. If a Swedish person is looking for new furniture, they expect to go to a furniture store and order work through that store. There is no expectation of visiting a workshop and discussing their project with a designer/maker. There is no expectation of selecting timber, influencing a design, or monitoring the progress of a piece. This is completely at odds with the Anglo-Saxon countries such as England, Canada, The USA, Australia and New Zealand where the Studio Furniture Movement is on the rise.

Not only could I not find anything that could be described as an art gallery showing furniture, even the concept was foreign. I saw Gesäll pieces on display at Malmstens, but they were not for sale, and no-one even thought of them as a tradeable commodity. To the students and the teachers, the Gesäll piece was viewed as an exam paper in a physical form rather than as a desirable object.

The Swedish have a taste for lightly coloured, uniformly grained timber. Many Swedish makers showed a distaste for oak, which they see as coarse. Swedes have extremely limited access to locally grown fine cabinet timbers such as walnut or cherry. In short, Swedish craftsmanship celebrates form, technique, and accuracy, not material. This approach is completely at odds with the Studio Furniture Maker's preoccupation with "interesting" timbers in the Anglo-Saxon countries.

MALMSTEN ALUMNI SYMPOSIUM; WOODWORKING TOOLS & TECHNIQUES - PAST, PRESENT & FUTURE, 16-19 SEPTEMBER 2022, STOCKHOLM, SWEDEN

“Malmstens Alumni is a non-profit association started in 2019 on the initiative of long time Malmstens Director, Master Cabinetmaker, Furniture Conservator and Educator Ulf Brunne. The purpose of Malmstens Alumni is to bring together a diverse group of professionals with the common denominators Malmstens and Wood, including art historians, cabinetmakers, upholsterers, conservators, luthiers/guitar builders, designers and artisans. Our motto is knowledge shared is knowledge doubled.” – Malmstens Alumni website.

This 4-day symposium took place at a range of locations in-and-around Stockholm, including The Swedish History Museum, Skansen Museum, Malmstens Campus, The Museum of Furniture Studies and Skokloster Castle.

There were speakers and attendees from all over the world, with a solid representation from Scandinavia. See appendix 1 for a full list of the attendees. I gave a presentation on Craftsmanship and Australian Hardwoods. See appendix 2 for a full transcript.

There was an emphasis on restoration and conservation at the symposium, as many of the organisers came from that background, rather than from the cabinetmaking stream. The conservators/restorers were mostly employees of institutions and were thus more likely to be sponsored than the cabinetmakers who were, by and large, employees of commercial joineries and furniture workshops.

Englishman and 2019 Churchill Fellow Joseph Bray from the Sylva Foundation presented a talk entitled *The Future of Furniture Craft Education*. In his presentation, Mr. Bray discussed the significant expense of training a craftsman in wood. Mr. Bray, who visited undergraduate wood schools throughout the UK, Scandinavia, North America and Ireland on his Churchill Fellowship was able to compare and contrast not only the pedagogic philosophies of the different nations, but also the whole chain or training, from high schools through to training institutions. One of his key findings was the



Figure 8 Skokloster Castle was started in 1656. The massive roof structure has been painstakingly restored using traditional techniques.

impact that under-funded/resourced high schools were having on the tertiary education in all countries. In essence, students were arriving at tertiary training with weaker and weaker basic skills, placing greater strain on the schools. Only Ireland maintained a reasonably robust school-based woodworking programme.

In public and private discussions Mr. Bray voiced the opinion that Sweden was still the world leader in core woodcraft training, but that they were under increasing pressure because of the declining access to woodcraft education for young people.

SUSTAINABILITY

At all the schools visited, the students expressed a high concern for sustainability. The students wanted to understand where their timber came from and how that timber was handled. There were repeated concerns that timber should be sourced “locally”. This was often expressed as “within a 50km radius”. There was a keen interest in using “waste” timber coming from the large industrial mills and plants.

Both Steneby and Capellagården had relationships with local millers and the students were involved in the whole cycle of obtaining timber; log selection, felling, milling, and drying. All the schools commented on how difficult it was to obtain high quality sawn boards of Swedish timber. One of the teachers at Capellagården, Kaj Jacobsen, is Canadian by birth. He observed that quality furniture grade timber was much easier to obtain in his native Canada than in Sweden. In Sweden, spruce and pine is readily available, but even “local” timbers such as beech are very rare commercially.

I had a long conversation about sustainability with Professor Torsten Hild of Gothenburg University (he is responsible for Steneby and HDK Varland). He observed that the energy inputs for an individual to travel in a private vehicle to a one-man sawmill in the forest, then transport and dry that timber in small quantities is significant. Compared to industrial forestry, where the energy inputs are amortised over a much greater volume of timber, it could easily be argued that sourcing small quantities of timber locally actually costs more energy inputs per lineal meter.

Professor Hild observed that, according to the latest research, the duration that an item is employed for its original purpose has the greatest impact on its sustainability credentials. Thus a chair made from a “precious” timber that lasts 100 years is considerably more sustainable than a chair with a 10-year lifecycle made from a “common” or even “waste” timber.

Professor Hild observed that the Scandinavian furniture industry has almost never relied on Scandinavian forestry. The famous mid-century modern furniture movement centred in Denmark, Sweden and Norway post-war relied on teak, rosewood and oak. Of these timbers, only oak was native and even then, it was rarely sourced from Sweden.

SWEDISH FORESTRY

In Stockholm, I met with Björn Nordin, Director of Architecture & Design at Swedish Wood (the industry body representing forestry in Sweden). Mr. Nordin is responsible for liaising with Swedish furniture designers. He has a relationship with Steneby and Malmstens, but not so much with Capellagården.

Mr Nordin explained that Swedish forests are a crop aimed at the construction industry. Roughly 60% of Sweden is covered in working forests and those forests are the backbone of the Swedish economy. Of those forests, 90% of the trees consist of spruce and pine. “We started the 20th century as one of the poorest countries in Europe. We are now a wealthy country and 20% of our economy relies on our forests.”

Swedish forests are expanding, not shrinking, because of the insatiable world appetite for construction timbers. Mr. Nordin explained that, with the war in Ukraine, Swedish timber was in more demand than ever before. “Forestry has a long cycle. What we sell today is based on what was planted 80 or 100 years ago. We can only process timber that is ready for harvest. We are expanding our forests as an economic resource for the nation.”

Mr. Nordin is actively interested in working with the design community, but he expects them to work within the industry’s realities. “Everyone knows that pine is not a particularly sought-after furniture timber, but that is what we have. It is not worth our while to divert time and energy to milling timbers for a furniture industry demand that barely exists.”

There is a clear disconnect between Swedish industrial forestry and the (student) design community.

ATTITUDES TO WOOD

It could easily be argued that Australia has some great woodworkers because we (still) have some interesting timbers. If an enthusiast polishes up an old red gum fence post, sticks a candle in it and calls it a candelabra, they are responding to our beautiful timber from a very genuine place. This initial love of material has lead Australians to craftsmanship.

Swedish wood is generally uniform in both colour and grain. Swedes don’t get inspired by the colours and textures they see in their firewood piles; they are inspired by a long history of practical wood craft.

The only wide-spread evidence of creative play I saw in Sweden was in carving. The spoon carving and whittling movement in Sweden is quite strong and utilises local timbers. This is directly analogous to the spoon carving movement in Australia.

Swedish woodworkers are interested in design, craftsmanship, functionality, and sustainability. They neither seek nor expect dramatic or interesting wood the way an Australian maker might. Many of the Swedish craftsmen I spoke to found my samples of Australian timbers quite confronting. They could not, for example, believe

the range of colours that we often see in a single species. I carried a set of blackwood samples, ranging from light, straw coloured blackwood through to dark, highly figured blackwood. These samples of a single species represented a wider colour and grain range than a Swedish craftsperson could expect across their whole palette of native timbers. Swedish makers were interested in Australian timbers from a position of curiosity, but many expressed a reluctance to use such dramatic timber in their designs.

WORKSHOPS AND EQUIPMENT

Every teaching workshop visited had a mix of new and used industrial-grade 3 phase machines. I did not see a single piece of equipment that could be described as hobby level. The most common brand of machine was Martin (a German manufacturer based in Ottobeuren near Munich) . All the teaching schools had spindle moulders. Only Stenebyskolan and HDK Valand had CNC machines.



Figure 9 A Stenebyskolan student loads a CNC machine with chair legs to be shaped. The chair legs are produced by the students for a “real” external client (a local furniture manufacturer).

Most hand tools were privately owned by the students, with a relatively small number of hand tools owned by the schools themselves. The students were surprisingly familiar with Australian designed and made hand tools by HNT Gordon, Vesper, Colen Clinton, Pete Curly and Peter Trott. Most of the hand planes I saw were American Lie Nielsen tools. The most impressive space was the Malmstens building. The natural light, the logical sequence of rooms, the planned layout of the machines, the timber floors, the wide doors, the integrated dust extraction, the temperature and humidity control, the sound insulation and the ceiling heights were designed by woodworkers for woodworkers. I have never seen a space so well designed for the holistic approach to woodworking.



Figure 10 The main entrance to Malmstens in Stockholm.

SWEDISH ATTITUDES TO MANUFACTURING

Sweden's economy is based on the export of raw materials, energy and manufactured objects, rather than, say, financial services and intellectual property. Despite this, I encountered a strong reluctance amongst Swedish makers to take on personal risk in establishing a small business. From my perspective, workshop rents and infrastructure were quite affordable, but the people I spoke to regarded them as prohibitively expensive. It may be that there are more costs and risks to doing business within the economic structure that I am unaware of. It may also reflect an understanding of the market and opportunities within Sweden.

One of the Swedish cultural norms is to consider all enterprises from the prism of exports. Swedes appear to plan for exports and hope for a local market. By contrast, Australian furniture manufacturers tend to "make for Australia" and hope for exports. This expectation within Sweden favours medium sized enterprises.

Sweden is culturally open to craft-based education in a way that is almost unique in the Western World. All the schools I visited involved fees, but the fees were modest against comparable study in Australia. For example, the fee at Capellagården can be covered by a student loan and one month's food and accommodation costs about AU\$815 per month (or roughly AU\$28/day).

At first glance, it was not obvious where all these highly trained woodworkers were "going" after they graduated. There were certainly not setting up small workshops making one-off furniture. Instead, all these highly trained people were filtering right throughout the economy.

The schools train for excellence, but they are not training for romance. No one expects to make Gesäll level pieces in the "real world", rather they are expecting to take that complete understanding of material, design, self-discipline, and craftsmanship to a variety of roles. Any Swedish company that has any need of someone with a complete understanding of wood as a material has access to the best trained people in the world. It is little wonder that IKEA comes from Sweden.

In Australia, the normal practice has been to train woodworkers to fill specific job descriptions. For example, TAFE trains kitchen makers (cabinet makers), stair makers and joiners. They don't train "woodworkers" who then specialise. Australian design schools teach design but not craftsmanship. Only the Sturt School for Wood in Mittagong, NSW, attempts to teach wholistic furniture makers (design, craftsmanship, business, sustainability, wood technology) and they try to do this in a one-year course. The Swedish system would see this as a 5-year project. An apprenticeship is 4 years.

CONCLUSION

I went to Sweden asking the wrong questions. I expected to find a close relationship between Swedish forestry and Swedish woodcraft education, because both sectors are so strong. If anything, I found a greater disconnect between these groups in Sweden than in Australia.

Swedish forests are thought of as a crop, no different to wheat or potatoes. In many instances, agricultural land is being reverted to forestry because the economic value is greater. The Swedish industry faces no significant controversy over native old growth, native regrowth, or plantation timbers. Almost every tree available for harvest has been managed for this purpose. Spruce and pine are native to Sweden, but the forests are not natural forests and haven't been for hundreds of years (at least, not in the Southern areas). There is currently a net increase in the number of trees annually.

Sweden has the world's best education in wood technology, craftsmanship and furniture design. HDK Valand is a design school rather than a school of fine craftsmanship, so I will set it aside. If we consider Steneby, Malmstens and Capellagården as a group, any one of these schools would offer the most comprehensive furniture training in the world. A population of perhaps 11 million people supports three state-owned schools that allow Swedish students the freedom to study at minimal cost for "as long as it takes". A student at Malmstens can spend up to 5 years training to make their Gesäll piece.

The casual observer mistakes this depth of training as perhaps pointless and possibly self-indulgent. Australians are culturally blinkered to appreciate how this understanding of wood as a material, craftsmanship as an ideal and design as a concept can filter through an economy.

IKEA was valued at US\$18 Billion in 2021. It's no longer a strictly Swedish company, nor are most of its products made in Sweden (approximately 30% still are). IKEA was founded on a complete understanding of wood as a material and design as an applied art. Love it or hate it, IKEA was only possible in a culture that respects and invests in woodcraft training.

It is not possible to predict the heights to which excellence in education and training in a specific discipline will ultimately lead. Its only possible to predict that poor education and training in a specific discipline will lead to mediocrity. Australia has unique timbers that could have world-wide appeal if they were offered in the form of highly designed and crafted objects. We don't have such an industry because we have not invested in the training required to make this a reality. Australian training is focused on specific roles within existing industries, most of which are domestic in nature.

Australian furniture manufacturers have always focused on local markets and local tastes. We have a self-fulfilling prophesy that high wages and long transport distances make exporting Australian furniture unviable.

Australia imports high-end furniture from Europe, which has high wages and long transport distances. We should be able to export high-end furniture to Europe, and anywhere else for that matter. The reason we don't is due to a lack of vision, training, and investment.

Australia has a significant quantity of unique native timbers. With the right science, we can sustainably manage this resource. Unlike the extractive industries such as mining, forests can supply a resource indefinitely with the correct management.



Figure 11 Evan Dunstone in the Dunstone Design workshop with a Cataract rocker made from Briar Oak (Musgravea heterophylla). Image by Adam McGrath.

RECOMMENDATIONS

To build an Australian training institution commensurate with any of the “big three” schools in Sweden would require significant vision and investment. Australia has tried several times to build such a school, and funding has always run out after the initial enthusiasm. The Australian School of Fine Furniture (Launceston, Tasmania), the Dwellingup School for Wood (WA) and the Wood Workshop, Canberra School of Art (ANU) have all failed due to a lack of ongoing funding and vision.

Even with unlimited funding, Australia does not currently have a body of suitably qualified and experienced craftspeople to staff such a school.

The Swedish schools are all open to international students. Australian Industry should create a rigorous selection criterion and send chosen students on a fully-funded scholarship to study in Sweden. These students would return with valuable skills and training to inject into the Australian industry.

Many Gesäll trained Swedish makers would happily come to work in Australia for a short-term placement of 3 months. Unfortunately, Australian working holiday visas are only available to people under 30. As Gesäll training takes at least 5 years, and most students don't start until their mid-20's, the vast majority of Gesäll qualified makers are 30 or more. At present, there is no simple, legal, way for a Swede over 30 to visit Australia and work for three months in a workshop. The industry should work with government to make this possible. This would inject new thinking and skill-sets directly into workshops all over Australia.

The Australian timber industry should work as closely as possible with the Australian furniture industry to find areas of consensus. The story of forestry in Australia is complex and emotive, while the Australian furniture industry has been decimated over recent years due to a range of market factors. The two industries would benefit greatly if they could present a united front when it comes to the sustainable use of Australian timber and the importance of value adding.

APPENDICES

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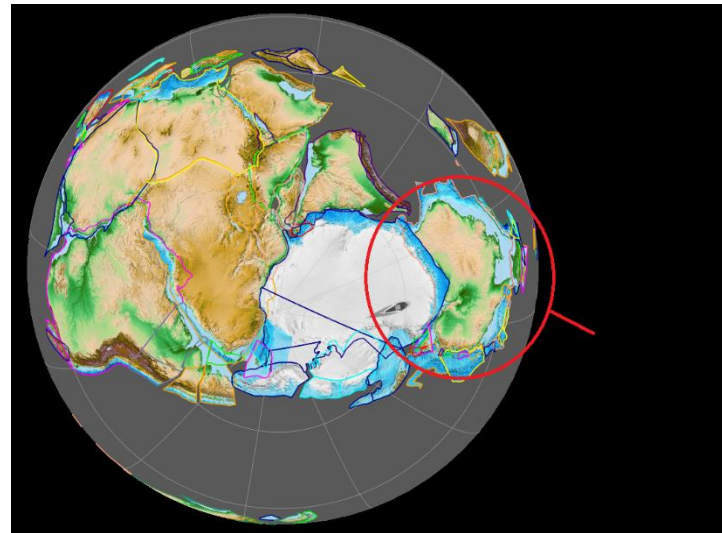
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EVAN DUNSTONE, MALMSTEN SYMPOSIUM SPEECH, 2022

(Note; This talk was presented as a Powerpoint and has been reproduced as it was delivered. Images are untitled but shown in context).

Ladies and gentlemen, honored guests, thanks for the opportunity to address this Symposium. Before I start, I'd like to thank the Gottstein Memorial Trust for funding my trip. Bill Gottstein was a forest products research scientist with the Australian Commonwealth Science and Industrial Research Organisation. Bill lost his life in a forestry accident in March 1971 and his memorial trust has funded my trip to be here.

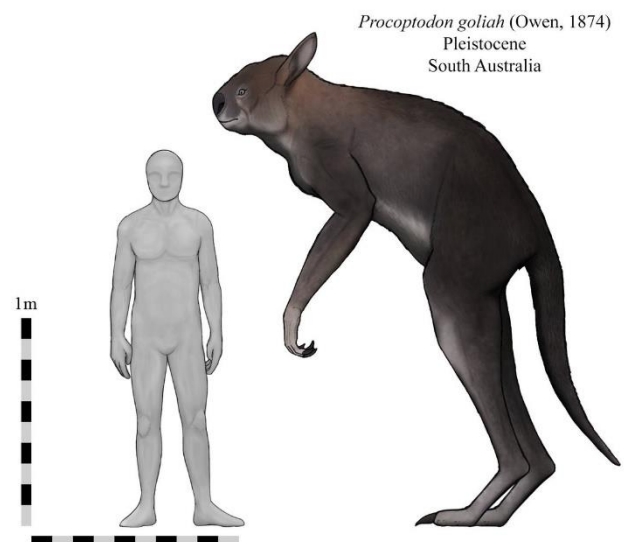
First, some context. The continent of Australia split off from the super-continent Gondwana sometime during the Cretaceous. In short, the Australian continent's not had a land connection with the rest of the globe since T Rex was doing its thing. Everything that has evolved in Australia has done so in relative isolation for around 90 million years.



At the time of the split, Australia was covered in lush rainforest. When the first humans arrived in Australia, roughly 60 thousand years ago, they were met with large areas of forest, a much wetter climate and megafauna. Imagine a wombat the size of a rhino and a kangaroo, *Procoptodon goliath*, that could reach tree branches 3 meters off the ground.

But over the period of Human habitation, Australia dried out and warmed up. Not only did the forests shrink, but their makeup changed. Tasmania, isolated from the mainland about 12,000 years ago, gives us an idea of what Australia once looked like. The mainland was left with two major genus of what I'll loosely call trees; the eucalypts, the acacias. The dominant genus was by far the eucalypts, with more than 700 species comprising about 77% of the original native forest area.

Fast forward again, and Australia was invaded and colonized by the British in 1788. The project started as an exclusively penal colony and the first free settlers didn't arrive until 1793 (five men, two women and six children).



The British discovered that the Eucalypts did not behave like the timbers they were used to. English oak has a dry density of 740 kg/cube and is considered exceptionally “hard” and “strong”. One of the most prolific tree species encountered in Sydney Cove was the Sydney blue gum 4, *Eucalyptus saligna*, with a dry density of 850 kg/cube. The tools sent across with the first fleet were of low quality, and the convicts struggled to work Australian hardwoods.



The early settlers soon discovered Australian red cedar, *Toona ciliata*, in a stand of remnant rainforest about 10km from Sydney Cove 5. Australian cedar has a dry density of 485 KG/cubic metre. It has a beautiful deep red colouring and it's easy to work with hand tools. Cedar-rich temperate rainforest pockets once lined the East Coast of Australia, stretching from the Victorian border through to Queensland. Red cedar became one of Australia's first export items and in less than 100 years, this prized timber, often known as Red Gold, was essentially logged out.



This story repeated itself with all the timbers that conformed to European notions of utility, aesthetics and workability. The prince of Australian timbers, Huon pine, *Lagarostrobos franklinii* is arguably the world's finest boat building timber. It's also one of the longest living organisms, with one tree dated to have lived for 3,462 years. The voracious appetite for the valuable Huon pine led to efforts and risks more associated with gold mining than forestry.



So, what about all those eucalypts, and acacias?

Most eucalypts are associated with construction applications. Jarrah 7, *Eucalyptus marginata*, from Western Australia, is almost unique in being considered a fine cabinet timber. Tasmanian oak and Victorian ash are now grown in plantations and are often seen in Australian furniture, but the timber is bland and, in my view, unappealing to the craftsman on many levels. But there are other eucalypts, such as the magnificent river red gum, that until relatively recently were simply too difficult to use to have any widespread application in fine craft.



The most widely appreciated of the acacias is blackwood, *Acacia melanoxylon*. Blackwood is a tall, straight, relatively fast-growing tree that produces a beautiful golden-brown timber. Indeed, in my practice, blackwood is our most utilised species. Due to its relatively fast growth rate, many consider blackwood to be the most sustainable of the Australian cabinet timbers.



There are a whole range of so-called desert acacias which are slow growing and small, but produce stunning timber for craft. Again, the difficulty they present to the woodworker has limited their previous use.

So what are the problems that make these timbers so difficult to use? How have Australian craftspeople developed tools and strategies to work them?

I'm going to start with my favourite timber, river red gum, or *Eucalyptus camaldulensis*.



Red gum grows throughout the Murray-Darling Basin, with its highest densities in the southern areas. The Murray Darling basin is roughly the size of France. The seeds of the river red gum germinate readily after floods and the trees require regular spring floods throughout their life cycle to survive. In the

Murray-Darling Basin, such floods are now rare due to river-regulation for irrigation. As a result, 75% of river red gums in the lower Murray are stressed, dead or dying.

The Barmah- Millewa forest, that lines the lower Murray River, has the largest density of red gums, and up until recently was commercially logged. NSW banned the logging of red gums about a decade ago, and Victoria severely restricts logging.

Curiously enough, red gum is now found all over the world as an introduced species. With a good water supply and a lack of Australian bugs, red gum grows like a rocket. I've seen photographs of 25-year-old red gums from Southeast Asia that are tall, straight and thick. Sadly, the timber is rubbish because of the extreme growth rate, but even in Australia, red gums are not listed as a threatened species.

These days, most sawn boards come from portable mills accessing red gums that have died or been removed for a variety of reasons, such as road construction or agricultural development. Due to their prodigious size and weight, most logs are processed on-site and only the sawn boards are removed. Red gums are not generally a tall straight tree, but rather a squat, thick tree.



Once the log has been converted into boards, the big challenge is to dry those boards properly. Red gum is a notoriously difficult timber to dry, with high loss rates and significant wastage. I've never used exclusively air-dried red gum that was satisfactory. The best drying results come from initially air drying the boards for 12 months, then transferring them to low temperature de-humidifying kiln. With tangential movement at 8.9 and radial movement at 4.4 even perfectly dried boards will move like crazy.

The timber from old red gums almost always shows reaction wood, or figure. The timber can be heartbreakingly beautiful. The density of dried red gum is 900 kg/m³. Despite the weight and hardness of red gum, it's not a particularly strong timber. It was used for locally for ad hoc construction and it was used extensively for railway sleepers and other heavy-section applications., but it makes poor structural beams and there is no modern commercial hunger for red gum in construction, other than as floor boards. In craft and furniture applications, failure of sections such as chair legs is a real problem.



The first duty of a craftsperson is to develop a relationship with the material. Red gum will do what it wants. It's not eager to please. If you approach it with romantic notions of hand planes and sharp chisels, you should prepare yourself for disappointment. I tell my apprentices to think of red gum more as stone than timber. It loves abrasion more than a sharp edge. It will crumble, tearout and pit at the drop of a hat. If James Krenov had been born in Wagga Wagga, he would have extolled the virtues of a well-tuned belt sander and discussed the cutting angles on spindle moulder blades.

There's a myth that only hand tools will give the craftsperson a true relationship with timber. This is true for all the timber that responds to hand tools. It is not true of red gum. My workshop manager, Alex MacFarlane, can read each piece of red gum as it passes through the spindle moulder. As he passes the jig over the cutter, he is feeling for vibration, listening to the cut and watching the swath as it goes up the extractor. He will adjust his feed rate, the weight of cut and perhaps the RPM of the machine with the sensitivity of a piano tuner. His cuts are always cleaner, smoother and more uniform than mine, despite my best efforts. When done just right, a piece of red gum can come off the spindle moulder so cleanly that we start sanding at P240 sandpaper.



And that brings me to another point. If you don't appreciate the art of sanding, don't become an Australian woodworker. The ability to sand is paramount to working red gum. You must take sanding as seriously, perhaps more seriously, than any other skill. Unlike most Northern Hemisphere timbers, the more you sand, the greater the reward. We will regularly sand red gum components up to P600 before finishing.

And to polish red gum, you simply must embrace an oil finish. In our workshop, we use Kunos Clear. Five or six coats of Kunos clear, wiped on and immediately buffed off, with 48 hrs between coats, will give you a finish worthy of the gods. Using a sprayed lacquer will end in tears, as the timber movement will split the finish and it will look terrible within a decade.



As previously mentioned, red gum will seasonally move in an extreme manner. We allow plus or minus 1 mm of movement for every 100mm. Thus, a 1000mm wide tabletop can move down to 995mm and out to 1005mm annually. If you do not allow for this movement, it will all end in tears.

Although many have tried, red gum does not slice well into veneers. You can buy commercially sliced red gum veneers, but they are rubbish. To create quality red gum veneers, they **must** be sawn, not sliced. We use a custom-made band resaw to cut our veneers. We then sand those veneers through a wide belt sander down to 1.8mm and lay them up on a substrate with liquid epoxy resin. We then sand down further to a finished thickness of 1.5mm. Any thicker than 1.5mm, and the veneer will retain enough strength to start moving.

When cutting joinery, you must accept that red gum will simply not compress. If your tenon is even marginally fatter than your mortise, the tenon will simply not fit. If you try to force it with a clamp, it will split the component rather than compress the tenon. It's often best to use floating tenons in double mortises. Highly figured grain looks pretty, but it has unreliable strength. You are better off using a piece of straight-grain jarrah as the floating tenon instead of red gum.

Finally, there comes the enormous subject of glue. Nothing preoccupies Australian woodworkers more than glue. Here are the rules; liquid epoxy for laying resawn veneers, paste epoxy for joinery and polyurethane for long-grain to long-grain. For small work, you can use a cross-linking PVA, but the glue line will creep.

Blackwood, *Acacia melanoxylon*, is quite a different story. Unlike red gum, there has always been a furniture industry based around blackwood. Blackwood can, and is, worked with hand tools. It has a dry density of around 650kg/m³ although in practice there is significant variation between logs.



If you read a generic Australian timber brochure, it will say something like “Blackwood is easy to work and nails and glues well”. I disagree. Blackwood is full of silica. It is abrasive on tools and kills sharp edges quickly. If the rpm and feed rate of your router is even slightly wrong, all that silica will start a nasty burn.

Blackwood has a long fibre, and it splits readily. If you are using a spindle moulder, even the shallowest uphill cut will end in tears (and tares). A cut that red gum would take in its stride, would result in blackwood flying around the workshop in pieces.

Yes, it's easy to glue, but the timber has a high tannin content, so the acid in some cross-linking PVAs will result in unsightly green strains. But gluing blackwood is relatively conventional and doesn't present other specific issues.

Unlike red gum, blackwood can be very successfully air dried. In a perfect world, I would only use air dried blackwood. But even here, there are hidden challenges. You might recall the Black Summer bushfires of 2019/2020? In the lead up to those fires, the East Coast of Australia was the driest I've experienced in my lifetime. We suddenly found that our blackwood was not machining properly. Cuts that we used to make easily on the spindle moulder suddenly started to fail. We couldn't work it out. It wasn't until we started making very careful moisture tests that we realised that the air-dried blackwood was actually too dry, at around 8%, and the very nature of the timber had changed. We had to switch to kiln dried timber, which came out at around 12%, to regain the working properties.

But the biggest challenge to the craftsman working blackwood is the wide variation of colour and grain pattern. Soil quality, rainfall, genetic stock and the age of the trees has an extraordinary impact on the aesthetics of blackwood. Colour matching and matching for grain is both frustrating and rewarding.

This slide shows a solid timber blackwood chair seat, made up of 12 pieces. You can see how well blackwood lends itself to colour and grain matching.



Back in 2001, I visited a workshop in England. The maker was showing a client a range of slightly different coloured timber samples. I simply assumed that the client was being warned of the colour range to expect. It came as a profound shock that these samples were different species, and that the client was actually choosing! Our blackwood comes in such a dazzling range of colours and grain patterns that there is more range just in this one species than in that whole palette on offer.

Yes, blackwood can be commercially veneered, but the process sucks the life out of the timber. Resawn veneers yield much better results. And you can steam bend blackwood, which is nice. It also does bent laminations very well.

In a way, blackwood is the friendly relation to all the desert acacias. Desert acacias live in the toughest regions, and they display the most difficult working properties. I should note that First Nations people in Australia made many of their tools and weapons from acacias. Although it's hard to quantify exactly, acacias were the preferred genus for Aboriginal woodworkers on the mainland. When preparing this talk, I was sorely tempted to discuss indigenous wood craftsmanship in more detail, but alas, that's a whole other lecture. Suffice it to say that acacia was the genus of choice in most areas for woomeras, boomerangs, Nulla Nullas and digging sticks.

This knife, by the master bladesmith Jackson Rumble, features a handle in Dead Finish, *Acacia tetragonophylla*. Non-aboriginal people call it dead finish, because it is the last tree to succumb during a drought. There's a more than usual amount of Dead Finish available at present, due to the severity of the recent drought.



But the prince of the desert timbers is gidgee, *Acacia cambagei*. Coming in at 1,150 kg/m³ it's one of the hardest timbers in the world. It will blunt a tool simply by looking at it across the workshop. It's difficult to harvest, difficult to mill, difficult to transport, difficult to dry, and just plain difficult. But the results!

Here are some carved forms in gidgee by master carver Hape Kiddle. If whisky is distilled beer, then gidgee is distilled blackwood. And Hape is a connoisseur.



It's craftspeople like Hape who have helped guide and encourage tool makers like Peter Trott and Pete Curley to develop their tools. These two Victorian toolmakers are experimenting with steel composition, blade angles and tool geometry to bring an exciting new range of tools to Australian (and international)

craftspeople. To my surprise, Instagram has been helpful in some of these developments, with real-time conversations between makers who are geographically separated, helping to develop the tools through collective feedback.



But before them all, there was Terry Gordon. Terry started supplying high-angle, wood-bodied hand planes to Australian makers in 1995. And the timber he uses for the bodies? Gidgee. Terry goes out to the desert almost every year and personally harvests all the gidgee he needs to make his superb tools. He seasons the timber himself and each plane is hand-fettled before shipping. His classic smoothing plane in gidgee is designed specifically for Australian timbers and Australian makers. It's hard to imagine a serious maker in Australia who doesn't own at least one HNT Gordon hand plane. When all else fails, we reach for a Terry Gordon tool.



One last thing to consider; Australia is roughly the size of the continental United States, with a population of about 25 million. Woodwork is a popular activity, but we are a very spread-out people and our training

in woodcraft is inconsistent, which is a nice way of saying rubbish. We have no national training body or organisation that comes even close to the training that you enjoy here in Sweden.

When I was a spotty apprentice, many of the Australian makers who were influential to me might as well have lived on the moon, so far distant were they. Just over the span of my career, we have gone from relative isolation to a continuous online conversation in real time. This has actually done wonders for the craft.

It feels like we have just started, but I'm mindful of the clock and I want to allow time for questions. I hope this has given you an over-view of the state of woodworking Down Under. There is one last seed of an idea that I would like to plant. Australia does not have a fixed woodworking tradition. We are like magpies, picking up things that interest us. Although we are under pressure to conform to outside notions of taste and technique, there is a very real, identifiable Australian approach to the craft starting to emerge.

Thank you all for your time.