# Signed & Sealed: Agenda 21 and the Role of the Furniture Designer-Maker in Developing a Sustainable Practice

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#### Abstract

The aim of this thesis has been to develop and document a research project that takes the form of a strategic response by a furniture designermaker (Philip Koomen Furniture) to the challenging ecological issues raised by the Earth Summit (Rio de Janeiro, 1992) and detailed in the document Agenda 21: Sustainable Development for the 21<sup>st</sup> Century. A Literature Review contextualises this research project in relation to issues around global resources and sustainable practices and considers various models of sustainable design in relation to the commercial mainstream but more particularly with regard to the role of the furniture designermaker in contemporary society. The thesis explores the rationale for what became termed the "Signed & Sealed" project and describes the development of an associated body of designs through the negotiation of the degraded state of the U.K.'s native woodlands and the location of three critical strands which together came to define the "Signed & Sealed" brand - strands identified by the terms semi-bespoke, local cycle and unique signature. These terms are illuminated in turn by discussion of the commissioning processes favoured by designer-makers and by consideration of the economic and aesthetic problems to be found in connection with the sourcing, development and use of local, noncommercial timbers. The thesis also describes the project's formal presentation in the exhibition "Out of the Woods" (River & Rowing Museum, Henley-on-Thames, 17 September 2004 to 7 January 2005) and the two conferences "Our Woods in Your Hands" (River & Rowing Museum, Henley-on-Thames, 25 September 2004) and "Out of the Woods: Design for Sustainability" (River & Rowing Museum, Henley-on-Thames, 20 October 2004) and considers the peer reviews and responses which followed these events. Finally, the thesis offers a critical evaluation of the PhD research process which framed the project together with some discussion of further potential avenues of research and development.

The greatest challenge facing the world community as it mobilizes to implement Agenda 21 is to release the enormous financial, technical, human and moral resources required for sustainable development. These resources will be freed up only as the peoples of the world develop a profound sense of responsibility for the fate of the planet and for the well-being of the entire human family.

The Bahá'í International Community

All things are ready, if our minds be so William Shakespeare, Henry V, Act 4, Scene III

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Finally I want to mention my children, Jonneke and Jody, whose good humour and teasing often put things into perspective and kept me sane and my wife, Esmyr, who has given me unfaltering moral and technical support for the duration of the project. Without her understanding I would not have reached this point.

# **Prologue: Philip Koomen Furniture**

Let your vision be world embracing rather than confined to your own self Bahá'u'lláh

Philip Koomen Furniture was established in 1975 to design and make fine furniture in beautiful woods.<sup>1</sup> It was inspired by the ideal of creating a model craft business using furniture as a medium to develop a concept of work based on the Bahá'í ideal of 'Love and Service'. In a very real way, Philip Koomen Furniture begins and ends as a testament to Faith. However, as with any designer-maker business, the formative years required the development of the necessary design, making and business competencies. The workshop became a laboratory in which skills were refined through commissions and experimental projects, learning to work within the constraints of a market and with the ethos of design and make: all progress was hard won.

The move to the current workshop (Fig 1) in Checkendon in 1984 marked a new stage in which the main goal was to establish the viability and financial independence of the business without compromising the original ideals. The challenge of reconciling the pursuit of craft excellence, employing a team of craftsmen and making a living were the main preoccupations for successive years. Ten years later the business had become debt-laden and its future precarious. The introduction of an egalitarian bonus system of payments and profit sharing negotiated with my fellow craftsmen transformed the finances and the scheme galvanised the Philip Koomen Furniture team. The subsequent profitability of the business has shown that a model craft business is viable and not just the naïve aspirations of an idealist.

The refinement of this business model was, however, only a means and not an end in itself. The focus was always on the design and making of fine furniture as an expression of social and spiritual values. Various

<sup>&</sup>lt;sup>1</sup> For further details on Philip Koomen Furniture see: K. Taylor, 'Pondlife and Beyond', *Furniture and Cabinetmaking,* Guild of Master Craftsman Publications Ltd, Lewes, no. 69, October 2002, pp. 16-20

strategies were developed to facilitate this including the concept of *semi-bespoke* furniture which has become embodied in the 'Signed & Sealed' project and will be described later.

Philip Koomen Furniture then has its genesis in the teachings of Bahá'u'lláh, the nineteenth century Persian Prophet-Founder of the Bahá'í Faith. Bahá'u'lláh's vision of an emerging global civilisation is based on the recognition of mankind's essential unity which, once recognised, can effect the necessary transformation at all levels of society, from the individual to national and international political institutions. This is embodied in the ethic of 'World Citizenship'.<sup>2</sup> Since becoming a Bahá'í in 1973, I have tried to translate the concept of 'World Citizenship' in my work as a designer-maker. When the Earth Summit in 1992 awakened the world to a pending environmental crisis, I re-evaluated the material base of my practice. This led directly to the sustainable forestry debate in particular in North America and the U.K. from which most of my timber is sourced. I also became active in the Oxfordshire Agenda 21 initiative.<sup>3</sup>

A significant moment was marked when I began work with the American Hardwood Export Council who were receptive to my ideas about the relationship between design and sustainable forestry and commissioned the "Koomen Project" (1998). This assessed the aesthetic value and yield of low grade tulipwood and red oak, both lesser known species (Fig 2). A follow-up project, the "Koomen Trio" (2001), (Fig 3a/b), described as 'ground breaking'<sup>4</sup> explored the aesthetic and physical characteristics of soft maple, another lesser known species through 'innovation and design'<sup>5</sup> (Appendix III). This project received international media coverage in the timber industry and led to a further collaborative research project with an American timber exporter and a UK timber importer and merchant.<sup>6</sup> The "Soft Maple Koomen Kitchen" project

<sup>&</sup>lt;sup>2</sup> The Baha'í International Community, *World Citizenship: a global ethic for sustainable development*, Bahá'í International Community, New York, 1993

<sup>&</sup>lt;sup>3</sup> Agenda 21 was conceived at the *Earth Summit*, Rio de Janeiro in 1992 to promote sustainable development at a local and regional level

<sup>&</sup>lt;sup>4</sup> J. Collins, 'The Koomen Trio', *Furniture Manufacturer*, Polygon Media Ltd, Sevenoaks, June 2002, p. 16

<sup>&</sup>lt;sup>5</sup> J. Collins, <sup>c</sup>Comment', *Furniture Manufacturer*, Polygon Media Ltd, Sevenoaks, June 2002, p.5

<sup>&</sup>lt;sup>6</sup> The project was commissioned by Rossi, USA and Timbmet Group Ltd, Oxford

(2002) investigated the benefits of using soft over hard maple through a commission for kitchen furniture (Appendix IV). These three research projects provided me with insight into the international dimensions of sustainable forestry.

On a more regional basis I also became involved with a joint research project commissioned by TWIG<sup>7</sup>: "Techniques to Add Value to Beech to Improve Its Marketability as a Raw Material, and in Finished Product Design" (2002), (Appendix II). This project was partnered with Adam Dawson, an agro-forestry scientist and project manager at the Hardwick Estate, Oxfordshire, an FSC-managed beech woodland.<sup>8</sup> The project introduced a literature review of published research of techniques for adding value to beech, developed experimental techniques using Polyethylene Glycol to stabilise end grain slabs of spalted beech, and devised a series of prototype furniture designs to demonstrate the aesthetic qualities of beech. This project also brought into sharp focus the structural problems inherent in local and regional sustainable forestry and confirmed that the problems identified in North American forestry were common to the Chilterns; although the situation here has regressed to a chronic condition in which the future seems less certain than that in North America.

In a similar fashion, the "Pondlife" bench design (1998) (Fig 4) which explored the relationship between furniture and sculpture also became a significant turning point in the development of my design philosophy. It was through this one-off experiment, which has subsequently enjoyed much success that I began to consider how my furniture designs could embody a spiritual need for reflection/meditation, in this case by offering an appropriate space for private contemplation. "Pondlife" has since become an iconic signature piece for Philip Koomen Furniture, and has been described by *Channel Four* and *The Independent* as: 'organic and

<sup>&</sup>lt;sup>7</sup> Transnational Wood Industries Group, a European Community funded project aiming to revitalise local woodland economies

<sup>&</sup>lt;sup>8</sup> The Hardwick Estate is included in the section on Local Sourcing

wildly eccentric ... an example of new design meeting the buyers' need for something special'<sup>9</sup> and 'absolutely beautiful'<sup>10</sup>.

In short, both the AHEC and TWIG projects developed what might be called the material base of my practice by extending my knowledge of the inherent possibilities of timber within the constraints of the prevailing industrial economy. Equally significantly, both projects point to my willingness to engage in mutual partnership with a range of agencies and individuals in order to extend the range of Philip Koomen Furniture practice. "Pondlife" is also significant in this regard. It began as an experiment to push the boundaries with regard to form. As will be seen, the translation of "Pondlife" from one-off to its incorporation with the "Signed & Sealed" project (Appendix I) was to provide it with an archetypal emblem which embodied all that the project aspires to achieve.

What Philip Koomen Furniture represents then is twenty-five years of professional studio-based practice. Professional status has been confirmed in the three interdependent areas of practice through appropriate professional bodies. Firstly, in furniture making, through the award of Licentiate City and Guilds (1988); secondly, science and technology through the award of Associate Institute of Wood Science (1978) and thirdly, design through the award of Chartered Designer (1992). Wider acknowledgement in the field of furniture design and making includes the award Fellowship of the Royal Society of Arts (1988).<sup>11</sup> Peer group recognition has come from inclusion in numerous exhibitions, publications and peer review which has described Philip Koomen Furniture's craftsmanship as: 'without question ... a force to be reckoned with in the 21<sup>st</sup> century'.<sup>12</sup>

<sup>&</sup>lt;sup>9</sup> Dominic Lutyens, '21<sup>st</sup> Century Schizoid Man', *The Independent*, 8 January 2000 <sup>10</sup> Ann-Marie Powell, 'Chelsea Flower Show 2000', *Channel Four*, 26 May 2000 <sup>11</sup> The RSA, Royal Society of Arts for the encouragement of Arts, Manufactures & Commerce, is one of the oldest venerable learned institutions in the UK <sup>12</sup> B. Norbury, *Furniture for the 21<sup>st</sup> Century*, Stobart Davies, Hertford, 1999, p.6



Fig 1. Wheelers Barn, Checkendon, South Oxfordshire. The workshop and studio for Philip Koomen Furniture since 1984



Fig 2. The Koomen Project: a study of how low grade, lesser known North American hardwoods are perceived by the public and the furniture trade. Exhibited at BBC Homes, NEC (1998) and Association of Suppliers to the Furniture Industry, NEC (1998)



Fig 3a.



Fig 3b.

Fig 3a/b. The American Hardwood Export Council exhibition stand (Carrefour, Nantes, France 2002) showing the "Trio" range



Fig 4. Original "Pondlife" bench (1998). Purchased by the late George Harrison

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Appendix XIII, Antiques for the Future (CD)	Inside Back Cover

# Please contact Philip Koomen Furniture for further archival materials including:

- Case studies of "Signed & Sealed" commissions
- Meridian TV interview for the "Out of the Woods" exhibition (video)
- Transcript of interviews conducted by Philip Koomen

# Introduction

#### The aims, objectives and submission contents of the thesis

Over the last 150 years local woodlands have declined as a source of timber. This has been a consequence of the development of industrialised manufacturing which became progressively dependent on imported timbers. This phenomenon has also resulted in the steady fall in the number of woodland craftsmen who managed the woodlands and met the needs of the community by providing a wide range of products, from firewood to timber for fine furniture making. Today most privately owned woodlands remain in a poor state and with limited sources of income, they are likely to remain so.

In 1992 the Earth Summit was held in Rio de Janeiro. Its mission, to develop a local strategy for the twenty-first century (*Agenda 21*), has had an influence at all levels of the international community. The Earth Summit raised the awareness that the earth's resources have to be managed in a sustainable and equitable manner - a process that needs to include not only governments, but the local community and individuals. Local U.K. Government authorities responded by initiating projects in their communities. Since the early 1990s, a number of these have encouraged and advised woodland owners how to manage their woodlands in a sustainable fashion. Locally, the Oxfordshire Woodland Project and Chilterns Woodland Project were established to give impartial advice.

Philip Koomen Furniture has been one of a growing number of designer-maker workshops to become established since the mid-1970s in the Oxfordshire/Chilterns region. Few of these workshops, however, make use of local timbers in their designs because of the historical circumstances referred to earlier and the absence of any useful infrastructure to facilitate the sourcing and processing of appropriate timber. With the availability of relatively cheap high quality imported timber through the timber trade there has been little incentive for

designer-makers to source their own timber unlike the traditional craftsmen of the area in the past. However, it is clear that furniture designer-makers are well placed to utilise the rich diversity of locally grown timber in their designs if such an infrastructure could be reestablished and a market developed. It is precisely here that this thesis first began to take shape.

It constitutes a thesis based in practice and it comprises a project developed in response to the issues raised by the Earth Summit (Rio de Janeiro, 1992) and detailed in the document *Agenda 21* (see Part One). In short, this thesis represents the efforts of one furniture designer-maker (Philip Koomen Furniture) to reflect upon twenty-five years of making and move towards a more ideologically coherent practice. More specifically, the aim of the thesis has been to address the concerns that came out of the Earth Summit in 1992 and *Agenda 21*, by developing a sustainable practice for the furniture designer-maker which invests in (and is in turn sustained by) the local cycle.

During the course of developing the PhD, the project took on the title Signed & Sealed, a kind of shorthand adopted from a term first specifically applied to the series of designs that emerged as a result of the research undertaken for the PhD and which allowed the work to be identified as a separate but integral strand of the Philip Koomen Furniture practice.

In order to achieve the aims of the PhD, three principal objectives were developed which were intended to develop the following:

- A body of furniture design which responded to the issues identified by Agenda 21 and which became identified with the term "Signed & Sealed"
- An exhibition together with an accompanying catalogue and conferences intended to present the PhD project and the "Signed & Sealed" brand to the public and relevant peer groups and thereby provide a forum for critical discussion and appraisal – this exhibition was to be called "Out of the Woods"

 An associated text describing the research journey, contextualising the PhD, providing a critical commentary of the project and offering a platform for further dialogue and peer review

These three objectives also define the **submission contents** of the PhD and **it is these three strands (the "Signed & Sealed" designs, the "Out of the Woods" exhibition and this associated text) which together constitute the thesis proper** and are put forward for consideration for the award of PhD in concert with the terms deployed by the UK Council for Graduate Education in which 'the concept of thesis should cover the totality of the submission'.<sup>13</sup>

In terms of the **viva**, it was intended that it be held at the Philip Koomen Workshop. This was an arrangement intended to assist the PhD examiners by offering:

- A partial exhumation of the "Out of the Woods" exhibition, originally staged at the River & Rowing Museum, Henley – by making use of original signage and artefacts etc.
- An opportunity to examine the workshop and its environs the focus of the making itself
- An opportunity to view at first hand the research-through-making process and ask appropriate questions accordingly

## Methodologies: Turning making into writing

#### i) Research and the crafts

The last fifteen years or so have seen a great resurgence in the crafts and with it, a good deal in the way of reflection on the problematic nature of research in this field - much of which has been driven by its key institution the Crafts Council. This has led to a special literature of its

<sup>&</sup>lt;sup>13</sup> See Research Training in the Creative & Performing Arts, UK Council for Graduate Education, 2001

own which has attempted to illuminate this relationship and negotiate the complexities of translating aesthetic and exigent impulses into a transparent text, i.e. Turning making into writing. The Crafts Council's conference "Making It" (1995) for example, was the final conference in a five year cycle intended to 'take stock' of the vexed relationship between research and the crafts. It agreed (amongst others) three 'common principles in relation to crafts research' - namely that such research:

- Should be seen as a wide ranging matrix concerned with the interrelationship between the object, its place, the process, the individual and external forces
- Should target audiences such as students/learners, peers, the public, other makers, clients, consumers, funders, worthy bodies and other researchers
- Produces forms of dissemination for research included exhibitions, catalogues, articles, refereed journals, conferences, papers and permanent crafts collections

The research seminar held by the Crafts Council in 1998 also led to an interesting series of papers published under the title *Ideas in the Making: Practice in Theory*. In her introduction to the document Pamela Johnson affirmed an observation regarding the historic reluctance of the crafts 'to talk about practice': 'historically craft knowledge was not written down, but guarded and protected in guilds and handed on through the apprentice system'. However Johnson goes on to make an important point with regard to the contemporary dimension of the crafts, arguing:

... in today's fast-moving culture, and with a craft community now dependent to some extent on public funding, it seems impertinent to expect others to talk intelligently about the crafts if those within the field are not prepared to do so ... It is important that the field of contemporary craft practice becomes more widely understood. The crafts are a diverse and sometimes contradictory set of practices, fundamentally about materials, processes and their related traditions, but it is possible to adopt different positions in relation to them. In asserting a contemporary role for crafts it is important to articulate that the field is not simply about preserving things because we valued them in the past. We need to argue vigorously

the importance of exploring craft materials, processes and traditions for their contemporary significance.<sup>14</sup>

These are issues Johnson subsequently takes up in a paper entitled *Can Theory Damage Your Practice?* in which she notes:

If we consider how any object, including the craft object, comes into being, we will not find a single cause. Instead, there will be an interplay of determinants which might include individual expressive need, cultural politics, institutional boundaries, technological developments, funding opportunities and media attention. In order to fully engage in discussion of, or write about, objects and practices we need to draw on a number of critical perspectives.<sup>15</sup>

#### ii) The writing problem

The text that accompanies this thesis is entirely consistent with the views expressed above and comprises a response on the part of one maker to develop and articulate his practice in such a way as to give it currency or what Johnson terms 'contemporary significance'.<sup>16</sup> However, there are many problems inherent in seeking to articulate craft practices, not least of which is what might be called "the writing problem", a problem which has been the subject of some scrutiny. In a thought provoking article, Davey has observed for example:

... the process of writing can serve as an ontological enablement .... [which] draws, tightens and slackens the line between the material and the intellectual. It prizes open the enigma of the silent materiality of the art object and allows it to breathe by connecting it to the ideational horizons beyond the context of its own production ... it is an activity which opens up a reflective space between a works sensuous immediacy and its concept.<sup>17</sup>

Davey goes on to suggest that the 'reflective space' occupied by text offers less in the way of an *adjunct* to the creative process but more in the way of an *enablement* to 'the realisation of the art object'. In short then,

<sup>&</sup>lt;sup>14</sup> P. Johnson, Introduction to *Ideas in the Making: Practice in Theory*, Crafts Council, London, 1998, pp. 10, 11

<sup>&</sup>lt;sup>15</sup> Ibid., p. 17. See also J. Meuli – 'We currently need theory not just as theory but also to give value to the art and craft products that have come – somewhat arbitrarily – to serve as symbolically valuable within our society' (p. 25)

<sup>&</sup>lt;sup>16</sup> Ibid., p. 11

<sup>&</sup>lt;sup>17</sup> N. Davey, 'Writing and the In-Between', *Point: Art and Design Research Journal*, Issue 7, Spring/Summer 1999, pp. 14-16

what Davey is arguing (and by extension what this thesis is arguing) is that while writing cannot be regarded as a substitute for making, it can open up the making process in such a way as to allow greater access to the complex continuum of capabilities and considerations which inform that process. As Davey argues 'writing does not and cannot translate verbatim the complexity of lived experience and therefore should not be criticised for what it cannot do'.<sup>18</sup>

Therefore in terms of the relationship of this textual element of the PhD to the making process, it must be considered contingent - by its very nature instructive but incomplete. What the text is intended to provide should be seen (primarily) as an attempt to document and contextualise the research journey in such a way as to offer insights and evidence with regard to a 'systematic investigation within a specific context in order to solve an identified problem in that context'. Such a text is clearly also intended to offer the possibility of contributing to scholarship in the field through what the AHRC refer to as 'systematic dissemination of the results'.<sup>19</sup>

It is of course, in terms of this latter connection that the thesis ultimately rests its claim on **originality** – in opening up and systematically articulating the research process - not on the strategies developed in the course of the research nor the body of work (the "Signed & Sealed" brand), developed by way of design outcomes.

#### iii) Research sources

The research journey undertaken for this thesis was a complex one, drawing upon fields as diverse as *Agenda 21* and the global economy, ecology and forestry, as well as the history of design and the discourse of design and make. In terms of the broader literature the project drew upon

<sup>&</sup>lt;sup>18</sup> Ibid.

<sup>&</sup>lt;sup>19</sup> B. Brown, et al., 'Types of Research in the Creative Arts and Design', Discussion paper prepared for the Arts and Humanities Research Board (AHRC), March 2004, p. 5

a wide range of authors and texts. For example, in connection with *Agenda 21* and the global economy, Dresner, (The Principles of Sustainability), Connelly and Smith (Politics and the Environment: From Theory to Practice); Dodds (Earth Summit 2002) and the Bahá'í Writings (Prosperity of Mankind) provided a valuable background. Ecological insight was found in Lovelock (Gaia: A New Look at Life on Earth) with Dahl (The *Eco* Principle) and Schumacher (Small is Beautiful) providing an understanding of the relationship between ecology and economics.

Design theory and practice was drawn from the writings of Papanek (The Green Imperative), Whiteley (Design in Society), Dormer (The Art of the Maker), Pye (The Nature and Art of Workmanship) and Jones (Design Methods: Seeds of Human Futures), Manzini (The Garden of Objects), Branzi (Domestic Animals: The Neoprimitive Style), Wackernagel and Rees (Our Ecological Footprint) and Van der Ryn and Cowan (Ecological Design).

The field of design and make limited its scope to furniture designermakers running their own independent workshops and drew upon the following publications: Myerson (Makepeace: A Spirit of Adventure in Craft and Design), Peters (Cabinetmaking, The Professional Approach), Nakashima (The Soul of a Tree), Maloof (Sam Maloof Woodwork), Sutherland (Explorations in Wood, The Furniture and Sculpture of Tim Stead), Norbury (Furniture for the 21<sup>st</sup> Century). Further reading of this field was drawn from Dormer (The New Furniture and The Meanings of Modern Design) and Redhead (Industry of One: Designer-Makers in Britain 1981 - 2001) to name but a few.

A complete **bibliography** is to be found to the rear of this text and a substantial and discrete **literature review** follows this immediate section.

Throughout the project a number of organisations have been party to its broader aims and have helped frame the project as it evolved. These include the American Hardwood Export Council (AHEC), Timbmet Group Ltd and the Transnational Wood Industries Group (TWIG); all of whom commissioned research projects. The Oxfordshire Woodland Project (OWP) and Chilterns Woodland Project (CWP) were the main institutions consulted with regard to woodland and forestry management. The relationship with these organisations, the active role they play in promoting sustainable forestry and the professional expertise of their representatives, were instrumental in developing the methodology for this project.

The subject of forestry was approached tangentially as this was a subject beyond the competence of the author. Professional experts and academics were engaged in discourse to illuminate this subject. David Rees (OWP), John Morris (CWP), Dr Peter Savill (University of Oxford), Dr Gabriel Hemery (Northmoor Trust) and Dr Mike Packer (Timbmet Group Ltd) were amongst the experts consulted. U.K. Forestry Policy was gleaned through various Forestry Commission publications.

In order to develop a local cycle for sourcing timber, a series of dialogues was set up with professional foresters, forestry contractors and woodland owners. Thirteen woodland owners were approached in connection with this project of whom a significant proportion collaborated in the development of the "Signed & Sealed" local cycle. Appendix VI, Local Sourcing - Local woodlands, identifies the woodlands that were involved in establishing a local cycle for what came to be called the "Signed & Sealed" brand and defining the geographical remit of the PhD project.

This PhD specifically addresses the contemporary furniture designer-maker, a province which not only sits (arguably) at a remove from the commercial mainstream (see Part One) but interestingly enough occupies a distinct place within craft practice too. Andrew Jackson, a furniture designer and design historian, for example, has observed:

Rather than the pursuit of autonomy that tends to characterise craft aspiring to fine art, for most designer-makers there is a close relationship between their practice and the marketplace. They are almost wholly dependent on their clients to survive. Possibilities for them to become a self-governing creative force are almost nonexistent, except for the minority who subsidise their practice through teaching, or through the attention of grant-giving bodies ... [and] for many furniture makers it is precisely the relationship between client and maker that provides both the spark necessary for designing and the personal fulfilment of providing real objects for real people.<sup>20</sup>

Interestingly enough, a series of commissions (as will be shown) proved vital to the research process and were instrumental in the development of strategies to address environmental issues relevant to the project. In this connection, Jackson also suggests how:

We should think of designer-makers as cultural intermediaries. On behalf of their clients they curate culture; from available possibilities they make choices and take decisions based upon their own accumulation of cultural capital. For the consumer, the designermaker not only has the advantage of an intrinsic limited availability, but also can represent a romantic version of artistic production, which can connote a more authentic version of culture than what is processed and distributed by the mass media.<sup>21</sup>

Jackson's view of the present state of design and make is an interesting one and this PhD has sought to contribute to this debate through an extended discussion with a broad range of designer-makers with figures like Matthew Burt, Alan Peters and Richard Williams. A further source of designer-makers' professional practice was made available through author and exhibition curator Betty Norbury, whose thirty-six taped interviews with U.K. furniture designer-makers was undertaken as background research for *Furniture for the 21<sup>st</sup> Century*, although it should be observed that use of this archive was strictly proscribed.<sup>22</sup> A comparative study of practice by German furniture designer-makers in the Trier region was organised through TWIG.<sup>23</sup> The workshop of PP Møbler in Denmark,<sup>24</sup> which produces Hans Wegner designs, was also visited to develop an understanding of the relationship between craft and industry.

<sup>&</sup>lt;sup>20</sup> A. Jackson, 'Furniture Makers and the World of Goods: the Role of Material Culture Studies in the Theorisation of Designer-Maker Practice', *Ideas in the Making: Practice in Theory*, Crafts Council, London, 1998, p. 94

<sup>&</sup>lt;sup>21</sup> Ibid., p. 97

<sup>&</sup>lt;sup>22</sup> B. Norbury, *Furniture for the 21<sup>st</sup> Century*, Stobart Davies, Hertford, 1999. The 36 untranscribed taped interviews were developed around 20 broad questions relating to the role of the furniture designer-maker approaching the new millennium. The questions did not relate specifically to the concerns of this thesis but offered some useful contextual evidence, although use of the tapes was proscribed on the grounds of confidentiality and permission granted for selective reference only.

<sup>&</sup>lt;sup>23</sup> Transnational Wood Industries Group

<sup>&</sup>lt;sup>24</sup> PP Møbler, Toftevej 30, DK 3450 Allerød, Denmark. < http://www.ppdk.com/>

The research journey has also seen the PhD project in its various evolutionary stages and manifestations carried far afield in the form of exhibitions and conferences, which has done much in turn to inform and shape the thesis. "Signed & Sealed" designs were exhibited between 2001 and January 2005 in twenty-one exhibitions culminating in a major exhibition "Out of the Woods" at the River & Rowing Museum, Henley-on-Thames (16 September 2004 – 7 January 2005), which showcased the project to the public and peer groups. This cycle of exhibitions and conferences was instrumental in:

- Shaping and defining the nature of the research
- Educating the public and peer groups about the issues raised
- Encouraging dialogue and feedback
- Demonstrating aspects of the processes out of which the 'Signed & Sealed' designs were formed
- Presenting 'Signed & Sealed' designs to the public
- Providing opportunities for visitors to purchase or commission a "Signed & Sealed" design

Exhibitions were at four levels, as follows:

- Workshop: Philip Koomen Furniture (2001/2/3/4)
- Regional: Ashmolean Museum/Oxfordshire Artweeks (2003)
  - Fresh Air, Gloucestershire (2003)

- Crafts in Gardens, Broughton Castle, Warwickshire, (2003)

- The Centre For Contemporary Furniture,

Cheltenham, (2003/4)<sup>25</sup>

- National: Art in Action, Oxford (2002/3)
  - Celebration of Craftsmanship (2001/2/3/4)
  - Art of Furniture, Birmingham (2004)
- International: Carrefour du Bois, Nantes, France (2003)

<sup>&</sup>lt;sup>25</sup> The Centre For Contemporary Furniture is an independent gallery in Cheltenham which represents contemporary furniture designer-makers

- Classic IX, Belgium (2003) -Chairs 2004, UK (2004)

Conferences and seminars also provided valuable forums to present different stages and aspects of the research project and to engage in peer group dialogue. These included the following presentations:

Regional: - Philip Koomen Furniture: A Study in Sustainable Furniture Design, TWIG seminar, High Wycombe, 17 May 2001

- German Furniture Makers, TWIG seminar, Hazelmere, 7 February 2002

Techniques to Add Value to Beech as a Raw Material in Product Design, Beech Seminar, River & Rowing Museum, Henley-on-Thames 19 February 2004

- Towards a Sustainable Approach to Furniture Design: - Where is Forestry in the Chilterns Going? Conference, High Wycombe 16 October 2004

# International: - Towards a Sustainable Approach to Furniture Design,

- Furniture Design Forum, Singapore, 2 March 2004

- Provenance of Wood in Furniture Design, Chairs 2004, Westonbirt, Gloucs, UK, 1-3 May 2004, Belgium (2003)

All of the above have defined the trajectory of the research and with it the orbit of the thesis which has (throughout) aspired to realise the aims of **applied research** in the creative arts as defined by AHRB<sup>26</sup>, i.e.:

[Applied research] aims to create new or improved systems (of thought or production), artefacts, products, processes, materials, devices, or services for long-term economic, social and/or cultural benefit. It is informed by the intellectual infrastructure of *Scholarly Research* in the field; it applies and/or transfers enhanced

<sup>&</sup>lt;sup>26</sup> AHRB, THE Arts and Humanities Research Board, which has since 1 April 2005 been replaced by the Arts and Humanities Research Council

knowledge, methods, tools and resources from *Pure* and *Developmental* research; it also contributes to scholarship in the field through *systematic* dissemination of the results.<sup>27</sup>

#### Overview: A guide to the organisation of the text

In terms of the text that follows this introduction it is organised into four further discrete sections as follows: firstly a Literature Review examining a range of literatures relating to the thesis; secondly, a consideration of the rationale relating to the research project embraced by the thesis (Part One); thirdly, a critical account of the development by the project and its key terms of reference (Part Two); and finally in the Conclusion, a critical appraisal of the project in terms of addressing the issues identified by the thesis, in terms of peer review and in terms of (potential) further development.

The Literature Review begins by focussing on 'The issue of sustainability'. The inadequacy of the present form of global economic management is discussed in relation to the global warnings highlighted by leading scientific and philosophical authors. This is contrasted with some of the most significant of developments in ecology and economics and related inter-disciplinary studies that support an ecologically and ethically aligned approach to development. This is followed by a commentary on the global discourse on sustainable development particularly in relation to issues around local and global governance and their relationship to the Earth Summit in 1992 and the unfolding of Agenda 21. This is finally followed by an overview of some of the most significant critiques of global capitalism and governance. The conclusion considers a philosopher's analysis of the role and relationship of citizenship and collective (Stiglitz, Holton, Giedion, Batchelor, Houghton, Illich, responsibility. Diamond, Dahl, Schumacher, Seabright, Dresner, Connolly and Smith, Veblen, De Botton, Baudrillard, Hobbis and Lazlo)

<sup>&</sup>lt;sup>27</sup> Brown et al., Types of Research, p. 5

The Literature Review then turns to 'The concept of sustainable design' and reviews some the most influential critiques on the role of design in society. This is followed by a review of a range of theoretical and conceptual sustainable design models that have helped shape designers' thinking in the direction of an ecologically and ethically based approach to design. (Whiteley, Papanek, Dormer, Pye, Petroski, Jones, Manzini, Branzi, Wackernagel and Rees, Van der Ryn and Cowan, Von Weizsäcker et al.)

The concluding part of the Literature Review examines the figure of the contemporary furniture designer-maker in relation to recent and emerging practices. (Norbury, Harrod, Conway, Dormer, Pye, Krenov, Farrelly, Levi, Broun, Lutyens, Van der Post, Taylor, Gilhooley, Collins)

Part One: "Signed & Sealed" – Project Rationale, sets out the arguments around the "Signed & Sealed" project. It begins with a discussion on a broad range of conceptualisations around sustainable practices from a number of perspectives including product design, industry and craft. This is followed by a discussion of the emergence of the furniture designer-maker as a discrete figure in relationship to both craft institutions and commercial industry. The case is made that furniture designer-makers are well positioned to develop an eco business which can overcome the limitations of one-off design and which can also facilitate sustainable development at a local level through collaboration with local woodland owners to source timber.

The case for local sourcing is discussed in relation to the UK's position as an economy dependent on timber imports with one of the lowest forestry covers in the Western world. The UK government's forestry policy is also debated in relation to the global market in connection with the historic under-management of regional forestry resources and the consequent fragmentation of the timber industry. Environmental threats caused by climate change are also identified and

discussed in terms of their predicted impact upon the Oxfordshire Chilterns woodland.

Efforts by the global forestry and timber trade to develop sustainable and managed forests are also discussed and the difficulties of small woodland owners highlighted. Finally, the case for local sourcing is considered as a direct response to the threats of an increasingly competitive global market economy depleting scarce resources and the need to add value to a declining local resource to promote sustainable woodlands.

The conclusion to the above section defines the three strands that emerge from the research and which provide a strategic brand to enhance value and provide a sustainable practice in direct response to the issues raised in the Earth Summit – namely, the *semi-bespoke*, the local cycle and *unique signature*. (Connelly and Smith, Dresner, Moffatt, Dodds, Whiteley, Lovelock, Dahl, Fiell and Fiell, Manzini, Dehn, Jackson, Graedel and Allenby, Becker, Myerson, Redhead, Papanek, Zuboff and Maxmin, Cohn, McNicoll, Potter, Norbury, Dormer, Pye, Massingham, Ihatsu, Diamond, Buckley, Von Weizsäcker et al.)

Part Two: "Signed & Sealed" – Developing a Sustainable Practice discusses and documents the development of the three strands identified in Part One of the thesis. Firstly, in the section entitled 'The *semi-bespoke*' questions are raised around the commissioning practice favoured by furniture designer-makers, particularly as found in the Oxfordshire/Chilterns area in which the Philip Koomen Furniture workshop is located. The thesis then describes how the concept of *semi-bespoke* was first formulated by Philip Koomen Furniture in the early 1980s before its adoption as a fundamental part of the "Signed & Sealed" project where it became translated into a complex and dynamic process in which the diverse characteristics of locally sourced timber are explored through an extended and enhanced dialogue with clients.

In the following section, entitled The Local Cycle, the reasons for the preference of designer-makers in the Oxfordshire/Chilterns area for commercial crop timbers are debated and the problematic use of locally sourced timbers is considered. This regional practice is then contrasted with that of the designer-makers of the Trier region of Germany, which has comparable woodland resources. This discussion concludes with other examples of successful local sourcing initiatives in the UK and considers the challenge of establishing a micro cycle and the feasibility of sourcing local timber.

An examination of the characteristics of locally sourced timber is next described in the following section devoted to the concept of *unique signature*. This concept is provisionally defined and then explored in relation to the work of a number of designer-makers who have demonstrated an interest in the idea of *unique signature* as embodied in the "Signed & Sealed" project. *Unique signature*, as developed in the "Signed & Sealed" project, is then described and design elements such as knots, cracks, unusual grain patterns and colour variations discussed through a range of "Signed & Sealed" designs. In conclusion the value of foregrounding the concept of *unique signature* as a device to promote sustainability and enhance craft practice is considered.

The final section of Part Two, entitled Conclusion: Promoting sustainability with the "Signed & Sealed" brand, considers the economic and environmental benefits to the local economy. The low environmental impact of the local cycle is considered, the definition of waste in relation to *unique signature* is reflected upon, and the economic contribution to the local economy is highlighted. (Pye, McClair, Peters, Myerson, Spence-Harper, Meyers, Sutherland, Nakashima)

In the final section of the thesis, entitled Conclusion: Reviews, Responses and Reflections, the role of the "Out of the Woods" exhibition and the two post-exhibition conferences – "Our Wood in Your Hands and Out of the Woods: a Sustainable Approach to Furniture Design" are all discussed, together with an evaluation of the reviews of the "Out of the Woods" exhibition and responses to the two conferences.

The conclusion continues with a summary of the arguments outlined in Part One: "Signed & Sealed" – Project Rationale before considering how the "Signed & Sealed" project has responded to the sustainable design models discussed in the Literature Review.

This is followed by a review of the role of the Philip Koomen Furniture workshop as a laboratory for the "Signed & Sealed" project, and in turn the success of the project in developing the workshop practice and its values in relation to Dahl's concept of the *eco* is also considered as a model for a craft based practice.

The role of the designer-maker as a designer-facilitator is also discussed in relation to the "Signed & Sealed" project, particularly with reference to the ethical responsibilities as regards client relationships and other individuals involved in the local cycle. The usefulness of a peer group network to facilitate discussion is also discussed, as well as some of the peer response to the "Signed & Sealed" project and the potential part to be played by the designer-maker in a free market economy in facilitating strategies for sustainable development at a local level.

Finally, the contribution of the "Signed & Sealed" project is considered in relation to wider issues such as the purpose of work, the global environmental crisis and the obligations associated with the idea of world citizenship. The value of the PhD process is assessed and potential post-doctoral work is outlined together with some final thoughts regarding the future of Philip Koomen Furniture.

Except for those illustrations accompanying the Prologue, all other illustrations are placed at the end of the main text. Appendices I, II, IV and X contain their own illustrations.

It is perhaps worth noting that in the Appendices that follow the main text, a variety of useful and related materials is to be found, referenced at various points in the thesis and offering further archival evidence of the research process.

### **Literature Review**

The literature that relates to the questions pursued by this thesis is a vast one and this review can do no more than offer a guide to the key authors and texts that have been employed, together with an indication of where and how the ideas related by the literature come to figure in the evolution of the research project and its eventual outcomes.

In order to assist the reader, the Literature Review has been formed around three related arenas – the issue of sustainability, the concept of sustainable design and the role of the furniture designer-maker.

#### i) The issue of sustainability

This section begins with reference to the literature relating to the ideological basis of Western liberal democracy, particularly with regard to a critique of some of the inequities created by the capitalist system that supports liberal democracy. I examine a range of global warnings developed by leading scientific and philosophic authors. This is followed by a survey of some of the most significant recent developments in ecology and economics and other related interdisciplinary studies of economic and social history. The key developments in the global discourse on sustainable development are surveyed; issues around local and global governance are discussed with particular reference to texts relating to the Earth Summit in 1992 and the unfolding of Agenda 21 followed in turn by an overview of some of the most significant critiques of global capitalism and governance. In the concluding section I consider the philosopher Ervin Laszlo's analysis of citizenship and collective responsibility: the two interdependent ethical systems which, I believe are absolutely necessary to any understanding of the process of sustainable development – a point of reference which contributed in a very direct way to the development of this thesis.

Capitalism and technology

It could be argued that capitalism and technology represent two dependencies in pursuit of new markets with the promise to the consumer of a higher quality of life. While capitalism pursued the creation and expansion of markets, the development of technology has been the engine of economic growth that appears to have made this possible. In his seminal Mechanization Takes Command (1948), S. Giedion documents the historical transition from a society founded on craft activities to the developments of mechanisation and the emergence of an industrial society with all the consequent effects on the lifestyle of the individual. The role of the industrial designer, Giedion argues, is central in the industrial process: 'For them only one consideration counts: the merchandizer, dictator of taste in the United States'. With this preeminent role comes a warning: 'This is a source of danger and bondage' and 'Now, in the time of full mechanization, the reform takes place under the dictatorship of the market. All other considerations are secondary'.<sup>28</sup> According to Giedion then, the problem is that industry becomes the master and not the servant and the challenge is that 'to control mechanization demands an unprecedented superiority over the instruments of production. It requires that everything be subordinated to human needs'.<sup>29</sup>

Giedion's historic thesis has long provided valuable insights into the fundamental shortcomings of the influential design philosophy embraced by the Modern Movement, which sought to improve both the material and moral well-being of society and resolve social tensions through welldesigned mass produced goods.

It is interesting to note that Giedion's is a theme that has been picked up by a number of subsequent authors. Ray Batchelor, for example, in *Henry Ford: Mass Production, Modernism and Design* (1994) agrees mass production was considered an antidote to a potential communist revolution:

In the West, mass production held out the prospect of resolving material, social, political and spiritual ills in a liberal, capitalist

<sup>&</sup>lt;sup>28</sup> S. Giedion, *Mechanization Takes Command*, Oxford University Press, New York, 1948, p. 610

<sup>&</sup>lt;sup>29</sup> Ibid., p. 174

context of alleviating the alienation of the proletariat without the inconvenience of full blown Bolshevism.  $^{\rm 30}$ 

Batchelor astutely observed that while modernism gave birth to the market place, 'High Modernism sought, eventually, to transform the world, while modernism provided an immediate, fantastic escape from it'.<sup>31</sup> It was perhaps not surprising then that the intelligentsia were apprehensive about the choices made by the masses. As Batchelor indicates:

Newly enfranchised and unaccustomed to the exercise of power over the material dimensions of their imaginations – might choose products and ideas with which they were out of sympathy, which might, indeed, threaten their habitual prerogatives. [...] In this capacity, the aristocrats (i.e. intelligentsia of Modernism) doubled as priests, duty bound to pontificate.<sup>32</sup>

Modernism ultimately failed to bring about transformation in society. According to Batchelor, its creed sought two forms of nostalgia: firstly, one without alienation and secondly, a perfect future reducing it to an illusion and an escape from the very things it condemned.<sup>33</sup> As Giedion predicted, 'the promises of a better life have not been kept'.<sup>34</sup>

Perhaps one thing is clear - capitalism is looking increasingly suspect in the new millennium as it continues to leave a trail of social inequalities and environmental problems in its wake. This at least, has become one of the basic propositions that have exercised this thesis.

#### Prohibitions and polemics

Many of the environmental issues identified by a number of twentieth century authors have produced powerful warnings about pending crises brought about by unrestrained industrialisation. One of the earliest of these warnings focussed on the problem of industrial pollution and came from Rachel Carson, whose revelatory book *Silent Spring* (1962)<sup>35</sup> has been highly influential in developing a heightened

<sup>&</sup>lt;sup>30</sup> R. Batchelor, *Henry Ford: Mass Production, Modernism and Design*, Manchester University Press, Manchester, 1994, p. 98

<sup>&</sup>lt;sup>31</sup> Ibid., p. 110

<sup>&</sup>lt;sup>32</sup> Ibid., p. 111

<sup>&</sup>lt;sup>33</sup> Ibid., p. 116

<sup>&</sup>lt;sup>34</sup> Giedion, *Mechanization Takes Command*, p. 715

<sup>&</sup>lt;sup>35</sup> R. Carson, *Silent Spring*, Penguin Books Ltd, Harmondsworth, 1962

environmental awareness. Carson was an ecologist at the United States Fish and Wildlife Service. At the forefront of biological research, she was instrumental in identifying the catastrophic impact of pesticides and insecticides on wildlife. *Silent Spring* was more than an exposé of the failings of technology, according to H. Patricia Hynes, it 'crystallized an "ethic of the environment" ... inspired grassroots environmentalism, the "deep ecology" movement and the creation of the [U.S.A.] Environmental Protection Agency (EPA)' as well as inspire the eco-feminist movement.<sup>36</sup> *Silent Spring* described the devastating impact of chemical pollution on the environment and the insidious affects on man in such a way as to not only impact upon this author but inspire a whole generation:

The most alarming of all man's assaults upon the environment is the contamination of air, earth, rivers, and sea with dangerous and even lethal materials. This pollution is for the most part irrecoverable; the chain of evil it initiates not only in the world that must support life but in living tissues is for the most part irreversible. In this now universal contamination of the environment, chemicals are the sinister and little-recognized partners of radiation in changing the very nature of the world – the very nature of its life.<sup>37</sup>

A similarly powerful message on a related theme came from Vance Packard in his now legendary text *The Waste Makers* (1967) in which he highlighted the avarice that maintained and fuelled the American economy. Packard's text identified a number of strategies that enabled manufacturers and marketers to stimulate and maintain consumer demand beyond basic need through a strategy of 'planned obsolescence'. Packard reveals in memorable fashion how the orchestration by marketers of a hedonistic culture through the deliberate engineering of a culture of consumerism the American economy achieved unprecedented growth:

Our enormously productive economy ... demands that we make consumption our way of life, that we convert the buying and use of goods into rituals, that we seek our spiritual satisfactions, our ego

<sup>&</sup>lt;sup>36</sup> H. P. Hynes cited by P. B. Corcoran, 'Rachel Carson 1907-64', in J. A. Palmer (Ed.), *Fifty Key Thinkers on the Environment*, Routledge, London, 2001, p. 198

<sup>&</sup>lt;sup>37</sup> Carson, *Silent Spring*, p. 23

satisfactions, in consumption ... We need things consumed, burned up, worn out, replaced, and discarded at an ever increasing rate.<sup>38</sup>

Industrialisation in the post-war period produced considerable environmental problems as Carson and Packard reveal but the new world order was facing another problem that was going to challenge the management of increasingly scarce resources on a global level if the underlying social problem was not addressed. The publication by Paul Ehrlich of *The Population Bomb* (1998)<sup>39</sup> gained attention because for the first time an eminent biologist proposed that population must be subject to control as this new (Malthusian) theory indicated there was a vital and direct link between population growth, resource use and environmental impact. According to Ehrlich, it was not the size of population that determined ecological stability but rather its relation to its resource base. Although Ehrlich's ideas have been contested, some of his predictions have proved startlingly accurate.<sup>40</sup> To Ehrlich it was clear that science itself could not provide the guidance for optimum human living and his bottom line (not one popular with democratic governments, large corporations or dictatorships) was that 'technology cannot make biophysical carrying capacity infinite'.41

It seems that Ehrlich's fundamental principle continues to go unheeded by policy makers. However, although the question of the earth's carrying capacity in relation to population has not become a major issue in the global agenda one of its manifestations, global warning, has become a significant issue, at least in Europe. Industrialisation has largely developed through the burning of fossil fuels. The side effect on the earth's atmosphere has seen the release of vast quantities of carbon dioxide to the atmosphere. In global terms, the quantities appear very small amounting to about 0.03 per cent but the increase since 1850

<sup>&</sup>lt;sup>38</sup> V. Lebow, *Journal of Retailing*, Spring 1955, p. 1, Cited by V. Packard, *The Waste Makers*, Penguin Books Ltd, Harmondsworth, 1967, p. 33

 <sup>&</sup>lt;sup>39</sup> P. Ehrlich, *The Population Bomb*, Sierra Club/Ballantine Books, New York, 1998
 <sup>40</sup> P. R. Ehrlich cited by I. G. Simmons, 'Paul Ehrlich, 1932-', in J. A. Palmer (Ed.), *Fifty*

*Key Thinkers on the Environment*, Routledge, London, 2001, p. 254 See for example p. 254 where he claimed that in the 1970s 'the world will undergo famines – hundreds of millions of people are going to starve to death ...'

<sup>&</sup>lt;sup>41</sup> I. G. Simmons, 'Paul Ehrlich, 1932-', in J. A. Palmer (Ed.), *Fifty Key Thinkers on the Environment*, Routledge, London, 2001, p. 255

(when industrialisation began to have an environmental impact) has risen alarmingly from 265 parts per million to an estimated 340 parts per million and is predicted to rise to 600 parts per million by the year 2050.<sup>42</sup> As John Houghton explains in his influential *Global Warning* (1997):

The basic principle of global warning can be understood by considering the radiation energy from the sun which warms the Earth's surface and the thermal radiation from the Earth and the atmosphere which radiated out to space. On average these two radiation streams must balance. If the balance is disturbed (for instance by an increase in atmospheric carbon dioxide) it can be restored by an increase in the Earth's surface temperature.<sup>43</sup>

According to Houghton the earliest warning of the potential risks of increased greenhouse gases were first expressed by Roger Revelle and Hans Suess of the Scripps Institute of Oceanography, California, as early as 1957.<sup>44</sup> The capacity of the atmosphere to absorb emissions is limited:

Every year these emissions currently add to the carbon already present in atmospheric carbon dioxide a further seven thousand million tonnes, much of which is likely to remain there for a period of a hundred years or more.<sup>45</sup>

The unprecedented increase in carbon dioxide is likely to have unpredictable outcomes with potentially devastating effects for future generations. The recent floods in the UK are generally considered attributable to the changing patterns of climate initiated by the current increase in global warming. However as Houghton points out, concerns for environmental damage caused by industrialisation go right back to the Victorian period when, for example, London and other cities offered smog as a result of factory emissions.

Houghton's text then, offers another key polemic in identifying the need for change, if we are to begin to negotiate the environmental challenges set in motion by capitalism. The catalogue of environmental challenges brought about by industrialisation is (of course) largely the

<sup>&</sup>lt;sup>42</sup> N. Meyers (Ed.), *Gaia: an Atlas of Planet Management*, Doubleday, New York, 1984, p. 116

<sup>&</sup>lt;sup>43</sup> J. Houghton, *Global Warming: The Complete Briefing*, Cambridge University Press, Cambridge, 1997, p. 10

<sup>&</sup>lt;sup>44</sup> Ibid., p. 12

<sup>&</sup>lt;sup>45</sup> Ibid., pp. 7-8

responsibility of the small section of the population who occupy the liberal democracies in the West. Sadly, Russia and Asia are now expanding their economies based on the Western capitalist model. One of the challenges I believe that has not been addressed, particularly in the light of the demise of communism, is the relationship between technology and capitalism on the one hand and the nature and purpose of democracy on the other. Working within the current economic paradigm, scarce resources are only regulated through the price mechanism that operated in a free market moderated by the intervention from government. While a scarce resource such as oil will lead to price increases, this mechanism is clearly inadequate to meet current and future needs. Such material resources are now political priorities and political strategies have been engineered in order to safeguard the continuity of energy supplies.

In this connection, Ivan Illich, has produced a controversial theory on the energy crisis and its relationship to democratic principles that is worth consideration. In *Energy and Equity* (1974) he argues that there is no real energy crisis, that the idea is no more than a political ruse which 'masks the contradiction implicit in the joint pursuit of equity and industrial growth. It safeguards the illusion that machine power can indefinitely take the place of manpower'.<sup>46</sup> Illich argues there is a direct relationship between industrialisation and socio-economic inequities. The inequities are not resolved by increasing the level of energy but by initiating a community-wide democratic process that 'identify the thresholds beyond which power corrupts'. According to Illich, poor countries who embrace high energy technologies become enslaved to high productivity. Bv accepting dependency on energy the poor unwittingly reject alternative technology and participatory politics and become subject to 'maximum feasible social control'.47

Illich uses the example of modern traffic to illustrate his hypothesis of 'socially optimal energy use'. He believes there is a direct correlation between a participatory democracy and the requirement for low energy technology. For example, in *Energy and Equity* he argues that in order to

 <sup>&</sup>lt;sup>46</sup> I. Illich, *Energy and Equity*, Calder & Boyars, London, 1974, p. 15
 <sup>47</sup> Ibid., p.22

preserve democracy and social relations he proposes we adopt a political system which initiates industrial transportation where people must travel at no more than the speed of a bicycle.<sup>48</sup>

This idea may set fears of totalitarianism in motion but it must be conceded that modern economies have assumed that the social and economic benefits of new transport technology serve basic freedoms and rights. However, Illich argues we have become enslaved by speed and defined journey routes and a 'time scarcity of unprecedented severity'. Alarmingly, an increase of energy into the system accelerates movement yet further enslaving the masses as they devote an increasing proportion of their time to car journeys. Illich suggests the ratio between man hours and journey miles still looks comparable to foot power, yet the social and political costs, let alone the environmental ones, are conveniently ignored in the name of technological progress. This enslavement is caused, according to Illich, by the disenfranchisement of communities in the process of democratic decision making.<sup>49</sup> This is a principle that is central to Agenda 21 and the sustainable development discourse; subjects that will be discusses in this Literature Review and which are central to this thesis.

# New models and prescriptions

The literature described above all shares a polemic quality and has helped alert us to the pending dangers faced by humanity. On a more optimistic note, however, science is now also providing other intellectual models of the physical and human realm which are transforming our perception of the world and our relation to it. These new models enable us to view the world differently from our ancestors whose understanding of the world and their relationship to it were conditioned by different assumptions frequently based on the religious concepts and scientific theories of the day. Newtonian physics, for example, provided a mechanistic model of the world in the past in which man was a separate entity. By the nineteenth century the dominance of archaic religious

<sup>&</sup>lt;sup>48</sup> Ibid., p. 24 <sup>49</sup> Ibid., p. 28

doctrine perpetuated by a controlling clergy was challenged by new scientific thinking that questioned fundamental Christian tenants. Charles Darwin's theory of biological evolution, for example, provide an explanation of the process of biodiversity and the development of life from simple to complex forms over millions of years. During his research on the Galapagos Islands he observed the adaptability of animals to adapt their faculties to meet their needs for survival producing physical features uncharacteristic of anywhere else he had observed. According to Janet Browne, Darwin was 'alert to the subtle balances and relationships between organisms, and between organisms and their environment, seeking an alternative explanation for what was seen by others as "perfect adaptation".<sup>50</sup> Darwin's theory on mutual selection was subsequently shaped by ideas from Malthus's An Essay on the Principle of Population (1798)<sup>51</sup> which provided him with a 'naturalistic mechanism for change and adaptation that did not involve any form of divine action<sup>32</sup>

Darwin's biological theories have of course had huge influence and have even impacted upon economics. Simplistic interpretation of his theory, for example, has been used historically by those who advocate the domination of one race over others, as well as exponents of unfettered market economics. To give Darwin his due, his evolutionary theory has also provided an indispensable model that has influenced ecologists and economists. The developments in DNA research for example, have further enhanced general awareness that there is indeed an evolutionary development between generations.

However, in more recent times, one of the most significant contributions to scientific interdisciplinary research into man's social evolution has been Jared Diamond's seminal work *Guns, Germs and Steel* (1998). In this fascinating text Diamond examines the differences and inequalities in the development between different peoples over the last 13,000 years are analysed. Interestingly, he shows how social inequalities are not so much due to inherent factors rather but to the

<sup>&</sup>lt;sup>50</sup> J. Browne, 'Charles Darwin, 1809-1882', in J. A. Palmer (Ed.), *Fifty Key Thinkers on the Environment*, Routledge, London, 2001, p. 101

<sup>&</sup>lt;sup>51</sup> T. Malthus, *An Essay on the Principle of Population*, J. Johnson, London, 1798 <sup>52</sup> Browne, 'Charles Darwin', p. 101

differences in the material environments of each group. He bases his arguments on an inter-disciplinary approach which draws on a range of disciplines varying from genetics, molecular biology and behavioural ecology through to linguistics, archaeological studies and histories of technology. Central to his thesis is an understanding of the development and spread of food production. He argues that only societies that had sufficient natural resources to domesticate plants and animals were able to support dense human populations:

The resulting food surpluses and (in some areas) the animal-based means of transporting those surpluses, were a prerequisite for the development of settled, politically centralized, socially stratified, economically complex, technologically innovative societies.<sup>53</sup>

According to Diamond, while some societies were able to develop food production independently others remained hunter-gatherers until modern times.<sup>54</sup> Global development has historically also been shaped by the differing rates the centres of food production spread. The ascent of Euro-Asian civilisations, compared to native America and sub-Saharan Africa, argues Diamond, has been brought about by an 'intense exchanges of crops, livestock and technologies related to food production [and so] were more likely to become involved in other exchanges as well'.<sup>55</sup>

According to Diamond, the development of food production systems that produced surpluses enabled communities to develop hierarchical social and political structures that were quite distinct from the egalitarian communities of hunter-gatherers. The increase in resources enabled the farmer to acquire greater power than the hunter-gatherer. The farmer could support denser populations which enabled communities to develop social and political hierarchical structures that were quite distinct and more powerful that the equalitarian communities of hunter gatherers. Progress was not always benign:

Farmers tend to breathe out nastier germs, to own better weapons and armor, to own more-powerful technology in general, and to live

<sup>&</sup>lt;sup>53</sup> J. Diamond, *Guns, Germs and Steel*, Vintage, London, 1998, p. 92

<sup>&</sup>lt;sup>54</sup> Ibid., p. 29

<sup>&</sup>lt;sup>55</sup> Ibid., pp. 190-191

under centralized governments with literate elites better able to wage wars of conquest.  $^{\rm 56}$ 

Diamond's thesis offers a profound insight into the reasons for the historical inequalities between the North and South and is another text which has been instrumental in challenging the moral justification for the perpetuation of the current global inequities.

If the world is one, a global ethic would imply we all have collective responsibility to ensure everyone is treated fairly rather than enjoy privileges through an accident of birth. To understand the delicate ecological balance that determines the continuation of life on earth there has (perhaps) been no more influential idea than the Gaia hypothesis, developed by James Lovelock in 1979, which emerged as a response to the contemplation of the nature of biological life. In asking himself the question 'What is life, and how should it be recognized?' he challenged himself to find an adequate scientific explanation that could be tested.<sup>57</sup> By studying the atmosphere of the Earth, Mars and Venus it became evident that the earth's atmosphere is in disequilibrium compared to the other planets. Carbon dioxide, known as the greenhouse gas, has been stabilised by living organisms which regulate the global climate. His findings led to the development of his Gaia hypothesis which he defined as:

A complex entity involving the Earth's biosphere, atmosphere, oceans, and soil; the totality constituting a feedback or cybernetic system which seeks an optimal physical and chemical environment for life on this planet.<sup>58</sup>

*Gaia* provides a unifying concept that can lead to a more integrated approach to environmental problem solving in which man is an interdependent part – a concept which this thesis has come to embrace. The environmental challenges are a serious threat to our social evolution. Lovelock's ecological model of an interdependent world in which

<sup>&</sup>lt;sup>56</sup> Ibid., p. 195

<sup>&</sup>lt;sup>57</sup> J. Lovelock, *Gaia: A New Look At Life On Earth*, Oxford University Press, Oxford, 1995, p. 2

<sup>&</sup>lt;sup>58</sup> Ibid., p. 10

humankind is an integral part is also the basis of other significant models developed by authors like Arthur Dahl.

In his timely *Unless and Until* (1990), Dahl views with concern both the escalation of environmental problems and the political inertia that besets society. Dahl interprets environmental degradation as an organic stage in the 'larger context of human social evolution'. These environmental imbalances he sees as symptomatic of:

Forces of transition which are breaking down the old structures of a fragmented world of sovereign nations so they can be replaced by new types of social organization adapted to a unified world.<sup>59</sup>

Dahl speculated that a politically and economically unified world is consistent with the values of an ecological paradigm in which the differences that characterise the smallest entities contribute to a unified whole rather than the current tendency amongst humankind for the strongest to dominate. Ecological interdependence provides a model for a spiritual paradigm in which the individual engages with the world conscious of their influence on society through spiritual or human values such as love, justice and compassion. Dahl argues 'it is these qualities which make possible the higher levels of human interaction required to build an organic world society'. Dahl advocates a world in which the material requirements are given equal weighting with spiritual values. He proposes a principle of unity in diversity which rests on a new level of human understanding that no longer sees man as a mere product of biological determination or an arbitrary historical process but instead as the next stage in an evolutionary development in which global unity defines the next stage in our social organisation and 'evolution is potentially under our own conscious control<sup>.60</sup>

In a subsequent text, *The Eco Principle: Ecology and Economics in Symbiosis* (1996), Dahl has developed a concept of economics based on the principle and recognition of biological interdependence. Dahl argues that although economic theory and practice have produced real benefits:

<sup>&</sup>lt;sup>59</sup> A. L. Dahl, *Unless and Until: A Baha'í Focus on the Environment*, Baha'í Publishing Trust, London, 1990, p. 56

<sup>&</sup>lt;sup>60</sup> Ibid., p. 61

The repeated cycles of boom and recession, the instabilities in international economic relations, and the resulting crises that have shaken nations and whole regions, show our imperfect understanding and management of economic systems.<sup>61</sup>

According to the eco-principle, the shortcoming of the current political system has produced a catalogue of national and international socioeconomic problems including 'poverty, unemployment, the debt crisis and the growing gap between the richest and poorest nations' and has resulted in a series of environmental problems including 'pollution, damage to the ozone layer, and the greenhouse effect which threatens to cause global warming'.<sup>62</sup>

In this connection, an interesting concept of environmental ethics was pioneered at the beginning of the twentieth century by Aldo Leopold (1887–1948), a career forester and a pioneer of conservation, conservation ethics and a founder of ecosystem-management forestry. His most significant contribution to environmental ethics, Land Ethic (Part of A Sand County Almanac, 1949),<sup>63</sup> is regarded as (perhaps) the seminal text in the field. Based on two scientific concepts, evolution and ecology, his land ethic philosophy recognised the scientific observation of interdependence between the smallest entity and the whole. It defines right action as that which maintains the 'integrity, stability, and beauty' of the ecological community which includes man.<sup>64</sup> Interestingly enough, Leopold was also responsible for transforming the United States Forest Service agronomic practice of forestry which regarded trees as a crop, 'like cabbages', to a management system based on ecological principles in which the role of tree growing was subordinate to a land health ecology, now known as 'ecosystem health'.<sup>65</sup> His pioneering work clearly provided a model for subsequent developments in economics based on ecological principles.

<sup>&</sup>lt;sup>61</sup> A. L. Dahl, *The Eco Principle: Ecology and Economics in Symbiosis*, George Ronald, Oxford, 1996, p. 1

<sup>&</sup>lt;sup>62</sup> Ibid., p. 1

<sup>&</sup>lt;sup>63</sup> A. Leopold, A Sand County Almanac, Oxford University Press, New York, 1949

<sup>&</sup>lt;sup>64</sup> J. Baird Callicott, 'Aldo Leopold, 1887-1962', in J. A. Palmer (Ed.), *Fifty Key Thinkers on the Environment*, Routledge, London, 2001, pp. 178-179

<sup>&</sup>lt;sup>65</sup> Ibid., p. 176

Another rather more recent but nevertheless interesting model worth mentioning has been developed by Michael Richards, a natural resource economist at the Overseas Development Institute, London. He outlines a model for sustainable development based on the spiritual and social principles expounded in the Bahá'í teachings. He argues that the current concept of economic development is based on consumerism and a material concept of progress which is in itself unsustainable. In order to achieve material prosperity the process of sustainable development requires an integration of spiritual and material elements.<sup>66</sup> These elements represent a fundamental shift in orientation of human values and include an ethical framework that recognises that the wellbeing of the individual is achieved through the wellbeing of the community with male and female values in balance. Science and religion, once free of dogma, can provide harmonised solutions to previously intractable problems. New democratic structures are required that 'seek the widest participation, transparency and accountability in decision-making<sup>67</sup> combined with a new ethic based on global citizenship which reflects 'the scientific principle of the oneness of mankind ... taught in schools and proclaimed at every level'.68

Redefining economics also became the preoccupation of the economist E. F. Schumacher whose book *Small is Beautiful* (1973)<sup>69</sup> recognised that economic theory needs to be aligned to human needs rather than industrial growth. Like Dahl and Richards he also saw man as spiritual beings whose needs were not being met through a materialistic economic model. Schumacher came to realise that alternative economic models needed to be formulated to overcome the excesses of what he called 'giantism', the belief that continuous economic growth and increasing consumption were evidence of the advancement of civilisation. In *Small is Beautiful* Schumacher discusses the effects of

<sup>&</sup>lt;sup>66</sup> M. Richards, Sustainable Development - A Baha'í Perspective. A discussion paper prepared by Michael Richards for the National Spiritual Assembly of the Baha'ís of the UK, London, 1995, p. 3

<sup>&</sup>lt;sup>67</sup> Ibid., p. 4

<sup>&</sup>lt;sup>68</sup> Ibid., p. 5

<sup>&</sup>lt;sup>69</sup> E. F. Schumacher, Small is Beautiful: A Study of Economics as if People Mattered, Blond & Briggs Ltd, London, 1973

economic development on the environment and the spiritual well-being of man. His particular concern was that in the unfolding of mankind's scientific and technological powers, there had developed a system of production that was destroying nature and creating a type of society that was harmful man.

In 1995 Schumacher visited Burma as an official economic development advisor to introduce the Western model of economic growth. It was here that he observed an economic system based on Buddhism, using indigenous technology that more than met everyone's needs based on a philosophy that saw 'civilization not as a multiplication of wants but in the participation of character'.<sup>70</sup> This was in contrast to the Western model which reduced spirituality to a personal goal outside a secular economics and depended on state of the art technology that relegated more basic technologies (e.g. the use of hand tools) to obsolescence.

Schumacher's views are highly persuasive and did much (again) to influence this author amongst (no doubt) many others. Schumacher believed that economics must benefit both people and planet. He argues that an economic system can only function if it is controlled at a local level rather than based on economies of scale. This would inevitably leads to small scale operations which would provide society with its new developments. In 1970 Schumacher was instrumental in founding the influential Intermediate Technology Development Group (ITDG) to further his aim of exploring the issue of appropriate technology in a context cultural diversity – a significant achievement.

The human dimensions of economics are also explored by Professor Paul Seabright in an interesting text called (intriguingly) *The Company of Strangers* (2005) in which Seabright provides an evolutionary and sociological history of the emergence of economic institutions that manage the global economy. Another seminal work, it draws on biology, anthropology, history and psychology to argue that we engage in cooperative tasks not

because of their value in making the modern division of labor possible but because we are motivated by an innate capacity to

<sup>&</sup>lt;sup>70</sup> Ibid., p. 50

demonstrate trust between 'honorary friends' based on established rules.<sup>71</sup>

The faculty of trust is unique to Homo sapiens, according to Seabright. All other animals are only capable of demonstrating trust amongst biologically related types. Humans have the capability of trusting This, Seabright believes, has been the basis of progress strangers. combined with our evolved capacity for abstract thought. He argues that there is nothing in our evolutionary history that justifies the remarkable developments of civilisation over the last ten thousand years. It is because developments have not been planned we should not be surprised that the current global situation has produced inherent problems alongside remarkable prosperity - an interesting and enlightened view.72

According to Seabright, if the global economy is an unplanned and unprecedented complex entity which has reached its current state following ten thousand years of development then 'no one could have predicted this experiment from observing the course of our previous evolution'. This achievement has been through man's ability to undertake complex task-sharing 'between genetically unrelated members of the same species' based on cooperation, a distinction only characteristic of man.<sup>73</sup> Task-sharing or division of labour, he argues, has its explanation in evolutionary biology that has enabled human beings to develop the capacity of abstract, symbolic thought and communication. This in turn has provided the 'foundation for the accumulation of knowledge that would provide humanity as a whole with a reservoir of shared skills vastly greater than the skills available to any single person' - a decidedly optimistic position.<sup>74</sup>

National governments with their powers to 'constrain the operation of citizens, firms and markets in historically unprecedented ways' are also susceptible to what Seabright calls the 'tunnel vision' of the market place.

<sup>&</sup>lt;sup>71</sup> P. Seabright, The Company of Strangers: a Natural History of Economic Life, Princeton University Press, Woodstock (UK), 2005, p. 4

<sup>&</sup>lt;sup>72</sup> Ibid., p. 6

<sup>&</sup>lt;sup>73</sup> Ibid., p. 1

<sup>&</sup>lt;sup>74</sup> Ibid., pp. 3-4

The increased complexity of running a nation state requires a level of organisation and division of labour that replicates the characteristics of the market whose excesses it seeks to moderate. This specialisation produces a level of decision making 'in a world in which the long reach and destructiveness of modern technology require panoramic vision as never before'.75

The survival of nation states will depend on their ability to demonstrate their capacity to be more effective than alternative, more coercive institutions.<sup>76</sup> He highlights the unprecedented influence of the USA as the dominant global military power and its belief in its unchallengeable authority in global matters which is barely challenged. Yet, as Seabright argues, the future of the USA will depend on its ability to achieve 'the full and enthusiastic cooperation of other countries if its prosperity and liberties are to be preserved'. Likewise, he argues, emerging super powers such as China also need 'to cooperate in solving problems where externalities matter on a world scale, notably in the protection of the environment'.77

Seabright, like Diamond before him, provides a historical context spanning ten thousand years in which the social economic and political developments of the last one hundred years can be viewed in a more objective way. The social evolution of man over the last ten thousand years is short in terms of his biological evolution. The ability to cooperate with strangers on a daily basis has only occurred in the last two hundred years according to Seabright. The challenges associated with establishing principles and systems of governance that facilitate trust and cooperation require unprecedented levels of thought and action and require us 'to deploy a different skill bequeathed to us by evolution for quite different purposes, the capacity for abstract symbolic thought'.<sup>78</sup>

It is clear from Seabright's text that in seeking to understand the requirements for sustainable development a new conceptualisation of the

<sup>&</sup>lt;sup>75</sup> Ibid., pp. 213-214
<sup>76</sup> Ibid., p. 249
<sup>77</sup> Ibid., p. 254
<sup>78</sup> Ibid., p. 257

world and our relationship to it is required, one which integrates progressive scientific thinking with a collective sense of responsibility.

# Sustainable development

Today there is an increasing awareness of the issues surrounding what has come to be called 'sustainable development'. This concept has been elevated in global environmental and economic discourse through a series of United Nations conferences and related non-partisan initiatives which are discussed in this section. This, in my view, is one of the most significant developments since the establishment of the United Nations in 1948. In the context of humankinds social evolution the emergence of a network of international institutions and forums to debate global issues since the Second World War marks a new stage in political awareness even if the practical action has been disappointing as will be discussed in this section. This, naturally enough forms (for the most part) a different kind of literature to that referred to thus far - the literature of governmental and institutional documents – a necessary analogue to the Such documents may not rehearse the arguments in the review. persuasive manner of much of the literature that has been cited earlier but nevertheless it offers an interesting narrative dimension to the issues raised by this thesis and offers a compelling authority of its own. Moreover, it was to play its own significant role in informing the research journey and its outcomes, as will be seen.

The USA, as the leading economy in the world is widely perceived as the main contributor of environmental degradation. However, under President Carter a critical assessment of the future of the environment was commissioned – known as the *Global 2000 Report to the President* (1981) it made some startlingly accurate predictions:

If present trends continue, the world in 2000 will be more crowded, more polluted, less stable ecologically and more vulnerable to disruption. Serious stresses involving population, resources, and environment are clearly visible ahead. Despite material output, the world's people will be poorer in many ways than they are today.<sup>79</sup>

<sup>&</sup>lt;sup>79</sup> G. Burney, *Global 2000 Report to the President*, New York, Penguin, 1981, p. 1. Cited in S. Dresner, The Principles of Sustainability, London, Earthscan Publications Ltd, 2002, p. 27

Interestingly, however, any prospect of leading sustainable development was lost by the USA when successive Presidents and Congress rejected any attempt to reshape economic policies in the light of the *Global 2000 Report to the President* and in the intervening years environmental leadership has largely passed to Europe.<sup>80</sup> It is only recently in President Bush's address to the State of the Union, in which he acknowledges America's 'addiction to oil' that a glimmer of recognition of the current environmental crisis has surfaced. These were well chosen confessional words that implied both a psychological and physical dependency.

Perhaps the first international conference to raise the issue of sustainable development to a level of international discourse though was the UN Conference on the Human Environment in Stockholm in 1972. The debate centred on poverty in the developing countries. However the preoccupation of European countries with environmental pollution was regarded as hypocritical by developing countries who argued that poverty represented a worse form of pollution. Nevertheless the Stockholm Declaration, however, established environmental problems on the international agenda for the first time and led to the formation of the UN Environmental Programme (UNEP) which has been the repository of 'the global environmental conscience'.<sup>81</sup>

The Brundtland Commission also played a pivotal role in raising global awareness of environmental issues. It was the *Brundtland Report* (1987) which gave currency to the term 'sustainable development' a term that manages to negotiate the delicate balance of reconciling the developed world's idea of development with the developing world's aspiration to better itself.

Sustainable development remains to some extent an elusive concept but it has provided a valuable hook around which discussion and debate can develop. The World Council of Churches in 1974 had earlier produced the idea of a 'sustainable society' linked to an equitable

<sup>&</sup>lt;sup>80</sup> S. Dresner, *The Principles of Sustainability*, London, Earthscan Publications Ltd, 2002, p. 27

<sup>&</sup>lt;sup>81</sup> Ibid., p. 28

distribution of resources which subsequently became a central tenant of the *Brundtland Report* together with democratic participation, which was in turn to become a cornerstone of the Earth Summit's *Agenda 21* (1992) document.<sup>82</sup> However, it was The World Conservation Strategy (1980) conference which first employed the term 'sustainable development' which it defined as 'the integration of conservation and development to ensure that modifications to the planet do indeed secure the survival and well-being of all people'. It anticipated many of the ideas associated with Brundtland by calling for 'a new international development strategy that would redress inequity, stimulate economic growth and counter the worst poverty'.<sup>83</sup> Sadly, it failed to achieve widespread recognition because it was based on a Euro-centred view with 'a moral framework that was not universal' – a problem that Brundtland put right.<sup>84</sup>

The UN General Assembly formed the World Commission on the Environment and Development (WCED) in 1983 in tandem with Gro Harlem Brundtland, the former Norwegian Prime Minister, as chair person. In 1987 the Commission produced the document Our Common Future. The impact of the report was useful and yet, in many ways its thinking lacked originality, rehashing ideas from earlier initiatives. lts effectiveness in appealing directly to all levels of society and institutions through developing a broad concept of sustainable development encouraged a global discourse on the concept.<sup>85</sup> Its impact on global discourse was ultimately secured through the Brundtland Report of 1987 and the Commission's inclusive membership of representatives from every continent and drawing scientists, lawyers and others into its consultations. The Report recognises the requirement to meet the needs of all members of humanity (particularly the deprived) and also recognised that technology and social organisations, often impose certain

<sup>&</sup>lt;sup>82</sup> Ibid., p. 29

<sup>&</sup>lt;sup>83</sup> Ibid., p. 31

<sup>&</sup>lt;sup>84</sup> International Union for Conservation of Nature and Natural Resources, World Conservation Strategy: Living Resources Conservation for Sustainable Development, Gland, Switzerland: IUCN, Section 1.2, 1977. Cited by S. Dresner, p. 30

<sup>&</sup>lt;sup>85</sup> J. A. Palmer, 'Gro Harlem Brundtland, 1939-', in J. A. Palmer (Ed.), *Fifty Key Thinkers* on the Environment, Routledge, London, 2001, p. 276

limits. However, it did recognise that development that reconciles environmental issues is only possible if there is the political will:

Humanity has the ability to make development sustainable - to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs. The concept of sustainable development does imply limits - not absolute limits but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities. But technology and social organization can be both managed and improved to make way for a new era of economic growth. The commission believes that widespread poverty is no longer inevitable ... A world in which poverty is endemic will always be prone to ecological and other catastrophes. Sustainable development is not a fixed state of harmony, but rather a process of change ... We do not pretend that the process is easy or straightforward. Painful choices have to be made. Thus, in the final analysis, sustainable development must rest on political will.86

The *Brundtland Report* is not without its critics. In its proposal to the UN, Programme of Action on Sustainable Development, third world critics have questioned the implicit assumption in the Report that only existing international organisations are capable of facilitating progress. As De Ia Court argued 'the present structures have given us the disease - is it then logical that they should also provide the cure?':

The ideology of the dominant pattern of development derives its driving force from a linear theory of progress, from a vision of historical evolution propounded in the eighteenth and nineteenth century Western Europe and universalised throughout the world especially in the post-war development decades. The linearity of history, presupposed in this theory of progress, created the ideology of development that equated development with economic growth, economic growth with expansion of the market economy, modernity with consumerism and non-market economies with backwardness. The diverse traditions of the world, with their distinctive technological, ecological, economic, political and cultural structures, were driven by this new ideology to converge into a homogeneous monolithic order modelled on the particular evolution of the west.<sup>87</sup>

<sup>&</sup>lt;sup>86</sup> World Commission on Environment and Development, *Our Common Future*, Oxford University Press, Oxford, 1987, pp. 8-9

<sup>&</sup>lt;sup>87</sup> T, de la Court cited by Palmer, 'Gro Harlem Brundtland: 1939-', p. 280. in J. A. Palmer (Ed.), *Fifty Key Thinkers on the Environment*, Routledge, London, 2001

The challenge to the current global model is whether it can recognise and assimilate a diversity of cultural traditions each with its unique approach to life? The widespread acceptance of the notion of sustainable development as presented by the *Brundtland Report* lay in part in its ability to appease vested and partisan interests in the West who saw environmental limits as a prohibition on economic development and growth. Interestingly enough, the *Brundtland Report* did have a positive influence on many southern hemisphere governments who no longer regarded environmental issues as just a Western indulgence; it forced governments and international bodies to discuss the issues and provided a coherent, if limited, agreement for the case of developing a more equitable sustainable world.<sup>88</sup>

The *Brundtland Report* proposed a plan of action which led directly to the convening of the UN Conference on Environment and Development 1992 (UNCED), known as the Earth Summit held in Rio de Janeiro. The Secretary-General of the conference, Maurice Strong, had a clear vision of what the conference was to achieve:

- Conventions on climate, biodiversity and forests;
- An Earth Charter;
- Agenda 21, a global action plan outlining the sustainable development priorities for the 21st century;
- An agreement on new financial resources to implement Agenda 21, and progress on agreements to transfer environmentally sound technologies from North to South;
- A strengthening of UN institutions, including an Earth council.<sup>89</sup>

The Earth Summit generated considerable media coverage and raised the level of public debate to new levels but the actual signed agreements by the world leaders were less than impressive. According to Dresner, the framework on climate change reflected the series of compromises by politicians that characterised the follow-up international agreements. A consensus was achieved that climate change was serious problem but

<sup>&</sup>lt;sup>88</sup> Dresner, *Principles*, pp. 36-37

<sup>&</sup>lt;sup>89</sup> Ibid., p. 38

due to US pressure targets or dates were hard to agree. However, the steps were put in place to reach a binding agreement which led to the Kyoto Protocol in 1997.90

The Agenda 21 document provided a framework of global action for achieving sustainable development. It represents a significant reversal of governance in which individuals, particularly women, communities, businesses and non-governmental organisations (NGOs) were encouraged to become active participants in a democratic process of change. There were a number of reasons for this change of attitude by the UNCED policymakers. Dresner suggests that the unprecedented level of NGO involvement at the Earth Summit 'was institutionalized in the document' and 'the role of the market, trade and business' were recognised. However, 'both these features of Agenda 21 can partly be attributed to the demise of state socialism and the general disillusionment with bureaucratic approaches to problems'.<sup>91</sup> Agenda 21, of course, was to provide the catalyst for this research project.

A series of political compromises produced a watering down of controversial issues. Chapter 4 of Agenda 21, which discusses unsustainable patterns of production and consumption, calls for national strategies and policies to encourage 'sustainable consumption patterns' but according to Dresner lack specific targets which were toned down by industrial countries, particularly the US. Chapter 5, Agenda 21, which dealt with population growth under the theme Demographic Dynamics and Sustainability had all mention of contraception removed at the insistence of the Vatican and the Philippines. Militarism and international debt were too controversial and not even included. Agenda 21, in the end, did not get the financial support it required. The proposed budget of US \$600 billion a year was reduced to a derisory US £2 billion over three years, about 0.5 per cent of the sum requested.<sup>92</sup>

The related UNCED conference played an unprecedented role in establishing the 'global environment as a major political issue in

 <sup>&</sup>lt;sup>90</sup> Ibid., p. 39
 <sup>91</sup> Ibid., p. 41
 <sup>92</sup> Ibid., p. 42

international politics. Rio was a major political event in a way in which Stockholm had not been'. Over a hundred national leaders attended UNCED compared to two at the Stockholm Conference.<sup>93</sup>

# **Global governance**

What was achieved in terms of lasting action following the emergence of the concept of sustainable development in global discourse? *Agenda 21* was the action plan for UNCED. In Chapter 28, *Agenda 21*, local authorities were asked to produce a local *Agenda 21* through consultation with members and representative groups in their community. What is significant is that *Agenda 21* recognised that many of the solutions to global problems could only be resolved through problem solving at grass roots level – and providing a principle fundamental to this research project:

Through consultation and consensus building, local authorities would learn from citizens and from local civic, community, business and industrial organizations and acquire the information needed for formulating the best strategies.<sup>94</sup>

Its progress as a global initiative can be seen as a measure of success for UNCED. The implementation of *Agenda 21* was the responsibility of the Commission on Sustainable Development (CSD). Although officially a subcommittee of the UN Committee on Economic and Social Affairs (ECOSOC) its membership, which includes government environmental ministers, has more power and influence than ECOSOC has. However, as Dresner observes

The job of coordinating a global transition to sustainable development has rather unsurprisingly proved a somewhat overambitious task for a body that meets so little and has so few resources itself.<sup>95</sup>

Agenda 21 became a document that was widely disseminated amongst political leaders from national to local politicians. It can not be a

<sup>&</sup>lt;sup>93</sup> Ibid., p. 45

<sup>&</sup>lt;sup>94</sup> J. Connelly and G. Smith, *Politics and the Environment*, 1999, London, Routledge, p. 294

<sup>&</sup>lt;sup>95</sup> Dresner, *Principles*, p. 43

coincidence that the level of political patronage at UNCED was reflected in subsequent years in the support and interest from governments at all levels. A further development of *Agenda 21* identified by the Local Government Management Board in the UK was the need for local authority to change from within as well as develop a collaborative partnership with the members in the local community. The following initiatives were proposed on the part of the local authority:

- Managing and improving the local authority's own environmental performance
- Integrating sustainable development aims into the local authority's policies and activities
- Awareness raising and education
- Consulting and involving the general public
- Partnerships
- Measuring monitoring and reporting on progress towards sustainability<sup>96</sup>

The success of *Agenda 21* depended on the ability of local governing authorities to set up the necessary infra structure to generate meaningful dialogue and action plans with their respective local communities and establish unprecedented levels of cooperation in implementing new strategies for economic development. Success has been limited, partly because the level of cynicism by the electorate has limited the response but (in my view) it is also because local communities lack the necessary participatory democratic structures and there is no culture of consensus building.

The difficulty of consensus building is also a feature of international agreements on environmental issues. There has been a growing awareness since the 1970s that the environmental problems can not be resolved through the intervention of individual nation states. In the absence of an inter-state system of governance, which could ultimately regulate recalcitrant nation states, a series of "regimes" have been

<sup>&</sup>lt;sup>96</sup> Connolly and Smith, *Politics and the Environment*, p. 294

initiated such as the Montreal Protocol and the Statement on Forestry Principles which establish principles, rules and decision making procedures in specific areas of international concern. The difficulties arise over the conflicting 'nature of the international political and economic systems' and the way in which the environmental problems challenge the concept of national sovereignty.<sup>97</sup> The political and economic dominance and isolationist policies of the United States; the entrenched unwillingness of industrial countries to moderate their concept of economic development, and the relative powerlessness of third world countries to influence global economic policy are just a few examples of the obstacles which hamper progress towards sustainable development.

Increased international cooperation is fundamental to progress. In areas of mutual concern the political and economic dominance and isolationist tendencies of the United States have seriously hampered progress. When the United States has taken the lead, a stronger regime However, it has regularly resisted cooperation in has been created. formulating protocols and conventions, resulting in a weaker regime.<sup>98</sup> Yet without political cooperation, nation states have limited capacity to protect citizens from the effects of environmental degradation. As Connolly and Smith argue 'environmental politics can be seen as fundamentally challenging dominant understanding of sovereignty as the legitimacy of states understood in terms of capital accumulation is itself challenged'.99

Climate change is perceived as one of the most critical environmental issues and it remains one of the greatest challenges to collective action. It is a problem that many politicians try to avoid. Climate change brought about by rising carbon dioxide first came to the global agenda in 1990 when the Intergovernmental Panel on Climate Change predicted a global temperature rise of 1.5 to  $4.5^{\circ}$ C over the next century at current trends. It suggested significant reduction of sixty per cent of carbon dioxide emissions over the following fifty years would be

 <sup>&</sup>lt;sup>97</sup> Ibid., p. 183
 <sup>98</sup> Ibid., p.187
 <sup>99</sup> Ibid., p.189

required to prevent rapid climate change that could potentially jeopardise planet life.<sup>100</sup>

The Montreal Protocol of 1987 had successfully tackled the reduction of the production of the ozone-depleting chlorofluorocarbons. The subsequent Framework Convention on Climate Change signed at the Earth Summit provided a basis for international governments' consultations which eventually led to the Kyoto Protocol in 1997. The resulting Protocol agreed between industrial nations was a modest reduction of 5.2 per cent in their joint annual emissions of the main greenhouse gases for the years 2008-12 compared to the 1990 levels.<sup>101</sup> However, agreement as to how the protocol would be implemented was contested between nations. The Hague Conference 2000 made little real progress and in 2001 President George Bush declared the United States was withdrawing from the agreement. In the same year the Intergovernmental Panel on Climate Change (IPCC) increased their estimates of global warming to 1.4 - 5.8°C.<sup>102</sup> The lack of progress on establishing a relatively low reduction and the United States' unwillingness to cooperate demonstrates the current weakness of achieving international agreements on climate change.<sup>103</sup> Other initiatives also produced disappointing compromises as outlined in the following examples.

- The collapse of an International Forest Convention (1992) led to the Statement on Forest Principles in an effort to salvage some sort of an international agreement on forestry management. The agreement only confirmed the sovereign right of nation states to maintain their own autonomy over a resource. Countries with tropical forests were particular affronted by industrial countries' attempts to influence their forestry policy.<sup>104</sup>
- The Rio Declaration on Environment and Development (1992) was the substitute for the Earth Charter, originally an inspiring statement of a

<sup>&</sup>lt;sup>100</sup> Dresner, *Principles*, p. 39

<sup>&</sup>lt;sup>101</sup> Ibid., p. 52

<sup>&</sup>lt;sup>102</sup> Ibid., p. 56

<sup>&</sup>lt;sup>103</sup> Ibid., p. 56

<sup>&</sup>lt;sup>104</sup> Ibid., p. 40

new global environmental ethic. The Rio Declaration became a compromise which 'emphasized development national and sovereignty' in contrast to the Stockholm Declaration (1972) which 'had emphasized environmental protection and international cooperation'. 105

- Attempts by the international business community have also lacked impetus. The Business Council of Sustainable Development (BCSD) represents nearly fifty international business leaders including the Swiss billionaire Stephen Schmidheiny who published Changing *Course* (1992) as the BCSD's manifesto. He drew on Total Quality Management Theory (TQM) as the basis for a business approach that integrated environmental efficiency in the production cycle. Later renamed the World Business Council for Sustainable Development, it failed to generate real changes in the business practices of its members.<sup>106</sup>
- The World Summit on Sustainable Development (2002) at Johannesburg was the follow-up to UNCED 1992. The focus was on development to meet the needs of Southern countries. The US resisted setting targets that would impair its own economic development and 'no new commitments were made to increase aid, relieve debt or tackle the crisis of falling commodity prices'.<sup>107</sup>

The lack of progress on sustainable development and the deteriorating global environmental crisis highlighted a paralysis of collective political will. The global political structure which still held the nation state as an autonomous self-determining entity was in conflict with the needs of a global community which was powerless through the lack of adequate global system for governance. Gro Harlem Brundtland put the

<sup>&</sup>lt;sup>105</sup> Ibid., p. 41 <sup>106</sup> Ibid., p. 46

<sup>&</sup>lt;sup>107</sup> Ibid., p. 59

question succinctly enough: 'the question remains: do we have the political ability to organize and to change what we need to change'.<sup>108</sup>

If political will is essential to bring about the necessary transformation in global governance what are the obstacles? For an insight I turn to J. Stiglitz, the Nobel Prize winning economist of the World Bank, who provided an analysis of the failures of global economic governance in his book Globalisation and Its Discontents (2002). Stiglitz is critical of Western powers' failure to play their part in the promise of the creation of an equitable global economic order. He argues that 'the West has driven the globalization agenda, ensuring that it garners a disproportionate share of the benefits, at the expense of the developing world'.<sup>109</sup> He asserts that 'for many in the developing world, globalization has not brought the promised economic benefits'.<sup>110</sup> The hypocrisy of the West, he argues, has been tangible; while demanding trade agreements that open markets and the elimination of subsidies on industrial goods in the global South, developed countries have maintained guotas and contrived to subsidise their own agriculture making the poorest countries worse off.111

Stiglitz suggests that one of the positive features of greater global integration is the establishment of organisations which function at an international level: 'Globalization has been accompanied by the creation of new institutions that have joined with existing ones to works across borders'.<sup>112</sup> These include NGOs and inter-governmental institutions, such as the World Health Organization (WHO). Globalisation has, however, been 'powerfully driven by international corporations, which move not only capital and goods across borders but also technology'.<sup>113</sup> According to Stiglitz, the failures in the economic arena have been brought about by the three main institutions (known as the Bretton Wood

<sup>108</sup> G. Brundtland, 'Our Common Future and Ten Years after Rio: How Far Have We Come and Where Should We Be Going?', *Earth Summit 2002: A New Deal*, F. Dodds (Ed.), Earthscan Publications Ltd, London, 2002, p. 254

- <sup>109</sup> J. Stiglitz, *Globalization and Its Discontents*, London, Penguin Books Ltd, 2002, p. 7
- <sup>110</sup> Ibid., p. 4

<sup>&</sup>lt;sup>111</sup> Ibid., p. 7

<sup>&</sup>lt;sup>112</sup> Ibid., p. 9

<sup>&</sup>lt;sup>113</sup> Ibid., p. 10

Institutions) that determine the economic rules of globalisation. These are the International Monetary Fund (IMF), the World Bank and the World Trade Organization (WTO). The IMF, like the World Bank, was established in 1944 with the mandate to prevent global economic depression in the 'recognition that markets did not work well'. They were founded 'on the belief that there was a need for collective action at global level for economic stability'. However, from the original vision at Bretton Woods 'it now champions market supremacy with ideological fervor'.<sup>114</sup> Stiglitz argues these institutions have failed in their mission to promote global stability through supporting countries economic development. The change in ideology was initiated by collusion between the IMF, World Bank and the United States Treasury who invoked the supremacy of the market.<sup>115</sup> Stiglitz maintains that 'decisions were made on the basis of what seemed a curious blend of ideology and bad economics, dogma that sometimes seemed to be thinly veiling special interests'.<sup>116</sup> This failure, Stiglitz argues, is partly due to the nature of governance. Decisions by these institutions are made secretly by technocrats who 'are not representative of the nations they serve'.<sup>117</sup> The technocrats who run these global institutions and influence global economic policy typically come from international financial corporations. The policies are therefore 'closely aligned with the commercial and financial interests of those in the advanced industrial countries'. The problem with globalisation, according to Stiglitz, is not that it is good or bad but that it is not being adequately regulated to prevent the extremes and deprivations it is causing.<sup>118</sup> He goes on to say:

Unfortunately, we have no world government, accountable to the people of every country, to oversee the globalization process in a fashion comparable to the way national governments guided the nationalization process.<sup>119</sup>

He describes the current situation as follows:

<sup>&</sup>lt;sup>114</sup> Ibid., p. 12

<sup>&</sup>lt;sup>115</sup> Ibid., p. 16

<sup>&</sup>lt;sup>116</sup> Ibid., p. xiii

<sup>&</sup>lt;sup>117</sup> Ibid., p. 19

<sup>&</sup>lt;sup>118</sup> Ibid., p. 20

<sup>&</sup>lt;sup>119</sup> Ibid., p. 21

*Global governance without global government*, one in which a few institutions - the World Bank, the IMF, the WTO – and a few players – the finance, commerce and trade ministries, closely linked to certain financial and commercial interests – dominate the scene, but in which many of those affected by their decisions are left almost voiceless.<sup>120</sup>

It is probably fair to say that Stiglitz is not opposed to free trade capitalism but is questioning the checks and balances within the existing infrastructure that regulates it. He does not question the assumptions on which the current form of capitalism is based and which is defining the form of economic development that is unfolding on a global level. If we are to begin to understand the ideological basis of economic growth I believe it is necessary to explore some of the twentieth century sociological theories of consumerism. By having a greater insight into the nature of our collective patterns of consumption and its relationship to the present form of capitalism I hope to be able to provide a more informed view of sustainable design and make practice which will be discussed in the next section (entitled ii) The concept of sustainable design). Nevertheless, *Globalisation and Its Discontents* is a stimulating and provocative text which did much to help clarify the contesting political positions around sustainability

#### Consumption

One of the earliest sociological studies on what is now referred to as consumerism came from Thorstein Veblen (1857-1929). His thesis *The Theory of the Leisure Class* (1899)<sup>121</sup> attacked the "Leisure Class" and its obsession with the acquisition of clothes and consumer goods and analyses the social structure of a consumer society. He argues that identity and place in the social order are derived from the ability of the individual members to demonstrate 'pecuniary strength; and the means of showing pecuniary strength, and so gaining or retaining a good name, are leisure and a conspicuous consumption of goods'. The social order headed by the "Leisure Class" who set the 'manner of life and its

<sup>&</sup>lt;sup>120</sup> Ibid., pp. 21-22

<sup>&</sup>lt;sup>121</sup> T. Veblen, *The Theory of the Leisure Class*, London, Macmillan, 1899

standards of worth' determines the 'vicarious consumption practised by the household of the middle and lower classes' and the aspirations of the 'most abjectly poor'.<sup>122</sup> The social structure of a capitalist society is, according to Veblen, always determined by the possession of wealth. However, 'the methods of accumulating wealth, and the gifts required for holding it, have changed in some degree since the early days of the predatory culture'. Admission to this class no longer requires 'aggression and unrestrained violence' as in the past. Instead the 'pecuniary aptitudes' and 'tenacity of purpose' distinguish the 'successful upper-class man from the rank and file of the industrial classes'.<sup>123</sup>

In Veblen's theory, consumerism is the basis of a social hierarchy in which social worth and position are determined by the ability of the individual to acquire 'honorific' commodities, a notion that is as relevant today as it was over one hundred years ago. It is a theory that has achieved widespread currency and general acceptance. One hundred years later, consumerism has created an inequitable global order which have shaped the psychological condition of Western society. In *Status Anxiety*, the philosopher Alain de Botton identifies a related universal social pathology in contemporary society - a condition of status anxiety, brought about by economic and social uncertainties of living in a changing world of recession, redundancy, success and failure as well as peer group recognition.

According to De Botton, our sense of ourselves is determined mainly by extrinsic factors including our relationship with others and what we own. Snobbery has, according to De Botton, determined what things gain acceptability and prestige over others. However, he asserts that psychological pressures of material progress have produced this particular social pathology. The unprecedented level of technological innovation which began around the middle of the nineteenth century has brought extraordinary material benefits and well-being to populations

 <sup>&</sup>lt;sup>122</sup> T. Veblen, *Conspicuous Consumption*, Penguin Books Ltd, London, 2005, p. 58 (This Penguin publication is an extract from *The Theory of the Leisure Class*, 1899)

<sup>&</sup>lt;sup>123</sup> Ibid., pp. 74-75

whose ancestors merely subsisted. Yet, as De Botton points out, the emotions it has engendered have been disquieting.

The increased standards of living have produced 'vast inequities' that have provoked envy. Unlike previous societies, where inequality was the social norm and order. Western economic development is founded on 'a practical belief in the innate equality of all humans and in the unlimited power of anyone to achieve anything'.<sup>124</sup> Envy, De Botton reminds us, is based on being conscious of our differences amongst our peers around us and not on those inaccessible to us. Nevertheless the media's much vaunted celebration of conspicuous wealth increasingly cultivates a society based on envy. As a result envy, the desire to have what others have, drives the discontent that motivates consumerism. As De Botton observes 'by fostering unlimited expectations, they (society) open a permanent gap between what we want and what we can afford who we are and who we might be'.<sup>125</sup>

The status of the consumer object is also the basis of another seminal theory by Jean Baudrillard, one of the foremost sociologists of the second half of the twentieth century. In his renowned text The System of Objects (1996), Baudrillard provides a post-structuralist cultural critique of the commodity in consumer society and a theory of consumerism. The basis of Baudrillard's theory 'the status of the modern object' which 'is dominated by the MODEL/SERIES distinction'.<sup>126</sup> The model exists as an idea with actual variations referring to that idea:

The model has a harmony, a unity, a homogeneity, a consistency of space, form, substance and function; it is, in short, a syntax<sup>127</sup> and 'without peer' ... only the 'personalization' of objects allows the play of differences to expand in proportion with the length of the series (as when fifteen or twenty different shades are available for a single make of car).<sup>128</sup>

<sup>&</sup>lt;sup>124</sup> A. de Botton, *Status Anxiety*, Penguin Books Ltd, London, 2004, p. 47 <sup>125</sup> Ibid., p. 62

<sup>&</sup>lt;sup>126</sup> J. Baudrillard, *The System of Objects*, Verso, London, 1996, p. 137 <sup>127</sup> Ibid., p. 148

<sup>&</sup>lt;sup>128</sup> Ibid., pp. 147-148

According to Baudrillard, the process of personalisation is attained 'through an idea that is both vague and shared by all'.<sup>129</sup> Through slight of hand 'at the level of the industrial object and its technological coherence the demand for personalization can be met only in inessentials'.<sup>130</sup> Clearly 'personalization' as defined by Baudrillard is not just a marketing device but an ideological concept. The consumer is offered the illusion of choice while real choice is denied:

We no longer even have the option of *not* choosing, of buying an object on the sole grounds of its utility, for no object these days is offered for sale on such a 'zero level' basis.<sup>131</sup>

Within the ideology consumerism is elevated to good citizenship 'it is imposed upon us as such, and through it society as a whole is likewise imposed on us'.<sup>132</sup> Baudrillard argues the model itself is both an abstraction and a contradiction but nevertheless a necessary feature of a 'cultural system capable of embracing modern industrial society in its entirety',<sup>133</sup> confirming Giedion's thesis that human needs are subservient to technology.

Baudrillard proposes that products (like furniture) fulfil a functional role but not in the way we would normally understand the term function – i.e. to fulfil a specific purpose or need. Functionality, he argues, is defined by an object's ability to perform a secondary function of becoming part of a 'universal system of signs' in which the intrinsic value of an object becomes subjugated, or rather, is made irrelevant:<sup>134</sup>

What emerges from the realm of signs is a nature continuously dominated, an abstract, worked upon nature, rescued from time and anxiety, which the sign is constantly converting into culture.<sup>135</sup>

Baudrillard concludes his theory on naturalness and functionality by revealing the inherent contradiction of consumption. He argues that the *'transcended* presence of Nature' which provides its justification as a

- <sup>129</sup> Ibid., p. 144
- <sup>130</sup> Ibid., p. 142
- <sup>131</sup> Ibid., p. 141
- <sup>132</sup> Ibid., p. 141
- <sup>133</sup> Ibid., p. 143
- <sup>134</sup> Ibid., p. 63

<sup>&</sup>lt;sup>135</sup> Ibid., p. 64

'cultural model', is simultaneously denied as a presence making the system one of 'disavowal, lack, and camouflage'.<sup>136</sup>

Baudrillard draws on Maurice Rheims's metaphor comparing an object of consumption to a domestic animal which reciprocates the devotion of its owner and is in turn perceived by its owner as embodiment of the self same qualities projected onto the animal. Unlike relationships with fellow human beings in which conflicts and tensions can emerge, objects are totally benign and offer unrestricted attribution.<sup>137</sup> According to Baudrillard, objects become a substitute and catharsis for neurosis and for the inability to invest in human relationships. Baudrillard suggests they acquire a 'soul', become 'the décor for a tenacious mythology, the ideal décor for an equilibrium that is itself neurotic'.<sup>138</sup> Ultimately, as Baudrillard proposes, 'what you really collect is always yourself' and the collection is only complete when it includes the collector.<sup>139</sup>

Baudrillard also argues that the *credit system* is an integral part of the culture of consumerism. Just as personalisation is more than an advertising strategy, 'credit is a decisive argument in the 'strategy of desire', and its role is comparable in every way to any other quality of the object on offer'<sup>140</sup> and 'is nothing less than a fundamental dimension of our society and in effect a new ethical system<sup>141</sup> an 'economic right of the citizen'.<sup>142</sup> However, in striving for liberation through acquisition we become unwitting victims in the creation of a system that binds us: 'Credit has thus brought us back to a situation that is in fact feudal in character'.

It becomes evident from Baudrillard's theory that our society relies on tacit complicity, in which consumers are the willing participants in a system which binds them to a dependency cycle that ensures 'They buy so that society can continue to produce, this so they can continue to work, and this in turn so they can pay for what they have bought'.<sup>143</sup>

- <sup>136</sup> Ibid., pp. 64-65
- <sup>137</sup> Ibid., p. 89
- <sup>138</sup> Ibid., p. 90
- <sup>139</sup> Ibid., p. 91
- <sup>140</sup> Ibid., p. 156
- <sup>141</sup> Ibid., p. 158 <sup>142</sup> Ibid., p. 156
- <sup>143</sup> Ibid., p. 160

In so doing, the consumer becomes an active participant in a credit system which is the curse of 'man's irresponsibility towards himself: the buyer alienates the payer, and even though they are in fact the same person, the system ensures, by separating them in time they never become aware of the fact'.144

According to Baudrillard then, a subtle but profound transformation has taken place in society under capitalism. The citizen fulfils his responsibility to the system through being a loyal consumer. This is a cultural system that is proving incapable of adapting itself to the needs and challenges of the twenty-first century, a system which has now universalised through globalisation, become thereby defining consumption as a 'total idealist practice' in which its core ideological principle is the act of consumption for its own sake which in turn provides the purpose for living. An endless cycle of consumption, motivated by a desire for personal completeness, becomes (according to Baudrillard) the goal of life.145

While the ideas floated in Baudrillard's System of Objects is entirely fascinating, it is interesting that it makes no mention of the crafts. Perhaps he neglects to mention the crafts because they are not part of the industrial process?

Is it possible for crafts to transcend this ideological system - a position it has adopted since William Morris and its nineteenth century origins? Perhaps not, if Peter Hobbis is to be believed. Hobbis offers a case that undermines any claim that craft products can be independent of a capitalist system. In The Value of Crafts, a paper presented at the conference Obscure Objects of Desire (1997), he reopens the familiar question of whether 'the crafts have a value in contrast to the factory mass production of industrial capitalism?'.<sup>146</sup>

For many craftspeople, their practice is notionally predicated on a rejection of the values represented by industrial society. However, Hobbis argues the crafts exist as a necessary part of an industrial society:

<sup>&</sup>lt;sup>144</sup> Ibid., p. 162 <sup>145</sup> Ibid., p. 203

<sup>&</sup>lt;sup>146</sup> P. Hobbis, 'The Value of Crafts', *Obscure Objects of Desire – Conference Papers,* University of East Anglia, 10-12 January 1997, Crafts Council, 1997, p. 32

put simply, because it is outside the capability of industry to produce the individual niche products characteristic of the crafts - for this reason they exist. However, for the craft practitioner 'the craft ideal defines the craft work's meaning in terms of the value of the craft activity. Its value is inextricably bound up with the value of the object produced'.<sup>147</sup>

The Craft Ideal, according to Hobbis, is committed to a set of values in which objects are created communally by craftspeople for a user who shares the same values. Accordingly, 'those who buy craft objects cannot be regarded as consumers; at least not within the craft ideal'.<sup>148</sup> However, Hobbis argues that, according to classical economic theory, consumers are only engaged in satisfying their preferences. When all wants are given equal parity, there can be no distinction between consumer goods and crafts. The Craft Ideal and the capitalist market economy may appear to be in opposition but in reality they are not. The Craft Ideal believes it is founded on a set of values and a 'way of life which overcomes alienated existence', both for the crafts person and the user, and aspires to 'presents itself as the escape route from industrial society'<sup>149</sup> however, despite its nobility Hobbis argues this position is inconsistent and once a craftsperson is willing to sell their products in the market place to whomever wants to buy them, they cannot presume the customer shares their values. In the marketplace the customer buys a craft object for a range of reasons and the craftsperson can only regard a customer as a customer, no more, no less. In this sense the craft ideal is compromised. Hobbis therefore argues that within the market economy 'endorsing the craft ideal is not like acting to promote real change. It is only a gesture'. The customer or patron maintains the crafts but in reality 'the craft ideal is beyond our reach'.<sup>150</sup> Like Baudrillard's ideas, Hobbis's views are interesting and helped form the account of design and make which helps define this thesis.

#### Citizenship and collective responsibility

- <sup>147</sup> Ibid., p. 36
  <sup>148</sup> Ibid., p. 37
  <sup>149</sup> Ibid., p. 39
- <sup>150</sup> Ibid., p. 40

The sociological theory of Veblen, formulated in 1899, still resonates in the new millennium and alongside Baudrillard's and De Botton's theories provides a powerful image of an ideological system that supports and perpetuates a materialistic global system. The behaviour patterns that characterise these theories are rooted in personal beliefs and values which offer a range of fascinating models by which to engage the world.

In this connection, Ervin Laszlo (foremost exponent of system philosophy and evolution theory and a member of the Club of Rome) offers an analysis of how behaviour and motivations of individuals and societies, what he defines as 'the inner limits', can determine the future of a sustainable society. He attributes the current crisis to our individual and collective denial about the human factors that are at the root of the world problems:

The critical but as yet generally unrecognized issue confronting mankind is that its truly decisive limits are inner, not outer. They are not physical limits due to the finiteness or vulnerability of this world, but psychological, cultural and, above all, political limits inner to people and societies, manifested by individual and collective mismanagement, irresponsibility and myopia.<sup>151</sup>

He departs from approaches that seek to apply 'technological fixes within the framework of narrowly self-centred values and short-sighted national institutions'. He advocates 'a human and humanistic revolution mobilizing new values and aspirations, backed by new levels of personal commitment and political will'.<sup>152</sup> He attacks modernism as obsolete 'because it no longer serves the genuine interests of human beings'.<sup>153</sup>

Laszlo advocates global management of resources to solve environmental problems and develop appropriate renewable energies. The alternative, the status quo of the free market is increasingly leading to 'greater inequities and more violent competition for scarcer and still higher-priced resources'. One vital aspect of this new paradigm is the development of personal values for a global age. Laszlo suggests that these values may come from a range of sources, for example, the great

<sup>&</sup>lt;sup>151</sup> E. Laszlo, *The Inner Limits of Mankind*, Oneworld Publications Ltd, London, 1989, p. 26

<sup>&</sup>lt;sup>152</sup> Ibid., p. 27

<sup>&</sup>lt;sup>153</sup> Ibid., p. 39

religions and philosophers, 'highly trained generalists' to counteract scientific specialists;<sup>154</sup> greater diversity of individual approaches, and a sense of citizenship based on promoting the 'best interests as one member among many of an interdependent international community'.<sup>155</sup> Laszlo believes that spiritual values and an ethic based on collective responsibility are indicative of a new age and that the current values that define modernism are now heretical.<sup>156</sup>

In his evaluation of the political systems of liberalism and Marxism he argues that both fail to recognise that the 'interdependence and diversity are features typical of our world', instead 'liberals and Marxists alike dream of extending national hegemony into international uniformity'.<sup>157</sup> Domination of one or the other as an 'international system' would progress with giant strides towards uniformity - and collapse'. Laszlo believes it is beyond the scope of a single system to 'replace the flexibility and adaptability inherent in diversity'.<sup>158</sup> The current global crisis 'in the areas of security, food, energy and resources, economic development and the environment<sup>159</sup> require 'a global partnership of all nations and peoples in the pursuit of mutually beneficial global goals'.<sup>160</sup> The United Nations, however, the one institution representing almost all the world's nations and therefore in a position to 'discuss practically all matters of concern to the world community' is denied the authority by its membership to implement global initiatives.<sup>161</sup> Politicians, Laszlo points out, only represent and express the narrow goals of their electorate rather than the general interests of humanity: 'these goals are a manifestation of the worldwide impact of Western materialistic modernism' and 'constitute inner limits to world development'.<sup>162</sup> In order to transcend the inner limits Laszlo advocated two sets of rules: firstly 'to orient the evolution of personal values and aspirations' and secondly 'to motivate the

<sup>154</sup> Ibid., p. 50
<sup>155</sup> Ibid., p. 52
<sup>156</sup> Ibid., pp. 53-54
<sup>157</sup> Ibid., pp. 74-75
<sup>158</sup> Ibid., p. 77
<sup>159</sup> Ibid., p. 82
<sup>160</sup> Ibid., p. 81
<sup>161</sup> Ibid., p. 97
<sup>162</sup> Ibid., p. 99

emergence of higher levels of political will', that is, 'ground rules for the interrelationships of nations and people'.<sup>163</sup> These ground rules, Laszlo asserts 'must be based on universal values which permit of alternative pathways of achievement'. These values are expressed in all the major religions as 'the golden rule ... common to all cultures'.<sup>164</sup> Adoption of these values on a 'global scale will guarantee the right of all humanity to strive to fulfil its basic needs for *life*, *progress* and *justice*', failure will lead to 'a threat to peace and fulfilment everywhere'. This, he argues, is the basis for a sustainable, developing and equitable world community'.<sup>165</sup> He proposes the concept of *interexistence* which embodies the principles of cooperation which he states as 'only those long-range policies which bring positive-sum results are to be implemented. Based on the mathematical theory of positive-sum games it calculates the benefits and losses to players so everyone wins. Applied to global security Laszlo suggests 'the establishment of a system of world security through disarmament and mutually agreed upon peacekeeping' would be a positive-sum game.<sup>166</sup> This principle could be applied to all aspects of the world problematic for the benefit of the whole of humanity.<sup>167</sup>

Laszlo's views are hugely interesting and offer an optimistic note to end on. The challenges of sustainable development in an interdependent world are, possibly, unprecedented in the history of humankind. The rising level of political conflicts, social inequities and environmental pollution are destabilising the world. Yet, as has been discussed, there are also intellectual paradigms which are profoundly changing our perception of ourselves in relation to each other and the physical world and which can be seen as a series of models which have helped develop this thesis.

The literature around the discourse on sustainability clearly indicates a new consciousness aligned to the new intellectual paradigms. The inability of political and economic institutions to respond fully and

<sup>&</sup>lt;sup>163</sup> Ibid., p. 103

 <sup>&</sup>lt;sup>164</sup> Ibid., p. 106
 <sup>165</sup> Ibid., p. 106
 <sup>166</sup> Ibid., p. 112

<sup>&</sup>lt;sup>167</sup> Ibid., p. 115

wholeheartedly to the pressing needs of a global community in crisis is an indication, in my view, of both a moral and ethical malaise amongst world leaders and a perverse attachment to a bankrupt ideology and national sovereignty - both anachronistic in the twenty-first century. Dialectical historical materialism provides a possible partial explanation to the current irreconcilable differences between the process of sustainable development and the conflict between material and ecological imperatives. These can be summarised as follows:

- The literature describes how pollution, waste resource depletion, population growth, global warming and the disenfranchisement of communities in political decision making are key issues which remain largely unaddressed by world leaders. (Carson, Ehrlich, Houghton, Illich)
- The literature identifies how inequalities between the North and South are the result of historical differences of regional resources rather than differences of ability. Developing countries have subsequently suffered under the repressive political and economic machinations of Western countries. (Diamond, Stiglitz)
- The literature reveals that despite the aggravation of inequities and resource depletion how there are new economic paradigms that reconcile ecology and economics and ethics with the environment. Such models provide a scientific basis for new forms of economics in which development begins at a local level and cultural diversity is a governing principle. (Lovelock, Dahl, Schumacher, Richards, Seabright)
- However, the literature also suggests how the concept of sustainable development remains without a new economic model to support it. Economic growth seems likely to continue unchecked. The political discourse over the last thirty years has opened up the ideological conflicts between the developed and the developing nations and undermined the credibility of many of the international institutions which have sought (what the West claims is) sustainable development. Agenda 21 represents an historic

attempt to set in motion a process of participatory democratic decision making at a local community level to promote sustainable development. (Dresner, Brundtland)

- The literature also reveals how the inadequacies of local and global systems of governance have become increasingly untenable. Initiatives are either top-down and struggle to achieve a consensus at local community level or are dominated at a global level by powerful vested interests. Policies are frequently tailored to the commercial and financial interests of developed countries, resulting in greater inequalities and resource depletion. In the absence of a global authority a form of unaccountable global governance prevails. (Connelly and Smith, Stiglitz)
- The literature describes how economic growth through the twentieth century has been dependent on consumerism and the credit system that has been defined in sociological terms as a *total idealistic practice*. Consumerism has become the new form of citizenship in a capitalist system that can only be sustained through continued economic growth facilitated by technological development. According to the values embraced by artists and craftsmen, who seek an alternative culture through the craft ideal are compromised in the market place where the customer only buys on the basis of preference and not values. (Veblen, Baudrillard, De Botton, Hobbis)
- Finally the literature suggests that sustainable development (as opposed to economic growth) requires two interdependent ethical systems; one which addresses the behaviour of the individual in relation to the global community and the other an equitable system of governance which recognises the needs of the global community in its diversity. Together this produces an ethical system that aligns the new scientific paradigms with a global consciousness of individual and collective responsibility. (Lazlo)

In conclusion then, what we may be witnessing in the global arena is a protracted process of dialectical transformation in which the old world order, based on nation building and the inherited assumptions of eighteenth and nineteenth century philosophers is metamorphosing into a new world order based on a paradigm of ecological interdependence and unity in diversity; two principles of sustainable development. This process clearly has a long way to go before we achieve equilibrium. Of course, the key question remains - is there a role for the designer-maker to play in the process of sustainable development?

### ii) The concept of sustainable design

The designer, in the later part of the twentieth century has become part of the celebrity culture, in the U.K. at least. Television features designers in interior make-over programmes and the term "design" has become a ubiquitous label on high street goods. Designer labels have become successful marketing tools in an effort to encourage increased sales and premium prices. Clearly design, or what purports to represent design, sells; but what is the role of the designer and designer-maker in society and are there responsibilities implicit in the role? These have been the subject of a growing body of design literature during the twentieth century which seems set to continue well into the new millennium.

The emergence of a plurality of discourses around sustainable design highlights the diversity intrinsic to the process of sustainable development. As in nature, the response to need and context produce a raft of solutions. A range of theories and models are therefore discussed in this section to provide an overview of some the key developments towards a concept of sustainable practice within the field of design.

In reviewing the role of design I begin by drawing on the broad critiques developed by three of the most eminent critics in the field – Nigel Whiteley, Victor Papanek and Peter Dormer – and discuss their collective vision of a shift from a consumption led model of design to an ecologically and ethically based model. I continue the review by examining the work

of a range of other authors who have sought to identify the various ways and means by which such a paradigm shift might be brought about.

# **Design Critiques**

In his highly regarded *Design For Society* (1993), Whiteley analyses the historical, social, economic and cultural issues that have shaped design's role within twentieth century society. The first generation of American industrialist designers believed they were improving the quality of life through making products more 'user friendly' but the motivation according to Whiteley was about sales and profit. The economic system 'was becoming increasingly dependent on high consumption as the means of creating wealth'.<sup>168</sup>

According to Whiteley the post war period 'shifted from one based on scarcity and need to one based on abundance and desire'; this in turn became 'the model for other societies as soon as they could afford it'.<sup>169</sup> Britain, however, viewed 'design as a socially and morally improving force'.<sup>170</sup> By the mid 1960s, however, the arrival of the life style *Habitat* stores saw Britain evolving from being a 'consumer' to a 'consumerist' society.<sup>171</sup> However, Whiteley argues that the emergence of globalisation saw the development of a contradiction: on the one hand the 'threat of anonymous standardization' which denies 'national variety and cultural difference',<sup>172</sup> and on the other hand corporations targeting individuals on the grounds of stylistic grounds 'rather than social economic factors'.<sup>173</sup>

According to Whiteley consumer-led design relies on the continuous reinvention of a product or new products in such a way as to 'become merely an offshoot of the fashion industry'. Designers who have a conscience about being part of this system have little influence with manufacturers and companies: they can either embrace it or reject it. If

<sup>&</sup>lt;sup>168</sup> N. Whiteley, *Design For Society*, Reaktion Books Ltd, London, 1993, p. 14

<sup>&</sup>lt;sup>169</sup> Ibid., p. 15

<sup>&</sup>lt;sup>170</sup> Ibid., p. 17

<sup>&</sup>lt;sup>171</sup> Ibid., p. 18

<sup>&</sup>lt;sup>172</sup> Ibid., p. 25

<sup>&</sup>lt;sup>173</sup> Ibid., p. 26

they reject it there will always be another designer who is prepared to take their place.<sup>174</sup>

The situation is the same for the consumer. Whiteley argues consumer-led design is inextricably part of the economic system, which 'appeals directly to an individual'. Yet the individual is only regarded as an element within a market in which 'society is no greater than the sum of its individualistic parts [and design] offers us no social vision – no vision of society'.<sup>175</sup> Whiteley believes that consumer-led design therefore only responds to the perceived needs of the market, and it can only be sustained through profit; it cannot respond to needs of the marginalised who are excluded from the market place and as such, it is part of a system which is 'socially divisive and environmentally destructive' and a complicit 'part of an economic, social and political ideology'.<sup>176</sup>

In the early 1970s Victor Papanek wrote a similarly challenging polemical treatise on the social responsibility of the industrial designer called Design for the Real World (1974), which proposed a new level of responsibility. Instead of just producing products and gadgets for the mythical 'ideal consumer', designers (according to Papanek) were well placed to address the real needs of marginalised groups such as the poor, the handicapped, the aged and the Third World. Papanek broke new ground in being critical of the modernist influence represented by the Bauhaus, particularly within design schools, regarding it as anachronistic. He wanted to liberate the designer from the commodity fetish and industry's willingness to exploit 'the public's ready acceptance of anything new, anything different' and the 'miscegenative union between technology and artificially accelerated consumer whims which gave birth to the dark twins of styling and obsolescence'.<sup>177</sup>

However, he questions the feasibility of a 'rational design strategy'<sup>178</sup> in a 'market-oriented, profit-directed system such as that in the United States', although he conceded that a 'radical departure from

<sup>&</sup>lt;sup>174</sup> Ibid., p. 35
<sup>175</sup> Ibid., p. 41
<sup>176</sup> Ibid., p. 44
<sup>177</sup> V. Papanek, *Design for the Real World*, Paladin, St Albans, 1974, p. 37
<sup>178</sup> W. M. 20

<sup>&</sup>lt;sup>178</sup> Ibid., p. 86

these manipulated values is difficult to achieve'.<sup>179</sup> He proposed instead that in order for designers to be effective as problem solvers they needed to 'familiarize themselves with many other fields and, by knowing them, redefine the relevance of the designer to our society'.<sup>180</sup>

The key here is that Papanek recognised that the designer had a moral responsibility to society outside of the economic system within which he/she functioned, arguing 'if design is to be ecologically responsible, it must be independent of concern for the gross national product'.<sup>181</sup> Although he placed the onerous responsibility on designers to save the world, he identified a number of useful design priorities that designers might begin to address. These included design for the Third World; the design of teaching and training equipment for the mentally and physically disabled; design for medical and dentistry equipment; and design of survival systems for different environments.

In his subsequent and hugely successful book *The Green Imperative* (1995) Papanek developed a more inclusive concept of the role of design in shaping lives and the environment. He proposed collective, ecological responsibility and argued that 'a spiritual underpinning to our ecological consciousness' could overcome the 'paralysis of will' that prevents real progress.<sup>182</sup> Designers, he argued, have the obligation to educate clients and 'guide the intervention of design with nature and mankind'.<sup>183</sup> *The Green Imperative* also implicated consumers 'in this ecological crisis'.<sup>184</sup> Responsibility, he proposed, rests with every citizen who must ask 'what is the impact of *my* work on the environment?' As consumers, we too must play our part.<sup>185</sup>

In *The Green Imperative* Papanek considers the way in which design can act as a 'positive and unifying' agency that reconciles 'human needs, culture and ecology'. He concedes the global environmental challenges caused by industrialisation cannot be resolved simply by

<sup>&</sup>lt;sup>179</sup> Ibid., p. 87

<sup>&</sup>lt;sup>180</sup> Ibid., p. 132

<sup>&</sup>lt;sup>181</sup> Ibid., p. 200

<sup>&</sup>lt;sup>182</sup> V. Papanek, *The Green Imperative*, Thames and Hudson, London, 1995, p. 9

<sup>&</sup>lt;sup>183</sup> Ibid., p. 17

<sup>&</sup>lt;sup>184</sup> Ibid., p. 12

<sup>&</sup>lt;sup>185</sup> Ibid., p. 17

'using less, preserving for the future, conservation and softer energy sources' but require that 'these activities are linked to a greater social process that can influence industrial design, industry and policy'. In Papanek's terms, ecology becomes a 'socially based priority that asks that design and planning consider sustainability and social justice as reciprocal conditions – that saving the planet and saving the community become one – inseparable'.<sup>186</sup>

Interestingly, Papanek also raises questions around the spiritual dynamics of design. Papanek is critical of the Bauhaus belief that value is realised only through function. He believes 'the intent of the designer as well as the intended use of the designed object ... can yield spiritual value'.<sup>187</sup> Designers are not independent of what they create; their character is shaped by their acts. By focussing on the social and environmental benefits of design, 'the performance of such services to our fellow humans and the planet will help us inwardly. It will nourish our soul and help it to grow. That's where spiritual values enter design'.<sup>188</sup> This notion of spiritual value is not without interest and represents something this thesis has been particularly interested in.

In terms of the literature around contemporary craft there is no doubt that Peter Dormer remains one of its key authors and it is Dormer who points to a potential contradiction within the field of fine craftsmanship that cannot be ignored by the designer-maker who aims to promote sustainable development. In one of his most thoughtful texts, The Meanings of Modern Design (1991), Dormer highlights the fact that the wealthy patronise craftsmen because 'the presence of hand workmanship' represents 'a special kind of service' that 'comes down to the ability to buy other people's service and servility'.<sup>189</sup> Craftsmanship can therefore represent exclusivity on the part of the rich: 'The crafts bought by the rich are conformist, conservative and clearly the whim of

<sup>&</sup>lt;sup>186</sup> Ibid., p. 48 <sup>187</sup> Ibid., p. 53

<sup>&</sup>lt;sup>188</sup> Ibid., p. 54

<sup>&</sup>lt;sup>189</sup> P. Dormer, *The Meanings of Modern Design*, Thames and Hudson Ltd, London, 1991, p. 122

the client and not any creative exploration on the part of the craftsman'.<sup>190</sup> The type of craftsman, that Dormer interestingly describes as a 'thoroughly twentieth century invention', is the designer-maker whose starting point is 'creative fulfilment and self expression' representing 'one of a number of popular strategies by which intelligent men and women have turned back from the shore of scepticism and into the warm sea of belief'.<sup>191</sup> According to Dormer the conditions in which the 'handicrafts of potting or weaving or woodworking in the late 20<sup>th</sup> century are practised' are 'unlike those of previous centuries'. These trades have become 'middle-class, creative, art-like activities'.<sup>192</sup> Once, trade activities required long hours and arduous labour for meagre financial rewards; on the other hand, the modern crafts liberated 'from the economic constraints of trade competition' are 'sold on aesthetic grounds' and 'are not subject to competition by price'.<sup>193</sup> Dormer, however, regards contemporary craft as 'necessarily peripheral to all mainstream economic activity' and bought by clients who have 'sufficient money - and perception – to afford useless objects of contemplation'.<sup>194</sup>

There is nonetheless a residual competitiveness between designermakers and manufacturers according to Dormer: 'Contemporary wood craftsmen have decided to compete with the machined certainties of industry' through 'virtuoso performances unrivalled by craftsmen of previous centuries'.<sup>195</sup> According to Dormer, craftspeople, unlike artists however, are a marginal group 'excluded from the real avant-garde, or cutting edge, of contemporary culture' instead this is the domain of 'theoretical physics and applied technology'.<sup>196</sup> However, with regard to Dormer's view defining what *is* cutting edge is not always clear. The designer-maker may also have a role in applied research through developing and modelling innovative practices. The consumer too can, of course, be a force for change; an interesting issue this thesis pursues.

- <sup>190</sup> Ibid., p. 133
- <sup>191</sup> Ibid., p. 142
- <sup>192</sup> Ibid., p. 150
- <sup>193</sup> Ibid., p. 152
- <sup>194</sup> Ibid., p. 153
- <sup>195</sup> Ibid., p. 164
- <sup>196</sup> Ibid., p. 169

On a more general level the emergence of the environmental conscience embodied in the notion of the 'Green Consumer' began in the 1980s according to Whiteley.<sup>197</sup> Although the public have been aware of environmental issues for much longer (perhaps since the oil crisis of 1973), the ability to respond to global issues on the part of the consumer has been limited. Whiteley suggests the 'main reason the public's interest lessened in the 1970s was ... because the issues were predominantly on a macro-environmental level' and therefore 'somewhat abstract and removed from most people's daily existence'.<sup>198</sup> As ethical companies set up to meet the aspirations of consumers (such as The Body Shop and the charitable collective Traidcraft), it was perhaps predictable that consumers would eventually 'follow through the logic of their actions to the micro-level of what they buy on a daily basis'.<sup>199</sup> This created a virtuous circle in which business and customers pursued agreed social and environmental goals. The role of the designer-maker can also play a part in facilitating common goals.

### New design philosophies

In identifying appropriate design models that can facilitate a fundamental shift from a consumption-led to an ethically based approach to design I begin with an assessment of the modernist design axiom form follows function, a concept that has dominated much twentieth century design thinking. Although originally a nineteenth century concept inspired by the rational model offered by the natural world (expounded by figures like Darwin for example) in the twentieth century it became a simplistic design concept that encouraged the kind of convergent thinking that inhibits the progress of a concept like that of sustainable design. Both David Pye and Henry Petroski for example, have critiqued the basic assumptions underpinning modernist design philosophy. In his influential text The Nature and Aesthetics of Design (1978), for example, Pye proposed that 'the form of designed things is decided by choice or else by

<sup>&</sup>lt;sup>197</sup> Ibid., p. 50 <sup>198</sup> Ibid., p. 49

<sup>&</sup>lt;sup>199</sup> Ibid., p. 51

chance; but it is never actually entailed by anything whatever'. This is supported (he argues) by two observable facts: firstly, that whatever is designed is embellished strictly by "unnecessary" work in terms of pure function but which exists for the purpose of our own emotional needs. Secondly, 'all useful devices have got to do useless things which no one wants them to do'.<sup>200</sup>

The lack of a coherent and comprehensive theory of design, according to Pye, has reduced an extremely complex process to a simplistic gesture predicated on 'function', which is used erroneously 'to cover any or all the factors which limit the shape of designed things independently of the designers' preference'.<sup>201</sup> In Pye's view, design is in fact influenced by economy more than the physical properties or techniques of manufacture. Pye's theory of design identifies six principles of design. These include what he calls the requirements of use, together with 'requirement for ease and economy and the requirement of appearance'.<sup>202</sup> the sum of which 'cannot be reconciled'.<sup>203</sup> Design, Pye argues, represents ultimately an artistic process of compromise rather than a science of resolution.

Compromise is also the key aspect of design expounded in The Evolution of Useful Things (1994) by Henry Petroski. He argues that while the inadequacies of product design may provide the justification for a product's improvement 'it is really *want* rather than *need* that drives the process of technological evolution'. Products are subject to change and evolution as a 'response to their real or perceived shortcomings, [rather than] their failures to function properly'. This principle, he argues, is the motivation behind the designer's desire to continuously improve things. It also follows that as perfection can only exist as an ideal and our ideas of perfection can also only exist as an ideal then 'there can be no such thing

<sup>&</sup>lt;sup>200</sup> D. Pye, *The Nature and Aesthetics of Design*, Barrie and Jenkins Ltd, London, 1978, p. 13

<sup>&</sup>lt;sup>201</sup> Ibid., p. 88 <sup>202</sup> Ibid., p. 23

<sup>&</sup>lt;sup>203</sup> Ibid., p. 71

as a "perfected" artefact; the future perfect can only be a tense, not a thing'.<sup>204</sup>

Both Pye and Petroski's theories of design dwell on the challenge of creating an optimum product for an industrial system. J. Christopher Jones, by contrast, explores design as a process in which the designer is a facilitator. Jones's Design Methods (1981), is regarded as the standard text on design methods and offers a comprehensive review of design methodologies, from those originating in craft-based techniques to contrasting methods employed by industrial designers. Jones notes that the 'methods proposed by design theorists are frequently just as diverse as are their descriptions of the design process<sup>205</sup> and represent a range of methodologies that often draw from 'non-design' disciplines. He believes that there is a growing need for 'multi-professional persons'206 (what Lazlo terms the 'generalist') who can meet the challenges of an increasingly complex world and 'whose intuitive leaps are informed by knowledge and experience of change at all levels - from community action to component design'.207

Jones believes that the Western world has cultivated the notion that creativity is the domain of talented individuals and beyond the capability of ordinary people. However in reality the new methods are frequently based on collaboration and according to Jones the design process needs 'to become more public so that everyone who is affected by design decisions can influence what can be done and can influence the choices that are made'.<sup>208</sup> However, such methods require the designer to become more detached and in effect the facilitator of "design as a process". This, Jones believes, has parallels in the development of modern physics no less than art:

The shift from the idea of 'progress' (towards a goal, a product) to the idea of 'process' (as all there is) is surely a main event of the twentieth century, in all fields of endeavour.<sup>209</sup>

 <sup>&</sup>lt;sup>204</sup> H. Petroski, *The Evolution of Useful Things*, Vintage Books, New York, 1994, p. 22
 <sup>205</sup> J. Christopher Jones, *Design Methods: Seeds of Human Futures*, John Wiley & Sons

Ltd, Chichester, 1981, p. 4

<sup>&</sup>lt;sup>206</sup> Ibid., p. xiii

<sup>&</sup>lt;sup>207</sup> Ibid., p. 42

<sup>&</sup>lt;sup>208</sup> Ibid., p. 9

<sup>&</sup>lt;sup>209</sup> Ibid., p. xxviii

It is process that is perhaps the key concept in both sustainable development and design and it is perhaps the paradigm shift flagged up above, from design as a discipline directed towards a product to design as a process in which the designer becomes a facilitator, which underpins the philosophical basis of sustainable or ecological design. This was recognised, for example, by the Italian designer/philosopher Manzini in an unlikely text accompanying the exhibition The Garden of Objects (Milan, 1985). In The Garden of Objects Manzini proposed we adopt a different relationship to nature and 'a profound change in the culture of design'.<sup>210</sup> This change, he argues, requires 'new criteria of quality' based on an understanding of environmental issues. In The Garden of Objects two sets of criteria are explored: 'material qualities which are consistent with sustainable development and technically possible' and 'experiential qualities which reflect the new values and styles of behaviour generated by environmental sensitivity'.<sup>211</sup> Manzini believed new values can emerge through a reflective process in which designers observe and interpret the signs emerging from society as well as the limitations and constraints imposed upon us both by the environment 'from without' and those constraints that we 'encounter within'; a philosophical perspective also articulated by Lazlo. According to Manzini only the process of reflection can provide designers with the 'foundations for new ideas'.<sup>212</sup> Manzini also adds that our relationship to objects should be 'based on a maximum of quality, a relationship that requires care and attention', and in consultation with our relationship with 'Our Planet'.<sup>213</sup> He also proposes the adoption of a range of strategic changes including circular processes of manufacture that imitate nature rather than the current linear processes which diminish resource and generate high levels of waste; processes for extending the life of products and material selection

<sup>&</sup>lt;sup>210</sup> E. Manzini, *The Garden of Objects*, edited and translated extracts from the exhibition booklet of The Garden of Objects, Eighteenth Triennale by C. Cattle, July 1995, Buckinghamshire Chiltern University College, p. 1

<sup>&</sup>lt;sup>211</sup> Ibid., p. 2

<sup>&</sup>lt;sup>212</sup> Ibid., p. 3

<sup>&</sup>lt;sup>213</sup> Ibid., p. 5

that enhances the process of aging. 'In short, it [design] demands a culture that is capable of dealing with complexity'.<sup>214</sup>

The challenge for sustainable development according to Manzini is to make the transition from macro-economics to a local and individual level, a principle promoted in Agenda 21 (and adopted by this thesis). It is at this local level that Manzini argues synergies can be created which can (potentially) achieve critical mass and in turn bring change at a societal level. At the same time Manzini also advocates a contemplative approach to economics and a new and radical 'ecological economy', which redefines our relationship with the world - by encouraging a 'nonappropriative' philosophy based on contemplative appreciation rather than acquisition.215

In his extraordinary musings Manzini ultimately proposes a world in which objects that are cultivated on the same principle as a garden, reflecting an ecological model characteristic of nature, in which colour form and lifespan are cultivated on a sustainable basis (this is in marked contrast to Baudrillard who compares the proliferation of consumer products to the rich diversity of the flora and fauna of the natural world). In Manzini's rich model "an ecology of the senses" places the designer at the centre of a design process that attempts to connect the ecology of the environment with our inner sensibilities and in which the object becomes the medium for a new level of sensory, empirical and intellectual engagement by the user.<sup>216</sup>

In Manzini's model the object offers a series of possibilities for the designer: the sensitive object for example, is designed to stimulate and encourage 'the need for care' through 'intimacy of use'; the lyrical object transcends its function becoming a point for meditation;<sup>217</sup> the incomplete object only becomes complete when being used in the same way as a craftsman's tool; the archetypal object acquires its significance through its durability and qualities acquired through aging, 'exemplified by information codes and archetypes'; the object as provider of individuality

<sup>&</sup>lt;sup>214</sup> Ibid., p. 7 <sup>215</sup> Ibid., p. 17 <sup>216</sup> Ibid., p. 10 <sup>217</sup> Ibid., p. 11

connects the user to the object through 'psychological and cultural' associations rather than as 'a status symbol';<sup>218</sup> *the polyglot or universal object* provides a universal language through its ubiquitous forms; and finally the *discreet object*, whose meaning remains elusive and whose presence remains enigmatic.<sup>219</sup> In short, in Manzini's *Garden of Objects*, objects become wholly synonymous with our complex relationship with the planet.

One of the characteristics of the contemporary era (which Manzini characterises as marked by 'design in transition'), is the need for designers to adopt a qualitatively different attitude to problem solving as we face greater complexity. To acquire the capacity to negotiate complexity we have to learn to understand by "doing" and by learning to listen to what other people are doing. Manzini believes that designers can only address future developments through a co-relationship between the physical environment and the virtual reality of the internet - in what he calls the 'hyper-connected sustainable society'. However, according to Manzini, the fruits of the design cannot be presented as moral solutions, it remains for the consumer to decide for him/herself the value of the objects available for consumption.<sup>220</sup>

Domestic Animals (1987), by Andrea Branzi, another eminent Italian designer and critic, was conceived as a provocation (like Manzini's *The Garden of Objects*). By juxtaposing the aesthetics of modern technology and the organic forms readily accessible from nature, Branzi attempted - with his so called *Domestic Animals* - to create functional objects that stimulate a meditative response. His objects are intended to become anthropomorphic in character and in the same way as pets enjoy reciprocal emotional relationships with their owners and become part of the emotional landscape. Branzi's thinking was predicated on a future he saw characterised by a dramatic, cultural shift from mass market norms to a fractured market dominated by the "intelligent consumer", a self

<sup>&</sup>lt;sup>218</sup> Ibid., p. 12

<sup>&</sup>lt;sup>219</sup> Ibid., p. 16

 <sup>&</sup>lt;sup>220</sup> E. Manzini, 'Design in Transition –Product-Service for a Hyper-connected Sustainable Society', Transcript of a Seminar presented by E. Manzini at *The Role of Product Design in Post-Industrial Society Conference*, n.d., n.p.

determined citizen who (in the 1970s) 'devised new patterns of behaviour, languages, fashions and commodities, to the point where society and its consumption defined a whole new level of culture'.<sup>221</sup>

Manzini and Branzi's somewhat eccentric and decidedly poetic provocations are very different in style but perhaps strikingly similar in substance to recent concepts of 'human or user-centred design', advocated by Patrick Whitney, director of the Institute of Design, Illinois Institute of Technology. Whitney, writing in *The Designer* (2003), distinguishes this design approach from other methods including designcentred, technological-centred and market-centred, the objective of usercentred design being:

To link the user value in the experience of products, environments, messages and services to the competitive advantage it provides – to aligning the strategic benefit to the producer with consumer user – value.<sup>222</sup>

Many designers work intuitively at this level but Whitney explains that in a global market in which designers are designing products for emerging markets from unfamiliar cultures, a more complex analysis is required which draws on 'physical cognitive social and cultural human factors'.<sup>223</sup> However, user-centred design is essentially a pragmatic response by corporations to the changing demands of a global market place and does not (according to Whitney) originate in the consumer. However it does represent an interesting development in design in that it inherently recognises their cultural diversity - a value that must be intrinsic to the concept of a sustainable world.

An ethically based design model, one that reconciles human needs with ecological balance, needs to measure the ecological impact of human activity rather than economic benefits accrued to individuals and society. The concept of an "ecological footprint" has popular currency today but was an idea was first promoted by Canadian authors

<sup>&</sup>lt;sup>221</sup> A. Branzi, *Domestic Animals: The Neoprimitive Style*, The MIT Press, Cambridge, Massachusetts, 1987, p. 2

<sup>&</sup>lt;sup>222</sup> P.Whitney, 'Why Human-Centred Design is the Design of the Future', *The Designer*, Chartered Society of Designers, London, June & July 2003, p. 14 <sup>223</sup> Ibid., p. 14

Wackernagel and Rees in their text *Our Ecological Footprint* (1998). It offers an alternative analytical tool to conventional economic models that assume 'factors of production (e.g., labor, capital, information)' are substitutable and the world is capable of infinite carrying capacity.<sup>224</sup> Wackernagel and Rees argue existing measurements are too narrow and are largely based on monetary approaches that

are blind to the requirements for ecological sustainability because they do not adequately reflect biophysical scarcity, social equity, ecological continuity, incommensurability, structural and functional integrity, temporal discontinuity, and complex systems behaviour.<sup>225</sup>

The concept of "ecological footprint" assumes 'every category of energy and material consumption and waste discharge requires the procedure or absorptive capacity of a finite area of land or water'. It therefore 'measures land area required per person (or population), rather than population per unit area'.<sup>226</sup> The limitation of the method is that 'assessments are based on a limited range of consumption items and waste flows'.<sup>227</sup> The method provides a summary of a specific 'population's impacts on nature by analyzing aggregate consumption … and converting this to a corresponding land area'. This provides a measure of ecological demand or natural capital requirements which can be used to compare different 'regions and thus reveals the effect of differing income levels and technology on ecological impact'.<sup>228</sup>

Wackernagel and Rees's method of analysis has provided a valuable tool to promote sustainability by providing 'a cumulative approach to impact analysis' for measuring those economic activities which 'compete for ecological space'. It has also provided a tool to raise awareness on natural capital depletion 'consistent with basic laws of physics, especially the laws of mass balance and thermodynamics'.<sup>229</sup> According to Wackernagel and Rees the concept of an "ecological

<sup>224</sup> M. Wackernagel and W. Rees, *Our Ecological Footprint*, New Society Publishers, Gabriola Island, Canada, 1996, p. 40

<sup>&</sup>lt;sup>225</sup> Ibid., p. 47

<sup>&</sup>lt;sup>226</sup> Ibid., p. 51

<sup>&</sup>lt;sup>227</sup> Ibid., p. 52

<sup>&</sup>lt;sup>228</sup> Ibid., p. 53

<sup>&</sup>lt;sup>229</sup> Ibid., p. 55

footprint" answers 'the fundamental ecological question for sustainability ... whether stocks of natural capital will be adequate to meet anticipated demand'. It therefore determines 'the ecological constraints within which society operates; to shape policy to avoid or reduce overshoot; and to monitor progress towards achieving sustainability'.<sup>230</sup> It is evident then that *Ecological Footprint* provides an essential text and guide for the ecological designer.

While an "ecological footprint" can provide a measure of sustainability, ecological design can also help define appropriate lifestyles for a sustainable world. A widely acknowledged concept of ecological design has been developed by Sim Van der Ryn (chief designer of the Ecological Design Institute and emeritus professor of architecture at the University of California, Berkeley) and Stuart Cowan (ecological designer) in *Ecological Design* (1996) – and it might be noted here that this particular model provides a vital conceptual framework for this PhD project.

In Ecological Design, Van der Ryn and Cowan discuss the principles observed in ecology as the basis ecological design. They define 'ecological design' as 'any form of design that minimizes environmental destructive impacts by integrating itself with living processes'.<sup>231</sup> This methodology requires a radically new approach which rather than 'applying design intelligence to narrowly circumscribed problems' instead integrates 'ecologically sound technologies, planning methods, and policies across scales and professional boundaries'.<sup>232</sup> Van der Ryn and Cowan propose three ethically based integrated strategies. Firstly, through *conservation* 'which slows the rate at which things are getting worse by allowing scarce resources to be stretched further'. Secondly, by regeneration, the 'expansion of natural capital through the active restoration of degraded ecosystems and communities' which 'preserves and protects'. The third and final element of the strategy involves the stewardship of living creatures and landscape, 'a process of steady

<sup>&</sup>lt;sup>230</sup> Ibid., p. 56

<sup>&</sup>lt;sup>231</sup> S. Van der Ryn and S. Cowan, *Ecological Design*, Island Press, Washington, 1996, p. 18

<sup>&</sup>lt;sup>232</sup> Ibid., p. 19

commitment informed by constant feedback'. According to Van der Ryn and Cowan together these three strategies 'remind us of both the technical and personal dimensions of sustainability'.<sup>233</sup>

Ecological design 'responds to the particularities of place' both physical and human. 'It seeks locally adopted solutions' and 'matches biological diversity with cultural diversity rather than compromising both the way conventional solutions do'.<sup>234</sup> It integrates 'human purpose with nature's own flows, cycles, and patterns'.<sup>235</sup> The role of the designer is therefore one of a facilitator 'in the cultural processes underlying sustainability'.<sup>236</sup>

Van der Ryn and Cowan propose five principles be considered for ecological design. Firstly they suggest design solutions should develop from 'specific site conditions and limitations as well as the values of users'<sup>237</sup> - a principle which recognises that 'the skills required to build a sustainable community are already actively employed in our everyday activities'<sup>238</sup> and which in turn leads to the development of a culture in which sustainability 'depends on the everyday actions of ordinary people'.<sup>239</sup> Local knowledge is an essential component to problem solving and can only be acquired 'through a steady process of cultural accretion'.<sup>240</sup> It also recognises complexity: standardised design solutions arbitrarily imposed on a situation 'erode local and regional differences'.<sup>241</sup> Ecological design, by contrast, 'works with the inherent integrities of a given place'.<sup>242</sup> It also recognises 'the limits to knowledge and therefore the limits to management'.<sup>243</sup>

Every model requires appropriate methods that can translate a concept into measurable data. Just as economic theory requires accounting methods to measure and manage economic progress,

- <sup>233</sup> Ibid., pp. 21-22
  <sup>234</sup> Ibid., p. 23
  <sup>235</sup> Ibid., p. 24
  <sup>236</sup> Ibid., p. 25
  <sup>237</sup> Ibid., p. 54
  <sup>238</sup> Ibid., p. 62
  <sup>239</sup> Ibid., p. 63
  <sup>240</sup> Ibid., p. 65
  <sup>241</sup> Ibid., p. 69
- <sup>242</sup> Ibid., p. 72
- <sup>243</sup> Ibid., p. 66

ecological design requires ecological accounting to measure sustainable According to Van der Ryn and Cowan, the second development. principle, ecological accounting, assesses the 'ecological costs, from resource depletion to pollution and habitat destruction'.<sup>244</sup> In normal accounting, externalities such as pollution and habitat destruction are ignored. This oversight presents a challenge for ecological designers. It requires an assessment of 'the type and quantity of energy, water, materials, toxins, wastes, and land used in a design'. In addition it 'requires us to choose boundaries of space and time' which leads to what the authors call 'life-cycle analysis'.<sup>245</sup> Analysis requires certain laws being taken into account. Firstly, the laws of thermodynamics which states that 'the energy stored in the inputs must equal the energy stored in the outputs plus any waste energy'. Secondly, 'energy degrades in quality or usefulness as it is converted from one form to another'. Another consideration of this analysis is that all processes must 'obey a fundamental law of material accounting: matter is neither created nor destroyed'.<sup>246</sup> Ecological accounting is (according to Van der Ryn and Cowan) the 'key analytical tool of ecological design, for it provides a kind of litmus test for sustainability'.<sup>247</sup>

The third principle, *design with nature*, requires understanding and 'working with the patterns and processes favored by the living world', will enable us to 'dramatically reduce the ecological impacts of our designs'.<sup>248</sup> The complexity of nature is described by Van der Ryn and Cowan, in terms of an evolutionary process which 'generates many levels of wholeness simultaneously'. 'Each level of integrity manifests a working logic of its own'. Each level – cell, organism, ecosystem, bioregion, biosphere – presents a series of critical design opportunities and constraints'.<sup>249</sup> Design with nature represents a partnership, 'a kind of covenant between human communities and other living communities' in which nature is regarded as a 'matrix *within which* designs find an identity

- <sup>244</sup> Ibid., p. 55
- <sup>245</sup> Ibid., p. 85
- <sup>246</sup> Ibid., p. 89
- <sup>247</sup> Ibid., p. 90

<sup>&</sup>lt;sup>248</sup> Ibid., p. 55

<sup>&</sup>lt;sup>249</sup> Ibid., p. 103

and a coherence that contribute to the health of the whole'.<sup>250</sup> One vital outcome and benefit of ecological design is that it enhances biodiversity, just as it enriches cultural diversity; both fundamental to ecological and social stability.

The fourth principle, accepts that everyone is a designer and recognises the collaborative and cooperative basis of the design process in which a 'solution grows and evolves organically out of a particular situation, process, and pattern of communication'.<sup>251</sup> It also recognises that it is 'only through actually implementing a design does one begin to understand it'.<sup>252</sup> At a community level it requires participatory democracy and 'is at the core of a culture of sustainability'.<sup>253</sup> The widest participation in the decision-making process, according to Van der Ryn and Cowan, develops a robust culture of sustainability.<sup>254</sup> The link between ecological design and participatory democracy is fundamental (just as Ivan Illich proposed in Energy and Equity (1974)) and a culture of grass roots democracy enables communities to apply appropriate technologies to meet respective needs.

Unrestrained capitalism (according to van der Ryn and Cowan), can also apply technologies that disempower communities, creating a culture in which technology no longer serves the best interests of the community. Instead an illusion of technological progress obtains, in which members of the community become willing consumers of the new technologies without being aware of their environmental and social consequences.

The relationship between ecological design and participatory democracy is further developed by Van der Ryn and Cowan in a fifth and final principle, which asks that nature be visible and requires 'technologies that are not hidden and that do not possess hidden consequences'.<sup>255</sup> This they argue, represents an epistemological change in which learning is sought through an evolving understanding of

<sup>&</sup>lt;sup>250</sup> Ibid., p. 105

<sup>&</sup>lt;sup>251</sup> Ibid., p. 55

<sup>&</sup>lt;sup>252</sup> Ibid., p. 149

 <sup>&</sup>lt;sup>253</sup> Ibid., p. 154
 <sup>254</sup> Ibid., p. 158
 <sup>255</sup> Ibid., p. 162

our relationship and involvement with nature and our surroundings - in short, a diametrical opposite approach to the current design methodologies which separate and desensitise us from nature. Van der Ryn and Cowan argue 'As nature has receded from our daily lives, it has receded from our ethics'.<sup>256</sup> Ecological design by contrast 'makes natural processes visible and active at levels of scale from the household to the neighborhood to the entire city'.<sup>257</sup> This approach strengthens our relationships 'with wider communities of life' and 'informs us about the ecological consequences of our activities'.<sup>258</sup> Such an approach provides the community with a level of transparency to enable it to engage with the ethical choices relating to human needs and ecological balance. A vital aspect of this approach is that in revealing the 'symbiotic relationship between culture, nature, and design' a new aesthetic develops, termed 'visual ecology' which becomes a powerful learning tool as ideas 'expressed visually and experienced directly' are learnt more rapidly.<sup>259</sup>

In their conclusion Van der Ryn and Cowan describe the current approach to the built environment and its destruction of nature as a 'holocaust'. Ecological design, they argue, could be a revolution 'every bit as profound as the preceding Industrial Revolution<sup>260</sup> Once again Ecological Design is a substantial text that offers designers a valuable methodology and has helped shape the nature of the research pursued by this thesis and contributed to the outcomes.

### Industry and economy

Perhaps no matter how well intentioned designers are, the challenges of realising sustainable development cannot be met within a market place which only aggravates social and environmental problems. A more equitable and just economic framework is required, one that rewards ethical and sustainable design practice.

- <sup>256</sup> Ibid., p. 161 <sup>257</sup> Ibid., p. 163 <sup>258</sup> Ibid., p. 164 <sup>259</sup> Ibid., p. 165
- <sup>260</sup> Ibid., p. 171

Economic revolution is the premise of *Factor Four: Doubling Wealth*, Halving Resource Use (a text written essentially as a report to the economic group known as the Club of Rome), in which Von Weizsäcker et al. attempt to answer the question: 'If Markets Create the Problem, Can They Provide Much of the Answer?'. The challenge for designers, they argue, is to redirect market operations which currently promote unsustainable practices to one that channels the profit motive in creative ways that promotes sustainable development.<sup>261</sup> So imperfect is the current market system, they argue, that subsidies aimed at helping business, discourage efficiency. The World Bank estimates 'direct and indirect subsidies totalling some £200 thousand million go into the energy sector alone'.<sup>262</sup> Factor Four: Doubling Wealth, Halving Resource Use is an interesting text which highlights the fundamental flaw in mainstream economics that supports the notion that the market is perfect and 'founded on consumer preference expressed through purchasing decisions it assumes that if people want something different they would have already made that choice'. Yet the preconditions for a theoretical free market such as 'perfect information about the future, perfectly accurate price signals, perfect competition, no monopoly or monophony, no unemployment or under employment of any resource, no transaction cost, no subsidy' are clearly absent in the real world, a world that ideological free market economists refuse to acknowledge.<sup>263</sup> The authors argue a new economic model is vital for the operation of a market but question its limits as an intellectual construct; the danger is that economics becomes 'the state religion to which policies are aligned' with potentially negative and profound consequences.<sup>264</sup>

However, Factor Four: Doubling Wealth, Halving Resource Use argues that existing markets can be adapted to promote sustainability by utilising the profit motive through creative use of market prices which 'coordinate ingenuity, rapid feedback and diverse, dispersed resourceful,

<sup>&</sup>lt;sup>261</sup> E. von Weizsäcker et al., *Factor Four: Doubling Wealth, Halving Resource Use,* Earthscan Publications Ltd, London, 1997, p. 143

<sup>&</sup>lt;sup>262</sup> Ibid., p. 140

<sup>&</sup>lt;sup>263</sup> Ibid., p. 147

<sup>&</sup>lt;sup>264</sup> Ibid., p. 153

highly motivated actors'.<sup>265</sup> What is required, the authors argue, is 'market-based institutional innovations' which promote 'eco-capitalism'.<sup>266</sup>

The authors put forward a wide range of principles to support the notion of eco-capitalism. Ecological Tax Reform (ETR), for example, provides the mechanism to counteract the disincentive in the market place for businesses to act in ways that are good for the environment and addresses a fundamental economic aberration of externalising costs (the land fill tax is such an example). Competition in a free market also does not distinguish between companies damaging the environment and those preserving the environment. Thus ETR is recognised by some economists as a useful method for 'changing perverse incentive structures, for reducing undesirable taxes and for environmental deregulation'.267

Another strategy - Utility Regulatory Reform - also led to significant changes that made utility profits independent of electricity sales; instead they were rewarded for reducing customers' bills by investment in enduse efficiency thereby 'saving electricity more cheaply than it could be produced' and creating in its wake a 'negawatt [sic] revolution'.<sup>268</sup> Profitability under this scheme was independent of sales; both the utility company and consumer benefited.

The authors also argue that current building practice does not reward optimum performance. In most countries architects and designers are paid a fee based on the cost of the building or equipment they specify. The design is usually a modification of a tried and tested design but one not necessarily the most efficient or economical for the purpose. Established professional practice allows little or no incentive for crossdisciplinary design collaboration to achieve optimal performance and economy by reducing construction and operating cost and improving productivity. A fee structure, however, aligned to these outcomes and regarding integrated resource-efficient design reflected in the costs of

 <sup>&</sup>lt;sup>265</sup> Ibid., p. 143
 <sup>266</sup> Ibid., p. 144
 <sup>267</sup> Ibid., p. 205

<sup>&</sup>lt;sup>268</sup> Ibid., pp. 159-160

running the building could encourage a collective approach to problem solving.269

However, by far the greatest challenge to sustainable practice, according to the authors, is the unwillingness of classical economists who shape national and international development, to question the basis of their economic assumptions. Classical economists (those that have an ideological belief in a perfect free market) deny the possibility that the market operates less than perfectly. One example cited by the authors is that of Nordhaus who calculated that 'the stabilisation of CO<sub>2</sub> emissions set by an international negotiating group in Toronto ... would "cost" about \$200 thousand million per year'. Nordhaus's calculations were based on a series of theoretical assumptions. These included the assumptions that the cost of more efficient use of energy would necessarily cost more and the increased price of energy could only be achieved through taxation. Nordhaus's analysis shaped both Reagan and Bush administration policies and international agreements on stabilising CO<sub>2</sub> emissions.<sup>270</sup>

As the authors argue, while economic theory has value and coherence within its own sphere it only represents a partial truth like other disciplines. Prices fail to tell the truth and in so doing consumers cannot make intelligent choices, allowing socially and environmentally damaging market anomalies to persist. The authors cite the case for private transport for example in which "external" ... costs approaching 1 trillion [US] dollars a year, ... are borne by everyone but not reflected in drivers' direct costs'.<sup>271</sup> It can be seen that sustainable development depends on a well-regulated market economy as well as ecologically based design practice.

### The Concept of Sustainable Design - Summary

What the literature reveals then is that the current economic model, that assumes the market is perfect, generates market/consumer-led design. A new ecologically based economic model would encourage a

<sup>&</sup>lt;sup>269</sup> Ibid., pp. 179-181
<sup>270</sup> Ibid., pp. 149-150
<sup>271</sup> Ibid., p. 189

shift to sustainable development based on sustainable design. The old design axiom *form follows function* needs to be redefined and aligned to an integrated approach that is process orientated and integrated with ecological principles. Ecological design can be defined as any form of design intelligence that minimises environmental destructive impacts by integrating itself with living processes. The following principles summarise some of the features of a concept of sustainable design found in the literature:

- A universal ethical code would reconcile the needs of the individual with the needs of the global community and the environment. In the old model consumer-led design appealed to the individual but in the new model the responsible consumer becomes an active participant in sustainable design. (Papanek, Whiteley)
- It seeks local solutions and responds to biological and cultural diversity, recognising sustainability depends on the active participation of community members. (Van der Ryn and Cowan)
- Design is a collaborative and cooperative process in which the designer is a facilitator enabling the stakeholders, i.e. the community to find the most appropriate solution as well as implement it. (Jones, Van der Ryn and Cowan)
- Ecological footprint accounting assesses the sustainability of human activities by measuring the flows of energy and matter to and from a defined economy and convert them into the corresponding land/water required to support these flows. (Wackernagel and Rees, Van der Ryn and Cowan)
- New object types need to be defined that meet the spiritual, social, physical and cultural needs a sustainable world. (Manzini, Branzi, Whitney)
- Ecological design makes natural processes transparent and active at all levels of society: from the household to the global community. It informs everyone about the ecological consequences of our actions. (Van der Ryn and Cowan)

- Design works with nature recognising that human communities in partnership with other living communities and nature are a matrix within which design contributes to the sustainability of the whole. (Von Weizsäcker et al.)
- At governmental and intergovernmental levels laws can moderate and reward good environmental practice in the market place through, for example, ecological tax reforms and incentives to reduce energy consumption. New regulations for fee structures could reward cross-disciplinary design teams for developing integrated resource efficient designs. (Van der Ryn and Cowan)

In conclusion then, it appears clear from the literature that there are well defined principles that characterise sustainable design practice but different levels of complexity will require different approaches. Large organisations require complex systems while designer-makers are able to develop simple innovatory methods. All sustainable design is underpinned by a cooperative and collaborative ethic. Sustainable design is therefore characterised by its plurality of methodologies and strategies, whether industrial or craft-based, as it responds to the respective needs of its community – a final principle which, in some small way, this PhD has sought to keep in view.

## iii) The furniture designer-maker

The furniture designer-maker is clearly one subset in a complex web of contemporary craft based designer-makers who undoubtedly share a collective and well defined lineage that goes back to William Morris and the Arts and Crafts Movement. The rich and well documented history of this Movement – from its late nineteenth century origins to the Second World War lies beyond the scope of this thesis.<sup>272</sup> This review is more

<sup>&</sup>lt;sup>272</sup> See, for example, I. Anscombe, Arts and Crafts Style, Phaidon Press Limited, Oxford, 1991

L. Lambourne, *Utopian Craftsmen: The Arts and Crafts Movement from the Cotswolds to Chicago*, Astragal Books, London, 1980

G. Naylor, The Arts and Crafts Movement, Trefoil Publications, London, 1971

immediately concerned with the emergence of the contemporary furniture designer-maker, who shares with the Arts and Crafts Movement what might broadly be defined an oppositional relationship to consumption and the capitalist values of the commercial mainstream – and although the emerging critical tendencies within the commercial mainstream are acknowledged and have an interesting literature of their own - they too lie beyond the scope of this thesis.<sup>273</sup> Rather, this section of the Literature Review concerns itself specifically with a critique of the literature surrounding the emergence of the figure of the furniture designer-maker in the period 1945 to date – the term designer-maker being the preferred term of this resistant sub-cultural group.<sup>274</sup>

One influential observer who was to recognise the emergence of the contemporary furniture designer-maker was Betty Norbury, who in 1990 published *British Craftsmanship in Wood*, as the result of a three year research project which catalogued a total of almost two hundred active furniture designer-makers. The publication identified a very diverse group whose communality Norbury defined in the broadest terms as a group scattered 'in small workshops ... designing and making their work themselves'.<sup>275</sup>

Norbury's intention was to showcase the work of a contemporary group of craftsmen and rebut the commonly held public view that craftsmanship was in decline. Norbury subsequently ran an annual selling exhibition for furniture designer-makers from 1990 in Cheltenham which is still a regular event. In 1999 she published *Furniture for the 21<sup>st</sup> Century* and co-curated an exhibition *Designs for the Environment* at Whitehall Palace, London, a showcase for the designer-makers represented in the book. The publication had a narrower focus than her earlier work. Norbury, who was by now widely recognised as a leading authority in this field, identified twenty-five key designer-makers who she

<sup>&</sup>lt;sup>273</sup> See, for example, E. Ambasz, *Italy: The New Domestic Landscape*, Moma, New York, 1972, and its critique of avant-garde post-war design

<sup>&</sup>lt;sup>274</sup> See C. A. Knott, cited in *Ideas in the Making*, Crafts Council, London, 1998, p. 93 '... many furniture makers preferred to call themselves "designers" rather than "craftspeople". In fact, for many, the label "craft" was seen as derogatory and unhelpful and they preferred to be known as "designer-makers".

<sup>&</sup>lt;sup>275</sup> B. Norbury, *British Craftsmanship in Wood*, Stobart Davies Ltd, London, 1990, p. 7

felt had made a significant contribution and were also likely to continue to play an influential role in the twenty-first century, including a group of younger designer-makers whom she believed would 'play a major role in the industry's continued growth'.276

In terms of a more significant literary contribution to the field, Tanya Harrod's account of The Crafts in Britain in the 20<sup>th</sup> Century (1999) is worthy of note. Harrod traces the struggle through the 1930s and the 1950s of the 'handcraft furniture movement' and its tendency to be 'trapped by its history' and what she calls the 'Cotswold legacy'.<sup>277</sup> Harrod describes how figures like Sandy Mackilligin emulated continental mass produced furniture lines, providing 'clients with a humane flexible approach at relatively low cost',<sup>278</sup> while others like Alan Peters and John Makepeace eventually 'decided against entering the mass market and instead concentrated on more expensive one-off pieces ... returning to the exquisite craftsmanship of early Cotswold furniture'.<sup>279</sup>

However, as Harrod's title concedes. Harrod's account is centred on Britain and it is perhaps worth noting that the evolution of the arts and crafts worker to the contemporary figure of the designer-maker followed a very similar development in the USA. According to Patricia Conway for example, James Krenov, Joe Osgood, George Nakashima, Sam Maloof and Dan Jackson were all responsible for the post-war craft revival which inspired a second generation that began to emerge in the mid-70s.<sup>280</sup>

To develop a better understanding of the defining characteristics of design and make, it is useful to turn to Peter Dormer and David Pye – two of the best known critics of the genre. In his influential text The Art of the Maker (1994), for example, Dormer reacts to the perception in the art world and current art theories that skills are only mechanical and can be easily learnt. Dormer identifies craft as a specific form of knowledge 'that must be demonstrated since it will not easily, if at all, be adequately

<sup>&</sup>lt;sup>276</sup> B. Norbury, *Furniture for the 21<sup>st</sup> Century*, Stobart Davies Ltd, Hertford, 1999, p. 6

<sup>&</sup>lt;sup>277</sup> T. Harrod, *The Crafts in Britain in the Twentieth Century*, Yale University Press, New Haven, 1999, p. 328

<sup>&</sup>lt;sup>278</sup> Ibid., p. 331 <sup>279</sup> Ibid., p. 333

<sup>&</sup>lt;sup>280</sup> P. Conway, Art for Everyday, Clarkson Potter, New York, 1990, p. 20

conveyed through what can be said or written about it'.<sup>281</sup> He distinguishes it from conceptual knowledge observing that 'The knowledge required to make something work is not the same as understanding the principle behind it'.<sup>282</sup> It is a form of applied knowledge which 'not only enables you to achieve your goal, it also enables you to imagine what your goal might look like'.<sup>283</sup> Dormer also questions the Shibboleth of a whole culture which associates making with 'unthinking', observing that 'the thinking in the crafts ... resides not in language, but in the physical processes involving the physical handling of the medium'.<sup>284</sup> Making for the designer-maker is therefore a continuation of the design process.

It is through the interaction of the material with the idea that design evolves according to David Pye, who provides further clarification of the act of making in his equally influential text The Nature and Art of Workmanship (1968) and its definitive theorisation of craftsmanship. Pye was concerned that confusion regarding the precise nature of craftsmanship had led (historically) to muddled thinking and that the continuing absence of a coherent theory on the subject would inevitably lead to further confusion. One of the key principles that Pye expounds concerns his idea of a 'workmanship of risk'. Pye argues that craftsmanship has always been defined by a different kind of quality to that characterised by industrial production. However, Pye argues that workmanship is perhaps best defined according to the degree of risk involved.<sup>285</sup> Although he argues risk in itself does not determine quality, it provides the means for 'an immensely various range of qualities, without which at its command the art of design becomes arid and impoverished'.286

The control and relative freedom that is peculiar to the craftsman is extended (according to Pye) through the autonomy the designer-maker

<sup>&</sup>lt;sup>281</sup> P. Dormer, *The Art of the Maker*, Thames and Hudson Ltd, London, 1994, p. 7

<sup>&</sup>lt;sup>282</sup> Ibid., p. 11

<sup>&</sup>lt;sup>283</sup> Ibid., p. 19

<sup>&</sup>lt;sup>284</sup> Ibid., p. 24

<sup>&</sup>lt;sup>285</sup> D. Pye, *The Nature and Art of Workmanship*, Cambridge University Press, Cambridge, 1968, p. 24

<sup>&</sup>lt;sup>286</sup> Ibid., p. 7

often has - i.e. the ability to explore an idea, a design, through the making process and thereby imbue the product with qualities associated with the material. The distinction lies not in the quality of the two processes but in the potential of the designer-maker to explore a wide range of material qualities compared to a production system which must rationalise processes specifically in order to reduce risk – an intelligent and incisive distinction.

In terms of writing by practising designer-makers themselves though, there can be no more absorbing reading than that offered by the American furniture designer-maker James Krenov whose uniquely interesting writings provide rich insights into the field of design and make. Amongst the plenitude of books written about making, few rise to the level of Krenov's *A Cabinetmaker's Notebook* (1976). The text develops the philosophy of a furniture designer-maker who has spent his lifetime exploring the subtleties and intricacies of designs in wood, in which Krenov reveals an implicit understanding of the sustainable value of what he was trying to achieve and that it was in opposition to the commercial pressures of the day:

Fine things in wood are important, not only aesthetically, as oddities or rarities, but because we are becoming aware of the fact that much of our life is spent buying and discarding, and buying again, things that are not good. Some of us long to have at least something, somewhere, which will give us harmony and a sense of durability -1 won't say permanence, but durability - things that, through the years, become more and more beautiful, things we can leave to our children.<sup>287</sup>

Krenov also recognised that quality of craftsmanship could not be widely available: 'I've never believed that a really good craftsman is intended for a tremendous public ... size of his public is almost in inverse porportion [sic] to the quality of his work'.<sup>288</sup> Krenov is also scathing of commercial products which in his opinion, frequently 'lack any humility toward the material, or respect, or even simple practical consideration'.<sup>289</sup>

<sup>&</sup>lt;sup>287</sup> J. Krenov, *A Cabinetmaker's Notebook*, Cassell & MacMillan Publishers Ltd, London, 1976, p. 15

<sup>&</sup>lt;sup>288</sup> Ibid., p. 16

<sup>&</sup>lt;sup>289</sup> Ibid., p. 24

In contrast Krenov is motivated by a (historically) romantic vision and a desire to achieve 'the quiet object in unquiet times ... worked honestly and well but with humility too'.<sup>290</sup>

Krenov defines the role of the designer-maker in wood as someone differentiated from the industrial process of manufacture, through the intimate relationship with the material, 'I realized wood contains so much inspiration and beauty and rhythm that if used properly it would result in an individual, a unique object'.<sup>291</sup> His intuitive approach to design is also a template for many furniture designer-makers in wood. A design is not fully formed before the making commences, instead there 'is a chain of thought behind everything, but it's not drawn and calculated ... It is an idea and a guessing, step by step'.<sup>292</sup>

In subsequent publications, Krenov continues to share his personal journey as practical philosopher and designer-maker. In The Fine Art of Cabinetmaking (1977) he explores the diversity of wood through a personal relationship based on 'curiosity' and 'chance'.<sup>293</sup> In The Impractical Cabinetmaker (1979) he prefaces his technical and philosophical discussion with a personal review of the current developments of the professional designer-maker noting the 'emergence of superstar craftsmen' as 'one strand of development in woodcraft today'.<sup>294</sup> This development according to Krenov is not consistent with the 'lasting values and integrity' that characterise craftsmen, but represent 'catering to public taste and trends'.<sup>295</sup> Krenov also identifies a move towards an existential approach to craft, in which by doing 'something we enjoy is to begin to know ourselves'.<sup>296</sup> The existential has also found a resonance amongst the amateur woodworkers and the buying public who ultimate sustain the crafts. Craig McArt notes in his foreword to James Krenov, Worker in Wood that 'no influence has been

<sup>290</sup> Ibid., p. 45

<sup>&</sup>lt;sup>291</sup> Ibid., p. 73

<sup>&</sup>lt;sup>292</sup> Ibid., p. 81

<sup>&</sup>lt;sup>293</sup> J. Krenov, *The Fine Art of Cabinetmaking*, Cassell & MacMillan Publishers Ltd, London, 1977, p. 8

<sup>&</sup>lt;sup>294</sup> J. Krenov, *The Impractical Cabinetmaker*, Van Nostrand Reinhold Ltd, New York, 1979, p. 9

<sup>&</sup>lt;sup>295</sup> Ibid., p. 8

<sup>&</sup>lt;sup>296</sup> Ibid., p. 14

so profound as the recent acceptance of the craft as a creative art worthy of critical attention from galleries, museums, and the press'.<sup>297</sup> Although this recognition has placed pressures on the designer-maker to appeal to whimsical demands, McArt reminds us of Krenov's environmentally ethical vision, one which respects 'the mystery of this living material' and the 'decisions in which the wood itself should have a determining voice' combined by 'attitudes of curiosity and virtues of integrity'.<sup>298</sup> Krevov's writing have inspired several generations of furniture designer-makers and provided a unique insight in to the mind of a leading figure in the history of the craft revival.

However, in attempting to define the contemporary furniture designer-maker some useful insight is offered by Liz Farrelly. Farrelly provides one of the most comprehensive overviews of the complexities and pluralities of this field in her introductory essay to the *Jerwood Applied Arts Prize 1999*. Unlike other fields of craft practice, furniture, she observes 'doesn't cleanly fit the definitions – art, craft, design – as a piece of furniture may be any, or all, of these'. This goes to the essence of the problem of defining what is the furniture designer-maker? Its ubiquity and universal appeal is also its Achilles' heel. While it has the 'advantage over other creative forms in that it is indispensable ... it may be considered as an anonymous "non-art".<sup>299</sup>

The furniture practitioner shares common ground with other crafts in that ideas are developed through the making process. Farrelly argues that it is from this point that furniture becomes diversified through 'a myriad of approaches, methodologies, niches and attitudes'. What makes furniture possibly quite unique in comparison to other crafts is, according to Farrelly, its ability through its diversity to reach wide:

discerning and well-defined niche audiences of consumers and collectors. It may also hold the clue to future relevance of craft practice. As furniture is all things to all people it gives a vote to

<sup>&</sup>lt;sup>297</sup> C. McArt, *James Krenov Worker in Wood*, Sterling Publishing Company, Inc., New York,1997, p. 8

<sup>&</sup>lt;sup>298</sup> Ibid., p. 9

<sup>&</sup>lt;sup>299</sup> L. Farrelly, Introduction to *The Jerwood Applied Arts Prize* by Crafts Council, Crafts Council Publication, London, 1999, p. 1

diversity over the monolithic canon – in working methods, materials and aesthetics, retail dissemination and mass-media coverage.<sup>300</sup>

Farrelly identifies "four zones of contradiction" in furniture practice, which she describes as 'an initiation into inclusive thinking, where opposites are seen to attract and extremes are revealed to be intrinsically linked'.<sup>301</sup> I think is useful, at this point to summarise these four "zones" as they provide a useful categorisation that can help identify a provisional definition of the term furniture designer-maker in the context of this thesis.

Firstly, the 'public/private' which she defines as the contradiction between the personal world inhabited by the designer-maker and the public profile that the work can receive through the media. Secondly, the 'cheap/precious' which 'begins to indicate just how sophisticated a commodity furniture has become'. Thirdly, the 'familiar/iconic', a zone that at one end reinvents the recognisable in different forms and at the other 'demonstrates a new way of thinking, doing or making'. Finally, the 'ecology/technology' zone which has, in Farrelly's estimation, moved from opposing positions to one of convergence in which the ecological movement shifts from 'niche to mass' market and industry seeks to develop environmentally aware practices.<sup>302</sup>

Professor Floris van den Broecke also noted that amongst the submissions for the "Jerwood Applied Arts Prize 1999" was a significant group of designer-makers following the Arts and Crafts movement working mainly in hardwoods: 'This tradition affords much individuality, possesses an in-built morality and allows forays into experiment without much violation of the canon'.<sup>303</sup> The short list included designer-makers who fitted this group: Guy Smith, Robert Kilvington and Jim Partridge; the winner, however, was Michael Marriott whose work explored the "familiar/iconic".

One of the most influential advocates of the designer-maker is Peta Levi. Founder in 1994 of The Design Trust (TDT) and New Designers in

<sup>&</sup>lt;sup>300</sup> Ibid., p. 2

<sup>&</sup>lt;sup>301</sup> Ibid., p. 2

<sup>&</sup>lt;sup>302</sup> Ibid., pp. 3-4

 <sup>&</sup>lt;sup>303</sup> F. van den Broecke, Introduction to *The Jerwood Applied Arts Prize* by Crafts Council, Crafts Council Publication, London, 1999, p. 5

Business (NDB), Levi believes the UK 'has an international reputation for innovative design and craft'. She traces this success to a gradual sustained effort over the last forty years through a series of related and interdependent developments. These include the expansion of higher education provision for design students; the diverse culture of academic life; the predilection of designers to establish their own small business; the decline of British manufacturing initiating firstly, new silversmith workshops led by young designers and secondly in furniture making when in the 1960s Alan Peters and John Makepeace set up their own workshops. They in turn subsequently inspired a new breed of Royal College of Art trained designers in the 1970s including Fred Baier, David Field, Ashley Cartwright, Richard la Trobe Bateman and Rupert Williamson. According to Levi, this new breed of designer-makers produced mainly one-offs and 'established a trend for designers to set up their own workshops'.<sup>304</sup>

The work of these designer-makers gained access to the public through the establishment of the Prestcote Gallery, an independent gallery set up in Cropredy, a small village near Banbury, Oxfordshire, by Anne Hartree. This brought a loose group of designer-makers together ranging from the innovative Fred Baier and John Makepeace to the conservative designs of Edward Barnsley. What began as a craft revival by Royal College of Art graduates, who turned their backs on a designresistant manufacturing industry, continued unabated into the 1980s. As Jez Broun, the accomplished furniture designer-maker, observed in his narrative Furniture Today (2006) 'the momentum of the 70s craft revival was carried through into the 80s with increased interest from exhibition curators, auction houses and the blossoming crafts media<sup>305</sup>

This audio-visual account by one of the acknowledged forerunners of the furniture designer-maker phenomenon provides a fascinating multimedia overview of the design and make field which includes over 800 references, 400 images and fourteen video clips documenting an

 <sup>&</sup>lt;sup>304</sup> P. Levi, *New British Design*, Reed Consumer Books Ltd, London, 1998, pp. 6-7
 <sup>305</sup> J. Broun, *Furniture Today, PART ONE & PART TWO*, Thinking Hand Video, Bath, 2006 (DVD)

'underground revolution in craftsmanship and design over the past thirty years in Britain' in which Broun observes that:

What was started by a handful of workshops in the 1970s probably turned into hundreds by the end of the 90s but that movement was still so quiet that not many people know about it. The quality just got better, patronage as ever was elusive.<sup>306</sup>

Broun concludes that this rich and ever expanding diversity can be regarded as a reflection of the current social, economic and spiritual changes taking place in society; the concern with green practices and ecological design representing a newly heightened and increased social and ecological awareness in the new millennium.

In this connection, it is certainly true that the media interest in design and make has changed significantly in the last ten years. Designermakers were not ignored in the past but their work was frequently stereotyped by design journalists as eccentric or anachronistic. Feature articles tended to focus on their alternative lifestyles rather than position them in the market place as a genuine option to the mainstream retailers. While increased affluence has certainly motivated buyers' interest in wider choice, the media's attention on designer-makers now increasingly recognises they fill a market need resulting in a rise in editorial coverage from not only the consumer interior magazines but what was until recently the broadsheet newspapers. Dominic Lutyens, for example, writing in The Independent at the beginning of the millennium on design in the new coming decade, commented that 'people are design-literate now, more than before' and this, combined with access to the internet greatly increases choice: 'A thirst for bespoke design will be another consequence of the desire for wider choice'.<sup>307</sup>

While the Internet has provided greater visibility for the small independent designer-maker, potential clients who are still tentative are more likely to commission furniture through seeing examples of work, either at a showroom or an exhibition. Lucia van der Post writing in *The* 

<sup>&</sup>lt;sup>306</sup> Ibid.

<sup>&</sup>lt;sup>307</sup> D. Lutyens, '21<sup>st</sup>-Century Schizoid Man', *The Independent*, Independent News and Media Limited, London, 8 June 2000, p. 18

*Times* encouraged her readers to visit Betty Norbury's "Celebration of Craftsmanship exhibition" (2003) for:

All the classics most houses need – chairs and tables, chest of drawers, desks and bed heads ... and if, by chance, you happen to need something of a specific shape, size or design, to see if there is anybody there who could bring your own particular dream alive.<sup>308</sup>

The glossy Interiors style of magazines probably remain the main of information for most private buyers and it is in these source publications that the most lavish editorials on designer-makers can be found in recent years. The magazines Homes & Gardens and Grand Designs, for example, have both produced main features that guide potential clients through the bespoke commissioning process, offering advice and showing a selection of work by selected designer-makers. Homes & Gardens (November 2003) featured the work of selected designer-makers including myself, Petter Southall, Matthew Burt and Waring Robinson over a six page colour feature entitled Wood by the journalist Kate Taylor.<sup>309</sup> Grand Designs (November 2004) produced a similar feature entitled Bespoke Furniture which showed case studies of commissions by Wales & Wales and Toby Winteringham from the clients' perspective.<sup>310</sup> These two editorials also follow a pattern of being well researched and providing contact details for potential clients to follow up.

The rewards and challenges of commissioning craft work have also recently been the basis of a feature in the Economist's *Intelligent Life* magazine. In his article entitled *Return of the Artist Craftsman*, Luke Collins observed for example that 'one of the most interesting developments of the past few years has been the emergence of designercum-makers'. However, he contrasted the ease of buying luxury brands with the difficulties of finding and commissioning a designer-maker. The rewards, however, were 'an opportunity to form a continuing relationship with a maker whose work you like' and the acquisition of 'truly exclusive

<sup>&</sup>lt;sup>308</sup> L. van der Post, 'CHIC OF THE OLD BLOCK', *The Times*, Times Newspapers Ltd, London, 15 August 2003, p. 12

<sup>&</sup>lt;sup>309</sup> K. Taylor, 'Wood', *Homes & Gardens*, IPC SouthBank Publishing Company, London, November 2003, pp. 194-199

<sup>&</sup>lt;sup>310</sup> D. Gilhooley, 'Bespoke Furniture', *Grand Designs*, Media 10 Ltd, Epping, November 2004, pp. 118-126

and exquisitely beautiful things', an alternative to the 'commoditisation of luxury brands'.<sup>311</sup>

While the obsession with such exclusivity may not satisfy the social conscience of some designer-makers, it can clearly be seen that the media message that now appears to be emerging from the popular press suggests that design and make is no longer perceived as the activity of a disparate group of romantic escapists but represents the work of a significant creative group engaged in a critical discourse with contemporary society and a group anxious to respond – individually and (arguably) collectively too – to its urgent creative and economic challenges. To this extent, this thesis has also sought to respond to these challenges and (as will be seen) respond in particular to the growing global crisis around resources.<sup>312</sup>

In conclusion, this Literature Review has considered three related arenas; each one discusses a range of issues around a particular theme that has informed the research process. The issues around global resources and sustainable development have been approached from a broad perspective that has included authors and texts from sociological, economic, political and environmental disciplines. This approach recognises the interdependency of these disciplines in addressing real rather than hypothetical problems. While acknowledging the difficulty of negotiating wide ranging literatures the review has identified a number of broad issues that have shaped the research process and provided a theoretical framework for the research. The issues around Agenda 21, ecology, economics, and ethics are developed in the main text. The second arena, towards a concept of sustainable design, provides a range of theoretical and conceptual models to develop the practice based research. The third and final arena positions the furniture designer-maker as a significant constituency in the UK and the focus of this thesis.

<sup>&</sup>lt;sup>311</sup> L. Collins, 'Return of the artist craftsman', *Intelligent Life*, The Economist Newspaper Limited, London, Summer 2005, p. 13

<sup>&</sup>lt;sup>312</sup> For further material on design and make and the institutionalisation of its practices see Part One

# Part One: Signed & Sealed – Project Rationale

The earth is but one country and mankind its citizens Bahá'u'lláh

### **1.0 Introduction**

In setting out the rationale for the "Signed & Sealed" project I begin by identifying two key areas discussed in the Literature Review: Agenda 21 together with an integrated concept of ecology and economics that offers a framework for sustainable furniture design & make. This is followed by a review of examples of sustainable design practices by product designers, the design community and commercial mainstream to demonstrate the diversity of approaches that have been adopted in response to sustainability issues. I then consider a range of practices that have been developed by contrast, out of craft based practices. The case is then made that the contemporary bespoke furniture designermaker can (potentially) develop sustainable design practice (an eco business) to facilitate local sustainable development - and it is here that I set out the main arguments for the "Signed & Sealed" project. Firstly, that the furniture designer-maker can respond not only to the changing needs of the consumer but also to the wider social, economic and environmental issues critical to sustainable development. (S)he can do this firstly by considering a more flexible relationship to the client than that traditionally embodied in the bespoke commission – for example, in a variation that I term the semi-bespoke. Secondly, (s)he can make greater use of a local cycle for sourcing and processing timber which would reduce dependency on imported timber, contribute to the sustainable management of neglected timber resources and make available an untapped resource for the furniture designer-maker.

This brings me to the final argument that furniture designer-makers are also uniquely placed to explore the creative potential of noncommercial local timber in their furniture designs and add value to it through the design and make process, for example by revealing what I term the *unique signature* to be found in non-commercial local timbers. In the conclusion to this section, these latter terms – the *semi-bespoke*, the local cycle and *unique signature* are taken up as the defining elements of the "Signed & Sealed" project and become key to the development process outlined in Part Two of the thesis.

### 1.1 Agenda 21, economics and ecology

In 1992, the people of the world were alerted to the problems of sustaining global economic growth at the Earth Summit in Rio de Janeiro.<sup>313</sup> The conference, as has been discussed, was part of a series of international initiatives that had begun in the 1970s, focused on a range of global issues which include deforestation, biodiversity, and pollution. The resulting proposal, known as *Agenda 21*, a 500 page document endorsed by 179 heads of state, recognised the interdependence of social, economic and environmental issues and need for sustainable development.

The Earth Summit was dominated by political leaders from powerful industrial economies who recognised that while it was necessary to moderate the excesses of industrial development, resisted the idea that the sustainable future would require a more globally equitable distribution of resources if that meant a radical change to the prevailing balance of power within the economic system. The *Brundtland Report* (1987), had disseminated a wider understanding of the issues around sustainable development and recognised that the global economy would have to change significantly: 'a new development path was required, one that sustained human progress not just in a few places for a few years, but for the entire planet into the distant future'.<sup>314</sup>

However, the difficulties of implementing strategies for sustainable development are apparent at both the global and local level. This is evident in the two conflicting interpretations of the meaning of sustainable

<sup>&</sup>lt;sup>313</sup> United Nations Conference on Environment and Development, 'The Rio Declaration on Environment and Development', UNCED Secretariat, Rio de Janeiro, 1992

<sup>&</sup>lt;sup>314</sup> World Commission on Environment and Development, *Our Common Future*, Oxford University Press, Oxford, 1987, p. 4

development; each one satisfies a different constituency. One view holds that it represents a refinement and adjustment of existing economic growth and industrialisation and the other believes it is about our nonmaterial improvements such as creating a socially more just and equitable world. Developed nations separate the environmental problems from the economic system that they derive their prosperity from and tend to see 'environmental problems as technical issues that can be tackled without altering the structure of the global economic system without challenging free market principles and the logic of capital accumulation'.315

The problem with the concept of a global strategy for sustainable development is that until the values of the different constituencies promoting it are clarified there is no common basis on which to implement strategies. According to Nitin Desai it is 'not defining sustainable development, but understanding it. ... The value of any definition of development is simply the clue that it gives to the moral premises of the person who's giving the definition'.<sup>316</sup>

While achieving a consensus about sustainability remains a prerequisite to implementing strategies, sustainability must also to be measured if it is to be managed on both a micro and global level. Interestingly, a UK-funded research team identified seven indicators that were subsequently applied to the Scottish economy over the period 1980-1993. Evidence, while uncertain with regard to sustainable practice did demonstrate how large the interdependencies between the economic and environmental systems were. One scenario, "business as usual" predicted a 'major and rapid collapse in world economic and environmental systems in the 21st Century'.<sup>317</sup>

Despite academic researchers producing verifiable measures of sustainability, the difficulty of creating generic indicators that are both universally applicable and yet relevant to individual countries remains

<sup>&</sup>lt;sup>315</sup> J. Connelly and G. Smith, *Politics and the Environment: From Theory to Practice*, Routledge, London, 1999, p. 185

<sup>&</sup>lt;sup>316</sup> N. Desai cited in S. Dresner, *The principles of sustainability*, Earthscan Publications Ltd, London, p. 64

<sup>&</sup>lt;sup>317</sup> I. Moffatt et al., '*Measuring and Modelling Sustainability*', Global Environmental Change Programme Briefings, no. 26, June 1999 (no page numbers given)

profound. Moreover, achieving universal acceptance of a set of proposed indicators by all governments represents an even greater challenge, particularly as many national governments hold on to their autonomy. However, it was at the level of community grass roots that an attempt was made to initiate the process of sustainable development.

As noted before, the aspirations of the Earth Summit became embodied in a document, known as *Agenda 21*, which came to be regarded as a blue print for a sustainable development for the peoples of the world. The document was conceived to empower the individual through the democratic process. It recognises that efforts towards sustainable development must come from grassroots level initiatives. Because community knowledge and participation are vital for effective decision-making, local authorities, businesses and individuals are encouraged to engage in local-level planning and collaborative action. The *Agenda 21* initiative recognised that 'many of the problems and solutions being addressed by *Agenda 21* have their roots in local activities'.<sup>318</sup> The vital contribution of local authorities was recognised by the LGMB (Local Government Management Board)<sup>319</sup> when it estimated two thirds of *Agenda 21* 'can not be delivered without the commitment and cooperation of local governments'.<sup>320</sup>

In the period leading up to the Rio de Janeiro Summit local authorities, such as district councils (which represent their local constituencies including communities, minorities and businesses as well as NGOs such as charities and religious groups), made their own declarations regarding their democratic responsibility to 'inform, mobilize and speak on behalf of their own communities'.<sup>321</sup> This was subsequently reflected in the *Agenda 21* document that stated that local authorities, as directed at government level, should formulate a 'Local *Agenda 21* by 1996 based on consultation with individuals and organisations'.<sup>322</sup>

<sup>&</sup>lt;sup>318</sup> Connelly and Smith, *Politics and the Environment*, p. 291

<sup>&</sup>lt;sup>319</sup> The Local Government Management Board's purpose is to provide services and support to all local authorities in England and Wales. www.lgmb.gov.uk

<sup>&</sup>lt;sup>320</sup> Connelly and Smith, *Politics and the Environment*, p. 291

<sup>&</sup>lt;sup>321</sup> Ibid., p. 293

<sup>&</sup>lt;sup>322</sup> Ibid., p. 294

According to Connelly and Smith (1999), local authorities throughout the U.K. have demonstrated a high level of commitment to *Agenda 21*; it has enabled them to re-establish themselves as important pivotal instruments for widening democratic consultation within communities. Although environmental issues have been the main focus of such institutions, including energy, transport and land use clearly consultation will be required if environmental, social and economic agendas are to become unified.<sup>323</sup> However, as Dodds (2002) has pointed out, in the U.K. there is also often a discrepancy between the vision and strategic view of sustainability adopted by local authorities and the implementation of policies. Application of these commitments in everyday economic decision making can be inconsistent, either through an inability of staff to integrate strategic views with operational decisions or regional authorities subverting local authority plans through, for example, road building projects.<sup>324</sup>

Local authorities have found in *Agenda 21* a new role that reinvigorates their democratic relationship with the community they serve as well as helping them to redefine their role in local governance. The emerging agenda for sustainable development has been one of the most effective means of promoting democratic debate at a local level. Although action is slow some real progress has been made.<sup>325</sup>

**The workplace** was also recognised by governments at the Earth Summit as a vital arena within which to implement change; a special role for workers and trade unions was highlighted in Chapter 29 of *Agenda 21*. The link between our unsustainable life style and our workplace was firmly established. 'Rio de Janeiro proposed changes in patterns of production and consumption that were radical in nature – nothing less fundamental than a wholesale change in the way we live, work and make decisions'.<sup>326</sup> The basis of this transformation depended on the recognition that:

<sup>&</sup>lt;sup>323</sup> Ibid., p. 297

<sup>&</sup>lt;sup>324</sup> J. Brugman, 'Agenda 21 and the Role of Local Government', in F. Dodds (Ed.), *Earth Summit 2002,* EarthScan Publications Ltd, London, 2002, pp. 42-43

<sup>&</sup>lt;sup>325</sup> Connelly and Smith, p. 300

<sup>&</sup>lt;sup>326</sup> F. Dodds (Ed.), *Earth Summit 2002,* EarthScan Publications Ltd, London, 2002, p. 52

Consumption patterns ... derive from social and economic factors including industrial relations in the workplace and it is in this light that we must begin to tackle the most negative forms of a 'consumerist' approach to the world, its people and its resources, including advertising and other market processes that portray unsustainable behaviour as desirable.<sup>327</sup>

A democratic workplace therefore becomes essential in developing sustainability: 'Involving workers in changes to production is the most direct way of influencing their habits as consumers'<sup>328</sup> and entrenched hierarchical roles 'which engage workers only in the strict execution of assigned tasks and presumes that "personal life" begins only when the worker is off work'.<sup>329</sup>

Despite the promise of the Commission for Sustainable Development (CSD)<sup>330</sup> there has been no attempt to recognise the workplace as a 'focal point of production and consumption'<sup>331</sup> even though they have a significant influence over patterns of consumption and shape the character of their communities. Instead of embracing the constituency of the workplace in which resides one of the largest representations of humanity the CSD, for whatever reason has limited the discourse to "business" and "production", marginalising the workplace. Corporate hierarchies and top-down decision making remain a convenient method of preserving the socio-economic status quo but frequently deny an opportunity to radically rethink the long-term sustainable future of businesses and the role of work.

A redefinition of work itself must also be considered, as sustainable economic development cannot be limited to a physical readjustment of natural resources to align with productive capacity or even a more equitable global distribution of those resources, important as they are. The **purpose of work** has to be reassessed and expanded in the light of the fact that the mere production and consumption of products at an ever

<sup>&</sup>lt;sup>327</sup> Ibid., p. 57

<sup>&</sup>lt;sup>328</sup> Ibid., p. 57

<sup>&</sup>lt;sup>329</sup> Ibid., pp. 57-58

<sup>&</sup>lt;sup>330</sup> Commission for Sustainable Development is a United Nations Non-Governmental Organization (NGO) Steering Committee set up to monitor and implement the work agreed at the Earth Summit

<sup>&</sup>lt;sup>331</sup> Dodds, *Earth Summit*, p. 53

increasing level is not only causing environmental degradation it is debasing an area of human activity that could enrich the quality of life and be the focus of individual development, instead 'the concept of work has been largely reduced to that of gainful employment aimed at acquiring the means for the consumption of available goods'.<sup>332</sup> If work is narrowly defined, the consequences are inevitable and largely evident in the proliferation of consumer goods: 'Not surprisingly, therefore, there is increasing recognition that the world is in urgent need of a new "work ethic"'. 333

Dodds too argues that 'workers must become part of the dynamic of change, as whole persons, not ciphers with muscle and labour time. Their spirit and capacity to care and be creative must be harnessed'.<sup>334</sup> Work in whatever form - craft, art, trade or profession - is not just a means of livelihood. When performed in a spirit of service it can contribute to sustainability: 'in acting thus they become participants at however a modest level in the processes of the advancement of civilization'.335

Sustainability is therefore a dynamic process shared between the individual, the community, business and social and political institutions. The individual plays a fundamental role when impelled by an awareness of his relationship to the world. Motivated by an awareness that his future (and future generations) material and spiritual well being can only be secured through actions and behaviours that benefit him, the community and the environment, a process of sustainability is initiated and a dynamic induced. When the initiative and action of a critical mass of individuals is reciprocated at an institutional level we move towards creating a sustainable world.

The Bahá'í Writings assert that 'because the relationship between the individual and society is a reciprocal one, the transformation now

<sup>&</sup>lt;sup>332</sup> Bahá'í International Community, *Prosperity of Mankind*, Bahá'í Publishing Trust, Oakham, 1995, p. 22

<sup>&</sup>lt;sup>333</sup> Ibid., p. 24
<sup>334</sup> Dodds, *Earth Summit*, p. 55
<sup>335</sup> Bahá'í International Community, p. 24

required must occur simultaneously within human consciousness and the structure of social institutions'.<sup>336</sup>

Whiteley (1993) follows a similar line of thought when he argues that the challenge for the future is to reconcile the interests of the individual with society at large and those of the planet.<sup>337</sup> Clearly what is required is an integrated approach to solving problems.

Science has been at the forefront of recognising that the physical world operates as one entity. Ecologists, for example, observe the complex eco systems functioning interdependently and in perfect harmony. One of the most significant scientific theories based on ecology to emerge in the 20th century to support the dynamic relationship between equity, resources and the environment is the Gaia Hypothesis, developed by James Lovelock (1995). This recognises that humanity is also a part of the greater organic whole. Gaia regulates the biosphere, maintaining a balance between the physical and chemical conditions of the surface of the earth, the atmosphere and the oceans ensuring the presence of life can be maintained.<sup>338</sup> On a physical level we are not separate beings who can arbitrarily manipulate the earth's resources for whatever materialistic ends we choose. Instead, man is 'part of, or partner in, a very democratic entity'.<sup>339</sup> Humanity's future is conditioned by the limits Gaia imposes rather than the arbitrary socio-economic systems we devise. What may be a cause for optimism is the notion that Gaia will ultimately moderate the excesses of any human system that undermines the earth's essential unity, a prerequisite for sustainability.

An alternative, but closely related theory, links the ecological model developed by Lovelock to a redefined economic model that brings the two systems into alignment. In *The Eco Principle* (1996), for example, Arthur Dahl argues that a range of socio-economic and environmental problems result from the current economic theory that is the basis of Western

<sup>&</sup>lt;sup>336</sup> Ibid., p. 8

<sup>&</sup>lt;sup>339</sup> Ibid., p. 137

capitalism's planning and management<sup>340</sup>. These problems stem from industrial development which was based on obsolete economic theory which, while intellectually cohesive in itself, has ceased to exert the beneficial material and social effects it claims to be capable of creating. The market system, on the contrary, is aggravating global environmental and social problems, 'while allowing a small minority to live in undreamed of affluence'.<sup>341</sup> Dahl proposes that 'sustainable development requires the **integration of economics and ecology**'.<sup>342</sup> The current economic system externalises costs and internalises benefits, environmental pollution is ignored and natural capital (i.e. raw materials such as trees) is measured as a capital gain. Yet inadequate investment in the replanting of forests and other renewable resources is creating what Dahl describes as 'an accommodating resource department resulting from the draw down of the planet's natural resource capital'.<sup>343</sup>

According to Dahl, his theory of *ecos* reconciles economics with ecology, drawing on the science of ecology which focuses 'on dynamic systems and the processes of change'.<sup>344</sup> It defines the characteristics of an *eco* based on a concept defined as 'any natural or man-made functional system with internal integrity and distinct features and behaviour enclosed with clear boundaries'.<sup>345</sup> An *eco* therefore can be anything from an organism to planet Earth itself (as in *Gaia*), from a business to a global economy. An *eco* has distinct characteristics whatever form it takes. According to Dahl these include:

- Physical boundaries that define its form and size: material content
- Resource capital (for example, a workshop building, machinery, tools, craftsmen)
- Energy to function
- Materials which add or subtract to the resource base
- Dynamic change over time which can be measured

<sup>&</sup>lt;sup>340</sup> A. Dahl, *The Eco Principle*, George Ronald, Oxford, 1996

<sup>&</sup>lt;sup>341</sup> Ibid., p. 3

<sup>&</sup>lt;sup>342</sup> Ibid., p. 2

<sup>&</sup>lt;sup>343</sup> Ibid., p. 37

<sup>&</sup>lt;sup>344</sup> Ibid., p. 46

<sup>&</sup>lt;sup>345</sup> Ibid., p. 47

- Information (for example, experience, tacit knowledge and skill)
- Organizational structure
- Forms of internal communication, etc., which enable the materials and processes to function
- The transfer of materials, energy or information or the building of connections with other ecos<sup>346</sup>

Dahl argues that the eco concept redefines 'ecology as the study of ecos ... and economics as the management of ecos'.<sup>347</sup>

The theory of ecos applied to current economic development demonstrates the weakness of the economic system to regulate material affairs because of its failure to integrate externalities essential for environmental balance and social justice. Economic theory generally assumes consumers behave only selfishly, maximising their satisfaction irrespective of the effect on the environment or their fellow men. Dahl argues that the eco principle requires individuals to have well developed interpersonal qualities such as openness, lack of prejudice and cooperation which are characteristics of ecological systems, mature individuals and societies.<sup>348</sup> However, negative characteristics, including a desire for power, control and domination, would damage a system as is apparent in the global economy. How a shift in attitudes and behaviours can be brought about is a fundamental question that is at the basis of sustainable economic growth. Clearly then the role of design is vital in bringing about some of the necessary adjustments to promote sustainable development. The "Signed & Sealed" project rests on this belief.

## 1.2 Ecology, design and the commercial mainstream

There is an extensive body of literature that explores a wide range of conceptualisations of sustainable practice from product design, industry and designer-maker perspectives and the account that follows here

 <sup>&</sup>lt;sup>346</sup> Ibid., pp. 47-48
 <sup>347</sup> Ibid., p. 49
 <sup>348</sup> Ibid., p. 60

cannot be comprehensive (such an account lies beyond the scope of this thesis) but serves to indicate something of the range of designers and initiatives that populate the field. The literature around product designers and the design community demonstrates how committed the design profession is to sustainable issues.

The U.K. may have a declining manufacturing industry but the creative industry is developing a role in the global economy. Nicholas Grimshaw, the architect of the Eden Project's geodesic domes believes that

There is a great renaissance in British design. In architecture, for example, many of us are successfully exporting our skills. ... You can not win commissions overseas unless you are generating creative heat at home.<sup>349</sup>

One factor that may contribute to the success of U.K. designers is their ethical and environmental approach to design combined with a keen sense of market aspirations and commercial constraints. If Fiell and Fiell's popular *Designing the 21<sup>st</sup> Century* (2001) is a measure of the time, many young designers are addressing the problem of production in a range of responsible new ways that show an ecological awareness. In the U.K., for example, Jane Atfield sees design evolving as a reciprocal process in which the public will shift from traditional forms of consumption through retail outlets to increased use of the internet and social experiences with designers as 'enablers and facilitators for the various groups' own ideas and requirements'. Environmental issues will also become more important with greater emphasis on recycling and local solutions using 'low-tech resources'.350 Echoing Papanek's thoughts, Ross Lovegrove also anticipates that new possibilities are being realised through computer technology which will break down boundaries and 'lead mankind full circle back to nature' and organic thinking.<sup>351</sup> Seymour Powell, like Lovegrove, believes future products will take on a new form,

<sup>&</sup>lt;sup>349</sup> N. Grimshaw cited by J. Sorrell, *Creative Island*, Laurence King Publishing Ltd, London, 2002, p. 32

<sup>&</sup>lt;sup>350</sup> J. Atfield cited by C. Fiell and P. Fiell (Eds.), *Designing the 21<sup>st</sup> Century*, Taschen, Köln, 2001, p. 47

<sup>&</sup>lt;sup>351</sup> R. Lovegrove cited by C. Fiell and P. Fiell (Eds.), *Designing the 21<sup>st</sup> Century*, Taschen, Köln, 2001, p. 297

no longer 'physical' but 'intangible (the "meta"-product)'.<sup>352</sup> Michael Sodeau is aware that information technology and rapid prototyping make it possible for products to enter the market at an increasing pace. However, he believes his responsibility is to respond to 'the needs of the 21<sup>st</sup>-century consumer' to create objects with 'personality and character so as to create a bond between object and user'.<sup>353</sup> Jasper Morrison, however, provides a more pragmatic view. He believes the future will be a compromise between the aspiration of the designer who wishes to bring 'exceptional aesthetic and material quality to products' at 'affordable levels' and a world dictated by marketing people 'flooding the world with useless articles that nobody needs'.<sup>354</sup>

Two particularly noteworthy young U.K. designers who are establishing growing reputations but display a contrasting approach to design based on a clear ecological ethic are Simon Pengelly and Michael Marriott. Pengelly combines an affinity with materials and a highly refined design sensibility with an acute commercial awareness. This combination has enabled him to produce classic contemporary furniture in traditional materials conceived and manufactured for longevity. He says it is 'a designer's responsibility to design products that'll be as relevant 20 or 30 years down the line as they are now. You're marginalizing the appeal of something if you make it too fashion-oriented'. His *Radius* range of bedroom furniture in solid oak is sold by *Habitat* with sales of £6m to £8 million a year.<sup>355</sup>

While Pengelly has established a reputation designing for mainstream retailers and manufactures, Michael Marriott offers a witty sideways post-modern view of design. He 'has a different way of viewing the world to the rest of us. An upside-down and faintly bemused slant on life that sees unlimited potential in the ordinary things that everyone else

<sup>&</sup>lt;sup>352</sup> S. Powell cited by C. Fiell and P. Fiell (Eds.), *Designing the 21<sup>st</sup> Century*, Taschen, Köln, 2001, p. 455

<sup>&</sup>lt;sup>353</sup> M. Sodeau cited by C. Fiell and P. Fiell (Eds.), *Designing the 21<sup>st</sup> Century*, Taschen, Köln, 2001, p. 461

<sup>&</sup>lt;sup>354</sup> J. Morrison cited by C. Fiell and P. Fiell (Eds.), *Designing the 21<sup>st</sup> Century*, Taschen, Köln, 2001, p. 343

<sup>&</sup>lt;sup>355</sup> S. Pengelly cited by J. Oliphant, 'The Best of British', *Cabinet Maker*, CMP Information Ltd, London, 16 January 2004, p. 31

takes for granted<sup>3,356</sup> His use of everyday recycled objects such as wooden spoons to form a coat stand, sardine tins to form a chest of drawers and lemon squeezers converted to lampshades have created a new design language which might be described, using Manzini's term, as the polyglot object: 'a vocabulary of the everyday'<sup>357</sup> which is 'accessible to people'.<sup>358</sup> Marriot's designs are an alternative approach to design illustrating the many niches where design can survive despite global branding and marketing.

International product designers are increasingly defining their work within an ethical framework that includes a response to the environmental challenges. The German designer Ingo Maurer, for example, believes: 'The main challenge for a designer in the future will be to act responsibly towards human beings and the environment'.<sup>359</sup> Similarly, Stephen Peart believes designers 'must be aware of the consequences of the products we create. We need to protect our physical playground, it's too much fun to lose'.<sup>360</sup>

Further afield the literature shows that product designers are taking seriously the challenge to produce effective designs that are also sensitive to increasing scarce resources. The Dutch designer Marcel Wanders (like Starck), for example, is focussed on creating objects that have lasting qualities. His design reflects what he calls 'old metaphors' as well as new ones in order to allow a more respectful and 'natural ageing of my products' allowing them to 'age with dignity'. His choice of materials reflects this understanding and materials like willow and sponge, for example, are employed in his designs. This principle has a subtle but more profound effect on his approach to design: 'Durability in the field of ideas, relationships, objects and so on, not only to create a

<sup>&</sup>lt;sup>356</sup> M. Ogundeihin, 'Michael Marriot Uncut', *Uncut*, Chartered Society of Designers in collaboration with Paper Focus magazine, London, 1997, issue two, p. 3

<sup>&</sup>lt;sup>357</sup> M. Marriott cited by M. Ogundeihin, 'Michael Marriot Uncut', Uncut, Chartered Society of Designers in collaboration with Paper Focus magazine, London, 1997, issue two, p. 1

<sup>&</sup>lt;sup>358</sup> Ibid., p. 3

<sup>&</sup>lt;sup>359</sup> I. Maurer cited by C. Fiell and P. Fiell (Eds.), *Designing the 21<sup>st</sup> Century*, Taschen, Köln, 2001, p. 326

<sup>&</sup>lt;sup>360</sup> S. Peart cited by C. Fiell and P. Fiell (Eds.), *Designing the 21<sup>st</sup> Century*, Taschen, Köln, 2001, p. 374

world that is less wasteful but also to create deeper and more meaningful relationships with our environment'.<sup>361</sup>

The popular Indian designer Karim Rashid offers an unusual alternative to the current controversy around unsustainable consumer demands, arguing that: 'every new object should replace three. Better products edit the market place'.<sup>362</sup> It is evident that designers who create new product types which enrich the environment are following the spirit of Manzini's Garden of Objects.<sup>363</sup>

The recycling and reprocessing of material has also become an increasing priority of some product designers. Jakki Dehn, a furniture designer, noted that the U.K. government's response to the European Union's Packaging and Packaging Waste Directive (which required '50% of all packaging waste to be recovered by the year 2001') was the imposition of a landfill tax to encourage industry to change its practices.<sup>364</sup> Dehn's overview of developments in this field describe a broad range of initiatives and 'Recycling waste is now seen as a positive commercial resource in certain material sectors'.<sup>365</sup> In the USA, however, the field is 'still fraught with contradictions'.<sup>366</sup> Dehn identifies three area of progress:

- 1. A reduction in the waste of natural resources
- 2. Increasing value of waste materials
- New business and employment opportunities<sup>367</sup> 3.

<sup>&</sup>lt;sup>361</sup> M. Wanders as cited by C. Fiell and P. Fiell (Eds.), *Designing the 21<sup>st</sup> Century*, Taschen, Köln, 2001, p. 545

<sup>&</sup>lt;sup>362</sup> K. Rashid cited by C. Fiell and P. Fiell (Eds.), *Designing the 21<sup>st</sup> Century*, Taschen, Köln, 2001, p. 407

<sup>&</sup>lt;sup>363</sup> E. Manzini, *The Garden of Objects*, edited and translated extracts from the exhibition booklet of The Garden of Objects, Eighteenth Triennale by C. Cattle, July 1995, Buckinghamshire Chiltern University College

<sup>&</sup>lt;sup>364</sup> J. Dehn, 'An overview: the development and application of recycled and reprocessed material into products, interiors and the exterior landscape', Furniture, Design and the Environment, Seminar Proceedings, Towards Sustainable Product Design 1996 series, The Centre for Sustainable Design, Faculty of Design, The Surrey Institute of Art & Design, Farnham, M. Charter and A. Chick (Co-ordinators), 12 November 1996, p. 1

<sup>&</sup>lt;sup>365</sup> Ibid., p. 2

<sup>&</sup>lt;sup>366</sup> Ibid., p. 3 <sup>367</sup> Ibid., p. 4

While she recognises the progress made, she believes further progress will require greater understanding of the issues between designers, managers and citizens.

However, it is perhaps appropriate to conclude with one of the most celebrated international designers, Phillip Starck, who manages to be both a designer-business man of prodigious productivity and designer-philosopher. France's Starck also believes the responsibility of the designer is an ethical one. It is the obligation of the designer, he argues, to decide if a product is justified and he claims he refuses to create something that 'already exists and functions well'. Ultimately, he says, it is the job of the designer to promote 'A good product' by designing 'a product which lasts'.<sup>368</sup>

Starck's response to the excesses of consumerism is a radical attempt to rethink of the role and purpose of products in our lives. His thinking reflects Papanek's ideas, and is based on the need to reevaluate our relationship with products. 'We need fewer possessions in our lives, and those items that we do own must be better made than before, they must be reduced to the basics and they must be long lasting'.<sup>369</sup> He is committed to developing an integrated approach, an alignment of ecological principles with politically and moral correctness. Products, or rather 'non products' will not be created for commercial motives and, because they fall outside the marketing system, 'will be sold through a mail-order catalogue and via the internet'.<sup>370</sup> Shops he believes will ultimately be obsolete because they are inaccessible to many people, reliant on transport and inflate the cost of goods because of rent. Starck believes a system geared to profit is dehumanising, it manipulates people, imposing an order that dictates our lives but masquerades as freedom of choice and a better life, instead 'we have come to serve the products and life is no better'.<sup>371</sup> Starck has put his vision into a new initiative that represents an important contribution to

<sup>&</sup>lt;sup>368</sup> P. Starck cited by C. Fiell and P. Fiell (Eds.), *Designing the 21<sup>st</sup> Century*, Taschen, Köln, 2001, p. 479

<sup>&</sup>lt;sup>369</sup> P. Starck cited by F. Sweet, 'Q&A: Starck Raving', *The Right Angle Magazine*, September/October 2000, p. 70

<sup>&</sup>lt;sup>370</sup> Ibid., p. 70

<sup>&</sup>lt;sup>371</sup> Ibid., p. 70

ethical product design: *Good Goods: The Catalogue of Non-Products for the Non Consumer for the Next Moral Market* represents an alternative way of buying products that are in themselves elegantly designed to render 'service with grace'<sup>372</sup> and combine ecological principles with a socially responsible commitment to paying fair wages and fair prices. Starck's proposal, if it is successful, could radically change the concept of designer products and bring about a realignment of consumerism with socially and environmentally responsible design.

It is also noteworthy to mention institutional contributions to the sustainability discourse. The contribution of the design community to sustainable design has been at the level of debate and exchange of information and initiatives through specialised institutions and conferences. The XVIII Triennale di Milano (1992) organised by the International Council of Societies of Industrial Design (ICSID), Life between Artifact and Nature: Design and the Environmental Challenge which coincided with the United Nations Conference on Environment and Development (UNCED), commonly known as the Earth Summit, and likewise explored the 'dialectic between what man creates and dominates, and nature, by which man is both dominated and created'.<sup>373</sup> It therefore represents a significant shift in the understanding of the role of design in society by the design community.

The late twentieth century saw design conferences become the vehicle for the design community to explore its relationship with wider social and environmental issues rather than a product-focussed debate. The International Design Congress, Design Renaissance 1993 confirmed this awakening to the wider societal responsibilities. The ICSID and the U.K. Chartered Society of Designers (CSD) were amongst the organisers and associates of the Congress. Reflecting on the core concerns raised at the conference Jeremy Myerson observed that the 'moral and ethical responsibilities of the design profession in a world now wracked by

<sup>&</sup>lt;sup>372</sup> Ibid., p. 70

 <sup>&</sup>lt;sup>373</sup> C. Venosta, Foreword to XVIII Triennale di Milano, *Life between Artifact and Nature:* Design and the Environmental Challenge, Electa, Milan, 1992, p. 6 (International Exhibition Publication)

environmental fragility and economic instability proved to be the most powerful line of enquiry'.<sup>374</sup>

In the U.K. academic institutes have similarly been at the forefront of research and debate. The Centre of Sustainable Design, for example, an initiative of the Surrey Institute of Art and Design, established in 1995, has organised seminars and international conferences on sustainable product design.<sup>375</sup> The University of Sheffield Hallam has also been active in research; the Centre for Sustainable Consumption, for example, was established in 1996 to respond to the need for greater understanding of issues relating to the environmental impact of consumption and its research focuses on consumer behaviour and the environmental impact of domestic goods and has an international reputation for research relating to the life span of household products.<sup>376</sup> Other initiatives include the commercially run Centre for Alternative Technology at Machynlleth which educates the public in ecologically benign non-industrial technology.377 A similar initiative in the Netherlands is the  $O_2$ organisation which aims to develop solutions that reconcile sustainability with quality of life. It provides an open forum for designers of all disciplines 'grappling with the problems of a throw-away culture, formulating nonpolluting [sic] production methods, sourcing nontoxic [sic], managed materials—and crucially, sustainably passing on the knowledge'.378

One of the most well-publicised and popular sustainable projects in recent years is the Eden Project based in Cornwall. It was the vision of Tim Smit who had discovered and restored the Lost Gardens of Heligan, 'the largest garden restoration project in Europe'.<sup>379</sup> The Eden Project was conceived as 'a living theatre mounting the planet's greatest

 <sup>&</sup>lt;sup>374</sup> J. Myerson (Ed.), *Design Renaissance*, Open Eye Publishing, Horsham, 1994, p. 9
 <sup>375</sup> The Centre for Sustainable Design, *The Centre for Sustainable Design*,

http://www.cfsd.org.uk/, n.d. (accessed 7 April 2006)

<sup>&</sup>lt;sup>376</sup> Sheffield Hallam University, Centre for Sustainable Consumption, <a href="http://www.cfsd.org.uk/research/index.html">http://www.cfsd.org.uk/research/index.html</a>, n.d. (accessed 7 April 2006)

<sup>&</sup>lt;sup>377</sup> Centre for Alternative Technology, *Centre for Alternative Technology*, <http://www.cat.org.uk/index.tmpl>, n.d. (accessed 7 April 2006)

 <sup>&</sup>lt;sup>378</sup> B. Kiser, A Blast of Fresh Air: The History of O2, <a href="http://www.o2-usa.org/fresh">http://www.o2-usa.org/fresh</a> air.html>, n.d. (accessed 7 April 2006)

<sup>&</sup>lt;sup>379</sup> M. Jackson, *Eden: The First Book*, The Eden Project, St. Austell, 2000, p. 8

drama<sup>,380</sup> which presents a 'world of plants and people, showing why we need plants, how we use them, and why we need to look after them'.<sup>381</sup> The theatre takes the form of a series of interconnecting geodesic domes that function as giant conservatories. Designed by Nicholas Grimshaw and Partners, they were inspired by both nature and traditional architecture. The challenge was to create a design that was 'functional, sustainable, economical...oh...and an international architectural icon'.<sup>382</sup> The design uses the hexagon, a form found in nature, as a building block. The resulting geodesic domes provide the most efficient space, creating structure, maximum light and minimum heat loss.<sup>383</sup>

What sets the Eden Project apart from other initiatives that have similar aims is the skilful interdisciplinary collaboration of artists, designers and scientists who devise miniature displays 'so that ideas such as conservation and sustainability become obvious needs, rather than heavyweight political or academic relics'.<sup>384</sup>

In order to pursue the relationship between ecology, design and sustainability it is valuable to explore some examples of the commercial mainstream's response to the environmental challenges. The literature around sustainable models is particularly useful. An interesting historical example of a sustainable model emerged during the Second World War. According to the Gefffrye Museum, one initiative, the post-war Utility Scheme, 'was an unparalleled example of the total state control not only of the supply but more importantly, the design of an essential commodity'.<sup>385</sup> The scheme recognised the scarcity of timber and carpenters. The solution to the problem of regulating quality and offering value for money (prices were controlled under the scheme) was standardisation of design, to 'avoid the unnecessary use of raw materials and labour, and by its high quality give it a long and useful life'.<sup>386</sup>

<sup>&</sup>lt;sup>380</sup> Ibid., p. 2

<sup>&</sup>lt;sup>381</sup> Ibid., p. 61

<sup>&</sup>lt;sup>382</sup> Ibid., p. 30

<sup>&</sup>lt;sup>383</sup> Ibid., p. 33

<sup>&</sup>lt;sup>384</sup> Ibid., p. 59

<sup>&</sup>lt;sup>385</sup> Geffrye Museum, *Utility Furniture and Fashion 1941 – 1951*, Geffrye Museum Trust, London, 1995, p. 7

<sup>&</sup>lt;sup>386</sup> Ibid., p. 5

The success of Utility furniture was clearly in part due to the contribution of Gordon Russell who provided the vision and strategic design thinking. The Utility Scheme provides a valuable model for sustainable design demonstrating how through government leadership and regulation scarce resources can be harnessed through a well-defined design strategy to bring the widest possible social, economic and environmental benefits to a society.

As industry has become more complex new sustainable models have developed to respond to the challenges of monitoring industrial processes against good sustainable practice. Industrial ecology is a subject that has an interesting body of literature devolved to it. Perhaps the best known text is *Industrial Ecology* by Graedel and Allenby (1995).<sup>387</sup> The basic principle of industrial ecology involves a complex process which like biological ecology is based on the recycling of resources rather than their conventional extraction and disposal of them.

In *Industrial Ecology*, Graedel and Allenby detail the theoretical model developed by the American electronics corporation *AT*&*T*:

Industrial ecology is the means by which humanity can deliberately and rationally approach and maintain a desirable carrying capacity, given continued economic, cultural, and technological evolution. The concept requires that an industrial system be viewed not in isolation from its surrounding systems, but in concert with them. It is a systems view in which one seeks to optimize the total materials cycle from virgin material, to finished material, to component, to product, to obsolete product, and to ultimate disposal. Factors to be optimized include resources, energy, and capital.<sup>388</sup>

The complexity of managing industrial ecology should not be underestimated; the publication itself codifies and explicates methods which transform industrial processes from a non sustainable system to one which is aligned to a sustainable one. Trends and patterns of industrial development and environmental impact must first be carefully examined according to specific categories. This in turn is followed by a 'life-cycle assessment' (LCA) which determines the environmental

 <sup>&</sup>lt;sup>387</sup> T. Graedel and B. Allenby, *Industrial Ecology*, Prentice Hall, Englewood Cliffs, New Jersey, 1995
 <sup>388</sup> Ibid., p. 9

ranking of particular products or processes; this is followed by designing a strategy for improvement, known as 'design for environment' (DFE).<sup>389</sup> The process requires, according to AT&T's Chairman and Chief Executive Officer Robert Allen, the nurturing of 'a new generation of engineers, scientists, business people, and public policy experts', directed by an 'environmental ethic'.<sup>390</sup> Industrial ecology offers the designer a valuable tool.

Ecology and ethics are also the driving forces of the German contract furniture company Wilkhahn. Founded in 1907, Wilkhahn is a medium-sized manufacturer which now employs five hundred workers and has adopted sustainable practices throughout its whole organisation. According to Becker in *The Wilkhahn Philosophy* (1996) these include socially responsible management including profit sharing introduced in 1971<sup>391</sup> and a cooperative management style based on 'no orders without explanation'.<sup>392</sup> Its design philosophy (ironically based on the principles of the *Bauhaus*) is an expression of the attitude and thinking of the company itself<sup>393</sup> which claims 'it is our aim to design durable goods, to increase their value in use and to reduce their waste'.<sup>394</sup> The company has developed an environmental responsible policy towards nearly all aspects of its business including the design of its buildings, managing the ecological impact of the company itself as well as the manufacture of products. As early as 1989:

The management and Works Council of Wilkhahn agreed a common goal. ... Environmental responsibility must be taken very seriously ... and in case of doubt, the ecological aspect has priority and must be assigned a higher value than quick profit.<sup>395</sup>

The establishment of a business division called 'Innovation and Ecology' was responsible for developing an in-house eco-control

<sup>&</sup>lt;sup>389</sup> Ibid., pp. 13-14

<sup>&</sup>lt;sup>390</sup> R. Allen, Foreword to *Industrial Ecology* by T. Graedel and B. Allenby, Prentice Hall, Englewood Cliffs, New Jersey, 1995, p. xv

<sup>&</sup>lt;sup>391</sup> H. Becker, 'The Wilkhahn Philosophy', *Furniture, Design and the Environment*, seminar proceedings, 6 November 1996, p. 3

<sup>&</sup>lt;sup>392</sup> Ibid., p. 2

<sup>&</sup>lt;sup>393</sup> Ibid., p. 1

<sup>&</sup>lt;sup>394</sup> Ibid., p. 2

<sup>&</sup>lt;sup>395</sup> Ibid., p. 5

system.<sup>396</sup> Materials, inputs and outputs for example, are monitored through 'an ecological chart of accounts' which in turn provided Wilkahn's first so-called 'eco balance sheet in 1993'.<sup>397</sup> These evaluations also shaped Wilkahn's design philosophy and introduced a third criterion in addition to the demands associated with form and function, known as 'ecological accountability' which demanded 'a careful and responsible approach to the selection and use of materials'.<sup>398</sup> According to Becker, Wilkhahn adopted ecological practices because of a commitment to the ethical rightness of this policy and not because it saw a commercial advantage. While it has, in fact, not yet paid back commercially it has positioned itself in the design-led contract furnishings market as a responsible caring manufacturer. The company believes 'If what made the Bauhause [sic] effective in the 1930s was social commitment, then Ecology could well be the factor that today triggers a new design revolution'.<sup>399</sup> Both Wilkhahn and AT&T have made a long-term commitment to restructuring their organisations to become eco companies. Wilkhahn's design philosophy "design for disassembly" is also in conformity with their broader company's philosophy. The complexity of this industrial sustainable model is in contrast to the relative simplicity of the pre-industrial craft models which will be discussed in the following section.

## 1.3 Ecology, design and the furniture designer-maker

In the recent past the level of recognition of furniture designer-makers has perhaps been commensurate with the fewness of numbers and their isolation.<sup>400</sup> This has changed in recent years. A growing number of bodies have over the last thirty years become increasingly representative and supportive of designer-makers in general and furniture designermakers in particular. In the U.K. the Crafts Advisory Committee, for

<sup>&</sup>lt;sup>396</sup> Ibid., p. 5

<sup>&</sup>lt;sup>397</sup> Ibid., p. 6 <sup>398</sup> Ibid., p. 7

<sup>&</sup>lt;sup>399</sup> Ibid., p. 11

<sup>&</sup>lt;sup>400</sup> T. Harrod, *The Crafts in Britain in the Twentieth Century*, Yale University Press, New Haven, 1999

example, which was to become the Crafts Council, maintained a library of selected designer-makers at its centre in Waterloo Place, London. Its publication *Craftsmen of Quality* (1979) provided an illustrated guide to the work of over 300 designer-makers and provided an explanation of the commissioning process. Its section on wood included thirteen furniture designer-makers including John Makepeace, Alan Peters, Martin Grierson, Fred Baier and Edward Barnsley.<sup>401</sup>

The formation of The Worshipful Company of Furniture Makers in 1952 'to foster both the craft and industry of furniture making, marketing and retailing in the United Kingdom'<sup>402</sup> was not an obvious body to advocate and support furniture designer-makers as they were virtually an unknown breed. However, in recent years it has begun to identify this particular genre as a significant and growing part of the furniture industry. Its award of Guild Mark for 'exacting standards of excellence in *design, materials, craftsmanship and function*' is one of the hallmarks that have identified outstanding pieces. In 1998, to mark its fifty years of existence, *A Celebration of Excellence* was published to provide a public reference and showcase of the 250 examples of furniture awarded Guild Marks and to 'encourage would-be commissioners of fine furniture to see the exceptional work of current designers and makers'.<sup>403</sup>

The fortunes of the U.K. furniture industry, by contrast, in the face of global competition are being threatened. The report *Competitiveness of the U.K. furniture manufacturing industry* into the 'threats and weaknesses' of the industry by the Furniture Industry Research Association (FIRA) in 2002 identified a series of issues that the industry needs to develop a strategic response to reduce the current competitiveness gap in a global market.<sup>404</sup> One particular area that will have a significant impact on the future of the industry is 'that neither

<sup>&</sup>lt;sup>401</sup> Crafts Advisory Committee, *Craftsmen of Quality*, London, 1979, pp. 149-157. (NB At the time of this publication going to press, the Crafts Advisory Committee was in the process of changing its name to the Crafts Council)

<sup>&</sup>lt;sup>402</sup> Worshipful Company of Furniture Makers, A Celebration of Excellence, Worshipful Company of Furniture Makers, London, 1998, p. 2

<sup>&</sup>lt;sup>403</sup> Ibid., p. 1

<sup>&</sup>lt;sup>404</sup> S. Timms, Foreword to Competitiveness of the UK furniture manufacturing industry by Furniture Industry Research Association (FIRA), FIRA International Ltd, Stevenage, 2002

manufacturers nor retailers have a mechanism to identify customers' needs and wants'.<sup>405</sup> The structural problems of the furniture industry, its lack of a 'cohesive approach to implement industry-wide initiatives that will improve competitiveness' were again reviewed in a further government supported review.<sup>406</sup> The Furniture Industry Strategy Group (FISG), formed in June 2003, also recognised the fragmentation of the industry and 'widespread concerns over the competitiveness of the U.K. furniture manufacturing industry'. What is interesting is that this is a government (Department of Trade and Industry) supported report which highlights, possibly for the first time, furniture designer-makers as a significant area of growth in contrast to a contracting mainstream industry: 'there is [a] growing furniture market represented by designer/craftsmen and small business supplying bespoke furniture direct Clearly designer-makers are ideally placed to to the consumer'. understand the individual 'needs and wants' of customers, unlike the struggling furniture industry. In his introduction, the chairman of FISG, Martin Jourdan also draws attention to the potential of designer-makers to be 'the best means of stemming the tide of imported furniture' although he warns that they are 'the ones most likely to be adversely effected by regulations and the reduction in support'.<sup>407</sup> Furniture designer-makers can no longer be regarded as an economically marginal activity. Government support to encourage a regional development of furniture designer-maker businesses has recently come in the form of an initiative to 'foster the furniture making skills of the Chilterns and to promote the use of local timber resources, by providing business incubation facilities for entrepreneurs and young companies'. The Chiltern Enterprise Gateway was formed in 2003 under the aegis of South East England Development Agency (SEEDA) to build 'a new heritage for the 21<sup>st</sup>

 <sup>&</sup>lt;sup>405</sup> Furniture Industry Research Association (FIRA), *Competitiveness of the UK furniture manufacturing industry*, FIRA International Ltd, Stevenage, 2002, p. 6
 <sup>406</sup> Ibid., p. 57

<sup>&</sup>lt;sup>407</sup> M. Jourdan, Introduction to *The single voice of the industry*, Furniture Industry Strategy Group (FISG), June 2000, p. 4

century by engaging the affluent market in the South East that is increasingly becoming design aware and environmentally conscious'.<sup>408</sup>

Although support and patronage of a craft is essential for its development, craftsmen themselves need to identify with each other and form associations to facilitate collective aims. There are a number of regional associations including the Devon Guild of Craftsmen and Norwich Furniture Makers, which organise exhibitions. One of the most unusual and perhaps significant developments is the formation of the email discussion forum Designer Makers Forum, set up by Barnaby Scott, the co-founder of Waywood Furniture. It has a peer group membership; selection is through nomination and in its two years of existence has grown to a membership of over 150. This national forum was created almost by accident as it was originally established in 1994 by Lucinda Leech and I to serve a regional group of about thirty Oxfordshire and Buckinghamshire furniture designer-makers. The power of the internet facilitated a nationwide membership.

The phenomenon of Parnham (1977 - 2000) should also not be overlooked in the development of the designer-maker. Under the leadership of John Makepeace, the college was able to produce selfstarting designer-makers, something most other educational establishments offering craft-based diplomas and degrees aspired to do but could only achieve in a limited way, and managed to circumvent the narrow craft training offered by a conventional apprenticeship. It offered students the opportunity to develop core craft, design and entrepreneurial skills and confidence to embark on their own independent enterprise. Part of its success was to do with the craft revival of the 1970s and John Makepeace's role. It also succeeded because the programme developed by Robert Ingham, a teacher and practitioner, had a relevance and immediacy other institutions could not match. Unconstrained by the requirements of fulfilling an academic degree programme and drawing on his professional experience, Ingham was free to design a practical course, in consultation with John Makepeace that met the future needs of

<sup>&</sup>lt;sup>408</sup> Chiltern WoodWorks Steering Committee, Chiltern WoodWorks Enterprise Gateway – Business Plan, Business Link Solutions Ltd, Thame, June 2003, p. 4

aspiring designer-makers. Equal emphasis was given to choosing students who would benefit from the course on the basis of their potential as entrepreneurial designer-makers (as well as of course on their ability to pay substantial fees). The course developed, according to John 'self-reliance through learning to design and make Makepeace. objects'.<sup>409</sup> Conceptual design training was counterbalanced by technical and entrepreneurial instruction. The training identified the entrepreneurial skills that a designer-maker would need to be effective in a demanding and competitive market place. It also demystified the notion that these skills that were presumed to be the result of a natural propensity bestowed on the few. It taught entrepreneurship as a latent ability that could be developed as a creative activity. According to Makepeace 'it is simply about responding to changing circumstances in every sense social, economic, political environmental - with ideas and actions'.<sup>410</sup> The response to change also manifested itself in the increasingly divergent paths the students took. Although the course was conceived to equip students with skills to establish themselves as self employed designers and craftsmen under the banner The School for Craftsmen in Wood, the students were choosing from two quite distinct career pathways. There were those who developed a passionate attachment to wood as a material and chose to set up workshops to design and make individual and one-off furniture and those that were focussed on developing their career as a designer. The training in craft skills, the ability to realise ideas through making, provided a common training that enabled graduates to further their career aims either as independent designermakers or industrial product designers. There was also significant movement between the areas. Many graduates have gone on to establish successful careers in both areas, including Nicholas Pryke, Rod Wales, Mark Boddington (Silver Lining), Daniel Lacey, Robert Kilvington and David Linley

<sup>&</sup>lt;sup>409</sup> J. Myerson, *Makepeace: A Spirit of Adventure in Craft & Design*, Conran Octopus, London, 1995, p. 76

<sup>&</sup>lt;sup>410</sup> Ibid., p. 81

The 1980s represented a further development in the evolution and diversification of the crafts. In *Industry of One, Designer-Makers in Britain 1981 – 2001*, (2001) David Redhead provides an overview of the divergent strands that characterised this nebulous genre. The title itself indicates a significant shift in the perception and nature of craft. The Arts and Crafts ideal that found a new vitality in the 1970s gives way to a more pragmatic approach. Redhead offers three models, each shaped by a set of economic social and political constraints: 'from the designer-maker heroes of the 1980s, through the new realists of the early 1990s with their eco-conscious, minimal designs, to the proto-design managers of the late 1990s and present day'.<sup>411</sup> Redhead, like Harrod, believes that they represent a manifestation of a counter culture and 'would probably not exist, if it hadn't been for the resistance to design in Britain'.<sup>412</sup> Another factor which encouraged the flowering of creativity was the 'rise and rise of London'.<sup>413</sup>

The evolution of designer-makers into establishment figures in the design world can perhaps best be traced through Tom Dixon and Ron Arad. Dixon, who is entirely self-taught, began constructing furniture from recycled metal in the 1980s in his garage; he is now a design director of *Habitat*. Arad, by contrast, is Course Director of Design Product at the Royal College of Art and gained an international reputation through his inventive explorations in metal produced at his own workshop *One Off* in Covent Garden. There he reinvented the *Rover* car seat as an armchair, produced domestic furniture out of sheet steel that has helped to define him as 'a poet of technology', according to Richard Rogers who wrote the foreword to the book *Ron Arad, Restless Furniture* (1990).<sup>414</sup> Both Dixon and Arad moved into the mainstream and are influencing the direction of commercial retailing and education. This thesis however focuses on furniture designer-makers as a catalyst for sustainable development and

<sup>&</sup>lt;sup>411</sup> D. Redhead, *Industry of One, Designer-Makers in Britain 1981–2001*, Crafts Council, London, 2001, p. 7

<sup>&</sup>lt;sup>412</sup> Ibid., p. 13

<sup>&</sup>lt;sup>413</sup> Ibid., p. 40

<sup>&</sup>lt;sup>414</sup> R. Rogers, Foreword to *Ron Arad, Restless Furniture*, by D. Sudjic, Fourth Estate/Wordsearch, London, 1990, p. 9

it is from this perspective that I return to Papanek for insights into this role.

### The craft-based business eco

Design can be an integrating discipline addressing different levels of need within a community or society as a whole. Designer-makers, in particular, can facilitate sustainable development at a local level by finding new creative approaches to problems in conditions of global instability. As Victor Papanek suggests: 'new directions in design ... arise out of real social and cultural changes'.<sup>415</sup> Papanek recognises that as problems become more complex the role of the designer needs to be redefined. Instead of being a creator of more consumer products, a designer can redefine his role in relation to the wider social and environmental needs of the community or society to which he/she can contribute. A designer may function in the capacity of a facilitator or synthesizer, collaborating with non-design experts to find new solutions (either products or processes) that reconcile social, economic and environmental needs. Papanek, like Van der Ryn and Cowan, believes that good design is far too complex for a designer to solve alone.<sup>416</sup>

However, designers and designer-makers are seemingly not recognised in *Agenda 21* in relation to sustainable practice and perhaps confirming that the design profession has yet to make a significant contribution to the development of designs that promote sustainability. Nevertheless, Papanek advocates an ethical approach to design and insists: 'We must examine what each of us can contribute from our own specific role in society'.<sup>417</sup> He asks 'What is the impact of my work on the environment?'<sup>418</sup> Design, according to Papanek, must be positive and unifying: 'Design must be a bridge between human needs, culture and ecology'.<sup>419</sup>

<sup>&</sup>lt;sup>415</sup> Papanek, *The Green Imperative*, p. 55

<sup>&</sup>lt;sup>416</sup> Ibid., p. 57

<sup>&</sup>lt;sup>417</sup> Ibid., p. 17

<sup>&</sup>lt;sup>418</sup> Ibid., p. 17

<sup>&</sup>lt;sup>419</sup> Ibid., p. 29

Papanek echoes Dahl's belief, that sustainability is directly linked to mature interpersonal qualities. He believes designers who work towards promoting a holistic approach to design are also defining themselves as individuals: 'As we practise our art and skill what we do moulds who we are and what we are becoming'.<sup>420</sup> In this sense design becomes a spiritual or moral activity that not only shapes the character of the designer but also the world around him – a view expounded upon in the Bahá'í Writings:

We cannot segregate the human heart from the environment outside us and say that once one of these is reformed everything will be improved. Man is organic with the world. His inner life moulds the environment and is itself also deeply affected by it. The one acts upon the other and every abiding change in the life of man is the result of these mutual reactions.<sup>421</sup>

Papanek has been the conscience of the design profession chastising designers about their social and environmental responsibility in *Design for the Real World*<sup>422</sup> and *The Green Imperative*<sup>423</sup>. In both texts, Papanek argues design should be a service to humanity; in particular it should improve the quality of life for the marginalised who are ignored by the commercial world.

The relationship between designers and the economy is however not straightforward, designers have limited influence on a macro level. Design played its part in the global economy reducing prices and increasing demand of products but economic development has failed to bring wider benefits to not only the customer but also to workers, society and the environment as a whole. Some critics of the capitalist model recognise the urgency of creating new types of business to meet customers' needs. For example, Zuboff and Maxmin believe corporate businesses have to begin with identifying the psychological identity of the individual/customer who now requires a deeper relationship, not just goods and services. They argue that you can not take a system

<sup>&</sup>lt;sup>420</sup> Ibid., p. 53

<sup>&</sup>lt;sup>421</sup> Universal House of Justice, *Conservation of the Earth's Resources*, The Bahai Publishing Trust, London, 1990, p. 15

<sup>&</sup>lt;sup>422</sup> V. Papanek, *Design for the Real World*, Paladin, St Albans, 1974

<sup>&</sup>lt;sup>423</sup> V. Papanek, *The Green Imperative*, Thames and Hudson, London, 1995

designed for the mass market, which assumes its only obligation to customers is efficiency and hence low prices, and make it serviceorientated.<sup>424</sup> Their analysis identifies a key challenge in the failings of the economic system – a system built on the premise of reducing costs: can the system transform itself to meet the diversity of needs of a global society? There is clearly an opportunity for the craft-based business (eco). Papanek believes that small factories and workshops are better placed than large corporations to design, innovate and custom-build goods for special needs. It can also 'make a decent profit for its owners and pay proper wages for its workers'.<sup>425</sup> In this way the designer-maker could play a vital role in developing new forms of business that meets both the individual's and society's needs based on sustainable practice.

The challenge for the designer-maker is to define a strategy that negotiates the relationship between mass consumer products and the rarefied craftsman-made products. There may be a symbiotic relationship enabling the development of new types of designer-maker furniture as an alternative to branded products from retail outlets or oneoff designer-maker furniture - surely an argument for the "Signed & Sealed" project to embrace.

The availability of relatively low cost consumer products has, in a sense, liberated the craftsmen in the West from the tyranny of subsistence, enabling the crafts to flourish. Susan Cohn suggests: 'It is not the crafts that have changed but the demands of the market. Mass production has simply freed crafts people from the drudgery of mass market production and allowed them to define their own market, the kinds of things they want to produce and the size of their production runs'.<sup>426</sup> Mass production, Cohn argues, has 'liberated the craftsmen'.<sup>427</sup>

If this is true, designer-maker furniture should be a viable alternative to branded consumer products. However expensive, one-off pieces cannot meet this embryonic demand. The challenge for the designer-

<sup>&</sup>lt;sup>424</sup> S. Zuboff and J. Maxmin, *The Support Economy: Why Corporations Are Failing* Individuals and the Next Episode of Capitalism, Alan Lane, London, 2003 <sup>425</sup> Papanek, *Green Imperative*, p. 65

<sup>&</sup>lt;sup>426</sup> S. Cohn, 'The Crafts: on their own terms', P. Timms (Ed.), *The Nature of the Beast*, Craft Victoria, Fitzroy, 1993, p. 24 <sup>427</sup> Ibid., p. 24

maker is that unlike industrial production, where designs are developed and refined through a series of prototypes before production, bespoke furniture-makers must resolve design problems on the first attempt. The time invested in designing and making these virtuoso pieces of craftsmanship are reflected in their total cost. As commissioning a oneoff involves not only a significant financial commitment from a client but also some uncertainty. A successful outcome will depend on the ability of the designer-maker to interpret the requirements and aspirations of the client; translate these into a design and create a piece of furniture that represents fine craftsmanship; a high risk situation for both designermakers and client. Some designer-makers committed to the one-off have not resolved this dilemma.

Makepeace, for example, sees any form of replication leading to a compromise of quality:

In making a piece for the first time, all one's efforts are focused on anticipating and solving problems. In a sequel one's attention can be clouded by attempts to recall the way in which the first result was achieved.428

He acknowledges, however, that this approach does not lead to a resolved design. The one-off therefore becomes one step in a process to achieve the designer's longer term goal. 'One success out of ten will suffice, with the other nine pieces acting as sketches, prototypes and support material along the road to that significant artistic result'.<sup>429</sup> This may be worthy in itself but if nine of the ten one-offs are commissions that have failed then the clients are acting as unwitting guinea pigs (two-thirds) of John Makepeace's work are commissions).<sup>430</sup>

Making a living from designing and producing one-offs is a myth and has probably never been and will never be viable for the majority of independent designer-makers who are trying to make a living from The fallacy is summed up by the ceramicist Carol commissions. McNicoll:

<sup>&</sup>lt;sup>428</sup> John Makepeace, furniture designer-maker, Beaminster. Interviewed by B. Norbury, June 1998. <sup>429</sup> Ibid.

<sup>&</sup>lt;sup>430</sup> Myerson, *Makepeace*, p. 133

In order to keep coming up with the endless new ideas that the new category [artist-craftsman] requires, you need time; to have time you need money and to make money, you need to either to charge art prices, run a factory or have a private income. What our art education didn't teach us was that most of our precursors came from a section of society where poverty is defined as only having private income to live on.<sup>431</sup>

When the designer-maker tries to cross over and serve the mass market the pitfalls can also be equally devastating at a creative and commercial level. The comfortable niche market which can be created over a period of time can be undermined when designs are translated for the commercial world. Again McNicoll warns: 'The history of twentieth century consumer culture is littered with examples of crafts people losing their market share when their products became fashionable enough to mass market'.<sup>432</sup> Designer-makers are often wise to develop their own idea rather than cross over into the mainstream market. To do this they need to create viable businesses.

If designer-makers are to play a greater role in a sustainable future they need to evolve ecologically based businesses. The challenges of developing a designer-maker business are great and require some discussion here. The development of any craft-based business (*eco*) is dependent on the designer-maker competently managing a range of disparate skills from design and making to marketing and selling. Matthew Burt believes they all require similar levels of commitment: 'each must be undertaken with the same degree of intensity, creativity, imagination and skill'.<sup>433</sup> Success depends on embracing and mastering these skills and pursuing them with a passion. John Makepeace has embraced the diverse aspects of managing a craft business but he believes 'the U.K. underplays the rewards of doing different things that use the whole being'.<sup>434</sup> Designer-makers who are reticent or challenged

 <sup>&</sup>lt;sup>431</sup> C. McNicoll, 'The Real Economy', *Obscure Objects of Desire Conference, Conference Papers, University of East Anglia, 10-12 January 1997*, Crafts Council, 1997, p. 380
 432 w 1997

<sup>&</sup>lt;sup>432</sup><sub>432</sub> Ibid., p. 380

<sup>&</sup>lt;sup>433</sup> Matthew Burt, 'Viewpoint on Design', *Furniture and Cabinetmaking,* Guild of Master Craftsman Publications Ltd, Lewes, no. 34, November 1999

<sup>&</sup>lt;sup>434</sup> Makepeace. Interviewed by Norbury

by the demands of managing a business struggle to survive. Toby Winteringham, an established designer-maker, for example, concedes that it is difficult to keep all the 'balls in the air ... hates the marketing side' and finds he 'sells things in spite of [himself]'.<sup>435</sup> Mastering the many skills is, however, a protracted process. Richard Williams who set up his first workshop in 1990 is still endeavouring to find the balance, as ninety per cent of his time is preoccupied with the demands of trying to manage a financially viable business that can support his family.

Some designer-makers have made the decision to function as one-man businesses to minimise the difficulties of managing a larger business. Mark Ripley, a designer-maker in South Oxfordshire, estimates it has taken thirteen years to establish his one-man workshop; by contrast, Williams employs between five and six craftsmen. Each workshop has either found its optimum size or is working towards it, be it one or ten. Beyond this number the business has to take a new form. Mark Ripley recognises, for example, that growing his business would mean working 'in a completely different way from how I work now. I would almost have to reinvent the business on a different scale to do it efficiently'.<sup>436</sup>

A craft-based business like every *eco*, to use Dahl's terminology, will therefore have an optimal size determined by its form, structure and the economics or "dis-economics" of scale inherent in the system processes. Increased efficiency which is producing more with less 'comes from greater strength, smaller distances, faster speeds and less expenditure of resources to maintain essential balance'.<sup>437</sup> *Ecos* of different conditions, craft or industrial, will exist side by side competing or acting interdependently. It is not without significance that the growth in the number of designer-maker businesses has synchronised with the changing aspirations of the market.

<sup>&</sup>lt;sup>435</sup> Toby Winteringham, furniture designer-maker, King's Lynn. Interviewed by B. Norbury, June 1998

<sup>&</sup>lt;sup>436</sup> Mark Ripley, furniture designer-maker, Reading. Interviewed by B. Norbury, June 1998

<sup>&</sup>lt;sup>437</sup> Dahl, *Eco Principle*, p. 54

Furniture designer-makers have been responsive to the changing aspirations of the public as well as being pioneers in developing a new type of eco-business. The preservation of this unique maker-client relationship has a wider social dynamic according to Matthew Burt who believes, like Dahl, that diversity is an ecological law and is a prerequisite of stability. This principle, he believes, must be applied to the market place where small business must provide alternatives to mass manufacture of the kind which has come to provide 'a convenient expression of capitalism and a convenient way of controlling a market'.<sup>438</sup> It is becoming increasingly evident that the small workshop business producing a highly individual service and range of products contrasts sharply with the impersonal experience of high street retail outlets. For example, the growth of huge national and international companies is, according to John Makepeace, 'undermining people's contact with their inner being and with their souls'. He believes that bespoke designermakers are in a unique position to respond to clients' needs and aspirations giving them 'something that is much more fulfilling for them than anything else they can purchase'.<sup>439</sup> Designer-maker businesses have been multiplying over the last thirty years creating new opportunities for both the designer-makers and potential clients.

The growth of the designer-maker has in the past been highly restricted in the market. Alternative networks to the retail within the market economy have barely existed. Potter reflected in the late 1960s:

Artisans have no way of opting out of society ... because the alternative networks of distribution and exchange do not in fact exist. ...workshops depend like everybody else on an open-market economy.440

It may be argued that there is still no alternative to the global market economy but the world-wide web has played a significant role in enabling small businesses to place their products and services in the market place at nominal cost. In the intervening years there has been an incremental

<sup>&</sup>lt;sup>438</sup> Matthew Burt, furniture designer-maker, Warminster. Interviewed by B. Norbury, June 1998

 <sup>&</sup>lt;sup>439</sup> Makepeace. Interviewed by Norbury
 <sup>440</sup> N. Potter, *What is a Designer*, Hyphen Press, Reading, 1980, p. 80

change in public awareness and according to Norbury, exhibition curator and author:

Imperceptibly the tide is turning. As we move into the twenty-first century the principles that these highly skilled and dedicated designer-makers have adhered to so uncompromisingly are being recognized as valid, and in tune with the times, the environment and the needs of a population satiated with wasteful consumerism.<sup>441</sup>

In some regions the multiplication of designer-maker workshops is beginning to reach a significant level. The Oxfordshire and Chilterns area is possibly approaching the point of 'critical choice'.<sup>442</sup> The number and diversity of furniture makers in the area is significant enough to attract a considerable demand from both local and regional clients. The emergence of a network of established workshops has made commissioning furniture a more attractive possibility than if there were only a few and clients are more aware of the possibilities and less inhibited about approaching furniture makers. Competition is mitigated by the diversity and individuality of the furniture makers who each have their own style and niche market.

This diversity means that clients choice is not conditioned by what the manufacturer decides what is viable and profitable or the duplicitous relationship of the market and consumer which generates fashion for its own sake resulting in the 'dangerous, unsatisfying, insubstantial'.<sup>443</sup> To meet these diverse needs and aspirations, the new alternative local and regional networks of designer-makers are emerging facilitated by the media, exhibitions, and the World Wide Web. According to Norbury:

We now enjoy the benefit of a society in which there are hundreds of well trained, highly skilled and for the main part, ethically rightminded, independent furniture makers. This implies a future where many people will commission custom-made furniture as readily as they order a fitted kitchen or a set of curtains.<sup>444</sup>

 <sup>&</sup>lt;sup>441</sup> B. Norbury, *Furniture for the 21<sup>st</sup> Century*, Stobart Davies, Hertford, 1999, p. 8
 <sup>442</sup> A term used by Prof. Alison Rieple, Westminster University, in conversation with

Philip Koomen, 10 February 2004

<sup>&</sup>lt;sup>443</sup> Starck cited by F. Sweet, p. 74

<sup>&</sup>lt;sup>444</sup> Norbury, p. 10

The growth of designer-maker businesses will, however, depend on how prospective clients perceive the value of designer-maker furniture. The viable price for craftsman-made furniture is generally how much a craftsman can sell his work for and make a living. This is a different concept from an entrepreneurial business which will try to obtain the maximum possible profit, particularly if it is a large corporation accountable to the stock market. According to the critic Peter Dormer, the ideal for a contemporary craftsman is to be independent of trade competition which ultimately compromises both the nature of the work and the nature of the product.<sup>445</sup> When the designer-maker is able to charge a fair price that represents the effort (man hours) and skill that has been invested in the product 'irrespective of what other producers are making, then you can afford the time to make the product you want on your own terms'.<sup>446</sup>

Inevitably, craftsman-made furniture will always have its equivalent in industry, so it must be perceived by a client as distinct from the industrial alternative otherwise the client will not justify the price difference. As Pye suggests:

The differential in price between a product of craft of the best quality and a product of manufacture varies naturally according to the trade but it is always large and sometimes huge. Unless it is, the craftsman has no hope of anything approaching a modest professional standard of living and he will never be able to command a better living than that.<sup>447</sup>

This said, I believe, there must be a very clear ethic about pricing craftsmen's work. Both the late Jack Goodchild, the Windsor chair maker, and Sam Maloof, the American designer-maker, believe there is a correct price for their work which is non-negotiable. Goodchild, for example, would not accept offers higher than the stated price.<sup>448</sup> The right price for many established craftsmen is the ethical price, i.e. that

 <sup>&</sup>lt;sup>445</sup> P. Dormer, *The Meanings of Modern Design*, Thames and Hudson, London, 1991
 <sup>446</sup> Ibid., p. 152

<sup>&</sup>lt;sup>447</sup> D. Pye, *The Nature and Art of Workmanship*, Cambridge University Press, Cambridge, 1968, p. 77

<sup>&</sup>lt;sup>448</sup> H. Massingham, *Men of Earth*, Chapman and Hall, London, 1943, p. 132

which represents a fair return for their craftsmanship rather than the price that reflects the market.

Since designer-maker furniture has its counter part in industrial products it is inevitable that comparisons will be made. This is not necessarily detrimental to craft practice when the process, as will be seen in the "Signed & Sealed" project, promotes sustainable practice. The alignment of the process to a clear and well defined set of values and objectives provides a differentiating factor that enables clients to make a considered choice. The challenge for many crafts people is that no clear direction is being communicated to a receptive community. Dormer argues that most crafts people are struggling to find a coherent framework from which to develop their practice that communicates directly to the public and potential market.<sup>449</sup> Since usefulness and hence service no longer play a central role in craft practice in general, craft has begun to loose a unified direction. The traditional handicrafts were bound by common values of usefulness and need until the industrialised consumer economy rendered traditional crafts redundant. The relationship between handicraft and usefulness was significantly changed with the emergence of middleclass men and women adopting former trade activities, transforming them from the punishing trade crafts into the gentrified art crafts leaving the crafts with no unified direction.<sup>450</sup>

The question arises, how can the furniture designer-maker be a relevant force in addressing issues around sustainability? Furniture designer-makers are often criticised for their preoccupation with making as an end in itself and not addressing wider issues. Jasper Morrison, a furniture designer, refers in disparaging terms to the 'designer-maker thinking with his chisels'.<sup>451</sup> One model offered by Ihatsu postulates that both art and design can act as guiding hands for crafts. Art offers 'creative ideas, aesthetics, individually free expression or an intuitive way

<sup>&</sup>lt;sup>449</sup> P. Dormer, *The Art of the Maker,* Thames and Hudson, London, 1994, p. 72 <sup>450</sup> Ibid., p. 72

<sup>&</sup>lt;sup>451</sup> J. Morrison cited by P. Dormer, *The New Furniture*, Thames and Hudson, London, 1987, pp. 136-137

to work'<sup>452</sup> and industrial design offers 'function, customer service but also problem solving, rational analysis and technology.<sup>453</sup> Craft can look in either direction. The two ways of working, intuitive and rational, can be used in turn, transforming crafts into a dynamic process. There is also the designer-maker facilitator who uses his workshop as a laboratory and multi-disciplinary skills to initiate change and innovation beyond the walls of the workshop.

Two designer-makers in particular have been successful in this role; Makepeace, for example, made the decision in the mid 1970s to delegate the making of his furniture to his assistants and to stop being a maker himself, arguing: 'My approach now is to use the information coming to me via the making process to enhance the object'. This freed him to 'explore educational, environmental and economic issues<sup>454</sup> and led to the establishment of Parnham School (as discussed) and Hooke Park, a centre for training designers in ecological design.<sup>455</sup> The late Tim Stead, a designer-maker who was based in Scotland, responded to his conscious debt to trees and his awareness of their symbolic value in the environmental crisis by direct action. This included a series of initiatives in his community, including the Woodschool, which provides workshop facilities for graduate designer-makers who produce designs using locally sourced timber.<sup>456</sup> Both these designer-makers' initiatives highlight the furniture designer-maker's dependency on their raw material: timber, now largely an internationally traded commoditised product.

Furniture designer-makers like Makepeace and Stead responded in individual ways to environmental and social issues. The One Tree project (2001), in contrast, offers a unified model of a dynamic relationship between timber, forestry, the designer-maker and the community. Conceived as a touring exhibition and a book by two furniture designermakers/facilitators, Garry Olson and Peter Toaig, to demonstrate the

<sup>&</sup>lt;sup>452</sup> A. Ihatsu, 'Art or Design? In Pursuit of the Changing Concept of Craft', Obscure Objects of Desire Conference, Conference Papers, University of East Anglia, 10-12 January 1997, Crafts Council, 1997, p. 303

<sup>&</sup>lt;sup>453</sup> Ibid., p. 303

 <sup>&</sup>lt;sup>454</sup> Makepeace. Interviewed by Norbury
 <sup>455</sup> Myerson, *Design Renaissance*, pp. 148-175

<sup>456 &</sup>lt;www.woodschool.ltd.uk>

diverse applications of a mature oak tree, seventy artists, craftsmen and designer-makers each produced an artefact from different parts of an oak tree from the Tatton Estate in Cheshire. Not only the commercial part of the tree, the trunk, was used branches, leaves and twigs were all utilised to showcase the tree's contribution to the creative process and our dependency on this renewable resource. Like the Eden Project (2000) it was an imaginative initiative that captured the public's attention, educating them about the material and aesthetic benefits of a renewable source that they may have only appreciated as a standing tree in a park or forest estate. By bringing together a network of designer-makers and foresters in a unified vision it also demonstrated the maturity of a community working towards a craft-based sustainable future.

The "Signed & Sealed" project is based on the responsibility of the individual furniture designer-maker to develop a design strategy that meets the needs of the market but reconciles the challenges of a sustainable future. It was out of all these issues that the idea of introducing a variation to the traditional practice embodied in the bespoke commission came to me – an idea that I term the *semi-bespoke*. Historically, the idea itself (although not the term) had occurred to me before the genesis of this particular project but was one that I felt impelled to revisit and was to provide a vital element in developing the "Signed & Sealed" project (see Part Two). The concept of the *semi-bespoke* was to represent the first strand introduced into the "Signed & Sealed" project and provided the basis of a strategy which offered an alternative to both the exclusivity of one-off design & make furniture and the anonymity of high street consumer products.

# 1.4 Sustainable forestry management, the local cycle and timber selection

Timber symbolises the ecological debate around sustainability. The U.K.'s position is a poignant one in this regard. Forestry cover in England is now one of the lowest in Europe at 8.5 per cent, less than one third of

Germany and France.<sup>457</sup> The USA and Brazil, by comparison, have 24.7 and 64.3 per cent respectively.<sup>458</sup> We import 1,725,000m<sup>3</sup> of hardwoods and only produce 108,000m<sup>3</sup> for our own needs.<sup>459</sup> Although conservation values can be enhanced through growing trees for their timber, our National Forestry policy has concentrated on extending National Parks for recreational and landscape purposes with little consideration for timber production.<sup>460</sup>

The government's National Forest Policy aims to double woodland cover to fifteen per cent in England within fifty years.<sup>461</sup> The policy is to plant broad-leaved trees and promote multiple uses of woodlands and public access. Although this appears to be a strategy to widen the benefits of woodland the policy has fundamental weaknesses: 'Sustainable forestry needs to deliver multi-purpose benefits. However, current forestry policies are placing most emphasis on the social and environmental benefits gained through growing trees, at the expense of economic benefits'.<sup>462</sup>

The economic value of woodlands is no longer measured in terms of timber production by the government-backed regional policy.<sup>463</sup> A much broader definition of values assesses that woodlands contribute one billion pounds to the regional economy in added value.<sup>464</sup> Property prices, for example, are enhanced by areas of outstanding natural beauty, yet ironically woodland owners, who represent two thirds of woodland ownership, generate a meagre twenty million pounds in revenue, largely from timber sales.<sup>465</sup> The U.K. Government framework attempts to define the requirements for sustainable forestry, by

<sup>&</sup>lt;sup>457</sup> Forestry Commission, *Forestry Statistics 2001*, Edinburgh, 2002, p. 2

<sup>&</sup>lt;sup>458</sup> Ibid., p. 6

<sup>&</sup>lt;sup>459</sup> Ibid., p. 23

<sup>&</sup>lt;sup>460</sup> Forestry Commission, *England Forestry Strategy: a New Focus for England's Woodland*, Edinburgh, 1998

<sup>&</sup>lt;sup>461</sup> E. Dougliss, 'Trees', Oxfordshire Agenda 21, S. Ohlenschlager (Ed.), Oxfordshire County Council, Oxford, 1997, p. 68

<sup>&</sup>lt;sup>462</sup> G. Hemery, personal email to Philip Koomen, 24 August 2004

<sup>&</sup>lt;sup>463</sup> Forestry and Woodlands Framework Steering Group, Seeing the Wood for the Trees: a forestry and woodland framework for South East England, Norwich, 2004

<sup>&</sup>lt;sup>464</sup> The Forestry and Woodlands Framework Steering Group, p. 2

<sup>&</sup>lt;sup>465</sup> A. Betts, 'Regional Picture & Policies – The New Regional Forestry Framework for the South East', *Chilterns Woodland Conference*, High Wycombe, 16 October 2004

establishing social, economic and environmental criteria to meet longterm needs and public funding applications. It does not, however, address the global effects on U.K. forestry management and in particular the potential impact of global warming or the possible effects of increased demand on timber in a global market. In the U.K. the focus is on conservation of our heritage and enhancing the value of existing resources through diversification of activities that improve communities, e.g. tourism, landscape and conservation and community projects. This represents a strategic shift from the post First World War policy of rebuilding the nation's timber stock. Woodland and forestry management for timber production is no longer one of the government's priorities and is left to individual and independent organisations' own initiatives and the forces of a free market.

The Northmoor Trust, for example, has observed that the Forestry Commission will only be planting species of the same historical genetic provenance as native trees.<sup>466</sup>. The trees grown will have the same genetic limitations as their predecessors making them inferior in timber quality and not necessarily suitable for the environmental conditions brought about by climate change. This, in combination with the government's latest framework for the nation's forests and woodlands, will make us import-dependent for generations.

The range and diversity of imported hardwoods and their exceptional quality have created high expectations by users which have largely been matched by timber traders who have provided a supply of timber with minimal defects but is unrepresentative of forest yield. Customers specifying for joinery and furniture are, according to Steve Say, of Timbmet Ltd, over-zealous in demanding 'blemish-free, flat, stable and consistent colour'.<sup>467</sup> Timber, although an organic natural material, has come to be regarded by manufacturers, as a homogenous commodity unrepresentative of actual forest timber production. According to Dr Mike Packer, environmental manager of the Timbmet

<sup>&</sup>lt;sup>466</sup> G. Hemery, 'Sustainable Forestry in the UK', *Our Woods in Your Hands Conference*, River & Rowing Museum, Henley-on-Thames, 25 September 2004

<sup>&</sup>lt;sup>467</sup> S. Say, Workshop Discussion, *Our Woods in Your Hands Conference*, River & Rowing Museum, Henley-on-Thames, 25 September 2004

Group Ltd, this is an artificial and unsustainable situation in a global market. He argues that current specification demands by the U.K. market are unrealistic in relation to price expectations.<sup>468</sup> With new international markets for commodities opening up, timber suppliers will be content to sell their timber to less demanding customers at better prices. The U.K. market will have either to accept lower grades, or to pay significantly higher prices.

Local sourcing was gradually undermined in the twentieth century because of the decline of the furniture industry and an increased reliance on imported timbers producing a catastrophic impact on local timber markets. Waning demand for local wood and falling timber prices undermined woodland owners' income and left local Chiltern and Oxfordshire woodlands (like many others) in a state of ecological and economic crisis.

"Under-management" therefore is presently a considerable threat to the U.K.'s privately owned woodlands, which account for two thirds of all woodlands. As Eric Dougliss, a Country Forester explains:

Much of Oxfordshire's timber and wood resources is poorly used. Our small woodlands alone have the capacity to produce up to 40,000 tonnes of wood, worth up to £1 million each year. Actual production is around 5,000 to 10,000 tonnes, worth about  $\pm 100,000$ .<sup>469</sup>

This decline, alarming as it is, can only be halted through a coordinated and unified effort involving the various stakeholders who have an interest in local forestry including woodland owners, wood users and consumers. The current situation is critical. A recent investigation into the feasibility of small English woodlands producing a sustainable level of quality timber to supply saw mills, trade and chain retailers concluded: 'at present there is a question mark over the ability of English timber to meet increased demand for all but the specialist niche end of

<sup>468</sup> M. Packer, 'Promoting Sustainable Forest Management: an International Trade Perspective of Market Constraints and Opportunities', *Our Woods in Your Hands Conference*, River & Rowing Museum, Henley-on-Thames, 25 September 2004

<sup>469</sup> Dougliss, p. 70

the market<sup>470</sup> Fragmentation within the forestry industry is one of the obstacles preventing progress. The timber-using industry echoes this view, according to Paul Newman from the furniture manufacturer Wood Brothers in Hertfordshire. As a significant purchaser of timber, his company is dissatisfied with the mediocre quality of timber bought from woodland owners. He argues that the lack of a coordinated effort by the forestry industry is hampering the effective utilization and marketing of existing resources.<sup>471</sup>

The public also has a fragmented view of the role of woodlands. On the one hand people living in the Chilterns, for example, choose the area because of the attractiveness of the landscape and its amenity and conservation values but on the other hand have little support for the purchase of locally produced wood products.<sup>472</sup> The relationship between ecology and economics, two principles of sustainable woodland management, are clearly not understood. Two regional organisations, Transnational Wood Industries Group (TWIG) and the Northmoor Trust, both engaged in research in forestry research highlighting this problem in different ways.

According to TWIG, the Chilterns have the capacity to produce between 70,000 m<sup>3</sup> and 80,000 m<sup>3</sup> of hardwood each year. These figures are based on harvesting the sustainable maximum harvest of 112 hectares of woodland each year.<sup>473</sup> This action would normalise the age distribution of the woodlands and generate an indefinite supply of timber on an annual basis. Quality of timber is low with seventeen per cent of sawn logs by volume being prime quality from eight per cent of standing volume.<sup>474</sup> The lack of management of woods for timber and long-term planning, the declining skill base and a deteriorating supply chain all

<sup>&</sup>lt;sup>470</sup> C. Christie and T. Cooper, 'Wood Products from Sustainably Managed Woodland', *Review of Consumer Awareness and Best Marketing Practice and Strategic Guidance on Market Development*, The Forestry Commission and The Countryside Agency, August 2004, p. 7

<sup>&</sup>lt;sup>471</sup> G. Hemery and P. Savill, 'Better Trees, Better Profits', RFS Conference Report, *Quarterly Journal of Forestry*, July 2004, Vol. 98, No.3, p. 189

<sup>&</sup>lt;sup>472</sup> M. Render, 'Sustainable Woodland Management – What does this mean for the Chilterns?', *Chilterns Woodland Conference*, 16 October 2004

 <sup>&</sup>lt;sup>473</sup> M. Dower (Ed.), Sustainable Woodland Management and Local Added Value to Woodland Products, TWIG, Athens, 2002, p. 15

<sup>&</sup>lt;sup>474</sup> Report of the TWIG Conference Summary, Oxford Forestry Institute, 23 April 2001

serve to hamper progress, according to Steve Rodderick.<sup>475</sup> Ric Pakenham, of Chiltern Forestry Consultancy, agrees and estimates the current problems are the result of fifty to one hundred years of neglect.<sup>476</sup>

According to Hemery, a forestry scientist at the Northmoor Trust, Oxfordshire, the greatest threat to the U.K. market for timber is the longterm environmental change and the consequent world-wide and local shortage of timber. Hemery outlines six aspects to climate change (summarised below) which demonstrate that the status quo is no longer an option and radical solutions must be identified and implemented to meet timber demands if a crisis is to be avoided:

- There is overwhelming scientific consensus that we have entered a period of unprecedented climate change driven largely by human activities
- Predictions are for an increase of between 3 and 5° C during the course of this century
- Many scientists and politicians agree that climate change is the most significant environmental threat to have faced the modern world
- Since historic greenhouse gas emissions remain in the atmosphere for long time (at least fifty years) so we have already determined our short to medium-term climate
- People must understand the need to adapt to change, realizing opportunities and accommodating threats (environmental, social and economic) across all sectors
- The level of greenhouse gas emissions today and in years to come will determine the amount of climate change in the latter half of the 21<sup>st</sup> century
- It is widely believed that warming in excess of 2 degrees
   Celsius/atmospheric CO<sub>2</sub> in excess of 525 parts per million by

 <sup>&</sup>lt;sup>475</sup> S. Rodderick, Wood Industries Liaison Group Meeting, 17 May 2001, High Wycombe
 <sup>476</sup> R. Pakenham, Wood Industries Liaison Group Meeting, 17 May 2001, High

<sup>&</sup>lt;sup>3</sup> R. Pakenham, Wood Industries Liaison Group Meeting, 17 May 2001, High Wycombe

2100 would constitute dangerous climate change, and make adaptation of ecological and human systems impossible<sup>477</sup>

Climate change is likely to have a significant effect on the Oxfordshire Chilterns woodlands leading to a decline in beech which requires a mild, sunny climate and moist and calcareous soils.<sup>478</sup> This will produce more extreme seasonal conditions resulting in the decline of beech but creating conditions more suitable for other broad-leaved species.<sup>479</sup> Increased diversification of species to more light-demanding trees such as ash, sycamore and oak will result in their replacing beech. These changes will require both more management and frequent interventions, resulting in higher costs and increased divergence between economic and ecological requirements.<sup>480</sup> Not developing an appropriate management policy in the Oxfordshire area will devastate the woodlands. The development of a strategy to utilise timber from local woodlands is therefore essential to promote sustainable woodland management.

By contrast, the problems associated with global forestry management have been acknowledged and are being acted on. The forestry and timber trade industry has begun to put in place a system which provides an assurance that selected timber is sourced from a sustainably managed forest. The Forestry Stewardship Council is the leader in sustainable forest management certification (FSC) and provides independent verification of performance against defined standards. Formed in 1993 as a non-profit organisation with headquarters in Germany, it was the result of extended consultations between timber industry representatives, foresters, and business, environmental and social groups who were concerned about the public's increasing scepticism of environmental claims by the timber industry and lack of protection of the majority of the world's forests. According to Jared

<sup>&</sup>lt;sup>477</sup> Hemery, Sustainable Forestry

<sup>&</sup>lt;sup>478</sup> G. Hemery, 'Site and Light Assessment for Natural Regeneration',

Discussion/workshop at a site meeting in Rumerhedge Wood, Checkendon, 9 July 2002

<sup>&</sup>lt;sup>479</sup> P. Savill, 'Beech in Britain', *Goodbye to Beech ~ Farewell to Fagus?*, Report of the Transnational Woodland Industries Group Conference, 23 April 2001

<sup>480</sup> Ibid.

Diamond 'In a worst-case scenario, all of the world's readily accessible remaining forests outside those protected areas would be destroyed by unsustainable harvesting within the next several decades'.<sup>481</sup>

The Forestry Stewardship Council produced ten principles for sustainable forest management in 1994 which formed the criteria for certification. Together with "chain of custody certification", which provides the documentation that tracks the journey from the forest to the end product that consumers purchase, a sustainable model was established. A process was established to determine if forests met the criteria. Accredited certifying organisations operate the system and forest owners or managers submit their management plans and practices to independent vetting at a financial cost. One of the main reasons for voluntarily subjecting their businesses to such scrutiny is the access to markets they can potentially gain and the credibility and improved image the products acquire by the consumer.

The model is not without its problems. Firstly, there are competing certification schemes including Sustainable Forestry Initiative (SFI) in the USA and the Pan-European Forestry Certification (PEFC) in Europe, to name but a few. These schemes try to meet different needs or vested interests. The result is confusing to the public, although the FSC scheme is the most recognised and the most widely adopted, the alternative schemes have often been developed for very legitimate reasons. The PEFC scheme for example, according to Michael Buckley, 'addresses the needs of all private forest owners throughout the European Union and tackles the practical problems of Chain of Custody'.<sup>482</sup> One of the issues that is not fully addressed in "chain of custody" requirements is the production inefficiency associated with segregating certified from uncertified material in sawmills and many furniture manufacturers. Buckley points out that "chain of custody" can potentially be discriminating, favouring 'competing materials that may be less

 <sup>&</sup>lt;sup>481</sup> J. Diamond, *Collapse*, Penguin Books, London, 2006, p. 473
 <sup>482</sup> M. Buckley, *North American and European Hardwoods*, M.Phil thesis, University of Bath, 1999, p. 213

environmentally friendly' and 'takes no account of comparative Life Cycle Analysis (LCA)'.<sup>483</sup>

Although only about five per cent of forests world-wide are certified and only one per cent of tropical forests, certification is now becoming a global enterprise. FSC is, however, a standard that can only be attained gradually. One of the biggest problems is the issue of the importation of illegal timber; the World Bank estimated that fifty per cent of logging However, with large purchasers, including world-wide is illegal. governments and local authorities, permitting only the purchase of certified timber this system is beginning to regulate the market. The Oxford based timber merchant, Timbmet Group Ltd for example, are working with forestry management companies to facilitate the delivery of increasing volumes of timber that is 'legal and traceable and legal and progressing to FSC'.<sup>484</sup> Timbmet see their future aligned to promoting sustainable forestry. On a global level it becomes apparent that significant progress is being made to ensure that the market can supply timber from well managed sources. Collaboration between independent third parties, international institutions (e.g. World Bank), forestry companies and timber suppliers to establish mutually agreed standards of verification ensure that when a customer buys a product from a retailer the label FSC means what it says.

Implementation of the scheme in the global market has achieved some real success. Its effectiveness can, in part, be measured by the increasing number of high street and international retailers who now retail FSC products. From its beginning when B&Q and Boots were party to its formation some of the world's largest producers and sellers of timber products have joined including Home Depot, the world's largest retailer of lumber, Gibson Guitars, Sainsbury's and Sweden-based IKEA, the furniture flat pack retailer. Product certification by these companies was, according to Diamond, motivated by 'varying combinations of "push and pull", a reaction to the environmental lobby and recognition that there is

<sup>&</sup>lt;sup>483</sup> Ibid., p. 149

<sup>&</sup>lt;sup>484</sup> Packer, Promoting Sustainable Forest Management

an increasingly discriminating public who demand environmentally sound products.485

Forest and woodland estates in the U.K. that wish to be compliant with Forest Management Certification (FMC), a comparable scheme, usually choose the U.K. Woodland Assurance Scheme (U.K.WAS) put forward by the Forestry Industry, NGOs and by the FSC. The scheme is effective for larger commercial forests with the capacity to afford and administer the scheme. It is also increasingly necessary for suppliers of timber to be certified to maintain or develop new markets which are demanding certification as a prerequisite for tendering. Difficulties arise for smaller woodland producers: Gudrun Leitz, for example, a furniture designer-maker who manages her own woodland in Herefordshire became certified in the hope of gaining access to new markets but she regards the scheme as too constraining and time consuming to Unfortunately, as yet she has been unable to find new administer. markets for her timber products.<sup>486</sup> A further complication for small woodlands is that small sawmills, timber merchants and retailers have to have a "chain of custody" certificate to sell FSC timber with the FSC logo. If they are not certified they must order a complete lorry load of FSC accredited timber to carry forward its accreditation otherwise the authenticity of the certification cannot be assured.<sup>487</sup> Another difficulty for small woodland owners is that their timber stock is generally very poor by industry standards and when they do have stock of appropriate quality and size the volume can be insufficient to make transportation viable.

The changes brought about by climate change and increased competition in a global timber market are two of the conditions that make local timber a potentially highly valued resource. David Rees suggests a number of reasons why local timber could become a strategic solution to an increasing difficult market, these include:

- Transport costs confer advantage to the local resource
- Horizons narrow as travel gets more expensive

<sup>&</sup>lt;sup>485</sup> Diamond, *Collapse*, pp. 476-477

 <sup>&</sup>lt;sup>486</sup> G. Leitz, furniture maker. Interviewed by Philip Koomen, by telephone, 18 April 2004
 <sup>487</sup> K. Hall (Ed.), *The BedZED files: Case Study 3: Certified Timber*, Building for the

Future, Green Building Press, Llandysul, Vol. 14, No.1, 2004, p. 65

Economics favour local fixes aligned to the environment<sup>488</sup>

He argues that the consequences of not doing anything will 'create a timber famine for three generations'.<sup>489</sup> It is clear then that there is often a conflict between short-term commercial interests and long-term sustainable practice in both local and global marketing of timber products. Developing a local cycle that establishes markets for local woodlands was a crucial element in developing a strategy to promote sustainable woodland management in Oxfordshire and the Chilterns and became adopted as the second strategic strand of the "Signed & Sealed" project (see Part Two).

# **Timber Selection**

The history of timber selection is as old as civilisation. The diversity of the characteristics of timber is well recognised by designers, craftsmen, designer-makers and the public alike. Unlike many manufactured materials, such as glass, steel and plastic, it is difficult to control its properties.

Throughout the history of furniture design and making the decorative qualities of timber and its structural properties have inspired and generated new forms and design elements. As a decorative material it is characterised by its visual diversity within and across each species. While the progression of design forms, from joiners' furniture through to contemporary designer-maker furniture, is well documented, the exploration of the features of figure, grain, texture and markings is less well defined. Historical examples are woven into the history of furniture making and provide useful examples which demonstrate how figure is revealed in oak, walnut and mahogany and have been employed as design elements.

 <sup>&</sup>lt;sup>488</sup> D. Rees, *British Forestry (but not as we know it)*, *Our Woods in Your Hands Conference*, River & Rowing Museum, Henley-on-Thames, 25 September 2004
 <sup>489</sup> Ibid.

Furniture makers, for example, have identified oak's quarter-sawn flame figure that exploited oak's characteristic multiseriate rays.490 Walnut, a finer timber to work than oak, encouraged greater experimentation as craftsmen searched for new ways of exploiting its creative and design possibilities. This was an addition to the crown figure achieved in "through and through" log conversion. The exceptional stability of quarter-sawn oak combined with its decorative figure was exploited through sawing techniques that maximised the yield of quartersawn oak in a log. Walnut is a tree that is not indigenous to Britain as oak is, having been introduced originally for its nut rather than its timber.<sup>491</sup> The walnut furniture of the William and Mary and Queen Anne periods show a distinct departure from oak in both form and the decorative treatment of the wood. Cross-grained walnut mouldings became a feature of cabinetwork and unusual walnut figure was exploited as veneer in cabinetwork. This period could be considered as significant for its unprecedented celebration of walnut. The duplication of grain patterns produced by cutting thin slices could be used to create symmetrical, book matched and quartered panels on doors and drawer fronts and other surfaces. The technique of cutting veneers also produced new possibilities. Parts of the tree, including burrs and the area between two branches known as the "crutch" were considered valuable for their dramatic figure. The root crown from uprooted walnut trees, with the root ball still attached, also provided a rich source of decorative possibilities in fine furniture making (as well as in gun stocks). While walnut was originally selected for its high nut production and its ease of harvesting it was not perceived as suitable for timber production which required long and straight stemmed, finely branched trees. Ironically, the characteristics that have made walnut unsuitable for timber production have produced some of the most beautiful period pieces.

Mahogany, imported from the West Indies, Honduras and the Yucatan Peninsula, became readily available around the beginning of the

 <sup>&</sup>lt;sup>490</sup> H. Desch, *Timber: Its Structure and Properties*, Macmillan, London, 1974, p. 115
 <sup>491</sup> G. Hemery, Juglians regia L: Generic Variation and Provenance Performance, DPhil thesis, University of Oxford, 2000, p. 2

eighteenth century superseding walnut and becoming the preferred material by the new breed of furniture designers such as Chippendale and Hepplewhite. Mahogany was often used in solid form for construction but "crutch" or "curl" veneer was used on finer work. Oak, by contrast, became associated with country furniture. Mahogany became an ideal production timber. Its popularity extended to the end of the twentieth century when restrictions on supply through export embargoes, a more environment conscious public and price increases saw a significant decline in its demand. These three timbers, however, remain closely identified with period furniture styles and are still used to reproduce furniture by manufactures content to replicate past traditions. Contemporary furniture manufacturers (amongst many) have placed greater demands on forestry resources as production has increased in response to consumer demands. The requirement has been for consistent and homogenous material which suits production processes. Furniture makers have also generally preferred timber that behaved predictably. Timber selection is generally based on a palette appreciated for its predictable, visual and aesthetic qualities rather than for its diversity. This is creating an imbalance in global forestry management brought about by manufacturing needs and a perception that consumers prefer uniformity in their timber. The following example highlights this problem. J. P. Chevreton from Groupe Lapeyre, one of France's largest manufacturers of furniture and joinery, for example, would prefer a grade of timber higher that the top grade FAS to meet his company's production requirements to minimise selection and waste at the production stage.<sup>492</sup> To achieve this standard, graders would be selecting from less than one per cent of the forest yield. The demand by industry for a homogenous, high yield timber to meet production needs contrasts with a latent demand by potential customers for distinctive and unusual character in furniture.

One consumer survey at an interior design show indicated that 83 per cent of the public preferred furniture made from woods which showed

<sup>&</sup>lt;sup>492</sup> 6<sup>th</sup> European American Hardwood Convention, 19 and 20 November 1998, Paris

defects and colour variations.<sup>493</sup> These potential consumers reacted more favourably to the defects and timbers than members of the furniture trade who were interviewed at a trade show.<sup>494</sup> While this visitors' survey showed a similar result (76.3 per cent preferred "character" woods) the trade is, in reality, resistant to marketing these character woods. Tulip wood, which is generally used for painted furniture and joinery, was more popular that red oak suggesting the lack of availability of products from lesser known species represents an important obstacle to promoting sustainable forestry and denies access to an untapped creative resource. Clearly what is required is the development of markets for a wider range of hardwood species and "character" grades. Commercial designers and manufacturers have not synchronised the development of their products with what grows in the forest resulting in, what Pye has described in the following terms: 'the range of qualities which mass production is capable of just now is dismally restricted; because each is so uniform and because nearly all lack depth, subtlety, overtones, variegation, diversity'.495

The contemporary designer-maker, however, is uniquely placed to control both design and materials. According to Pye, product designers working in industry are only able to control the medium to long range elements but they cannot control the short range elements, which are the domain of workmanship.<sup>496</sup> It is at this short range that the distinctive figure often found in non-commercial timber comes into play as a counterpoint to the more formal design elements and it is in this domain that the designer-maker can develop the possibilities of the material beyond the accepted norms of historical precedent, industry and the market. Designer-makers can explore the whole tree rather than just the main butt, evaluating the characteristics features and properties that can be used to enhance and inform their designs. Pye considers the quality of diversity of materials the exclusive province of workmanship: 'Only

<sup>&</sup>lt;sup>493</sup> American Hardwood Export Council, Consumer Research Project conducted at the BBC Good Homes Show, April 1998

<sup>&</sup>lt;sup>494</sup> UK Furniture Industry Trade Show (ASFI), November 1998

<sup>&</sup>lt;sup>495</sup> D. Pye, *The Nature and Art of Workmanship*, Cambridge University Press, Cambridge, 1968, p. 3

<sup>&</sup>lt;sup>496</sup> Ibid., p. 34

worked material has quality, and pieces of worked material are made to show their quality by men'.<sup>497</sup> The exploration of wood can go beyond the skilful processing of the material to create furniture that interprets the material in innovative and unusual ways. Drawing on the centuries' old tradition of craftsmanship, scientific and technical developments in wood technology and the autonomy and creative freedom that the designermaker's independence offers him, he can investigate the creative possibilities of unusual and distinctive figure in his design explorations. He can also look beyond the commercial timbers available from merchants who are increasingly driven through market demand to commoditise timber and investigate under-utilised resources with limited commercial value.

What emerges in the approach of designer-makers such as Stead and Nakashima is a creative process in which the exploration and interpretation of the material suggest possibilities which lead to specific responses in the form of design elements. In one sense this allows the timber itself to dictate the formal elements of the design and subvert historic design precedents or imposed forms. This design approach can be perceived as fulfilling what Pye describes as diversity: 'A thing properly designed and made, continually reveals new complexes of newly perceived formal elements the nearer you get to it'.<sup>498</sup>

It became clear that identifying these design elements and the unique signature that characterises the diversity of non-commercial timber could add value and that the concept of the unique signature of non-commercial timbers was to become adopted as the final strand in developing the "Signed & Sealed" project.

#### 1.5 The "Signed & Sealed" project

All of the above now brings me back to the "Signed & Sealed" project which represented an attempt to develop a unified strategy with which a furniture designer-maker might develop a sustainable practice based on

<sup>&</sup>lt;sup>497</sup> Ibid., p. 2 <sup>498</sup> Ibid., p. 35

specific issues that emerged from *Agenda 21* and the integration of economic and ecology. It was intended to develop one model of sustainable practice amongst a plurality of other models initiated by a range of other industrial designers and craft practitioners, identified by the three characteristic elements identified above in the terms *semi-bespoke*, *local cycle* and *unique signature*.

The "Signed & Sealed" project then was intended to seek solutions that reconcile economic and environmental considerations when creating products for the market place as well as identify the social/democratic and ethical/ecological principles that underpin sustainable development. Although it may be argued that it would compete with other products and services in the market place, it would clearly be aligned to a set of values and benefits that allow potential clients to make a considered choice and would seek to offer clients an alternative to the consumer-based retail experience by embracing local and sustainable practices consistent with broader global issues.

In framing this strategy it is acknowledged that the time frame of the "Signed & Sealed" project would represent only the first stage in an attempt to re-orientate an established design and make practice in order to move towards a more ecological and ideologically coherent. As Von Weiszäcker has observed: 'The systems that waste resources today are difficult to design because they are complex, but extremely efficient systems are at least as difficult to design because they're sophisticatedly simple'.<sup>499</sup>

The Philip Koomen Furniture craft-based business was to provide the vehicle for the research and development of the "Signed & Sealed" project which is further documented, described and discussed in Part Two.

<sup>&</sup>lt;sup>499</sup> von Weizsäcker et al., *Factor Four:* p. xxvi

# Part Two: Signed & Sealed – Developing a Sustainable Practice

### 2.0 Introduction

This section of the thesis is intended to open up the process of design development to scrutiny, a process that frequently goes unrecorded. It discusses the three strands of the "Signed & Sealed" project identified in Part One out of which the "Signed & Sealed" strategy has developed, namely the ideas relating to the terms *semi-bespoke*, *local cycle* and *unique signature* brought together in order to form a coherent ideology and facilitate the specific range of social, economic and environmental benefits identified in the introduction to the thesis.

The text begins with a study of the range of bespoke commissioning practices and issues that relate to contemporary furniture designermakers in the U.K. This is followed by a more specific study of the commissioning practices amongst furniture designer-makers in the Oxfordshire/Chilterns area where the "Signed & Sealed" project has emerged. The original concept and development of the idea of *semi-bespoke* is then reviewed before discussing how it has been applied in the "Signed & Sealed" project.

The text then focuses on the issues around the attempts to develop a local cycle to source and process non-commercial timber for the "Signed & Sealed" project in relation to established trade practice and other sourcing initiatives in the U.K. and Germany.

Finally, the concept of *unique signature* is discussed in relation to the practice of four designer-makers of national and international repute (Alan Peters, John Makepeace, Tim Stead and George Nakashima) in order to contextualise its embodiment in the "Signed & Sealed" project.

The conclusion to this section, entitled Conclusion: Promoting sustainability with the "Signed & Sealed" brand, assesses the contribution of the "Signed & Sealed" project to the local economy, in particular the low environmental impact and economic contribution of the local cycle.

I have always wanted to make unexceptional things of an exceptionally high quality that ordinary people could afford <sub>Hans Wegner</sub>

## 2.1 The semi-bespoke

Before discussing the genesis of the "Signed & Sealed" project and its particular strategies, some rather more wide-ranging discussion of the nature of design and make in the U.K. is necessary. In the last quarter of the twentieth century, for example, the survival and expansion of bespoke furniture making in particular and the crafts in general, has been a surprising phenomenon. David Pye's prediction in 1968 that 'if the crafts survive, their work will be done for love more than for money<sup>500</sup> has proved unjustified and Pye subsequently had to acknowledge a significant shift in the appreciation of the crafts by the public underpinned by a 'strong demand for the best guality'.<sup>501</sup> It was the 1970s which saw the beginning of a small network of galleries opening up to exhibit furniture which signalled the change. Rupert Williamson, one of the U.K.'s best known designer-maker for example, saw the Prescote Gallery<sup>502</sup> as a forum for exhibiting furniture that represented an 'explosion of adventurous work'.<sup>503</sup> By the end of the twentieth century the number of furniture designer-makers in Oxfordshire, for example, had increased significantly.504

Alan Peters, whose career as one of designer-makers' most senior figures has spanned the greater part of the last fifty years commented: 'I can't think of a more dynamic period; everything that William Morris had ever dreamt of is coming to fruition. A series of things have made it

<sup>&</sup>lt;sup>500</sup> Pye, *The nature and art of workmanship*, p. 81

<sup>&</sup>lt;sup>501</sup> Ibid., preface

<sup>&</sup>lt;sup>502</sup> The Prescote Gallery, in Cropredy near Banbury, was opened in the late 1970s by Ann Hartree to promote contemporary crafts people and, in particular, furniture designer-makers

<sup>&</sup>lt;sup>503</sup> Rupert Williamson, furniture designer-maker, Milton Keynes. Interviewed by B. Norbury, June 1998

<sup>&</sup>lt;sup>504</sup> In 1995 the Oxfordshire furniture makers network had thirty-three members; when I set up my workshop in 1975 I knew of no other workshops in Oxfordshire

possible. All the efforts of various organisations and individuals over forty to fifty years have brought this craft to a very exciting stage'.<sup>505</sup>

The bespoke or one-off plays a fundamental role in the development of a designer-maker's work; it also highlights the unique nature of the commissioning process which is the product of a collaborative relationship between designer-maker and client. The terms "bespoke" a traditional term, and "one-off", a contemporary one, need some clarification here. The term bespoke has a long association with tailoring and means 'made to order';<sup>506</sup> it can, however, be applied to all crafts. It is therefore a term applied to a craft which is produced through the commissioning process in which a client specifies their requirements. The craftsperson interprets them through the design process to create an individual product that meets the client's requirements. The product is by definition a "one-off" in that, unlike batch or mass production, it is not repeated. There are also other variants of the one-off that are not bespoke in nature. There can, for example, be experimental designs produced speculatively by the designer-maker who wishes to extend the boundaries of their craft unfettered by the constraints of the commissioning process. The bespoke, however, embraces a wide spectrum of craft-based design commissions from the most conservative to the innovative but is shaped through the creative collaborative dynamic between the client and the designer-maker.

The formal process begins with defining a "brief" determined through dialogue during which ideas and questions are discussed resulting in a mutually agreeable set of criteria. These boundaries enable the designer-maker to explore creative possibilities within a framework which Robert Ingham describes as a two way process in which the designer is required to interpret the ideas of the client.<sup>507</sup> Ingham also believes his clients' ideas have had a profound influence on the way his work has developed, claiming 'the subtlety of input [from the client] has produced

<sup>&</sup>lt;sup>505</sup> Alan Peters, furniture designer-maker, Cullompton. Interviewed by B. Norbury, June 1998

<sup>&</sup>lt;sup>506</sup> The Oxford Paperback Dictionary, Oxford University Press, Oxford, 1988

<sup>&</sup>lt;sup>507</sup> Robert Ingham, a furniture designer-maker, was a tutor at Parnham School, Dorset. He subsequently set up his own workshop in Dyserth, Wales

objects that are richer for that experience'.<sup>508</sup> David Savage, a designermaker based in Devon, also describes a special kind of creative chemistry behind his best work which he feels is a response to the client's belief in his ability as a designer-maker: 'I do my good work when I am inspired by someone's confidence and trust'.<sup>509</sup> Like Robert Ingham, Savage also appreciates that the work he can produce in collaboration with a client is superior to other forms of work, even the speculative pieces: 'I can't do my best work without a relationship with a client'.<sup>510</sup> According to John Makepeace 'the furniture is an expression of a splendid kind of relationship'. Through the act of commissioning he gets to 'know clients rather well because you are challenging them on a lot of things that are close to their hearts and their souls'. The initial briefing is clearly more than information gathering. Makepeace, for example, like Ingham is clear that his role is: 'to understand people's needs and interpret those in a way I can contribute'.<sup>511</sup>

Designer-makers, however, are also guided by a personal vision. Alan Peters, for example, gives an instance of how a furniture designermaker can transform an initial brief through the consultative process: a client who had originally requested a reproduction Georgian table was persuaded to accept a design for a contemporary rosewood and sycamore table and was very satisfied with the result.<sup>512</sup> Commissioning furniture then can lead to discussions that result in more than a furniture designer-maker at first expects. The difficulty for potential clients who have not commissioned furniture is the unfamiliarity with the commissioning process. Many clients commissioning furniture for the first time feel tentative about the process. According to Andrew Varah, most prospective clients are likely to be apprehensive about commissioning furniture. He believes the designer-maker must establish the confidence

<sup>&</sup>lt;sup>508</sup> Robert Ingham, furniture designer-maker, Dyserth. Interviewed by B. Norbury, June 1998

<sup>&</sup>lt;sup>509</sup> David Savage, furniture designer-maker, Shebbear. Interviewed by B. Norbury, June 1998

<sup>&</sup>lt;sup>510</sup> Ingham. Interviewed by Norbury

<sup>&</sup>lt;sup>511</sup> Makepeace. Interviewed by Norbury

 <sup>&</sup>lt;sup>512</sup> Alan Peters, furniture designer-maker, Cheltenham. Interviewed by P. Koomen, 3 September 2001

and trust of a prospective client if he is to establish a successful relationship.<sup>513</sup>

As the success of the relationship is measured in terms of the merits of the final product, it is the designer's responsibility to build a relationship with the client that stimulates creativity. Ashley Cartwright, for example, begins building confidence 'by finding out what that person is about, [and] creating a rapport'.<sup>514</sup> The initial stage, he says, is overcoming the fear of the commissioning process. Once trust and confidence is established, the client can enjoy being an active participant in the design process, from developing the brief to seeing the work through to completion. The designer-maker for his or her part is motivated by a commitment to produce something that will fulfil or even exceed the expectations of the client. Nicholas Dyson, for example, tries to make this the main objective in his relationship with clients: 'we will design and make something for them which is more than they could have imagined before they came in the door. That is the process one is aiming for'.<sup>515</sup>

Many designer-makers produce only bespoke one-off furniture. While some, like John Makepeace and Rupert Williamson, prefer this form of work, others, like Alan Peters, rework designs, producing variations on a theme. This allows them to benefit creatively and financially from previous experience. However, a one-off has to be produced with the minimum of changes to avoid costly financial penalties. As Varah puts it: 'design one-offs – one chance'.<sup>516</sup> One-offs are a high risk challenge: an underestimate of the man hours required to design and produce such a piece can result in a reduced profit margin, a financial loss, or even complete design failure.

Designing and making one-off furniture is clearly very important to many designer-makers but a precarious strategy around which to develop a craft-based business. Before considering the alternative strategies that

<sup>&</sup>lt;sup>513</sup> Andrew Varah, furniture designer-maker, Little Walton. Interviewed by B. Norbury, June 1998

<sup>&</sup>lt;sup>514</sup> Ashley Cartwright, furniture designer-maker, Towcester. Interviewed by B. Norbury, June 1998

<sup>&</sup>lt;sup>515</sup> Nicholas Dyson, furniture designer-maker, Wantage. Interviewed by B. Norbury, June 1998

<sup>&</sup>lt;sup>516</sup> Varah. Interviewed by Norbury

designer-makers have adopted it is important to consider how designermakers view the future of their craft.

#### The future of the craft: the designer-maker perspective

The increased number of new workshops represents greater competition to established designer-makers yet it can be equally seen as a healthy sign of growth and beneficial to all. Ian Heseltine and Declan O'Donohue of S.F Furniture, for example, acknowledge that the market is becoming more competitive but success, they believe, depends on identifying market niches for the craftsman's work.<sup>517</sup> Robert Ingham also sees increased competition as a challenge, believing that design and making skills must be complemented with business discipline in order to achieve success.<sup>518</sup> Success, according to David Savage, will depend on the ability of the designer-maker to take advantage of opportunities in an increasingly difficult and problematical world; the future is 'stormy but exciting for those who take if by the scruff of the neck<sup>1,519</sup> Designer craftsmen who are less established see the increasing number of designer craftsmen as a potential threat to their livelihoods. Williams and Cleal, for example, think the growing number of designer-makers will create a supply greater than the demand for the bespoke.<sup>520</sup>

What is clear though is that many designer-makers have historically specialised in the one-off although the reasons are not always clear. The marketing skills of designer-makers are becoming more effective. Brochures, web pages, professional photography, publications and exhibitions are some of the tools of the 21<sup>st</sup> century designer-makers' marketing repertoire that enable them to promote a professional image to the growing number of discriminating clients who are seeking out these specialist skills. Designer-makers have to work diligently to gain recognition and commissions. Ashley Cartwright sums up the position:

<sup>&</sup>lt;sup>517</sup> Ian Heseltine and Declan O'Donohue, furniture designer-makers, Badminton. Interviewed by B. Norbury, June 1998

<sup>&</sup>lt;sup>518</sup> Ingham. Interviewed by Norbury

<sup>&</sup>lt;sup>519</sup> Varah. Interviewed by Norbury <sup>520</sup> Jane Clean and Justin Williams, furniture designer-makers, Taunton. Interviewed by B. Norbury, June 1998

Most people do not know what is available. People are buying through traditional routes and do not know about alternatives. Increasing awareness of the salaried population can now find where these places are, these small makers, specialised services... which is new in the last ten years.<sup>521</sup>

However, according to Rod Wales, there is now a significant number of people looking for alternatives to the conventional.<sup>522</sup> Andrew Varah has also observed a change in a public which is no longer satisfied with conventional products and is more prepared to investigate alternatives; he believes it is an indication of the desire to have more choice and more value.<sup>523</sup> The existence of such a public, according to Gordon Russell, is due to the 'demand for idiosyncratic, well crafted furniture that can not be bought in a shop'.<sup>524</sup> This fact, he believes, is because people have a requirement for something that is individual 'regardless of how many products [are] in the market'.<sup>525</sup> It may also indicate a desire to have something more personal and therefore more valuable rather than unique for its own sake.

Despite the growing number of workshops and the increased exposure from the media, designer-makers remain isolated and often inaccessible. Potential clients are not necessarily aware of who they can approach to have furniture made. The local craftsman who once was a member of the local community is an anachronism. Today contemporary designer-makers must be systematic about raising their profile in the national/international market place if they are going to establish a viable craft business. They must also address how their craft can be developed to meet both the needs and aspirations of the market and, arguably, broader societal needs.

Matthew Burt, for example, is systematic in his approach, and 'bends over backwards' to make his workshop accessible. He chooses five exhibitions a year to display his work selected from all over the

<sup>&</sup>lt;sup>521</sup> Cartwright. Interviewed by Norbury

 <sup>&</sup>lt;sup>522</sup> Rod Wales, furniture designer-maker, Lewes. Interviewed by B. Norbury, June 1998
 <sup>523</sup> Varah. Interviewed by Norbury

<sup>&</sup>lt;sup>524</sup> Gordon Russell, furniture designer-maker, London. Interviewed by B. Norbury, June 1998

<sup>&</sup>lt;sup>525</sup> Russell. Interviewed by Norbury

country, from London to Edinburgh. Each exhibition provides him with an initial point of contact with the public and an opportunity to meet new and prospective clients. In addition he tries to obtain five media articles a year, organises an open day, produces a newsletter and targets individuals who he thinks will be interested in his work. Marketing, he says, is the most difficult discipline in running a designer-maker business.<sup>526</sup>

Petter Southall has identified a fundamental problem with commissioning furniture. He believes it necessary to have many more designer-makers before the public's awareness is raised to a sufficient level for the market for designer-maker furniture to reach its potential. Accessibility, he believes, is key to an increased understanding of the commissioning process: 'The more accessible designer-makers are, the more accepted the process of commissioning furniture is, the more people will be doing it- it is still very much a mystery'. Potential clients, Southall argues, are not familiar with the intricacies of commissioning furniture. If it were to become more common, many more people would find it natural to commission a piece. He is less certain about the future though if it continues to remain a mystery. The current situation, he argues, limits the growth of these businesses to a low turnover and low profit margin enterprise. He argues that high prices are, in reality, indicative of a low level of productivity.527

David Colwell also believes that the designer-maker who produces one-offs is not in tune with the needs of today's society. As an experienced product designer he is sceptical that the one-off can be sufficiently well developed to resolve the design problems. He argues that designer-makers who focus on the one-off are less concerned with performance but are preoccupied with producing objects of desire: 'things that are overtly lush. They say to you "You are expensive". It's taken a long time to make; the materials are rare and fine'.<sup>528</sup>

<sup>&</sup>lt;sup>526</sup> Burt. Interviewed by B. Norbury

<sup>&</sup>lt;sup>527</sup> Petter Southall, furniture designer-maker, Bridport. Interviewed by B. Norbury, June 1998

<sup>&</sup>lt;sup>528</sup> David Colwell, furniture designer-maker, Salisbury. Interviewed by B. Norbury, June 1998

In recent years a number of designer-makers have made a conscious effort to move away from the bespoke and sought to become designer manufacturers but designer-manufacturers whose approach is characterised by a philosophical alignment to an anti-capitalist and eco-conscious ethos.<sup>529</sup>

Matthew Burt, like David Colwell, for example, is no longer satisfied with the bespoke as an appropriate vehicle for his craft. He is making the gradual transition from one-offs to marketing his own product range. While acknowledging one-offs are essential for researching ideas and providing the means to produce speculative experimental work, like Andrew Varah, he is uncompromising about the perils of the one-off: With one-offs you give your soul and normally get kicked in the balls for it. You don't estimate correctly, you don't time it well'. Driven by financial imperatives Burt resolved to develop a range of designs that he could sell directly from exhibitions at affordable prices that would attract buyers. Initially he designed a key cabinet, a tray, a loo roll holder and a CD cabinet. This approach enabled him to 'perfect an idea - so it was enduring in its design, construction, in all its functions; and have an ecological roundness to it'. This product-led approach is quite distinct from bespoke or *semi-bespoke* design approaches which are dependent upon the client's input in the design process. Instead the potential client is presented with a 'resolved design for the price stated. If a client wishes to have a variation it might be the basis of another product rather than a modified version of the original'. However, Burt acknowledges there is an element of flexibility in producing work to order for individual clients and incorporating 'small individual adjustments where people want it'.530

Burt has gradually extended the concept to a comprehensive range of furniture that now includes outdoor benches, shelving and cabinets, seating and low tables, tables and desks: low volume production pieces that can be produced on a made to order basis. His aim is to 'do thirty

<sup>&</sup>lt;sup>529</sup> See *Industry of One, Designer-Makers in Britain 1981-2001*, for a comprehensive overview of the varied pathways designer-makers have developed

<sup>&</sup>lt;sup>530</sup> Matthew Burt, furniture designer-maker, Warminster. Interviewed by P. Koomen, 16 September 2001

per cent one-offs and seventy per cent production'.<sup>531</sup> The furniture is made from managed European hardwoods. He prefers their superior quality as compared to the English equivalent. However, he points out that in the Wiltshire area hardwoods have been exhausted so local sourcing is not even a consideration. Burt is also unable to sustain a local market: 'Wiltshire is full of military and retired people ... so it is rather traditional around here'. In order to find clients who are receptive to his ideas he has had to make a national effort: 'we were principally forced into the London market because that is where a lot of our clients were, and realised through Art in Action that it was further afield we had to look'.<sup>532</sup> He has recently opened his own gallery in Horton, a village a few miles from his workshop, encouraging potential clients to view his designs in a relaxed country setting.

David Colwell, perhaps one of the most politicised and articulate designer-makers of his generation, sees his work as part of the country vernacular tradition and aligns himself to the Windsor chair makers, Shakers and the Scandinavian Movement. He is, however, sceptical of the long-term contribution of the craft revival movement that has emerged since the mid 1970s. He criticises designer-makers believing that they represent an extension of the eighteenth and nineteenth century tradition of cabinet making that satisfies the need for personal aggrandisement amongst the bourgeois.<sup>533</sup> Colwell's designs are produced by individual makers, working within Trannon, who are responsible for the whole production process and whose efforts and skills are recognised by signing each piece they make.<sup>534</sup> Like Wegner, he was concerned about the democratisation of quality through design but not at the cost of profit. Despite the recognition his designs had, he was unable to persuade manufacturers to adopt his work. Colwell therefore decided to expand his own workshop forming Trannon Furniture with two partners. Initially Trannon aimed its products at the contract market where it competed with

<sup>&</sup>lt;sup>531</sup> M. Burt cited by L. McClair, 'A question of balance', *Furniture & Cabinetmaking*, Guild of Master Craftsman Publications Ltd, Lewes, no. 29, June 1999, p27

<sup>&</sup>lt;sup>532</sup> Burt. Interviewed by Koomen

<sup>&</sup>lt;sup>533</sup> Colwell. Interviewed by Norbury

 <sup>&</sup>lt;sup>534</sup> D. Colwell speaking at the *Forest to Product Conference*, Parnham Trust, Beaminster, 8 March 2000

main stream manufacturers from Scandinavia and Germany. Colwell believed Trannon furniture was comparable, if not superior, in quality to its competitors, but it was a very difficult market for Trannon to operate in and success only came through reducing their profit margin.<sup>535</sup> They decided to redirect their marketing efforts to the public. Fortunately, the public were more responsive to their environmentally sensitive designs and their middle market pricing (stacking chair sells for £240).<sup>536</sup> By the late 1990s they were benefiting from a trend favouring craftsman-made furniture in general and their style in particular: 'we produce unpretentious stuff – it's the first time there has been a critical mass of people who want precisely that'.<sup>537</sup>

It is clear that while leading designer-makers in the U.K. like Matthew Burt and David Colwell believe that bespoke furniture is not aligned to the needs of society others such as Ingham, Makepeace and Savage find the process creatively enriching and central to their practice. Younger, less established designer-makers, like Williams and Cleal, are anxious that the increase in their numbers will make bespoke furniture making too competitive.<sup>538</sup> Southall, on the contrary, believes this will be beneficial, particularly if the commissioning process becomes more transparent.<sup>539</sup> Most designer-makers recognise that they have to be more effective at marketing. These designer-makers are generally optimistic about the future believing that there is a growing demand by the public disillusioned by the retail market for products that are more personal and meaningful.

Burt and Colwell have developed strategies aligned to product design but based on democratic and eco ethics. However, they are faced with the challenges of creating brand awareness of their product in a competitive U.K. market. By contrast, designer-makers in the affluent Oxfordshire/Chilterns area have developed a range of strategies some

<sup>&</sup>lt;sup>535</sup> Colwell. Interviewed by Norbury

<sup>&</sup>lt;sup>536</sup> D. Colwell, Trannon Furniture promotional literature/price guide. Price based on Solid Ash or upholstered seat, February 1999

 <sup>&</sup>lt;sup>537</sup> L. McClair, 'Making Ecological Sense', *Furniture & Cabinetmaking*, Guild of Master Craftsman Publications Ltd, Lewes, no. 36, January 2000, p. 26

<sup>&</sup>lt;sup>538</sup> Cleal and Williams. Interviewed by Norbury

<sup>&</sup>lt;sup>539</sup> Southall. Interviewed by Norbury

closely aligned to the *semi-bespoke* concept to reach a predominately local client base. Of course, Philip Koomen Furniture is based in the Chilterns and so some closer description of the strategies employed by some of the area's best known designer-makers may be useful at this point.

#### Oxfordshire/Chilterns designer-makers

Waywood based near Woodstock, for example, unlike Burt and Colwell, produce mainly one-offs to commission for private clients. Barnaby Scott, Waywood's owner, believes design is directed by the client but 'inspired by what they see'. However, he concedes that the process is highly risky: 'if we don't come up with what they want we don't get the job'. Waywood's furniture is designed with 'materials in mind', mostly home grown hardwoods; and they remain 'keen to find tropical timbers from a sustainable source'. Scott argues there are also greater demands working in solid wood, compared to veneers, it is: 'a more labour intensive approach and its appeal is harder to bring out'. According to Scott, however, one-off designs are generally unviable under £2500. In order to make Waywood's furniture more affordable he believes 'batch thinking is the way ahead and enables one to develop things to satisfy the market at that level of pricing'. He thinks clients would 'be happy to choose between six coffee tables and variations of them', indicating a semi-bespoke approach. Waywood are located in a rural part of North Oxfordshire and although about half their business is local the rest has come from London and has assured they have the necessary commissions for survival.<sup>540</sup>

Like Waywood, Angus Ross, who is based in South Oxfordshire, also produces mainly one-off commissions. Fifty per cent of these, however, are for public spaces, which he describes as a more demanding than designing for private clients. Ross's designs, like Waywood's, are 'mainly solid wood' but with 'some board and veneers'. Having worked as a product designer using plastic moulding he commented that he is

<sup>&</sup>lt;sup>540</sup> Barnaby Scott, furniture designer-maker, Chadlington. Interviewed by P. Koomen, 21 June 2001

inspired by the freedom of solid wood: 'as a material wood lends itself very well to curved structure; curves are intrinsic to the material'. His designs have gradually been simplified and progressed into cleaner, purer shapes. Timber selection is restricted to 'indigenous and northern temperate hardwoods: quite a mix, mostly ash, oak and maple but also brown oak from the Baltic'. He also likes to use the more unusual woods like catspaw oak, but finds them difficult to source. He is particularly impressed by the qualities of oak as 'it works well in all sections of the cut because it is more interesting in its end grain'. His choice of timber is always affected by the design and function of a piece; a table top, for example, is an opportunity to 'celebrate the wood and its variety rather than just having it very bland'. Nevertheless, in recent years Ross, like Burt, has also developed a range of products to spread design costs although his strategy has not proved successful in respect of marketing his range to retailers. He does, however, recognise the possibility of producing *semi-bespoke* designs: 'I am comfortable with doing repeats and variations. It makes economic sense that the process has been worked out already'. Unusually Ross's client base is drawn mainly from London with only about thirty per cent of clients drawn from a twenty mile radius. Unlike most furniture designer-makers in the Oxfordshire/Chilterns area, half of his commissions are for public projects which 'can come from anywhere'.541

Robin Furlong, who is based in North West Oxfordshire, has successfully developed a range of designs which are closely aligned to the *semi-bespoke* concept. He estimates he has five or six designs that he repeats: 'we do different sets of the same chair as well as other designs from the portfolio'. Furlong is familiar with producing variations on a theme: 'clients see things and want the same or similar ... they might ask for it to be slightly modified or in a different wood'. His designs use predominantly North American hardwoods, some European ones, Jarrow from Australia and tropical olive from Ghana. Furlong has spent twenty years establishing a market for his furniture. He is active in

<sup>&</sup>lt;sup>541</sup> Angus Ross, furniture designer-maker, Nuffield. Interviewed by P. Koomen, 26 June 2001

promoting the concept of contemporary furniture to potential clients: 'encourage people to buy furniture of now because it is adding to history'. He markets his work through local and London exhibitions, including Artweeks and Celebration of Craftsmanship;<sup>542</sup> although word of mouth and editorial are also important. Most of his clients are drawn from within a fifty mile radius and even those from London often have houses locally as well. He finds having a local client base is essential to his viability; travelling is too time-consuming.<sup>543</sup>

Richard Williams has one of the largest workshops in the Chilterns area with a team of up to six craftsmen based in Amersham, Buckinghamshire. His core designs are based on variations on a theme: where I am not looking to break new ground but where I just want to do a nice job and fulfil the target for a core group of clients'. Williams uses a range of about twenty woods: English, European and exotic. Like Furlong, he prefers North American woods because they are reliable and consistent in guality with minimal wastage. He doesn't have to select the timber but can order it over the phone. When he sees English timber he selects it at the timber merchant's because of its variability; oak, however, is the exception as it is very consistent. Williams is still exploring alternative design strategies to establish a financially viable business. He is considering batch produced furniture around a range of more modest designs for clients who may have limited budgets but appreciate fine craftsmanship. However, Williams also wants to be known for 'working in ultra fine material' and has found it necessary to market his work outside his local area to 'mostly London and Oxford based clients'. His strategy is to promote his furniture through selected exhibitions in these places.<sup>544</sup>

Mark Ripley works on his own near Wallingford, Oxfordshire. He describes his design style as 'traditional but not reproduction' and his furniture as 'harmonious objects which project the wood rather than

<sup>&</sup>lt;sup>542</sup> Annual exhibition held in Cheltenham showcasing designer/craftsman made furniture and decorative arts. Curated by B. Norbury.

<sup>&</sup>lt;http://www.celebrationofcraftsmanship.com/>

<sup>&</sup>lt;sup>543</sup> Robin Furlong, furniture designer-maker, Chipping Norton. Interviewed by P. Koomen, 19 May 2001

<sup>&</sup>lt;sup>544</sup> Richard Williams, furniture designer-maker, Amersham. Interviewed by P. Koomen, 31 May 2001

promoting [sic] me'. At one stage he had six design motifs that he repeated in different configurations which could be described as *semi-bespoke*. He works with individual clients who appreciate his style of work who want something 'simple and solid'. New directions can be inspired by economical solutions, new ideas because 'a customer suggests something'. He is motivated by the ideal that design can create affordable furniture. By using a combination of solid wood and veneered panels he can produce economical design solutions. 'Economy is an important issue because I discovered early on that making furniture is actually easy but making good economical furniture is quite a trick'.

Ripley makes ninety per cent of his furniture in English oak; he also uses English ash, sweet chestnut but avoids English elm and cherry because he has found them difficult to dry. He also uses a small amount of American hardwoods including ash, maple and cherry. However, he is determined to use only English hardwoods sourced from 'people who personally select their own trees and supervise the process of felling, drying and conversion'. He likes to celebrate the fact that 'no two pieces are the same'.

Ripley decided not to market himself through exhibitions. He has limited his clients to mostly Thames Valley; they come through word of mouth or the advertisements he places in local shops. By limiting himself in terms of style, product range, pricing and geography he has established a successful and viable one-man craft workshop.<sup>545</sup>

Stewart Linford, a furniture maker based at High Wycombe, by contrast, is one of the most established and largest bespoke furniture makers in the region employing around forty staff, mostly craftsmen. He has managed to develop his reputation as a maker of fine Windsor chairs since he began working on his own in 1976. His furniture remains bespoke despite the scale of his production. In fact, it is probably more accurate to describe his approach as *semi-bespoke*. He has developed over seventy interpretations of traditional designs across four ranges including twenty-three Windsor chair designs, tables and cabinets.

<sup>&</sup>lt;sup>545</sup> Mark Ripley, furniture designer-maker, Wallingford. Interviewed by P. Koomen, 28 May 2001

Customers can specify the combination of timbers in their chairs and have customised elements such as commemorative carved lettering; the Table and Cabinet range is produced to the specific dimensions required by the customer.

Linford's designs are rooted in the English tradition of craftsmanship using native English hardwoods which he sources through a network of timber merchants who understand his requirements. However, he has successfully integrated craft and production technology to produce an extensive range of designs that have a recognisable traditional local heritage. His business has interestingly doubled in turnover over a three year period since he stopped selling through a retailer and began marketing directly. The majority of his customers now come from a thirty mile radius of his workshop.<sup>546</sup>

#### German designer-makers

The British picture, interestingly enough, is quite different in character from that found on the European mainland. For example, furniture designer-makers in the Trier area in Germany, by comparison, have a very different approach compared to their counterparts in the Oxfordshire/Chilterns area. Both areas are vibrant with workshops and enjoy a plentiful supply of local timber resources but the similarities stop there. The German workshops compete directly with large manufacturers producing similar designs. They distinguish themselves by the quality of their bespoke service and their market. The "bespoke" service focuses on understanding the requirements of the client rather than developing a personal style. High quality solid wood furniture is produced using the most efficient machine technology available with only a small proportion of time spent on handwork compared to the U.K. designer-makers.

Wolfgang Hank of Tischlerhof Newel, for example, spends as much time with prospective clients as they need. His philosophy is to offer people a 'holistic service because people have a need to be listened

<sup>&</sup>lt;sup>546</sup> Stewart Linford, furniture designer-maker, High Wycombe. Interviewed by P. Koomen, 29 May 2001

to<sup>'.547</sup> He educates his clients about the importance of living with kitchen furniture which is made from materials with no harmful additives and thus help to create an intimate environment which is more than a kitchen. Norbert Brakonier at UniKat Partners also has a similar philosophy; he believes that their success is due to their making a concerted effort to understand the needs of the client.<sup>548</sup>

Rudi Steiner, the most established furniture maker in the Trier area, has a series of six show rooms in his workshop, offering a range of furniture for the kitchen, dining room and bedroom each furnished with his designs. He has purpose-designed kitchen furniture for the disabled and specialises in creating interiors for healthy living by stressing natural materials such as horse hair mattresses. Here his clients can get his professional advice.<sup>549</sup>

These furniture makers follow a generic approach to both manufacturing and design unlike their Oxfordshire and Chilterns counterparts. The designs for chairs and cabinets are strikingly similar between the furniture makers. The use of solid wood construction, machine techniques and designs aligned to the mainstream market has created a lack of diversity indicating that their training and perhaps culture promotes a narrower and limited generic approach. Technical mastery is emphasised at the cost of creativity. The furniture makers tend to limit design possibilities for the sake of production efficiency. Steiner, for example, only offers beech and alder to his clients. He finds maintaining a wide range of timber stock is problematical and costly.

The German bespoke market has very different demands from the U.K. one. The German customer has high expectations of quality, and can typically purchase a quality product at a reasonable price, from cars to furniture. A bespoke chair, for example, costs approximately £200 from UniKat and an equipped fitted kitchen circa £15,000 from Wolfgang Hank; this represents about half the U.K. price. Value for money in

<sup>&</sup>lt;sup>547</sup> Wolfgang Hank, furniture designer-maker, Trier. Interviewed by P. Koomen, 23 September 2001

<sup>&</sup>lt;sup>548</sup> Norbert Brakonier, furniture designer-maker, Trier. Interviewed by P. Koomen, 22 September 2001

<sup>&</sup>lt;sup>549</sup> Visit to Rudi Steiner's furniture workshop, Trier, 23 September 2001

Germany is clearly a benefit of a well trained organised and market-led service based furniture industry.

Designer-makers in Germany, unlike those in the U.K., see themselves as an integral part of an industrial economy. German society has a much bigger middle market than the U.K. and is willing and able to buy bespoke furniture. In the U.K. the situation is more polarised; IKEA and MFI are at one end and David Linley and John Makepeace at the other with very little in between. Designer-makers in the U.K. look to create their own unique niche in the market place to succeed. Each one develops a unique style that reflects their creative aspirations as well as the needs and aspirations of their clients. The UniKat Partners' view of the U.K. designer-makers' perhaps embodies the cultural differences, describing Linford's, Williams's and my work as 'rustic, bourgeois and Victorian'.<sup>550</sup> While these critical observations do, however, identify some of the range of references that U.K. designer-makers draw on, they do not reflect their diverse approach to bespoke design.

#### From bespoke to semi-bespoke

In terms of my practice and Philip Koomen Furniture the concept that I have termed *semi-bespoke* was first adopted in the early 1980s as an alternative method of creating designs to meet the needs and aspirations of individual clients without the problems inherent in the one-off bespoke design. Like several other designer-makers the bespoke solution did not seem appropriate in many situations, and it became clear that many of my clients were either unwilling or unable to afford the cost of producing a one-off bespoke design. I began to consider alternative approaches to make craftsman-made furniture more accessible and affordable in the market place. I believed a product-led design approach was not viable without the marketing resources to promote a range of products in a highly competitive and sophisticated market place.

I believed that the key to success lay in the client-maker relationship, one of the most important factors contributing to the creative

<sup>&</sup>lt;sup>550</sup> Unikat Partners, Unikat Partners, furniture designer-makers, translated from German by E. Koomen, Trier, 22 September 2001

process. What was needed, rather than a product range, was a series of generic designs offering a framework within which individual design solutions could evolve in collaboration with the client. This approach, developed over a twenty year period, was ultimately to provide the foundation to the "Signed & Sealed" project.

The concept began circa 1980 with four designs, three for coffee tables and one for a stool. One of the table designs proved popular and was commissioned on a regular basis in a variety of forms demonstrating the practicability of the *semi-bespoke* approach (Fig 5). The next stage was to produce a more comprehensive range of generic designs. I decided to focus on dining chairs and tables for both strategic and creative reasons. Dining tables, in my experience, were usually the first piece of furniture in the dining room that clients would commission, followed by chairs. I decided to concentrate on developing three chair designs and three dining table designs. Each design was to be distinct in both form and method of construction to increase the potential of possibilities that could be explored with the client.

Between 1984 and 1991 six designs were developed as prototypes, and began to form a generic range. These designs were intended to provide a framework for dialogue with clients and encourage discussion of their intrinsic and relative merits helping to facilitate the exploration of ideas and inform the *semi-bespoke* process. The choice of timber was critical to the process as this would influence not only the final look but also the making of the furniture. The designs were based on using readily available timber of a high quality and yield, i.e. with very few knots and producing very little waste. Although I had had some experience using home grown hardwoods, I found them too unpredictable in appearance, quality and availability and therefore initially decided they were not suitable for the designs I wanted to produce.<sup>551</sup> The temperate crop timbers, including North American and European (mainly French and German) seemed the appropriate choice since, as managed crop timbers, they could be bought from U.K. timber merchants. The North

<sup>&</sup>lt;sup>551</sup> The first prototype HG dining table was made from locally grown elm

American grading system also gave assurance about yield and the European timbers offered a consistently high quality product compared to the variability of English timbers.

Clients were guided through the semi bespoke process based on four principles, which could be summarised as follows:

Stylistic interpretation

• Original designs could be adapted to suit the clients' aesthetic preferences within certain constraints

## Choice of woods

- Each design was to be made from a choice of four crop hardwood timbers: oak, cherry, walnut, maple (Appendix VII)
- Clients were advised how the choice of material would alter the design's appearance

## <u>Cost</u>

- The prototype designs were priced according to the man hours they were likely to take to produce based on the prototype and previous commissions
- Transparent pricing enabled clients to decide if the furniture was within their budget
- Design fees were not chargeable

## Mix and Match

- The clients could combine any table with any chair design within the range
- A *semi-bespoke* design could be combined with a one-off design
- Clients were encouraged to discuss the possibilities of developing a hybrid design, combining elements of the original generic prototypes

The *semi-bespoke* process therefore involved a method that was intrinsically innovative in that it facilitated design solutions that met the needs and aspirations of the client working within the well defined limitations of each generic design. The direct relationship between the client and designer-maker encouraged the spontaneous exchange of ideas through a consultative dialogue. Innovative developments also

emerged through consultation with clients motivated by the impulse to find an individual interpretation of a generic design. One client, for example, who commissioned a set of maple high back chairs (Jones, 1993) chose to incorporate three inlay motifs rather than one in their designs (Fig 6a/6b) and thereby created a new precedent with each chair achieving individuality through a series of unique motifs designed for the client.

Consultation with clients based on the *semi-bespoke* process also produced cost saving innovations to meet budgets. For example, to reduce the cost of producing the generic high back chair, the labour intensive technique of through tenons, a feature of the initial design, was later replaced with stub tenons secured with a contrasting dowel (Regent Associates, 1995). This method reduced man hours by over thirty per cent and consequently the cost to the client.

Changing the dimensions of a design to meet the requirements of clients could occasionally, however, be problematical when necessitating radical modifications of proportions of a design to harmonise with the new measurements. Chairs in particular are susceptible to dimensional To minimise these problems, the modifications to the changes. sculptured chair and ladder-back chair, for example, were carefully The original seat heights, widths and depths remained a controlled. constant; only the overall heights were adjusted to create different proportions. In the early stages of the semi-bespoke process each new commission that deviated from the original prototype version presented a challenge to produce a well proportioned variation. An empirical approach became necessary to resolve the dimension-proportion relationship. In the case of the HG table design (Fig 7), for example, the request for different sizes eventually led to a range of standard circular and extendable versions. As well as producing *semi-bespoke* designs by modifying standard jigs, an extensive range of variations and possibilities evolved over an eighteen year period and twenty-eight commissions demonstrating the flexibility of the *semi-bespoke* process.

Choosing a wood was also an integral part of the *semi-bespoke* process, a decision usually made in the final stages. Clients' knowledge

of timber is often very limited so they have to be guided through the options. Four woods were originally offered: North American maple, cherry, walnut and European oak. This limited selection helped to simplify the choice although other woods can be offered. Clients made their choice based on aesthetic preference, practicality and availability.

The use of inlay (stringing) also played an important part in many of the early generic designs. The selection of inlays: boxwood, pear wood, walnut, rosewood and brown oak extend the choice of woods and create scope for interesting combinations of solid wood and inlay. These timbers and inlays were offered to clients because they proffer a palette of interesting colour and grain which is enlivened by polishing. Clients were advised that no stain was applied prior to polishing and the wood was carefully selected for matching colour and grain although subtle variations in the wood grain and colour would occur.

Each generic design took on a different quality or style according to the choice of wood and inlay used. For example, the HG table in maple had a contemporary quality; in contrast walnut or cherry, with a contrasting inlay such as boxwood or rosewood, created a classical style reminiscent of Georgian mahogany dining tables. Oak and English ash on the other hand were often used where the tables are going to receive heavy domestic use, i.e. a kitchen. The integrity of the process depended on the designer-maker giving the client an informed but disinterested understanding of the aesthetic and practical considerations advising them on the appropriateness of their preferred choice.

As the *semi-bespoke* process developed an extensive range of designs and new **forms** based around variations of the theme supplemented the original six generic designs, creating a rich field of choice that enabled clients and designer alike to explore new possibilities. The original three generic chair designs, for example, have generated a total of fourteen variations over a nineteen year period demonstrating the potential of the *semi-bespoke* concept to create a diversity of forms. The high back chair (Fig 8), for example, has had six commissions. One commission required the chair design to be coordinated with a mahogany Chippendale-style cabinet. The selected design reflected some of the

cabinet's classical features (Fig 9). A characteristic that became apparent during the *semi-bespoke* process was that the rectilinear form could be adapted in size without compromising the design. The ladder-back chair (Fig 10), the most traditional of the three chairs, has also evolved into six variations, each of which has its own distinct character. One variation, the 'X' chair (Fig 11), was originally produced in 1989; five more variations were commissioned by 2001. The potential for further variations is almost unlimited; the generic form has a vernacular quality that can be adapted to many historic design styles in a pared down form.

Variations have also developed through hybrid designs based on developing elements from different generic designs. Two new hybrid generic chair designs have emerged, for example Allen, 1995 (Fig 12) and Jones, 1998, (Fig 6a/b). This approach produced varied results; though the Allen chair, for example, proved complex to make, despite the simplicity of the design, increasing costs accordingly, the Jones chair, on the other hand, achieved a reduction of man hours and therefore reduced costs.

The versatility of the generic design concept is also clearly evidenced in its success. The HG table has to date been commissioned for twenty-eight interiors, including twenty dining rooms and seven kitchen-living rooms. Feedback from clients has also encouraged the reworking of the generic designs to create derivative forms that extend their possibilities both in form and function. The HG table, to date, has produced variants which include an extendable dining table, a console table, and a 200 cm diameter conference table (Sotheby's, 1999).

In terms of a historic summary of the Philip Koomen Furniture *semibespoke* process to date, its key features can be detailed as follows:

1. A transparent process in which:

- Six generic designs (three chairs and three tables) form the basis of the semi bespoke process
- Transparent cost benchmarks and no design fee are critical to the integrity of the *semi-bespoke* design process

- Simple methods are used to illustrate appropriate design solutions: line drawings (to illustrate design variations), plan drawings and full size templates for tables together with polished wood samples to indicate colour figure and finish, etc.
- 2. A consultative client relationship which:
  - Produces individual solutions without the problems inherent in the one-off approach
  - Produces design innovations and cost savings
  - Facilitates those clients who want individual solutions but are generally not process orientated
- 3. A range of woods which:
  - Limit the basic range of timber to four choices to control quality and costs
  - Offer sufficient range in combination to create different qualities or styles appropriate to different interiors and domestic uses
- 4. A range of dimension variations which:
  - Allow each design to be varied according to customer specification
  - Allow each design to be customised to produce a definitive variation (an element of uniqueness)

All the above (together with the possibility of hybrid variations across the six generic designs) have produced an extensive field of design variations over the past twenty years, demonstrating the effectiveness of the idea of a generic range and *semi-bespoke* approach as a strategy to promote craftsman-made furniture in the market place.

## From semi-bespoke to "Signed & Sealed"

Having described the original *semi-bespoke* concept and principles, and its subsequent development it is now possible to describe how the concept and the insights came to be applied and developed in the "Signed & Sealed" project. The solution was simple enough: **it is the combination of locally sourced timbers together with generic design that best defines the Signed & Sealed range.** It is a combination that has proved dynamic, particularly in inspiring new generic models. It also

presents a new set of problems and challenges quite distinct from semi*bespoke*. Furthermore, it is a combination that has impacted upon my practice in a subtle, complex and broader way. What began to unfold was how the sourcing of non-commercial locally sourced timber has begun to produce a creative dynamic in the *semi-bespoke* process which is distinct from the original one. For example, the "Signed & Sealed" process generally requires more discussion with the clients in order to determine the most appropriate selection of figure. In high grade crop timbers, grain and colour are very consistent and selection is a relatively straightforward process. In using locally sourced timber the predictability of the colour, grain and defectives is less certain. As the variability of the wood will have a great influence on the aesthetic appearance of the furniture, it may be necessary to engage the client at several different stages of the selection process either because the designer-maker intuitively feels it necessary to consult the client (Brett, 2001) or because the client asks to be involved in the selection process (Howlett, 2001). In "Signed & Sealed" the semi-bespoke process in relation to identifying *unique signature* is a more complex one compared to using crop timbers. In the case of the two commissions mentioned the clients were part of the process of identifying the unique signature. The range and variability of locally sourced timber made it essential that the clients were witness to my selection preferences and had an opportunity to share their reactions and considerations. In this way the semi-bespoke has become a more interactive process compared to using crop timbers.

The important area of costing "Signed & Sealed" designs has been more problematical compared to *semi-bespoke* designs. Establishing cost bench marks for the "Signed & Sealed" range has been more difficult to achieve for a number of reasons. Firstly, the range of designs is now very extensive and the data for man hours is limited to usually one or two projects for each design. There is therefore as yet insufficient information to develop comprehensive costing for every design produced except perhaps for the "Pondlife" bench (Fig 13). Even when a number of variations of the same design have been produced there can be considerable differences in the man hours involved in each piece (e.g. the plank table). The only consistent example to emerge so far has been the "Pondlife" bench which now has been made often enough to allow the development of a comprehensive price range. As the "Signed & Sealed" project unfolds a price guide no doubt will be developed reflecting the range of man hours that each design may take to produce and to this may be added the increased cost of an extended dialogue in connection with the choice of local (non commercial) timbers and their inherent complexities. However, in addition to cost bench marks the principle of not charging for the design work integral to the *semi-bespoke* concept was adopted in the "Signed & Sealed" project. Testing the cost bench design series because it has been possible to produce them as a series ensuring comparative data on making hours is available.

Another basic assumption of bespoke and semi-bespoke design is the ability to produce furniture in non-standard sizes unlike most manufactured furniture. In the original *semi-bespoke* concept an optimum range of sizes for each generic design evolved through each commission, beyond which the form was compromised. Materials were not normally a constraining factor in the design process. In the "Signed & Sealed" range, however, it is evident that materials define possibilities. This is both a constraint and an area of creative possibilities. The designs evolve in response to the materials and dictate the ultimate forms in ways that crop timbers do not. In the "Pondlife" bench design, for example, the dimensions of the seat and reeds can be altered significantly without compromising the design concept. The standard bench has been developed through the semi-bespoke processes and now is available in anything from a single seater to a five-seater bench, measuring 2.6 meters long by 2.9 meters high. The materials for the reeds, sweet chestnut thinnings which are readily available, can accommodate many different sizes to meet the needs of clients. Yet, each "Pondlife" retains an organic shape because of the individuality of the carved reeds. In contrast, the plank table and plank chair designs are constrained dimensionally by the materials. The timber is generally selected from ear marked pieces or sourced from a log with the potential to produce a design that will meet a client's requirements. Like the "Pondlife" bench, the plank table and chairs are not sensitive to critical dimensions as they are predominantly sculptural pieces. Clients are willing to accept that nature is playing a hand in defining what is possible.

Cabinet work and dining tables, by contrast, tend to require a more controlled approach consistent with their function. Dining tables have to be designed for specific seating and cabinet work usually has specific storage requirements; both must fit into room spaces that will determine their dimensions and shape. Customised dimensions do not present practical difficulties in semi-bespoke designs although they can affect the proportions of the original generic designs. The main problem at this stage in terms of the "Signed & Sealed" brand is the material constraint of locally sourced timber. The restrictions of size and thickness of the material available and the variability of the quality, combined with the negotiation of its unique signature results in a high wastage factor compared to crop timbers. In the cabinet for the Wilson commission (2001), for example, the readily available stock of brown/tiger oak enabled the cabinet to be produced from timber selected to achieve the desired result. This helped to reduce waste although a significant proportion of the timber had to be set aside due to its variability of colour. The Brett "Trio" plank tables (Fig 14) were also selected from pristine boards of brown/tiger oak. As the boards are only partially used we are effectively left with off-cuts. This raises the issue that the client may have to pay for the whole board rather than just the proportion used for their furniture. It also challenges the basic premise of semi-bespoke using crop timbers where clients could have a design tailored to specific dimensions. In relation to "Signed & Sealed" specific items of furniture, such as cabinets and dining tables, may only be able to be produced on a limited basis depending on the availability of suitable timber.

In the *semi-bespoke* approach using crop timbers clients want individual solutions but are generally not process orientated; consultation normally takes place prior to the making with little involvement in the decisions thereafter that determine the final product. When they are involved, these decisions are in some sense arbitrary such as deciding what decorative elements such as inlay to include or what motif is appropriate for the design. Choice of wood is made from a limited number of options and is based on aesthetic judgement. However, in terms of the "Signed & Sealed" brand when clients engage with the idea of timber that is locally sourced, a new perspective emerges in which the timber employed is no longer just another commodity. The suggestion of using locally sourced timber is often initially seen as politicised (Howlett, 2001. Howlett assumed it was unobtainable) but once the choice is discussed as an option it is favoured over other woods. In the case of two clients (Rieple, 2001 and Woolcot, 2001) it was also the preferred choice over crop timbers. Once the client is committed to this possibility, the selection of the wood takes on an ideological function becoming a focal part of the process.

The provenance of the material and its availability can become the basis for consultation over the length of the commissioning process. In the Howlett's commission, for example, identifying an appropriate mix of woods required numerous discussions over an extended period of months until a suitable combination (yew and walnut) was found. In this instance, fortunately, the client was content to engage in a protracted dialogue because he was aware that the choice of appropriate local timber was vital to the ideological status of the final piece.

The clients' involvement in the selection process can often continue after the initial choice of timber has been made. For example, in the Woolcot commission, the original choice of olive ash for a table had to be substituted with beech, the olive ash being unsuitable. Again, the choice of beech for the Rieple writing desk was also problematical as the only timber then available was spalted and considered inappropriate by the clients. It was subsequently substituted for FSC oak - unlike crop timbers the choice of local timbers can be affected by perceived quality issues. So then, choosing locally sourced timber engages the client more fully in the whole design process when availability, practicality and ideology are all at issue.

Another aspect of the original *semi-bespoke* concept is transparency which is critical to initiating and maintaining the integrity of

the *semi-bespoke* process. The importance of a transparent dialogue with clients has an even greater significance with the "Signed & Sealed" brand because the process involves the local sourcing of timber with all the complex ideological and practical issues that this entails.

One of the most significant differences, for example, is the issue of wood selection. In the *semi-bespoke* process clients were given small wood samples of timbers to indicate how the end product would look. By contrast, in the "Signed & Sealed" approach the client is involved in a selection process which begins by examining examples of individual boards from the wood store or converted logs in the yard. The client is thus initiated as an active participant in identifying potentially suitable timber for their design. Choosing a timber is no longer directed by the crop timbers on offer (and available in the market place); instead choice is influenced by what is available from the workshop stock and at what stage the timber is in the drying process.

Clients also become aware (Howlett and Brett) that they are not just choosing a timber in the same way they might choose furniture in a retail shop, unaware of the environmental implications of their relationship with the source. The concept of transparency is extended to another level with the client and designer-maker engaged in joint decisions which can be seen to have an impact on the local cycle.

In the "Signed & Sealed" brand the choice of timber is also based on what is obtainable and processed from local sources and available from the workshop stock. This has been developed to the greatest extent in the "Pondlife" bench design in which the choice of woods has been preselected. The local sourcing of the sweet chestnut is now being managed successfully and commissions can therefore be negotiated in the knowledge that there is continuity of supply for at least two or three years and further supplies can be negotiated in the knowledge that the timber is cultivated locally.

Another aspect of *semi-bespoke* is that the timber to be used is chosen on a highly selective basis because of its variable colour grain and form (Wilson, 2001). This variability can become a stimulant for the exploration of the *unique signature* of each piece of timber that makes up the elements of the design. Creating a dialogue between the various elements of each design celebrates the *unique signature* of the materials and symbolically embodies the idea of the integrated local cycle in which a complete piece of furniture is made entirely from one log.

The original *semi-bespoke* concept was characterised by simple and well defined strategy based around a limited number of designs. However, in the "Signed & Sealed" project the exploratory nature of the design process using locally sourced non-commercial timber has generated an extensive range of new generic designs (currently thirtyeight). These can be divided into two broad categories: firstly designs that are very directly inspired by the material with all their so called flaws (e.g. "Pondlife", plank chair and table and the "Narnia" cabinet). These designs could not have been made from bland crop timbers. Secondly, inter-designs<sup>552</sup> which have been inspired by the material (e.g. the "Two U" bench) and derive aesthetic quality from the *unique signature* of the wood but in principle could also be made in blander crop timbers. This works in reverse too, in the sense that inter-designs, which were conceived as *semi-bespoke* designs, can be enhanced by the use of local timbers and successfully incorporated into the "Signed & Sealed" (e.g. "Ebb & Flow") range.

One of the most important characteristics of the *semi-bespoke* process was that clients could have individual solutions that met their needs without the problems inherent in the one-off approach. The key to the viability of this approach was for the designer to work within the limitations of the generic design. This meant that any modifications required should not involve a disproportionate increase in man hours and hence costs. The "Signed & Sealed" commissions have also produced a number of examples that demonstrated the ability of the generic design to produce individual solutions too. The "Pondlife" bench, for example, has produced three variations in addition to the original three designs in response to clients' needs. Two versions, a 2¼ and 2½ seater, are simple adaptations. The more ambitious Bourton House "Pondlife" bench

<sup>&</sup>lt;sup>552</sup> Inter-designs is a term which comes from "inter" meaning "between" or more specifically in relation to the "Signed & Sealed" project "interchangeable"

(Fig 15) has been designed as a site-specific piece, serving as an outdoor sculptural focal point in a private garden open to the public. Once the design concept was finalised with the client, the technical problems could be resolved efficiently. This project was completed within its allocated man hours, as were the previous two commissions.

There are also other examples that highlight the potential of the "Signed & Sealed" commissions to meet clients' needs. The three commissions for chests of drawers (Foden, 2001; Wilson, 2001; Howlett, 2001) were also produced without unforeseen technical problems arising in the construction. Each design was based on different constructional methods and therefore required different resolutions. The experience of the technical problems encountered in producing the Foden's first commission for bedroom furniture (Foden, 1997) was resolved in their new "Signed & Sealed" bedroom furniture designs (Fig 16) which substituted crop timbers (American cherry) for locally sourced timbers (Checkendon, Oxfordshire cherry). The Wilson's commission (Fig 17), an adaptation of an earlier semi-bespoke design (Sutcliffe, 1996), also proved straightforward; the inclusion of a series of drawers with the modified dowel construction avoided the more demanding and unnecessary hand-dovetailed construction. The man hours to produce each piece gave the clearest indication of actual problems. The actual man hours to produce these commissions were only marginally above the estimated time. The Howlett commission, by comparison, was less than the estimate (Fig 18).

Two more examples illustrate the same principle. The commissions for low tables (Day, 2001 and Brett, 2001) also produced individual solutions with few technical problems, in the "Signed & Sealed" strategy. Day's storage table designs (Fig 19b/c) and display cabinet (Fig 19a) resolved the problem of providing versatile pieces of furniture using very simple constructional methods. The display cabinet which used mitred and biscuit-jointed corner joints, for example, was an adaptation of the mitred plank table and proved a practical and neat solution. The Brett "Trio" plank tables (Fig 14), which also used the same jointing technique were also well resolved for their purposes. As well as creating three occasional tables to replace old ones and match the original dimensions, the third table also acted as a firewood storage unit by modifying the position of the legs to act as a screen.

There have also been difficulties. The commission for a development of the plank tables (Bowen, 2001, Fig 20a/b/c/d) was more ambitious conceptually and presented technical problems. The design was conceived for use on two levels; rotating each table through 90° to up-end them into new positions. Although the idea was practicable, the resolution of the design for the supplementary leg and the physical handling of the large and weighty pieces of timber mitigated against the tables being produced as efficiently as the other two commissions which were also based on the same generic design. These technical problems however represent minor difficulties in relation to the viability of the "Signed & Sealed" project as a whole.

The costing of the "Signed & Sealed" designs have been more problematical than the original semi-bespoke designs with the exception of the "Pondlife" bench series and the plank table. These designs have been produced regularly and so an average making time has been established from which a price guide has been formulated. A two seater "Pondlife", for example, averages seventy hours to make and costs £2364 (all prices mentioned include VAT). The plank table, which is made from selected planks of variable size, can take between twelve and eighteen hours to produce. As the "Signed & Sealed" designs develop through identifying sustainable sources of timber it will become more straightforward to establish transparent cost benchmarks in the same way as the original semi-bespoke range. However, at this stage of the project it is not possible to do so as the information is not available until more designs are produced.

Therefore the essential differences in the idea of the *semi-bespoke*, as applied to the "Signed & Sealed" project, come out of its use of local timbers and their inherent complexity and diversity. In "Signed & Sealed" new designs are informed by the diverse characteristics and *unique signature* of the wood; it is therefore more complex because it can not be

controlled in the same way as the original concept. At this stage I would argue this is intrinsic to the process.

The complexity of the process imposes limitations in terms of developing it as the exclusive activity of the workshop practice. Although "Signed & Sealed" brand is embedded in the practice it is more complex to negotiate than semi-bespoke. One of the main limitations is the availability of and processing facilities for local timber which is currently restricted to the workshop based local cycle established for the purpose of this project. It is probably not possible to expand the local cycle much beyond the current scale, at least not in the short-term. Such an expansion would constitute a greater financial investment than undertaken to date and could not be justified (presently) in economic terms. Even if this was a consideration the management of a local cycle would shift the focus away from its current design and make base and thereby change the nature of the practice. Alternative sources of local timber are also very limited; the only known supplier is a one man industry in the very early stages of becoming established. As an alternative to local timbers a conscious effort has been made by Philip Koomen Furniture to source English timber from two independent specialist timber merchants; one in particular, supplies English FSC oak, ash and beech. This initiative began at the beginning of 2006 with the aim of still using U.K. timber where strictly local timber was not available thereby reducing the practice's present dependence on European oak. However, this move has been problematical in terms of quality control. Neither company has been able to supply a standard of timber appropriate for the practice's needs: kilning defects, ring shake and discolouration being a few of the problems. By contrast, the European timbers which have been sourced from one of the large timber merchants, which has well regulated quality controls in place, has always met the criteria for our needs. The "Signed & Sealed" furniture has therefore to be restricted to what is presently available until alternative sources of local timber can be identified and the local cycle developed.

This limitation does not severely restrict the creative aspect of the "Signed & Sealed" process. The current level of timber stock built up

over the duration of the PhD project provides a valuable resource to explore creative possibilities with clients through the *semi-bespoke* process and experimental designs. The process can now be sustained into the future. As stock is being used, it is being replaced by new stock. In 2006, for example, both oak and walnut logs have been purchased from local estates. The purchase of a substantial cherry tree has also been arranged, ensuring continuity of supply for "Signed & Sealed" items for at least three years.

By contrast, the four year duration of this project has produced a great range of designs in a relatively short time. "Pondlife", for example, has been transformed from a one-off to become a well recognised range: fifteen variations have been produced and a coffee table version was also commissioned. Most recently a "Pondlife" bed design proposal has been produced (as a model) for a client, suggesting the *semi-bespoke* concept has some way to run yet. The plank table and chair (unique to "Signed & Sealed") and "Ebb & Flow" series (an inter-design) have also begun to show interesting developments demonstrating their versatility as generic design concepts. It is clear at this stage that new designs will continue to be developed and current designs will continue to evolve. What is also evident is that the "Signed & Sealed" brand has begun to take on a distinct identity.

In summary, the defining characteristics of *semi-bespoke* as developed in the "Signed & Sealed" range are now as follows:

- An extensive range of thirty-eight designs exploiting the specific qualities of locally sourced timber (some of which are unique to the range while others can be produced in commercial timbers, i.e. inter-designs)
- An enhanced maker/client dialogue around selecting local timbers and exploiting *unique signature* qualities at various stages in the design and making process
- 3. Engagement in an enterprise that responds to the global issues identified in *Agenda 21* by investing in sustainable practice which promote the local cycle

In conclusion, the "Signed & Sealed" project has facilitated the move of Philip Koomen Furniture towards a more holistic and defensible ideological practice as it moves into the twenty-first century.

#### 2.2 The local cycle

Forest resources and forest lands should be sustainably managed to meet the social, economic, ecological, cultural and spiritual human needs of the present and future generations <sub>Earth Summit</sub>

Few furniture makers source their own timber. However, it is perhaps not without significance that both Alan Peters and John Makepeace, two designer-makers pre-eminent in their generation both buy complete logs, convert them and dry them at their own premises. Peters obtains his logs from local estates ten to fifteen miles from his workshop.<sup>553</sup> Makepeace also sources timber from further afield in the U.K.<sup>554</sup> Both maintain a large stock of their own timber which gives them greater freedom and control when they start selecting materials for a furniture design. What is perhaps most significant in relation to the development of their craft is the benefit the intimate knowledge of material has on their design.

Most furniture makers, however, prefer to buy from timber merchants who specialise in a range of woods, imported or home grown, often both. Some merchants have their own saw mill and kilns, buying logs directly from estates or through wholesalers. Merchants often specialise, each offering a different range of timbers, services and price tariffs, thus encouraging buyers to purchase from more than one supplier.

The timber trade is dominated by a small number of larger merchants spread over the country. Selecting timber requires a journey to the merchant and so most furniture makers prefer instead to order by telephone, indicating the quality and specification they want, leaving selection to the merchant. If the quality does not meet their requirements

<sup>&</sup>lt;sup>553</sup> A. Peters, *Cabinetmaking: The Professional Approach*, Stobart & Son Ltd, London, 1984, p. 131

<sup>&</sup>lt;sup>554</sup> J. Myerson, *Makepeace: A Spirit of Adventure in Craft and Design*, Conran Octopus, 1995, pp. 100-101

they can reject it (however, this normally has to be done before the timber is machined as the merchant will not accept planed wood). If the wood has obvious faults such as kilning defects or woodworm the merchant is under obligation to replace it or reimburse the cost.

While this method of buying would appear to be the most efficient and risk-free, relying on the timber merchant for selection often presents difficulties for the designer-maker. I have learnt from over twenty-five years of experience that selection is subjective and it is therefore necessary to inspect each board personally. Graded timber will predict yield but it cannot indicate whether the wood will produce an interesting and appropriate figure in the furniture, for example.

The qualities of timber are also so variable that the individuality of each board in a log will indicate the type of furniture that it can be used for. Although this method requires an investment in time it can be more economical in the long term, as prudent, selective buying can both reduce the volume of timber needed and minimise waste. Buying timber at any stage, from the standing tree to the kiln dried board will always be a speculative and risky exercise, a problem inherent in the material.

The typical contemporary designer-maker in the Oxfordshire Chilterns area no longer sources his own timber as was common amongst the traditional furniture making craft and industry up to the Second World War. Local furniture makers like Jack Goodchild<sup>555</sup> and Geoff Boyson,<sup>556</sup> who sourced their own timber, were unusual after the Second World War. Woodlands are no longer managed for the benefit of woodworkers, owners and community alike. The designer-maker today rarely considers extending his skills to sourcing his own timber, it being generally regarded as too problematical, preferring instead to buy through the timber trade. By contrast, contemporary German furniture makers are becoming more opportunistic, integrating the sourcing of timber into their practice, an interesting situation which is worth some discussion.

<sup>&</sup>lt;sup>555</sup> Jack Goodchild made Windsor chairs in Naphill, near High Wycombe. He died in 1950

<sup>&</sup>lt;sup>556</sup> Geoff Boyson (b 1916) was a bespoke furniture maker in Stoke Row, near Henleyon-Thames. He retired in the 1990s

Mark Ripley, for example, whose workshop is in South Moreton, near Wallingford, Oxfordshire, is unusual amongst local designer-makers. He has made the decision to limit the range of timbers he uses to locally sourced woods from the Gloucestershire and Oxfordshire areas; ninety percent is oak and the rest is ash and sweet chestnut. He avoids elm and cherry believing that they dry poorly. He has developed a long term relationship with a timber merchant who buys logs directly from estates in the Gloucestershire area and who will identify timber that is particularly suitable for fine furniture making.<sup>557</sup> The provenance of his timber is therefore assured.<sup>558</sup>

For other makers, provenance can be challenging, as timber merchants may not be aware of the provenance of the timber they sell. Barnaby Scott for example, based in Charlbury, North Oxfordshire, uses mostly home grown hardwoods and would, like Ripley, prefer to use English timber of known provenance but has been less successful in obtaining it: 'I used to ask questions about where it comes from but found it hard to get answers. We have given up asking. We are comforted by it being home grown in this country'.<sup>559</sup> He has also discovered that specifying certain English hardwoods for a project can create difficulties in sourcing them; timbers such as brown oak, for example, are not readily available and can be difficult to obtain within the 3 to 6 months time frame of a commission.<sup>560</sup>

Furthermore, these are minor problems for the designer-maker compared to the difficulties of buying and stocking his own timber. According to Scott these included insect infestations and never having the exact thicknesses needed to complete a commission. Petter Southall, a designer-maker based in Dorset, also flags up as difficult the need to store timber and the investment and time needed to manage the process.<sup>561</sup> Both Scott and Southall prefer to order timber specifically for

<sup>&</sup>lt;sup>557</sup> Alex Goldworthy of Timberpride

<sup>&</sup>lt;sup>558</sup> Ripley. Interviewed by Koomen

<sup>&</sup>lt;sup>559</sup> Scott. Interviewed by Koomen

<sup>&</sup>lt;sup>560</sup> Ibid.

<sup>&</sup>lt;sup>561</sup> Southall. Interviewed by Norbury

each commission and believe sourcing and managing timber is an unnecessary distraction and expense for the designer-maker.

While it could be argued that these designer-makers are too small to integrate into their practices sourcing and managing of timber, which requires specialist skills, the size of the business does not necessarily increase the feasibility of local sourcing - as is demonstrated by Stewart Linford's company.

Stewart Linford, an established and well-known large craft-based bespoke furniture maker in High Wycombe, uses about 100 cu ft per week of English hardwoods including ash, beech, elm, burr elm, oak, burr oak and walnut. He does not buy timber speculatively in the round as he does not want to risk buying an inferior log. Like Scott and Southall, he regards timber buying as a profession in its own right; sourcing timber directly would not be economical and involve greater risk. He prefers to develop long-term relationships with timber merchants who develop an understanding of his needs. As a relatively large bespoke craft user of timber Linford is able to buy the quality of timber he needs, sourcing the rarer timbers like burr oak, elm and timbers with historical provenance for exceptional pieces through his regular suppliers. These include, for example, ancient oaks from Windsor Great Park, 4000 year old bog oak from Ireland, and oak from the estate of Leeds Castle. Although Linford represents a revival of Windsor chair making in the Chilterns area this has not been reflected in the increased use of local timbers. The timber trade infrastructure that serves the needs of the furniture industry in the area has, in fact, declined in parallel with that of the High Wycombe furniture industry.<sup>562</sup>

The organisation of the timber trade also makes it increasingly difficult to source local timbers. Obtaining regular supplies of local timber can be problematical for both the one-man business and the large manufacturer. Michael Buck for example, a green woodworker based in Oxford, designs and makes bespoke sculptured garden installations using coppice hazel. His nearest source is Tackley Wood, six miles from

<sup>&</sup>lt;sup>562</sup> Linford. Interviewed by Koomen

his base near Oxford. The long-term decline in the management of coppice in the Oxfordshire area has made sourcing an adequate supply difficult and time consuming for him. He has to "cherry pick" the best of the poor quality coppice available, which has not reached the full rotation period of 6-7 years. Coppice workers do not own the woodland they use but buy the right to harvest the yield. Coppice is grown alongside oak standards. Michael explains: 'there is a relationship: the oak grows straight because of the coppice and the coppice grows straight because of the oak. The straighter the oak standards, the higher the value of the timber'.<sup>563</sup>

The decline in local woodland management has made the supply of quality timber more difficult. Economic woodland management depends on a high level of cooperation between the woodland owners and the timber users. Tom Dean, former MD of Ercol, the furniture manufacturer in High Wycombe, explains that having developed from the local craft furniture making tradition in the Chilterns, Ercol uses mainly beech and elm, two woods associated with the Windsor chair. The company was able to source these timbers from the area until the 1990s by which time it became less confident of the continuity of supply. In order to secure the quality of timber it needed it was forced to buy "job lots" which included timber unsuitable for its purposes, which it sold on. Ercol had to pay a premium for its timber. Its reputation as a large consumer of timber had an adverse effect on its ability to negotiate a competitive price. То compound its problems, Ercol found that timber suppliers were indifferent to their requirements, selling only when it suited their own cash flow needs<sup>564</sup>. The lack of continuity and the increasing difficulty of sourcing suitable quality pushed them to find alternative sources. Ercol now obtain their beech from Denmark and their elm from Pennsylvania, USA, where they own a sawmill. On their withdrawal from the local timber market the price of beech fell dramatically and has continued to fall as the national

 <sup>&</sup>lt;sup>563</sup> Michael Buck, green woodworker, Oxford. Interviewed by P. Koomen, 16 June 2001
 <sup>564</sup> T. Dean, 'The Future of Furniture Making in the Chilterns', *Chilterns Woodland*

Conference, 16 October 2004

demand for beech has been replaced by European beech and alternative timbers.<sup>565</sup>

The story of the decline of English hardwoods in large-scale manufacturing may not be solely attributable to lack of cooperation either. Mark Wilkinson for example, owner of Mark Wilkinson Furniture, believes it is not possible for bespoke companies of his size to rely on a sustainable supply of English hardwood timbers: 'we would start to inroad on parkland trees and ruin how England looks'.<sup>566</sup> The implication of Wilkinson's arguments is that it is only smaller craft-based businesses that are suited to using English timber and developing markets that exploit their diverse characteristics.

This said, there are many examples of local designer-makers attracted to the idea of using locally sourced timber who are prevented by the problems associated with it. Angus Ross for example, based at lpsden near Henley-on-Thames, Oxfordshire, would like to use local timbers but presently regards it an ideal as he sees too many problems associated with sourcing although his long-term objective is to source his own timber and build up a stock. He aims to develop a range of suitable designs to ensure the wood is used rather than concentrate on one-offs.<sup>567</sup>

Richard Williams, based in Amersham, Buckinghamshire, would also only consider using local timbers if there was a local supplier who could offer a professional service. He regards the demands of running a business as too arduous to consider exploring local sources, preferring the convenience and certainty of a timber merchant. He prefers North American timbers as they can be bought over the phone without the need to select. 'You know its yield and its colour; you don't want to spend time selecting timber that fits a particular requirement'. Williams' own attempt at buying English timber in the round was time consuming and costly. Like other furniture makers he believes it is more viable to buy from

<sup>&</sup>lt;sup>565</sup> Ibid.

<sup>&</sup>lt;sup>566</sup> Mark Wilkinson, furniture designer-maker, High Wycombe. Interviewed by P. Koomen, 10 July 2001

<sup>&</sup>lt;sup>567</sup> Ross. Interviewed by Koomen

specialists. However, he does aspire to stock his own timber if only he had suitable storage space.<sup>568</sup>

While there is clearly a latent demand for locally sourced timber, a lack of infrastructure prevents the creation of a local market. This situation is guite different from the furniture designer-makers in the Trier area, Germany, for example<sup>569</sup>. They are, by contrast, committed to using locally grown hardwoods. More than forty per cent of their consumption is local beech, followed by cherry, sycamore, walnut and alder. Oak which grows plentifully is unfashionable, and as a consequence of low demand is in abundant supply, the reverse of the Chilterns situation. Of four furniture makers visited in Trier, three specialised in working in solid wood but each one had developed a niche market using specific timbers. This affected the sourcing and selection of the timber they used. For example, the most experimental of the designer-makers, the Unikat Partners, established in 1998 and employing three craftsmen, sourced unusual timbers including lace wood. As well as buying green timber they buy local kiln-dried oak from a nearby sawmill at a modest price (the equivalent of £12 per cu ft, less than half the price of English oak). According to Norbert, one of the partners, their motivation was both economic and aesthetic. Buying green timber represented a good financial investment and they wanted to experiment with different woods in their designs; they also wanted to provide a wider choice to clients.

Rudi Muller, whose one hundred year old family business in Germany employs fourteen craftsmen, also buys timber directly from local sawmills, collaborating with two other furniture makers in sourcing, converting and drying beech and alder. Muller has recently made the decision to limit his production to these two timbers as he has found that it is uneconomic and problematical to manage more timbers. The other furniture makers similarly prefer to limit the timbers they use; Wolfgang Hank of Tischlerhof Newel, for example, produces all his kitchen furniture

<sup>&</sup>lt;sup>568</sup> Williams. Interviewed by Koomen

 <sup>&</sup>lt;sup>569</sup> Based on a tour sponsored by TWIG of furniture makers in the Trier area, Germany, 21-23 September 2001

in locally grown beech. None of these makers use North American timbers regarding them as too expensive.

These German furniture makers are more organised and unified than the Chilterns/Oxfordshire ones in their efforts to source local timber perhaps because the German Guild system provides an effective network on both a local and regional level. The emphasis on local timbers there is apparently also influenced by wider public and client concern about the lack of responsible management of tropical rain forests and its global consequences. This concern extends to a refusal to produce furniture that uses tropical timbers. Unikat suggests that as the public is sadly largely unaware of the certified management schemes. However, there is an impressive level of general environmental responsibility from the furniture makers themselves. Muller and Winfried, for example, have both undertaken an environmental audit and run their businesses in conformity with government standards of best practice, offering a model that the Oxfordshire and Chilterns designer-makers might well consider.

The U.K. is not without its own examples of local sourcing. Again, like the German example, it is generally furniture makers themselves who have taken the initiative and pioneered alternative local sourcing schemes. Tidmarsh & Goodwin, for example, a company based in Norfolk, produces high quality reproduction furniture with a staff of over fifty. Since 1970 it has been buying and processing its own timber at its sawmill. According to chairman of the company, Peter Goodwin, its aim is to give a better price to the timber grower than the timber trade as the middle men are eliminated. The majority of their timber comes from East Anglia and up to a radius of 100 miles. It took seven years for the company to become independent in oak because of the range of thicknesses required and the length of time required to air-dry 10 cm thick timber.<sup>570</sup>

More recently, Tim Orson and a group of like minded furniture makers set up the Oak Dean Co-op, an independent trading company based in the Forest of Dean, in 2002. Their aim is to source and supply

<sup>&</sup>lt;sup>570</sup> Peter Goodwin, chairman Tidmarsh & Goodwin. Interviewed by telephone by P. Koomen, 18 May 2004

local timbers from the Forest of Dean to a potential market of 200 wood users in an area with a population of 72,000. Before their initiative, ninety-five percent of timber was sourced from outside the area, yet there were four mills in the area supplying secondary uses such as fencing and gates. The initiative extends from sourcing to marketing and retailing. They are able to tag timber, enabling customers who buy their furniture products to know its provenance, i.e. where the tree was grown from which the furniture was made. Orson emphasises that this is not a marketing technique but it is intended for their records to verify the timbers' provenance. Although relatively young, this project has made significant progress. It has received some financial support from Woodland Heritage<sup>571</sup> to purchase a conversion band saw and the Forestry Commission has been supporting the project in helping it to overcome the problems of buying standing timber at auction (normally only within the financial means of the timber trade).<sup>572</sup>

As well as the above local examples, several other British independent suppliers have taken the initiative. Tino Rawnsley based in Cornwall, for example, is a woodland manager as well as a furniture maker. He has recently set up as a supplier of local hardwoods to fellow furniture makers to promote the Cornish supply. With this in mind he has invested in the building of a solar kiln with the capacity to dry up to 150 cu ft. He hopes that local furniture makers will see the economic and aesthetic value of using his service, and in promoting the provenance of Cornish timbers in their work.<sup>573</sup>

Alex Goldworthy of Timberpride Ltd, based in Gloucestershire, became a timber merchant recognising a need for landowners to have a representative who could sell their timber both directly and more profitably than through the timber trade. Local craftsmen, in his view, were not obtaining quality English timbers directly from private estates.

<sup>&</sup>lt;sup>571</sup> Peter Goodwin (Tidmarsh & Goodwin) is a co-founder of Woodland Heritage, a charity that promotes the management of woodlands for the production of high quality timber

<sup>&</sup>lt;sup>572</sup> Tim Orson, furniture designer-maker. Interviewed by telephone by P. Koomen, 18 May 2004

<sup>&</sup>lt;sup>573</sup> Tino Rawnsley, furniture maker. Interviewed by telephone by P. Koomen, 4 April 2004

By adding value through converting and drying timber, and selling it to local craftsmen, who prefer quality English timber of known provenance, he has created an alternative market outside the established trade.<sup>574</sup>

Finally, Coed Cymru (meaning Welsh Wood), a long-term politically motivated regional initiative, was established in 1985 by local authorities to revive the chronic condition of the Welsh woodlands by promoting the use of local hardwoods. Welsh timber is promoted as a generic brand through a network of twelve regional officers. Product development enables low grade timber, which cannot be sold in the mainstream timber market, to be used in timber based designs. The Welsh Angle range of furniture designs (Fig 21), for example, is produced by businesses with basic woodworking skills often alongside a farming practice. According to David Jenkins, its director, low grade oak has been converted into flooring with an annual turnover of £6,000.000 from a seed investment of £900. This is an impressive example of a regional initiative which is showing real benefits to the community and the economy. Since government decentralisation and the establishment of the Welsh Assembly there is according to Ian Nicolas, one of the regional officers, evidence that Welsh politicians are pressing the Welsh Forestry Commission to support Coed Cymru in the development of markets for timber.<sup>575</sup> Such political leadership is critical to promoting sustainability.

The above examples illustrate that effective measures can be put in place to facilitate utilising locally sourced timber, timber which would not be considered commercially viable by the timber trade. There are, however, challenges facing the marketing of local timbers in the Oxfordshire/Chilterns region but there are considerable benefits if a local market can be established. According to David Rees, project manager at Oxfordshire Woodland Project:

Despite poor current availability, there are very good reasons why furniture makers, joiners and perhaps others might wish to purchase local hardwoods. Foremost among these is the desire to operate in

<sup>&</sup>lt;sup>574</sup> Alex Goldsworthy, furniture designer-maker. Interviewed by telephone by P. Koomen, 4 April 2004

<sup>&</sup>lt;sup>575</sup> Ian Nicolas, regional officer Coed Cymru. Interviewed by telephone by P. Koomen, 7 April 2004

a more sustainable fashion if only they can be presented for sale at a competitive price.  $^{\rm 576}$ 

The difficulties highlighted in establishing a local sourcing cycle led to a consultative meeting to identify the problems and opportunities. The invited group of woodland owners, managers and advisers, a contractor and furniture makers represented the various stakeholders in woodland management (Appendix VI, Local Sourcing - Participants "Better Marketing of our Broadleaved Timber"). The results are summarised firstly as regards the **problems of marketing local timbers:** 

No local market

- Current demands for hardwood by joiners and furniture makers are satisfied through the trade's commercial merchants and importers
- Timber is no longer marketed locally on a significant level No local distribution network
- Unlike the timber industry, there is no distribution network.
   Woodland owners can sell to 'round' wholesalers but minimum quantities and sizes limit sales opportunities
- When locally grown timber is bought by the trade its provenance is usually lost

# No infrastructure and expertise

- The decline in the local market has led to the reduction of the infrastructure to process timber, i.e. saw mills and timber drying kilns are closing down
- The associated expertise is also being lost

# High cost of processing local timber

- Transport costs to and from a saw mill are high and minimum loads are required (average cost £1 per ft<sup>3</sup>each way for a 250 ft<sup>3</sup> load)
- Conversion costs are between £1.50 and £2 per ft<sup>3</sup>
- Kiln drying costs are between £3 and £4 per ft<sup>3</sup>

<sup>&</sup>lt;sup>576</sup> David Rees, Oxfordshire Woodland Project, letter to P. Koomen, dated 24 October 2004

## **Competition**

- Imported timber is readily available and is generally less expensive than home grown. French oak, for example, is cheaper than English and sweet chestnut is more expensive than European oak based on current exchange rates
- The demand for square edged imported timber with a more predictable yield and consistent quality is increasing

## Supply issues

Preconditions of a working supply chain were considered. These included:

- Timber of appropriate quality must be present in the local woodland in sufficient quantity
- The appropriateness of felling, and the owners' willingness to fell
- Eight further factors were identified that affected availability, e.g. species, dimensions, timing and environmental credentials
- Each factor may have a number of variables; for example, timber dimensions may require five thicknesses multiplying the stock requirements across a range of species
- The majority of timber users prefer to order timbers by phone rather than inspect it
- Local timbers lack the consistency of imported timbers requiring timber users to view it or a clear visual grading system to be developed
- A local woodland timber supplier could not start a comparable service to an established timber merchant

## <u>Quality</u>

- Defining quality and grades is difficult
- Character grade is a subjective aesthetic assessment
- Timber yield is difficult to assess on non-standard timber
- Buyers want kiln dried timber as a safeguard against infestation; air-dried timber or timber dried through a dehumidifier does not eliminate the risks

By contrast, the potential **advantages of developing a local market for timber** were seen to be as follows:

# Higher price for local provenance

- Local timber of an appropriate quality should have a premium price, just as organically grown vegetables and specialised foods
- Establishing a local market
- This will take a long time, probably five to twenty years
- It requires a collective will from a critical group of like-minded stake holders
- Woodland managers will have to develop an understanding of their potential buyers' requirements
- Timber buyers will have to be more aware of the woodland managers' constraints
- New and existing local users with internet access could be targeted to promote the sale of local timber, e.g. Oxfordshire Furniture Makers Group

# Processing timber

- Mobile sawmills can be used for conversion at the woodland to reduce haulage costs
- Alternative technologies for timber drying can be used where the timber is converted, e.g. dehumidifier units, solar energy kilns
   Distribution
- Local depots could be set up to dry, store and sell timber <u>Partnerships</u>
- Cooperative partnerships could be established with woodland owners/managers and timber users to share costs and risks <u>Environmental benefits</u>
- Creating a demand for local timber would improve the management of woodlands by generating income from the sale of timber and added value through processing the timber

## "Signed & Sealed" and the local cycle

Establishing a local cycle for sourcing local timber on a regional basis clearly represents a long-term challenge and would require a considerable commitment by a group of like-minded stakeholders. In the "Signed & Sealed" project the objective was to create a micro cycle for Philip Koomen Furniture to demonstrate the feasibility and benefits of sourcing local timbers. This initiative is not without historical precedent.

The woodland areas adjacent to my workshop in Checkendon and neighbouring Stoke Row and Highmoor in South Oxfordshire once provided livelihoods for a significant numbers of men living locally in the first half of the twentieth century, as well as supplying fuel for the villages. Bodging and tent peg making were the two main woodcraft occupations.<sup>577</sup> Local employment was later also found at the Stoke Row Starbrush Company factory, built in 1921 to produce paint brush handles called 'brush backs'. The factory used about one thousand cubic feet of beech every week but this was beyond the capacity of the local woodland. Some timber was, however, felled around Checkendon and Lambridge Wood, near Henley-on-Thames. The firm closed in 1982 due to competition from cheaper imports from China and Romania.<sup>578</sup>

There was no known tradition of fine furniture making in the locality until Geoff Boyson moved into Stoke Row in 1946 when he bought an area of woodland on which he built his workshop and house. Boyson was aware of the history of woodland usage in his locality: 'Stoke Row used to depend a lot on timber and a lot of the people in those days were wood people'. He was able to produce nearly everything from timber grown in the locality. If he could not convert a log himself the local woodworking factory Hamilton Starbrush Company would convert his logs. This company would also supply him with beech and birch. In order that he could manage his own timber he bought a trailer to transport the logs to Starbrush or Smallbones, a local building and joinery company, in Streatley, Berkshire, about six miles from his workshop. If he saw an interesting tree suitable for furniture making he would make

 <sup>&</sup>lt;sup>577</sup> A. Spencer-Harper, *Dipping into the Wells: the story of the two Chilterns villages of Stoke Row and Highmoor seen through the memories of their inhabitants*, Robert Boyd Publishers, Witney, 1999

<sup>&</sup>lt;sup>578</sup> Spencer-Harper, Dipping into the Wells

enquiries with the woodland owner, such as the Reed, Nettlebed and Fleming Estate.<sup>579</sup> Boyson eventually retired in 1996, aged 80.<sup>580</sup>

In 1984, I moved to my current workshop at Wheelers Barn, Checkendon (Fig 1). However, my interest in using locally sourced timbers began when I started professional furniture making. In 1976 in Henley-on-Thames, I felled two mature elm trees blighted by Dutch elm disease. The timber was converted at a local saw mill and air-dried at my workshop. The availability of a relatively inexpensive material<sup>581</sup> made it possible to undertake various speculative projects that would otherwise be financially too risky to consider.<sup>582</sup>

From these early ad hoc experiments in locally sourced timber a conscious effort was made from the mid 1990s to source interesting timbers in the woodland around my workshop. A limited network of contacts, mainly tree surgeons, was established who would advise me when a felled tree looked promising. Logs were bought intermittently on this basis, converted at local sawmills and brought to the workshop where they were air-dried for a number of years, until an appropriate commission for furniture created an opportunity to use the timber to its best advantage. The problem with this ad hoc approach was that a considerable stock of timber was built up and there were only limited opportunities to use it. One-offs and the range of semi-bespoke designs were more suitable for crop timbers rather than local timbers. Another problem was that the air-dried timber had to be kiln-dried at the nearest commercial kiln and transported to and from Stokenchurch at additional cost. The closure of the only local kiln, circa 2000, was an incentive to considering alternative methods of locally sourcing and processing timber which began in earnest in the beginning of 2001 with the commencement of the "Signed & Sealed" project.

<sup>&</sup>lt;sup>579</sup> In the war, for example, Boyson bought stands of oak for £2 from the Ministry of Defence that had been cleared from the Reeds Estate in Checkendon for missile pads ('good straight butts').

<sup>&</sup>lt;sup>580</sup> Geoff Boyson, furniture designer-maker, High Wycombe. Interviewed by P. Koomen, 21 July 2001

<sup>&</sup>lt;sup>581</sup> The only direct costs were the conversion costs and transportation

<sup>&</sup>lt;sup>582</sup> The first HG dining table (1985 prototype) was made from this elm

Identifying actual and potential timber resources for the "Signed & Sealed" project has presented minimal problems since many relationships had been established with local tree surgeons in the 1990s and therefore a vital link was already in place. The network was, however, extended at the beginning of the project to include selected woodlands and two charitable advisory agencies. The Oxfordshire Woodland Project and The Chilterns Woodland Project, whose mandates are to improve woodland management and timber utilisation in Chilterns.583 Oxfordshire and the These mutually supportive organisations have been established for a number of years providing an important source of impartial advice. A further source of advice has been the Transnational Wood Industries Group (TWIG), which functioned from 1999 to 2002 to investigate how to improve the utilisation of timber in the Chilterns area.584

The original objective of this investigation was to identify suitable resources available from selected local woodlands committed to improving their management for sustainable timber production. A total of thirteen woodlands and estates have participated. From these estates, timber has been bought from six, either in the round or as air-dried planks, and furniture subsequently made from them.

Two woodlands, Stonor Park and one in Stoke Row, have subsequently begun their own timber conversion and drying; Stonor Park was supervised by me (Fig 22-26), the other by Adam Dawson.<sup>585</sup> The remaining five have to date not produced any timber suitable for the project mainly due to lack of time, although in one case the contractor felling oak preferred to sell the timber directly to the trade.<sup>586</sup> Non woodland resources have also been identified and have been used or are currently being processed. These have been acquired from sources as

<sup>&</sup>lt;sup>583</sup> Both organisations are funded by County and District Councils

<sup>&</sup>lt;sup>584</sup> TWIG was a multi-national partnership, part funded by the European Commission; one of its partners was based in Trier, Germany

<sup>&</sup>lt;sup>585</sup> Adam Dawson is an agro-forestry scientist and project manager at the FSC Hardwick Estate, Whitchurch, Oxfordshire

<sup>&</sup>lt;sup>586</sup> Besselsleigh Woodland owned by the Vale of White Horse District Council and managed by David Rees, Oxfordshire Woodland Project

diverse as private gardens to institutions like Harcourt Arboretum, Nuneham Courtenay, owned by the University of Oxford.

Identifying appropriate resources has come from a combination of research and opportunities. Sweet chestnut was identified, in collaboration with the Oxfordshire Woodland Project (Fig 27), as the most appropriate locally grown woodland timber suitable for "Pondlife" benches. Beech was selected because it is an abundant species dominating the Chilterns and its under-utilisation merited investigation. Brown/tiger oak, burr oak, oak, olive and white ash and cherry were also local woodland timbers that were readily available and warranted exploration. Non-woodland timbers (including pippy yew, box holly, walnut and laburnum) were also on offer, either by private owners or professional foresters who had identified an unusual tree and recognised its creative and marketable potential.<sup>587</sup>

The success of the enterprise depends on the relationship with the woodland owners. The unfolding story reveals some interesting developments. All the woodland owners approached were very receptive to the opportunity of participating in a collaborative project. Nearly all of them were anxious to find new markets for their timber in a difficult commercial climate. An established local furniture maker, already acquainted with buying logs, represented a new potential buyer.

The most effective and successful collaborators were the ones who brought professional or trade knowledge to the relationship, and who had either previously conducted business or were well known to me. In a market situation transactions are conducted most efficiently and advantageously when there is mutual trust and a long-term business relationship is being established.

Another type of approach has also been cultivated based on my providing the consultative expertise, advising on what timbers were suitable for specific furniture or joinery applications, and supervising the conversion and air-drying.

<sup>&</sup>lt;sup>587</sup> These timbers came from private gardens

The act of purchasing timber from local woodlands initiates a demand for under-utilised resources. Through such initiatives, woodland estates can be helped to become more sustainable by developing a market for their timber. Although the income from timber sales from any one furniture maker cannot make a significant contribution, an example has been established. If a collective initiative can be organised (see Oak Dean Co-op), then the demand can begin to make a valuable contribution to the local economy.

Determining an equitable price remains a problem in a nascent market when norms have not been established. This is also aggravated by global factors when the market has a distorting effect on the price of timber, affecting the local supplier as well as the larger timber importers. Imports are increasing as local timber declines. Martin Drew, an Oxfordshire timber contractor, has observed that the price of first quality oak, for example, has remained the same since the 1970s at £5-£6 cu ft<sup>588</sup>. Simon Fineman, CEO of Timbmet Group Ltd, has also seen the price of imported timber in real terms fall for the last ten years.<sup>589</sup> The market price is clearly not based on an equitable price for timber. Establishing a price, that allows the forester to manage his resources in a sustainable way for local timbers, was decided by mutual agreement between buyer and seller based on its perceived value. This was the case in all the purchases made. However, as will be described next, there were many differences in approach to the negotiation of the price.

Woodland managers, for example, who are experienced in selling to the timber trade proposed a price that was marginally more than the best price they could obtain from the trade. As the timber in each case did not conform to the minimum requirements set by the trade, this market was a difficult one in which to sell. Selling to me, a designer-maker was one of the most viable sales opportunities.

In two examples, Martin Drew and Norman Cox, the price offer was accepted without negotiation as it represented a fair and affordable price

<sup>&</sup>lt;sup>588</sup> Martin Drew, timber contractor. Interviewed by P. Koomen, 22 February 2001

<sup>&</sup>lt;sup>589</sup> Simon Fineman, CEO Timbmet Group Ltd. Interviewed by P. Koomen, 26 November 2004

in relation to the risk. In both cases the timber was sold "in the round" (Drew included the conversion of the log at Helmdon Sawmill and delivery to the workshop in the quotation). The timber was offered for sale by the woodland managers who had felled the timber and needed to sell; a different situation to the next case when I negotiated a price for the timber to be used in the "Pondlife" bench. Here, the price was negotiated on the basis that the timber was required for a specific need and the woodland manager has a sufficient supply to meet that need.

Sweet chestnut, the material used for "Pondlife" benches, was in plentiful supply as thinnings from Bagley Woods, near Oxford. Although Bagley Woods was selling the occasional sawn section to members of the public as "substitute oak", this represented a very small market for the high volume supply of thinnings. Having outlined my long-term requirements a price was agreed to purchase sweet chestnut thinnings that had been partially converted (Fig 28).

Following the initial purchase, further orders were made culminating in the largest order which represented the total clearance of the estate's sweet chestnut thinnings. The negotiated price of the timber therefore represented considerable benefits to both parties. Since they had a sawmill, Bagley Woods were able to add value to the material by converting the timber to meet my specific requirements; they were also able to deliver the timber to the workshop. The estate also benefited from combining a necessary thinning programme with the consecutive act of clearing a "waste" material. The sale of the timber produced a cash profit, improved the management of the estate and ultimately enhanced the value of the remaining stock of sweet chestnut which could grow to its The sourcing of this timber has completed the optimum maturity. integration of the supply of the material with the making of "Pondlife" benches; a win-win scenario for both seller and buyer.

In the final example, the difficulties of agreeing a fair price in a nascent market are all too evident. Trying to establish a fair price for converted timber that had been partially dried proved problematical. The timber in question, two inch air-dried beech from the Hardwick Estate, was offered at £18 cu ft, more than ten times its price in the round. It

appears that the estate administration determined this initial price by placing covert telephone calls to timber suppliers and retailers to determine a value. Sadly this price bore little relationship to the quality and condition of the material. The estate administration subsequently acknowledged their inexperience and finally agreed on a negotiated price based on the trade price for kiln-dried timber plus a £1 per cu ft premium, i.e. £13 cu ft.

In addition to the beech, two boards of air-dried spalted Norwegian maple were purchased. In this case the price proposed was related to the previous sale at £35 per cu ft. Unlike the beech, which was of poor quality, the spalted maple had revealed interesting markings in conversion although it was originally regarded by the estate as only fit for firewood. A price of £30 per cu ft was negotiated on the basis of its unique signature. This suggests that such timber generally could have a premium price if it is marketed well.

These two examples illustrate the fundamental problem in determining price and value: woodland owners who are trying to sell timber as an added value product and are not necessarily technically competent at judging relative quality may have an unrealistic view of the price and value of the timber.

Having identified and purchased appropriate timber the next stage are its conversion, drying, delivery, and the logistics involved in these. The decline in the traditional local infrastructure for converting and drying timber necessitated investigating alternative options; even existing local sawmills were found to be unsuitable for converting timber.<sup>590</sup>

The increase in the number of mobile saw mills, however, has proved a viable alternative. The Woodmizer and Forestor saw mills, for example, each offer specific advantages for different situations; both are designed to be used where the timber has been felled. The Woodmizer was particularly suitable for converting the beech at the Hardwick Estate as limited access might have proved very expensive to transport to a

<sup>&</sup>lt;sup>590</sup> Some of the sawmills visited had inefficient, antiquated machinery, e.g. Benson Sawmill. Those that were fully operational produced mainly fencing, e.g. Norman Cox, Ipsden, South Oxfordshire and Nettlebed Sawmill, Nettlebed, South Oxfordshire

commercial sawmills (Fig 29a/b and 30a/b). The beech was also subsequently air-dried on the estate avoiding storage issues until such time as it was required for furniture making (Fig 31a/b).

The ash, oak and cherry from the Reed Estate was transported to Culham where it was converted on a Forestor saw mill (Fig 32a/b) and then transported to the Philip Koomen Furniture workshop. Although the timber was felled within two miles of the workshop the contractor decided it was more efficient to convert at his yard where he could make use of a crane to handle the material.

The conversion of the sweet chestnut thinnings was undertaken at the Bagley Woods Estate, where the trees grew, and then transported to the workshop. This proved the most efficient arrangement as transportation was reduced to a single return journey. By contrast the larger logs, the brown oak from Thame (Fig 33a), Oxfordshire and ash from Kingsclere, Berkshire could not be converted locally as the saw mills were inadequate for the logs. These were instead transported to Helmdon Saw Mill, near Banbury, where they were converted and partially air-dried (Fig 33b and 34a/b) before being transported to the workshop where they were restacked and continued to air-dry until required (Fig 35a/b).

In the above examples, conversion was managed efficiently but this was not the case throughout. As already mentioned existing local saw mills were sometimes found to be unsuitable for our purposes. For example, three ash and oak logs from the Swyncombe Estate were delivered to one local saw mill (Fig 36a/b) who subsequently took two years to convert them, resulting in two of the logs developing rot, thereby degrading some exceptional timber (Fig 37).

Conversion is clearly a specialised craft requiring a significant investment in machinery and outside the resources of the Philip Koomen workshop. The workshop has however increased its own capacity for secondary conversion through the addition of a second larger band saw for shaping the "Pondlife" reeds and converting smaller logs as well as for experimental work. As for the logistics of transporting timber, this has generally been an efficient and environmentally sensitive process constrained by the availability of suitable saw mill conversion equipment.

The drying of timber after conversion is successfully carried out at the Philip Koomen workshop which has a concrete yard that is private, well sheltered with adequate access and therefore suitable for drying and storing timber. This area has now been adapted for these purposes. A timber store has been built in this area to house dry timber (area 500 sq ft), (Fig 38a/b). Converted green logs are stored outside on concrete lintels which provide a level base clear off the ground. The method of drying is as follows: a series of "stickers" between twelve mm to twentyfive mm thick are placed between each board to allow the air to circulate and the moisture in the wood to evaporate. The ends of each board are painted with a wax sealer to reduce excessive drying which can cause end checking. A corrugated roof is place over each stack of timber to protect it from rain and direct sun. Air drying will take a minimum of one year for every twenty-five mm of timber thickness. When air-dried to between fifteen and twenty per cent moisture content, it can be further dried to ten to twelve per cent moisture content in the dehumidifier chamber in the workshop (Fig 39). This process removes about 0.5 per cent of moisture per day. The timber can be ready for furniture making between ten and twenty days. The creation of a local timber cycle is complete once the furniture is made and delivered to the client.

The advantages and disadvantages of establishing a local timber cycle can be identified as follows:

## Advantages

- Woodland management will become more sustainable by increasing the income from timber production through prices negotiated at a local level
- Carbon emissions and environmental damage will be reduced when the timber, which has been converted and delivered to the workshop to dry, is not transported again until it leaves the workshop to go to a client as a piece of furniture

- An assessment of potentially suitable trees can be made over a long period if furniture makers develop knowledge of the woodlands in the locality and dialogue with their owners
- Reliance on imported timber is reduced and the vagaries of fluctuating exchange rates are avoided
- Creating a market for locally grown timber does not exclude the commercial alternatives, merely allowing clients to make a more informed choice
- Buying green timber is a low risk investment as the price is usually less than half that normally charged by timber merchants
- Free of commercial pressures, timber can be air-dried for free over a number of years until required
- Low cost dehumidifying chambers can be built to condition airdried timber
- The greatest added value in timber is achieved in the drying process
- Special journeys searching for unusual timbers can be avoided by specifying from stock
- Identifying suitable timbers for a project can be done conveniently
- A new market can be created as public awareness increases through commissions, exhibitions and media coverage, gradually increasing demand for local timber
- Greater collaboration and experimentation will be possible when relationships between woodland owners, foresters, sawmills and furniture makers are developed over a long term giving a greater understanding of each other's needs and problems

# **Disadvantages**

- The specialist skills of timber buying, converting and drying timber necessitates the designer-maker to learn new skills
- Processing timber requires investment in space for air-drying, dry storage, kilning or dehumidifier equipment, etc.

- Many workshops will not have the storage space to consider it as a possibility
- The costs of buying and processing timber on this relatively small scale are higher than for larger commercial organisations that have specialist handling equipment, etc.
- Transportation costs tend to be higher as small quantities are involved and lorries are not always used at their maximum carrying capacity
- The cost of buying logs, converting and transporting them has to be paid for at the earliest stage
- The financial return can only be realised when the furniture is completed and paid for which can take many years
- A large quantity of timber has to be maintained to meet different requirements, e.g. different species and various thicknesses
- There have been particular problems in the course of the "Signed & Sealed" project with regard to timber degradation and defects, including:
  - Degradation through being left in the round too long, e.g. ash, beech
  - Degradation caused in the drying including warping, cupping, honey combing, checking and splitting
  - Discolouration inherent colour defects which appear during machining and have no aesthetic value
  - Inappropriate drying stickers may produce marks that penetrate the wood
  - Infestation timber from local woodlands is more susceptible to insect attack than commercially available timber which has been kilned<sup>591</sup>
  - Inherent defects ring shake, splits
  - Human interference nails, wire, etc, damage not only saw blades but also damage the timber (common

<sup>&</sup>lt;sup>591</sup> Dr Andrew Pitman, Buckinghamshire Chilterns University College, produced a guide to monitoring infestation for Philip Koomen Furniture

amongst trees grown in private gardens and poorly managed woodlands)

 Every stage has to be managed on an operational level (including stock management) as well as a strategic level (for example, will clients want brown oak in five years?)

In conclusion then, the aim of the "Signed & Sealed" project has not been confined to a narrow short-term commercial exercise. It is to facilitate a more integrated and sustainable approach to furniture making that provides a foundation for a long term future generating wider social and economic benefits as well as creative design solutions. It will take many more years to develop now that the infrastructure is in place. Even at this early stage, it is not possible to quantify the exact financial benefits; the indications are that this model of a local supply cycle is generating economic returns and benefits to woodland owners, local contractors and Philip Koomen Furniture. Clients are also clearly becoming engaged with the concept when suitable timber is available.

Establishing the infrastructure and system to process locally sourced timber at a workshop level is a complex and multi skilled activity. The Philip Koomen Furniture workshop has not become entirely independent of commercial timber merchants in the period of the "Signed & Sealed" project. In the short term the range of commissions we undertake means our requirements for different species, qualities, thicknesses and timescale necessitates timber has to be bought from different sources including North America, Europe and the U.K. As local sourcing is expanded and the range of *semi-bespoke* designs increases it is anticipated that the workshop will use a greater proportion of local timber.

## 2.3 Unique signature

Unless workmanship comes to be understood and appreciated for the art it is, our environment will loose much of the quality it still retains <sub>David Pye</sub>

No two trees are alike, rather like humans. Each has its individual identity which can be read in the figure grain, texture, colour, knots and markings of the timber. This constitutes a kind of geology called its *unique signature* and is evidence of a particular history of time and place, genetics and conditions of a growth including the impact of climate and disease. Furniture designer-makers can develop the concept of *unique signature* through the skilful manipulation of timber in their designs.

The idea of revealing *unique signature* has been incorporated into the framing of the "Signed & Sealed" project where it fits seamlessly with an ideology centred on sustainability and the local cycle. However, its revelation is by no means confined to the "Signed & Sealed" project – it can be seen to be exemplified by several contemporary designer-makers.

# Furniture designer-makers and unique signature

In the U.K. and the USA, Alan Peters, John Makepeace, Tim Stead and George Nakashima have been amongst a select band that have extended the boundaries of their craft through a practice-based dialogue with wood which has led to individual interpretations of the *'unique signature'* of wood in their designs. Concurrent to this has been a commitment to source and process their timber, often from local woodlands. This has also enhanced their understanding of wider related environmental, social and spiritual issues which have in turn enriched their work.

Alan Peters has been a role model for a generation of aspiring designer-makers since the 1970s. Having been apprenticed to Edward Barnsley his subsequent design training equipped him to develop his own distinct ideas through the medium of craftsmanship in wood. His apprenticeship at Barnsley's workshop gave him an understanding of working with wood that he was able to draw on and expand throughout his career: 'I probably know more about timber than most people. I ... spent weeks turning the timber over ... in those days I used to strip off all the bark with an axe'.<sup>592</sup> It was at this formative stage that he must have

<sup>&</sup>lt;sup>592</sup> Peters. Interviewed by Koomen

also learnt about the importance of selecting timber. According to Peters, this is a logical part of the design process because it helps define the character of the final piece. Peters will always personally make the selection of the timber and cut out the material for each piece.

Like Barnsley, Peters enjoyed using a variety of imported exotic timbers in his designs. His ebony desk (1979) combined solid mahogany with solid and veneered ebony and his earlier work featured Burmese teak, Indian padouk, rosewood, paldas, satinwood and kingwood. He regularly combined exotic timbers with home-grown ones as well as using these in their own right.593

Although trained in the arts and crafts tradition he was not content to recreate that style. Until Peters' visit to Japan his work had been strongly influenced by industrial design and involving, for example, the use of stainless steel but was subsequently impressed by Japanese architecture and the extensive use of timber 'beautifully worked'.<sup>594</sup> He came away with a renewed appreciation of 'simple everyday objects whose shape and beauty were derived chiefly from their function and the most lyrical and economic method of making<sup>, 595</sup> Japan and his later visit to Korea ironically confirmed his love of traditional British crafts and craft objects, bringing home to him the universality of the craft tradition and ethic. His exposure to the Japanese and Korean craft traditions renewed his appreciation of the pioneering work of Gimson and the Cotswold School, inspiring him to focus on developing his designs around 'form and variation in construction' using solid timber.<sup>596</sup>

New creative possibilities opened up when Peters moved to his Devonshire workshop in 1973. The generous outbuildings gave him the opportunity and space to source his own timber. Most of his home-grown stock came from timber felled within 10-15 miles of his workshop by people known to him personally, reaffirming his experience during his

<sup>&</sup>lt;sup>593</sup> A. Peters, *Cabinetmaking: The Professional Approach*, Stobart, London, 1984

<sup>&</sup>lt;sup>594</sup> Ibid., p. 83 <sup>595</sup> Ibid., p. 86

<sup>&</sup>lt;sup>596</sup> Peters, Cabinet Making, p. 80

training at Barnsley's.<sup>597</sup> This development required him to be intimately involved in supervising the whole process of timber preparation, from sawing the tree to milling, drying, and conditioning the timber. The majority of Peters' pieces is now made using home-grown timbers with provenance recorded (e.g. Devon walnut or oak).<sup>598</sup>

An early commission for the Swiss Chapel (1977) for a range of fifty chairs (Fig 73) and a lectern was a pivotal experience in the use of low grade native materials and low cost techniques. The limited budget meant that Peters had to use the least expensive materials and the most cost effective techniques of production. Motivated by economy he selected the cheapest grade, mining ash, with sections of six inch diameter or less. These small sections dictated how he could work the timber. Peters devised a technique of using small sections, angling the cut of each section to produce the subtle curved shape of the chairs and lectern. The technique became the basis of his *stack laminated* designs which explore the *unique signature* of a wide range of lesser known and under-utilised timbers.<sup>599</sup>

This method is very similar to the industrial method used by Ercol Furniture. This company constructs their table tops and carcasses using narrow strips of elm, a difficult wood not normally associated with fine furniture. Peters has extended the possibilities of fine furniture by adapting this industrial method. The technique has enabled him to develop a range of designs using small sectioned refractory timbers such as holly and mulberry and building widths or blocks of solid timber which would otherwise be impossible to achieve.600

His explorations have generated construction centred decorative effects that extend craft practice. His range of bowl tables using ash or acacia, partly inspired by David Pye's fluting technique, unifies the perfected smoothness of the tables' flat surfaces with the controlled but irregular carved fluting of the integral bowl. The "random selectedness" of

<sup>&</sup>lt;sup>597</sup> Alan Peters gives an account of the inspiration for his designs following his tour of Korea in 1980 in the exhibition catalogue: Alan Peters, Furniture Maker, Cheltenham Art Gallery and Museum, 1985

<sup>&</sup>lt;sup>598</sup> Peters, Cabinet Making

<sup>&</sup>lt;sup>599</sup> Ibid., pp. 143-146

<sup>&</sup>lt;sup>600</sup> Ibid., p. 143

his stack lamination technique adds a further dimension to the visual play of the *unique signature* of these timbers.<sup>601</sup> Inspired by Japanese joinery, Peters' designs also feature the use of end grain. The celebration of end grain is a significant shift in the interpretation of the *unique signature* of wood; an element which British joinery and furniture making has previously tried to conceal:

The exposure of the end grain, it was that which I liked and picked up; as a feature I use it. A big feature of my dining tables is the end grain; sometimes I might strip them up (i.e. laminate them), other ones are solid slabs, sometimes I use one centre joint.<sup>602</sup>

His designs develop through his interaction with the timber and extending throughout the whole making activity: 'Many of my design ideas I find come from constantly working with the material and the equipment I have'.<sup>603</sup> Each project can also serve as the source of inspiration for future designs, ideas are being stored mentally or documented until they can be incorporated into new work: 'whilst working on any one item, ideas will often present themselves which are no longer possible on that particular piece but they can be remembered, recorded and used on future occasions'.<sup>604</sup> Peters sees this level of involvement as intrinsic to the creativity of the designer-maker. His life-time achievements demonstrate the aesthetic sensibilities of a designer-maker's exploration of the *unique signature* of wood.

Makepeace, like Peters, is a "father figure" amongst designermakers. He combines the artist and craftsman's knowledge of wood exemplified by Peters with the experimentalism of a restless innovator. He views the diversity of wood as a phenomenon that merits empirical exploration. He is intrigued by the idea of trying to use the diversity of wood 'in appropriate ways according to the particular object'. The material itself becomes the source of inspiration for creative ideas: 'I am always looking at what are the qualities of the timber and how we can celebrate them'. Makepeace identifies an important principle - that timber

<sup>&</sup>lt;sup>601</sup> Peters. Interviewed by Koomen

<sup>602</sup> Ibid.

<sup>&</sup>lt;sup>603</sup> Peters, Cabinet Making, p. 80

<sup>&</sup>lt;sup>604</sup> Ibid., p. 80

as a material is intrinsically good. He feels that the designer-maker can extend the boundaries of this material through innovative design, redefining the boundaries of what is good or bad material:

Everything has quality, material of itself is not inferior, it is what you do with it and as a furniture maker I'm fascinated to use the spectrum of materials, particularly to use materials that would otherwise have no commercial application.

Makepeace's design approach, like Peters, focuses on the creative use of under-utilised timber. Mulberry and holly, for example, which can get cut down and burnt because there is no market for them, have special properties and are 'well suited in my mind to making guite unusual objects'.<sup>605</sup> Makepeace also has a particular affinity for yew but is aware of its problematical working characteristics. Like Peters, Makepeace has built up a significant range of local and British timber stocks which he has sourced for his creative explorations.

In the early part of his career Makepeace made extensive use of non sustainable hardwoods but in recent years, he has become a committed environmentalist. This reorientation has had an important effect on which timbers he uses and how they influence the way he designs. The focus in his workshop is now predominantly on English hardwoods - oak, holly, yew, mulberry, ash, cherry and sycamore - and especially on the rarer forms, ripple and burrs.<sup>606</sup> These are the more unusual woods which have special qualities but are found in quantities which are too small for industry to use: 'He therefore sees himself as displaying and celebrating those materials which serve no purpose to manufacturers and would otherwise be wasted'.<sup>607</sup> Makepeace views the relationship of craft to industry as a complementary one: industry using plentiful timbers cultivated for their commercial applications and leaving craftsmen to exploit the rare and unusual.

Makepeace's designs, like designer-maker Tim Stead's, are influenced by nature and environmental issues. The inspiration he gets from nature is reflected in the subtle shapes and absence of 'harsh

 <sup>&</sup>lt;sup>605</sup> Makepeace. Interviewed by Norbury
 <sup>606</sup> Myerson, *Makepeace*, p. 99-100

<sup>&</sup>lt;sup>607</sup> Ibid., p. 103

angles or edges in his work'.<sup>608</sup> The Creation Collection (1994) was motivated by his desire to inspire the public to reconnect with their roots in the environment. The three designs that form the collection, Standing Stones, Vine Chair and Swaledale Throne are very literal interpretations His exploration of carving techniques in these pieces of nature. 'extended his vocabulary of design through the art of making'.<sup>609</sup> The Obelisk in English yew wood is a technically accomplished and visually stunning demonstration of Makepeace's preoccupations and strengths (Fig 74). His mastery and celebration of the most difficult cabinet making timbers is combined with an exquisitely resolved design which makes subtle reference to his environmental aspirations through its landmark form and undulating top. His drive to extend the boundaries of craft design is moderated by his commitment to the Arts and Crafts ethic of fitness for purpose: using woods in their natural state with decoration articulated or revealed through the unique signature of the material.<sup>610</sup>

While Makepeace and Peters are designer-makers rooted in the Arts and Crafts movement's love of wood, Tim Stead (1952-2000) was a sculptor who discovered wood by accident. His fascination with it began with his experiments with driftwood. It was this contact with the material that opened up a new and so far lifelong relationship: 'through the driftwood I became addicted to wood'.<sup>611</sup> His initial use of timber was fairly indiscriminate; he used tropical hardwoods sourced from old railway sleepers, pine from demolition sites, anything that was readily available. Although he was becoming aware of the debate over tropical timbers, his discovery of the aesthetic and environmental merits of indigenous timber was circumstantial and opportune.

It was his move to new workshops on an estate at Harestanes near Jedburgh, Scotland, that brought him into direct contact with felled timber. Like Peters, he discovered a new source of inspiration. He took a chance and bought a lorry load of timber, including a burr elm log for about £60.

<sup>&</sup>lt;sup>608</sup> P. Glynn cited by J. Myerson, *Makepeace: A Spirit of Adventure in Craft and Design*, Conran Octopus, 1995, p. 117

<sup>&</sup>lt;sup>609</sup> Myerson, Makepeace, p. 122

<sup>610</sup> Ibid.

<sup>&</sup>lt;sup>611</sup> G. Sutherland, *Explorations in Wood, The Furniture & Sculpture of Tim Stead*, No Butts Publishing, Galashiels, 1993, p. 20

He converted the logs at a local sawmill and dried the timber at the estate kiln. From that point Stead was converted to indigenous timber, realising that: 'the most interesting territory and the greatest surprises are to be found on our own door steps'.<sup>612</sup> Stead's discovery belied the potential problems often associated with retrieving timber. Trees often require skilful and costly pruning before felling, and can grow in inaccessible locations requiring heavy machinery to remove and deliver them to a sawmill.613

Stead, like Nakashima, preferred to cut the logs on a horizontal sawmill to preserve the natural waney edge. This stage is nominally a routine process, producing planks cut at various thicknesses and resulting in the log preserved in its bole form with each board kept in its original position in relation to the log. However, the cutting of a log is more than a mechanical process; it requires mental preparation and spontaneous decision making:

I feel that I need to have every door of my brain open and to be almost blank. I have to decide the way the section should be positioned and at what thickness. However, the decisions I take are sometimes arbitrary; decisions need to be made quickly and these are usually irreversible.614

When the boards are cut through and through, every one has its own individuality and 'reads like a page from a book'.615

Retaining the natural edges and forms of the wood are intrinsic to Stead's way of working. His designs speak of wood as coming from a tree. This approach is diametrically opposite to mainstream furniture makers, who use wood as a material to be controlled and manipulated into forms of their own imagination or established tradition. 'Normally the wood that I use would not get into a furniture maker's workshop and if it did it would tend to get squared up and have a man-made design imposed on it'.616

<sup>&</sup>lt;sup>612</sup> Ibid., p. 20

<sup>&</sup>lt;sup>613</sup> Ibid., p. 40

<sup>&</sup>lt;sup>614</sup> Ibid., p. 96 <sup>615</sup> Ibid., p. 20

<sup>&</sup>lt;sup>616</sup> T. Stead cited by S. Biddel, 'Local Hero', *Furniture & Cabinetmaking*, Guild of Master Craftsman Publications Ltd, Lewes, no. 46, November 2000

The natural forms of the tree, its defects and man's intervention during its life are celebrated in Stead's designs. Motivated by thrift and a challenge to make virtues of their unsuitability, features that would normally be rejected and discarded by other furniture makers are his sources of inspiration, becoming some of the essential elements of his evolving design vocabulary. The waney edge is exploited throughout his work, acquiring dramatic form as a burr with the convoluted edges appearing to erupt like a volcano and producing a bizarre wart like edge (Fig 75). Cracks and holes generally regarded as defects are also given a new status and meaning. Stead views cracks, holes and the other defects associated with mature trees as an opportunity to reveal what he calls, the "geology" of the tree.<sup>617</sup> He gives these defects a new significance, seeing a well executed repair as a way of creating a new aesthetic experience: 'there is a beauty in repair which is made visible'.<sup>618</sup> Small cracks are filled with cold-cast-bronze, 'creating veins of light and energy' and larger holes are inlaid with random strips of contrasting wood set in the bronze in large table tops.<sup>619</sup> The effect of the latter technique creates small decorative inlay details clearly visible only at close proximity, creating different levels of visual experience only achievable by a craftsman's skill.

Having discovered an indigenous resource that he could engage with he was impelled to develop a visual language of forms that was also indicative of Scottish culture. He believed that the cultural legacy had obscured the true Scottish heritage which had ignored a balance with nature. Giles Sutherland describes how at Scara Brae he discovered some of the roots of this Scottish heritage; here was the evidence of an indigenous vocabulary of architecture and design.<sup>620</sup> It also confirmed the aesthetic principles of his work. These were motivated by a commitment to develop organically inspired forms in an effort to find a harmonious relationship with nature. Part of his inspiration to develop new forms came from his abhorrence of the straight line: 'The straight line

 <sup>&</sup>lt;sup>617</sup> Sutherland, Explorations in Wood, p. 25
 <sup>618</sup> Ibid., p. 25
 <sup>619</sup> Ibid., p. 25

<sup>&</sup>lt;sup>620</sup> Ibid., p. 4

leads to a loss of humanity' which is also absent in Makepeace's designs.<sup>621</sup> His work, particularly in sculpture, has been a journey of exploration in which new insights and discoveries are revealed rather than imposed. His techniques open up timber, evoking archetypical shapes. His sculpture exhibits a level of playfulness that is only suggested in his furniture. Using a band saw to explore the hidden depths of the tree, sections of timber are 'transmitted into fragile, spatially expanded forms possessing surface areas extended beyond volume'.<sup>622</sup> His experimental sculpture is reflected in his idiosyncratic furniture, but it is the freedom of sculpture that gives him the opportunity to investigate the hidden forms in timber, uninhibited by the constraints of furniture design.

Historically, one of the most influential designer-makers was the Japanese-American George Nakashima (1905-1990) began to pioneer a craft concept in a world growing accustomed to mass production in the early 1940s when craftsmanship was regarded as an anachronism. His aim was to produce the finest furniture from some of the most unusual woods from all over the world.

Nakashima combined Buddhism with an esoteric approach to woodwork: 'Each tree, every part of each tree has one perfect use'.<sup>623</sup> He describes his work as a Karma Yoga spiritual journey, the law of right action, searching for the extraordinary, and the untold narrative of the tree's life waiting to be revealed and read. His mystical approach was tempered by a practical approach acquired through experience: 'one gains astuteness in judgement', combined with patience and effort to find the unusual.<sup>624</sup>

The sourcing of logs and their subsequent use was a multi-faceted creative skill that Nakashima perfected to a high degree. It requires the knowledge of a good log buyer 'who can size up a log whether fallen or standing – who can feel the excellence of grain and the figuring or burrs

<sup>&</sup>lt;sup>621</sup> Hundertwasser cited by G. Sutherland, Explorations in Wood, p. 13

 <sup>&</sup>lt;sup>622</sup> T Stead, *Wild Wood, A Celebration of Imperfection*, Artizana, Prestbury, 1997, p. 4
 <sup>623</sup> G. Nakashima, *The Soul of a Tree: A Woodworker's Reflections*, Kodansha

International Ltd, New York, 1988, p. 93

<sup>&</sup>lt;sup>624</sup> Ibid., p. 86

without cutting the timber'.<sup>625</sup> He was not content to use the main length or butt of a tree but to utilise the roots all of which required patient digging. The roots will usually produce richer graining than the main butt; the convergence of burrs with the roots creating exceptional figuring. However, this creativity has risks; mature trees do not always realise spectacular figure and can result in an almost total loss. According to Nakashima trees that are past their prime often reveal the most character.626

Nakashima emphasises the collaborative nature of the process: the realisation of the tree's potential requires the craftsman to work alongside the sawyer, understand his problems and be able to make the instant decisions that determine the appropriate cut. Like Stead, Nakashima understood the critical nature of this stage:

As in cutting a diamond, the judgements must be precise and exact concerning thickness and direction of cut, especially through figures, the complicated designs resulting from the tree's grain. If the figure is cut properly, the beauty locked in the tree will gradually emerge; if cut improperly most is lost. Graduation of colour owing to the chemical composition of the soil in which a tree grows as well as the sharp contrast between dark heartwood and light sapwood will add to their charm.627

According to Nakashima, the precise method of cutting has no formulas or guidelines, only experience, instinct and a contact with the divine. Each log is cut through and through preserving its integrity in bole order, that is in the order sawn, a practice he shares with Stead. His method of sawing is different from the American commercial grading sawing method of rotating the log 90° for every cut. Nakashima is critical of this method, as it does not reveal the potential beauty of grain, and produces narrow boards.

Nakashima begins the design process with study and assessment of each board until the perfect use is realised; this can be a lengthy process. Some are selected for their uniqueness, often revealing incidents in the life of the tree: 'A large hole where decay has started and the tree healed

<sup>&</sup>lt;sup>625</sup> Ibid., p. 121

<sup>&</sup>lt;sup>626</sup> Ibid., p. 112 <sup>627</sup> Ibid., p. 94

itself is a positive statement of life which makes an extraordinary design expression'.

His selection of the timber for its ultimate use is achieved through various methods. Nakashima, like Peters, often relies on memory to store design ideas; he records each board from a log mentally and evaluates the appropriate use. As each board is removed from the delivery lorry they are studied for their possible applications, occasionally a clear 'role is assigned'. Mostly though the boards are separated into general categories according to probable future use and stored. 'Size, shape, thickness, figuring and unusual graining, even defects all contribute to the decision as to what the future life of each board will be'. Identifying the right use for each board and for each part of a board requires 'study and assessment' until the right use is revealed.<sup>628</sup> Single boards may be given a designated single use and consecutive boards joined to create a book matched pattern: 'Vigilance and sensitive arrangement of boards to produce a harmonious pattern may take several hours'.<sup>629</sup> Achieving the correct balance in the grain is essential to the furniture's success: 'one mismatched board in a cabinet can be a disaster'.<sup>630</sup> The abutment of the edge of one board to an adjoining board can mean the success or failure of a piece. 'There must be harmony, grace and rhythm'.<sup>631</sup> Each piece of furniture is made as far as possible from the same tree although other timbers may be combined for their particular qualities. The selection of boards could be protracted as Nakashima believed the right purpose for each would be revealed through meditation: 'We search for its essence'.<sup>632</sup> Sometimes five to ten years would pass before a board was selected for use. With about ten thousand boards stored, matching boards is a measured activity until the right combination is found.<sup>633</sup>

Nakashima's designs are shaped by his contemplation of each board's characteristics. Like Stead, his mission is to reveal the inner

<sup>&</sup>lt;sup>628</sup> Ibid., p. 112

<sup>&</sup>lt;sup>629</sup> Ibid., p. 117

<sup>&</sup>lt;sup>630</sup> Ibid., p. 116

<sup>&</sup>lt;sup>631</sup> Ibid., p. 128

<sup>&</sup>lt;sup>632</sup> Ibid., p. 121

<sup>&</sup>lt;sup>633</sup> Ibid., p. 128

beauty concealed within each tree. Forms evolve, with the shape, size, texture and movement of the grain defining the design and function of the piece: 'often the shape, size and texture and the extravagances of graining dictate the design and function of an object<sup>634</sup> He has transformed the defect into a design motif. Defects are given a noble value not ordinarily recognised by other woodworkers, a philosophy he shared with Stead.

Nakashima's signature use of the butterfly joint, which he uses to secure a crack or split (or on book-matched boards), fulfils a dual function, adding strength and a creative design element (Fig 76). The free edge is appealing too for it makes the table less formal than a perfect rectangle, square or circle. His craftsmanship is very demanding and precise but it is subordinated to the celebration of the wood and the longevity of the furniture: 'It is our deepest respect for the tree which impels us to master the difficult art of joinery so that we may offer the tree a second life of dignity and strength'.<sup>635</sup>

Nakashima's philosophy of Karma Yoga is channelled through every aspect of his work. He empathises with trees and, like Makepeace and Stead, sees his life as a mission to connect humanity with its environmental heritage believing that: 'We must try to recapture a close relationship with nature'.<sup>636</sup> He saw his role as searching for the inner beauty of a tree and expressing it through the *unique signature* of each board transformed into furniture, giving it a new life and purpose.

These designer-makers demonstrate how in craft practice the design process is intimately linked with a profound understanding of the gualities and characteristics of the materials they use. This understanding is extended through their commitment to source and process their own timber.

Although it could be argued that all timber possesses its own *unique* signature this term in the context of the "Signed & Sealed" project is specific to craft practice which utilises timber of known provenance, often

 <sup>&</sup>lt;sup>634</sup> Ibid., p. 128
 <sup>635</sup> Ibid., p. 132
 <sup>636</sup> Ibid., p. 109

from a local source. Commercial or crop timber by contrast is processed through a trade practice that reduces it to a commodity; provenance is rarely known beyond the country or region of origin. Grading methods, particularly in North America, typically do not distinguish from which tree each board comes. Selection of trees is based on producing timber with the fewest defects, particularly knots. Forestry researchers try to cultivate trees that grow exceptionally straight with the fewest number of branches along the main stem to increase the timber yield. The result is that timber processed through the global timber trade has become increasingly bland and homogenous and lacking differentiating characteristics within each species.

Timber grown in the Chilterns and Oxfordshire area, by contrast, is rarely processed through the timber trade and when it is, it often loses its provenance. This leaves an abundant resource of locally grown trees which are no longer grown for timber production and which come in a great variety of shapes and species but are relegated to low grade commercial uses such as firewood. These timbers have many unique features such as knots, cracks, unusual grain patterns and contrasting colour caused by fungi or the age of the tree. These features and characteristics become the medium for my design explorations producing furniture with a known provenance and local identity which communicates a story, a narrative, about where the wood comes from. Through careful timber selection, each piece can acquire a *unique signature* represented by grain patterns, and other distinctive markings linked to its provenance.

In a sense *unique signature* is revealed; it combines the skill of working the material and the perceptiveness of the artist's eye to discover the potential of the characteristics, features, defects and forms that reveal the beauty of the wood in unusual and innovative ways which will subsequently be the inspiration for new designs or developments or earmarked for a *semi-bespoke* design.

The most critical stages in this process are the conversion of the log. It is at this stage when the orientation of the log, the cutting of the thicknesses of the boards has to be decided that the potential of the *unique signature* can be compromised. Both Nakashima and Stead

describe the importance of this stage and how they rely on quick fire decision making and the cooperation, sensitivity and judgement of the sawyer. The designer-makers reading of the log will ultimately determine the success of this stage but the skill of the sawyer is also relied on and it is their insights that can also influence decisions. Both Nakashima and Stead are convinced the "through and through" method of sawing is the most effective for preserving the integrity of the wood. Stead describes this method as comparable to opening a book in which the untold narrative of the tree is revealed. This is also my preferred method of conversion and this might be the appropriate point to discuss the approach to *unique signature* in the "Signed & Sealed" project.

## "Signed & Sealed" - Unique Signature

Developing an appropriate practice has had its problems in the early stages of the project. In most instances it has been possible to convert the timber using the through and through method but occasional problems have arisen because either it was not possible to supervise the sawing and communication failed or the log was too large for the saw. Problems have generally been minimised where I have been able to oversee the sawing. It is worth noting that in one instance when I oversaw the conversion of a log bought from a timber merchant, my stated preference of preserving the original bole form of the log was no longer the practice of the merchant. The practice was rectified for my purpose.

Another problem occurred in the early stages of converting the sweet chestnut for the "Pondlife" reeds. Miscommunication led to the timber being cut into regular square sections, rather than "banana split" sections which were almost useless for producing the reeds as the natural curvature of the thinnings, part of the *unique signature*, were lost in the sawing. This is illustrated in Fig 40. As both Stead and Nakashima indicate all senses need to be activated and all possibilities open; judgement about where to cut has to be immediate, decisions are irreversible.

During the "Signed & Sealed" project five sawmills have been used. What has become clear is that good communication and mutual understanding is vital to successful sawing. Discussions prior to sawing and good non verbal communication during the act of sawing and the development of a long-term relationship are vital to successful outcomes. As both Stead and Nakashima indicate, all senses need to be active and all possibilities open; judgement about where to cut has to be immediate decisions are irreversible.

The "Signed & Sealed" project has produced an extensive range of logs which have revealed some exceptional characteristics. Several examples are worth mentioning. An oak tree (Checkendon) with a significant amount of epicormic growth has produced boards with extraordinary convoluted edges and catspaw figure (Fig 41a/b). An ash log (Kingsclere, Berkshire) has revealed heartwood of rich olive with wide bands of white ash either side (Fig 42a/b). The log also has a sweeping curve along its length. These still have to be transformed into appropriate *semi-bespoke* designs which may yet still have to be conceived.

Transforming timber which hasn't been graded through trade practice requires intuitive, experimental approach but some degree of systematisation is ultimately required. Initially the process is intuitive in that the characteristics in the wood which might be dismissed as unsuitable for furniture making are tentatively explored. These design elements are ultimately incorporated into experimental furniture designs and subsequently assessed for their *unique signature*.

As the process has developed it has been necessary to reorganise the timber storage facilities in order to have an efficient method of retrieving air-dried timber, ready to use. This has been accompanied by a written record system to identify the characteristics and provenance of the timber shed. Visual memory also plays a vital role in the process which is supplemented by selective photographic records, sketches and descriptive notes. These aid the identification of *unique signature* in the design process. The *unique signature* of each piece of timber can be composed of a range of elements to produce a distinctive character. The selection of these elements is an integral part of the design process. The designer-maker's judgement is critical at every stage from identifying the tree to deciding what features in the timber are appropriate and how and where they are incorporated into furniture design. This process is experimental, producing a range of design elements using what are regarded as common defects. They have been successfully incorporated into "Signed & Sealed" designs, either commissioned by clients or produced as prototypes. These are discussed next.

The crack, for example, often a result of tensions in the wood usually caused by drying can be used as a celebratory feature rather than a defect to be eliminated, as is common practice. This change of perception transforms a piece of wood, ordinarily relegated to waste into a potentially creative resource. The crack becomes one of nature's aberrant expressions to be integrated as a design element.

Both Stead and Nakashima use cracks as design elements. Stead, for example, describes the crack and hole as revealing the natural geology of the tree. Nakashima leaves cracks exposed or secures them with a butterfly joint. One of my early experiments featured the inclusion of natural cracks or fissures incorporated into a low table in yew wood to produce a design with a distinctive feature, circa 1987 (Fig 43). In the "Signed & Sealed" project cracks are either contained within a board (Fig 44b/d) or extend to the edge where they create an open gap (Fig 44a/c). In the brown oak tabletop (Fig 44a/b/c/d) the cracks' convoluted shapes create a visual drama that adds to a lively variegated grain pattern (Fig 44d). The contained cracks form negative shapes that frame unexpected light sources and the open edge cracks redefine the rectilinear boundary of the tabletop. Each crack is meticulously finished with carving chisels and sandpaper removing all traces of ragged fibres. The crack is celebrated and becomes as a natural design element.

Splits, like cracks, are the result of the wood fibres which have separated from each other along a tension line but the board has effectively divided itself into two sections. Splits often develop in the drying process but are often detected at the early stages of converting a log. In the following two "Signed & Sealed" designs, meandering splits along the pith are explored in different ways. Each split has the characteristic convoluted contour indicating the irregular shape of each tree. Each design uses contrasting techniques to articulate the *unique signature* of each board.

Firstly, in the mitred plank table (Fig 45b) made from one board (Fig 45a), the natural split is used as the inspiration for a design element. The direction of the split forms a natural boundary line between the contrasting markings of each side. The two halves are initially separated along the split and then shaped and reformed with an inlay line incorporated into the joint to create a continuous demarcation line that follows the three faces of the finished mitred table. The anticipated effect of providing a visual clue to the original split in the board is possibly negated by the near perfect reformation of the two halves into one piece. The inlay becomes an incidental decorative embellishment rather than a signature feature to denote the fault line, as intended. The inlay, however, creates a subtle playful feature and is perhaps a parallel motif to Nakashima's signature dovetail which secures an open crack or joint.

In the second example the original boards are reduced to four pieces after re-sawing to remove the contours of the split (Fig 46), in contrast to the previous technique. The incongruity in the figure caused by removing the strips of wood is mitigated by the book-matching of the boards. It is evident to the observer that these are consecutive boards from the same tree but the lack of perfect symmetry (which can only be achieved with veneers) is compromised because the stages required to produce flat planed boards removes a significant quantity of timber thereby diminishing the mirror image effect. In this example, the deviation is apparent along the centre line where the trace of a knot is evident on only one side. The asymmetry created produces its own visual tension that adds to the reading of the timber. The tiger oak pattern is also enhanced by the delicate traces of the medullary rays as they dance diagonally across the surface rather like a shoal of minnows in a stream. This effect adds another visual dimension to the reading of the unique signature of the wood. The book-matching is closely aligned to Peters' distinctive table tops which, like this table top, make a feature of the end grain.

In the book-matched mitred plank table, cracks and spalting (a form of incipient decay) in Norwegian maple from the Hardwick Estate are combined, (Fig 47). The symmetry, in this example, is an effective method of celebrating the intrinsic beauty of defects described by one observer as a pair of 'angel' figures. Observers generally find a fascination in reading their own interpretations into the grain patterns.

Knots, like splits and cracks, are also regarded as defects in timber. They can be structurally weak and are generally perceived by furniture makers as having little aesthetic value. In fact the frequency of knots in timber usually determines its grade and yield and reduces its commercial value. In the "Signed & Sealed" project the abundance of low grade timber characterised by frequent knots has been one of the many foci that have been the catalysts to explore their design possibilities in developing their *unique signature*. Cedar of Lebanon, a large fast growing tree, is characterised by large frequent knots, which, historically has relegated the timber to secondary uses. However, if the planks are cut to a generous thickness of 70 to 80 mm, the timber is generally found to be structurally sound, making it suitable for a number of potential applications including bench seats and table tops. The availability of wide widths of boards also minimises the jointing and enhances decorative possibilities. The "Pondlife" and "Two U" seats (Fig 48), for example, maximise the use of this "low grade" timber creating large areas of dramatically contoured figure. The movement of the grain and figure is further intensified by the frequency of large knots which radiate eccentrically figured growth patterns. While selection of the positioning of knots can ensure an evenly balanced pattern of figure, the overall effect on these large and sometimes expansive surfaces can create a compelling visual grain pattern and enliven a design in which a more homogenous figure might appear bland.

Although knots create more movement in the figure of timber, their presence may of course sometimes be detrimental to the aesthetics of a design. In a cherry bedroom suite, a "Signed & Sealed" project (Fig 49), a refined approach was required; knots were therefore removed from the final pieces which allowed the accentuated movement in the figure to be

highlighted in the design. This was possible because the width of the boards and the frequency of the knots which were approximately ninety cm apart. This made it possible to cut out drawer fronts without the visual distraction of jointing which would have compromised the continuity of the figure in the wood.<sup>637</sup>

The Shaker inspired design benefits from the lively drawer fronts and figured top, creating a subtle series of panels that harmonise with each other while possessing their own individuality. The sides of the cabinet were selected from quarter sawn boards which produced fairly straight grained figure ensuring that cupping and warping is reduced to a minimum. The straight grained centre boards produced uniform side panels that contrast with and frame the lively drawer fronts and top. An ideal solution such as this was only possible because there was suitable timber available from an extensive stock of local cherry.

The diversity of local timbers available is increased by the different permutations produced by, for example, fungal attack. One of the most unusual locally sourced timbers employed by the "Signed & Sealed" project has been brown oak from Thame Park, near Thame, Oxfordshire. It has transformed in colour through beefsteak fungus, a bracket fungus which grows on the side of the trunk and which ultimately kills the tree but not before producing a natural staining in the timber ranging from chocolate brown to variegated browns. Where the staining has not penetrated the natural colour of oak is retained. In the following two "Signed & Sealed" commissioned designs brown/tiger oak, was used in contrasting interpretations of *unique signature*. The process of visual selection is described for each design.

Firstly, in the storage cabinet (Fig 50) the rectilinear design has been conceived with minimal detailing like many of the "Signed & Sealed" designs to create a form which provides a "canvas" to feature the *unique signature* of this particular timber. The doors consist of a modified frame and panel design in which the top and bottom rails extend the full width of

<sup>&</sup>lt;sup>637</sup> Another important aspect of the selection process is that the timber for the three pieces of furniture was sourced from one log, ensuring greater colour continuity.

the doors emphasising their linear relationship with the extending top and carcass sides. This interpretation of the *unique signature* is a controlled exercise, each piece of wood being selected to create a particular effect within the design as whole. This is achieved through careful selection. The gradation of colour and pattern, from brown to tiger, characteristic of this timber has been utilised throughout the design. The figure of the brown oak is featured in the show wood while the tiger oak is used in the interior drawer fronts. The top and sides are made from quartered brown oak for stability and because of its rich chocolate colour. The door panels are selected from two sets of book-matched panels, each contained within the vertical stiles which appear to be integral with the panels, creating continuity of figure across the width of the two doors. The interior of the storage cabinet incorporates a series of drawers with tiger oak drawer fronts, a variant of the dominant brown colour found at the base of the same tree. As can be seen from this description the selection of the unique signature was akin to an artist choosing colours for a painting.

In the second example, a more dramatic interpretation of the *unique* signature is featured in the commissioned "Trio" mitred plank tables (Fig 51b). The designs, two variations of the mitred plank table design, use consecutive boards of brown/tiger oak from Thame Park in an innovative method. Two of the tables are made from consecutive boards, of sufficient width and length to allow each table to be made from one section of each board. This ensures that each table has a continuous figure throughout the three sections of the table, a characteristic of the mitred plank table. The third table, however, required two consecutive book-matched boards to achieve the extra width. The resulting "Trio" tables, consisting of a matching pair and variation, produce an unusual sibling set with a remarkable and surprising variation of figure. The table on the far right is distinctly brown oak compared to the one on the far left, which is clearly tiger oak (Fig 51b). Yet these two contrasting pieces can be joined at the sides to reveal that they are derived from the same board, confirming their shared provenance. The two pieces achieve a unity in diversity through a common form and the *unique signature* of the

material. This striking congruency suggests a line of exploration in which a family of related pieces, not necessarily the same in form, are connected through the timber's provenance.

Another form of fungal attack is spalted beech which has been one of the most interesting areas of exploration. Spalted beech can produce very dramatic markings in converted timber (Fig 54a/b). It is a widespread natural phenomenon occurring within the wood, caused by fungi. Revealed by cutting or splitting, it is characterised by a mosaic of light and dark areas of wood divided by dark brown or black lines (Appendix II). Its decorative qualities have been long explored by wood turners who can utilise small sections, furniture makers have also been known to use it. Because of its very nature, spalted beech is not known to be available as a regular supply. However, wood decaying basidiomycetes from different origins will cause spalting if the beech logs are in proximity to where fruiting bodies are present. Theoretically it is therefore possible to encourage spalting although producing it on demand in commercial quantities would be problematical (Appendix II). The availability of well-seasoned Chilterns spalted beech created the opportunity to develop two "Signed & Sealed" designs to showcase its unique signature.

The low table and bench designs are formed from individual boards and the low table resolved the problem of distortion by featuring the top in two pieces with a narrow space separating them (Fig 55a/b). Selection was therefore less problematical than in the previous two commissions. The spalted figure was selected to create visually interesting and balanced surface areas without the problem of trying to achieve matching. The tables were, however, the result of a high proportion of rejected spalted timber. Repetition and variation will be difficult to achieve as no reliable supply of spalted beech has been identified so far. The designs would however be suitable for regular beech, which displayed variegated figure and colour or knots; red heart beech, for example, could be an attractive alternative to the spalted beech; dark veining, another feature of beech, could also be featured in these designs (Fig 56). The final experiment in spalted beech explored the possibility of using two inch thick, end grain sections treated with a solution of polyethylene glycol 1000 to stabilise the wood (Fig 57), (Appendix II). In this one-off experiment, severe checking occurred which curtailed the possibility of using the treated sections in possible designs. Nevertheless the *unique signature* of the end grain in spalted beech was seen to show considerable potential although the environmental impact of the chemical was not investigated in relation to the experiment. Current literature, however, indicates 'there are little or no health effects associated with exposure to the chemical'.<sup>638</sup>

The abundance of beech in the Chilterns and its declining market was the motivation to explore its possibilities in the "Signed & Sealed" project. Beech is an unfashionable timber for furniture makers in the U.K. so this presented potential perceptual problems. Five designs were produced in Chilterns beech, each one has been problematical (See P. 344, Fig 52, Kitchen table; P. 345, Fig 53 Writing table and Appendix II - P. 464, Fig 1. Plank chair; P. 465, Fig 2. Bench/table; P. 466, Fig 3. Coffee table). The refractory characteristics of the timber have made the exploration of beech challenging in each "Signed & Sealed" project and are a clear sign that the timber requires a more radical rethink before appropriate designs for it can be developed.

The commission for the kitchen table design, for example, has produced a serviceable worktop but due to the problems in selecting clean "sticker mark"<sup>639</sup> free boards, an arbitrary selection of widths has been used which included medium tight knots (Fig 52). The individual planks have a distinctive figure characterised by a subtle flowing movement but the overall effect is compromised by the randomness of

<sup>&</sup>lt;sup>638</sup> C. Roelofs and M. Ellenbecker, Source reduction for prevention of methylene chloride hazards: cases from four industrial sectors, *Environmental Health: A Global Access Science Source* (online), 2:9, 21 July 2003, <<u>http://www.ehjournal.net/content/2/1/9>, (accessed 7 February 2007)</u>

<sup>&</sup>lt;sup>639</sup> Stickers are timber battens placed at intervals across each board to enable the timber to dry. The selection of chemically neutral stickers is critical as a reaction between the sticker and the board can produce a permanent stain that penetrates the timber and can not be easily removed, even after planing

the widths and the lack of continuity from one board to another. Sticker marks are visible on the left hand board of the finished table.

Problems of selection also occurred with the Rieple commissioned writing table design (Fig 53). Timber that had been sawn in 2001 and airdried until 2004 at the Hardwick Estate, Whitchurch, Oxfordshire, could not produce sufficient clean boards because of twisting and splits. The original Hardwick Estate beech specified for this design had to be substituted for FSC European oak after consultation with the client. On the basis of these two projects it was evident that the 'through and through'<sup>640</sup> method of converting beech produced unstable boards that were prone to distortion. Beech was, however, successfully used for smaller sectioned components in the writing table; these included the rails and turned legs. This use is consistent with established practice as beech is recognised for its propensity to distort over wider sections; smaller sections are more stable.

### New forms

The search for new forms to convey the *unique signature* of local timbers has produced a form that I will describe as inter-designs. The Inter-design term comes from "inter" meaning "between" or more specifically in relation to this project "interchangeable". Therefore these designs have either been conceived as "Signed & Sealed" designs to explore the *unique signature* of wood or they were originally conceived as *semi-bespoke* designs but were found to be appropriate for exploring the creative possibilities of local timbers.

One such example is the "Ebb & Flow" design series that has been adapted from the American Hardwood Export Council's "Trio" project in East Coast maple (2001), (Appendix III). The original *semi-bespoke* designs have been used in the "Signed & Sealed" project to from locally sourced brown oak (Thame Park) and olive ash (Cookley Green). Two further designs, a writing desk and a bookcase, have been added to the "Ebb & Flow" range.

<sup>&</sup>lt;sup>640</sup> Logs sawn 'through and through' produce plain sawn sections where the growth rings meet the face at an angle of less than 45 degrees.

The writing desk (Fig 58), for example, features the brown oak in quarter sawn timber from Thame Park on its top. The combination of sweeping curves and the soft "cushion" profiled edges emphasise the three dimensional quality of figure and grain as it negotiates the subtly curved edges. The sculptural qualities of the expansive planes provide an ideal canvas upon which to articulate the *unique signature* of this wood, in particular the end grain. By lowering the edges at a point where two converging curves meet the top surface becomes a three dimensional 'cushioned' surface while the end grain, normally perceived as a differentiating element, is unified to create a sculptural form. As in Alan Peters' designs, this feature emphasises the aesthetic value of end grain although Peters' designs retain rectilinear forms. In the "Ebb & Flow" range the *unique signature* of the timber emerges as a three dimensional curvi-linear form to reveal the subtly variegated markings of both ends grain and the face.

Developing new forms is essential to exploring the potentiality of the *unique signature* of local woods. Another example from the "Signed & Sealed" range is the plank chair, (similar to the mitred plank table), which is also constructed using selected single planks from logs of appropriate length and diameter. In one variation of the original design, the beech plank chair (Fig 59) incorporates a large knot and a partial split (probably induced in the drying stage). The timber has been used as a blank canvas for various experimental finishes. A scorched finish, for example, has been applied to the back of the chair to highlight the split. The potential for this effect is extensive, particularly with Chilterns beech, which is so abundant and often perceived as bland in character.

In a second example, the yew plank chairs develop sculptural forms derived from the convoluted shape of the yew tree. The outer shape of yew, characterised by fissured growth, produces a highly contoured form with unusually deep pockets of included bark. This is revealed in converted planks as highly contoured edges, pockets and shapely holes framed with borders of white sapwood (Fig 60). These features are clearly evident with each chair characterised by its own subtle variations of the *unique signature* (Fig 61). The utilisation of yew in this way is

particularly appropriate as its susceptibility to hair line cracks does not compromise a finish which would otherwise be problematical on a surface such as a table.

A final example of the plank chair theme is a book-matched symmetrical pair of chairs from the "Signed & Sealed" project produced in tiger oak (Fig 62). The natural convoluted edge contrasts with the sawn edge produced at the initial conversion stage. The resulting shape provides the form for the two plank chairs that explore the variegated characteristics of this timber.

It is evident from these examples that the plank chair design provides a form to explore the *unique signature* of a range of timbers of local provenance, which might otherwise have limited applications. The reading of the planks as a book, as suggested by Stead is particularly appropriate in this form. The design is appropriate for trees of a certain diameter and length and possibly selected parts of mature trees creating limited editions as well as one-offs. The forms of these plank chairs and the selection of most appropriate planks has emerged after lengthy contemplation, in common with Nakashima's practice.

New forms have also begun to emerge through the exploration of the relationship between natural and rectilinear forms. In the "Signed & Sealed" yew "Narnia" cabinet, (Fig 63), for example, the regular shape of the brown oak cabinet and the juxtaposition of the organic asymmetrical pippy yew doors illustrate the creative possibilities when natural forms are incorporated into simple designs. The convoluted edge, a feature of this design, is also a signature feature of both Stead and Nakashima's work. My designs, however, tend to incorporate straight lines and soft curves as a contrast to the natural convoluted edge. In this design the bookmatched pippy yew door panels stand in regimented unison, dominating and partly camouflaging the design's storage function. The asymmetrical shape of each door is converted into a symmetrical pair creating harmonious but visually compelling patterns that can be interpreted, like the Norwegian maple plank table (Fig 47), as varied shapes and figures. Set against the splayed brown oak plinth the doors hint that there is more behind their organic form, as the name "Narnia" implies; a further

suggestion being the brown oak spine which bridges the gap between the convoluted edges of the doors. This device is also intended to unify the contrasting features of the cabinet.

The yew wood doors came from an unusual log with epicormic growth, which produced a range of boards each with its own unique It included a series of book-matched boards that were the shape. inspiration for a "limited edition" of two mitred plank tables. In these designs the convoluted edge of the yew has also been explored in different ways (Fig 64 and 65). One pair has retained the waney edge as a feature on the outside edge of the finished table creating convoluted contoured edges. The edges of the top adjoin the edges of the sides at an abrupt right angle but retain their organic form. The soft curve of the edge where the top meets the sides produces a continuous surface adding to the incongruity between the formal precise elements and the organic profile of the table (Fig 66, lower table). In the second table, by contrast, the drama of the markings and figure are framed within a precise rectilinear form which has been a common variant of the plank table (Fig 66, top table). In this example the convoluted edges virtually disappear, the remnants being visible as small misshapen openings along the centre joint of the table; a subtle play of form is created along the mitred edge when a hole negotiates the right angled edge as it is reoriented from one plane to another.

These examples highlight the contrasting approaches to the interpretation of *unique signature*. The forms described so far result from converting logs into planks of various thicknesses usually between twenty-five and seventy-five mm, drying and then selecting them. This method, which is also a feature of Stead, Nakashima and Peters' work, limits the design forms and construction methods that can be used. It also imposes a lengthy drying time (between eighteen months and four years) on the thicker material using conventional air-drying methods. The added value resulting from this process also tends to make the timber more precious and which, in some measure, inhibits the freedom to experiment.

A new method of processing sweet chestnut thinnings has been developed for the "Pondlife" bench incorporating natural air-drying into the shaping of the finished reeds. This has facilitated quicker drying and because the timber cut can be shaped from green a more experimental approach can be adopted; once shaped, they can continue to dry. As fully shaped reeds, any movement or distortion that occurs can be readily accommodated by the organic nature of the design.

As the sweet chestnut thinnings are generally too small and misshapen to be converted into planks, the first stage of the process requires they are band sawn into two halves often resembling a banana split, thereby preserving the natural curve of the wood. The half round logs are then band sawn into reed-like shapes, the final forms being determined by the natural shape of the log and the desire to create a lively curvi-linear form (Fig 67).

Akin to Stead's sculptural designs, the reeds are created or "revealed" through a contemplative process, which assesses the potential of each half log to produce a series of reeds of various sizes, shapes and lengths. Initially, a series of square sectioned blanks are produced from the first set of band sawn cuts. The final shape is created by rotating the blanks 90° before making further band saw cuts to achieve a compound curvilinear reed which is finally shaped through additional cuts and spoke shaving to achieve the roundness of the final reed. At any stage a reed with an unsuitable form or which develops inappropriate cracks can be rejected. As the final shape is not consistent with the natural direction of the grain (as in riven timber), the free-form curves and round shape produce a distinctive pattern in each reed characterised by convoluted figured rings. The figure is further enhanced by the inclusion of small to medium tight knots, which create "eyes" producing radiating grain patterns that intensify the movement of the figure (Fig 68). Each reed is carefully positioned around the seat to create an "extended" family, giving rise to a diversity of relationships that suggests a dialogue between each reed. The spaces created between them are also important elements of the design.

This method enables free form shapes to be produced from small sectioned timber up to about six inches thick. Drying time is significantly reduced because only the final form intended for furniture making has to dry rather than the larger boards of equivalent thickness using air-drying methods. The reeds can therefore be more playful and experimental and the *unique signature* of the sweet chestnut is further expressed in the diversity of forms produced.

The exploration of different parts of the tree beyond the main butt or bole remains one of the least explored areas in contemporary designermaker furniture and may offer one of the potentially most interesting areas of exploration for *unique signature*. The timber trade bases its selection of timber on standard diameters and lengths; anything that falls outside the criteria will be downgraded with limited market potential (see Appendix VI, Local Sourcing – Round timber specifications). Furniture designer-makers like Makepeace, Peters, Stead and Nakashima have demonstrated in their respective careers the immense creative possibilities of non-commercial timber, one of the principles of the "Signed & Sealed" project. These designer-makers have generally relied on well-seasoned timber to produce their furniture. The "Pondlife" bench by contrast is inspired by small-sectioned misshapen timber which is not produced or dried in a normal way. It is, however, closely aligned to traditional green woodworkers' methods such as chair bodgers and contemporary green craftsmen like Mike Abbot.<sup>641</sup> Craftsmen, like Abbot, generally fell their own timber utilising trees that have no commercial value to the timber trade. Their craft is closely linked to woodland management, often self managed by them. This gives them an intimate knowledge of what timber to use and how to convert it. A few designermakers who work from green wood and manage their own woodland, such as Gudrun Leitz have developed a more experimental approach to their designs incorporating unusual natural shapes, often branches, into

<sup>&</sup>lt;sup>641</sup> For more information see M. Abbot, Green Woodwork, Guild of Master Craftsmen, Lewes, 1989

her chairs, clearly capitalising upon her intimate knowledge of her woodland.<sup>642</sup>

In the "Signed & Sealed" project this area has been identified as a potentially creative source for exploration but at this stage only tentative efforts have been made. One example, the crotch (the part of the tree where the tree forks), can produce highly desirable veneer particularly in walnut and non-native mahogany. It is not, however, normally found in solid form because, in thicknesses of less than two inches, the short grain can make it susceptible to cracking (Nakashima, however, features it in many of his designs). In the "Signed & Sealed" Bowen commission, the tables are made from three inch ash ensuring that even if cracks develop (Fig 69a/b), the sheer volume of the timber provides its own strength. The potential of the unusual figure and sections of wood in this design is explored through the combination of the symmetry of the book-matching and the "folding" technique of the mitred tables (Fig 70a/b). The unique signature pattern of the crotch is highlighted on the top faces but the design allows each table to be rotated to enable the sides to be repositioned as tops, thereby raising or lowering the height of the table and highlighting the continuation of the grain pattern. By creating a design that is minimal in form but sculptural in structure, the unique signature of more unusual sections of a tree could produce new furniture forms as in this example.

The difficulty, however, is not just developing new forms but identifying timber resources that are from a sustainable source rather than one-off pieces. Alison Crowther, for example, produces hand carved naturally curved benches from oak branches which are converted into three inch planks (Fig 77). It took her five years to educate a forester to identify what she needed. What was normally regarded as waste or low grade timber is the resource for many of her commissions. The designer, Guy Martin, has also developed a range of repeatable designs that use five to seven year old ash saplings as the basis of his forms (Fig 78). Other furniture makers are also beginning to see the potential of using

<sup>&</sup>lt;sup>642</sup> Gudrun Leitz manages her own FSC woodland with Doug Joiner at Childer Wood, near Ledbury (Herefordshire)

second lengths; Tim Orson, from the Oak Dean Co-operative, is selecting and converting misshapen branches that could be used by furniture makers in the Co-operative. It is possibly those parts of the tree that are normally impractical for sawmills to convert to planks could potentially provide the most interesting design forms. However, at this stage this is only speculation.

Having discussed many of the "Signed & Sealed" designs produced over the duration of the project it is also valuable to reflect on the nature of *unique signature* as a process and in particular how it compares with the use of crop timbers in the *semi-bespoke* process. The difficulties and problems are wide-ranging. As discussed in Part Two, Local Cycle, a significant investment in infrastructure has been necessary to facilitate the process of identifying *unique signature*. Indeed the link between identifying *unique signature* is inseparable from the development of a local cycle for sourcing timber. The different stages discussed in Local Cycle, from sourcing to drying the timber, are now embedded in Philip Koomen Furniture practice and represent the initial stages in identifying and developing the idea of *unique signature*. Although the methods of the selection process have been discussed in this section; what is more difficult to define is the nature of the process itself.

The role of *unique signature* predominantly embodies an exploratory process. It can be compared to investigating an uncharted terrain. Progress is non-linear, unpredictable and often protracted; success is never assured. In contrast the selection of crop timbers in *semi-bespoke* design is based on using high grade timber almost entirely free of knots, cracks and discolouration which produce a level of consistency and quality which makes it generally manageable and controllable. Crop timber can also be purchased as and when required from merchants; quality assurance is on the whole predictable and substandard timber can usually be returned. By contrast, in establishing an independent cycle to facilitate *unique signature* all the risks are born by the designer-maker; this presents a number of challenges.

Making a virtue of the *unique signature* of local timbers explores the opposite end of the timber spectrum. Timber which is rejected by the

timber trade and which has limited commercial application becomes the medium for exploration. In discussing the development of the idea of *unique signature*, it has not been possible to convey the contemplative nature of the process. The act of identifying how non-commercial timber can be utilised is a process which requires time; sometimes months or even years transpire before the potential of the timber is recognised. Of course, it can also happen instantaneously when, for example, the timber is being converted into planks.

With the exception of "Pondlife", which has an unusual but distinct set of criteria, it has not been possible to be systematic in the final selection process of timbers for the other "Signed & Sealed" designs. In all other examples the *unique signature* has been developed by a largely intuitive, process.

There are particular risks inherent in such a process. For example, timber purchased, converted and dried has sometimes been rejected because the timber was too bland or too degraded through infestation, incipient decay or surface checking. Quantities of walnut, beech, spalted beech and ash (even whole logs) have been discarded for all these reasons. Wastage is therefore very high compared to processed crop timbers which are often supplied square edged. In attempting to develop *unique signature* not all the tree (or even the plank) can be utilised because what might be usefully developed may only be found in one part of the plank. Not all features (knots, cracks, etc.) can be utilised and some may have to be cut out and rejected; wastage is therefore considerably higher than with crop timbers.

Another of the challenges of the "Signed & Sealed" project has been to develop a body of designs that make the most of the *unique signature* of local timbers. Although the project developed a series of "Signed & Sealed" commissions, the main body of work for the project was experimental in nature. Such experimental designs have been essential to demonstrate the possibilities of *unique signature* to clients and the public but have not always met with success – at least in terms of sales. These problems and difficulties pose the question: what is the value of developing the *unique signature* of local timbers if it is a problematical area?

The search for *unique signature* then is characterised by a spirit of adventure, a passion to find the exceptional, a curiosity which can elevate a piece of furniture to an object of exceptional beauty. It is the desire to discover and reveal what was previously concealed that sustains the effort and overcomes the difficulties – as Makepeace, Peters, Stead and Nakashima have shown. Such an enterprise clearly lies outside the norms of industry and it is in this domain that the designer-maker can make a valuable contribution to increasing the range of aesthetic possibilities of this medium of design.

In terms of summarising the concept of *unique signature* in relation to the "Signed & Sealed" project, the following observations will prove useful:

A. In terms of selection:

- Converting the timber at the sawmill is the most critical stage in determining the potential of the log to reveal its *unique signature*
- Recording of the *unique signature* requires a range of different methods:
  - 1. A storing system to retrieve timber
  - 2. A record system to accompany the storing system
  - 3. Visual memory
  - 4. Photographic records
  - 5. Sketch records
  - 6. Descriptive notes
- Selection of timber at every stage of processing determines the *unique signature* possibilities. Selection is characterised by its intuitive, experimental and random nature
- B. As regards design elements:
  - Cracks, usually regarded as defects have been celebrated as design elements, either as contained negative spaces or as elements that redefine rectilinear edges (brown oak table)

- Convoluted splits formed along the pith in irregular tree growth have been the inspiration for inlay lines that match the contour of the split to create a design feature based on *unique signature* (mitred plank table)
- Large frequent knots have been used as features to enhance the character of simple designs ("Two U" bench, "Pondlife" bench seats)
- Knots have also been removed as features to emphasise the vigorous movement created between the knots in the design
- The waney and convoluted edges produced by epicormic growth in yew and oak produce some of the most dramatic natural features in wood ("Narnia" cabinet, pippy yew mitred plank tables)
- Selected consecutive boards can create unique serial designs that explore the diversity and continuity of the *unique signature* from one tree ("Trio" tables in brown/tiger oak)
- Selected book-matching of consecutive boards has been used as a method to explore the *unique signature* of timber which have dramatic but irregular features ("Narnia" cabinet, pippy yew and maple plank tables, plank chairs)
- Stained timber caused by fungal attack including beefsteak fungus and spalting have been used selectively to create a range of decorative effects (storage cabinet)

C. Distinctive forms that explore the three dimensional qualities of *unique signature* include:

- Curvilinear forms that explore the relationship between surface and end grain in brown oak and ash ("Ebb & Flow" design)
- Sculptural organic forms that utilise the natural misshapen thinnings in sweet chestnut ("Pondlife" benches)
- Designs that explore the relationship between naturally convoluted edges and rectilinear forms in epicormic growth in yew and oak ("Narnia" cabinet)

- Designs have been developed to provide blank canvasses that are appropriate for distinctive boards of timber which otherwise might have limited use, these include:
  - The mitred plank table (ash, brown oak, tiger oak, maple and yew)
  - The plank chair (beech, tiger oak and pippy yew)

D. With regard to processing and preparing timbers:

- End grain sections of spalted beech and similarly figured wood treated with a stabilising solution has much to offer
- Unusual cuts of timber from different parts of the tree reveal unusual and distinctive figure, for example, the crotch where two branches separate
- New methods of processing can produce distinctive new forms, e.g. the "Pondlife" reeds
- The exploration of the many parts of the tree can potentially reveal new forms and design elements
- Wastage is higher than in crop timbers

In conclusion, the development of globalisation and an increasingly sophisticated Western market economy has had the effect of commoditising timber and creating furniture that is not synchronised with what grows in the forest and woodland. Furniture designer-makers, although small in number, can demonstrate through their creative use of non-commercial timber the design possibilities of these underutilised resources and greater appreciation of sustainable forestry.

The broad idea implicit in the term unique signature has been intrinsic to furniture making ever since craftsmen first explored the possibilities of wood in the design and construction of furniture. However, most usefully, unique signature is a term specific to furniture craft practice where the timber has been sourced and processed by the designermaker. It emerges through an intimate association with the timber, a scientific and technical understanding of the material and processes, and a knowledge acquired through the making process. It evolves and is extended through a specific range of practices intended to explore the creative possibilities of the intrinsic qualities of non-commercial and lesser known species which have known provenance. In short, *unique signature* is a celebration of the diversity of wood through a craft-based design process.

# 2.4 Conclusion: Promoting sustainability with the Signed & Sealed brand

The "Signed & Sealed" project has explored and developed a range of strategies for facilitating sustainable development on a local level; reducing costs and enhancing values across the economic and environmental matrix that relate to Philip Koomen Furniture. Any evaluation of the project must be provisional at this early stage but provides useful indicators for future development as the "Signed & Sealed" range is now embedded in the Philip Koomen Furniture workshop practice.

The "Signed & Sealed" project, for example, has demonstrated that it is possible to create a low environmental impact local cycle by sourcing under-utilised timber directly from local woodlands based on the following template:

- Timber is purchased directly from woodlands within a thirty mile radius of the workshop
- Logs are converted either at the nearest commercial saw mill or at the woodland using a mobile or fixed saw mill, usually owned by the woodland estate
- Converted timber is brought to Philip Koomen Furniture workshop where it is air-dried in the workshop yard for between one and four years
- The selected timber is dried to ten to twelve per cent moisture content in the workshop dehumidifier chamber
- Timber is previewed and selected in collaboration with a client for a specific project

 Commissioned furniture is either delivered to the clients home or collected from the workshop

This cycle significantly reduces the stage between sourcing the timber and supplying the end product to the customer/client compared to the industrial commercial model by eliminating "middlemen". In Signed & Sealed, production/consumption is normally reduced to three stages, i.e. transporting the timber from the woodland to the saw mill, from the saw mill to the workshop and finally from the workshop to the client's home. The "Pondlife" cycle has only two stages as the sawmilling is done at the woodland estate.

By producing furniture from locally sourced timber in the manner described above, carbon emissions and energy consumption through fossil fuels are reduced to the minimum within the existing transport system. The extended life of craftsman-made furniture, compared to most commercial furniture, locks up carbon for the life of the furniture. Energy consumption is also reduced through the natural process of airdrying timber. Timber is dried for a maximum period of three to four years when in the summer period it ultimately reaches its optimum level of moisture content of fifteen to eighteen per cent for outdoor ambient conditions. It is then stored in the purpose built timber sheds until required. Only once timber has been selected for a project is it dried in the dehumidifier chamber minimising energy consumption

The "Signed & Sealed" project has also helped to redefine what constitutes usefulness and waste through the concept of *unique signature*, which reassesses the potential of the intrinsic qualities of timber previously discarded or down graded. In the "Signed & Sealed" project, sweet chestnut thinnings, for example, previously considered a waste product and low grade timber such as brown oak, which may only have a market as firewood have become a valued economic resource.

The question as to what is waste is a fundamental issue when global resources are becoming scarce and are threatening political and economic stability. The development of products through appropriate designs which incorporates the idea of the *unique signature* of local timbers redefines the concept of waste, and therefore scarcity. A realignment of the infrastructure on a regional basis to promote the local cycle could release tremendous natural resources and make a significant contribution to sustainable development by promoting sustainable woodland management through the creation of a market for previously unmarketable timber. The idea of unique signature could therefore be developed to market these resources in the global economy; resource management is emerging as one of the big issues in the twenty-first century. Poor resource management will lead to scarcity of basic commodities which will have significant political and economic implications.

Finally, a project like "Signed & Sealed" adds economic value to the local economy at every stage of the process bringing mutual benefit to woodland owner, carrier, sawmill and furniture maker:

- Timber is purchased directly from the woodland owner or a local contractor representing him. The value of the timber is negotiated at a mutually acceptable price
- Transportation of timber between woodland, saw mill and workshop is undertaken by a local contractor or by the saw mill's transport based on their standard charges
- Local independent saw mills or those owned by the woodland convert the timber based on their standard charges

The sourcing and processing of local timber over the duration of the project (January 2001 to December 2004) has, for example, contributed £7540 to the local woodland economy, including contractors. This is a modest but significant breakthrough for a project that is only in its infancy. However, the "Signed & Sealed" strategy also depends on generating commissions for *semi-bespoke* designs. It is from this perspective that the sustainability of the strategy also needs provisional assessment. It is more difficult to measure the economic value of the "Signed & Sealed" project because of the disparate range of designs produced; the partial utilisation of timber logs used in the process; the problem of quantifying

waste and the number of experimental designs produced to demonstrate possibilities.

One design, however, provides a valuable example of the relationship between the value of locally sourced timber to a "Signed & Sealed" design. During the project, fifteen "Pondlife" benches were produced with a total value of £38,351. The total value of sweet chestnut and cedar of Lebanon acquired to produce these was £3,121. Material costs therefore represent 8.14 per cent of the total value of furniture.<sup>643</sup> This is significantly lower than the cost of sourcing timber through the timber trade. The average value of timber purchased through timber merchants is 11.38 per cent of the total value of commissions.<sup>644</sup> The difference in added value is due to the processing of timber at the workshop, i.e. drying. The economic benefit to the local woodland estate came from the income through the sale of a forestry by product, sweet chestnut thinnings, which would otherwise have had limited alternative markets. The "Pondlife" bench therefore provides an important economic model for the "Signed & Sealed" strategy to contribute to the local woodland economy and has made a significant contribution to developing a sustainable practice.

As the majority of clients are from within a thirty mile radius of the workshop, the local market is enhanced and a "Signed & Sealed" product represents a complete local economic cycle from the design of the product and the sourcing of materials through to the final product. Such local sourcing also reduces the need to use imported timber and is a protection from fluctuating exchange rates and potential upward price movements if, as is likely, the global market for timber becomes more competitive.

In conclusion, the "Signed & Sealed" project has initiated the development of a sustainable practice by providing a vehicle of change in promoting a local network for sourcing and marketing regional timber

<sup>&</sup>lt;sup>643</sup> This figure is based on the value of "Pondlife" benches produced and the total value of stock of sweet chestnut and cedar of Lebanon. If, for example, the calculation included a potential six 2-seater "Pondlife" benches @ £2364 each which could be produced from timber stock, the proportion of material costs would be 5.94% <sup>644</sup> This figure is based on an average cost of purchases as a percentage of

commissions by Philip Koomen Furniture over four years, between 2001 and 2005

through the creation of a local cycle. In particular, the concept of *unique signature* has become a touchstone by which, through the creative use of defects, otherwise rejected waste material, is transformed into useful objects that celebrate nature's diversity. Finally, the *semi-bespoke*, which began as a concept to democratise the commissioning process by extending the availability of craftsman-made furniture to a wider market, has been reshaped in the "Signed & Sealed" project to promote the local cycle; the very act of commissioning initiates a local and sustainable practice.

The culmination of this project, of course, has been the "Signed & Sealed" collection (Appendix IX) and the "Out of the Woods" exhibition at the River & Rowing Museum, Henley-on-Thames (16 September 2004 until 5 January 2005), its accompanying catalogue and associated conferences which will be discussed in the next section, the Conclusion: Reviews, Responses and Reflections.

### **Conclusion: Reviews, Responses and Reflections**

Sustainability has been a guideline for human culture from time immemorial E. von Weizsäcker

#### 3.1 The "Out of the Woods" exhibition

The stated aims of this thesis were to address the ecological concerns identified by the Earth Summit (Rio de Janeiro 1992) and *Agenda 21*. The "Out of the Woods" exhibition, held at the River & Rowing Museum, Henley-on-Thames (September 2004 – January 2005), in many ways marked the culmination of this research journey by tracing its route and offering tangible evidence of its outcomes. The museum provided the ideal venue to showcase the issues explored by the project, make visible the process of research and development and offer its eventual outcomes (embodied in the "Signed & Sealed" furniture designs) as a useful vehicle for discussion. Thirty-six objects were presented - including nineteen "Signed & Sealed" designs - together with related evidence of research and developmental processes.

As a brand, the "Signed & Sealed" range of design was seen in the exhibition to be identified by a promise that it is sourced from local timbers of known provenance and designed with the express intention of promoting sustainable management and the local economy. The "Out of the Woods" exhibition also revealed how the "Signed & Sealed" range embraced:

- The incorporation of unusual features, defects and waste materials into furniture designs of a *unique signature* celebrating the value of natural diversity
- The use of the distinctive characteristics of timber from local woodlands in such a way as to enhance regional identity
- The selection of timbers through collaborative discussion with woodland manager, maker and client developing a mutual design process connecting forest to furniture and the environment to people

As will be seen in the catalogue (Appendix XII, to be found attached to the text) the "Out of the Woods" exhibition also addressed the various ecological issues identified by the thesis and delineated the sustainable practices embodied in the "Signed & Sealed" range – local sourcing, unique signature and the concept of the *semi-bespoke*.

The exhibition was jointly curated by Jane Bowen and Ditte Hviid of the River & Rowing Museum and it was scheduled on the back of an earlier exhibition, sponsored by the River & Rowing Museum, "Craftsmanship in the 21<sup>st</sup> Century<sup>7645</sup> in which I exhibited with David Harber, sun dial maker and Colin Henwood, boat builder. The graphic designer, Ross Speirs, Colophon Design, was commissioned by the River & Rowing Museum to design the exhibition information panels in collaboration with me and the co-curators (Appendix X). The discussion was interesting and ranged over a number of museological issues relating to audience and communication. A format was agreed in which each panel integrated a number of elements:

- The theme title
- A freeze of images related to the "Signed & Sealed" project
- Information sub-zones with sub-headings
- Images from the project with captions
- Inspirational quotations

An insight into the relationship between man and nature was presented through a series of inspirational quotations.<sup>646</sup> An audio-visual presentation was prepared by Ditte Hviid which took the form of a series of questions operated by push buttons (Fig 85). This provided an eminently useful visual analogue that further helped open up and make transparent the research and design process; this information was based

 <sup>645</sup> Craftsmanship in the 21<sup>st</sup> Century exhibition ran from 22 January to 22 April 2001
 <sup>646</sup> In collaboration with the Oxford Scribes, a series of calligraphy designs based on Holy Scriptures were produced on locally sourced wood. Three pieces were selected for the exhibition on Antiques for the Future: The Inspiration, Art and Skill of Crafting Wood (2003) by Dr Kyle Jones (Appendix XIII).<sup>647</sup>

The exhibition lay-out made use of four partitions, each at ninety degrees to the walls to subdivide the main gallery. These created a series of discrete areas to exhibit furniture and highlight particular themes of the PhD project. The partitions were each designed with an illuminated niche at eye level for placing half-scale chair models. One partition also had two display openings at eye level, visible from both sides, to allow natural light through. The plinths were raised five centimetres above floor level to protect the furniture but encourage visitors to approach the furniture at close proximity. A curvilinear island display area was complemented by surrounding curvilinear plinths to create a circular path for visitors. All the furniture was arranged on plinths except the "Pondlife" benches. While visitors were asked not to touch most of the furniture (museum policy) they were invited to sit on the "Pondlife" bench and enjoy the tactile qualities of the reeds. The constraint on the size of the gallery did limit the display of raw timber in its various forms; however, a sweet chestnut thinning was included showing how a basic reed for "Pondlife" was formed and samples of beech were included.

The range of furniture exhibited also included a series of half scale and quarter scale models; these were placed in their own distinct spaces to stimulate a different level of visual experience to the full-size furniture on display. Visitors could view these forms closely at eye level and appreciate the designs from a different perspective (NB the complete "Out of the Woods" Exhibition Objects list is detailed in Appendix XI).

#### 3.2 The "Out of the Woods" catalogue and related conferences

An estimated 15,000 visitors viewed the exhibition over a period of three and half months. The exhibition received extensive regional and national

<sup>&</sup>lt;sup>647</sup> K. Jones, Antiques for the Future: The Inspiration, Art and Skill of Crafting Wood, Time & Co. Productions, Bicester, May 2003 (audio CD)

media editorial, including a feature on Meridian TV's *Town and Country* programme.<sup>648</sup>

The "Out of the Woods" catalogue was conceived as a guide to the "Signed & Sealed" project and its content followed logically from the exhibition information panels. Where the information panels were individually distinct, the catalogue provides both a unifying narrative to the exhibition and a synopsis of the dissertation in an economical language intended to be accessible to all. The content was prepared by me and the structure negotiated in collaboration with Dr Reg Winfield, Buckinghamshire Chilterns University College and the River & Rowing Museum staff.

The catalogue was introduced by Dr Reg Winfield, who offered a critical perspective on the nature of the "Signed & Sealed" project. Lady Sabiha Foster, architect and designer, contributed a foreword which provided an insight into the relationship between creativity and spirituality based on the teachings of the world religions. The catalogue also provided a directory for the sponsors of the catalogue, regional forestry initiatives promoting sustainability, art and craft venues and a website on world citizenship (Appendix XII, "Out of the Woods" Catalogue).

A one-day conference, "Our Woods in Your Hands" (25 September 2004), aimed at raising awareness of the issues and challenges of promoting sustainable forestry from global, national and local The morning session offered presentations by four perspectives. respected professionals from forestry and the timber trade. David Jenkins, director of Coed Cymru, Wales, introduced and chaired the programme. Dr Mike Packer gave a global perspective of market and opportunities for promoting constraints sustainable forest management. Dr Gabriel Hemery discussed the long-term benefits of genetic and provenance research in improving British hardwoods as well as current U.K. forest policy and challenges of climate change. David Rees presented best case/worst case scenarios of the future of woodlands in Oxfordshire.

<sup>&</sup>lt;sup>648</sup> *Town & Country*, Meridian Television, 7 October 2004 (Television programme)

The afternoon discussion workshop encouraged cross-disciplinary discussion and new initiatives from forestry professionals, woodland trade. researchers, owners. the timber designers, craftsmen. manufacturers and design students who use wood. Chris Cox and Steve Say, from Timbmet Group Ltd, facilitated a discussion on designing with timber through the question: "Are we expecting too much quality from out timber?". About fifty people attended the morning lectures and over forty professionals participated in the workshop (Appendix VIII). This group formed an important nucleus from which to develop a cooperative network for sourcing processing and distributing local timber and subsequently inks were made for example, with Coed Cymru and the Oak Dean Cooperative.

A second one-day conference, "Out of the Woods: A Sustainable Approach to Furniture Design" (20 October 2004) was organised in collaboration with Buckinghamshire Chilterns University College and sponsored by the River & Rowing Museum and the Chilterns Enterprise Gateway. It also provided the occasion for the official launch of the Chartered Society of Designers new Sustainability Group. The conference was aimed at design professionals and furniture design students to promote greater awareness of sustainable approaches to furniture design through a series of presentations and workshops by leading practitioners. David Colwell discussed his batch produced, ecodesigned, steam-bent furniture. Dr Chris Cattle presented a history of grown artefacts and his ingenious approach to growing furniture. Gudrun Leitz discussed how she has developed techniques to produce free-form green wood furniture from managed woodland. The morning presentations were followed by workshop discussions led by the designers. A plenary session enabled participants to discuss issues.<sup>649</sup> A design project designed around the utilisation of beech, (one of the themes of the "Out of the Woods" exhibition) was presented by Hugh Scriven to the BA Furniture Design and Craftsmanship second year students of Buckinghamshire Chilterns University College. John Morris,

<sup>&</sup>lt;sup>649</sup> The presentations were videoed and recorded on DVD by Buckinghamshire Chilterns University College to document the event

of the Chilterns Woodland Project, agreed to collaborate with the students to enable them to source beech from local woodland for a competition sponsored by the Chilterns Enterprise Gateway. A further two one-day seminars were also organised, aimed at interested individuals who were offered a guided tour of the exhibition and the Philip Koomen Workshop, which were intended to further promote understanding of ecological issues and offer insight into the process of sustainable design.

The "Out of the Woods" exhibition came to an end in January 2005 but has since taken on a life of its own. It has subsequently been resuscitated in an abbreviated form as part of Oxfordshire's Artweeks (May 2005 and 2006 – venue the Philip Koomen Furniture Workshop) and at Art in Action, Waterperry House (July 2005) and has again recently resurfaced fully fledged at the Wycombe Museum, High Wycombe (August – October 2006). Further venues are presently being discussed with Oxfordshire County Museum, Woodstock, the Artifex Gallery, Sutton Coldfield, and the Ashmolean Museum, Oxford, amongst others.

In one sense this thesis was given a kind of journalistic currency at least, through the agency of the "Out of the Woods" exhibition. Susan Herdman for example, used her review of the exhibition to affirm my status as 'one of the finest craftsmen in wood in Britain today'.<sup>650</sup> *The Guardian* described the "Out of the Woods" exhibition rather more soberly as 'challenging unsustainable consumer demands'.<sup>651</sup> The *Furniture Journal* wrote 'The "Out of the Woods" exhibition highlighted Philip's beliefs that the role of the furniture designer-maker is crucial in addressing the problems of consumption by helping to develop a greener and more sustainable global economy'.<sup>652</sup> Kay MacArthur (the *Henley Standard*) described how 'the exhibition demonstrates how designers and consumers can have a positive impact on the environment and local economy'.<sup>653</sup> Barney Leith (*Bahá'í Journal*) observed that the exhibition

<sup>&</sup>lt;sup>650</sup> S. Herdman, 'For the Love of Wood', *BBC Homes & Antiques*, BBC Magazines, February 2005, pp. 70-71

<sup>&</sup>lt;sup>651</sup> The Guide, *The Guardian*, 2 – 8 October 2004

<sup>&</sup>lt;sup>652</sup> 'Going Green', *Furniture Journal*, May 2005

<sup>&</sup>lt;sup>653</sup> K. MacArthur, 'Showcase for Unique Furniture', *Henley Standard*, 1 October 2004

represented a 'unity of concept holding together a diversity of realisation in the actual pieces on show'.<sup>654</sup> Leith was also inspired to make it the subject for his broadcast *Thought for the Day*, BBC Radio 2,<sup>655</sup> in which he recognised the PhD project as a direct response to the problem of being a designer-maker and world citizen. The ethical dimensions of the project were also identified by Michele Fleming, who observed in her review of the exhibition how:

Design and craftsmanship are subservient to his higher goal of channelling his creativity in his push to work towards global responsibility.<sup>656</sup>

Many furniture designer-makers and peers also had the opportunity to view the exhibition and were very encouraging. Chloe Darling, chair of *Chairs 2004* wrote:

Congratulations on producing such a marvellous exhibition encompassing such thoughtfulness. The pieces were wonderfully made and the designs so appealing ... a positive message about the good use of wood.<sup>657</sup>

Richard Williams, the designer-maker, wrote:

I was impressed ... not only with the quality of design and workmanship (which goes without saying of course) but mostly how it was unified by your research and the ethos behind the work.<sup>658</sup>

However, setting journalistic licence aside, it is perhaps more useful to note that the exhibition (and with it the "Signed & Sealed" project) was mentioned in numerous trade journals. The American journalist Thomas Russell, for example, reported: 'the use of sustainable materials in furniture interests Philip Koomen, a British-based designer who spoke on the subject during an IFFS Design Forum'.<sup>659</sup> The trade journal *Panels and Furniture Asia* also reported how the "Koomen Trio" project follows a long tradition by American Hardwood Export Council of commissioning

<sup>&</sup>lt;sup>654</sup> B. Leith, 'Excellence in All Things', UK Bahá'í Journal, Winter 2004/5

<sup>&</sup>lt;sup>655</sup> B. Leith, Thought for the Day, *BBC Radio 2*, Broadcast November 2004 (actual date not known)

<sup>&</sup>lt;sup>656</sup> M. Fleming, 'Knock on Wood', *Bucks Free Press*, 8 October 2004

<sup>&</sup>lt;sup>657</sup> C. Darling, Letter dated 19 September 2004

<sup>&</sup>lt;sup>658</sup> R. Williams, Letter dated 7 January 2005

 <sup>&</sup>lt;sup>659</sup> T. Russell, 'Salvaged Teak: Adding Spice to Gallery 278 Line', *Furniture Today*, USA, May 24 2004

fine furniture makers to demonstrate the beauty and working properties of American hardwoods'.<sup>660</sup>

It would seem then that the "Out of the Woods" exhibition and the "Signed & Sealed" range (and with it the related "Koomen Trio" project) have clearly begun to raise awareness of some of the issues around sustainability with both the public and the furniture and timber industries and raise interesting questions regarding the reach of what might be called the ideational footprint of this PhD project.

The conference "Our Woods in Your Hands" (together with preceding lectures) also identified many of the challenges facing the future of forestry in the U.K. and drew a wide range of responses. Peter Hale of the Royal Forestry Society, for example, responded by confirming that timber growers did not appreciate the 'difficulties of small furniture makers in buying timber for their work' and 'how woodland managers did not realise how costly this can be to the user of wood in small quantities'.<sup>661</sup> Alan Betts, conservator at the Forestry Commission, also wrote to me to say: 'I agree with you about local linkages to world issues as expressed in this project' and then went on to suggest the possibility that the Forest Commission grant system could be linked to furniture. He wrote:

Sustainable development, however, is the rationale for all our grants nowadays so do let me know if you think there are ways of better linking our woodland grants to work of your kind.<sup>662</sup>

Clearly such responses show the need to influence influential government agencies such as the Forestry Commission in their policy decisions. It is my view that this can be facilitated through grass roots initiatives such as that embodied in this PhD project aimed to stimulate constructive dialogue around ecological issues.

The "Design for Sustainability" conference was also instrumental in just this way, encouraging design and craft students to consider the ecological and design issues raised. Several Buckinghamshire Chilterns

<sup>&</sup>lt;sup>660</sup> M. Buckley, 'The Koomen Trio Furniture Project ', *Panels and Furniture Asia*, May 2002

<sup>&</sup>lt;sup>661</sup> P. Hale, Royal Forestry Society, Letter dated 25 March 2003

<sup>&</sup>lt;sup>662</sup> A. Betts, Forestry Commission England, Letter dated 26 April 2005

University College students, for example, subsequently explored the issues in their final year dissertations and hopefully will be inspired to develop their professional practice on sustainable principles. One other small but significant achievement is perhaps also worth noting. It may be surprising to know that until recently the Chartered Society of Designers (CSD) had no office within the organisation to raise sustainable design issues. Following a discourse with the CSD director, Frank Peters, about the "Out of the Woods" exhibition, he proposed that I should chair a CSD Sustainability Group and the "Design for Sustainability" conference was the official launch for it. This offers a potentially important opportunity to facilitate future discussion and highlight sustainable practice through the CSD website and journal to the constituency of chartered designers.

#### 3.3 Final reflections

As a direct result of the research undertaken for this thesis, the Philip Koomen Furniture practice has developed a more balanced and complimentary range of practices which includes high style one-offs, *semi-bespoke* commissions and the Signed & Sealed. The relationship of these three strands is a complex one and is linked in a number of ways.

High style one-off commissions, for example, have provided opportunities to develop design areas in which client and designer-maker collaborate in the conceptualisation of a design brief that reflect the client's needs. This strand has enabled this designer-maker to explore fertile areas of creative potential as well as help sustain the viability of the practice. In recent years, as the research for this thesis developed, commissions have also been linked to the sustainable issues explored in this thesis.

The *semi-bespoke*, by contrast, offers a range of identifiable designs that use crop timbers from well-managed sources. It meets the needs of clients in the middle ground who appreciate tried and tested designs which represent a high level of craftsmanship and attention to detail; it also forms the majority of commissions undertaken by the practice. In addition, experimental designs have also been part of workshop practice since its beginning. They can extend the boundaries of the creative practice through self-directed explorations of new concepts free of the constraints of the commissioning process. These designs can stand alone as points of creative reference or feed into the other strands, particularly Signed & Sealed.

As yet, the "Signed & Sealed" furniture represents a small proportion of the total commissions undertaken by the current practice. However, what has become evident throughout the PhD process is the emergence of "Signed & Sealed" as the focal point of the practice. It has evolved from *semi-bespoke* and high style one-off commissions and experimental designs over thirty years and contains elements of all but brings them together in a unified and ideologically coherent way.

As for the "Signed & Sealed" research project itself, this explored a number of issues around the debate on sustainable development and focussed on a particular set of arguments expounded upon in Part One from which the "Signed & Sealed" strategy was developed. These are summarised as follows:

One of the key challenges facing sustainable development is the conflict between two opposing views. One which believes it can be achieved by refining the current pattern of economic growth and one which proposes a more radical adjustment to align development to non material goals. Perhaps more critical is the need to define the values that underpin sustainable development without which there can be no common basis on which to implement a strategy and measure progress.

The global initiative *Agenda 21* relied on empowerment of individuals and communities through the democratic process. It recognised problems and solutions required local strategies. Progress, however, has been restricted by the limited powers and influence of local government and the relative apathy of individuals and communities.

A similar story is repeated in the workplace where potentially workers, managers and entrepreneurs could collaborate in transforming the nature and purpose of work aligned to the needs of the individual and society, initiating a process that begins to reconcile conflicting interests between the two constituencies. Again the lack of response from the workplace and the business world indicates an unwillingness to face current challenges and perhaps an inability to redefine the role of work which has largely become reduced to a means of acquiring the medium of exchange for the consumption of goods. The nature and purpose of work and by implication business, requires a radical rethink to become part of a dynamic process of sustainable development.

The integration of economic and ecological values provides an alternative model for sustainable development. It reconciles the problems of an economic system which externalises environmental and social costs by integrating them into a system that provides ecological balance and societal justice.

The design profession's response to the sustainability question – explored in the thesis through the philosophical perspectives of product designers such as Jakki Dehn and Philippe Starck – is now supported by a growing level of institutional research and discourse on a national and international level. Industry too, represented by visionary companies like AT&T and Wilkhahn, has been developing innovatory sustainable practices despite the lack of short-term incentives. And by contrast, while pre-industrial furniture crafts have inspired product designers like Hans Wegner and David Colwell who have demonstrated the enduring relevance of the craft ethos applied to industry, more recent contemporary furniture designer-makers have also inspired innovatory craft practices - as can be seen in the work of Chris Cattle, Guy Martin and Daniel Mack. What has become clear then is that there now exists a body of furniture designer-makers who have emerged in the last thirty years from relative obscurity to become a small but highly regarded and significant community in the economic life of the nation.

The difficulties of establishing a furniture designer-maker eco were explored, including the problem of balancing the range of skills from design and make to marketing and administration. The preservation of a unique maker-client relationship was seen to remain central to this role. The multiplication of the number of designer-makers over the last thirty years is confirmation of a new appreciation and demand for designermaker furniture, a development that is particularly significant in the Oxfordshire and Chilterns area and its long history of furniture making. However, it was argued the viability and future of the designer-maker will depend on defining the price differential between the manufactured equivalents. The alignment of a practice to a well defined set of values and objectives that promote sustainable practice may provide the differentiating factor that enables clients to make a considered choice. The "Signed & Sealed" project has provided the framework to demonstrate the feasibility of this argument. Therefore central to this thesis is the evolution of the bespoke furniture designer-maker practice as an eco business, facilitating sustainable development at a local level - in line with the objectives of *Agenda 21*.

The increasing recognition that an economic system designed for mass market and reduction of costs cannot meet the diversity of human or ecological needs provides a clear opportunity for the furniture designer-maker to develop strategies that negotiate an alternative to the mass consumer products and the rarefied one-off designer-maker products. The concept of *semi-bespoke* furniture designs provided the first strand in the "Signed & Sealed" project allowing clients to engage in the commissioning process and negotiate individual designs to meet their needs but working within the constraints of generic designs without having the associated costs of a one-off design. The alignment of this methodology to the utilisation of non-commercial timber from local woodlands, which are in a state of ecological and economic crisis, provide the basis for the "Signed & Sealed" strategy for the following reasons:

- Local sourcing in the Oxfordshire and Chilterns area declined in the twentieth century as the furniture industry contracted and the demand for imported timber increased
- Under-management amongst privately owned woodlands in the region caused by declining demand left woodlands in an unsustainable condition

- The potential for timber production is recognised by researchers but lack of management, skill base and deteriorating supply chain restricts possibilities
- The public are ignorant of the relationship between the ecology and economics of sustainable management, not recognising the balance between landscape, ecological value and economic return from timber sales
- The problems are aggravated by the disconnected condition of the various stakeholders from woodland owners to consumers. This condition represents a serious obstacle to unified action
- The global forestry crisis has begun to be addressed through the Forestry Steward Council initiative and similar schemes which provide certification for sustainable forestry management for the commercial market but are still problematic for the small woodland owner
- Certification affects five per cent of the forests worldwide and is being adopted by an increasing number of forests. Although it has become a standard for commercial forests, the public and the consumer, alternative networks are needed for local markets and crafts people
- The range and quality of U.K. imported timber with minimal defects has created unrealistic expectations amongst timber users and is unrepresentative of forest yield
- In the U.K. small independent woodland owners who wish to gain access to markets requiring certification are hampered by high administrative costs, poor stock and supply issues
- Current U.K. government policy emphasises the social and environmental benefits of woodlands with little emphasis on the economic benefits. Policy ignores the potential costs of global warming and the possibility of greater demand for timber in a competitive global market

- Predicted environmental changes through global warming require a radical management policy to safeguard the future of U.K. forests and reduce dependence on imported timber
- The development of a Local Cycle is therefore a practice-based response to a regional forestry crisis that is also intimately connected with U.K. government policy, changing global forestry economics and the potential challenges of global warming
- Unique Signature develops from the exploration of non-commercial local timbers through the local cycle process
- It extends the possibilities of a visual language for timber that interprets its decorative qualities and structural properties beyond the constraints of historical craft precedent and current commercial practice
- It is a practice that has been identified in this research as common to a number of well known documented designer-makers including Peters, Makepeace, Stead and Nakashima
- It represents an alternative resource to the consistent and homogenous material appropriate for production processes
- It meets a recognised but latent demand for "character" woods which enhance what Pye refers to as the 'short range elements, which are the domain of workmanship'.<sup>663</sup>
- It begins to address the imbalance in forestry management produced by the demands of manufacturers by creating a demand for non-commercial timber

The "Signed & Sealed" project was therefore shaped by a raft of issues around the sustainable forestry debate but first gained its focus as a practice-led response through the *semi-bespoke* methodology. In reflecting upon its development the ecological design model proposed by Van der Ryn and Cowan has provided an essential conceptual framework from which to make some provisional assessment of the value of the research in establishing the culture for promoting sustainable

<sup>&</sup>lt;sup>663</sup> Pye, The Nature and Art of Workmanship, p. 34

development. Five principles define ecological design and it is in relation to these that I offer some comment on the "Signed & Sealed" project.

Firstly, design solutions should develop from the particular conditions and limitations of the physical locality and develop from the skills already employed in the area. In this regard the sourcing and processing of local timber has only been possible through coordinating a range of forestry and contractor professionals whose complementary skills and knowledge made the project feasible as acknowledged in the following relationships.

The experience of David Rees (Project Manager Oxfordshire Woodland Project) - whose knowledge of independent woodlands provided a valuable perspective to identifying collaborative woodlands. Martin Drew, forestry contractor, whose knowledge of the characteristics of local soil conditions helped select timber, together with a number of woodland managers who helped identify specific trees suitable for felling. The existence of a range of sawmills in the locality also enabled the converting to take place without recourse to extended journeys. The project has therefore established that despite the decline in the condition of local woodlands there is still a tenuous culture that survives which may yet build a larger sustainable community around expanding woodland resources.

This local knowledge is an essential component to problem solving and can only be acquired through a 'process of cultural accretion'.<sup>664</sup> Within the period of the research project it became clear that much progress was made in educating woodland professionals about my intentions. Interestingly, clients and the public have also become aware about the possibility of using locally sourced timber. At one recent furniture makers network meeting a furniture maker raised the topic of how could he obtain locally sourced timber as he was being asked by prospective clients if he could supply it. Managing expectations has become an important aspect of the process of accretion. Clients are unaware of the complexities around sourcing local timber and woodland

<sup>&</sup>lt;sup>664</sup> S. Van der Ryn and S. Cowan, *Ecological Design*, Island Press, Washington, 1996, p. 65

managers are keen to sell timber. Developing a culture in which both managers and clients appreciate the limitation of the local cycle is intrinsic to the process.

The principle of *design with nature* has been explored in this thesis not only in relation to the ecology of forestry but also in terms of the inherent sustainability of craftsman-made furniture. Design with nature represents a partnership according to Van der Ryn and Cowan: 'a kind of covenant between human communities and other living communities'.665 The project began in a spirit of learning in which the designs produced responded to what the woodlands were able to offer under the stewardship of the managers – in this respect it responded to the diversity of the woodlands rather than imposed a uniform solution.

One of the most important principles in the project has been the role of the designer as a facilitator and the recognition that everyone (in a sense) is a designer. The essence of this principle is the collaborative and cooperative nature of design as a process in which 'solutions grow and evolve organically out of a particular situation, process and pattern of communication'.666 Designs are therefore not imposed but develop through a dialogue which at community level is an expression of participating democracy. In this regard the community is represented by Philip Koomen Furniture, the woodland community and the clients and the dialogue is therefore three-way (facilitated by me acting the role of the designer-facilitator).

The fifth principle asks that nature be visible and requires that technology is transparent without concealed consequences. It requires a level of openness that is also essential in the consultative spirit that characterises the collaborative design process and which is fundamental to *semi-bespoke*. By engaging clients in a consultation that informs them about the ecological consequences of their decisions the 'symbiotic relationship between culture, nature and design generates new design possibilities'.<sup>667</sup> Both designer and client are engaged in a learning

 <sup>&</sup>lt;sup>665</sup> Ibid., p. 55
 <sup>666</sup> Ibid., p. 55
 <sup>667</sup> Ibid., p. 55

attitude in which possibilities are evaluated in relation to their impact and benefit to the local environment.

It can be seen that the "Signed & Sealed" project has begun to develop a strategy based on the ecological design principles advocated by Van der Ryn and Cowan. However, as yet, the principle of ecological accounting which measures sustainable development in relation to the ecological footprint is not an integral part of the strategy. This is a vital but complex system to try to introduce within an established practice. It is acknowledged however, that it is (arguably) an essential analytical tool for the long-term strategic development of the practice as well as offering verifiable evidence to demonstrate to interested constituencies the benefits of the strategy.

The development of new product types through ecological design is regarded as a logical outcome of the process by Van der Ryn and Cowan as well as Papanek and Manzini. One of the difficulties of the concept of unique signature has been developing an appropriate language that articulates particular features found in non-commercial timber used in the Manzini's The Garden of Objects<sup>668</sup> is "Signed & Sealed" designs. Three particular object types he particularly useful in this regard. identified have a resonance with "Signed & Sealed" designs. These are the sensitive object, which stimulates a caring relationship; the lyrical object, which becomes a focus of meditation and the object as provider of individuality which has strong cultural associations. These three object types find their expression through many of the "Signed & Sealed" designs often combining in one design. The combination of craftsmanship and sensitive use of materials, for example, evokes a caring response by the user/owner. The "Signed & Sealed" designs can also become objects of contemplation as can be observed through the comments by members of the public on seeing the "Pondlife" benches at the Ashmolean (Appendix V). However, perhaps it is in the cultural associations that the designs have the strongest message. They emerge

<sup>&</sup>lt;sup>668</sup> E. Manzini, *The Garden of Objects*, edited and translated extracts from the exhibition booklet of The Garden of Objects, Eighteenth Triennale by C. Cattle, July 1995, Buckinghamshire Chiltern University College

with a distinct regional identity through their provenance and symbolise the ecological issues of the woodland in the region. Manzini's poetic metaphors have an ecological roundness invoking a powerful image of objects characterised by their diversity, variegated qualities and individuality. As in the naming of flora and fauna, the characteristics found in *unique signature* perhaps could be enhanced through the development of a Manzini-style poetic categorisation of "Signed & Sealed" designs, potentially enriching our perception of the nature and purpose of ecologically inspired designs which explore non-commercial timber – but for the moment that must wait.

The "Signed & Sealed" project began as an experiment within an established workshop practice. One of the most significant aspects of the project has been the role the workshop and team have had in its development. Throughout the period of the project the workshop has maintained a team of between four and five members producing commissioned furniture. The "Signed & Sealed" project has been undertaken within this context. The workshop facilities and support of the team have been essential to its feasibility and have provided a laboratory within which to experiment around the idea of a local cycle and enhance the notion of *unique signature* under the banner of the "Signed & Sealed" brand.

In addition "Signed & Sealed" designs have been presented to the public through a series of exhibitions and demonstrations. These have not only acquainted the public with the project and provided valuable feedback but also created opportunities to sell the experimental furniture and enlist further commissions. The relationship between the workshop as a laboratory and the workshop as an economic entity has been synergistic: the "Signed & Sealed" project could not have been developed without having the support of a well established workshop but that same workshop has, in turn, undergone a radical "root and branch" transformation of its practice as a result of the "Signed & Sealed" project.

The nature of this transformation has been organic, based on an eco-ethic value system. The essence of furniture craftsmanship from my

perspective has been the expression of two fundamental and universal human values: love and service. The development of the skills required to produce work of excellence is based on a heightened consciousness of these values. Craftsmanship is the vehicle to embody these values. The workshop practice has also been sustained through the interpersonal values of collaborative and cooperative team work, an equitable system of financial rewards including profit sharing and consultative decision making to encourage the exchange of ideas and the critical and constructive appraisal of progress.

In the "Signed & Sealed" project these values have been widened to embrace the environmental and ethical implications of workshop practice. Each member of the team is now beginning to perceive their contribution as an expression of love and service in which the unified action of the individuals working through the workshop practice begins to influence the process of sustainable development. One of the immediate challenges, however, is a review and reorganisation of the current business structure to enable a succession of the current leadership to take place during the next ten years enabling the next and succeeding generations to undertake the leadership and management of the business and further develop the notion of a sustainable practice.

The "Signed & Sealed" project is emerging as the nucleus of a micro eco, to use Dahl's term, in which internal integrity of the workshop practice is consonant with the external environmental eco, in contrast to the current economic system that frequently fails to integrate such externalities. Unlike the current economic theory, which assumes consumers will only behave selfishly, the eco model developed through the "Signed & Sealed" project is based on a ethical principle that consumers and stakeholders aspire to develop interpersonal qualities based on cooperation - the defining character of mature individuals in advancing societies.

One clear demonstration of the effectiveness of this particular micro eco has been the success of the collaborations with like-minded large ecos, such as the American Hardwood Export Council (AHEC) and Timbmet Group Ltd, in projects to develop a strategy to promote the marketing of North American soft maple. The objective was to raise awareness of this lesser known species, which was achieved through the international trade and media coverage of the AHEC/"Koomen Trio" furniture project and exhibition. The re-branding of the species as East Coast maple was inspired by the concept of provenance, an idea revisited in the "Signed & Sealed" notion of *unique signature*. This collaboration shows how a micro craft business can co-exist with larger corporations and play an essential role in promoting diverse approaches to the creation of products and services that begin to address resource management (Appendix III).

The role of the designer-maker in the "Signed & Sealed" project is also extended to designer-as-facilitator. This affirms Papanek's notion that the role of design has changed and the designer is no longer the designer of products but a designer of processes (See Part One). The relationship between design, ecology and ethics, so passionately extolled by Papanek, provides perhaps one of the richest sources of inspiration for new designs that reconcile human needs and ecology. Designer-makers can contribute to the broader ethical aspects of their profession by responding to the needs of a society undergoing radical changes. Ethics and ecology can illuminate their thinking, as Papanek argues. Dahl's eco model also provides one of the most coherent examples for, sustainable development based on ethics and economic ideology aligned to ecological balance. Sustainable development, as shown in the eco model, must be inclusive and democratic, embracing all members of society as active participants in the process. "Signed & Sealed" is framed by the values and vision that underpin sustainable development: consultative dialogue, transparency, equity and unity embodied in the ethic of world citizenship. The role of the designer-maker as facilitator can become an essential component in the process of sustainable development. The "Signed & Sealed" project in particular has addressed the social and community aspects of sustainable development through a series of initiatives which may be described as creating a "community of interest" in the following ways:

Firstly, the "Signed & Sealed" brand is rooted in the idea of *semi-bespoke*, a dialogue between the designer-maker and the client in which the design possibilities are discussed in relation to local sourcing. The *semi-bespoke* process therefore creates a social ritual that promotes a culture of connectedness amongst clients in which the task of acquiring furniture and the wider environmental and ethical issues are illuminated by the commissioning process. The narrative embodied in the furniture links the design, craftsmanship, forest management and timber utilisation and results in furniture identified by the "Signed & Sealed" brand. The *unique signature* of each design allows clients and users to read what Stead terms, the "geology" of the wood, creating a visual expression of the narrative and another dimension of connectedness.

The "Signed & Sealed" concept also embraces a consultative process in which all the community stakeholders engaged in the production of the design (including co-designers, clients, craftsmen, foresters, woodland owners, sawyers and contractors) become active participants in creating a 'culture of discoveries, inventions, innovations, techniques and insights'.<sup>669</sup> "Signed & Sealed" is therefore grounded in democratic values.

The "Signed & Sealed" project has facilitated greater awareness and appreciation of the relationship between local woodlands (the environment) and the furniture that has emerged from the process (domestic products) by seeking engagement with the wider local community (including school children, craft and design students and special interest groups). This has been achieved, for example, through the annual Oxfordshire Artweeks' workshop exhibition which has provided an important forum for local people to visit the workshop to enjoy an exhibition of furniture in a workshop context, free of any obligation. During the course of the project four of these exhibitions have been organised each attracting between 500 and 1000 visitors. Public road signage has increased the profile of this event encouraging more visitors (Fig 79).

<sup>&</sup>lt;sup>669</sup> P. Dormer, *The Art of the Maker,* Thames and Hudson, London, 1994, p. 76

Participation in regional exhibitions has further raised the profile of the "Signed & Sealed" project and encouraged dialogue with public audiences. This has been most effective where the act of demonstrating an aspect of a process has been the focus. Four high profile events, for example, featured different stages of the development of "Pondlife". These were: Crafts in the Garden, Broughton Castle; Art in Action 2002; Art in Action 2003 and the climax was an exhibition of the "Pondlife" *semibespoke* range exhibited at the Ashmolean Museum, Oxford, as part of Oxfordshire Artweeks 2003. Here the public enjoyed a "Pondlife" installation (Fig 80) which they were invited to sit upon and give their reaction to the experience (See Appendix V). Media coverage of the project including interior magazines, radio and TV promoted wider public interest in the issues and the actual furniture designs.

During the course of the project peer group dialogue has also been developed through a collaborative network of like-minded organisations and professionals in related disciplines facilitating discussion through seminars and presentations at conferences with local, regional and national groups.

The "Signed & Sealed" project has also contributed to the international debate about sustainable design through participation at international furniture design forums where the themes explored in the "Signed & Sealed" project were presented to international audiences of designers, designer-makers, manufacturers, craftsmen and journalists. These included the following presentations:

- Towards a Sustainable Approach to Furniture Design, Furniture Design Forum, Singapore, March 2004 (the other two invited designers were Lars Engman, Design Manager IKEA, Sweden and Christophe Pillet, Product Designer, Paris, France)
- Provenance of Wood in Furniture Design, Chairs 2004: an International Symposium, Westonbirt Arboretum, May 2004
- Panellists Discussion, Furniture Design Forum, Singapore, March 2005 (the other two panellists were Lars Engman (founder of Ikea) and New York furniture designer John Kelly

 Adding Value Through Design, 4th American Hardwood Export Council México & Latin America Convention, Guadalajara, 16-19 March 2006

The influence of the "Signed & Sealed" project in providing a study of sustainable practice at a local level is clearly evident. The dissemination of the concept through various means including the *semibespoke* process, the consultative dialogue with community stakeholders, exhibitions, peer group dialogue and conferences have established a "community of interest" at both a local and international level.

The research project (together with its exhibition and related conferences) has made a small contribution to helping develop a more sustainable world by identifying a number of issues that have wider significance. The relationship between the purpose of work and the location of personal and collective responsibility, as advocated by Papanek and Whiteley, require our continuing vigilance. An economic system that so often suppresses the potential of its workers and prevents the development of their intelligence, talents and skills for the betterment of all surely cannot (ultimately) be supportable or sustainable? Designermakers are beginning to demonstrate how what so many have seen as an anachronistic attachment to the value of craft, can provide a viable and useful vocation based on ecological principles.

The ethic of world citizenship which is based on the recognition of the oneness and unity of mankind, and which embodies Dahl's *eco* principle, reinterprets the golden rule, explicit in every religion, to meet the needs of today. The well being of humanity and the preservation of the planet is everyone's responsibility. The Earth Summit was just such an alarm call. While it is clear that many political leaders in the West are either negligent of their global responsibility or manipulated by powerful vested interests, many individuals, groups and organisations are working at grass roots for the betterment of the world. Sustainable progress can only be achieved through unity of thought and action. Sustainable development, as outlined at the Earth Summit, recognised the interdependence of social, economic and environmental issues. The environmental crisis is just one manifestation of a global community that is only just beginning to come to terms with its new collective responsibilities.

For my own part I recognise that this thesis marked the moment when I began (in a more concerted and coherent way) to attempt to put my house in order and recognise my own responsibilities as a world citizen. This offers testimony to the value of the PhD and the systematic process of enquiry it entails. It has for example, proved instrumental in helping me to:

- Recognise something of the complexity of the relationship of man to the planet and more fully understand the need for change
- Recognise and appreciate in particular something of the complexity of ecological issues and the bewildering range of possibilities for research and development available
- Appreciate the very great difficulties in attempting to construct in terms of design an ideologically coherent model of practice
- Appreciate the difficulties in bringing together others in order to develop an ideologically coherent and co-ordinated model of practice
- Acknowledge and accept the limited impact of individual practice (say with regard to the potential reach of industrial and/or corporate practice)
- Acknowledge and accept that any claim on originality is strictly contingent; it lies not in the developmental outcomes of the research per se (the "Signed & Sealed" brand) nor in its strategic dimensions (local sourcing, *unique signature* and the concept of the *semi-bespoke*) nor even any unique combination thereof but rather in the nature of the PhD process itself in articulating the research journey, bringing transparency to practice and offering a vehicle for discussion

This, perhaps inevitably, has led me to consider just how this PhD project can be moved forward. In this connection I have identified a number of potential pathways. These include:

- Setting up a range of indicators to measure the benefits of the "Signed & Sealed" strategy - i.e. establish a method for a system of proper *ecological accounting*
- Expanding and consolidating the range of "Signed & Sealed" designs
- Developing a new website to promote the "Signed & Sealed" range and disseminate the research
- Develop my own micro local sourcing infrastructure with the objective of increasing the proportion of locally sourced timber and exploring how different parts of the tree can be used in designs
- Investigating the feasibility of setting up a cooperative supply network for sourcing local timber in collaboration with the Oxfordshire Woodland Project, Northmoor Trust and Oxford University Forestry Institute
- Editing video footage of the story of "Pondlife", from sourcing the timber to the making in order to open up the design and make process to a wider audience
- Writing a series of profiles of designer-makers based on my interviews to further open up the design and make process to scrutiny and promote research within the design and make community
- Respond to the invitation to further explore ecological issues by contributing to a lecture tour in Vietnam (Sept. 2006), sponsored by the American Hardwood Export Council
- Develop opportunities to further broadcast the PhD and explore its issues by responding to an invitation to lecture at the Parsons School of Design, New York (2007)

Perhaps the most challenging issue of all is the personal issues that lie ahead of the Philip Koomen Furniture business to create opportunities for the current team and encourage succession. There is a great need for the creation of an inter-generational craft business that can sustain itself in the future through the efforts and ideals of its members. This could potentially act as a model for other designer-makers who are committed to the craft business ethos but are uncertain what legacy to leave over and above a body of personal work. Anyone committed to a sustainable world must consider what it is they can leave to the next generation.

In this connection, this author also believes that in developing this thesis he has demonstrated the potential for rethinking personal craft practices in such a way as to suggest the possibility of other models of development for those designer-makers who similarly aspire to develop more ideologically coherent and sustainable practices. Recognition of this fact has come in many forms. The Chartered Society of Designers, for example, awarded me a Fellowship in recognition of my 'professional standing and distinction of work' (2002). However, the most significant and unexpected acknowledgement came from HRH Queen Elizabeth and HRH Prince Philip with an invitation to attend the first Royal Celebration of British Design at the State Rooms of Buckingham Palace (2004) in recognition of my 'excellence in the practice of design' - an event which (significantly enough) marked 'the first time the Queen has acknowledged the world of design'.<sup>670</sup> This invitation came about as a direct result of the Chartered Society of Designers' recommendation based on their interest and encouragement of the research for this PhD project. It also recognised (interestingly) design in its diverse forms and the fact that I was one of two furniture designer-makers amongst the five hundred or so other designers, architects and design educationalists, I feel, marked it also as a notable moment in the emergence of furniture designer-makers as significant members of the design profession and useful contributors to the cultural and intellectual 'life of the nation'.671

Work is love made visible Kahlil Gibran

<sup>&</sup>lt;sup>670</sup> C. Roux, *The Guardian*, 23 November 2004

<sup>&</sup>lt;sup>671</sup> Wording on invitation from HRH Queen Elizabeth and HRH Prince Philip to attend the first Royal Celebration of British Design at the State Rooms of Buckingham Palace

## Illustrations

All illustrations are the author's own except where noted.



Fig 5. The mitred table design was influenced by the form and construction of Chinese Ming furniture. The original table design was based on the proportions 1:2:3



Fig 6a.



Fig 6b.

Fig 6a/6b. Set of high back chairs (Jones 1993) incorporated three inlay motifs, rather than one, creating a precedent in semi-bespoke chair design



Fig 7. The HG dining table (2<sup>nd</sup> prototype circa 1998) has become the basis for a range of semi-bespoke variations; each one an individual response to a semi-bespoke commission



Fig 8. The high back dining chair design was the basis for six semi-bespoke commissions for sets of chairs; each one a variation of the original design



Fig 9. Back splat shape reflected profile of Chippendale style cabinet's glazing bars in client's dining room



Fig 10. Ladder-back chair in cherry



Fig 11. The X dining chair (Dann 1989)

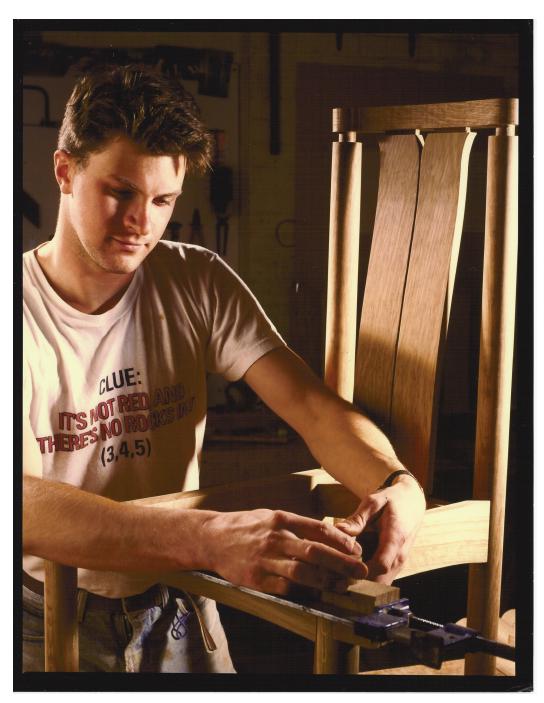


Fig 12. This semi-bespoke hybrid chair design was inspired by elements from the high-back chair and the ladder-back chair designs. Photograph shows Nic Smith fitting the extension rail



Fig 13. Signed & Sealed "Pondlife" two-seater bench, one of a range of semi-bespoke designs made from locally sourced sweet chestnut thinnings and cedar of Lebanon



Fig 14. Signed & Sealed "Trio" plank tables in brown / tiger oak from Thame Park



Fig 15. The Bourton House "Pondlife" bench. The team in 2004: from left to right: Steve Salt, Nic Smith, Mike Bishop, Esmyr van Hees, Garvan de Bruir and me (taking the photograph)



Fig 16. "Signed & Sealed" bedroom furniture in cherry from Checkendon



Fig 17. "Signed & Sealed" storage cabinet in Oxfordshire oak from Thame Park (2001)



Fig 18. "Signed & Sealed" chest of drawers in Oxfordshire yew and walnut from Brize Norton





Fig 19b. Corner storage table

Fig 19a. Display cabinet



Fig 19c. Storage table Fig 19a/b/c. "Signed & Sealed" tables and display cabinet in Oxfordshire brown oak from Thame Park



Fig 20a. "Signed & Sealed" split plank tables in olive ash from Burcot (tables at maximum height)



Fig 20b. "Signed & Sealed" split plank tables in olive ash from Burcot (tables at varied heights)



Fig 20c. "Signed & Sealed" split plank tables in olive ash from Burcot (tables at minimum heights)



Fig 20d. "Signed & Sealed" split plank tables in olive ash from Burcot (tables in reverse position)



Fig 21. Coed Cymru's Welsh Angle range of furniture designs



Fig 22a. A "tree of heaven" log felled at Stonor Park by Martin Drew (pictured), local contractor



Fig 22b. Sawing of "tree of heaven"



Fig 22c. The grain and figure of "tree of heaven"

Fig 22a/b/c. Establishing a local cycle: Stonor Park



Fig 23c.Fig 23 a/b/c. Conversion of olive ash logs at StonorPark using a Forestor



Fig 24a. A 200 year old oak showing some pronounced burr figure



Fig 24b. 100 mm thick boards being stacked to air-dry at the estate

Fig 24a/b. Conversion of a 200 year old champion oak tree from Stonor Park



Fig 25a. Oak logs, with epicormic growth, being sawn



Fig 25b. One of the logs showing cracks distinguished by the stains

Fig 25a/b. Timber conversion at Stonor Park, Oxfordshire



Fig 26a. Stacking boards ready for air-drying



Fig 26b. Completion of two days' sawing and stacking

Fig 26a/b. Sawn timber is carefully stacked and covered to air-dry at Stonor Park



Fig 27. Sweet chestnut thinnings felled at Bagley Woods Sawmill, selected for "Pondlife" bench reeds. The sawyer, inspects the logs with me to discuss the most effective method of converting them



Fig 28. Partially converted sweet chestnut thinnings are stored in an open-ended store at Philip Koomen Furniture workshop, Checkendon



Fig 29a. Selecting beech trees with Adam Dawson (project manager Hardwick Estate) for conversion on the Hardwick Estate



Fig 29b. The final selection of beech trees

Fig 29a/b. The Hardwick Estate, Whitchurch, Oxfordshire. The estate is a Forestry Stewardship Council (FSC) managed woodland



Fig 30a. First cut on the mobile Woodmizer sawmill



Fig 30b. The logs are cut in the woodland as close as possible to where they are felled



Fig 31a. The conversion completed



Fig 31b. The air-dried beech after two years. The *semi-bespoke* Rieple commission for a writing desk was selected from this timber. Many of the boards have twisted and cupped during drying



Fig 32a. The catspaw oak log being sawn by Martin Drew using a Forestor mobile saw



Fig 32b. The logs have been transported from Checkendon to Culham, near Abingdon, Oxfordshire, for conversion



Fig 33a. A felled oak tree with "beefsteak" fungus



Fig 33b. First stage of conversion at Helmdon Sawmill, near Banbury



Fig 34a. An individual sawmill at work; removing the first plank of brown oak



Fig 34b. Sawn planks of brown oak: "stickers" being positioned ready for drying

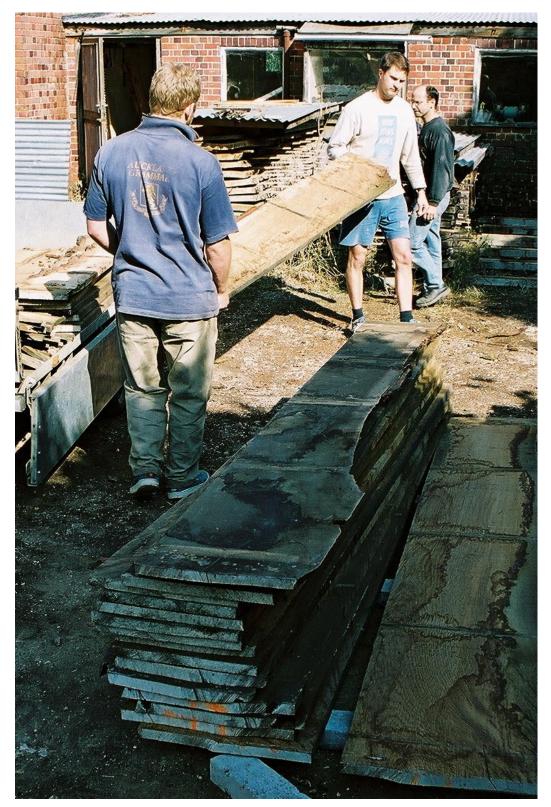


Fig 35a. The first delivery of 30 mm brown oak to the workshop after 18 months of drying at the Helmdon Sawmill



Fig 35b. The boards are arranged in their original sequence to ensure the grain and figure of each board can be matched. Each board is then numbered for identification



Fig 36a. A burr oak log and two ash logs, from Swyncombe Estate near Watlington, waiting to be sawn at a local sawmill near Benson



Fig 36b. The ancient sawmill near Benson



Fig 37. Ash board revealing advanced decay after being left in the round for too long



Fig 38a. The Philip Koomen Furniture workshop yard provides an ideal area for arranging timber



Fig 38b. Air-dried boards are stacked in the purpose made timber store until they can be dried in the workshop dehumidifier unit



Fig 39. Dehumidifier unit set up in the Philip Koomen Furniture workshop where the air-dried timber from the workshop yard is dried between 8–12 per cent moisture content, ready for construction. This photo shows 50 mm ash from Cookley Green, Oxfordshire, and 30 mm brown oak from Thame Park, Oxfordshire

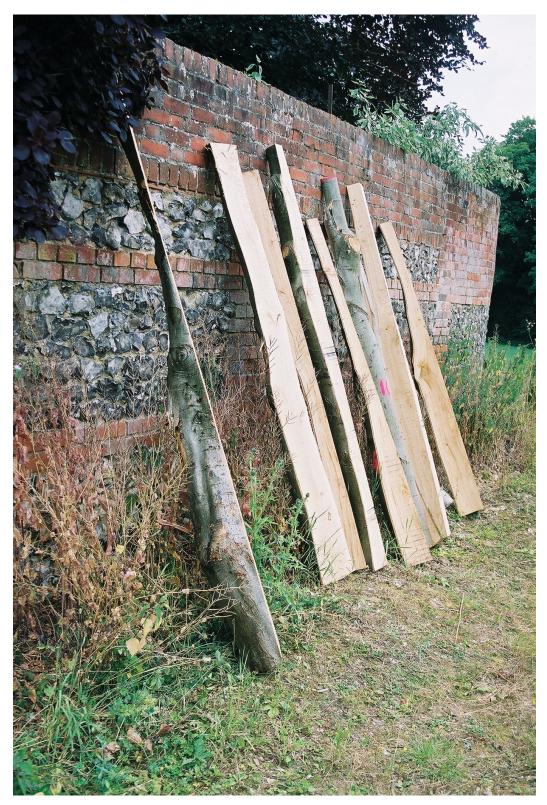


Fig 40. Timber cut mainly into square sections rendering them useless for the exploration of *unique signature* 



Fig 41a/b. An oak tree (Checkendon) with a significant amount of epicormic growth has produced boards with extraordinary convoluted edges and catspaw figure



Fig 42a. An ash log being sawn at Helmdon Sawmill. The outer boards produce white boards



Fig 42b. The centre of the ash log reveals olive heartwood



Fig 43. A low table featuring fissures in yew wood



Fig 44c.

Fig 44d.

Fig 44a/b/c/d. Natural cracks have been incorporated into the design of a "Signed & Sealed" table top. Careful finishing of the cracks have created beautiful negative spaces



Fig 45a. Board of tiger oak (Thame Park) with split



Fig 45b. Mitred plank table incorporating the natural split as a designer element. The inlay follows the direction of the original split (made from the board shown in Fig 45a.)



Fig 46. Original two book-matched tiger oak boards showing the contours of the split before re-sawing



Fig 47. The plank table in Norwegian maple from the Hardwick Estate, Whitchurch. The cracks and spalting have produced a pronounced pattern



Fig 48. Knotty boards of cedar of Lebanon become part of the intrinsic quality of the design of this bench ("Two U")



Fig 49. The distinctive movement of figure in which this "Signed & Sealed" cherry chest of drawers is achieved from low grade timber which has a high proportion of knots. The drawer fronts have been selected from pieces between the knots which have accentuated figure



Fig 50. The "Signed & Sealed" cabinet design provides a canvas to feature the *unique signature* of brown oak. The inside of the cabinet reveals the variegated pattern of tiger oak on the drawer fronts from the same tree



Fig 51a.



Fig 51b. The "Trio" plank tables are made from three consecutive boards of brown tiger oak from Thame Park (Fig 51a). The tables reveal a remarkable diversity of figure and colour, creating an unusual "sibling" set with a shared provenance



Fig 52. Detail of a "Signed & Sealed" kitchen table in beech from Checkendon, Oxfordshire



Fig 53. Chilterns beech was successfully used in small sections for the table legs and rails in this writing table. The top, which was to be in beech, had to be made in FSC European oak because the client and designer found the beech unsuitable. The beech had been sourced from the Hardwick Estate



Fig 54a. A spalted beech log



Fig 54b. These planks reveal some interesting spalted figure after conversion

Fig 54a/b. Spalted beech from the Hardwick Estate, Whitchurch, Oxfordshire



Fig 55a. Table/bench in Chilterns spalted beech



Fig 55b. Table in Chilterns spalted beech. The end grain of the legs was made into a feature.



Fig 56. These samples of beech show how diverse the characteristics of Chilterns beech are. Clockwise from left: 1) 1<sup>st</sup> quality (commercial quality) 2) Stained 3) Red heart 4) Character 5) Spalted 6) Red heart





Fig 57. End grain slabs of spalted beech were cut to 2" thick on a Woodmizer at the Hardwick Estate. These sections were treated with polyethylene glycol but severe checking in drying prevented the timber being used in a design. The *unique signature* of end grain has considerable potential



Fig 58. "Ebb & Flow" writing desk in brown oak (Thame Park). The combination of the curvilinear form and the "cushion" profile of the edges articulate the *unique signature* of this wood



Fig 59. The plank chair was originally as a design to explore the possibilities of Chilterns beech. The design has also been used for other timbers which otherwise would have limited applications



Fig 60. Six consecutive boards from a log of yew designated for plank chairs



Fig 61. Two completed plank chairs



Fig 62. A pair of book-matched plank chairs in tiger oak. The natural convoluted edges contrast with the sawn edge produced at the sawmill



Fig 63. The Narnia cabinet explores the combination of book-matched pippy yew wood doors in contrast with the formal rectilinear shape of the cabinet



Fig 64. Two book-matched pippy yew boards, from Christmas Common, feature convoluted waney edges. This provides the form for a plank table



Fig 65. The waney edges reversed on these boards and subsequently straightened leaving gaps in the final plank table



Fig 66. The two pairs of book-matched boards have been made into two plank tables. One features the convoluted waney edge on the outside and the other one shows traces of the edges along the centre joint



Fig 67. Forming the reeds for "Pondlife" benches. Each reed follows the natural curve of each sweet chestnut thinning



Fig 68. Detail of a "Pondlife" bench.

The round shaping and free curves of each reed produce a distinctive and unique pattern. Small to medium-sized tight knots act as "eyes" producing a radiating grain pattern. The reeds themselves sit in isolation or form relationship with adjacent reeds. Each bench develops its own distinctive character and identity



Fig 69a.



Fig 69b. Fig 69a/b. Pair of "crotch" ash boards from Burcot, Oxfordshire



Fig 70a.



Fig 70b.

Fig 70a/b. Crotch ash to make a pair of tables. The design uses a "folding" technique in the construction to explore the *unique signature* of unusual sections of tree



Fig 71. A table top is selected from two book-matched tiger oak boards. The convoluted contour of a split near the pith of the tree has been straightened to create the table top shown in Fig 72 (below)



Fig 72. The *unique signature* of this table top explores the characteristics of quarter sawn book-matched tiger oak boards

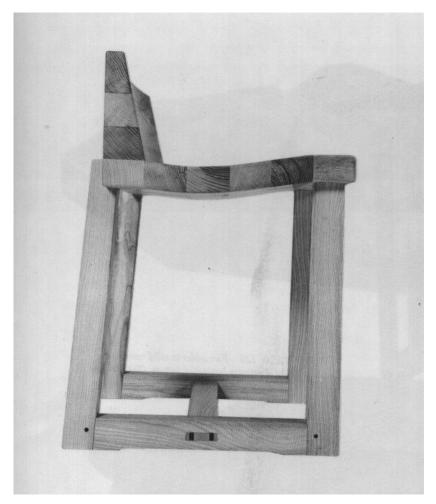


Fig 73. Low back chair (1976) using low grade ash thinnings Designed and made by Alan Peters (*Peters, p. 143*)

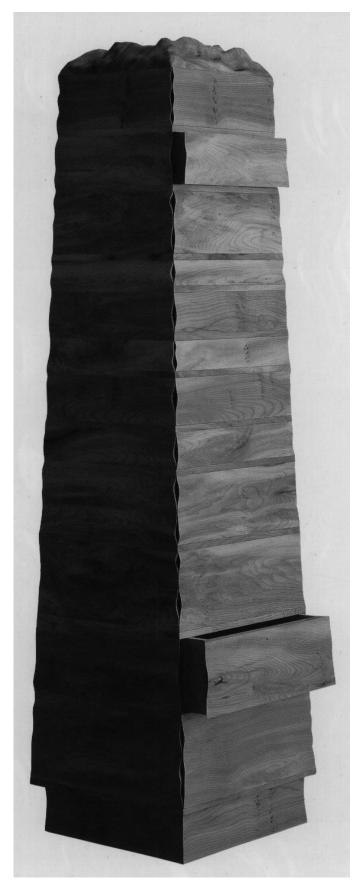


Fig 74. Obelisk in yew wood by John Makepeace (*Myerson, p. 12*)



Fig 75. Dresser in elm by Tim Stead. The convoluted edges of the boards are featured in the design (*Stead, p. 10*)



Fig 76. Detail of coffee table in book-matched English walnut by George Nakashima. His signature butterfly joint secures the two pieces which form the top (*Nakashima, p. 157*)

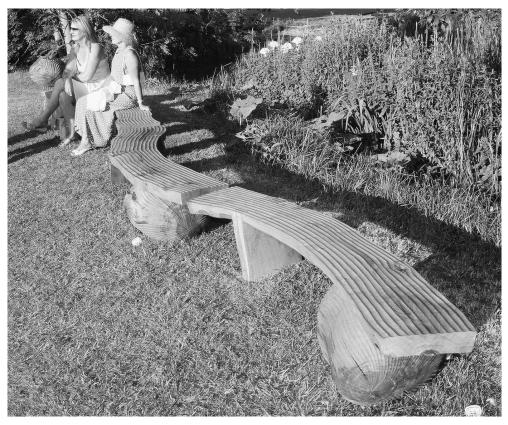


Fig 77. Naturally curved benches hand-carved from oak branches by Alison Crowther



Fig 78. Dining chair by Guy Martin. The parts are either turned or shaped by band saw from five to seven year old ash saplings from local woodland



Fig 79. Philip Koomen Furniture's annual workshop exhibition is held during Oxfordshire Artweeks, an annual event held in May to encourage the public to visit open studios. AA signs, endorsed by the District Council, help visitors find the workshop



Fig 80. "Pondlife" benches exhibited at the Ashmolean Museum, Oxford, during Oxfordshire Artweeks 2003



Fig 81a.



Fig 81b.

Fig 81a/b. The "Out of the Woods" exhibition at the River & Rowing Museum, Henley-on-Thames



Fig 82a.



Fig 82b.

Fig 82a/b. The "Out of the Woods" exhibition at the River & Rowing Museum, Henley-on-Thames



Fig 83a.



Fig 83b.

Fig 83a/b. The "Out of the Woods" exhibition at the River & Rowing Museum, Henley-on-Thames



Fig 84. The "Out of the Woods" exhibition at the River & Rowing Museum, Henley-on-Thames

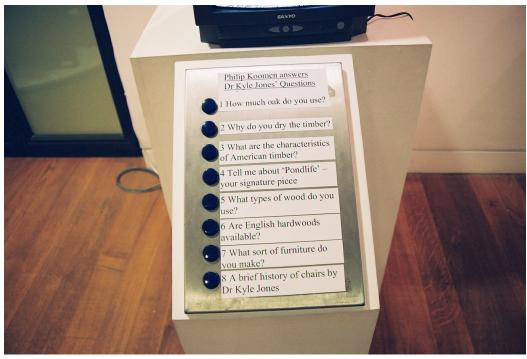


Fig 85. Recorded answers based on Dr Kyle Jones' interview "Antiques of the Future"



Fig 86a.



Fig 86b.

Fig 86a/b. The "Out of the Woods" exhibition at the River & Rowing Museum, Henley-on-Thames



Fig 87. The "Out of the Woods" exhibition at the River & Rowing Museum, Henley-on-Thames

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# APPENDICES

# **APPENDIX I**

# Case Study of "Pondlife" Bench

# 1. BACKGROUND

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# 2. REDEFINING "Pondlife"

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## 1. BACKGROUND

The original "Pondlife" bench was produced in 1998. It began as a oneoff design, part of a series of three experimental projects exploring the relationships between furniture and sculpture. It represented a significant departure from my previous work. Up until this time I had focused on client initiated one-offs as well as the development of my own *semibespoke* designs. A style had evolved which reflected a number of themes I had developed and reworked over a lengthy period, beginning in the early 1980s when I was able to concentrate on furniture making as the main source of work. The restricted nature of my work was due to economic and commercial limitations rather than creative focus.

The designs I produced had helped to provide a viable basis for my workshop but by the second half of the 1990s I wanted to try to diversify my approach and explore new ideas. The three experimental pieces of furniture were intended to redefine my concept of furniture which had been based on reinterpreting traditional English vernacular furniture, influenced by the Shaker ethics and the simplicity of modern craft based Danish furniture.

## Concept

The strategy behind the idea for "Pondlife" was to generate ideas for furniture or, as some would argue, functional sculpture that would be appropriate for an exterior environment or an interior space. By removing the normal physical restraints and cultural preoccupations associated with conventional furniture it was possible to consider ideas outside my normal creative framework. Functional sculpture, which explored the relationship between furniture and sculptural forms, became an appropriate vehicle for this exploration.

Organic or natural forms were the inspiration for new ideas. The concept of "Pondlife" began with the image of reeds encircling a pond, moving and bending in the wind. The scale of the piece was initially important. By making a large piece, deliberately oversized, the concept became abstracted, avoiding direct comparisons with the theme and creating an ambiguity that would challenge and provoke. The bench was approximately two and half meters long and high, therefore dominated an

individual standing next to it and embracing a sitter, who feels partially enveloped by it. The experience therefore is no longer a passive or intellectual one normally associated with viewing a sculpture. The observer or sitter could have a tactile experience too: physical contact, not just through sitting is invited, touching and stroking the reeds is also a natural response. The round sinewy shapes of the "reeds" encourage contact. Other senses were also engaged, the natural fragrance of the cedar stimulates the smell. The relationship of each reed, the curve, angle and length were important in creating 'a sense of movement'<sup>672</sup>, a kinetic quality being created even though the piece is static.

The original concept ultimately transcends itself, the reeds are perceived by the viewer in many different ways. Sometimes, for example, they appeared to people as prehistoric or African elephants' tusks or as dramatic flames.

## **Exhibitions and critical comments**

"Pondlife" was first exhibited along with the two other sculptural pieces at the Henley Festival of Arts and Music (1998), where it received an enthusiastic response from the visitors. The following year, it was exhibited at another regional exhibition, Artspace 1999, where it was sold to the late George Harrison. "Pondlife" received wide editorial coverage: it was featured in *Furniture for the 21<sup>st</sup> Century*<sup>673</sup> and subsequently featured in *The Independent* where it was described as 'organic and wildly eccentric ... an example of new design meeting the buyers' need for something special'<sup>674</sup>. As a result of the article, a private client commissioned a version of the bench for their garden in Durham.

Another "Pondlife", in the form of a love seat or conversation seat, was produced as an exhibition piece in 1999. It was exhibited at the Chelsea Flower Show 2000 where it received television coverage on *Channel 4* and was selected by one of their presenters, Anne Marie

<sup>&</sup>lt;sup>672</sup> Oxford Channel News Night

<sup>&</sup>lt;sup>673</sup> B. Norbury, *Furniture for the 21<sup>st</sup> Century*, Stobart Davies, Hertford, 1999, p. 89

<sup>&</sup>lt;sup>674</sup> '21<sup>st</sup> Century Schizoid Man', *The Independent*, 8 January 2000

Powell, as one of the most outstanding products in the show, describing it as: 'absolutely beautiful' and 'totally organic in structure'<sup>675</sup>.

It was also exhibited at the Craftsmanship in the 21<sup>st</sup> Century exhibition, River and Rowing Museum, Henley-on-Thames in 2001. Here it was sold to a private client who had seen it featured in *House & Garden*. "Pondlife" has also been featured in other magazines including *Country Homes and Interiors*, *FX*, *Exotic Gardening* and *Garden Calendar*.

The level of media attention, public exposure and critical reception was an unprecedented experience for me. The concept caught the imagination of many people but interestingly the sales and commissions bore no relation to the publicity, which was generated by media attention rather than an orchestrated public relations plan. Three "Pondlife" benches were made, two speculatively and one to commission. One was sold through local exhibition and the other through national editorial features. Unlike a piece of art, the furniture was commercially priced and its cost calculated as a measure of the man hours it took each piece to produce. A small profit was the financial reward as well as the extensive publicity generated.

As a craftsman I wanted to develop the idea from a one-off (and subsequently limited edition) into a semi bespoke concept. My reasons were:

- I consider one-offs as the seed bed for generic ideas
- One offs are a high risk financial venture and are seldom sufficiently profitable to justify the risk and creative investment involved
- The level of feedback from the exhibitions indicated that the concept of "Pondlife" could be extended, particularly if the process of making could be simplified and systemised and the cost thus reduced

## 2. REDEFINING "Pondlife"

<sup>675</sup> Anne-Marie Powell, 'The Chelsea Flower Show 2000', Channel 4, 26 June 2000

The original one-off "Pondlife" used wide planks of seventy-five mm cedar of Lebanon, well air-dried. Both the seat and the reeds were cut from these planks. The unusually clean, knot-free timber provided a blank canvass on which to create the shapes of the reeds. These were subsequently cut out on a band saw and shaped using a drawer knife and spoke-shave. Each reed was wire brushed to create a textured surface and the base of each reed was treated with a dark stain preservative to create a graduated tone. The seat was cut out from a single plank. This method was adopted on the next two versions. However, the limitations of the timber became evident when the original cedar was used up. A new source had to be identified.

A second log was obtained from a Norfolk sawmill. This highlighted two problems with the timber. Firstly, cedar is an ornamental tree and generally found in parks and private gardens and is not readily available. It therefore *cannot* be relied upon as a regular local source for timber. The second problem with the timber is the characteristic large knots. These can be an attractive feature on large areas and make it suitable for the seat but they cause problems when creating the reeds, particularly the curved ones as the knots, if included, would weaken the reeds as well as interrupt the sinewy quality of them.

The original methods and materials worked well as a one-off. The methods were very labour intensive, particularly the wire brushing. Alternative techniques needed to be considered to reduce the man hours required to produce them. The timber for the reeds was also not suitable for a *semi-bespoke* approach; an alternative source had to be identified. The seat could be made from a number of durable timbers including sweet chestnut, oak and cedar. The ideal material for the seat was wide, sound boards that did not need jointing to obtain the required width.

#### New objectives

The new series of "Pondlife" fulfilled a set of objectives that were consistent with a more sustainable approach than the original series. The objectives were as follows:

• The timber was available locally and could be supplied on a long term basis

- Its exploitation would add value to the woodland
- It was a durable alternative to cedar of Lebanon
- It had good working characteristics
- It had good aesthetic qualities
- The methods and materials used should be less labour intensive and thereby reduce the cost
- The design was to develop the original concept from a series of designs into a more accessible and affordable range without compromising the integrity of the idea
- The designs could be produced on a semi-bespoke basis
- The designs would be suitable for garden and interior use

The first objective was met following consultations with a woodland manager and David Rees, the Oxfordshire Woodland Project Manager. Sweet chestnut thinnings were recommended as a suitable timber for the reeds. Mature trees are subject to ring shake<sup>676</sup>. However, thinnings are not subject to the same problem and were known to grow in the South Oxfordshire area.

Sweet chestnut thinnings have a limited market and are unsuitable for firewood as it spits and sends sparks flying<sup>677</sup>. It is durable timber and therefore suitable for exterior use and, unlike oak, contains a small margin of non durable sapwood, being only about three years of growth<sup>678</sup>. Depending on the rate of annual growth this is only likely to be between ten and fifteen mm, increasing the potential yield of the durable heartwood. It has mild working characteristics compared to the tougher oak; an important characteristic when using hand tools.

The wood also had to have good aesthetic qualities. As a ring porous hardwood, sweet chestnut produces a distinctive figure caused by the demarcation between the fast grown spring growth and the slow grown summer growth. This figure could be enhanced in the shaping of

<sup>&</sup>lt;sup>676</sup> J. White, *Forest and Woodland Trees in Great Britain*, Oxford University Press, Oxford, 1995, p. 53

<sup>&</sup>lt;sup>677</sup> White, Forest and Woodland, p. 52-54

<sup>&</sup>lt;sup>678</sup> M. Abbot, *Green Woodwork*, Guild of Master Craftsmen Publishers, Lewes, 1989, p. 26

the reeds. The colour, similar to oak, is a warm light brown, similar to cedar, the latter having a pale orange hue like yew.

#### New designs

New versions were developed through tentative sketches but explored and developed through 1:5 models (Fig 1a/b/c). Five models were produced at Art in Action (18-21 July 2002) from which two were chosen as the basis of the two new seats, "Pondlife" 4 and 5 (Fig 1d). The designs were a non identical pair, i.e. the seats were made as a matching pair but the configuration of the reeds while being similar had their own distinct form. The individuality of each bench is also enhanced by the distinctiveness of each reed; no two reeds are the same as the shaping process makes each one unique.

The designs were a conscious effort to produce a more affordable version without compromising the integrity of the concept. The maximum height was reduced to 220 cm from 240 cm and from 240 cm wide to 120 cm, effectively a two-seater bench. The aim was to produce each bench in 60 hours compared with 160 hours for the original. Achieving or approaching this objective would be considered progress towards creating a *semi-bespoke* range.

#### New methods

Having identified sweet chestnut thinnings as a feasible alternative to airdried cedar, new methods had to be considered. The sweet chestnut thinnings were freshly felled and therefore green when they arrived at the workshop. They were stored in an open ended store, the ends exposed to direct light. As agreed with the forester they were cut into two halves along the length to make the subsequent processes of shaping within the capability of the workshop band saw.

My trial sawing and shaping of the sample demonstrated that the green sweet chestnut thinnings had very good working characteristics. It band-sawed and planed well and could be shaped easily with a spoke-shave and chisel. In fact, these techniques worked better than on dry timber; my observation was the high moisture content acted as a lubricant improving the sawing cutting actions. The use of the drawer knife was more difficult than on dry cedar. The fibrous quality of the timber

combined with the high moisture content of the wood probably caused the wood chips to remain supple and therefore resistant to the action of the drawer knife. It also sanded well, using up to 320 grit silicon carbide; less wood dust was generated than with dry timber.

A significant development in the approach was to use green timber rather than dry timber as the raw material. Using green timber has to address the necessary principles of timber drying. Timber will dry until it reaches equilibrium with the relative humidity. Outside, this will reach 15 to 20 per cent in the summer rising again in the winter. Green timber is generally between 50 to 100+ per cent moisture content but shrinkage only occurs below fibre saturation point, between twenty-five and thirty per cent moisture content, when the fibres themselves contract as they dry. The concept behind this innovation involved a number of considerations:

- The traditional method of drying 75 mm planks takes four to five years before the wood can be used for the reeds
- Making the reeds from green wood enabled the wood to dry out in its finished shape. This would accelerate the drying process as moisture would have a greater surface area to evaporate from as well as only the distance of the radius of the "reed" (i.e. between 50 mm at the base and 5 mm at the tip)
- The reeds would therefore reach an equilibrium moisture content more quickly as they got narrower
- Shrinkage and any distortion was not going to be detrimental to the appearance of the design
- Splitting along the grain is, however, a potential problem although the quartering of the logs would minimise this problem

The original method of using a halving joint to locate the reeds to the seat was considered the most appropriate secured by a 150 mm coach screw. The reeds were to be attached to a 75 mm thick shaped slab made from air-dried cedar. Shrinkage in the reeds would have the effect of tightening the joint as the fibres contract longitudinally as well as transversely.

The main potential advantage of this method was that it enabled the benches to be produced for outdoor use on a *semi-bespoke* basis at any time. The potential problem is that splitting may produce an unacceptable level of reject reeds that have to be replaced. Checking is a potential problem at the base of the reed. This is the widest part at 68 to 115 mm and is prone to checking because the rapid evaporation of moisture through the end fibres can rupture, producing visible end checks. These can also extend to the face of the reeds causing splits. To minimise this possibility, rubber feet were to be bonded to the ends with a water resistant contact adhesive. This would seal the ends preventing rapid drying as well as create a damp proof membrane preventing absorption of moisture if located outside.

# 3. THE PROCESS

#### Selection

Before felling commenced criteria were established to guide the selection process. Curved lengths were preferable to straight ones and a minimal number of knots and branches were to be included (Fig 2a/b).

### Initial conversion

- After the felling, each thinning is cut into two halves along the length at the woodland sawmill (this is beyond the capacity of the workshop band saw). The curvature is preserved during the cutting, creating two, more or less, book-matched pairs, resembling a split banana (Fig 3). The thinnings are delivered to the workshop and stored in an open ended timber store until required.
- Suitable thinnings are selected for "Pondlife" 4 and 5.

#### Forming the reeds

- Each split thinning is quartered using the workshop band saw to produce two or more lengths. Each thinning produces between four and six full lengths depending on the width of the log
- The lengths are subdivided to produce shorter reeds between 90 cm and 160 cm with a maximum length at 220 cm

- The quartered length is then "squared" and contoured into the rough shape on the band saw. The reeds are shaped and tapered to maximise the contour (Fig 4 and 5)
- The square section is reshaped on the band saw into an octagonal section (Fig 6). The reeds are then smoothed by a hand held electrical planer
- Each reed is "cleaned up" by using a spoke-shave, removing the planer and tear marks caused by the planer and given its final shape (Fig 7a/b and 8)
- The reeds are then sanded using an electrical orbital sander to produce a smooth blemish free surface (Fig 9)
- Every reed is finally hand sanded using 150 through to 320 grit silicon carbide

# Shaping the seat

- The seat blanks are cut out from 75 mm thick cedar of Lebanon
- The seats are shaped on the spindle moulder using an 18 mm MDF template
- The front edge of the seat is profiled with a shallow chamfer using hand tools (rasp and spoke-shave)
- The seats are sanded to 320 grit

# Fixing the reeds to the seat

- Each reed is positioned on the seat using the model as a guide (Fig 10a/b)
- Once a position and angle is determined, a housing joint is marked out by hand
- Each housing is cut out using hand tools (tenon saw and chisel) (Fig 11)
- When all the 'reeds' have been fitted on the seat one is predrilled through to the seat to take a 15 cm coach screw (Fig 12)
- Each reed is secured with a coach screw
- The height of each reed is adjusted for balance and proportion

# Finishing

• The tips are carved to a round shape

- The base of the reeds are cut to even lengths and chamfered
- The bench is dismantled for oiling
- The reeds and seat are finished with hand applied teak oil, one application every 24 hours; a total of three coats applied (Fig 13a/b)
- An individually shaped rubber foot is glue to the base of each reed

#### 4. CONCLUSION

In conclusion it can be seen that "Pondlife" 4 and 5 have demonstrated that the original one-off design can be successfully adapted and aligned to a more sustainable approach in terms of timber utilisation method and cost without compromising the integrity of the concept. One of the most important objectives was to be able to source timber locally which was also available on a long term basis; this had been achieved. Another important objective was that the timber added value to the woodland. Straight sweet chestnut thinnings were already being converted to small beams that were sold for fire place mantles, providing a more economical alternative to oak. My requirement was for the most misshapen thinnings which would not have been suitable for beams that had to be straight. A new market was therefore created for a waste product.

The timber is known to be durable, like oak and therefore suitable for exterior use and when pre-dried can be used in interiors. It has an exceptionally small margin of non durable sapwood, compared to most hardwoods thinnings which make its utilization economical in terms of yield and waste. The distinctive figure in the grain produced attractive markings emphasized by the carved contours of the reeds. The warm light brown colour also added to the aesthetic quality.

The original methods had to be adapted for working in green wood. The new designs had to use more efficient methods to shape the reeds to reduce the man hours. The rough shaping on the band saw remained the most effective method for the preparatory work. The use of the drawer knife proved unsatisfactory for reasons explained. This problem led to the use of a small hand held electric planer to clean the saw marks and shape the reeds into a smoother form. The final shaping still used a spoke-shave. Although the methods were adapted to using green wood, there were no other problems working green wood, in fact, as discussed, the wetness of the wood seems to act as a lubricant improving the working characteristics including sanding.

The design was, however, modified to adapt to the material, the curves on the reeds had to be restricted to the width of the radius of the thinnings between 10 and 15 cm; but as the thinnings themselves were bowed or irregular, the curve over the full length of each reed could be significantly more than the width of the wood available. The thinnings achieved their greatest curvature the taller they were (max 250 cm) but this feature could not be fully developed as the new design only had a maximum height of 210 cm and most of the reeds were between 90 and 160 cm.

Designs 4 and 5 have demonstrated that the original concept can be developed as a more accessible and affordable range. The man hours of the original three at 155 to 160 hours each meant they had to be priced on a cost plus basis that made them a very exclusive product afforded by the wealthy; however, the media coverage proved they had a wider public appeal.

"Pondlife" 4 and 5 were produced in a total of 106<sup>1</sup>/<sub>2</sub> hours and were exhibited at the *Celebration of Craftsmanship*, Cheltenham 17 - 25 August 2002 where they were both sold to a client. What was evident, however, was that while a public exhibition is very good for promoting a product it is an inadequate forum for informing potential commissioners about the process and philosophy behind the "Signed & Sealed" furniture concept.

These two designs were produced for the Cheltenham exhibition having been planned earlier in the year but the terms of the exhibition imposed limitations on what could be produced. It is now possible to consider designs that could form the basis of a "Signed & Sealed" range, including designs 4 and 5.

The two benches were located in their new home at the beginning of September 2002. A schedule to monitor their condition was negotiated with the clients. This has provided a valuable experience in observing how the green wood behaves over the next 12 months and beyond (Fig 14a/b/c/d/e).

#### 5. FURTHER DEVELOPMENTS

In addition to developing a range of furniture further consideration needs to be given to refine the processes.

The half round logs *cannot* dry efficiently until they are quartered. In the half round, the exposed ends are subject to splits caused by premature drying. At this stage a system has not yet been devised to process these logs into more manageable sizes which can be air-dried in preparation for commissions. The more the thinnings are reduced to the final shape, the quicker the wood will dry. The band sawing can remove about ninety per cent of the waste but as it is only an operation that takes fifteen to twenty per cent of the total man hours it would be logical to do this at the earliest feasible stage to maximise the drying time. This raises the issue of what size and shape the reeds should be prepared in anticipation of future requirements. Using measurements from models and "Pondlife" 4 and 5 it should be possible to calculate the approximate average lengths needed, allowing a tolerance for adapting each reed to its final position. This method would ensure a ready stock of air-dried roughly shaped reeds that could be used in the selection of each semibespoke bench.

The workshop band saw has worked at its capacity to quarter the logs. In line with general workshop needs a more powerful one will be purchased in the near future which will be able to cope with the demands of this work. The electric planer was very useful but an electric compass planer, which is on the market, might prove to be more effective. This will be investigated.

Cleaving was attempted as a method of quartering the logs but without success. This is a method that deserves more research as it could be particularly useful when thinnings are too large to be removed from woodland. The ability to reduce a thinning into four quartered sections whilst in the woodland would make handling and transport very manageable. Cleaving is best done using straight butts as curved ones tend to shear<sup>679</sup>. The aesthetic limitations of straight lengths could be overcome by steam bending.

Steam bending is not only a well known technique for introducing curves into straight pieces of wood; it also accelerates the drying process by heating the water in the wood. It will reduce the wood from twenty-five to ten per cent moisture content in about two weeks<sup>680</sup>. It is therefore a technique that could be adapted for adding curves to the reeds and drying them to a moisture content suitable for interior use.

The use of teak oil was a tentative trial on green wood. Although the wood does not need any finish to seal it from the elements, many clients want to preserve the colour produced by an oil finish or varnish. Under exterior conditions this will deteriorate and a silvery grey patina, the natural self protective finish, will develop. This is preferred by some clients who enjoy natural processes dictating the character and aging of the wood. For those clients who prefer to preserve the original colour achieved through oiling, a long term solution still has to be found.

# 6. DIARY

# <u>19 October 2001 – Bagley Wood, Boars Hill, Oxford (owned by St John</u> <u>College, University of Oxford)</u>

I visited Bagley Wood to discuss the feasibility of using sweet chestnut thinnings to create a new series of "Pondlife" benches. Philip Dawling, the forester, took me to a mixed broad leaf area where sweet chestnut had grown to a diameter of 18 cm (7 inches) and more. Philip advised me he would be thinning the area within the following twelve months and there would be potential to meet my requirements of 50 lengths of 240 cm long. It would also be possible to band saw the lengths into half sections on the estate sawmill; these could be delivered to my workshop. 50 lengths would produce up to 200 'reeds', sufficient to make 7 original "Pondlife" benches (each one requires 27 lengths between 150 cm and 240 cm long).

#### Potential problems

<sup>&</sup>lt;sup>679</sup> M. Abbot, *Green Woodwork*, Guild of Master Craftsmen Publishers, Lewes, 1989, p. 84

<sup>&</sup>lt;sup>680</sup> P. Hayden and D. Colwell, 'Steam Powered Bends', *Good Woodworking*, September 2001, Issue 112, p. 43-44

Knots appear in the butts at about 1 meter intervals which could make the timber unsuitable for steam bending, a technique which could be used to introduce greater curvature into the reeds than could be achieved by shaping on the band saw. The knots would also make riving difficult. It may only be possible to do this with a mechanical rive. The most feasible option of reducing the timber into quarters is probably band sawing.

#### Advantages

The heartwood is very durable. On inspection of some butts in the estate yard, sapwood was only about twelve mm.

#### Further availability

Philip Dawling advised me that the College owned another managed woodland in Shiplake, near Henley-on-Thames where sweet chestnut was grown. This could be a source if more timber was required in the future.

#### <u>Cost</u>

I was advised that cost would be based on the square sectioned (6" x 4" x 75") beams that are cut from the straight thinnings and sold as decorative beams.

### <u>Trial</u>

One of these beams was bought to experiment with, to test its working characteristics and suitability for the curved reeds. The timber had been stored in an open fronted shed where it had been air drying for about a year. I tested the wood with a moisture content meter, it ranged from 18 to 20 per cent moisture content on the surface to 40 to 50 per cent moisture content in the centre. The beam was taken to the workshop where I was able to form two reeds using the band saw, drawer knife and spoke shave. Contacted Bagley Sawmill who agreed to bandsaw a butt, to be collected by me.

### 8 November 2001

One split sweet chestnut butt collected by me from Bagley Sawmill and delivered to Wheelers Barn Workshop, Checkendon.

### 6 December 2001

The 2 lengths were successfully re-sawn on the workshop band saw, producing a total of 6 pieces suitable for making reeds (rather than the 4 planned).

### 10 December 2001

An order for 20 sweet chestnut butts was placed with Bagley Sawmill on 10 December 2001. Each butt was charged at £14 including sawmilling and delivery to the workshop. Each butt was to be cut in half to form 2 half round sections. Delivery was to be in mid January 2002.

# 17 January 2002 – Delivery

As planned, the butts were delivered. Philip Dawling rang to advise me he was anxious that the quality of the butts may be less than I was expecting. He was therefore increasing the number from 20 to 23 to compensate.

# 9/10 July 2002

Sketched ideas for new "Pondlife" designs. Prepared materials for models.

# <u>18 – 21 July 2002 (Art in Action, Oxford)</u>

Produced a series of 5 models over the four day demonstration. Selected designs for "Pondlife" 4 and 5.

### 25/26 July 2002

Marked out template for the seats. Calculated lengths of reeds based on model.

	Workshop	Productive
<u>Hours</u>		
Selected cedar for the seat (PK)		4
Machined and profiled 2 seats (RB)		7
<u>29 July 2002</u>		
Completed band sawing of 41 reeds (PK)		7
Commenced cleaning up, completed 7 1/2 reed	s (RB)	8 1/2
<u>30 July 2002</u>		
Cleaned up 5 reeds, fitted 6 reeds (PK)		5 1⁄2
Cleaned up 18 1/2 reeds (RB)		8
<u>31 July 2002</u>		
Fitted 24 reeds (PK)		8

Cleaned up 9 ½ reeds (RB)	8
<u>1 August 2002</u>	
Fitted 8 remaining reeds (total 38) (PK)	6 1⁄2
Cleaned up remaining reeds, sanded 10 (RB)	8

# 2 August 2002

Completed sanding, final shaping. Cut feet to length; applied first coat of teak oil

(PK)	8 ¼
(RB)	9
(SS)	6 ¼
<u>5 August 2002</u>	
Applied 2 <sup>nd</sup> coat of linseed oil (SS)	1 ¼
<u>6 august 2002</u>	
Applied 3 <sup>rd</sup> coat of teak oil (SS)	1 1⁄2
<u>12 August 2002</u>	
Shaped and fitted rubber feet (PK)	5 ¾
<u>13 August 2002</u>	
Final fitting of reeds; completed assembly (PK)	4
Celebration of Craftsmanship, Cheltenham 16 -25 august 2	2002

14 august 2002

Delivered "Pondlife" benches to exhibition

16 August 2002

Sold "Pondlife" benches 4 and 5 to clients in Evesham

25 August 2002

Collected and dismantled "Pondlife" benches from Cheltenham and returned them to the workshop (clients on holiday).

# 8 September 2002

Delivered the benches to clients in Evesham. Assembled benches in garden. Discussed with clients care and maintenance. Clients preferred wood to develop a patina of natural silver colour and agreed to store benches in barn. I advised them that I would inspect the benches to check on their condition and, if necessary, replace faulty reeds.

# Summary of design and production

		Hours
ig	n and model making	19 ¾
dι	iction	
1.	Prepare seat templates	
	Select cedar of Lebanon for seats	
	Shape jig for shaping seats	
	Machine seats	11
2.	Band saw reeds	7
3.	Shaping and sanding reeds	
	Cut to finished length	56 ½
4.	Fit reeds to seat	17 ½
5.	Apply 3 coats of oil	4 <sup>3</sup> ⁄4
6.	Shape and fit rubber feet	5 <sup>3</sup> ⁄4
7.	Assemble	4
То	tal man hours to make Pondlife 4 and 5	<b>106</b> ½
	erage man hours per Pondlife	
Αv	erage mail nours per Fondine	53 ¼
	erage main nours per Ponume	53 ¼ £
Cc		£
Cc Sv	est of materials	£ 74.02
Cc Sw Ce	eet chestnut butts@ 4.5 @ £16.45 per butt	£
Cc Sw Ce Cc	est of materials veet chestnut butts@ 4.5 @ £16.45 per butt dar of Lebanon: 6 cu ft @ 17.50 per cu ft	<b>£</b> 74.02 105.00
Cc Sw Cc Ru	est of materials veet chestnut butts@ 4.5 @ £16.45 per butt dar of Lebanon: 6 cu ft @ 17.50 per cu ft ach screws: 38 @ 73 pence each	£ 74.02 105.00 27.74 23.50
Cc Sw Cc Cc Ru Te	est of materials veet chestnut butts@ 4.5 @ £16.45 per butt dar of Lebanon: 6 cu ft @ 17.50 per cu ft ach screws: 38 @ 73 pence each bber	£ 74.02 105.00 27.74 23.50
Cc Sw Cc Ru Te Sc	est of materials veet chestnut butts@ 4.5 @ £16.45 per butt dar of Lebanon: 6 cu ft @ 17.50 per cu ft ach screws: 38 @ 73 pence each bber ak oil	£ 74.02 105.00 27.74 23.50 10.40

# 7. ILLUSTRATIONS

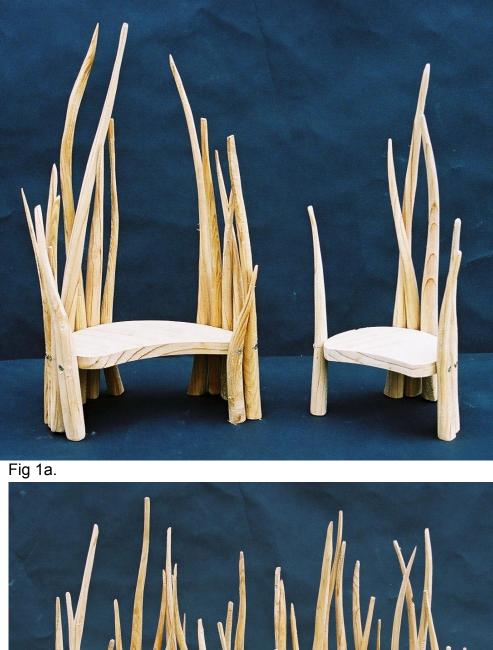






Fig 1c. Another model for the proposed "Signed & Sealed" range



Fig 1d. "Pondlife" no. 5



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Fig 2a.
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Fig 2b.

Fig 2a/b. Selecting sweet chestnut thinnings from Bagley Woods, Oxford



Fig 3. Split logs ready for band sawing



Fig 4. This split log has been quartered and "eighted"!



Fig 5. Reeds are "squared" and contoured in a rough shape on the band saw



Fig 6. The sections are reshaped into octagonal sections



Fig 7a.



Fig 7b.

Fig 7a/b. "Cleaning up": removing band saw and planer marks using a spoke shave



Fig 8. Shaped reeds



Fig 9. Sanding reeds using an electrical orbital sander



Fig 10a. Positioning the reeds



Fig 10b. The model is used as a guide



Fig 11. Housing joints are cut



Fig 12. Reeds are positioned and pre-drilled



Fig 13a. Oiled seat



Fig 13b. Oiled reeds



Fig 14a. "Pondlife" benches in their outdoor position



Fig 14b.

Fig 14a/b. "Pondlife" numbers 4 and 5 inspected in October 2003 after fourteen months of outdoor exposure



Fig 14c. Detail of finish after fourteen months revealing slight tannin staining after exposure



Fig 14d. The surfaces of these reeds were against the barn wall and therefore less exposed to the weather; no staining took place



Fig 14e. Reeds re-oiled after fourteen months

# APPENDIX II

# TECHNIQUES TO ADD AESTHETIC VALUE TO BEECH TO IMPROVE ITS MARKETABILITY AS A RAW MATERIAL, AND IN FINISHED PRODUCT DESIGN

# Philip Koomen, FCSD, FRSA, AlWSc Adam Dawson, BSc (Agro Forestry)

The paper is divided into three parts.

# Part 1

A literature review of published research of techniques for adding value to beech, including:

- A review of published research into conditions needed for optimising spalting and other fungal staining of beech
- The various commercial methods of staining and preservation are summarized
- The causes of coloured heartwood and its physical properties are described
- The problems associated with storing in the round are discussed and the various methods to minimise discolouration are summarised
- The problems and causes of discolouration in storage, kiln drying and steamed beech are outlined and practical guidance to overcome them are described
- Improvement of tree yield of Chilterns beech as a brand is discussed
- Conclusion and discussion

# Part 2

- A summary of properties and processing characteristics of beech
- Practical insights on hand working and finishing are also included
- Conclusion and discussion

# Furniture designs in beech

Three furniture designs: the plank chair, made from a single board of beech, which was used as a 'canvas' to demonstrate various finishing

techniques, and two tables in spalted beech have been produced to explore the aesthetic characteristics of the timber. The concepts, techniques and costings are described in this section.

### Part 3

- The use of polyethylene glycol and its application in stabilising beech is outlined
- The method and merits of diffusion impregnation of end grain slabs of spalted beech are described and the results assessed
- Conclusion and discussion

# INTRODUCTION

Beech (*Fagus sylvatica*) is considered; boring, unstable and non-durable. These platitudes have led to the under-valuing of beech timber. Although these criticisms seem well founded, they are not insurmountable.

Aesthetic value is subjective, and is therefore reliant on an individual's knowledge and perception. The three points listed above are well known within the timber using industries, but do not necessarily reflect the knowledge, or perceptions of the general public. Before the timber producers, wood product designers and makers can capture any value added to beech wood, it will be necessary for them to value it; to celebrate its unique technical properties, and design to maximise upon them. However, beech's popularity and market share has declined steadily in the UK; its falling price shows no signs of abating (Ingram in Render, 2001). Popularity is conditioned by the ephemeral trends of fashion. Beech is currently in great demand in Germany where its 'boring' guality is celebrated; oak, by contrast, is considered rustic. Despite beech's unpopularity in the UK, composite board products are covered in a laminated paper foil with a beech print, so it seems the public is not averse to its appearance.

"Beech is the best wood in the world for making chairs," according to Danish furniture makers. A sentiment that Michael Thonet would have wholeheartedly endorsed. He went from being an itinerant tradesman without financial means, to setting up one of the most successful furniture factories of all time, based on the use of steam bent beech. He demonstrated its strength, flexibility and utility with designs ranging from the consumer chair, which sold over 50 million, to the tortuously spiralled exhibition chair.

Beech has been relegated to the poor relation, its variability and difficult properties have made it an unattractive proposition for wood users leaving it an underutilised resource and its potential ignored. Its so called deficiencies may provide possibilities for product development.

Under certain circumstances, the heartwood of beech can develop 'interesting' red hues, which ironically causes it to be down-graded, despite experimental results that show little change in its properties. The homogenous, light appearance of 'white' beech makes it an ideal 'blank canvas' for the application of colours or patterns. Its movement in response to moisture content can be stabilised to levels equivalent to oak, (*Quercus* sp.) by impregnation with polymers. The durability of the timber can be increased by treatment with wood preservatives in the same way that softwoods are as a matter of course.

Taking a Ghandian approach that, "A problem is an opportunity in disguise," the negative properties associated with beech have provided the woodland industries with a cheap and abundant timber that has excellent properties for strength, flexibility and workability. Wood is the original plastic, and few woods are quite as plastic as beech. Its large movement could be used in applications where a swollen fit is desirable such as biscuit joints. Its lack of durability could be used to make disposable items that are readily bio-degradable, to meet the requirements of this consumer society.

#### BACKGROUND

This paper was prepared as part of collaboration between Philip Koomen, an established furniture designer-maker, based at Checkendon, South Oxfordshire and Adam Dawson, project facilitator at the Hardwick Estate (owned by Sir Julian Rose). The aim of the collaboration is twofold. Firstly, to find ways of using beech, from the estate, in a range of marketable generic furniture designs that explores the physical and visual characteristics of the wood. The other complementary aim is to find ways to add value to a resource that has a low market value.

# <u> PART 1</u>

# A LITERATURE REVIEW OF PUBLISHED RESEARCH OF TECHNIQUES TO ADD AESTHETIC VALUE TO BEECH TO IMPROVE ITS MARKETABILITY AS A RAW MATERIAL, AND IN FINISHED PRODUCT DESIGN

# SPALTING

# What is it?

This is a widespread natural phenomenon occurring within the wood, caused by fungi. Revealed by cutting or splitting, it is characterised by a mosaic of light and dark areas of wood divided by dark brown or black lines. These dark lines are variously called; "barrages," "aversion phenomena", "interaction zones", "lines of demarcation." They are caused by intra-specific antagonism between wood decaying basidiomycetes from different origins (Rayner & Todd, 1979). To put it another way, fungi derived from spores from the same parent create a barrier of mycelium to prevent their genetically similar siblings from invading their space. Along the lines of contact, there are clear zones containing few hyphae flanked by dense mycelium, later becoming pigmented, dark brown or black. It is thought to be a mechanism to prevent the gene pool being reduced by inbreeding rather than cross breeding. (Todd & Rayner 1979)

# Can it be encouraged?

The main species involved are: *Bjerkandera adusta, Coriolus versicolor, Hypholoma fasiculare* (sulphur tuft, although few zone lines), *Hypoxylon fragiforme, Phlebia radiata, Stereum hirsutum, Tricholomopsis platyphylla,* and *Xylaria hypoxylon* (from observation and Rayner & Todd, 1979). There is evidence that some of these species can be cultured on nutrient agar (IRG 1976), and inoculated into wood, although no research into using this technique to create spalting was found. Once in the wood, the fungus will benefit from increased temperatures and humidity levels. *C. versicolor* was incubated at  $22^{\circ}$ C and 75% relative humidity (Karimi et al. 1998), rapid colonisation also occurred under greenhouse conditions in the *UK* (Deon & Trong, 1984).

As the species are common and native to British woodlands, it is unlikely that significant advantages can be gained by manual inoculation or modifying the environment. Simply stacking the logs in the woods prior to conversion, in the presence of wood displaying fruiting bodies, should be adequate to ensure high levels of spalting. The advantage of controlling the process would be to stop it before the structural properties were adversely affected. This could also be achieved using ultrasonic equipment to monitor the progress of decay within the timber, such equipment is used by tree surgeons to assess tree health (Gammie, 2002).

Other fungi; *Pycnoporus sanguineus* (orange colour) (Reinprecht et al., 1997) and *Chlorosplenium aeruginascens* (turquoise colour traditionally used in Tunbridge ware) (Phillips, 1981) also show potential for adding interest to beech timber.

#### STAINING AND PRESERVATION

This subject is broken down here into intentional treatments and natural staining, the latter is then divided into pre and post conversion stain development.

Top grade beech wood has a uniform light appearance and high porosity that lends itself well to colour treatments. In this way it can be stained to imitate more valuable timbers such as mahogany or walnut. Treatments can be applied under heat and pressure, by pressure, by soaking or by surface application. The use of solvent rather than water-based products, and pressure treatments offer increased penetration, and improved preservative performance.

Kusnirskaja, Glejzerova and Kostjucenko (1964) and Cimbanenko et al. (1952, 1956), describe the process of using an autoclave and metal salts to affect a deep penetration of dye into beech wood. Roux et al.(1988)

compared beech with Norway spruce, Scots pine, Douglas fir and red meranti, under 4 treatments at 4 locations over a 24 month period. The treatments were: (a) impregnating stain, (b) film forming stain, (c) pigmented acrylic latex paint and (d) pigmented alkyd paint (solvent based). Weathering was uniform in a, beech performed better than pine but worse than the other samples to b, and c and d showed little weathering after 2 years, although d offered greater dimensional stability. Behr (1967), compared the penetration into beech wood of solvent and water based preservatives. The water-based preservatives (e.g. ZnC12) were not considered to penetrate adequately. This apparently contradicts his earlier work (Behr, 1963), recommending ZnC12 and creosote as preservatives for beech railway sleepers, although it is not clear whether he intended the treatments to be applied under pressure to increase their penetration. Impregnation with creosote using the improved Ruping process is recommended for penetration.

### **COLOURED HEARTWOOD**

The formation of red heartwood in beech has been the subject of much international research, and debate. Coloured heartwood is generally considered to be an inferior product and continues to attract a low price, despite well funded marketing campaigns, particularly in Switzerland and Germany (Seeling 1998). Although, "In countries where beech is not endemic, the lively and contrasting patterns created by coloured heartwood are much more appreciated than in countries where beech is grown and timber produced." (Gfeller, 1998) Scientific evaluation has demonstrated that its properties do not greatly differ from white heartwood, when the colouration is due to abiotic causes.

#### How does it happen?

Coloured heartwood is induced by cell moisture being replaced by oxygen in living trees, leading to oxidation and the formation of tyloses, followed by the invasion of saprophytic fungi. The stage of progression through this process seems to determine the type and extent of coloured heartwood. Its presence can be detected, non-destructively, by measuring the electrical resistance of the wood of standing trees (Weihs et al. 1999); air filled cavities having higher resistance than moisture filled cavities. A simpler indicator is the presence of rough bark (Sheldon 2001). This is supported by Bosshard (1965) who links the natural, non-pathological phenomenon of beech bark splitting down to the cambium, with the facultative formation of coloured heartwood.

Many other factors have been investigated in relation to the induction of coloured heartwood formation, including:

- Age, (Zycha, 1948; Von Buren, 1998) atmospheric oxygen being drawn in through dead branches, the critical moisture content of 60% being reached at about 80 years depending on site and climate.
- Diameter at breast height, (Howeke, 1998; Rieder, 1997) found to be a more significant factor representing coloured heartwood formation than average stand age.
- Scars and injuries, (Von Buren, 1998; Karadzic, 1981; Winterfeld, 1956; Zycha, 1948) so called 'chinese beards,' broken branches, pruning scars and injuries to the stem base. All acted as entry points for atmospheric oxygen and fungal infection.
- Crown characteristics, (Torelli, 1974) vigorous trees with well developed crowns have a more favourable water: gas ratio, probably linked to healthy parenchyma cells, and thus inhibition of red heart development. Bosshard (1965) found no correlation to stand structure or storey.
- Climate, (Necesany, 1956; Larsen 1943; Zycha 1948) damage to bark occurring under the influence of wide temperature fluctuations in the boles of leafless trees under clear winter skies. 'Frost heart' boundaries were found to coincide with growth rings formed in years of severe frost. Bosshard (1965) found no correlation to weather, exposure or site.
- Biotic toxins, (Raunecker, 1956) from micro organisms (e.g. mycorrhizae) due to osmotic disturbances caused by reductions in moisture content.

- Saprophytic fungi (Karadzic, 1981; Sacre, 1966; Necessany, 1956) leading to classification of coloured heartwood according to its appearance, apparent cause and structural soundness.
- Rich soils/poor soils, (Raunecker, 1956; Milner, 1992) No connection was found with Fe or Ca content, but glucose content (prevalent on poor sites) was associated with the tendency to form red heart.

Coloured heartwood was found mainly in the first 6 - 10 metres of tree length. Theoretical calculations of log size and value lost, due to coloured heartwood, (Howeke, 1998; Von Buren, 1998) showed that the best returns were within the DBH class 60 to 69cm. "Accordingly, the conventional managerial aim of producing as much stem wood as possible in large dimension trees should be reconsidered." (Rieder, 1997) Prevention through conservation of mild humus by using species mixtures on less suitable sites, regenerating in groups, and a thinning system promoting cylindrical stem form are advocated (Raunecker 1956).

### Does it affect the timber properties?

In bending tests on over 1000 samples of white and red wood of Rumanian beech, in 5 to 25mm thicknesses showed a similar number of breakage failures. The appearance of finished chairs of (b) was judged satisfactory (Kopp, 1970).

Wobst found no differences between red heartwood and inner sapwood, for tangential and radial shrinkage or compression strength. The static modulus of elasticity was slightly lower in the heartwood; longitudinal shrinkage and impact strength were considerably lower. Tests for volume shrinkage, bending strength and strength in tension did not give clear results (Wobst, 1967).

Danish long term test, sleepers with high coloured heartwood content just as good after 14 years as those with <30% heartwood, treated with 125 creosote with a 140kg/m<sup>3</sup> retention.

The colonisation of fungal decay organisms was found to advanced faster in white heartwood and sapwood than in red heartwood (Hosli & Osusky, 1978). The stain fungi (echauffure) appeared to prevent subsequent attack by more virulent fungi (Sacre, 1966).

### STORAGE IN THE ROUND

Conventional practice is to fell trees for timber during the winter when the sap is down. Timber stored in the round for long periods is often prone to deterioration due to end checking and fungal invasion. In beech there are further problems due to the increased formation of coloured heartwood after felling. It was found that all forms of deterioration could be prevented by wet storage in ponds or under sprinklers. It is possible to store veneer quality logs for one year and retain wood quality (Moog, 1992). Moltsen compares storage in ponds, under sprinklers, in sawdust and wind-thrown with the roots left on. Ponds and sprinklers both gave good results for storage of up to two years, although there was increased fungal attack if the wood was not quickly dried after that. Ponds were expensive to construct and made handling difficult without a crane. Sawdust was satisfactory, storage with the roots led to blue stains throughout the wood. (Moltsen, 1970) End coating with paraffin wax to prevent discolouration and fungal invasion was also tried, and proved more successful if used in conjunction with fungicide application.

## DISCOLOURATION DURING CONVERSION

Beech wood is extremely prone to colour changes during seasoning. Light coloured wood darkens, and dark coloured wood fades. This techniques described here are more to prevent loss of value than to add value. Physiological reactions of living parenchyma cells are responsible for the discolouration of freshly-felled beech wood during storage. Furthermore discolouration can be caused by micro organisms, for instance mould fungi and bacteria, which affect the wood surface of inadequately stored beech wood are based essentially on chemical reactions of the cell wall components (lignin and hemicelluloses) and accessory compounds in the wood. These chemical reactions occur in the beech wood at a temperature above 40° C and a moisture content of 30% to

60%. The reactions (hydrolyses) are intensified by a decrease of the pH value during the drying process. Above a temperature of 80° C during the steaming process chemical reactions of the lignin molecule are induced causing the uniform, reddish colour of steamed beech wood. As soon as the specific reaction mechanisms and accessory compounds are identified, methods for their prevention such as the stabilisation of the pH-value can be developed. (Koch & Bauch, 2000)

To achieve the high value white coloured beech in Denmark, the leaves are left on after felling for 3-4 weeks. This speeds initial drying down to 50-60% moisture content. The colour deteriorates under high temperature artificial drying, but is preserved at temperatures below 30°C. (Moltesen, 1970)

At moisture contents grater than 25% and increased temperatures an oxidise reaction occurs. So it is desirable to pass the critical 25% moisture content as quickly as possible at a low temperature. Open-air drying is inadequate to achieve this, even if the stacks are roofed, so forced air drying was developed. Fans move air through the stacked timber at 1-2m/s. The critical 25% moisture content was achieved in 3-4 weeks with pieces 2"x 2" x 30". The forced air technique was refined by simple heating during humid periods (Knudsen, 1970). Contrary to these low temperature techniques, the oxidise reaction was found to be deactivated by heating to  $100^{\circ}$ C (Paserin, 1969). The drawback with any quick drying is that it leads to increased surface checking and wood movement. Impregnation with a solution of salt, reduced checking and fungal attack (Astaf'ev et al., 1959).

#### **RE-GRADING AND MARKETING**

Usable timber accounts for 63.7% of total beech wood removals, this can be increased

To 80 to 85% by intensive processing of logs for sawn wood, plywood, veneers, low grade assortments and wood residues in the manufacture of particle board and fibreboard.

Only normal beech was considered suitable for particle board manufacture, and even this was not completely satisfactory. Knotty wood

and wood with incipient deterioration impaired the board quality, especially as regards thickness swelling. (Karahasanovic, 1969) It may be that 'Chiltern beech' offers an environmental pedigree that consumers would be willing to favour, however this term makes timber users shudder, considering it inferior to the preferable European beech. The forestry commission found that local authorities and tourists were the most likely purchasers to associate value with a local product (Forestry Commission, 1994). They also suggest the co-operation of suppliers and organisations to centralise marketing, for sufficient quantities to meet the needs of industrial buyers.

#### **CONCLUSION AND DISCUSSION**

#### Spalted beech

Spalted beech can produce very dramatic markings in converted timber. The possibility of controlling spalting to add value by manual inoculation was researched but was inconclusive. The preferred method was to allow the unconverted logs to be left near wood displaying fruiting bodies where natural spalting would occur.

The aesthetic qualities of spalted beech are demonstrated by the low table and table bench (See photographs 1 and 2, Appendix). The dramatic effects achieved are the result of careful selection to achieve the effect. Wastage of timber may be high depending on the dimensional requirements of the piece of furniture being made. These designs were adapted in size to maximise the utilisation of the material available.

#### **Coloured heartwood**

Coloured heartwood in beech is detrimental to marketability and attracts a lower price. It does, however, have greater appeal outside the countries where it is not endemic; its distinctive patterns, particularly in veneer form, are considered an attractive decorative feature. The presence of a significant amount of low grade beech in the Chilterns is an opportunity to explore its possibilities in bespoke furniture making where diversity of features can be exploited for their decorative qualities. Unlike spalted beech, the strength properties of coloured heartwood are unaffected.

#### **Drying timber**

Preserving the colour of beech after felling requires careful management as it is critical to maximising its market value. Logs, if kept in the round for long periods, will degrade through checking and fungal infection. Logs can be preserved for up to 2 years if stored in ponds or under sprinklers but this is a costly method.

The problem of discolouration continues after the timber has been converted. The main cause is physiological reactions of living parenchyma; poor storage will also induce surface mould fungi and bacteria.

A reddish beech is achieved by steaming the boards at a temperature of 80° C. White beech is achieved by slowing down the drying initially at the felling stage by leaving the leaves on, followed by kilning at temperatures below 30° C. Discolouration *cannot* be avoided through air drying alone which is too slow to bring the moisture content below the critical 25% above which discolouration is more likely. Forced air drying techniques preserve colour but can lead to surface checking and wood movement.

#### Marketing bespoke furniture

The successful marketing of beech has been hampered by its perceived low quality within the timber trade. It is less clear if the public, when presented with products that have been designed to utilise beech, are equally dismissive of it. The three pieces produced for this research indicate that the public are very interested in their environmental heritage, particularly when they are presented with a well designed product.

These furniture designs celebrate the natural characteristics of low grade beech to create furniture that has a sense of place. By establishing the environmental provenance of the timber both the furniture maker and the customer/end user regain a connection with the origin of the material and their environmental heritage. This promotes an emotional or even a spiritual link that enriches the shared experience of the process of creating furniture as well as the enjoyment of using the end product in a domestic situation.

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## <u>PART 2</u>

# ASSESSMENT OF THE PHYSICAL PROPERTIES OF BEECH RELEVANT TO ITS USE IN FURNITURE MAKING

#### TIMBER PROPERTIES

**Appearance:** The grain is straight, fine and even textured with a distinctive growth ring figure on through and through cut boards. Quarter sawn boards produce a straight grain figure with a fleck pattern produced by exposing the medalury rays

**Colour:** Whitish to very pale brown, darkening on exposure to slightly reddish brown. The variability of colour presents a problem for selection of show wood where consistency of colour is required. The practice of steaming, common in south east Europe, changes the colour to pink or light red.

**Sapwood:** Not normally distinguishable from heartwood. As sapwood is normally considered a timber defect in furniture making, utilization is therefore significantly higher than oak or cherry which have a high proportion of sapwood.

**Weight:** Home grown beech is typically hard and dense, averages 720 kg/m<sup>3</sup> ( ${}^{45\text{lbs}}/{}_{\text{ft}}{}^3$ ) at 12% m.c. This is the same as home grown oak but more than cherry ( ${}^{38\text{lbs}}/{}_{\text{ft}}{}^3$ ) and sweet chestnut ( ${}^{34\text{lbs}}/{}_{\text{ft}}{}^3$ ).

**Strength properties:** Unseasoned beech are similar to oak but after seasoning it is about 20% superior to oak in most properties and about 40% more resistant to impact loads.

**Drying:** Dries fairly well and fairly rapidly but is a moderately refractory timber with a tendency to check split and warp. Shrinkage in drying is

very considerable. Green to 12 % m.c. is tangentially about 9.5%  $({}^{11}/_{8} {}^{in}/_{ft})$  and radially about 4.5%  $({}^{9}/_{16} {}^{in}/_{ft})$ .

**Movement:** The 100% + differential produces significant distortion in the drying process and any timber changes in relative humidity will cause further movement and distortion. This makes it less suitable for solid carcass work where wide boards are being used. However, the use of either quarter sawn or narrow jointed boards can reduce movement. The latter method is a technique that is used by German furniture makers, where beech has widespread use. Beech can be used for chair making and other internal joinery structures where sections are small and square-like, thus reducing the signs of distortion; but the design of the structure itself has to take into account the tendency of the wood to distort under varying ambient conditions. Stability can also be improved by sealing the wood with a range of finishes/polishes.

**Other properties:** Beech endures best underwater or in waterlogged soils, and was used for the piles under Winchester cathedral and Waterloo bridge (Grigson, 1960).

#### PROCESSING

#### Working properties

Density and working properties are variable according to local conditions of growth, provenance and drying.

Sawing: Tendency for the saw to bind when green timber is converted.

**Cross cutting:** Burning and tooth vibration possible with tougher material.

Narrow band sawing: Satisfactory.

**Machining:** Tendency to burn during drilling, otherwise all operations such as planing, shaping, etc. satisfactory. Cutting angle of 30% satisfactory in planing. Very good turning properties particularly when green.

Nailing: Preboring necessary.

Gluing: Good.

Handwork: Works well using hand tools producing clean, crisp forms and shapes. Hand tools must be kept very sharp to achieve a good finish<sup>681</sup>.

Wood bending: Steam bending properties exceptionally good. Pieces containing knots or irregular grain may also be bent successfully.

Sanding: Can be sanded to a fine smooth finish using silicone carbide paper using 320 grit<sup>682</sup>.

#### DURABILITY

**Insect attack:** Liable to attack by furniture beetle; sometimes attacked by pinhole borer. Sapwood is liable to attack by longhorn beetle.

Durability: Heartwood is perishable.

#### **FINISHES**

The techniques described below were demonstrated on the "Plank" chair, exhibited at the seminar (see photograph 3, Appendix).

Staining: Can be stained satisfactorily; often used as a substitute for oak and mahogany and other higher value species. This is often driven by the market price differential between these timbers and beech.

Ammonia application: A two coat application of diluted liquid ammonia produced a warm brown colour similar to oak.

Scorching: Blackens the wood but is difficult to maintain uniformity. The technique is suitable for creating unusual artistic effects.

Waxing: Using petroleum based microcrystalline wax ("Renaissance wax"), the natural colour of the wood, at least in the short term is preserved. The manufacturer claims this formulation preserves the natural colour unlike bees wax which tends to darken woods. The close grained finish, when sanded, produces a polished sheen with two applications of this wax.

Oiling: Oils tend to darken the wood more than other finishes, producing a golden tinge.

The effect of exposure to light on stained beech: White beech stained with a water soluble stain, after exposure to daylight for 6 months, will turn brown; a discoloured sample will turn a little lighter. A thin layer of

<sup>&</sup>lt;sup>681</sup> Philip Koomen Furniture Workshop<sup>682</sup> Philip Koomen Furniture Workshop

acid hardening lacquer will not protect the stains against the influence of light. Special lacquers with UV absorbers will improve the results<sup>683</sup>.

#### **CONCLUSION AND DISCUSSION**

## Properties and working characteristics

Beech timber has a high yield as there is no distinguishable sapwood; oak by comparison has 10 to 20% sapwood which has to be rejected in the selection stage. Beech is therefore a very economical timber to use both in yield and cost. Its strength properties are 20% superior to oak. This property has been ignored or forgotten by specifiers who have dismissed beech as a viable option for many applications. For example, it is the best timber for chairs and internal joinery where tenons are used; its resistance to compression produces a superior joint under force.

What *cannot* be ignored is its tendency to move, check splits and warp during drying. Differential movement is 100% from green to 12% M.C. producing considerable distortion. Any subsequent changes in humidity will also affect movement and distortion which can cause problems in furniture and joinery. A combination of skilful drying and well considered design can overcome this problem.

## **Staining and finishing**

Beech acts as a "blank canvas" and can be easily stained to imitate high value timbers such as walnut or rosewood. Solvent stains offer the best results with greater penetration than water based products.

The "Plank" chair demonstrates the use of waxing, oiling, scorching and ammonia to create different effects. The wax finish shows that the homogenous structure and consistency of the wood provides a superior substrate for a finish. The blandness of the timber can be used to advantage when contrasting it with a scorched effect or a darker wood such as the ebony inlay detail used in the chair.

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## FURNITURE DESIGNS IN BEECH

#### PLANK CHAIR

### Concept

The Plank chair (Fig 1, shown at end of this appendix) was conceived as an experimental design exploring the physical and visual characteristics of beech. Rather than impose a formal rectilinear or curvilinear design on the material, the design responds and adapts to the features and intrinsic qualities of the material. The homogeneity of the wood was also used as a "blank canvass" to explore different finishing techniques that might overcome the frequent accusation that it is bland.

The design attempts to redefine the chair as functional sculpture, retaining its domestic purpose as a dining chair but extending its visual qualities into sculpture. These qualities are derived from preserving the natural features of the material: knots, sapwood, splits, bark and waney edge (derived from the trees natural contour after the bark is removed). The features are articulated through the finishing methods that create a smooth faultless surface giving them an uncompromising prominence in the design.

The form is reduced to the absolute minimum and is derived from utilising the complete plank. The three elements: the front leg, seat and back are consecutive sections emphasising the chairs organic form and origin. Each section is aligned at 90% to each other. This formal arrangement is softened by the flexibility and resilience of the back which responds to the pressure of the sitter.

## **Construction methods**

The design avoids the use of traditional mortise and tenon chair making techniques, which would have been inappropriate, relying on the combination of the biscuit joint and the countersunk screw as the jointing method (each countersunk hole was plugged with end grain beech). A discrete bracket to strengthen and stabilise the back is located under the seat.

## **Finishing techniques**

The plank was planed to a uniform 20 mm thickness and sanded to a 320 grit. Outer edges were finished with a hand block plane before sanding, leaving the natural contour of the planks outer edges. Once the sanding was complete the following finishing techniques were tried out to assess their effectiveness in combination with beech.

#### Scorching

A blow torch was applied to one half of the back. This technique at its most intense charred the wood producing a black charcoal like dust which can get ingrained in the tight beech wood. When more lightly applied, a rich brown scorching was achieved. This was the first time I had used this method and found the process required vigilant control to avoid an uneven scorching effect. The method is, however, very quick. One problem, not anticipated, was the effect of scorching the wood on one side only caused pronounced cupping of the board.

#### Inlay

Ebony inlay was added as a whimsical detail. The inlay followed a scorched edge on the seat continuing to the front where it terminated at an ebony plug, simulating a paint drip.

#### Bleaching

A two pack application of ammonia and hydrogen peroxide was tried unsuccessfully. The first application of ammonia turned the beech to an attractive warm brown colour but the second application of hydrogen peroxide did not react with the ammonia to produce the bleaching. The probable reason being the hydrogen peroxide was instable and had lost its efficacy. The ammonia application however produced an attractive finish on the front leg.

## Waxing

Two applications of hand applied microcrystalline wax produced an attractive lustrous polish over the whole chair.

## Problems

Sticker marks, a recurring problem particularly in lighter woods, remained present even after the timber has been reduced from 34 mm to 20 mm. The worst of the marks were removed from one side for show wood leaving the more prominent ones on the least visible side. One benefit of attempting to remove the sticker marks was that the finished thickness, 5 mm less than planned, produced a lighter more resilient and comfortable design.

The 70% reduction in thickness produced slight cupping, probably caused by the moisture gradient in the core of the wood and the differential movement that is particularly characteristic of beech.

### Costs

It was not possible to obtain an accurate figure for producing the piece as the design and finishing were exploratory. I estimate a single chair would take between 12 and 15 hours, a set of six about 60 hours (10 hours per chair).

The cost of the beech, first quality, kiln-dried, 34 mm was £23.28 for 1.48 cu ft. the original chair was sold at the Artweeks workshop exhibition 2002 for £280 to a nineteen year old young woman. The price did not represent actual cost but perceived value.

## Conclusion

There are two areas to evaluate, firstly, the use of beech in the design and secondly, the effectiveness of the design and the possibilities of further developments in beech and other woods.

#### Beech as a material

Beech demonstrated its many outstanding characteristics as well as its particular drawbacks. Having no distinguishable sapwood the full width of the plank, after the removal of the bark could be used. The homogeneity of the wood provided an excellent canvass on which to experiment. The scorching in particular could produce interesting and dramatic effects but requires a controlled approach. The appearance of the chair, in my estimation, could have been improved if the scorching had been confined to highlighting the split rather than the one half of the back. A localised treatment would also have avoided the excessive cupping. The use of wide boards of beech is risky as the timber is very susceptible to movement. In this design movement was not going to have an adverse effect on either its appearance or construction although it does complicate assembly.

### Effectiveness of the design

The design has particular advantages in utilising local grown hardwoods and beech in particular:

- The abundance of beech in the Chilterns, declining market and falling value provide a plentiful resource for a simple low cost design
- Beech and other timbers such as ash and sycamore are available in log form without distinguishable sapwood and are ideal
- Mature trees of a 40 to 50 cm diameter will provide suitable material
- Suitable logs or trees can be identified in the woodland and verified as suitable in the conversion process
- Low grade timber with aesthetic appeal could potentially produce the most interesting effects
- The design can be made from relatively thin planks which can be air-dried for between twelve to fifteen months
- The drying can be shortened at any stage by artificial methods

## Further developments

The design has the potential to be produced on a made to order basis, as a single chair or as a set. Single chairs can be made from individual planks utilising random boards. Sets would be made from planks from the same log; these could be earmarked for the purpose.

The *semi-bespoke* nature of the design would relate to the selection of the log/tree or planks as well as how each plank would be used. If the wood was considered bland decorative treatments could be considered, including scorching or inlay.

#### TABLES IN SPALTED BEECH

The following two designs, bench/low table and coffee table, were conceived to provide a minimal rectilinear form to demonstrate the visual drama of spalted beech. Consideration was also given to simplicity and ease of construction to reduce the man hours involved.

### **BEECH/LOW TABLE**

The bench/low table (Fig 2, shown at end of this appendix) is reduced to three elements: a single piece top, chamfered on the underside edge; a pair of 'slab' legs and a bracing rail. The rail is aligned along the centre of the underside of the top, between the slab legs and provides structural support to them. The decorative ebony inlay plugs match the black of the dense mycelium, otherwise known as "lines of demarcation" or "interaction zones". The plugs conceal the countersunk screws which are used to secure the legs to the top, which are, jointed with compressed beech 'biscuit' dowels. The grain of the legs and the top follow the same direction allowing the whole piece to move (shrink or expand) in unison. The height of 40 cm creates a versatile piece that can be used as a small coffee table, occasional table or bench.

#### Cost

No accurate figures are available. I estimate a similar piece would take between 10 and 12 hours.

#### **Conclusion and evaluation**

Although the design can be made in any wood, the simplicity of the form benefits from using unusual or dramatically figured wood. The bench design can make good use of short lengths of attractive timbers that may be off cuts from larger projects. Clients could choose from a selection of earmarked planks suitable for the purpose. The original bench was sold at the Artweek workshop exhibition 2002 for £360 to a local client. The price was based on an estimate of the man hours at 10 to 12 hours.

#### **COFFEE TABLE**

The design of the table (Fig 3, shown at end of this appendix) avoids any jointing of timber to preserve their distinctiveness and individually. Each part or component is made from pieces of selected spalted beech from

the same log. The top is made from two boards characterised by an evenly balanced mosaic of light and dark zones. The uniqueness of each piece is preserved by creating a small gap of 1 cm between them. This method also disguises any movement and cupping that is characteristic of beech. The under frame consists of two pairs of "bearers". Each bearer is made from two pieces of beech, cross cut and sandwiched together with narrow spacers of beech to create a small void in between. The visual effect of this is to create symmetrical end grain patterns along the face edges of the legs on one side of the table. The two bearers are attached by two parallel rails which are aligned to the centre of the pieces that form the top. A series of screws located along the rail secure the tops.

#### Selection

The spalting, a form of incipient decay has had no obvious detrimental effect on the toughness of the table tops. Selection took into account the degree of advantaged decay by avoiding the whiter areas indicative of rot. These pieces were used on the legs, the less susceptible components.

#### Cost

No accurate figures are available. I estimate a similar piece would take 18 to 22 hours.

#### **Conclusion and evaluation**

The design is probably the least successful of the three pieces produced in beech. It is possible that the overall effect of the design is utilitarian in appearance. The technical approach to the problems associated with the material has perhaps produced a design that is too functional and uninspired. This table was exhibited at the Artweek workshop exhibition 2002 and Celebration of Craftsmanship 2002. The price was £820.

## <u> PART 3</u>

# STABILISING SPALTED BEECH USING PEG FOR FURNITURE APPLICATIONS

This trial is one of a series of design based experiments investigating the practical feasibility of using low grade beech in bespoke furniture design applications. The aim of this trial is to determine if end grain slabs of spalted beech can be impregnated successfully with PEG, using minimal equipment. The objective is to produce stable slabs that can be incorporated into simple generic furniture designs that can be produced on a bespoke basis for local customers through direct sale.

#### POLYETHYLENE GLYCOL

#### What is PEG?

Polyethylene glycol (PEG) is a polymer of ethylene glycol (the basic ingredient of car anti-freeze). The most appropriate polymer for stabilisation has an average molecular weight of 1000, designated PEG-1000. This is used in the pharmaceutical industry; it is perfectly safe and can be used on surfaces which have direct contact with food. At room temperature the chemical is a white solid, similar in appearance to paraffin wax. It melts to a syrupy liquid at 104°F and is very soluble in water.

PEG was developed in the 1950s; applications for patents were made by the USA and the USSR in 1958.

#### What does it do?

PEG-1000 stabilises wood by preventing shrinkage. When green or fully swollen wood is soaked in a solution of PEG-1000, the molecules of PEG-1000 replace the water molecules in the cell walls. They remain in the cell wall when the wood dries and prevent the fibres from contracting. For PEG-1000 to be effective the wood must be above fibre saturation point, around 30% m.c. When wood at 100% m.c. is treated, shrinkage is reduced by nearly 90%.

#### METHODS OF IMPREGNATION OF PEG

**Diffusion** This method is time consuming particularly for thick beech and therefore not suitable for industrial use. Diffusion impregnation can however be used on thin veneers by application of a roller machine,

impregnation can be made continuously with a short time of treatment. This method was, in fact, chosen for the trial.

**Pressure impregnation** or vacuum/pressure impregnation can be industrially used on wood that has been dried to a m.c. below fibre saturation point, usually 15-25%. Special equipment is required and the treatment must be adapted to timber dimension, m.c. and level of stabilisation required.

#### **CHECKING PROBLEMS**

Treatment must commence at a stage in the drying when checks have not appeared. Although the treatment may swell the fibres and conceal checks they will still remain, even if hidden, and may subsequently reappear.

## **MIGRATION OF PEG**

As PEG is water soluble, it is liable to migrate during the drying unless impregnation is effected correctly. This can produce an unevenness of distribution of PEG which will increase cupping, warping and bending of the material instead of reducing it.

## **BENEFITS OF USING PEG**

## Drying and shrinkage

PEG significantly reduces the dimensional changes in beech and can therefore be dried at higher temperatures and consequently faster that non-treated beech. The large stresses normally associated with beech are reduced by treatment. A direct comparison *cannot* be made between drying times of impregnated and non-impregnated beech as the schedules are different in practice. However, impregnated samples reach a higher temperature in both the inner and outer parts than a nonimpregnated beech sample, if both are dried at the same time and in the same drying kiln.

## Swelling

Beech impregnated with PEG shows a considerable swelling reduction on contact with water or damp air. Swelling is reduced when the impregnation percentage is increased.

#### Strength

Strength values of stabilised wood are likely to be higher than those of non-stabilised wood where checking can easily occur.

#### Working characteristics

There are no observable differences in mechanical workability between impregnated and non-impregnated beech. However, the structure of the impregnated beech is more uniform and dense which produces a fine surface with sanding. It is also less absorbent and therefore will take a polish or paint better than non-treated wood. Gluing properties are influenced by impregnation, reducing the shearing strength of the glued wood in certain cases. The reduced moisture movement may compensate for this.

#### Dyeing

It is possible to colour beech using water soluble stains in conjunction with PEG treatment using pressure impregnation to increase the value and permanence of the finished product. In Sweden a special dyeing system – Trimpo Colorizer – has been developed for dyeing beech.

#### Resistance to fungi

The impregnation of beech with PEG significantly reduces its susceptibility to fungal attack. It appears that there is not enough water for micro-organisms to develop in impregnated wood. The risk of discolouration and decay in beech therefore becomes smaller as the degree of impregnation increases.

#### SPALTED BEECH

Spalted beech is not considered a commercially marketable forest product except when it is sought after by specialist wood turners for decorative bowls. The variability of the visual characteristics of spalted beech makes it an unpredictable commodity so the woodworker has to make a considered judgement about its potential to produce a marketable decorative object.

#### Selection

The end grain visual characteristics are, however, immediately evident when a spalted log is cross cut. The pattern of the spalting, at least in the sample selected, is also repeated when the log is cross cut into a series of consecutive, thin, end grain slabs. This method of cutting also, of course, retains the round section of the log and provides an efficient way to determine the aesthetic qualities of the material, enabling the woodworker to make an immediate decision about its potential in design projects.

### DRYING PROBLEMS USING CONVENTIONAL METHODS

### Air and kiln drying

The main drawback of drying end grain slabs is the tendency of the wood to split and check through the internal stresses produced by keeping the timber in its original round form. An alternative method was required that could stabilise the wood, minimise movement and prevent surface checking.

#### PEG treatment as a stabilisation technique

The use of PEG as a stabilising treatment is already widely used by woodworkers, mainly wood turners who are able to treat refractory woods without specialist equipment.

This method was identified as being particularly appropriate for treating the spalted beech because PEG penetrates end grain much better than side grain. Penetration of PEG through diffusion is effective along the grain. These limitations suggest the technique would be appropriate for test samples which were 50mm along the grain and approximately 500mm diameter across the grain. The diameter would not affect the penetration of the PEG as the maximum area of end grain was being exposed to the solution.

The other prerequisite for success, as already mentioned, is that the wood must be above fibre saturation point (about 30% m.c.). it is therefore preferable to use the wood in its green state.

#### THE TRIAL

The spalted beech was selected form the Hardwick Estate. A short butt, about 500mm diameter, that had already been felled, was cut into about nine 50mm end grain slabs. The moisture content was measured at about 20% m.c. soon after the time of cutting. As this was below fibre saturation point, five slabs were immersed in water over a 15 day period to increase moisture content to above fibre saturation point.

A solution was prepared using 3 kg of PEG and 15 pints of water to produce a 30% mix. Five slabs of spalted beech were positioned in a plastic sealed tub containing the solution. Each slab was stacked on top of each other with three steel pins projecting 10mm from the surface face to ensure the solution was covering all the faces.

The solution and the slabs were checked every two or three days to ensure the specific gravity of 1,04 was maintained and the solution was agitated to ensure the PEG solution was well mixed. The ambient temperature was between 17 and 21 degrees centigrade.

### Drying

After 32 days (between 9 January and 10 February 2002) the five slabs were removed and placed in a dehumidifier drying chamber at 40° C and left to dry to 10% M.C. over a period of 20 days. A sample untreated slab was left to dry in the workshop close to a night storage heater

## RESULTS

The untreated slab developed extensive splits which made it unusable. The treated slabs developed some checks up to 75mm long and up to 3mm wide. Each slab distorted slightly producing a shallow saucer like form. This is either due to uneven drying or migration of the PEG during drying.

#### **CONCLUSION AND DISCUSSION**

#### Cost

The PEG was bought through a craft supplier at retail price of £50.35 for a 3 kg block, enough to make a 30% 2 gallon solution which was sufficient for this trial. PEG can be bought more economically through a trade supplier. The unused solution can be recycled which makes it efficient to use although the costs make it expensive when using relatively large pieces.

#### Effectiveness

The degrade, although disappointing, was not sufficient to make slabs unusable and are still suitable for their intended application as table tops. If the checks can be successfully filled they can be used in a number of applications. Filling low grade timber is not considered detrimental to the appearance; it can be considered a feature!

The method used is a lengthy process requiring regular daily monitoring which may discourage its use. Its appropriateness will depend on the aesthetic qualities of the timber being considered and the amount of time required undertaking the method. The method is potentially efficient and effective when using thin sections of end grain timber. An end grain section can be treated from green in a day rather than weeks; it will produce what is known by furniture makers as an oyster shell pattern which can subsequently be glued onto a substrate surface to form a distinctive end grain pattern made up of multiple squares of the wood.

The use of end grain timber in furniture making design is rarely exploited. Although there are obvious constructional and structural limitations to using end grain slabs, the figure and grain pattern produced reveal a visual narrative of the history of the tree which otherwise is not revealed in longitudinal pieces of timber.

The experience of using this method justifies further experiments.

#### **REFERENCES:**

Symposium on The Industrial Processing of Temperate Hardwoods. Volume II, UNEC for Europe, Geneva 1970. Understanding Wood. R Bruce Hoadley

#### THE LAST WORD

This paper has provided a valuable foundation to extend our collaborative efforts. The economic benefits to the woodland owners have yet to be established. Possibly, what is more important at this stage is the shared vision of trying to develop creative ways of making a local woodland more sustainable for the future.



Fig 1. Plank chair in scorched beech with ebony inlay



Fig 2. Bench/table in spalted beech with ebony inlay



Fig 3. Coffee table in spalted beech

# **APPENDIX III**

# The Koomen Trio Project AHEC FURNITURE DESIGN IN NORTH AMERICAN SOFT MAPLE 15 October 2001

### **Design concept**

The three furniture designs are intended to explore some of the qualities of solid timber that are seldom seen in manufactured designs. There are no straight lines in the design – reflecting the fact that nature has no straight lines. Contemporary design tends to be dominated by rectilinear forms which are characteristic of a machine aesthetic. I aim to show that furniture has the potential to express fluid shapes and forms.

The use of curves in the furniture designs suggests movement and flow; even the edges are curved upwards. I have tried to make the curves interact in a dynamic way to suggest movement; the shapes and forms can be viewed in any direction, each perspective will give a different sense of the form.

I think this design concept is particularly appropriate to the characteristics of American hardwoods which are very homogenous. The uniformity and consistency they offer means they are ideal for production work which produces a standardised product.

These designs show an alternative approach; I'm interested in exploring ways of using timber in the design process, creating furniture that says something about the material as well as providing a useful and beautiful object to be enjoyed.

What follows is a discussion with Michael Buckley, MPhil and director of the European American Hardwood Export Council around the Koomen TRIO project and issues related to it.

## The Koomen Trio – soft maple furniture

#### Sustainable marketing for a sustainable forest resource

The American Hardwood Export Council has long held the view that an element of sustainable forestry must encompass the issue of sustainable

marketing. In other words promotion of species must be in concert with what grows in the forest. If a diverse range of species is not successfully marketed then it follows that ultimately the harvest may become unbalanced and the sustainability of the forest undermined. In this context the AHEC has been concentrating on the promotion of three particular species that are especially abundant in the eastern hardwood forests of the USA – red oak, tulipwood and soft maple. The two latter are the fastest increasing species in standing volume whereas red oak is the most dominant in the forest. This is not entirely altruistic, since most eastern hardwood sawmills have adequate supplies of these three species and would like to sell greater volumes at better margins if consumption rises.

During 2001 it was decided to promote the benefits of soft maple to the furniture industry, both for its competitive position in relation to its main European competitor – beech, and for its aesthetic value as a more interesting species. Its environmental credentials are second to none and therefore soft maple plays an important role in AHEC's efforts towards sustainable marketing.

The "Koomen Trio" project follows a long tradition by AHEC of commissioning fine furniture makers to demonstrate the beauty and working properties of American hardwoods. Philip Koomen is a Fellow of the Chartered Society of Designers and a committed environmentalist with whom AHEC had worked successfully in the past. This time he was asked to make a trio of soft maple pieces to demonstrate to the furniture industry the beauty and elegance of solid wood furniture. Working again with Michael Buckley FIWSc, Koomen cooperated in the design, production and discussion of the attributes of this undervalued species.

Later, Koomen wrote: "These furniture designs are intended to express some of the qualities of solid timber. There are no straight lines in the design – reflecting the fact that nature has no straight lines. Contemporary design tends to be dominated by rectilinear lines which are characteristic of a machine aesthetic. "The use of curves in the furniture design suggests movement and flow; even the edges are curved upwards. I have tried to make the curves interact in a dynamic way to suggest movement; the shapes and forms can be viewed in any direction; each perspective will give a different sense of the form.

"I think this design concept is particularly appropriate to the characteristics of American hardwoods, which are very homogenous. The uniformity and consistency they offer means they are ideal for production work, which produces a standardised product. These designs show an alternative approach. I'm interested in exploring ways of using timber in the design process, creating furniture that says something about the material as well as providing a useful and beautiful object to be enjoyed."

During the production process Koomen and Buckley discussed the issues that arose in the production of furniture from different species. The following is a record of some of the comments that Koomen made:

"The timber business is demand led, but designers can show another way with ideas" Philip Koomen has long pioneered designs that emphasise the permanence and options of solid wood.

"As a bespoke furniture maker I feel that the wood is central to the design process" The wood material has always been the point from which his designs start.

"It's amazing how you can transform the design by changing the material/wood" There is a remarkable range of species running through Koomen designs, which often take on the characteristics of individual pieces of wood. In this case the soft maple has given the furniture its own characteristics within the overall design.

*"Everyone is polarised now – the timber growers, researchers and processors are disconnected"* Philip has been concerned

for some time about the disconnect between timber growers and users, and this has encouraged him to work with representatives of the trade on environmental issues, and with organisations like AHEC involved in the supply of raw material. *"What I find so impressive about American hardwood is the quality of the drying"* In the final analysis, practical issues such as consistent grading and moisture control weigh heavily in Koomen's choice of wood.

"Square edged (American) timber reduces the guessing game" Much of the work he has done with AHEC, such as the "Koomen Project" some years ago, concern yield studies. In that case identical bookcases, which he designed and made from different grades of red oak and tulipwood, were analysed for yield.

# Towards the end of this project, to monitor the performance and working characteristics of soft maple, Michael Buckley conducted an informal interview with Philip Koomen:

Philip Koomen is an English furniture maker of renown. His designs and production feature in Betty Norbury's book "Furniture for the 21<sup>st</sup> Century", which is distributed all over the world. His clients include the rich and famous as well as people who simply want the best and most beautiful hardwood furniture. He is also a person deeply concerned about the environment and sustainable forestry. He was recently commissioned to design and make a set of furniture - "the Koomen Trio" - in American soft maple, which is the most rapidly increasing species in the eastern United States, but still under-utilised.

Michael Buckley, who has a Masters degree in the comparison of American and European hardwoods and is currently working on a PhD at the University of Bath in UK, has co-operated with Philip Koomen for nearly ten years on a number of hardwood and environmental issues. The following is a record of discussions between them. Q. Philip, you are here on the edge of the Chiltern Hills where English hardwoods are relatively abundant, and you regularly use them in your bespoke (custom) furniture. But about 40% of your production is designed to use American hardwoods, - so why do you use American species?

A. Consistency of quality is the first and foremost. The cutting method in American sawmills means that our waste is reduced and yields are predictable. In other words, square edged timber reduces the guessing game.

Second is the uniqueness of the species, such as hard maple, black cherry and black walnut, which do not grow here.

Finally, are the credentials of American hardwoods on forest sustainability, in terms of long term management of forests as a renewable resource.

Q. Do you think that American hardwoods are any more sustainable than those growing here in the Chilterns?

A. It is more a question of demand and production. In the USA there is still a huge demand and production of hardwoods, so the forest is managed accordingly. Here in the Chilterns there is simply not enough volume demand and so the forest has less value and therefore is not so well managed. So it seems that where a large number of people derive their living income from forests there is a strong tendency to manage them on a sustainable basis.

Q. Soft maple is interesting on two levels. It is like beech, although it has more natural character and grain interest, and it is under-utilised, but you don't appear to use soft maple. Why not?

A. Frankly, soft maple is not readily available, or so we thought. Perhaps it has not been promoted enough. But I certainly agree that it has more character than beech.

Q. The American Hardwood Export Council has recently published a brochure on three species entitled "American Beauties", one of which is soft maple. Has your experience in making the Koomen Trio proved or disproved the information contained in it.

A. Our experience with this project confirms everything that the brochure says. Actually it is rather comprehensive and most impressive and, although there was a relatively small volume of timber involved, there was nothing contradictory to the performance and characteristics we experienced during this project. It is also worthy of note that although the design of this project was not very efficient using straight boards for curved furniture, there was surprisingly little waste – a measure of the way this species grows to produce usable wood. The darker heartwood might trouble some manufacturers, but we accepted it within the design.

Q. Do you feel that this under-utilised American species warrants the attention of other furniture makers, and why?

 A. Yes I do. This species is somewhat comparable with hard maple in its appearance, although it is less consistent.
 The price premium for hard maple is so great that it makes soft maple a serious alternative to consider.

#### Environmental credentials of soft maple

To say that growing stock of soft maple trees is enormous and increasing rapidly is an understatement. In fact the increasing occurrence of soft maple in some states, such as Pennsylvania, is even a problem for it is leading to a species imbalance and reduction of other species that are important to the biodiversity and quality of the forest. Red maple especially is colonising areas of forest where natural regeneration of oaks, for example, is reducing due to over-browsing by red deer. And from a commercial point of view, red maple produces a lower percentage

of high-grade trees, which ultimately leads to a reduced income and forest asset value that can ultimately result in its conversion to other uses. So there are strong environmental reasons to harvest soft maple and find additional uses and markets for this most abundant species.

Past studies have shown, and the next round of national hardwood forest growing stock inventory is expected to confirm, that soft maple is the most rapidly increasing species in the eastern hardwood forests of America. And this is within a total hardwood forest resource that has been increasing year on year for the last thirty.

#### Technical and working properties of soft maple

Like most American hardwoods, which grow across a vast continent, the characteristics of sawn soft maple lumber can vary considerably. Depending on growing conditions and climate, along with factors such as altitude, the grain characteristics and particularly the colour of the wood may differ from north to south. But generally the sapwood has a greyish white colour and often displays small flecks, which are a natural characteristic of the tree. The heartwood can vary from light colour to reddish brown and is normally darker than hard maple. As a result, soft maple is sold unselected for colour and cannot command the price premium for white colour that is available to hard maple. Soft maple is slightly lighter in weight, at 609 kg/m3, than hard maple at 705 kg/m3.

Its performance in screw holding and resistance to splitting when nailed is similar to other maples and pre-boring is recommended. All maples have a relatively high shrinkage factor when drying, and thus susceptible to movement in performance, although soft maple much less so.

Soft maple also has good steam bending properties and being about 20% to 30% less hard (than hard maple) it has low resistance to shock and low stiffness properties. By contrast soft maple machines as well as its hard cousin and can be stained to an excellent finish and polishes extremely well. And here lies the main benefit of the species, for when stained to cherry colour the finished product can be produced to an equally high quality.

## **APPENDIX IV**

The Soft Maple Koomen Kitchen Project 2002

Co-sponsors: Rossi, Timber Exporters, USA and Timbmet, Timber Importers and Merchants, Oxford, UK Designed by Philip Koomen, FCSD, FRSA, AIWSc Made by Nic Smith and Gordon Kent, Philip Koomen Furniture Workshop

## **Background**

A prestige bespoke kitchen/living room designed by Philip Koomen was chosen as a case study to determine the benefits of using soft maple over hard maple for furniture making. The design, a one-off craftsman made project, demanded high specification show wood with no visible blemishes or colour discrepancies as well as a number of painted pieces. Hard maple would have normally been specified for the show wood and tulip wood for the painted pieces. The various selection criteria made the project particularly appropriate for a case study as soft maple was well known for its brown heart, not normally considered suitable from show wood. The option of using soft maple as an alternative wood was considered and agreed upon with the client on the basis of the timber's environmental credentials and a marginal cost saving.

The project was proposed by Philip Koomen as a follow up to the "Koomen Trio (soft maple) Project" commissioned by the American Hardwood Export Council. The success of the Koomen Trio designs and Philip Koomen's experience of using soft maple on this project inspired him to explore the use of the wood in a larger project. The kitchen/living room design provided an opportunity to investigate the feasibility of using the wood within the restraints of a commercial project which originally specified hard maple. The negative image of soft maple has undermined its demand. Soft maple is perceived as an inferior form of maple by timber users although the public in the UK are generally not acquainted with it. Soft maple is no longer readily available from timber merchants in the UK having been superseded in demand by hard maple.

## Environmental and cost considerations

A number of factors have come into play to justify a reassessment of soft maple for joinery and furniture making, particularly environmental and cost issues.

Soft maple is an abundant species; its availability exceeds the markets for its utilization. Creating new markets for it will contribute to the sustainable management of North American forests.

Soft maple costs about 33% less than hard maple; a cost difference that warrants further investigation. Although the two woods have different characteristics, the use of hard maple for many applications may be unnecessary. Soft maple may fulfil many of the requirements where hard maple is currently specified with a cost saving benefit to manufacturers and consumers.

## <u>Aim</u>

The aim of this project is therefore to determine the benefits of using soft maple over hard maple for furniture making, using a bespoke kitchenliving room as a case study.

## **Objectives**

- 1. Assess the aesthetic qualities of soft maple as an alternative to hard maple
- 2. Evaluate soft maple's production characteristics and performance
- Measure the yield and efficiency of using selected maple for show wood kitchen cabinet work and furniture, and brown heart maple for painted cabinet work
- 4. Compare the costs of using the two different woods

## <u> The kitchen – living room design</u>

The clients' brief required the refurbishment a tired-looking thirteen year old kitchen-breakfast room incorporating a new study area. The new design opens up the kitchen to the conservatory by limiting the soft maple fitted units to an L shape containing the main working zones. A painted mobile workstation provides additional storage and working area and can be easily moved to a position to suit the client, maximizing working logistics.

The work station ingeniously incorporates a slot–in maple breakfast table that can be rotated to any position. The table can also be removed to form a free standing piece that can seat up to six.

A free standing desk with an exquisite ripple maple top (Fig 1) is located in one corner to the walk-in cupboard. The shapely top has a tapering curve to create a practical writing area. The drawer unit also has convex drawer fronts that mirror the profile of the top and handles are discretely carved into the sides forming a rhythmic series of scallops.

The overall styling of the kitchen is deliberately understated with a focus on attention to detail through fine craftsmanship and selecting the choicest wood for each piece. The qualities of the solid timber are highlighted through the use of convex profiles on the drawer and door panels which emphasize the contours of the grain patterns (fig 2). Turned mushroom shaped hard maple handles (Fig 2) are used throughout the furniture to emphasize the tactile qualities of the wood.

Soft maple has been used throughout the cabinet show wood including the painted furniture. Show wood has been carefully selected to create furniture that has a consistency of colour and grain patterns.

A significant quantity of ripple maple, a characteristic of the maples, was found amongst the timber supplied and this was used on the table, desk and workstation top to stunning effect. The wave orientations of the wood fibres which produce the ripple grain enliven a piece of furniture because the grain refracts light differently as the observer moves around the furniture creating a sense of movement in the wood grain. The three painted pieces give a subtle colour and textual contrast to the maple furniture.

The polished Verdi Magic granite introduces a bold colour to the design as well as being a highly practical work surface. Stainless steel appliances by Neff, Miele and Gaganau were chosen to give a contemporary quality and an oak laminated floor was used throughout the kitchen and conservatory to unify the living space. Four classic Hans Wegner oak wishbone chairs with rush seats completed the furniture scheme (Fig 3).

Philip Koomen describes his experience of using soft maple and assesses the benefits of using it compared to hard maple:

#### **Regrading**

The arrival of the timber assignment of soft maple was ominous. The rough sawn timber looked an inferior quality and its greenish tinge caused some anxiety. These first impressions were deceptive. As soon as timber was machined it became apparent that our anxieties were not justified. The quality and the colour looked very good as we had previously anticipated. We were confident we were going to be able to produce furniture that we could be proud of and the client would be delighted with. *Quantities* 

The original order was for 70 ft<sup>3</sup> of 1<sup>1</sup>/<sub>4</sub>" and 10 ft<sup>3</sup> of 2", a total of 80 ft<sup>3</sup>. This was approximately 100% more than the quantity required. This quantity was specified because we required a high percentage of clean maple (AA grade) and we were not sure how much brown heart would be included. The delivery note confirmed the supply was 74.97 ft<sup>3</sup> (2.12 m<sup>3</sup>) of 1<sup>1</sup>/<sub>4</sub>" and 9.99 ft<sup>3</sup> (0.283)<sup>3</sup> of 2" (50.8mm), a total of 84.96 ft<sup>3</sup>. This was re-measured at the workshop and found to be a significant under-calculation of the quantities supplied. Our measurement was 15.78 % more than the stated quantity, i.e. 86,89 ft<sup>3</sup> of 1' 4" and 11.48 ft<sup>3</sup> of 2", ), a total of 98.37 ft<sup>3</sup>. The yield calculations were based on these figures.

#### Regrading

The project required regrading the timber on the basis of colour as it is sold unselected for colour. The project had different selection requirements so the regrading reflected these as follows:

 AA - Clean on both faces, i.e. no brown heart. All maple show wood including cabinet work and free standing furniture to use clean 'white' maple. Consistency of colour and figure was to be the main selection criteria. Door panels to be selected where possible from one board to minimise colour and grain variation

- AB Clean on one face only, i.e. brown heart on opposite face.
   Plinth kicker boards selected from AB grade
- 3. BB Brown heart on two faces. Painted furniture to be selected from AB or BB grade.

The following two grades were selected on the basis of their ripple figure but are sub divisions of AA and AB:

- 4. AA/R Clean ripple on two faces
- 5. AB/R Clean ripple on one face with brown heart on opposite face. Although ripple figure is not factored into the FAS grade, our previous experience with the Koomen Trio furniture indicated there would be a small proportion of ripple in the timber assignment. It was planned to use it where it would add interest in the design such as the desk and table top, if there were sufficient quantities.

Regrading was very straight forward once the timber had been machined. Selecting the boards for each grade, based on their visual characteristics was a quick operation requiring a minimal level of skill as brown heart is easily identified. Five separate bundles of timber were created including an impressive bundle of ripple maple. Selecting timber for the furniture was easy and required little "fiddling about". It was made a lot easier because we had a generous volume of timber to choose from, a much larger quota than we would normally have ordered. We have experienced greater difficulty selecting hard maple, particularly for large areas such as table tops which require carefully selected matched boards. Because of the premium cost of hard maple we have only bought quantities to meet our immediate needs; this may have restricted our selection choice. Bearing in mind the difference of circumstances we found soft maple easier to select for matching colour and grain than hard maple as the colour and figure was more consistent than hard maple.

#### **Objective 1**

#### Aesthetic qualities

Soft maple and hard maple are very similar in appearance. Both are fine textured and straight grained and their sapwood is not easily distinguishable from the heart wood. The main visual differences are subtle in colour. The two woods can, however, be used selectively in the same product without detectable difference. Hard maple tends to be creamy white and lustrous, the figure on plain sawn surfaces is distinctive with an attractive pink tinge. Soft maple has a more homogenous quality with a silver/grey or a pinkish figure. It also contains pith flecks but this does not detract from its appearance; these flecks appear less frequently in hard maple.

The overall appearance of the kitchen demonstrated that soft maple could produce an equally satisfactory result to hard maple. Soft maple can be regarded as a timber in its own right with its own unique character and credentials rather than a hard maple substitute. Once this distinction is made, soft maple can be appreciated for its own aesthetic merits and limitations. The silver and pinkish tones of the maple were used throughout the cabinet work to achieve a consistent composition that created tonal and colour balance in the furniture. Any variations were controlled in the different elements of the furniture such as the drawer fronts, door panels and frames. These were co-ordinated to ensure that each piece of furniture and elevation achieved a harmonious colour and grain pattern. This aspect of selection is normal practice in our workshop. Both hard and soft maple occasionally produce "ripple" or "fiddle back" figure, a highly desirable feature. The timber supplied for the case study produced a small proportion of fiddle back (7.81 %) which was used to stunning effect in the furniture. This was considered a fortunate find as the suppliers do not guarantee it in FAS stock.

The combination of the maple show wood and painted cabinet work created a restful and understated interior living space; the subtle diversity of colour and intriguing ripple maple figure adding subtle features to the furniture. The choice between using hard or soft maple will, however, be conditional upon personal taste and fashion.

#### **Objective 2**

#### Production characteristics and performance

Soft maple proved to be a very stable wood during the production process being better than hard maple which is susceptible to movement in performance. It machines more easily than hard maple, producing a superior finish without tearing, unlike hard maple which requires a cutting angle of 20° to reduce the wood bouncing over the cutters. Working properties were almost without exception superior to hard maple. Routering, spindle work and sawing produced clean results unlike hard maple which can produce burning. It also did not dull the tool cutters as much as hard maple, an important consideration for manufacturers.

We did find it was always difficult to produce a clean finish on the end grain which in solid wood design is often a feature. We decided to use hard maple for the turned handles; the "mix and match" approach produced a very satisfying result.

#### Finish

All the maple show wood was hand sanded to 320 grit. A precatalysed matt lacquer was applied producing a lustrous finish. Slight differences in colour tended to even out on exposure to light and after polishing. The coloured maple was used for the painted pieces and proved a satisfactory alternative to tulipwood for painting.

#### Objective 3

#### Yield and efficiency of using soft maple

Total quantity of timber required was estimated at 37 ft<sup>3</sup> (28.5 ft<sup>3684</sup> + 30% wastage<sup>685</sup>). I would normally purchase at least 50% more to provide an adequate choice for selection on the basis of colour and grain as these characteristics are not graded. For a high specification interior as this project we make every effort to achieve a consistent colour and harmonious figure in all the furniture. This is an aesthetic approach that is perhaps contrary to the natural characteristics of wood but has been adopted as a selection standard by us for most projects and by many manufacturers because it is less subjective than alternative standards and it meets the expectations of customers who have themselves an idealised view of what timber should look like. Maximum yield is therefore harder to achieve given such stringent selection criteria.

<sup>&</sup>lt;sup>684</sup> Calculated on the basis of area of cabinetwork x thickness of sawn timber

<sup>&</sup>lt;sup>685</sup> Wastage based on loss of material through sawing, planing and off-cuts

#### Usable sapwood

Wastage is, however, considerably reduced in maple because the sapwood is not normally distinguishable from the heartwood unlike other species such as oak, cherry and walnut. According to the American grading rules sapwood is not a defect; wastage is therefore much higher in these woods as sapwood is not normally acceptable. Both hard maple and soft maple do not have this problem and this saves considerable time selecting the wood and minimises waste. It is an important factor when considering the cost of this timber compared to other timbers which have contrasting sapwood.

#### Brownheart

The regrading exercise produced some interesting results. Over 90% of the timber has at least one white face. We graded white both faces 'AA' and this totalled 51.24% of the total volume<sup>686</sup>. The AB grade which had one white face and one brown heart face totalled 39.66%<sup>687</sup>. Only 9.1% of the timber had two brown heart faces (BB).

For our purpose we used mainly the AA grade as we wanted to achieve the most uniform look as possible. However, if only one white face is required and a typical bundle of timber yields around 90% white face this nearly doubles its applications. The small quantities used of 1<sup>1</sup>/<sub>4</sub>" AB and BB (9.45 ft<sup>3</sup>)<sup>688</sup> was indicative of their limited applications in this particular project, it also included some ripple maple (3.43 ft<sup>3</sup>)<sup>689</sup>. The painted furniture which was curved, required most of the 2" and some 11/4" BB and the kicker boards used some 11/4" AB. These were the only applications of these two grades in the whole of the project.

#### Selection

The efficiency of the yield, even with our stringent specifications, demonstrated that soft maple is underestimated as a show wood. We achieved an aesthetically pleasing result based on my criteria. There was an advantage gained being able to select from a relatively large quantity of timber. Of the original quantity, 86.89 ft<sup>3</sup> at 1<sup>1</sup>/<sub>4</sub>" we had to select from,

<sup>&</sup>lt;sup>686</sup> Including ripple (AAR)

<sup>&</sup>lt;sup>687</sup> Including ripple (ABR)

 <sup>&</sup>lt;sup>688</sup> See Summary of Quantities Supplied and Used, p. 16 in this appendix
 <sup>689</sup> See Summary of Quantities Supplied and Used, p. 16 in this appendix

55.19 ft<sup>3</sup> was not used<sup>690</sup>. The generous quantity enabled the selection, on the basis of colour and grain, to be an efficient process. Boards were chosen from the top or near top of the pile and it was not necessary to spend lengthy time inspecting every board in the pile to find matching boards. We achieved the results we wanted with efficiency. Waste was quite marginal and was 25.93%, under the 30% I originally estimated. The total quantity actually used (1¼" + 2") was 35.89 ft<sup>3</sup> compared to my estimate of 37 ft<sup>3</sup>. Estimating quantities is not an exact science particularly when colour and figure are the most important features but this in my judgement was comparable to hard maple, possibly better. *Recycled timber* 

As the experimental nature of this project was based on having an abnormally high volume of timber to select from, the concept of recyclable timber was introduced to give a more comprehensive and balanced picture of utilisation. Of the total quantity used (25.3 ft<sup>3</sup> x  $1\frac{1}{4}$ ") in the project, sixty three boards (32.32 ft<sup>3</sup>) from the one hundred and seventyfive 1<sup>1</sup>/<sub>4</sub>" boards supplied, were either completely or partially used. The difference in the quantities (7.02 ft<sup>3</sup>) was considered of a recyclable quality in that their lengths exceeded 24" or the total volume was more than 0.10 ft<sup>3</sup> (average volume 0.1847 ft<sup>3</sup>)<sup>691</sup>. The yield is therefore based on the consideration that reasonable size off-cuts will be recyclable. The rationale being that furniture manufacturers will have a higher yield because production is based on greater volumes of timber, with a more efficient utilisation of material than in this one-off project. If the recyclable factor was removed and these unused off-cuts were included as waste, the yield would be far less efficient. Wastage would therefore be increased from 25.3  $\mathrm{ft}^3$  to 32.32  $\mathrm{ft}^3$  at 1¼" (i.e. a total of 53.9%). This figure is very close to the estimated 50% wastage I normally allow on a one-off project.

## Objective 4 <u>Costs</u>

<sup>&</sup>lt;sup>690</sup> See Summary of Quantities Supplied and Used, p. 16, no. 7 in this appendix

<sup>&</sup>lt;sup>691</sup> See Summary of Recyclable Quantities, p. 18 in this appendix

The difference in the costs of soft maple and hard maple are significant. Hard maple is stocked by many timber merchants so prices were available. One company quoted £31.61 per ft<sup>3</sup> for 1<sup>1</sup>/<sub>4</sub>". Another company quoted £37 per ft<sup>3</sup> for the same thickness. I was only able to obtain one quotation for soft maple from a timber merchant. They quoted £22.24 per ft<sup>3</sup> for 1<sup>1</sup>/<sub>4</sub>" but I subsequently learnt that they no longer stocked it. Comparing the cost of the two woods is therefore hypothetical as the timber is not readily available.

Based on the figures quoted hard maple is between 42% and 66% more expensive than soft maple. As a guide the cost differential would be as follows, basing the cost of hard maple on the average of the two quotations:

Total cost of soft maple used at 22.24  $ft^3 \times 35.89 ft^3 = \pounds798.19$ 

Total cost of hard maple used at 34.30  $\text{ft}^3 \times 35.89 \text{ ft}^3 = \text{\pounds}1231.02$ 

Assuming waste would be comparable this represents a substantial saving in costs and will be an important issue where the cost of materials in relation to the manufacturing costs is high. In a labour intensive custom-built project like this one, material costs are marginal compared to labour costs, therefore any savings in material costs are less important than qualitative and value added factors.

#### Summary of investigation

- 1. Aesthetics
  - There are more similarities between soft maple and hard maple than there are differences
  - Soft maple tends to have either a silver/grey or a pinkish tone while hard maple tends to be creamy white
  - Soft maple has a more homogeneous grain and less distinct figure
  - Soft maple can be indistinguishable from hard maple in smaller sections
- 2. Production
  - Generally superior in machining qualities to hard maple

- Less abrasive on tool cutters than hard maple
- More stable
- Finishes very well except on end grain which lacks definition
- 3. Yield
  - Like hard maple it has a high yield particularly because the sapwood is not distinctive and can therefore be used in show wood
  - Yield will be lower than hard maple because of the inclusion of brown heart at 39.66% one face and 9.10% two faces (total 48.76%)
  - The consignment of timber produced 51.24% white on two faces (AA)
  - If the off-cuts were used in other projects wastage would be 25.93% over and above the minimum required quantity
  - Wastage increases to 53.9% if the off-cuts are treated as waste
  - The average recyclable off-cut was 0.1847 ft<sup>3</sup>, equal to a piece of wood 6" x 53" x 1¼"
- 4. Cost
  - Soft maple can reduce costs by a significant amount but this is conditional upon a number of factors:
    - i. Can brown heart be included on one face?
    - ii. Are variations in colour acceptable?
    - iii. Can brown heart be used in other designs, e.g. painted furniture?
    - iv. Is the manufacturer prepared to re-grade the timber for colour?
    - v. Is the manufacturer willing and able to store the various colour grades?

#### **Conclusion**

As a designer-maker, it is my view that this project achieved its aim in demonstrating that soft maple can be used for high quality furniture

without any compromise to quality if the timber is regraded to take into account the brown heart that is characteristic of this species. Although the project focused on using soft maple as a substitute for hard maple as well as for painted cabinet work, it also demonstrated that soft maple is an attractive timber in its own right and can be used creatively to produce beautiful furniture that is comparable to highly regarded woods such as hard maple, cherry and walnut, etc.

The common name of soft maple has unfortunately created an image that it is an inferior form to the hard maple. The indicator that soft maple is misnamed is clear in that soft maple is comparable to cherry in hardness. The re-branding of soft maple to East Coast maple<sup>692</sup> redefines the timber according to its geographical provenance not its relative physical characteristics. However, the characteristic feature of brown heart, which was found in almost half the timber assignment, does present a real problem to potential soft maple users. Brown heart as a feature is likely to be incompatible with the requirements of a light wood. The question remains: how can timber users justify buying soft maple, a light wood, which contains a high percentage of brown heart? The successful marketing of soft maple will need to take into account a number of factors:

- Cost. The price of soft maple, if sold in its unselected mix will have to be aligned closer to a utilitarian timber like tulipwood rather than a premium timber like hard maple. There has to be a significant cost saving if a specifier/manufacturer is going to use it to justify the inconvenience of selecting it for colour and possibly storing the surplus requirements.
- Potential users need to be able to predict what percentage of brown heart on one and two faces an assignment of timber will yield to determine the yield.

I would speculate that the decline in demand for soft maple has been due to the cost being too high, the unpredictable yield of light wood and the availability of alternative light woods such as hard maple that have a

<sup>&</sup>lt;sup>692</sup> Name proposed by Timbmet

more consistent colour. Soft maple has a tremendous potential as a timber resource as this project and the Trio Project have demonstrated. Its potential, in my view, will depend on the willingness of the North American timber producers to modify their grading rules to meet timber users' requirements for colour.

# Summary of Quantities Supplied and Used by Grade

	Grade	Thickness	Supplied	(%) of	Remainde	er %	Used	%
		in Inches	ft <sup>3</sup>	total	(unused)	1	ft <sup>3</sup>	
					ft <sup>3</sup>			
1	AA	1¼	41.72	48.01	27.54		14.18	
2	AAR*	1¼	2.81	3.23	1.14		1.67	
<u> </u>		41/	44.52	<b>E4 04</b>	20.00		45.05	
3	AA Total	1¼	44.53	51.24	28.68		15.85	
	1+2							
4	AB	1¼	30.48	35.08	25.96		4.52	
5	ABR*	1¼	3.98	4.58	0.55		3.43	
	<u> </u>	1	<u> </u>		<u> </u>	1	11	
6	AB Total	1¼	34.46	39.66	26.51		7.95	
	4+5							
7	AA + AB	1¼	78.99	90.90	55.19		23.80	
	Total 3+6							
8	BB	11⁄4	7.90	9.10	6.40		1.50	
•			1100	0110				
9	Grand	1¼	86.89	100	61.59	70.88	25.3	29.12
	Total							
	3+6+8							
10		2	11.48	100	0.89		10.59	
10			11.40	100	0.00		10.00	
11	Total	1¼ +2	98.37		64.48	63.52	35.89	36.48
		1	04.00					
12	Supplied			as per de	elivery note	1		
13	Difference	; ;	+13.41		(+15.78)			
	(11-12)							

\* Ripple

# Summary of Quantities of Unused Boards and Recyclable Timber

		Boards	ft <sup>3</sup>
1	Total number of boards supplied at 11/4"	175	86.89
	(31.75mm)		
2	Total number of unused boards AA	52	23.76
3	Total number of unused boards AB	51	25.04
4	Total number of unused boards BB	11	5.77
5	Total number of unused boards (average width	114	54.57
	of 5.53")		
6	Total number of used boards (1 – 5)	63	32.32
7	Volume of recyclable off-cuts: lengths 24"-111"		7.02
	(min 0.10 $ft^3$ ). See Summary of Recyclable		
	Quantities Section		
8	Total volume of used timber, excluding		25.3
	recycled (6 – 7)		
9	Total volume of timber, unused material (5 + 7)		61.59

# Summary of Recyclable Quantities

	Grade	No.	ft <sup>3</sup>	Lengths x Width (in inches)	
1	AA	19	3.78	min 24 to 67 x min 4¾	
2	AB	6	0.92	min 25 to 111 x min 1¾	
3	AAR	7	1.14	min 33 to 74 x min 4	
4	ABR	3	0.55	min 37 to 46 x min 51/2	
5	BB	3	0.63	min 24 to 77 x min 3 <sup>3</sup> ⁄ <sub>4</sub>	
6	Total	38	7.02		
7	Average volume of a recycled piece = 0.1847				
8	Average of	limensions	of a recycle	ed piece = 6" x 53" x 1¼"	

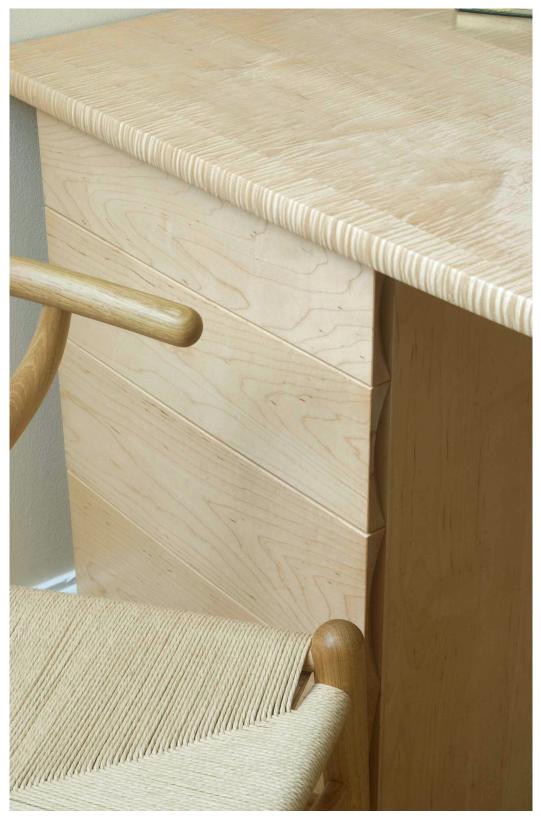


Fig 1. Free standing desk with ripple maple top



Fig 2. Drawer detail emphasizing the contours of the grain patterns and showing handles in hard maple emphasizing the tactile qualities of the wood



Fig 3. Hans Wegner oak "wishbone" chairs complete the kitchen furniture scheme

# APPENDIX V

# Pondlife Sculptural Seating at the Ashmolean

### 10 May – 1 June 2003

## Selected comments from visitors:

- Beautiful, tactile I loved the seats (Tania de Gruchy, Daventry)
- Some of the most exciting seats I've ever seen! + comfortable (B. Copean, Oxford)
- Bench crossed with porcupine ouch! (Peter)
- Fabulous work of art! (P Luxton)
- Brilliant but a bit spiky! (Gwen Jenkins)
- The shape is sharp, but I felt comfortable. It reminds me of African elephants (Yuniko, Japan)
- So different, so right for reflection (Margaret Allen, Co Hisford)
- Feels like being in the enchanted forest very protective quality (Jean Glynn, Tackley, Oxford)
- Beautiful! (Pauline Vos, Holland)
- A modern tranquillity! (Rhiannon Griffiths, Sheffield)
- Very funny (Ewa, Poland)
- Beautiful lines lovely to walk through too! (Zoe Blount, Oxford)
- I was pleasantly awed by your unique furniture design and its materials and workmanship (Prof. E. V. Gangadharam, India)

# APPENDIX VI

# **Local Sourcing**

- Local woodlands
- Participants "Better Marketing of our Broadleaved Timber"
- Round Timber Specifications

# Local woodlands

### Summary of timber purchased from local estates:

- The Reed Estate, Checkendon, South Oxfordshire Owned by: Michael Reed Managed by: Norman Cox Timbers: cherry, ash, catspaw oak, oak in the round
- Swyncombe Estate, South Oxfordshire
   Owned by: Not known
   Managed by: Geoffrey Hopwood
   Timbers: olive ash, ash, burr oak in the round
- Thame Park, Thame, South Oxfordshire Owned by: Not known Managed by: Martin Drew Timbers: brown oak in the round
- Bagley Woods, Boars Hill, Oxfordshire Owned by: St John's College, Oxford University Managed by: Philip Boer Timbers: sweet chestnut thinnings, half-round
- Hardwick Estate, Whitchurch, South Oxfordshire Owned by: Sir Julian Rose Managed by: Martin Giles, Wessex Woodland Management according to F.C.S. standards Project manager: Adam Dawson Timbers: beech, spalted beech converted on the estate using the estate mobile sawmill "The Woodmizer"

Purchased: selected air-dried planks for the Rieple desk commission

 Wheelers Wood, Checkendon, South Oxfordshire Owned by: Christopher Beeton Managed by: Geoffrey Hopwood Timbers: beech in 1990 (after the storm) Purchased: selected air-dried beech for Woolcock table commission

# The following estates have begun their own cycle of conversion and air-drying of timber at their respective estates:

- Stonor Park, Stonor, Henley-on-Thames, South Oxfordshire Owned by: Lord Camoys Managed by: Estate forester Timbers: olive ash, oak, burr oak, tree of heaven converted on the estate using a Forestor Sawmill (contractor Martin Drew; advisor Philip Koomen); currently air-drying on the estate
- Woodland at Stoke Row, Busgrove Lane, South Oxfordshire Owned by: Susan Soul Managed by: owner and Adam Dawson Advisers: Geoffrey Hopwood and David Rees (Oxfordshire Woodland Project) Timbers available: beech, wild cherry, birch

# The following estates have been in dialogue but timber has not been identified as suitable for conversion:

 West Farm, Eaton, near Abingdon, South Oxfordshire Owned by: David Gow and Anne Nicholson Managed by: owners Adviser: David Rees (Oxfordshire Woodland Project)
 Greenfield Farm, Eaton, Christmas Common, South Oxfordshire

Owned by: Andrew Ingram Managed by: Andrew Ingram under the Forestry Commission Woodlands Grants Scheme

- 11. Bessleleigh Woods, Eaton, near AbingdonOwned by: Vale of the White Horse District CouncilManaged by: David Rees (Oxfordshire Woodland Project)
- 12. College and Common Wood, Checkendon, South Oxfordshire Owned by: not known Managed by: Stuart Dale, Tillhill Forestry Ltd
- 13. Heath End Estate, Checkendon, South Oxfordshire Owned by: Mr and Mrs Gammer Managed by: Rik Pakenham, Chiltern Forestry

#### Timber purchased from non-woodland estates:

Cedar of Lebanon – Harcourt Arboretum, Nuneham Courtenay, Oxfordshire

Laburnum – Stoke Row, South Oxfordshire

Walnut - Woodcote, South Oxfordshire

Yew – Christmas Common, South Oxfordshire

Box - South Stoke, South Oxfordshire

Holly - Nuffield, South Oxfordshire

# Participants Attending Consultation on "Better Marketing of Our Broad Leaved Timber"

18 NOVEMBER 2002, GUILDOWN, BURCOT, OXFORDSHIRE

NAMES	FUNCTIONS
Mike Render	Senior lecturer, Buckinghamshire Chilterns University
	College
Philip	Furniture maker, timber buyer – round to kilned
Koomen	
Barnaby	Furniture maker, woodland owner, timber buyer
Scott	
David	Woodland owner, farmer
Barbour	
Anne	Woodland owner, farmer. West Farm, Eaton, near
Nicholson	Abingdon
Adam	Woodland manager, conversion (mobile saw:
Dawson	Woodmizer), timber sales
Martin Drew	Freelance woodland manager, conversion (mobile saw:
	Forestor), timber sales
David Rees	Project manager, Oxfordshire Woodland Project

# A Sample of The Timber Trade Specification Requirements for English Timber in the Round

Round Timber Specifications

;

STANDARD MINIMUM LENGTHS AND DIAMETERS						
SPECIES	Mid Diameters	Min length	Comment			
	ĊM	m				
Ash - prime	50	2.1	Large diameter logs only			
Beech						
- first grade	36	2.1	Clean, white			
- second grade	32	2.1	Some colour acceptable			
Cherry	32	2.1	Clean no knots			
Sweet Chestnut						
- first grade	30	2.1 <sup>;</sup>	No shake, clean			
- second grade	25	2.1	Sound knots acceptable			
Elm	45	2.1				
Lime	35	2.1				
Oak						
- fencing	29	2.1	Sound knots acceptable			
- beam	40	3.65	Straight, small sound knots			
Plank			n na stan a fan an ste 🗕 na a stronge i fan stronge en ste en stronge en ste en ste en ste en stronge en ste en			
- character	48	2.1	Small surface pips acceptable			
- prime	55	2.1	No surface pips, straight			
			grain central heart			
- рірру	48	2.1	Even coverage of epicormic growths			
9						
Sycamore - first grade	36	2.1	White & clean, winter cut			
Walnut	58	2.1	2004 - 20			
Yew	25	1.5	No flutes or large knots			
Plane	60	2.1				
Cedar	39	1.8				
Douglas Fir	32	3.65	<b>*</b>			
Larch	32	3.65				

#### Aim to achieve a balance between the height of knot-free stem and rapid achievement of the minimum diameters. Pruning for extra knotfree log length will be at the expense of the girth ultimately attained for a given tree life. Conversely, restricting timber height to 5m will help ensure that the girth is achieved within the life of the trees on average soils.

# **APPENDIX VII**

# Main Characteristics of Crop Timbers Used in the Semi-Bespoke Process

#### • Saw milling methods

- North American timbers are cut on a rotational basis
- European oak cut on a "through and through boulle" basis

#### Selection

- The main woods used have been limited to FAS North American maple, cherry, oak, walnut and 1<sup>st</sup> quality European oak
- FAS grade is the main North American grade available in the UK
- Characteristics of FAS Grade
  - These timbers are straight-grained and have relatively knot and defect free features, conforming to American grading rules
  - Minimal wastage makes selection efficient and cost effective
  - o Machining, handling and storing are efficient processes
  - Sapwood is a feature of North American timbers and not regarded as a defect according to American grading rules
  - o Sapwood is generally regarded as an undesirable feature
- Design
  - The narrow boards in American timber is a limiting factor in design
  - Average widths of boards are about 15 cm and are seldom wider than 20 cm
  - Wider widths have to be jointed

# APPENDIX VIII

# Networks

- Network of organisations
- Participants "Our Woods In Your Hands"

# **Network of Organisations**

### International

- 1. American Hardwood Export Council (Timber Trade Forestry Management)
- Transnational Wood Industries Group (Woodland Management Timber Utilisation)
- 3. Singapore Furniture Industries Council (Furniture Design)
- 4. Bahá'í International Community (Agenda 21, Ethics)

## <u> Agenda 21 / Sustainability</u>

- 5. Royal Society for the Encouragement of Arts, Manufacture and Commerce
- 6. South Oxfordshire District Council
- 7. Oxfordshire County Council

## <u>Furniture Design</u>

- 8. Buckinghamshire Chilterns University College
- 9. Chartered Society of Designers
- 10. Oxfordshire / Buckinghamshire furniture makers network
- 11. Chiltern Enterprise Gateway
- 12. Celebration of Craftsmanship (Betty Norbury)
- 13. Centre for Contemporary Furniture, Cheltenham
- 14. Artifex Gallery, Sutton Coldfield
- 15. Chairs 2004
- 16. River & Rowing Museum
- 17. Art in Action

18. Oxfordshire Artweeks

#### Woodland management and research

- 1. Oxfordshire Woodland Project
- 2. Chilterns Woodland Project
- 3. Woodland Heritage
- 4. Royal Forestry Society
- 5. Forestry Institute, Oxford University
- 6. Institute of Wood Science
- 7. Small Woods Association
- 8. Timbmet Group Ltd (timber merchant)
- 9. Whitmore's (timber merchant)
- 10. Sutton Brothers (timber merchant)

Participants in Our Woods in Your Hands Conference, Saturday 25 September 2004, River & Rowing Museum, Henley-on-Thames

	Name	Organisation or profession
1	Dr Gabriel Hemery	Northmoor Trust (Speaker)
2	Dr Mike Packer	Timbmet Ltd (Speaker)
3	David Rees	Oxfordshire Woodland Project (Speaker)
4	David Jenkins	Coed (Chair)
5	Philip Koomen	Furniture designer-maker (Organiser)
6	Susan Kurr	Chiltern Enterprise Gateway
7	Steve Say	Timbmet Ltd
8	Chris Cox	Timbmet Ltd
9	Peter Savill	Oxford Forestry Institute
10	Peter Goodwin	Woodland Heritage
11	Scott Lewis	Woodland Heritage
12	Jim Stewart	Buckinghamshire Chilterns University
		College
13	Students from	Buckinghamshire Chilterns University
4.4		College
14	Sara Waller	Rycotewood Centre, Oxford CFE
15	Michael Richards	Forest economist
16	Maurice Thomas	Oxfordshire Woodland Project
17	John Johnson	Chiltern Enterprise Gateway
18	May Dale	The Stile Company
19	Geoffrey Hopwood	Forestry consultant
20	Rik Pakenham	Forestry consultant
21	Robin Furlong	Furniture designer-maker
22	Richard Lee	Stewart Linford Furniture Ltd
23	Douglas Griffin	Furniture designer-maker
24	Phoebe Shaft	Green woodworker
25	Jody Koomen	Green woodworker
26	Elizabeth Sweeten	Hardwick Estate

	Name	Organisation or profession
27	Alistair Philips	Graduate
28	Mr Hartley	
29	Miranda Salmon	Furniture designer-maker
30	Rob Ivey	
31	Carol Watkins	River & Rowing Museum member
32	Graham Clarke	
33	Brian Walsh	
34	Kurt Smith	
35	Mark Kovell	Forester
36	Andrew Robinson	
37	Douglas Coulter	Buckinghamshire Chilterns University
		College
38	Chris Hanni	
39	Helen Fisher	
40	Yvonne Becks	
41	Peter Claydon	Buckinghamshire Chilterns University
		College
42	Jessica Bacon	
43	Laurent Kot	Forest economist
44	David and Joy	Woodworker

# APPENDIX IX

The "Signed & Sealed" Collection

No	Title	Signed &	Wood /	Client	Year
		Sealed	Provenance		made
Α	SEATING				
1	Pondlife IV - 2 seater	~	Sweet chestnut, Bagley Woods	Boers	2002
2	Pondlife V - 2 seater	~	Sweet chestnut, Bagley Woods	Boers	2002
3	Pondlife VI - 3 seater	$\checkmark$	Sweet chestnut, Bagley Woods	Roditi	2003
4	Pondlife VII - 2 seater	$\checkmark$	Sweet chestnut, Bagley Woods	Roditi	2003
5	Pondlife VIII - 1 seater	$\checkmark$	Sweet chestnut, Bagley Woods	Roditi	2003
6	Pondlife IX - 2 seater	$\checkmark$	Sweet chestnut, Bagley Woods	Armstrong	2003
7	Pondlife X - 2 seater	$\checkmark$	Sweet chestnut, Bagley Woods	Allfrey	2004
8	Pondlife XI - 2 1/2 seater	$\checkmark$	Sweet chestnut, Bagley Woods	Wellby	2004
9	Pondlife X11 -2 seater	~	Sweet chestnut, Bagley Woods	Loyd	2004
10	Pondlife XIII - site specific	~	Sweet chestnut, Bagley Woods	Paice	2004
11	Pondlife XIV - 2 <sup>1</sup> / <sub>2</sub> seater	✓	Sweet chestnut, Bagley Woods	Artifex	2004
12	Pondlife XV - 2 seater	~	Sweet chestnut, Bagley Woods	Rainford	2004
13	Pondlife XVI - 2 seater	✓	Sweet chestnut, Bagley Woods	Macdonald	2004
14	Pondlife XVII - 1 seater	✓	Sweet chestnut, Bagley Woods	Camoys	2004
15	Pondlife XVIII – 2 1/4 seater	~	Sweet chestnut, Bagley Woods	Ledward	2004
16	Plank chair		English beech	Kellaert	2002
17	Plank chair I	$\checkmark$	Yew, Oxfordshire	Welsh	2003
18	Plank chair II	$\checkmark$	Yew, Oxfordshire	Rancombe	2004
19	Plank chair I	~	Tiger oak, Thame Park		2003
20	Plank chair II	✓	Tiger oak, Thame Park		2003
21	Two U bench	~	Cedar of Lebanon, Oxfordshire	Roberts	2001
22	Two U bench	~	Cedar of Lebanon, Oxfordshire	Roberts	2001
23	Stool	~	Cherry, Checkendon		2004

# "Signed & Sealed" (and *Semi-Bespoke* Designs): 2001 – 2004

No	Title	Signed	Wood /	Client	Year
		& Sealed	Provenance		made
24	Ebb & Flow (dining)	✓ ✓	Brown oak, Thame		2003
			Park		
25	High back (dining)	Model	Cherry		2004
26	Sculptured (dining)	Model	Walnut		2004
27	Chair (dining)	Model	Oak		2004
B	DINING TABLES				
28	Kitchen table	✓	Beech, Hardwick Estate	Woodcock	2002
29	Dining table	✓	Brown oak, Thame Park	Beaumont	2003
30	HG Refectory table	Semi- bespoke	Oak, English	Stacpoole	2004
С	LOW TABLES				
31	Curved plank table	✓	Brown oak, Thame Park	Smith	2001
32	Split Plank Table	$\checkmark$	Crutch ash, Burcot	Bowen	2001
33	Trio plank table	✓	Tiger / brown oak, Thame Park	Brett	2001
34	Trio plank table	✓	Tiger / brown oak, Thame Park	Brett	2001
35	Trio plank table	~	Tiger / brown oak, Thame Park	Brett	2001
36	Waney edged plank table	~	Pippy yew, Christmas Common	Gray	2003
37	Square edged plank table	✓	Pippy yew, Christmas Common	Artifex	2003
38	Book matched plank table	✓	Norwegian maple, Hardwick Estate	Barr	2004
39	Ebb & Flow low table	✓	Ash, Cookley Green	O'Reilly	2004
40	Ebb & Flow low table	✓	Ash, Cookley Green		2004
41	Low table	~	Spalted beech, Oxfordshire		2002
42	Table/bench	~	Spalted beech, Oxfordshire		2002
43	Pondlife low table	~	Cedar of Lebanon, Oxfordshire	Roditi	2003
44	Boat table	Semi- bespoke	Oak, English		2002
45	Ebb & Flow split table	Semi- bespoke	Catspaw oak, English	Tate	2002
46	Ebb & Flow low table	Semi- bespoke	Maple, East Coast	AHEC	2001
47	Ebb & Flow console table	Semi- bespoke	Maple, East Coast	AHEC	2001

No	Title	Signed	Wood /	Client	Year
		& Sealed	Provenance		made
D	DESKS	Scaleu			
48	Ebb & Flow desk	~	Brown oak, Thame Park		2002
49	Ebb & Flow desk	~	Ash, Cookley Green		2004
50	Writing desk	~	Brown oak/catspaw oak, Thame Park	Gale	2002
51	HG Writing desk	~	Brown oak, Thame Park		2003
52	Desk / dressing table	~	Cherry, Checkendon		2004
53	Writing table	V	Beech, Hardwick Estate; Oak, FSC European	Rieple	2004
E	BOOKCASES				
54	Ebb & Flow bookcase	$\checkmark$	Brown oak, Thame Park	CFCF	2002
55	Ebb & Flow bookcase	✓	Ash, Cookley Green		2004
56	Bookcase / display unit	~	Brown oak, Thame Park	Day	2001
57	Bookcase	✓	Cherry, Checkendon	Foden	2004
F	<b>BEDROOM FURNITU</b>	RE			
58	Chest of drawers	~	Cherry, Checkendon	Foden	2001
59	Bedside cabinet	✓	Cherry, Checkendon	Foden	2001
60	Chest of drawers	✓	Walnut / yew, Oxfordshire	Howlett	2002
61	Chest of drawers (pair)		Quarter sawn oak, English	Stacpoole	2004
62	Chest of drawers	✓	Brown oak / catspaw oak	Gale	2002
63	Chest of drawers	~	Brown oak, Thame Park; catspaw oak, English	Gale	2004
64	Bed	Semi- bespoke	Oak / catspaw oak, English	Stacpoole	2004
65	Headboard	~	Cherry, Checkendon	Foden	2001
66	Headboard (Plank)	~	Brown oak, Thame Park	Arscott	2004
G	LIVING ROOM STOR	AGE FU	RNITURE		
67	Sideboard / display cabinet	~	Oak / catspaw oak, English	Stacpoole	2004

No	Title	Signed	Wood /	Client	Year
		& Sealed	Provenance		made
68	Storage cabinet for	$\checkmark$	Brown oak, Thame	Wilson	2001
	CDs/videos		Park		
69	Narnia cabinet	$\checkmark$	Yew, Christmas		2004
			Common; Brown		
			oak, Thame Park		
70	Corner shelving unit	$\checkmark$	Brown oak, Thame	Day	2001
			Park		
71	Pair of tables	$\checkmark$	Brown oak, Thame	Day	2001
			Park		
72	Storage chest 1	$\checkmark$	Brown oak, Thame	Fox	2002
			Park		
73	Storage chest 2	$\checkmark$	Brown oak, Thame		2002
			Park		
74	Storage chest 3	$\checkmark$	Brown oak, Thame		2002
			Park		
75	Sideboard / display	Semi-	Oak/catspaw,	Tate	2002
	cabinet	bespoke	English		
76	Storage / display	Semi-	Oak/catspaw,	Tate	2002
	cabinet	bespoke	English		
Η	MIRRORS				
77	Narnia	$\checkmark$	Yew, Oxfordshire		2004
78	Wall mounted	$\checkmark$	Beech, Hardwick	Dodd	2004
			Estate		
79	Console table & mirror	$\checkmark$	Oak, Checkendon	Sadler	2004
80	Ebb & Flow	Semi- bespoke	Maple, East Coast	AHEC	2001

"Signed & Sealed" (and *Semi-Bespoke* Designs): 2001 – 2004

# **APPENDIX X**

"Out of the Woods" Exhibition Panels

Exhibition panels and the exhibition poster are shown in the following illustrations, Fig 1 to 9:



# Philip Koomen

Philip Koomen has worked with wood as a designer-maker in the Henley on Thames area since 1975. The Bahá'í Faith is a significant influence on Koomen's work. In his design furniture and craftsmanship he works towards global responsibility through creativity

Over the years, a number of assistants and post-graduate trainees have worked with Koomen before setting up their own workshops. His current team of designers and craftsmen, who all contribute to the values and aims of the workshop, includes Steve Salt who joined the business in 1983, Nic Smith (1990) and Mike Bishop (1994), together with administrative support from Esmyr van Hees.

Philip Koomen Purniture has exhibited in Belgium, France, Italy, the United Arab Emirates and the USA. Koomen is also a regular exhibitor at Celebration of Craftsmanship, Cheltenham and Art in Action in Oxfordshire. His collaborative projects with the American Hardwood Export Council on environmental issues have received international publicity and his fumiture has been featured in the acclaimed book Furniture for the 21st Century by Betty Norbury.

#### A SUSTAINABLE APPROACH TO FURNITURE DESIGN

In 2001, Philip Koomen was awarded a bursary from the Buckinghamshire Chilterns University College to undertake a three year project leading to the award of a doctorate on a sustainable approach to furniture design. This exhibition outlines the major themes of the project and exhibits some of the resulting furniture. Koomen is a Fellow of the Society of Chartered Designers, a Fellow of the Royal Society of Arts, and an Associate of the Institute of Wood Science.



Move along these shades In gentleness of heart; with gentle hand Touch - for there is a spirit in the woods. WILLIAM WORD SWORTH



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Fig 1. Panel 1, Philip Koomen Furniture



# Sustainability

#### HOW CAN WE CREATE A SUSTAINABLE WORLD?

In 1992, the Earth Summit held in Rio de Janeiro alerted everyone to the problems of sustaining world economic growth. The conference focused on global issues and problems, including deforestation, biodiversity and pollution. In a 500 page document, endorsed by 179 heads of state, the interdependence of social, economic and environmental issues was recognized. It set out a

plan for Sustainable Development for the 21st Century known as Agenda 21.

> Despite initial enthusiasm, little progress has been made since then towards realizing these goals. The challenge of achieving sustainable development in an interdependent world still remains. As our individual actions have a ripple effect far beyond our understanding, we all have a responsibility to work towards sustainability.

#### AGENDA 21

Agenda 21 recognizes that efforts towards sustainable development must come from grassroots level initiatives, and promotes local planning and collaborative action. Some scientists predict economic and environmental collapse, if current patterns of consumption and pollution continue. One of the biggest problems is the demand for consumer products in affluent countries combined with high levels of pollution.

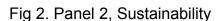
Furniture designer-makers who work in wood can make a valuable contribution to developing alternative approaches to sustainable development. Craftsman made products are designed to be used and appreciated for generations, unlike some manufactured goods, and can be directly linked to our natural resources.

Since the Earth Summit, Philip Koomen has been an active participant in local sustainable development. As a Bahá'i, he believes that the promotion of world citizenship values is central to this worldwide process.

Let your vision be world embracing rather than confined to your own self. MARKU'ILÁH

> Root & Rowing Michael History of Theme

R





# The concept of semi-bespoke furniture

#### IS CRAFTSMANSHIP THE PAST OR THE FUTURE?

In today's consumer age dominated by branded products, the commissioning of craftsman-made furniture is a rare opportunity for clients to be directly involved in the creative process by defining their needs and aspirations. The act of commissioning furniture represents a commitment to the present and an investment for the future.

Unlike industrial production, where designs are developed and refined through a series of prototypes before production, bespoke furniture-makers must resolve design problems on the first attempt. The design time and the hours invested in making these unique pieces of craftsmanship are reflected in the total cost of a piece.

#### CRAFTSMANSHIP FOR TODAY



To make this type of craftsman-made furniture more accessible and affordable, without compromising craftsmanship, Philip Koomen has developed the alternative concept of semi-bespoke furniture. The clients' participation is still intrinsic to this process but, unlike the one-off design, the outcomes are more certain. To minimize the design costs, clients select from a range of pieces, which have already undergone development from concept to prototype. These designs are then adapted to meet the clients' needs and aspirations through continued collaboration with the designer-maker. Each piece of furniture is a unique variation on a theme, based on the signature of wood, customized dimensions and decorative techniques.

When the furniture is made from locally sourced timber the act of commissioning furniture initiates and promotes a sustainable local cycle. This way craftsman-made furniture becomes a viable alternative to retail buying in the 21st century.

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Read Adams





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Fig 3. Panel 3, The concept of semi-bespoke furniture



# Creating a local cycle

#### WHO IS RESPONSIBLE FOR OUR WOODS?

Land use for forestry in England is one of the lowest in Europe at only 8.5 per cent; Germany, France and the USA have at least 25 per cent. We only produce 4 per cent of the hardwood we use, while the rest is imported. UK National Forestry policy has concentrated on extending recreational and landscape use rather than timber production.

Almost two thirds of UK woodlands are privately owned but most timber resources are poorly used. Oxfordshire small woodlands alone have the capacity to produce up to 40,000 tonnes of wood, worth up to £1 million each year. Actual production is now almost negligible.

The decline of Chiltern and Oxfordshire furniture making and increased reliance on imported timbers has had a disastrous impact on local timber markets. Lack of demand has led to lower prices for timber and undermining of the ecology and economy of woodlands.



#### ALTERNATIVE WAYS TO SOURCE, PROCESS AND USE TIMBER

In an effort to find alternative, sustainable ways of sourcing, processing and utilizing wood, Philip Koomen Furniture makes creative use of local timber resources that are not usually considered commercially viable in the timber trade. They have developed a 'local cycle' which promotes greater collaboration and support among woodland owners and local fores try related busines ses.

Koomen sources timber from estates and woodlands within thirty miles of his workshop in South Oxfordshire. Local sawmills convert the timber into pieces that he dries at the workshop, ready for use in his furniture designs. By reducing the number of stages in the supply chain, woodland owners are able to negotiate a better price for their timber and as fewer miles are travelled the environmental damage caused by the burning of fossil fuels is reduced. Over the next twenty years Koomen plans to develop the local cycle and expand the range of designs that feature local woods.



provenance has a distinc ional character and histor that connects the woodland the furniture maker, and the castoner ]] PHILIP ROOMER





Forest resources and forest lands should be sustainably managed to meet the social, economic, ecological, cultural and spiritual human needs of the present and future generations. EARTH SUMMIT 1992

ALC: No. of



Ash log form Status Sale, Similay on Taxas Gamera daharry loga from a Checke of an estate

Air-Otted planks are laps under dry on versitä

with 'treef small' for gos which will produce 'to re-and 'tiger' figured places

plantes are 'post o at da'

Protocole on the places we adde ted for a dedi top

The Stabled pieces could from These Rod. Screen'

#### Fig 4. Panel 4, Creating a local cycle



# The unique signature of provenance

#### HOW NEGLECTED TIMBER RESOURCES CAN BECOME VALUED

Local woodlands, which have not been cultivated specifically for timber production, come in a huge variety of shapes and species. These timbers also have many unique features such as knots, cracks, unusual grain patterns, and contrasting colours, caused by fungi or the age of the tree. Because conventional manufacturers need wood that has consistent qualities to maximize efficiency, the variety found in local timber complicates production. For this reason, local timber is typically used for firewood and low value products. However, timber from managed forests in Germany, France and the USA has uniform characteristics and is more suitable for large-scale manufacturing processes.

#### FROM PROVENANCE TO PRODUCT

Diverse local timbers are an under-utilized resource. Furniture designs that explore and incorporate the varied characteristics of our locally grown timber create furniture with a regional identity. Furniture made with wood of local provenance tells a story about where the wood comes from. Through careful timber selection, each piece of furniture may acquire a unique 'signature' sepresented by grain patterns and other distinctive markings. Unusually shaped trees and planks can inspire unique design forms.



11 twendel like may furniture to communicate something about where the timber communicate something characteristics of the material. In designing and making a piece of familiare, I feel thave a meral mapenshibility to connect the timber scauce and the feal product to the cleant. I believe these links transform familiare into a coldination of nature. J/ INTER KOTARNY

Each tree is recognised by its own fruit.

P



NO, LEW TO BALLS Type of from These Puck, Colorabitie Canada Canada and proce Canada Canada Canada areas downoon discinge Anamada Valagi Samaa Statu da aris magle 13th and Pitor radio Coloration mode anothe Lew T

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#### Fig 5. Panel 5, The unique signature of provenance



# Are we wasting wood?

#### SUSTAINABLE TIMBER USE

A balance between timber production and conservation is essential to good woodland management practice. By finding markets for neglected timber resources, particularly so-called 'waste' products, woodland owners can generate additional income to reinvest in the improvement of their woodlands. The use of local resources also helps reduce our reliance on imported timbers and expensive distribution and transport networks.





#### THE PONDLIFE BENCH

The PondBje bench, part of a unique series of semi-bespoke designs, is a radical rethink of the purpose of furniture. The unusual form of the PondBje bench has evolved through the exploration of sweet chestnut thinnings and the relationship between sculpture and furniture, function and fantasy. As sculpture, PondBje invites you to enter an imaginary naturalistic world where you can enjoy the tactile qualities of the sinewy reeds. Unlike most sculpture, however, you are also able to use the bench as seating and a space for respite, contemplation and personal reflection, either in the garden or the home.

Foudil/e's hand carved reeds are made from sweet chestnut thinnings sourced from Bagley Woods near Boars Hill. The Oxfordshire Woodlands Project identified sweet chestnut thinnings as an underutilized, durable and locally grown hardwood. The misshapen thinnings, usually removed to promote the growth of storager, straighter trees, are often regarded as a waste product but are particularly suitable for *Pondlife's* curvaceous carved reeds.

 $\label{eq:product} Pondly else have been described as 'organic and wildly eccentric' by The Independent and 'absolutely beautiful' by Channel 4.$ 



There's nothing that keeps its youth, So far as I know, but a tree and truth.





Fig 6. Panel 6, Are we wasting wood?



# Is beech boring?



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A spaked log ode end for placking

#### CHILTERN BEECH FURNITURE

Traditionally beech was produced locally for chair legs and tent pegs, but is no longer widely used in the UK. Many in the timber and furniture industry regard it as low quality. boring' and unstable, and its use has declined steadily. However, pale coloured beech is widely used in Germany, where its susceptibility to movement is overcome through good design. Chiltern beech is less consistent in colour, but this can be used as a design element.

#### SPALTED BEECH

Spaliting is a form of decay caused by fungi. Spalied beech timber is characterized by decorative, dramatic mosaic-like markings that are divided by dark lines, and is highly valued by furniture makers. Naturally spalled beech is relatively rare, but it is possible to recreate this effect in healthy wood by storing logs near wood infected with fruiting bodies of the fungi. However, the result cannot be guaranteed.

#### COLOURED HEARTWOOD

When beech heartwood appears coloured the timber is usually down-graded, although it does not appear to be inferior. In some countries beech with this distinctive pattern is used for decorative veneers. The presence of a significant amount of this type of beech in the Chilterns provides an opportunity

to explore how its features can be used

in farniture design.



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The fool sees not the same tree that the wise man sees.





#### COLOUR CONTROL

Beech wood is extremely prone to colour changes during seasoning, until the moisture content is reduced to less than twenty five per cent

The risk of discolouration continues after the logs have been converted into timber. Poor storage during air drying can result in surface mould, fungi and bacteria.

A reddish colour can be achieved by steaming the boards at high temperatures. White beech is attained by slowing down the drying process. The leaves are left on the tree at the felling stage, and this is followed by artificially drying the wood at temperatures below thirty degrees centigrade.

#### Fig 7. Panel 7, Is beech boring?



How can designers promote sustainability in a global market?

#### A PERSPECTIVE ON NORTH AMERICAN FORESTRY

How can designers Red oak, tulipwood and soft maple are abundant in the eastern hardwood forests of the United States. Red oak is the most dominant species in this region but tulipwood and soft maple are growing in volume faster than other species.

The rapidly increasing stock of soft maple trees is becoming a particular problem in some areas, leading to a species imbalance that threatens the biodiversity and quality of the forest. Sustainable forestry depends on the promotion of diverse species to ensure a balanced harvest. Hence, there are strong environmental reasons to harvest soft maple and find additional uses and markets for this most abundant species.

Designers and manufacturers can develop designs that use timber to promote sustainability instead of stimulating consumer demand regardless of the environmental consequences. Where there are adequate supplies of these species, selling greater volumes has positive economic benefits.





The Earth is but one country and mankind its citizens. BARÁT/11ÁR

> Beer Book Michael Harley of Theres

9



11 The area of current in the Trio designs suggests recommend and first; even the edges are curred operacles. I have tried to reale the arrest interact in a dynamic way, giving a new view and approximized of the form from different perspectives. })

#### THE KOOMEN TRIO DESIGNS

Philip Koomen has been concerned for some time about the disconnected practices of timber growers, processors, researchers, designers and manufacturers. A belief that designers can promote sustainability in a global market by designing products reflecting the diversity of the world's forests has motivated his collaborative work on environmental issues with organizations involved in the marketing and supply of raw materials, such as the American Hardwood Export Council and Timbmet Ltd, Oxford.

The Dio furnituse celebrates soft maple. The innovative design concept marks a distinct shift in Koomen's understanding of form. As in the PondDjo bench, the boundaries between furniture and sculpture merge and the signature characteristics of the individual pieces of the wood are incorporated into the design.

Since the initial *Trio* project, the design concept has been developed as part of Koomen's semi-bespoke range which uses locally-sourced timber. Examples feature in the exhibition.

Fig 8. Panel 8, How can designers promote sustainability in a global market?

# Out of the Woods

Philip Koomen: a sustainable approach to furniture design



# 16 September 2004 to 7 January 2005



**River & Rowing Museum** Henley on Thames Mill Meadows Henley on Thames RG9 1BF 01491 415600

www.rrm.co.uk

Fig 9. Exhibition poster

# **APPENDIX XI**

"Out of the Woods" Exhibition Objects

NO	TITLE/DESCRIPTION	WOOD and	Year	DIMS IN CM	Hrs
<u>ara</u>		PROVENANCE	Made	W L H	
	NED AND SEALED RA			ſ	
1	Plank low table	Oxfordshire Norway Maple (Hardwick Estate)	2004	63 x 114 x 38	14
2	Desk/dressing table	Oxfordshire Cherry 2004 6 (Checkendon)		66 x 132 x 78	108
3	Stool	Oxfordshire Cherry (Checkendon)200448 x 37 x 46		20	
4	Writing desk	Oxfordshire Brown Oak 2003 74 x 138 x 80 and Burr Oak		134	
50	Ebb & Flow chair	Oxfordshire Brown Oak (Thame Park)	2003	50 x 50 x 92	35
6	Hall mirror	Oxfordshire Tiger Oak (Thame Park)	2004	89 x 96 ht	12
7	Chest	Oxfordshire Brown Oak (Thame Park)	2003	88 x 53 x 43	27
8	Pondlife 2 seater bench	Oxfordshire Sweet chestnut (Bagley Woods)	2004	130 x 62 x 230	70
NO	TITLE/DESCRIPTION	WOOD and PROVENANCE	Year Made	DIMS IN CM W L H	Hrs
9	Pondlife 1 seater bench	Oxfordshire Sweet chestnut (Bagley Woods)	2004	70 x 60 x 230	35
10	Cabinet	Oxfordshire Pippy Yew (Christmas Common) and Brown Oak (Thame Park)	2004	56 x 20 x 170	45
11	Mirror	Oxfordshire Beech (Hardwick Estate)	2004	76.5 x 101	13
NO	TITLE/DESCRIPTION	WOOD	Year Made	DIMS IN CM W L H	Hrs
12	Freestanding mirror	Oxfordshire Yew	2004	116 x 202 ht	42
13	Ebb & Flow low table	Oxfordshire Ash (Cookley Green)	2004	70 x 130 x 38	32
14	Ebb & Flow desk	Oxfordshire Ash (Cookley Green)	2004	90 x 160 x 78	82
15	Ebb & Flow book case	Oxfordshire Ash (Cookley Green)	2003	42 x 121 x 78	34
16	Pondlife 2 seater bench	Oxfordshire Sweet chestnut (Bagley Woods)	2004	125 x 62 x 230	70
ONE	E-OFF			•	
17	Harmonic growth design low table	English Walnut and Sycamore	2004	90 x 36	60
SEN	II-BESPOKE		1	1	1
18	HG dining Table	English Catspaw Oak top	2002	137 x 72	74

"Out of the Woods" Exhibition Objects

NO	TITLE/DESCRIPTION	WOOD and	Year	DIMS IN CM	Hrs				
		PROVENANCE	Made	W L H					
CLI	CLIENT LOANS								
19	Signed & Sealed chest	Oxfordshire Cherry	2002	90x49x88	120				
	of drawers	(Checkendon)							
20	Signed & Sealed	Oxfordshire Oak and	2004	157x54x230	216				
	dresser	Catspaw Oak							
21	One-off collector's	Oxfordshire Walnut (Brize	1999		255				
	cabinet	Norton)							
22	Ebb & Flow console	East Coast North	2001	45x136x90	48				
	table	American Soft Maple							
23	Ebb & Flow low table	East Coast North	2001	70x130x40	30				
		American Soft Maple							
24	Ebb & Flow mirror	East Coast North	2001	61 x 136	23				
		American Soft Maple							

NO	TITLE/DESCRIPTION	WOOD	Design Year	DIMS IN CM (full size) W L H	Hrs for full size				
SEM	SEMI-BESPOKE DESIGNS ¼ MODELS								
25	Isosceles refectory table	Oak	1991	90 x 220 x 74	68				
26	Ebb & Flow split table	Ash	2002	130 x 122 x 40	52				
27	Pondlife single seater bench	Sweet	2001	70 x 65 x 230	35				
		chestnut							
SEMI-BESPOKE DESIGNS ¼ MODELS (continued)									
28	Pondlife 2 seater bench	Sweet	2001	125 x 65 x 230	70				
		chestnut							
29	Pondlife 3 seater bench	Sweet	2001	190 x 75 x 230	102				
		chestnut							
SEMI-BESPOKE DESIGNS ½ MODELS									
30	High back dining chair	Cherry	2002	50 x 52 x 110	18				
31	Sculptured dining chair	Walnut	2002	52 x 50 x 100	26				
32	HG circular table	Ash	1988	135 x 74	70				
33	Dining chair	Oak	2002	50 x 50 x 90	22				

NO	TITLE	WOOD	PROVENANCE	NOTES					
WOO	WOOD SAMPLES								
34	Pondlife	Sweet chestnut thinnings	Bagley Woods, Near Oxford	Creating Pondlife reeds: each reed is cut from an individual tree, a thinning which has been previously sawn in half along its length. This sample is about 40 years old					
35	Is beech boring? A selection of beech samples from the Hardwick Estate,								
	Whitchurch, Oxfordshire								
36	End grain section of spalted beech								

"Out of the Woods" Exhibition Objects

# APPENDIX XII

"Out of the Woods" Exhibition Catalogue

Located in pocket holder on inside of back cover

APPENDIX XIII

Antiques for the Future: The Inspiration, Art and Skill of Crafting Wood (Audio CD)

Located in pocket holder on inside of back cover