

Denmark Talk Notes 2010

Slide 1 – The art of laser cutting paper

Slide 2 – What is laser cutting?

Slides 3 & 4 – Laser cutting explanation

- Carbon dioxide, Neodymium and Neodymium yttrium-aluminium-garnet lasers
- We use carbon dioxide
- Gas excited in chamber
- Fired through mirrors and focussed with lens
- 0.2mm diameter
- Vapourises material, some burn some melt
- Flat bed lasers, nozzle moves on x and y axis like plotter
- Vector based files for cutting

Slide 5 – Laser cutting in CFPR

- Three CO2 lasers, 10, 30 and 200 watt
- Variety of materials cut
- APS ethos software
- Bureau service with artists and designers
- Can't cut metal

Slide 6 – Laser cutting courses at CFPR

- Introduce people to laser cutting through courses
- Many aimed at book artists
- Run in conjunction with bookbinding or printing
- Popular with teachers, lecturers etc.

Slide 7 – Laser cutting at the CFPR

- Some of the work produced through the bureau service
- Acrylic jewellery
- Paper and wood
- Small creative businesses, low cost and experimentation

Slide 8 – Charlotte Hodes at the CFPR

- Artist who normally produces unique hand cut, producing a laser cut edition
- Printing and cutting done at CFPR
- Multi-layered prints
- Think she still preferred hand cut

Slide 9 – Laser cutters used in artistic production

- Ara Petersen laser cut wood then painted with acrylic
- Laser cutter perfect for repeat, precise cuts
- CAD-CAM, computer aided design – computer aided manufacture

Slide 10 – Daniel Widrig and Jared Tarbell

- *Generator.X - Beyond the Screen*, a workshop and exhibition in Berlin

- Highlighting the creative potential of digital fabrication and generative systems.
- Examples cut in wood
- QUOTE

Digital technologies like [rapid prototyping](#), [laser cutting](#) and [CNC milling](#) enable digital artists, designers and architects to step out of the screen and produce atoms from bits, eliminating many of the limitations of industrial production processes. The technologies are becoming increasingly accessible, pointing to a future where mass customization and manufacturing-on-demand may finally offer alternatives to mass production.

Slide 11 – Laser engraved bamboo ipod cases

- Engrave as well as cut
- Burning an image into the surface

Slide 12 – Laser cutters used in manufacturing industry

- Metal manufacturing
- Furniture production
- Architectural, both model making and construction

Slide 13 – Exploring the laser as a creative paper cutting tool

- Start of practice led research project
- Exploring what the laser cutter is capable of
- Three case studies
- Cutting guides, symposium, surveying the field for evidence of practice

Slide 14 – Paper tests

- Start of project for me, see which papers cut better
- General file showing range of marks the laser cutter can achieve
- Testing the level at which different papers burn

Slide 15 – Nitrogen

- Repeat the paper tests with nitrogen
- Normally laser cutters have compressed air (oxygen) blowing through nozzle
- None done yet, early tests
- Is already used, but not widely
- Inert gas not flammable so should reduce the burning

Slide 16 & 17 – Early pop-up tests

- For my own practice looking at possibility of pop-up produced on laser cutter
- Want to combine print and laser cutting
- Can use one file for both with Illustrator
- Cutter great for cutting score or fold lines
- Can set the cutter to cut at a variety of depths in one file
- Possibly move into printed and cut paper sculptures
- Pepakura

Slide 18 – Packaging

- As a continuation of pop-up also looking at packaging produced on laser cutter
- Bespoke packaging
- Possible industrial applications
- Cut-on-demand

Slide 19 – Goldfinger

- Finally for my practice, used the laser cutter to create an altered book
- For Regenerator project, keen to test how paper would react
- You'll see more of this book at the end

Slide 20– Mette, *Josef von Sternberg – Shadow is*

- As part of my research project two other case study artists invited
- Invited Mette as she is an artist who uses a lot of hand-cut elements in her work
- Wanted to know if using the laser cutter could benefit her in any way
- Something like this piece, *Shadow is*, could be editioned on a laser cutter

Slide 21 – Mette, *Ø and Steam, Salt, Milk*

- Don't expect the laser cutter to replace hand cutting
- An aid and another string to the bow
- Wanted to work with artists who had yet to use laser cutter to see how they approach it
- Can see elements in work already that would really suit laser cutting, such as *Steam, Salt, Milk*

Slide 22 – Mette, *10+*

- Although the laser will give it different look the principle remains the same
- One positive aspect is potential large editions
- As you will see many artists work with both hand and laser, with laser cutting an accompaniment

Slide 23 – Su Blackwell, *The Lake and the Boat*

- Other case study artist is Su Blackwell
- Again an artist who uses hand cut elements in her work
- This time she works with existing books
- Such as this piece *The Lake and the Boat*

Slide 24 – Su, *Birds of the Open Forest Dawn* and *The Castle*

- The way in which Su works will present another set of challenges as cutting from a bound book will be tricky
- Registration, as with these birds, will also add another complication
- If perfected hopefully the laser cutter can assist with her more sculptural production
- Both artists coming to work with me in Bristol in June and July for a week each

Slide 25 – Su, *While You Were Sleeping*

- As well as books Su also produces installations

- As in this installation the laser cutter could assist in the more mundane repetitive aspects of many similar cuts
- Again an artist who has not really utilised a laser in their practice, so keen to record how she approaches using the cutter

Slide 26 – The use of a laser cutter by book and paper artists

- Now show you some examples of work by artists who are already utilising a laser cutter to produce paper based work
- Early part of research project, surveying the field for current practice

Slide 27 – Olafur Eliasson

- Book commissioned by the Library Council of The Museum of Modern Art in New York
- Laser-cut negative impression of his house in Copenhagen, Denmark.
- Each of the 454 pages is individually cut and corresponds to 2.2 cm of the actual house.
- As readers leaf through the pages, they slowly make their way through the rooms of the house from front to back, thus constructing a mental and physical narrative.

Slide 28 – Scott Campbell

- Tattoo artist who has recently been developing this fantastic work using laser cutter
- Make it Rain series was first shown last year in Miami
- Images closely related to his tattoo work
- Very 3 dimensional, built up in layers so that much more of a sculptural quality

Slide 29 – Lane Twitchell

- Shifted from folding and cutting paper to making drawings that are translated into laser-carved polyester film.
- Technique lends an industrial edge to Twitchell's hippie-craft-inspired patterns
- Not paper but fabric based
- As you will see with many of the artists here, they have used a laser cutter later in their careers, starting with hand cutting and latterly producing laser editions

Slide 30 – Rob Ryan

- Again an artist that started with hand cut, but has recently been using a laser
- Also develops his hand cut work into screenprints which are editioned
- Here you can see that both the laser cut and hand cut are very similar in appearance
- The approach to the material is also very similar, the paper needs to be held together, the structures remain the same, just one is designed physically, the other virtually

Slide 31 – Sabrina Basten

- Work created in Holland in 2005

- More than 10,000 laser-cut paper flowers glued to a group of oak branches without leaves.
- Entered a huge industrial hall, everything made from steel and metal. You were surrounded by a functional and repetitive architecture.
- In the distance something white, floating. As move closer realise that consisted of thousands of paper flowers.

Slide 32 – The Barbarian Group

- Another large installation from 2007 using laser cut elements
- Aim was to create mechanical creatures which would respond to observers by flapping their wings (see website for videos)
- Their motion is achieved using a combination of stepper motors, rare earth magnets, some custom circuitry and a Mac Mini driving the whole thing using input from a video camera.
- The Butterflies' wings are created using designs which were laser cut into paper.

Slide 33 – Matt Cottam

- He started with patterns from *The American Girl's Home Book of Work and Play* by Helen Campbell (1980)
- Cut them on a laser cutter on 300gsm paper
- Engraved photographic image, traced around the images in Illustrator to cut them out as well
- Matt's contribution to Papercamp, an event in London last year where people came together to make and explore what's possible with paper

Slide 34 – Jenny Smith

- Jenny is a former MA student from UWE who developed a practice in laser cutting whilst on the MA
- Her current research investigates ways that laser cutting can interpret hand drawn and painted marks
- She uses Illustrator to interpret her drawn or painted marks – Live Trace and Pathfinder
- Often works laser cutting over several layers, embraces the accidental interruptions that occur within controlled processes.

Slide 35 – Michael Mandiberg

- Experimental laser cut books
- They are all reference books, which used to get photocopied, but are now just plain obsolete
- Laser cutting poetic epigrams into them
- Returning them to their original status as things-to-be-photocopied might have some resonance, so he scanned them

Slide 36 – Emily Morris

- Graduated 2007 from Leeds college of art and design, with a BA (first class) degree in printed textiles and surface pattern design
- Mister Charlesworth' consisted of laser cut paper panels featuring imagery of bugs and insects which are transformed into intricate lace-like cut paper designs.

- She produced a commissioned piece of work for Chiltern St Studio, London, which consisted of a series of laser cut paper panels for a window display in the studio

Slide 37 – Ingrid Siliakus

- She first discovered paper architecture when she encountered the work of Japanese architect, Prof. Masahiro Chatani
- At the time no classes or books so Ingrid learnt from Japanese pattern books and over the last 16 years has been perfecting her technique.
- Paper Architecture is the art of creating an object out of a single piece of paper
- Now she designs on the computer, making up to forty adjustments and alterations, then uses a laser-cutter to cut the designs

Slide 38 – Lyndi Sales

- South African artist whose recent work applies the printmaker's concept of incising copper or wood to incising with a laser on paper, textiles, and other materials.
- She makes installations and artworks made of intricately cut and pinned paper and rubber
- Such as this piece, Shatter
- Much of her work centres around the process of coming to terms with her father's death, in the SAA Helderberg aircraft disaster of 1987

Slide 39 – Charlotte Hodes

- Hodes produced an editioned series of inkjet printed and laser cut prints
- Most prints in three layers, a purely printed background, an intricately cut mid ground and then some of the elements cut by the laser stuck back on in the foreground
- Laser cut edition of similar work previously hand cut
- Current research brings together an engagement with painting as material and the possibilities of image making that is opened up through digital technology

Slide 40 – Mia Pearlman

- Much of her work is hand cut
- As with these two installations that are produced in situ over 2 or 3 days
- Glowing with natural or artificial light, like imaginary weather systems

Slide 41 – Mia Pearlman, *Voluta*

- Mia recently produced *Voluta*, a limited edition laser cut sculpture made of translucent high impact polystyrene.
- Fun and easy to construct, opportunity to create and own a complex, luminous “paper” sculpture
- Transform a flat piece of laser cut material into a swirling, three-dimensional vortex

Slide 42 – Shaul Tzemach

- Hand cut paper artist whose work is incredibly intricate and can take years to finish
- As in *Concretion*

- Showed hand cut work in Slash, Paper under the Knife exhibition at Museum of Arts and Design, NY
- Recently has experimented with laser cutting as with this piece Mole Traces
- In many ways work is less intricate now that the laser is involved

Slide 43 – Anish Kapoor

- Although not necessarily noted for his book works, this piece was an early use of a laser cutter in a book
- Laser cutting technology is not new, but has only recently just become affordable and accessible so that artists can work with it
- This book, each page is individually cut in registration so that when combined the ‘wound’ perfectly matches up

Slide 44 – Francesca Gabbiani

- Painstakingly conceived and organized white paper laser cut miniatures of architectural structures, particularly the Ferris wheel, reveal the magical appeal and the horrifying events of that World's Fair.
- The book mimics how many American nursery rhymes and folk songs carry a sweet melody with frightening, sometimes violent lyrics.
- The 'White Book' appears sweet and pure but a darker story awaits the reader.

Slide 45 – Yuken Teruya

- Some speculation on blogs as to whether this work is hand cut or laser cut
- Not clear from his website, but on balance probably hand cut
- It could be either and unless very closely inspected is very difficult to tell
- Perhaps a consideration in work like this that laser cut is somehow inferior and doesn't have the hand of the artist or craftsperson

Slide 46 – A future for the laser cutter?

Slide 47 – Sarah Bodman and JP Willis

- Very much a future for the laser cutter as a creative tool
- Some work, such as this by Bodman and Willis with very complex cuts and text, really suit the laser cutter
- At the moment, the more prominent work tends to be editions from artists that traditionally have hand cut
- Therefore tend to be cheaper and perhaps considered with less value? The stigmatism of it being inferior will slowly recede
- Just as digital printing has become accepted, so will the laser cutter

Slide 48 – Packaging and butterflies by Frea Buckler

- One barrier for many is the software, can be relatively complex
- Hopefully become simpler, also with many cutters in schools, generation coming through that won't see software as a problem
- I feel people need to embrace the attributes of a laser cutter, rather than emulate hand cutting
- Embrace the burn and its repetitive nature
- The variety of marks it can make, which can assist in book production
- The slightly mechanical look and accuracy

- Maybe even its slightly futuristic connotations (even though it's 50 year old technology).