THE ART OF CAMOFLAGE

CREATTING ANALOGUE CAMOUFLAGE

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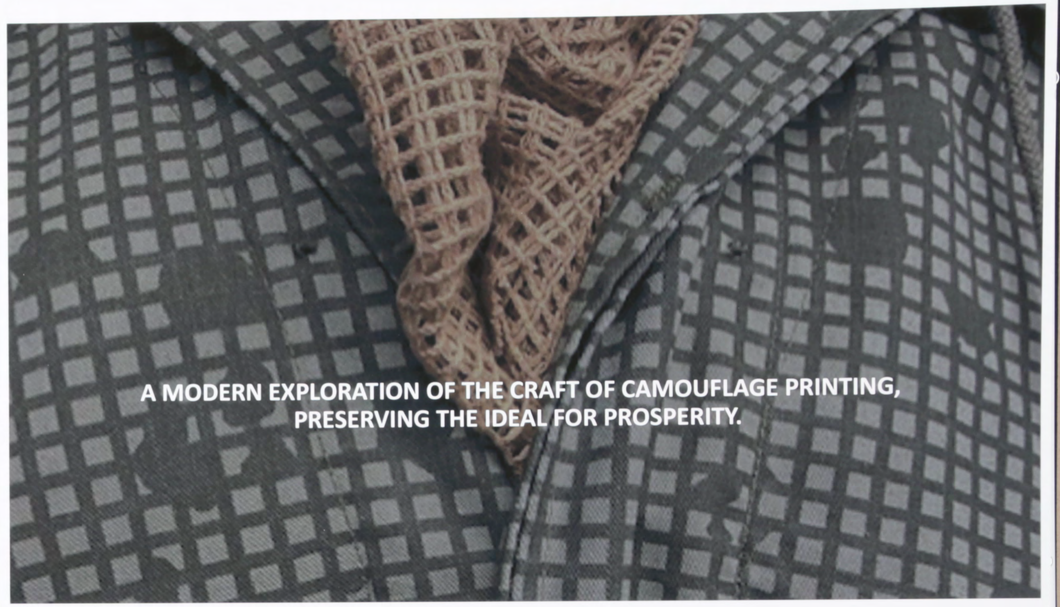

A MODERN EXPLORATION OF THE CRAFT OF CAMOUFLAGE PRINTING, PRESERVING THE IDEAL FOR PROSPERITY.

STATEMENT

- While the idea, adoption and use of what are now considered recognisable camouflage patterns by the military could be viewed as having come about solely as a response to the many conflicts of the 20th century, the ideas, theory and construction in fact come from a much wider base.
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- Little has been written of the importance of Fine Art movements, nature, science and their associated theories around the role they played in the development of what are some of the most recognisable patterns of their time or their subsequent adoption and acceptance within menswear and society as a whole.
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- My investigation aims to reinvigorate the craft of camouflage through my practise, creating a contemporary updated pattern within my own design handwriting while holding true to the process and ideals of the original camofleurs.

Camouflage & Menswear

At a designer level, camouflage in menswear is often applied in a very authentic way, perhaps because of men's fascination with detail or some sort of subconscious idea around its association with the Military.

Recognisable patterns are open applied and reworked into new contemporary silhouettes, referencing archive pieces, often with very little variance from the original authentic camouflage patterns and garment shape.

By altering scale, colour and fabrication designers can retain this authenticity while integrating it into their own handwriting.

AUTHENTIC TRADITIONAL HERITAGE INSPIRATIONAL

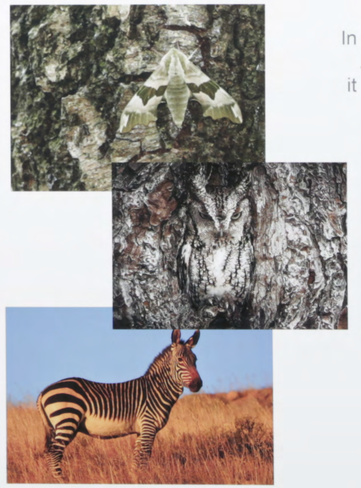
Zoology

3 pillers of camouflage
disrutpive, concealing and mimicry

Abbott H Thayer wrote a series of papersaround camouflage in nature. Credited for introducing the ideas of disruptive colouration, mimicry and countershadingmany cite him as the father of modern camouflage thinking, with his work around countershading often refered to as 'Thayers Law'

Camouflage within zoology and the scientific principles behind it form many of the academic theories that can and are applied to the development of camouflage patterns and their role and use within both the military and society at large and became the starting point for much of the academic focus within this body of work.

Concealing and disruptive camouflage.
Where stromg patterns of abstract or irregular shapes break up the outline of an animal.



In 1938 Hugh B Cott published 'Adaptive Colouration inAnimals' Adopted by the British Army as at the time as a refererance it has gone on to be regarded as a seminal work on the subjet of camouflage within zoology.
In a paper from 2010 biologist goes on to decribe it as 'the final word on adaptive camouflage' where his 'well organised and unfanatic ideas proved militarily effective' Vogel(2010)

Mimicry, where an animas appearance allows it to lopok or act like another.Most often associated with background matching.

Archive Garments

Pattern and observation

Uk 68 pattern DPM, first pattern adopted by all of the UK army and seen as a replacment for Denison

Archival garments are essential to me in helping inform my design direction. Taken from my personal collection these garments allow me to closely observe fundamentals such as colour, marks, silhouette, and shape while allowing me to hypothesise around how these patterns may have been constructed and printed.

The use of archives particularly within menswear helps provide inspiration along with a level of understanding and authenticity that many designers (myself included) strive for.

French Lizard pattern , developed in the early 1950's and used through the post war conflcits in Algeria. A striped brushstroke pattern that can be linked back to the Denison smoks worn by Free French paratroopers in WW2.

Flecktarn

Developed in the mid 70s
this remain the standard pattern
used by Germany to this day.
Originally a 5 clour scheme versions
have also been produced for Desert
and arctic/snow conditions

American Gulf War

Experimental night vison pattern developed to break up images from Infrared goggles.

In the filed both these patterns proved to be of limited success.

Choclate Chip or Cookie Dough pattern used predominently in first Gulf wear

UK Gulf War

2 colour desert DPM

Hungarian 49 Pattern

reintroduced in 1982 becoming national pattern worn until late 90s.

Czechoslovavkian 63 raindrop pattern.Direct copy of Polish Wz58 pattern, used throughout the Eastern Bloc in a variety of tints and tones but always with the distinctive watermark layer.

Swiss AplenFlauge, introduced in the mid 50s. Modeled on German WW2 patterns there are suggestions they arrived at this design after purchasing WW2 era German roller printing machines.

American field jacket in Woodland 68 pattern, developed by the ERDL for use in the Vietnam conflict

The process samples are the initial body of work used to reinvigorate my practise and craftmanship. Looking at a variety of process and substrates that I feel relate to the further development of and potential final artifact for this body of work.

Please refer to the hanger for the physical samples (No 1-15) relating to this section along with a more detailed synopsis.

Process samples

Initial creative sampling, investigating technique and application.

Substrat

Substrates, their make-up, and selection can play a large part in deciding what technique and process can and should be applied during the sampling process.
Traditional natural base fibres such as cottons, silks and wools are ideally suited for the use of screen printing, dyeing, and overdyeing and much of the advancements within these areas went hand in hand with the development of the base cloths during the industrial revolution (and onwards)

More modern fabrication made up of synthetic fibres and blends are far more suited to contemporary techniques such as digital and sublimation printing, again the rise in these can be seen in the expansion and use of these synthetic fabric over the latter half of the 20th century.

As a skilled craftsman part of the challenge in contemporary practise is to develop and mix these ideas, methodologies, and techniques to create new knowledge and outputs, embracing technology while never loosing site of the craft and artisanal skills that got us here.

The substrate and
of a garment but ir

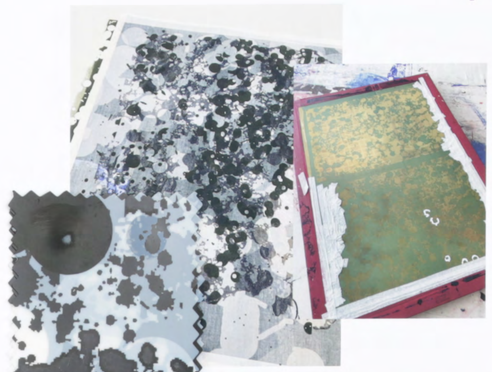
Natural fibres lend
Synthetic fibres ar

While it is possible to screen print onto synthetic the reverse tends not to be possible with sublimation prints coming out with a lack of depth of tone on natural fibres.

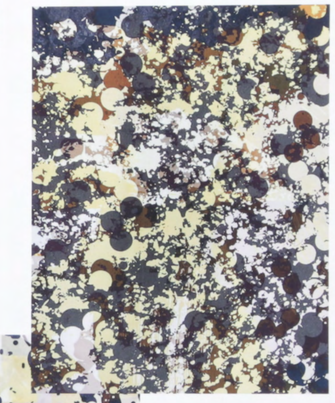
Natural

Synthetic

Flecktarn process

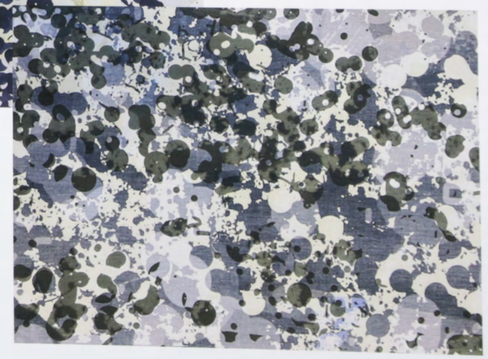


Hand generted artwork, exposed onto silkscrren and used in the printing of layers and texture build up.



Transparent binder, used to provide layers and depth of colur to overall print

bleaching
lour, provoding
ve space to

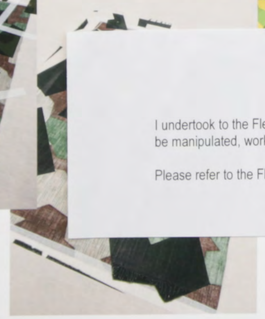


Screenprint on Vintage Splinter

Making a new contemporary pattern by replicating shapes and technique on vintage 1950's East German Splinter pattern fabric,

Artwork generation
and colour mixing

Stencil exposed
masking basecloth.



I undertook to the Flecktarn/Splinter experiment to see to what extent vintage camouflage cloth could be manipulated, worked into and what techniques may be applicable.

Please refer to the Flecktarn/AVA hanger for physical samples (No1-4 Flecktarn)

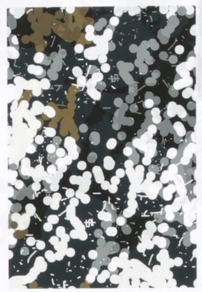
Layer transparent pigment to create depth
and layers then discharge to strip back tone.

Scale & R

The advantage of using a specialist program like AVA is that the designer can take almost any image they have generated and manipulate it into any form of repeat from a standard straight drop, half drop or indeed any desired measurement on either the horizontal or vertical axis.

This makes it far less time consuming to set up, allowing the creative to concentrate on other factors like colour/scale and placement. By then utilising a technique like sublimation printing it is possible to quickly show a variety of outcomes from a single piece of artwork before applying the final outcome in the desired technique and substrate.

Please refer to samples on the Flecktarn / AVA hanger (No 5-7)



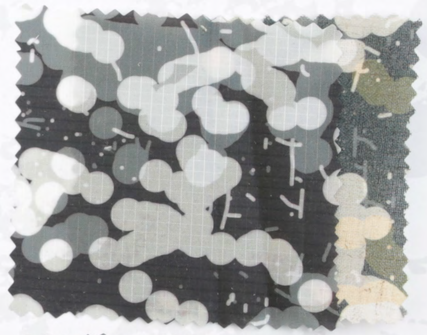
ORIGINAL

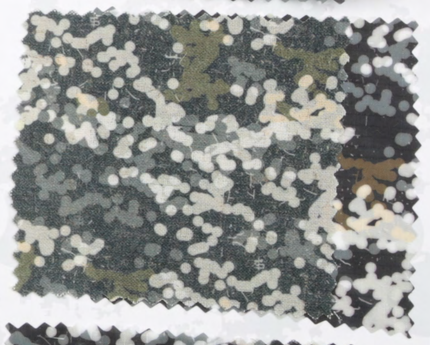
HALF DROP

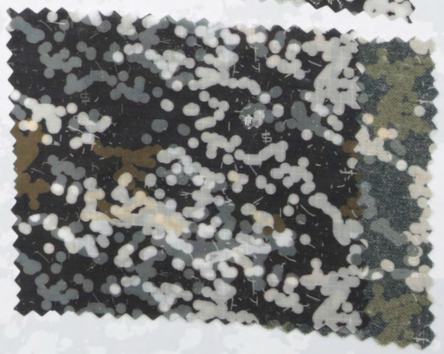
STRAIGHT DROP

into full repeat.

Then printed using wide format sublimation technique onto synthetic substrates.







Sublimation Experiment

Attempting to get sublimation transfer prints to work onto natural fibres gives a greater range for the technique to be applied to .

In order for sublimatin
within a synthethic fab
an Elastil printing ink t

Elastil experiment was an attempt to achieve stronger more effective results on a natural fibre while using a sublimination technique (normally associated with a synthetic base)

Sublimation printing works by turning a disperse or transfer dye into a gas (when heat is applied) and cause a bond between this and the synthetic polymers in the base cloth. Natural fibres do not open up in the same way when heat is applied meaning a paler of inconsistent finish to the print.

The key to this working was to get a natural fibre to behave like a synthetic when used under sublimation printing conditions. By coating a natural fibre in an 20/80 diluted solution of Elastil (elastile being a plastic based printing ink) I was able to achieve a more 'synthetic' type bind between the dye and the substrate.

This opens up the possibilities of using a traditional, more appropriate natural fibre fabric in the true spirit of camouflage, helping retain authenticity while apply pattern through a modern contemporary technique.

Denison experiment: functional or designed.

- Originated in 1942, produced across multiple suppliers
- Used by Parachute regiment until mid 70s
- No record of design brief or production method
- Possibly screen printed
- Liquid dye V pigment ink
- Hand applied direct to garment
- Variable colours / patina
- Consistancy of marks

In the Denison experiment traditional materials and multiple techniques were used in an attempt to replicate the Denison pattern. Substrates were more authentic to the original and results were recorded to allow for further replication and development.

Please see the Denison Experiment hanger for physical samples and further synopsis. N01-6 for liquid dyeing, No 7-9 screen-printing, No 10 sublimation, No 11-12 colourways

Denison observations, reflective questionnaire

Checklist of observation based on Mida/Kim's theory for object-based research.

General:

1) What type of garment is it and what was it used for.
2) Describe the main features and components.
3) What are the main fabrics used in its construction.
4) What are the dominant colours and/or patterns of the garment.
5) What decade/time period does the garment belong to.
6) Are there any details/markings/labels.

Textile:

1) What is the dominant textile/material & is it man made or natural fibres.
2) Describe any print or patternation on the garment.
3) How many colours have been used in the print.
4) What techniques do you think we used in the application.
5) Has the textile faded or changed over time.

Supporting Material:

1) Is there any provenance associated with this garment or print.
2) Are there any photos of the garment in use.
3) Are there any similar garments or print patterns from this time-period.
4) Was there any subsequent development of garment or pattern derived from this artifact.

Reflections:

1) What traditional crafts/techniques were applied in the making of the garment/print.
2) What contemporary techniques could be used to replicate this print in a modern manner.
3) Can these traditional/contemporary crafts and techniques sit together.

Where does this garment/print sit within contemporary menswear.

Reflective questionnaire adapted from the Mida & Kim Material Cultural Analysis model to reflect and place emphasis on my specific area of research and associated archival pieces. Used to aid in depth observation of the Denison pattern, helping to create theoretical hypothesis that can could then be explored and refined through subsequent practical and experimental sampling.

DENISON

Garment and Pattern Analysis

Early 1950's original Denison para smock.

DESCRIBED AS 'BRUSHSTROKE' NOT COLOUR FAST INCREASED PATINA

TRANSPARENT INKS GIVING MULTIPLE TONES FROM 3 COLOURS

Belgium Denison para smock hood. different darker tones but showing an obvious influence from the originl British pattern

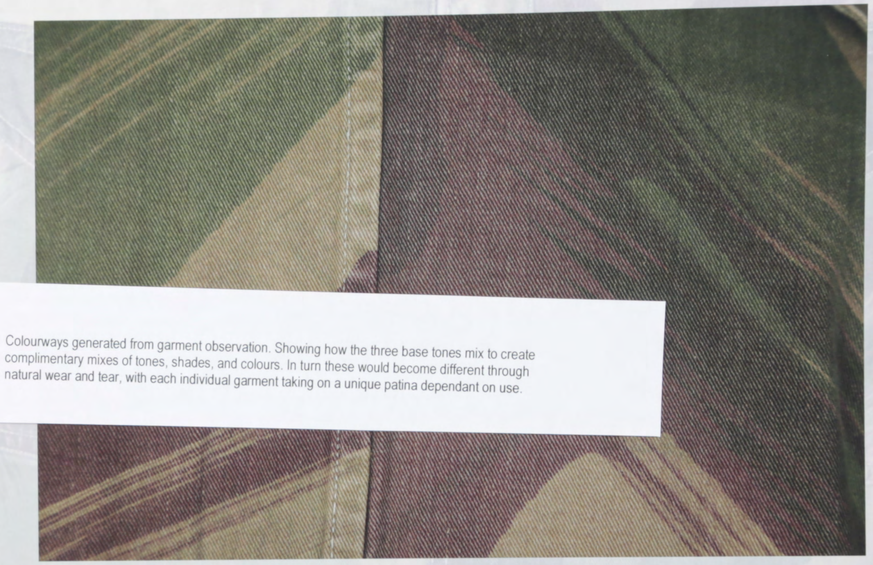
Denison Observations.

British Parachute Smock 1954.

Brush stoke pattern, 3 colours, tonal crossover, hand application, patina, Direct dye, not colourfast, weathering , non repeating, oversized, postwar

Denison Observations.

Colour mixing and crossover.



Colourways generated from garment observation. Showing how the three base tones mix to create complimentary mixes of tones, shades, and colours. In turn these would become different through natural wear and tear, with each individual garment taking on a unique patina dependant on use.

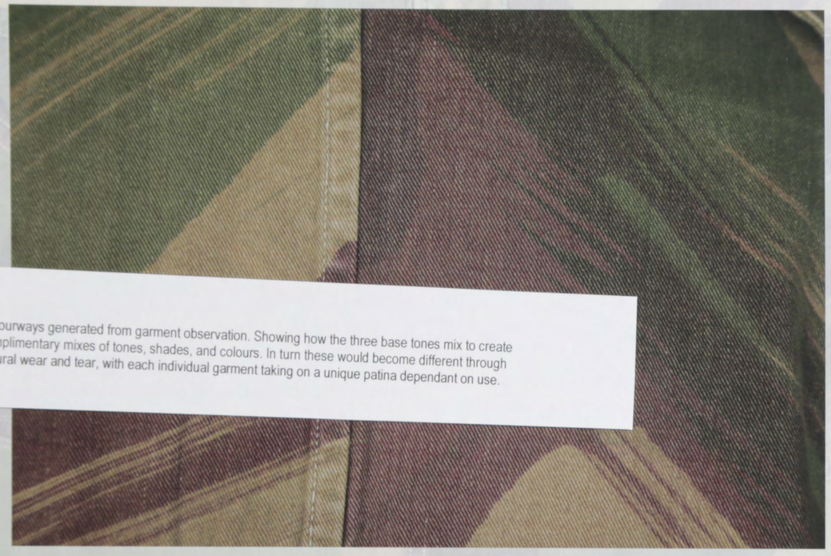
Colour Mix.

Tonal Variations.

Base Tones.

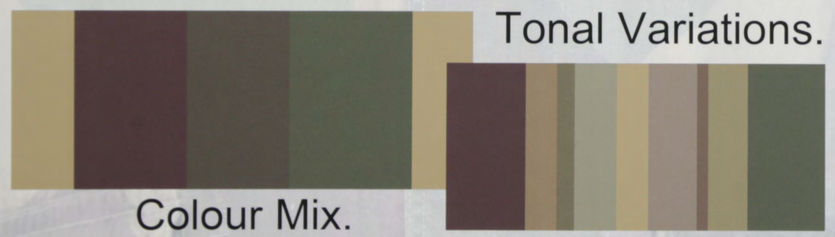
Denison Observations.

Colour mixing and crossover.



Colourways generated from garment observation. Showing how the three base tones mix to create complimentary mixes of tones, shades, and colours. In turn these would become different through natural wear and tear, with each individual garment taking on a unique patina dependant on use.

Tonal Variations.



Colour Mix.

Base Tones.

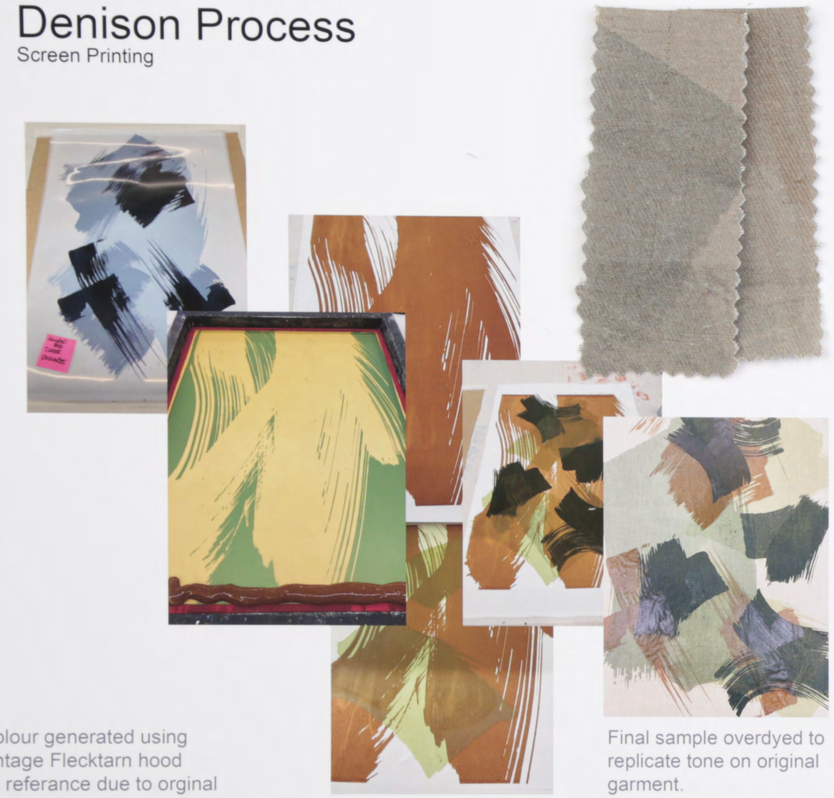
Denison Observations.

British Parachute Smock 1954.

Brush stoke pattern, 3 colours, tonal crossover, hand application, patina, Direct dye, not colourfast, weathering , non repeating, oversized, postwar

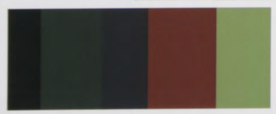
Denison Process

Screen Printing



Colour generated using
vintage Flecktarn hood
as referance due to orginal
Denison not being available.

Final sample overdyed to
replicate tone on original
garment.



5 Colour Flecktarn

Denison Process

Liquid Dye

A combination of both concealing and disruptive camouflage this distinctive pattern was often called 'brushstroke' due to the nature and types of marks that make up its application.

There is little documented evidence of how this famous pattern came about in terms of design or production.
In their book *Denison,* Bruce Wilson acknowleges this, stating
"*Many collectors refer to these pieces as hand painted....it is not impossible that this may be the case, however it is equally possible that there was some degree of process other than that of pure manual application*"
(Wilson,2013)

Applied using brushes and sponges it is quite possible to hypothosis that the original fabric was indeed contructed using the 'Mop technique' in terms of marks, colour ,transparence and blending they are remarkably similer.
However given the lack of ovbious drips and spalshes an algae type inder such as indalca or manutex may have been used to thinken the dye before painting

Procian MX cold water dyes
applied like paint

Wet on wet
Wet on dry
Various substrate weights

Further exploration: over dye, thickened dye base, fixing of dyestuff

Denison Liquid Mark Making.

Replication of Denison Marks using liquid Procian dye and a variety of different brushes before utalising most appropraite method to cover meterage.

Final pattern layout on handpainted meterage, arbitory cutting allows for greater depth and variation to print pattern within final garment.

See Denison Experimental Liquid Sample hanger for full range and detailed descriptions.

Denison Experiment Final Outcome.

The final artifact for the Denison Experiment shows how replicated colours, marks and textures were used to create a modern approximation of the original pattern. When combined with arbitrary pattern cutting from a large piece of cloth a garment suitable for further observation and reflection was produced. Showing direct lineage to the original it allowed for further observation and reflection and proposed experimentation around hypothesis alluding to the original production process.

Camoufleurs

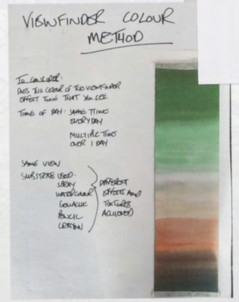
The name given to Artist, Designers and Zoologists who worked with the army to help concive and produce camouflage patterns.

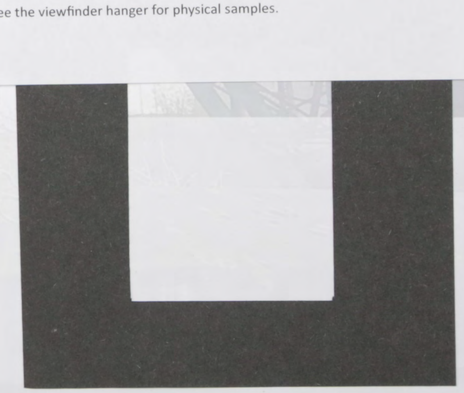
A quote taken from *'Camouflage and Art'* by Henrietta Gooden was the inspiration behind this exersice in colour selction.
It states that part of the role of one of the camoufleurs was to *"measure the colour of the sky each day"* as part of their ongoing research contributing to the design of camouflage schemes This was done using an ingenius instrument made entirely of painted card. Consisting of a strip with 2 rectangualr openings, one through which the sky could be viewed, the other beside it revealing a long, painted strip, grdedin colours from grey to blue, which could be lined up to match the colour of the sky and recorded.
By doing this at the the same time over a period of days a record of colour and tone could be built up and used to help inform appropraite colour.

The Camoufleurs experiment allowed me to create a body of colours using the described viewfinder technique. From these 20 colours 3 colour palettes were developed. Representing a highlight, lowlight and tonal variation. Put together by using a long established understanding of what works in terms of colour balance, brought about by 25 years of practise and experience working with colour.

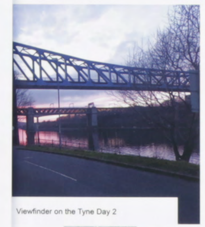
These colours are reflective of the local surroundings within Newcastle, taken on the same walk at the same time over a 5 day period this control measure showed the variance that can occur, both informing and affecting the outcome.

Please see the viewfinder hanger for physical samples.





20 COLOUR CHIPS SELECTED VIA VIEWFINDER METHOD OVER 5 DAY PERIOD



Viewfinder on the Tyne Day 2

Viewfinder on the Tyne Day 4

Narrowed down to 5 photos taken from each day from which colours / tones were taken to help develop an overall colour range.

2 3

2

1 3

2

3

3

2

1 3

2 3

1

1

1

1

2

TONAL CHANGES SHOWN THROUGH DIFFERENT SUBSTRATE APPLICATION

2 3
2
1 3
2
3
3
2
1 3
2 3
1
1
1
1
2

2 3
2
1 3
2
2
3
3
2
1 3
2 3
1
1
1
1
2

Contemporary Denison Development

These contemporary patterns were developed from the colour palettes and marks generated within the previous experiments. Drawing a conclusion from the techniques and craftmanship applied during these processes to produce an outcome that while reflective of the original pattern use technique, scale, substrate, and colour to update the aesthetic.

These patterns were sublimation printed onto a variety of substrates, both white and colours to produce a further exploration of colour and aesthetic by showing how this effects the various outcomes. One of the advantages of employing this technique is the ability to produce halftone prints (done by utilising a second pressing) helping give greater depth to the range and opening up possibilities of tonal variation within both the colour palette and potential product.

Please see the Contemporary Denison hanger for physical samples.

from the Denison
all 3 observed
th and definition.

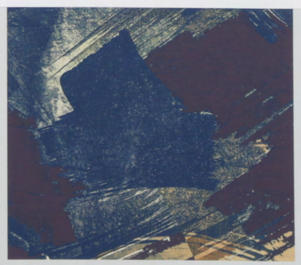
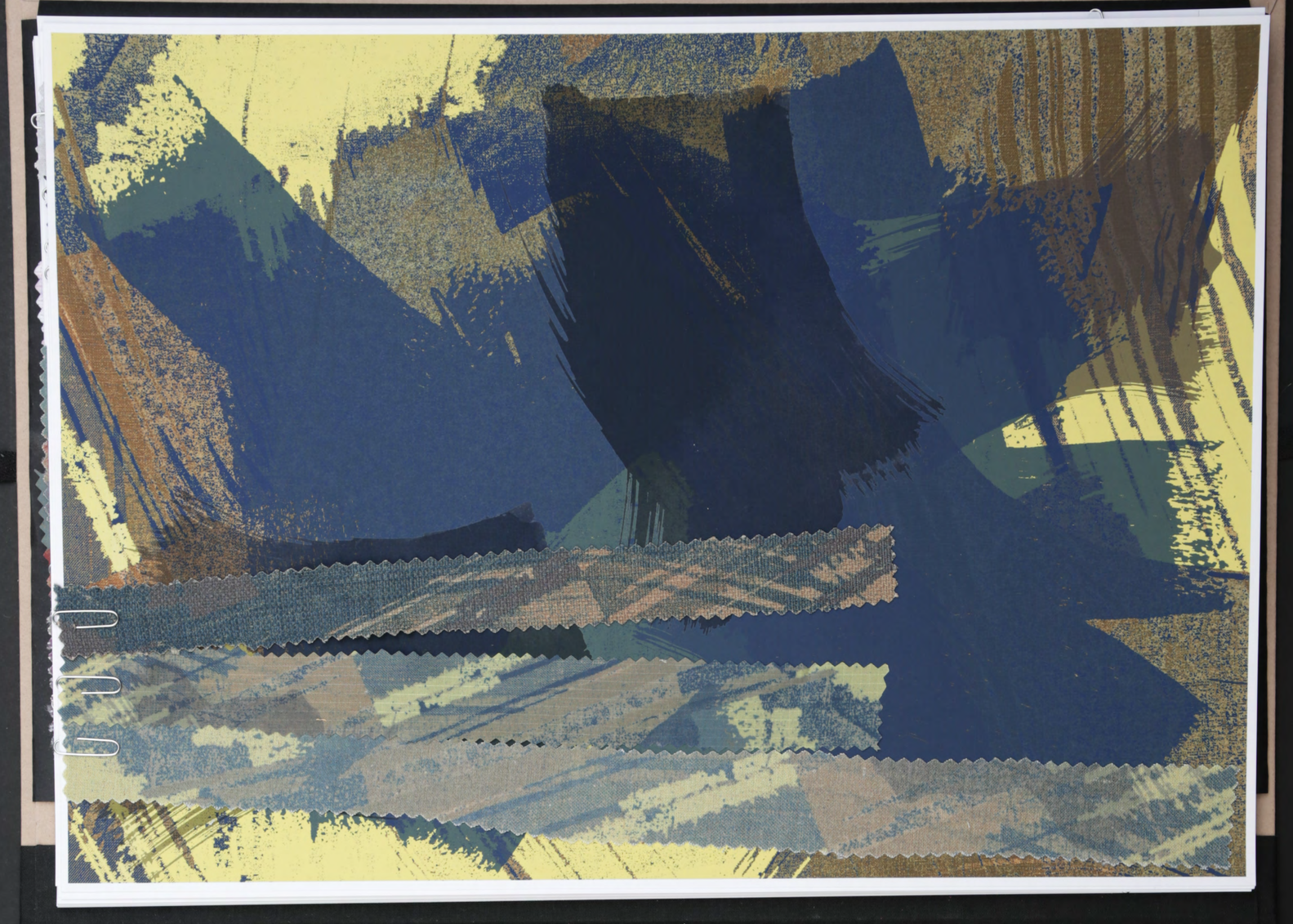
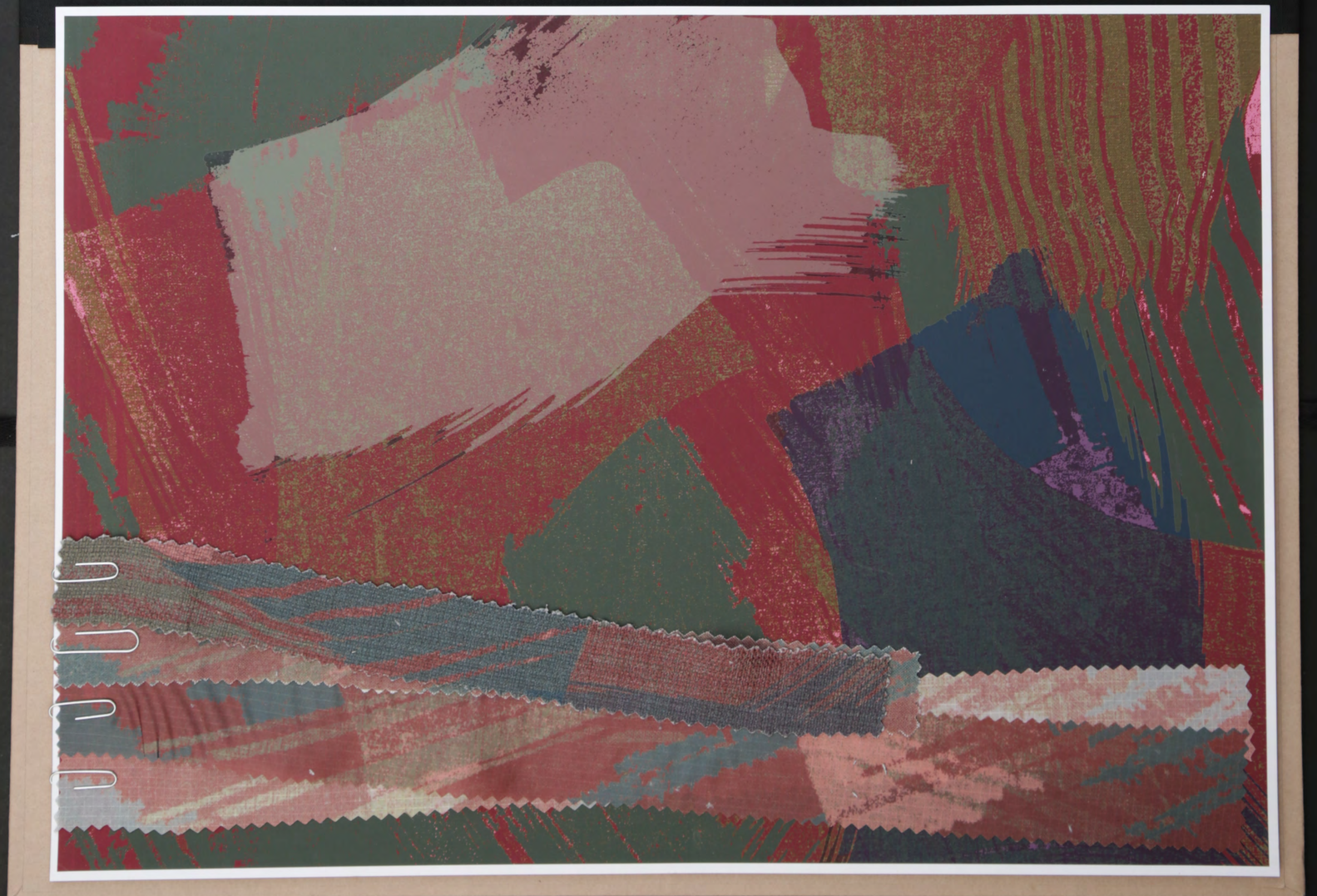


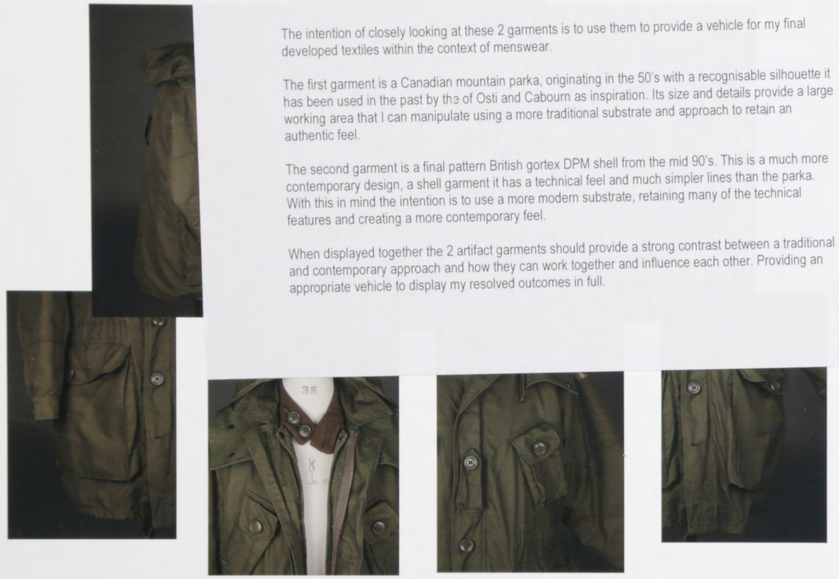
Image scale and repeat can be manipulated within AVA and applied to a digital avatar to help provide context. Samples can then be printed using a combination of sublimation and screen printing.





Shape & Silhouette Development

Canadian Mountain Parka



The intention of closely looking at these 2 garments is to use them to provide a vehicle for my final developed textiles within the context of menswear.

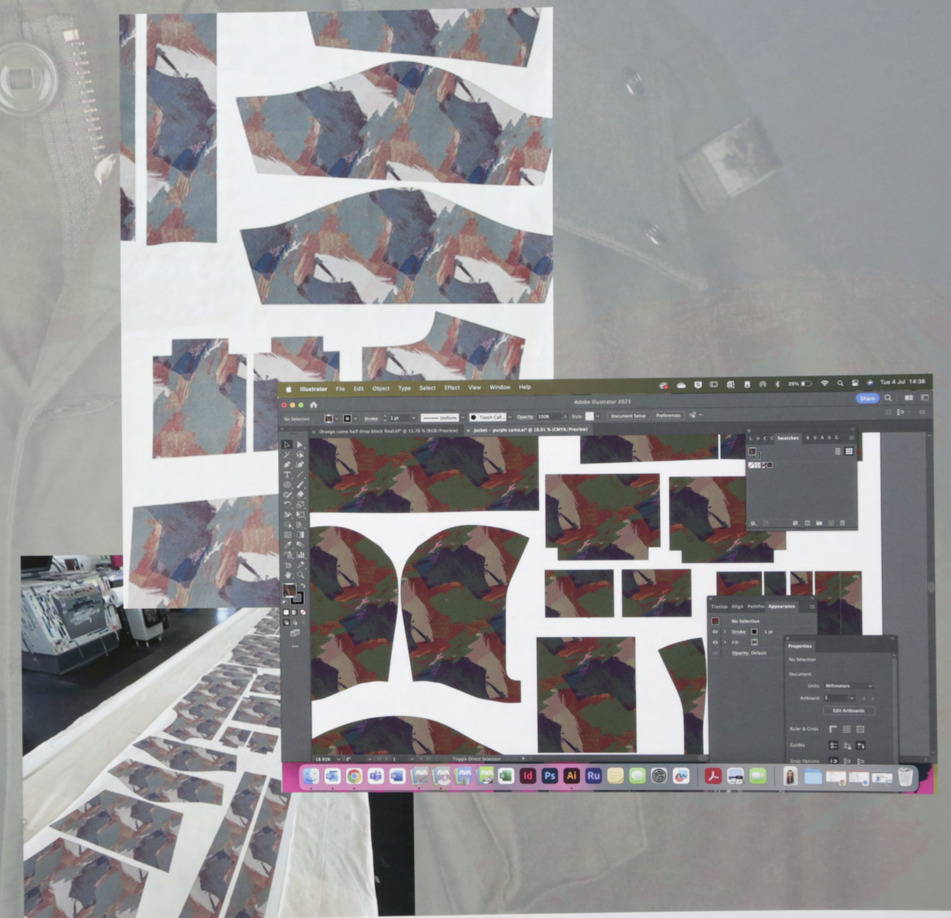
The first garment is a Canadian mountain parka, originating in the 50's with a recognisable silhouette it has been used in the past by th∃ of Osti and Cabourn as inspiration. Its size and details provide a large working area that I can manipulate using a more traditional substrate and approach to retain an authentic feel.

The second garment is a final pattern British gortex DPM shell from the mid 90's. This is a much more contemporary design, a shell garment it has a technical feel and much simpler lines than the parka. With this in mind the intention is to use a more modern substrate, retaining many of the technical features and creating a more contemporary feel.

When displayed together the 2 artifact garments should provide a strong contrast between a traditional and contemporary approach and how they can work together and influence each other. Providing an appropriate vehicle to display my resolved outcomes in full.

94 DPM Goretex Smock

Canadian Denison Mountain Parka



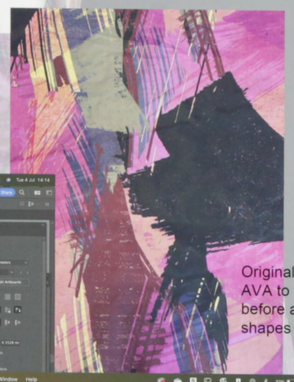
Originally my plan was to create two artifacts, one being a contemporary silhouette and the other being more representative of a vintage archival garment, in this case the Canadian Mountain Parka first developed in the early 1950's.
However, upon reflection I felt that time would be better served developing and refining the more contemporary smock shape to sit within a modern menswear context.
Therefore, while the idea and sampling behind the parka. Was taken and developed to a stage where the block, pattern, scale, and colourway were developed and supporting samples were completed the final artifact was not taken to production, although I may take it to the finished garment when time allows as a comparative analysis of it along with the 94 pattern smock may be of interest.

Contemporary Canadian Parka Denison across three different substrates.
Full range of developed samples can be found on the Canadian Parka samples hanger.

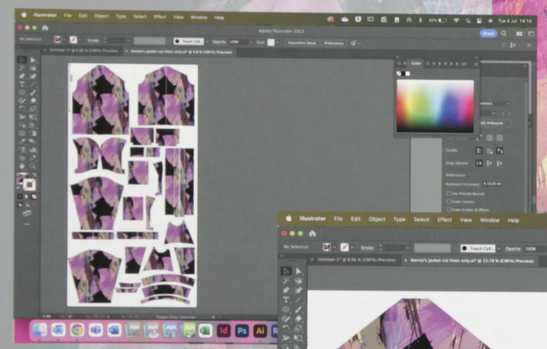
Artifact Inspiration

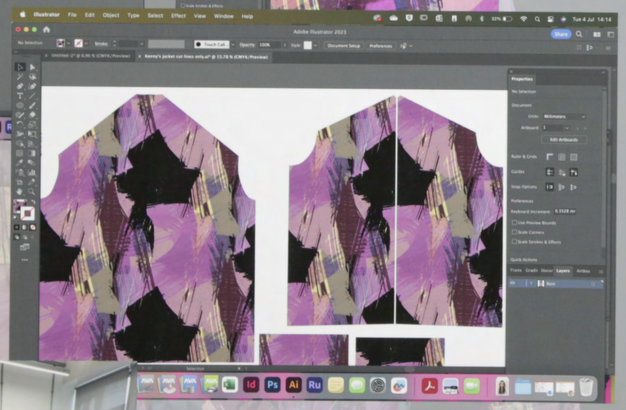
The decision to concentrate on the 94' pattern DPM smock as a base for the final artifact was influenced by the fact it felt like a more contemporary silhouette, in combination with modern synthetic fabric it would provide a drape and handle more closely associated with current menswear trend.

AVA Digital Pattern Manipulation.

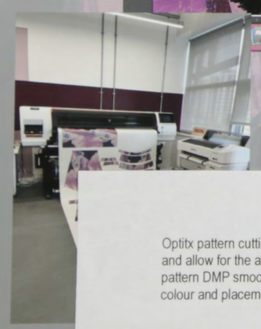


Original swatch put into AVA to make full repeat before applying to garment shapes for sublimation prinitng.





Screen shots showing placment within pattern pieces and pattern matching.



Optitx pattern cutting software and AVA image manipulation were combined to provide a digial solution and allow for the application of the 'Geordie Denison' to the final developed block taken from the 94' pattern DMP smock. Not only saving on time and resource it allows for the easy viewing of scale, colour and placement before final meterage is printed for production.

Geordie Denison Final Artifact.

mples can be viewed on the Geordie Denison Artifact sample hanger.
ge of tonal colourways and alternative substrates are available to view on the Alternative
nger.