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# INTRODUCTION

## Material Alchemy

Over the last ten years there has been a huge growth in materials for design; key global issues such as the decline in natural resources, a growing and ageing population, recession, and changes in our economic and environmental climate, has led designers and scientists to consider future trends that may emerge, and how we may design for a more sustainable future.

## Austerity

In 2008 unemployment increased and poverty also hit an all time high. With government cuts, inflation rising and food and energy prices soaring, we saw a significant shift in consumer spending. The recession triggered a response in consumers to re-evaluate their lifestyles, leading to a shift in behaviour and the rediscovery of core values, placing relationships and experiences above material things (Kadlec, 2013). The throwaway culture declined, with consumers wanting more from their products, emphasising the need for personality, creative expression and emotional value.

During this period we saw a rise in depression and health related issues, leading designers to focus on more poignant themes such as heritage and craftsmanship to bring back a sense of value, meaning and narrative into products.

Poor Tools by Studio Fludd takes on a

playful approach in the celebration of overlooked, discarded materials. Crafting a set of intriguing artefacts, that combines the natural with the artificial, they convey the story of the wild and chaotic landscape of La Certosa. Poor Tools highlights the importance of imagination and narrative in an over saturated society, where design becomes omnipresent due to the abundance of objects that surround us.

Chris Lefteri (2014) argues, *“Materials are increasingly becoming central characters in consumer focused stories”*.

Our desire for intrinsic value and connectedness has driven the way for new interpretations of materiality, as opposed to merely applying materials as an afterthought (Lefteri, 2014). The Chapter ‘Material Narratives’ showcases the works of extraordinary materiologists and artisans, who approach materiality in unconventional ways. Rituals, narrative and imagination play a key role in the development of tangible materials, bridging the gap between value and aesthetics.

## Post Scarcity

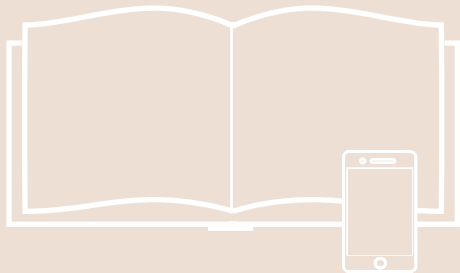
The age of austerity has led to the growth of synthetic materials in the form of synthetic biology. It has been predicted that by 2060 the human population will rise to 9.5 billion (Jha, 2013), leading to a growing demand for materials such as food, fuel and clothing.

Using the App



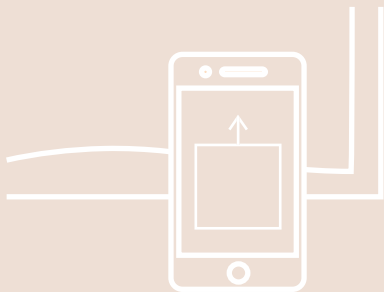
1. Open the App

Click on the App to open.



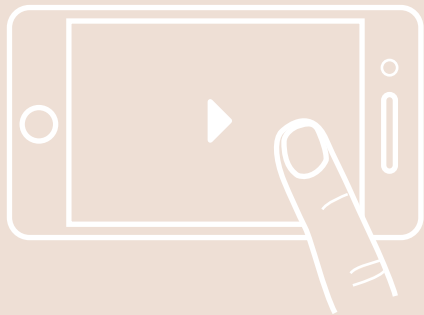
2. Image Recognition Mode

Hover your phone/tablet over an image in the book to trigger hidden content.



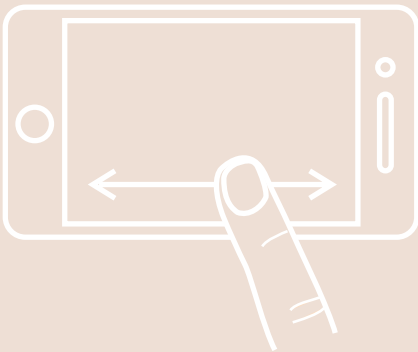
3. Trigger the Animation

The app will recognise the image which will trigger the animation to play.



4. Pause/Play

Tap on the screen to pause or play the animation.



5. Rewind/Fast-Forward

Swipe across the screen to rewind or fast-forward.



6. IR Mode

To access the IR mode to rescan the pages.



7. Contributor

Learn more about the contributor.



8. Camera Icon

To access the camera mode to takes photographs.

[Macro Trend]

# CREATIFICATION

THE URBAN LANDSCAPE IS REDEFINED WITH RURAL SENSIBILITIES. DIY MAKER CULTURE INTERWEAVES RUDIMENTARY MATERIALS COMBINED WITH INNOVATIVE TECHNOLOGY, INSPIRING MATERIALS MERGE SCIENCE AND NATURE FOR A NEW TAKE ON CONTEMPORARY CRAFT.

3D PRINTING AND BIOPLASTICS ARE INFLUENCED BY THE SKINS OF FRUITS AND VEGETABLES, AS THE ORGANIC AND INVENTIVE EXIST CHEEK-BY-JOWL.

FOOD CULTURE GETS MORE PROGRESSIVE, WITH CONSUMERS, DESIGNERS, SCIENTISTS, CHEFS AND FARMERS SEARCHING FOR ALTERNATIVE WAYS TO NURTURE BODY AND SOUL.

FLUCTUATING BETWEEN NATURAL AND MAN-MADE, THESE MATERIALS ARE CARVING OUT A NEW PLACE IN THE TEXTURAL PALETTE. BIOPLASTICS SHIFT OUR PERCEPTIONS OF TOUCH, WHILE SYNTHETICALLY ENGINEERED PLANTS TAKE ON A NEW LUSHNESS. NATURAL MIMICS SYNTHETIC AND VICE VERSA IN A SENSITIVE INTERMINGLING OF TACTILITY.

Material Alchemy



KEY WORDS

HAPTIC +  
BALANCED + NOURISH +  
HANDMADE + ORIGINAL + SCIENTIFIC

## INGREDIENTS

1 cup of Water  
1 cup of Flour  
¼ cup of Salt  
3 tbsp of Cream of Tartar  
1 tbsp of Vegetable Oil  
Couple of drops of Food  
Colouring  
1 x LED  
1 x 9 volt Battery

## EQUIPMENT

Measuring Cups  
Non-Stick Pan  
Spatula

## HEALTH & SAFETY

Take care when working  
with heat, materials will be  
extremely hot.

## OTHER INFORMATION

See technical data section  
for circuit diagram.

See suppliers section  
for where to purchase  
materials.

Visit University of St  
Thomas's website for  
more workshops and  
information.

## HOW TO GUIDE

1. Measure out your ingredients.
2. Mix all the ingredients together in the pan.
3. Continue to stir the ingredients over a medium heat (do not burn. The mixture will begin to boil and start getting chunky).
4. Keep stirring the mixture until it forms a ball in the centre of the pot.
5. Once a ball forms, place the ball on a lightly floured surface (Be careful when handling the dough it will be extremely hot).
6. Flatten the ball to let it cool.
7. Slowly knead the remaining flour into the ball until you have reached the right dough consistency.
8. You are now ready to use it!
9. Test the conductivity of the dough by creating a squishy circuit (see technical section for circuit diagram if you are a complete novice to electronics). This is where your creativity comes in – can you think outside of the box?
10. Store the ball in an airtight container until you are ready to use it. This should last several weeks if stored well.

## Material Alchemy





# THE LABORATORY

## Material Alchemy

As scientific developments are shaping our future environments, a new breed of designers emerge called 'BioHackers'. BioHackers aid access to scientific materials, advocating an open source philosophy where tools and resources within the scientific realm are made available to non-scientists, to cultivate an interdisciplinary platform between researchers, scientists and designers.

Organisations such as DIYbio, HackSpace and iGem have emerged, promoting open source methodologies, as they firmly believe that innovation is cultivated when knowledge is shared. Designers such as Amy Congdon and Suzanne Lee seek to

explore the parameters of design, utilising science as a tool to create materials that are manufactured in a laboratory environment. Congdon's work aims to provoke debate and discussion around the potential ethical implications of using living materials to create bespoke products.

The Laboratory provides a platform for scientific exploration, through creative experimentation with science-based materials and processes, providing a unique DIY approach to design in the kitchen laboratory.



**INGREDIENTS**

1 x Egg  
0.5g of Saffron Strands

**EQUIPMENT**

Spatula/ Palette Knife  
200ml Glass Container  
Measuring Cups  
Scales  
Pestle & Mortar  
20 x 20cm Glass Slab

**HEALTH & SAFETY**

Take care when working with acrylic mediums, it may be toxic if inhaled or swallowed.

**OTHER INFORMATION**

See technical data section for more information.

See suppliers section for where to purchase materials.

Visit Laura’s website for more recipes and information.

**HOW TO GUIDE**

**SAFFRON EGG TEMPERA**

1. Measure your ingredients.
2. Separate the egg yolk from the ‘glaire’ (egg white) and keep the ‘glaire’ in a container.
3. Add the saffron strands to the glaire and soak overnight.
4. The colour intensifies from pale yellow to a dark yellowish-orange.
5. Stir the mix of saffron and egg ‘glaire’.
6. Once mixed it is ready to be used.

**SAFFRON PIGMENT**

7. Repeat steps 1 - 4.
8. Pour the mixture onto the glass slab surface.
9. Use a spatula or palette knife to spread onto the surface equally, then leave overnight to dry.
10. Once it has dried completely, scrape the dried mixture into the pestle and mortar.
11. Grind the pigment down until you get very fine particles of saffron powder.
12. Once ground, store the pigment in a dry container. This pigment can be used anytime.
13. To obtain a good quantity of saffron pigment you will need to repeat the process at least 3 times.
14. You can then mix the saffron pigment with acrylic medium to create a paint.

**Material Alchemy**





# POOR TOOLS



The Alchemist: Studio Fludd

## Material Alchemy

Poor Tools evolved from a project set by design collective How We Dwell.

Given only a basic set of unusual tools and materials, and left isolated on the beautiful, deserted La Certosa Island in Venice. Studio Fludd allowed their imaginations to run wild, deciding to live and interpret the island as a spread residence, using the landscape and make-believe to craft an imaginary dwelling.

This process resulted in an intriguing dialogue between materiality and man.

Through scavenging and hunting, they located natural and artificial objects, which they crafted into a series of artefacts that conveyed the narrative of the wild and chaotic landscape of La Certosa.

The project highlights the value of make-believe, how creativity and imagination can enable us to become resourceful as a means to survive, and the importance of re-using discarded materials to create a more sustainable environment.



# GRAVITY STOOL

The Gravity Stool's distinct shape is fashioned by magnetic fields and the powers of gravity.

Departing from the idea that everything is influenced by gravity, the project intended to manipulate this natural phenomenon by exploiting its power: magnetism.

The positioning of the magnetic fields in the machine, opposing each other, has largely determined the final shape of the Gravity Stool. The forms and products are characterised by the freakish and organic shapes that are so typical of nature itself.

The potential in how we combine technology with natural phenomena to craft new tools is integral in allowing new forms to take shape.

Credits: Photographer: Jac van der Wiel



# TOUCH SENSITIVE DIAGRAM

