

THE NORWICH SCIENCE FESTIVAL 2021 HIGHLIGHTS



By The YNA Collective

Young Norfolk Arts provides opportunities for children and young people to create and engage with creativity and culture across Norfolk. The YNA Collective is a vibrant creative community, open to anyone aged 16-25 and based in Norfolk. Through regular online and in person meetings, training sessions, creative workshops, the Collective have the opportunity to collaborate and develop the skills and knowledge to enable them to produce and promote creative events, activities and exhibitions such as the Norwich Science Festival.

The annual Norwich Science Festival is a chance to explore the wonders of the universe, meet the scientists whose research has changed our world and debate some big questions with some big-thinkers. It is a celebration of the groundbreaking scientific research associated with the city, and is a partnership initiative involving many organisations from across the region, coordinated by The Forum, Norwich.

Front cover illustration by Joseph Milne



**WALKING
THROUGH
SOUND: THE
BENEFITS OF
RECORDING OUR
ENVIRONMENT**



Image credit: Earl Murdoch

Martin Scaiff holds the post of Tutor in Education at the School of Education and Lifelong Learning at the University of East Anglia. He is the founder of HomeSounds, a sound-walking group for young people. This article details a sound walk I went on with him at the UEA lake. The event at Wheatfen Nature Reserve I was originally set to go to had to be cancelled as one of the artists involved was ill. Martin therefore kindly invited me to this soundwalk on the same day, where I would have an opportunity to try some specialised equipment and ask him a few questions.

Sound-walking. It's a simple-sounding idea with a theory-rich background. Going outside with a microphone to record the sounds of your environment may not sound like much, but it actually has extensive personal benefits alongside a range of practical applications.

14:00, Wednesday 27th October 2021. After a hasty cup of coffee, I greet Martin outside the Sainsbury Centre and we walk down to UEA lake. What was the inspiration for HomeSounds? I ask him. And so the conversation begins.

It all started when Martin was working with children in care placements. He began to notice that as the children changed placements so much, they weren't as able to build trust and share their problems with the adults around them. It was also harder for them to sit in one place and focus for long periods of time. An idea began to form: why not start a long-term group to get these kids more interested in sound and music? Martin envisaged a few benefits of this group: (1) allowing the kids to build social cohesion; (2) allowing creative expression; and (3) allowing the kids to feel better about themselves in the long-term. It was never going to be a 'teacher-y' group - one where kids had to sit still for ages. Rather, it would be a safe environment where they felt comfortable enough to sit and focus. The group expanded to cater for more young people, especially secondary school students. Over time, it evolved into what is now HomeSounds.

Soon Martin began to notice that the more they practised, the longer that kids were able to focus and the more they were able to get out of these periods of mindfulness. Furthermore, over time the level of trust strengthened between them and the adults around them, simply because in this quiet space the kids felt they could be heard.

Now Martin moves on to talk about the scientific applications of field recording. I learn that if you listen to a field recording, you will be able to hear a whole range of frequencies. But it's these frequencies that hold the key to determining the biodiversity of an area. If you have frequencies that are less like white noise, and more like a few distinguishable tones, chances are that that area is less biodiverse than one where you can hear a whole spectrum of frequencies.

So, to summarise so far, sound-walking has the potential to improve your mental health; attention span; awareness of surroundings; creativity; and scientific knowledge.

Now we pause our conversation for a moment and plant ourselves on one of the jetties beside the lake. Martin then procures a handheld recorder from his bag, along with a very long cable with what looks like a plug on the end, which I find out is a hydrophone (an underwater microphone). We fling the end of it into the lake, as if it were the line of a fishing rod. At once, we begin to hear a kind of muffled splashing. Sound travels quicker and further in water than in air, so when we splash a stick on the surface of the water we can hear it crystal clear.

After that comes the geophone (for recording vibrations under the ground). We have to embed this a little way into the earth. With this we can hear the vibrations made by our own feet as we shuffle around. On an especially windy day, Martin tells me, you can even hear the crackling of trees as they sway, transmitting sonic vibrations through their roots into the ground.

Most interestingly, a geophone is just a specialised seismometer. That is to say, with them you can hear earthquakes and volcanic activity. Of course,

since Norfolk is not very seismically active we don't get to hear anything like this today. But it just goes to show the range of purposes for different kinds of microphones.

Then we experiment a bit, taking it in turns to listen through the headphones, combining the sounds of the different microphones, playing with the levels, adding a normal microphone to record the things above ground, and just experimenting with producing different sounds. And it's therapeutic. I haven't done HomeSounds for a couple of years now, but just sitting there with Martin listening and warping the sounds of our environment makes me feel nostalgic. Of what? Perhaps of my experience with HomeSounds. Perhaps of the times before the pandemic. Perhaps because I am simply connecting to nature - that which is always new, yet always hints at ancient times.

I feel so grateful to Martin for taking time out of his day to go on a sound-walk. Hopefully my tuppence of this article will encourage more people to try out sound-walking. You don't need special equipment - all you need is something to record with, such as a phone. And perhaps you will see a benefit to your life.

Written by Earl Murdoch



Listen to Earl Murdoch's soundscape by scanning the QR code

LARGLEYS



Image credit: Eve Mathews

**CAN YOU
CHANGE THE
FUTURE OF
FASHION?**

The textiles industry is one of the world's largest industries – and also its largest polluters. It creates 1.2 billion tonnes of greenhouse gas emissions per year, contributes 8-10% of global carbon emissions, and 9 trillion litres of water per year. Those numbers probably seem incredibly daunting to think about, but we learnt at Norwich Science Festival's Hello Fashion Future exhibition and talk, there's still a lot of work being done - and some of it can be done by you too.

Currently, we're producing and buying more fashion items than ever before - but we're wearing even less and less of those items. On average, we keep an item of clothing for 3.3025 years in the UK, and even then that average varies greatly from item to item. Typically coats and dresses last the longest (4.58 and 3.64 years respectively), but trousers are often only kept for 2.81 years or t-shirts for 2.78 years. The key to fighting this, according to fashion designers Felicity Brown and Jessica Read, is to buy things you can wear for life; items that you can see yourself wearing again and again and again and again and–you get the idea. If we start reusing our clothing more and keeping it for longer, we can reduce the demand for new fashion items and therefore reduce pollution too.

Now you may be thinking: but what if, by wearing items more frequently, they begin to break more easily too? Surely that just creates more demand for fast fashion? That's where organisations such as We Wear The Trousers can step in. We Wear The Trousers are a not-for-profit who are empowering citizens to think about how you can participate in fashion without buying new clothing and trying to remove barriers so that everyone can keep clothes for longer. They run workshops on how to mend clothes in order to keep them for longer or how to reuse old material to create something new – after all, this is what many people relied on in previous centuries before the development of modern fashion manufacturing. And if you're not sure there's a mending workshop near you? Then the internet is your most helpful tool! Just a quick search, and you will probably find hundreds, if not thousands, of blogs, videos, and tutorials on how to mend different items of clothing and care for them so

they last even longer. But what about those times when you really really need to buy a new item of clothing? There are still plenty of options available – one of the best is buying secondhand, as it closes the fast fashion loop and ensures older pieces are still being reused by new people. You could also look into buying clothing made of different plant-based fibres, such as hemp, as they will naturally decompose and degrade once they've reached the end of their life. Cotton is often criticised because the plants often need a lot of water to survive and can cause damage to the soil if not grown properly, but plants such as hemp use just 20% of the water compared to cotton and naturally cleanses the soil so it can be used to regenerate contaminated areas and make them fertile for other uses too.

Furthermore, you could look into reducing waste and pollution by investing in clothing made out of recycled plastic. While there is currently no technology to recycle polyester fabric back into more fabric, we can recycle other polyester products that often go to waste (e.g. water bottles) to create new fabric and clothing. This also reduces the amount of waste going to landfill and the demand on crude oil (which is what polyester is made from), as well as using 30-50% less energy than it does to produce 'virgin' (or new) polyester.

However, how much onus should be on us? Is it really fair to say that consumers are the only ones that can change the future of the fashion industry? After all, if 80% of what happens to a garment at the end of its life happens at the design stage, then surely it's down to designers and manufacturers to do the majority of the changing? While this is of course true, that doesn't mean consumers can't start convincing fast fashion companies to engage in sustainable fashion. Write to the CEO of popular fast fashion brands, or start a campaign to bring in legislation, regulations, and taxes - you could start by running a social media account dedicated to busting fast fashion myths, writing to your MP, or engaging with organisations already campaigning for this. We already have legislation and regulations on the global food and finance industries, why can't we do the same for fashion too? Don't be behind the times, make sure you're ahead of the fashion industry's curve!

Written by Eve Mathews



UPCYCLING CLOTHES 101!

Image credit: Juna Lypenkoh

Making time: may alter from one minute to a few years. It may seem like a long list, but trust me, it is life changing and it will work! Hopefully...

Well, In the worst-case scenario, it will just look like an edgy 'gone wrong but on purpose' art project.

You Will Need;

- Around 100 grams of old pieces of clothing you probably bought somewhere on sale and thought: 'oh, there's a sale, it would be a crime to leave it here. I could style some funky outfit with it. But if I won't wear it, I could use it as PJ's, right?'. But at-long-last it just ended up being lost and sucked into the abyss of your wardrobe;
- 2 hands of your own (or somebody else's will work as well, it just may not come out as you imagined it to be);
- A pinch of patience;
- Well, maybe, one more pinch of patience, as you may feel like giving up at some point;
- Grandma's styling advice;
- A dash of gentleness, intimacy and your inner femininity;
- 7 spoonful's of eclecticism;
- A spoonful of chaos and mayhem;
- Two pinches of boldness;
- 50 grams of intuition;
- Some needles, threads, fabric scraps, a pair of scissors, fabric paint and paint brushes would come in handy as well.

Image credits: Juna Lypenkov



Scribble out a little plan on a piece of paper, or just in your head, if today is one of those lazy days (though, sometimes, you will find yourself not following the plan at all, but that's the part of the fun!). Grab your beloved garment, add a few heart-shaped pieces of fabric with a buttonhole stitch until it looks kitsch enough. If you are not a big fan of heart shapes, its completely fine, use your imagination to create ANYTHING at all. It's so fascinating, right? You can create anything you wish! However, if you are feeling stuck or overwhelmed with your ideas, do take a peek at the technique that I've been told – a Japanese boro technique! Looks pretty cool, doesn't it?

So, the hardest part of coming up with ideas is done! Now let's get to technicalities. It may take a few tries to master the stitching and hitching, but don't worry! We all need to make our beginnings, despite how hard they might be... ;)

Although, fun should not stop only at stitching. There are special fabric paints in the craft shops nowadays. Hop to Hobbycraft, grab a bottle of it, use your 10% student discount if you can and let your hand get all loose making patters and shapes with that crimson red paint you got.

And its done! As easy as that you have helped the environment, decluttered your chaotic wardrobe a little bit and now you have this unique piece of clothing that nobody else in the world has. So, as creators of @wewearthetrausers have said that fashion is not only about buying stuff. Fashion is styling, playing, assembling, refashioning, layering, rummaging, musing, creating, connecting and so much more...

Please remember, the most beautiful clothing pieces are those which tell us a story.

Written by Juna Lypenko



DECEPTION ISLAND



Image credit: Megan Cooke

In the early 1800s, when the wild unknowns of the world were beginning to be explored and grasped by humans yearning for power, an island was discovered by sailors in the midst of the strenuous seas of Antarctica, residing peacefully at the bottom of the earth. This island received its name- 'Deception Island', due to the sailors discovering that what was a seemingly typical island, turned out to be a lagoon of hot springs, volcanic ash and red rocks, lined with beaches of dense, black volcanic ash with steam rising from the shore: It was a haunting pocket of peace within the rough seas of the Antarctic.

Elizabeth Lewis Williams, the author of the poem, has grown up hearing stories of this mysterious place from her father, whom she visited in 1959, and later learnt a great deal about the island, which her project, 'deception island' is based around. Her poem summons the voices of the rocks, creatures and scientists of the island, as well as the legacy left by the whalers. In 1821, when all of the island seals had been hunted to extinction by the sailors, a Norwegian whaling station was established in 1912. Yet years later, when her father visited and the station was in ruins, its legacy still inhabited the island, with whale debris littered around the black beaches and an underwater forest of whale bones loomed below the sea surface. Despite this sad history of the island which had been left seemingly hopeless, from these ruins a permanent British scientific base was created in 1944.

Elizabeth is passionate about our current climate emergency, and believes that whaling is a clear example of the barbaric extremities humanity is capable of reaching. Yet, she believes that this positive change of the progressive scientific research station shows the human ability to save our environment despite brutally destroying it. Through her project, consisting of snippets of archived videos from the island alongside her poem and other types of media shown in a refuge hut, she attempted to reflect this hope to younger generations, communicating the need for engagement with the natural world, and the understanding of the necessity to save it. The refuge hut, built in Wymondham, is a replica of what some of the scientists would've stayed in in the 1950s and 60s. It is a small 4 bed hut,

with only the basic human necessities.

Elizabeth's study of humanity continues with the comparison to our recent lockdown and what life was like for those in Antarctica in the 1950s and 60s when her father visited, in which the only communication with the outer world was through a telegram once a month consisting of 100 words. The scientists would live for months with only 6-8 other people in 119 days of darkness in the winter- an extreme lockdown. However, some of the more mundane aspects are similar to what many people of the world went through in 2020: having to live with those you may not get along with as well as feeling alone with lack of communication. She believes in seeing the beauty in others' inadequacies, just as those whom lived on Deception Island had to, and says that those (scientists and those living through the pandemic alike) whom succeeded in overcoming the challenges we face, whether it be working in extreme conditions or a lockdown says a lot about the resourcefulness of humanity, and our ability to surpass challenges. This is why in her project, Elizabeth aimed to not villainise humanity for their awful actions such as whaling and creating a climate crisis, but present a different perspective: The positive, activist side of humanity that is steadily growing as more people become aware of global warming and what needs to be done. Within her project, she presents both of these sides of humanity, the ever-growing need to protect and save our environment, as well as showing the important bond we must have with animals and nature. Deception Island is a wonderful, hopeful example of how humanity is restoring the peace of the planet, pocket by pocket of the earth, and helping to reverse the crimes committed to the environment by us.

Written by Megan Cooke

**THE REAL STORY
BEHIND SOLVING
A CRIME.**

**A FASCINATING TALK BY
PROFESSOR ANGELA GALLOP**

On a rainy Thursday evening, I was getting ready to attend an event with a very intriguing and enigmatic title: When the Dogs don't bark. Not knowing what to expect besides the talk being based on a book written by the presenter Prof Angela Gallop and generally its content about real crime, I was very interested in discovering more about it.

When I arrived at the venue, I immediately noticed the long queue waiting outside the building. As I mentioned before it was raining (or more accurately drizzling), but I was quite concerned as I did not have an umbrella or a coat with a hood and was afraid that I was going to GET SOAKED before the event even starts. Of course, people around me did not show one bit of concern about the weather and understandably so, as they are probably quite familiar and unbothered by it by now. This dramatic reaction and type of concern refer more to people who have not adjusted to the English weather quite yet (ME!). When my turn came to enter the building and after surviving SUCH terrifying weather, I tried to find a seat where I would have a good view and audio (especially important as I wanted to make notes) and waited for the event to start. While I was waiting and thinking that this is the first event I am attending since the pandemic started and how vital human interaction is especially after its long absence, I realized that more and more people were coming in. This observation was correct as immediately after, one of the staff kindly informed us that it was a fully booked show and that all seats were reserved.

When Prof. Angela Gallop entered the room, immediately everyone stopped chatting and shift her attention to her. She began her presentation by travelling back in time to when she first started her career at Forensic Science Service Laboratory at Harrogate in 1974. There her role was to exam evidence found at the crime scenes. Although this was a male-dominated laboratory and field in general, she still managed to overcome any difficulties that came her way. What impressed me the most was her will to work in a field in which she would be able to actively contribute to our society. Her determination to investigate and accurately

present the facts followed her throughout her career specifically to, as she mentioned, cases for example in which the supposed guilty was charged with a crime without the evidence being thoroughly examined or perhaps the cause of death was too quickly and not rightfully concluded. Of course, such research could and can only be achieved by team effort something which she humorously highlighted does not appear in crime shows where the main character ends up uncovering the crime all by themselves. More specifically in her talk, she focused on the real process of solving a crime which is not nearly as romanticised or as speedy as it is depicted in these shows. As a person who has watched many fictional crime shows over the years and has enjoyed them at the very least, I appreciated her honesty which is extremely important for people interested in criminology as it gives them real expectations before entering her field. She continued on analysing cases from the past which if I take into consideration the reaction and interest of the audience shocked the public at the time. Not only that but she credited DNA as a ground-breaking tool for accurately and efficiently revealing the truth about these cases. I found it quite fascinating when she referred to DNA and how significantly it helped with solving many crimes that happened prior to its discovery! I enjoyed her presentation, and I liked how engaging it was even for someone like me who is not acquainted with this subject (besides the crime shows of course!).

Talking about real crime can be a quite heavy subject, however, she managed to keep it light and respectful. She gave us a small glimpse of ideas and events mentioned in her book and I am very keen on reading it. Overall, this was a fascinating event to attend. It truly motivated and encouraged me into participating in events in which the topic is not necessarily something I am familiar with. And of course, reminded me to also bring an umbrella when I leave the house!

Written by Val Lountzi

HOW WELL DO YOU
KNOW YOUR VAGINA?
(OR IS IT THE
VULVA...?)



Image credit: Eve Mathews

This year Norwich Science Festival hosted its first (but hopefully not last) discussion about vaginas to a packed-out Norwich Arts Centre. According to the Eve Appeal, almost half of British women do not know the basic anatomy of their genitalia, which can have a major impact on their health, body image, and sexual pleasure. Thankfully, speakers Hoda Ali, Florence Schechter, and Elaine Miller were sure to bust as many myths (and crack as many jokes) as possible.

But how well do you know your vagina? Would you consider yourself on par with Hoda, Florence, and Elaine, or part of the 50% that don't know where to begin?

Let's start with the words you might use... flower, gash, minge, muff, pussy, sarlacc pit, 'down there' are just a few of the common words and phrases used to describe female genitalia but did you know the term 'vagina' only refers to one specific part? Yep, the vagina is actually just the tube extending from the vulva (the outside bit) to the cervix (the lower part of the uterus). The vagina the part where you might put in tampons, fingers, pensises, or the part where menstrual blood and babies come out from. The external bit that many people refer to as the vagina, is actually the 'vulva', the collective name for all the external sex organs, such as the clitoris, labia majora, and labia minor (to name just a few!)

A second bit of information you may be surprised to know, while menstrual cups have shot up in popularity in recent years, you may be surprised the first menstrual cup was actually invented in 1884. While the device didn't become available until almost 50 years later in 1932, the cup was designed to go inside the vagina and funnel out menstrual liquid into a wider cup between the woman's legs. While it doesn't sound as comfortable or practical as today's menstrual cup's designs are, it's comforting to know that menstrual cups aren't a new fad and have actually been helping many people for generations!

Speaking of older generations, how much do you know about the Grandma Theory? This is the theory that the reason humans experience a menopause (which is rare in the animal world) is because we need older humans to help care for younger humans. Due to the narrowness of our hips, humans tend to experience a short pregnancy, meaning we often need to recover a little longer from childbirth and that human babies are often a little less able to care for themselves than other animal babies. Naturally then, we need a group of older and world-experienced humans (read: grandparents) that can help us raise babies and don't have any more babies of their own to prioritise.

While most people who experience childbirth make a full recovery, a common myth is that of the "wizard sleeve", which perpetuates the belief that after childbirth the vulva's labia (or 'the lips') remain loose and dangling. But rest assured, as physiotherapist Elaine Miller tells us that the vagina will return to pre-pregnancy state within 6 weeks of childbirth! According to Elaine, however, after 6 weeks of parenthood, penises remain uninspiring!

Speaking of feeling uninspiring, studies have shown that only 1 in 5 women actually orgasm from penetration alone and, while 86% of lesbians and 64% bisexual women say they orgasm during every sexual experience, only 45% of straight women can say the same. While this is mainly due to a lack of education, often from both men and women alike, about female anatomy and pleasure, all three speakers had one piece of advice: find out what you like and talk to your partner about it! This might take time – there's still a lot of stigma around these conversations – but if these conversations are going to benefit half the population, then it's something we all need to know and talk about.

Written by Eve Mathews

BEING YOU: THE INSIDE STORY OF YOUR INNER UNIVERSE REVIEW

On the last day of the Norwich Science Festival, I had the pleasure of attending the Being you: The inside story of your inner universe event, presented by Prof. Anil Seth. This was such a fascinating, thought-provoking and eye-opening experience. Not only because we and our consciousness were the topic of the talk, which automatically makes it quite intriguing as we as humans have the tendency or curiosity of analysing and philosophising our existence but also due to the presenter's ability to hand out a presentation in such a compelling and interesting way. The theory of consciousness is a complex and definitely not straightforward theory that contains a lot of abstract ideas. And although this could be an obstacle and lead to the discouragement of the listener in concentrating on his talk, that was definitely not the case. On the contrary, I was quite impressed and surprised by the engagement of the audience during his presentation as well as the many questions that followed at the end of his talk. This event was certainly the best way of ending such a wonderful and educational week!

Written by Val Lountzi

