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Xanthe Mallott is here today.

Xanthe is a forensic anthropologist and a criminologist,
and she lectures at the University of Newcastle in New South Wales.

Xanthe is a specialist in the identification of human remains
and her research has focused in the past
on understanding the biometric details of the human face in particular.

Xanthe's work has also contributed to identifying sex offenders
by comparing a suspect's anatomy to an image of the offender
to determine whether two people are one and the same.

Her work has led to criminal convictions and prosecutions,
but she's also used DNA evidence to help exonerate people
who've been wrongfully convicted over the years.

And she's particularly interested in how human bias can play a part
in cases where mothers are accused of killing their children.

Now, just a heads up, we are going to be talking, of course,
about some cold cases that are a bit grisly in nature,
just in case that's not your cup of tea.

Xanthe is the author of several books on crime and forensics,
and she was a contributor to the UK crime TV series History Cold Case.

Hi, Xanthe.

Hi.

So, in the nature of your work over the years,
some remains are found, the police are brought to the scene,
the cause of death is not clear.

At what point are you typically brought into cases like these?

So, forensic anthropologists generally are experts
in helping to identify somebody from their bones largely,
so they would normally be called in either to a scene
if the police need assistance with the recovery of those human remains,
or in the lab to determine some biological factors such as age, sex,
geographical ancestry, and height,
because that helps the police narrow down those remains
against a missing person's database
to see whether they can help identify them.

And we also look at things like pathology and trauma,
evidence of those on the remains themselves.

So, if somebody's been stabbed, for example,
even if there's no soft tissue left,
there may be evidence of sharp, forced trauma
on the remains that a forensic anthropologist could identify.

How small in particular, and my mum can this get,
because there's a whole universe in human bones, isn't there?

There is. Everyone's got a story in their bones, it's true.

So, yeah, the evidence can be absolutely my mute.
We could look for fractures in the hyoid bone,
for example, in the throat to demonstrate
that somebody may have been strangled.
So, yes, the evidence can be very small.
Great attention to detail is required.
And human disease as well, that can be found
within the remains of human bones, can't it?
It can if the disease has been present long enough
for there to be actually uptaken in the bones.
If you think the bones, everyone thinks of them
as kind of static tissues that don't change,
but actually they're very dynamic.
They're changing all the time, they heal,
and they do show evidence of pathology and trauma and disease.
But you've got to survive a disease long enough
for it to actually show in your bones.
If it kills you too quickly, there won't be any evidence
for a forensic anthropologist to identify.
If you're brought to the scene of the crime,
do you have to sort of steal yourself before you go in?
Do you have to sort of go, oh, God, here we go?
I've always been very good at compartmentalising.
So I've seen some things that, I guess,
people would consider very unpleasant over the years,
but I'm very good at doing my job.
It's a puzzle.
I have questions to answer.
I have evidence to provide that can assist the police.
And then I don't think about it afterwards.
I'm good at kind of shutting that off.
You want to think back to things,
incidents in my life which have been, like,
really horrible or bad or painful,
there's always a tiny part of my mind,
even in the most fraught situations,
going, this is interesting.
Is that the bit you have to kind of listen to?
Yes. I've always loved puzzles.
I've always loved figuring out what happened,
why it's happened, who's responsible.
I've always been kind of drawn to those puzzles
and a forensic anthropologist,
somebody says, you know, you help solve a crime,

but ultimately, whatever evidence you provide to the police,
you are providing one little bit of a puzzle
that they put into the bigger picture.
And it's very much that accumulative knowledge of the police
that ultimately leads to people being prosecuted
and found guilty or otherwise,
but we just have our little bit and we hand that over.
But that little bit of the puzzle is fascinating.
I'm going to put a shocking proposition to you now, Santhi,
which is that shows like CSI might not be exactly like real life.
No, that's why I learnt all my skills.
What are you talking about?
How far from the truth is a show like that,
where the forensic anthropologist sweeps in and goes,
ah, there it is.
And then five minutes later, they nab the guy and that's that.
Well, you know, I'm going to, you know, have to agree.
It's not real. Not at all. I can't watch them.
I love Midsummer Murders and some of those British dramas.
Right.
But CSI, you know, not all people attending scenes are,
they're all hot and they're all young and they're all made up
and they're not wearing the hot, I would call it a bunny suit,
like the Tyvek white suit that you cook in in summer that's really hot.
They're not wearing any of that.
So, you know, why would they want to protect the scene from contamination, right?
So now it's not real.
And yeah, I can't watch it because I just end up shouting at the television.
Very furtive.
Yeah, no, it's not for me.
I suppose you're looking for a story in the remains, aren't you?
But do you find often that the remains seem to be telling you
like several different stories?
It can be confusing sometimes when you're trying to pick apart
some of that evidence that can be presented to you.
I mean, even determining somebody's biological sex,
I'm talking, you know, are they categorically kind of male or female?
What evidence is there from the skeleton to help us narrow down that category?
Isn't that easy?
Isn't that the easy bit?
Well, no.
I mean, sometimes you have to categorize different features
to determine whether they are more male or more female.
And some people are hyper-masculine and that's easy.

But you get hyper-feminine too, and that's kind of easy.
But in the middle, you've got this whole range.
And for example, I always thought that if my bones were found,
I've got really broad shoulders.
I've got really narrow hips.
I know that my skull is a mixture of male and female characteristics.
I think they might mistake me for what I would class as a grassile male
because my remains would not look typically female.
I imagine becoming a forensic anthropologist.
Is this not something you imagined for yourself as a kid or is it?
I don't know. Or was it for you?
No, I wanted to be a vet when I was a kid.
I just didn't think I was clever enough.
So I was always destined to be a dancer, actually.
My mum was a professional dancer and my dad was an engineer.
And my mum was very keen that I followed in her footsteps.
I had some natural ability, but I don't think I was that good, to be honest.
But I followed that path and I thought that that was what I would do
until I got a little bit older and thought I wanted to do something more academic.
Your mum wanted you to be a dancer instead of...
You kept giving her pictures of your hand inside a cow or something like that?
Well, I do remember when I was about ten, I was reading this book about Jack the Ripper.
And I used to go to the library every weekend with my dad and get books out.
And I remember looking at it and it was obviously a factual book about Jack the Ripper.
There were photos in it and I was just fascinated with who he may have been.
And I remember thinking then, I'm not sure mum and dad are we too keen about this
because I wasn't disturbed by it.
I thought it was interesting, but the images were probably pretty graphic
for a young kid to be looking at.
The story of Jack the Ripper is fascinating.
There are many possible people he might have been.
Everyone's got their own theory on who that person might have been.
But it seems to me like watching the ritual of those ghastly murders
that there was some kind of magic right at work in the killer's mind.
Is that something you need to be mindful if you're working on a potential murder case?
That there's some kind of hidden language that's going on that's relevant to the killer
that might be very hard to discern?
Well there generally are with serial offenders, serial sex offenders or serial killers.
We would just class it as a ritualistic behaviour.
So they add things in that really add a signature as it were
that you can help identify who that person is
because they will adapt that signature and maintain it across their crimes
and that can actually help you identify them once you've noticed
what key elements there are in that signature.

But it doesn't mean it'll always be the same because as they offend they try different things, their method of crime actually improves because people get better at things when they practice. And then they adapt different things and they go, oh I really enjoyed that so I'll keep that. Oh they get interested in new things? Yeah and they'll try that but maybe they didn't enjoy it so they won't do that next time. So there will be variations in the expression of those signatures. So you're looking at books of Jack the Ripper as a kid and you want to be a vet and doing all that sort of thing. What kind of a kid were you then? This is England or Scotland we're talking about. So I was born in Scotland but I moved to the border of Wales so I was there until I was seven and then I was in England so I moved around a little bit. I was a total tomboy. I was doing all the things that the boys were doing. I was climbing the trees, falling out of the trees, driving my mum crazy because I was always doing things to injure myself and come home with knees with no skin left on them and all of that and playing football with the boys. So I was an honoree boy when I was a kid. I was just doing all the things the boys loved doing and I loved animals as well and she never wanted to empty my pockets when I was a child because I would always have rescued a worm or something and I'd have that in my pocket and she'd put her hand into my pocket to wash my trousers or something and pull it out with like trepidation because who knew what would be in there that I would be caring for. You don't mind if we frisk you for worms before you leave the building today, do you? No, frisk away. I don't save worms anymore and I'd get her off on the ground but then I thought I could care for that. I don't know what I thought I was going to do with it. Your grandparents you've said were a very big influence on you. How were they such a big influence on you? So my mum's parents I was very close to when I was young. They were basically a second set of parents really. They lived down in Cornwall and for anyone who doesn't know the geography of the UK I spent most of my time I guess just outside of London in kind of green space just outside of London, the Green Bout but they lived down in Cornwall and that's that little tip right down in the corner of the foot as it were of kind of the UK and I spent a lot of time down there. They lived on the top of a cliff overlooking the sea

and I had this life of freedom when I was a kid.
I was either down there or they were with us
and yeah I had a great life with them.
They spoiled us obviously that's what grandparents do
but yeah it was like having two sets of parents. It was amazing.
So now tell me about an accident you had when you were in your late teens
and the accident that helped you change direction in life.
It did yeah so I was studying for my A-levels at this point
I decided I didn't want to continue to be a professional dancer
I wanted to go to university so I was doing the exams
that you need to do to get into university
which are called your A-levels in the UK
and one of my friends who I was studying English with
actually had a head trauma during the course
and so he had a little bit extra time
and so I waited behind to see how he did in the exam
and on my way home I was waiting at some traffic lights
only about five minutes from my house
and there was a house on the right that was having its drive retarm act
and so there were temporary traffic lights
I had gone through that morning on my way to my exam
and they weren't there but in the afternoon I got stuck at these traffic lights
waiting as we pull off a car came round the bend the other way
it was actually a van and fell to stop at the lights
because there was traffic building up on his side
he came on to my side and squashed my car
I was in a little car he was in a two ton van
so my car was kind of concertinaed backwards between him and the bank
and all I actually remember from that
I don't remember seeing him coming
I just remember a blue van
like the blue front of a van with black bull bars
and that's all I can remember from that
and then I hit my head I broke the window with my head
which is not an easy thing to do
I must have a very thick skull because I didn't crack my skull
I damaged my knee really badly though on the steering column
but the guys working on the road actually got me out of the car
and I remember looking at the car which was squashed
thinking that looks pretty bad
and I was looking at me thinking well obviously my knee's a mess
because it was an open compound fracture of my patella
so I had a big six inch open wound on my knee on my left knee
but I thought the rest of me doesn't look too bad

given what the car looks like
It's funny the thoughts you have in those situations
I was just sitting on the road and everyone's like staring at me
and I felt really self-conscious
and the car that was at the back of the queue he would have hit
had this little old couple in it and a dog in the back
they had a retriever in the boot
and I remember thinking if he'd gone straight on
he'd have killed that dog for sure
and the little old lady had come over and she was holding my hand
and I had glass all over my hands and between my fingers
and she was like squashing my fingers and I was thinking
but I didn't want to tell her that she was hurting my hand
because she was trying to be really nice
and I was just like could you just not squash my fingers
because I had all these glass
and she was cutting my fingers but she was trying to be nice
You had a very badly damaged knee
and there's a gigantic cluster of nerves in the knee
so that's why the practice of knee capping is done
is because it's so particularly painful
It doesn't sound like you were aware of pain
or were you in the knee?
I mean you must have been in agony
No I wasn't in pain at that point
there's probably so much adrenaline bounding through your system
I wasn't in any pain and so I just waited
ambulance came obviously, went off to hospital
I had emergency surgery that night
it was a very long night because I woke up after the surgery
in the middle of the night and nobody could tell me
if I was going to be able to walk again
because that was the question before I'd gone into surgery
they couldn't tell me
so I had to wait till the surgeon came around in the morning
and then I've had 11 surgeries on it since
and one of my surgeons told me I'm never going to do a marathon
but I've done a half marathon and I still run
I'm one of those really stubborn people
tell me I can't do something
and I'm absolutely going to give it a go
What do you think that protracted period in hospital did for you?
Basically life fell apart after that
I was in hospital for I don't know a few days

then went home
I'd always had a tense relationship with my mother and sister at this point
and now I'm in full leg plaster
I also had quite a serious head injury
which wasn't really looked at in hospital
but as I said I broke the window with my head
and by the time the ambulance crew got there
you couldn't put your hand over the lump on my head
so they probably should have looked at that in hospital
because I could well have had an organic brain trauma as well
but certainly everything changed
all my social life was around sport
all my friends played sport, I played sport
everything was very active
I was always very active
so suddenly I couldn't do the things my friends were doing
I was in plaster
everyone gives you chocolate
they just bring you chocolates
and I'm used to burning off all this energy
and I can't burn it off
and for people listening who exercise regularly
that's a nightmare
when you're literally just stationary
and you can't do anything
and so I was at home with my mum and sister
and my grandfather actually got really sick
when I was in plaster
and actually died while I was in plaster
and so my family went off to Cornwall
and it was decided I wasn't well enough to go
and I was really close to him
my grandmother had died when I was 13
but I was 20 at this point
and I obviously felt really guilty
about not being able to be there
but I couldn't make that trip there
it was like a four hour drive down to Cornwall
and I ended up moving out of my house
when I was still in plaster
about two weeks after my accident
moved in with my boyfriend
which was probably not a good idea
because that was like an enforced moving in

rather than an excited let's move in together
so yeah it was very difficult
and I've had a very difficult relationship
with my mum and sister ever since
What kind of decision did you make about your future though
at that time?
Well at that time I didn't know what I was doing
I was meant to be going to university in the September
this would have been in the June
and I was meant to be going in September
to do a sports degree again
very active
and I wanted to work with disabled kids in sport
and then suddenly that was gone too
so my whole future had just imploded
my family life had imploded everything
and I couldn't go
I needed a letter saying I was fully fit
to go and do that degree
and I was never going to get that
given I think six months after my initial accident
and the first emergency surgery
I had another one
and then I had another one a year later
and it just went on like that
every few months I was having another surgery
but at some point the word Australia
crept into your head
Yeah well just because I needed to
I just needed to get away
so my dad has a brother and sister
who both came here as ten pound poms
so I probably hatched the plan with my dad
my mum wasn't too keen on it
she didn't think I was in the right headspace
to go off on my own to Australia
but I absolutely was
I've always been I think more independent
than she really understands
so I came over and I stayed with my dad's
brother to start with up in Queensland
and then travelled around Australia a bit
and then stayed in Perth with my aunt
and it was the best thing I could have done

How at home did you feel?
I mean Australia's like to imagine that
oh you walk off the plane and go
oh I love it straight away
In fact it can be flies and humidity as well
but no it was like that
It was literally like that
I got off the plane and it was like I'm home
and I knew then
I mean as I said I was only twenty
I went back for my twenty first birthday
and I knew then that I'd come back to Australia
and I was pretty sure I was going to live here actually
I loved it, yeah I just felt totally at home
as soon as I got here
So when you got back to the UK
you began studying archaeological sciences
found a new path for yourself
and you began to look at human skeletons
and the human body
what did you like about that work?
I liked evolution, I liked understanding
adaptation, how the body adapts
individually as well as on a population level
but it wasn't really my desire to start
I didn't kind of come back and go
oh archaeological sciences is my future
I just needed something to do
so I just needed to choose a degree
Right and that was in A
Maybe it was that simple you know
I just came back and went
what am I going to do
I've got to do something
so I thought yeah that looks interesting
and when I got there
I didn't expect to love it the way I did
and I loved learning
I always loved learning
I was that little geeky kid who
did my homework on time
but I did extra
and not because I wanted to like
get the teachers on side

just because I really loved learning stuff
so I loved university
I get to spend like three years
just embedded in something
that I really enjoyed
so yeah anything to do
with humans adaptation
I'm not interested in pots
or buildings, no
but if you bury someone
or they're dead
or I can look at their bones
you go hello
I'm in
Right there it is
So then for your masters
you went to Cambridge University
and you decided to hone in on
research into the human head and face
in particular
what aspect of that
were you trying to discover
that you were researching at Cambridge
So I wanted to look at
how the human head and face
adapts to extreme environment
on a population level
so for example
I looked at a lot of
cold adapted populations like Eskimo
so those from Greenland etc
and I looked at a number of populations
from very hot places
and what I found was
certain features of the face
specifically the nose for example
adapts on a population level
so if you think about an Eskimo's face
you will imagine a very broad face
with a very flat broad nose
right that's what everyone thinks
well that feature
the nose being broad and flat
actually allows the air

when you breathe in
to be warmed slightly
before it hits the lungs
so it has an evolutionary benefit
so therefore the flat noses
have been genetically bred
into that population
because they're beneficial
to that population
and so the head and face
is very plastic and adaptable
as is the rest of the body
but I want to look at it
on that big scale
rather than on an individual basis
It's kind of fascinating
how much human beings
culturally have invested
in that different looking face
from a different part of the world
when in fact it's one of the most
plastic parts of the human body
that if anything
it sort of misleads us a bit
it sort of shows
it tends to indicate
we're more different than we really are
underneath the skin
yeah we're all the same underneath
but look at the differences in dogs
they're pretty much all the same
but look at these different traits
we've bred into them
I don't know
some of those things I've seen
poking the Ted out of a handbag
that's not like a wolf at all
but we've done that to that dog
if you think
I like Rottweilers
but I've got friends
who've got these dashhounds
and they're like very very close
genetically

but you stick a Rottweiler
next to a dashhound
and tell me that they look like
very close siblings
this is all very true
so then you move on to a PhD project
which was a project
to map the human face
in what way
what was this work involving?
so this was partly funded by the FBI
and they wanted to know
firstly the question was
improving methods of CCTV identification
so we were looking at basically
landmarking a lot of faces
by landmarking I mean
putting points on certain
anatomical areas of the face
so the tip of the nose
corners of the eyes
corners of the mouth
the breadth of the face as well
so the ears
so trying to basically measure
the differences between faces
and they wanted to know
if there was an average face
in the population
so we actually photographed
we used eight cameras
to build a 3D model of faces
then we landmarked them all
so you're looking for an average face?
we were looking for an average face
and then say so then
in the case of this person
the ears are longer or shorter
the nose is flatter
longer what have you
exactly how far they are
from that average face
and we photographed 3,000 people
so this was a big study

not just me
I didn't do all of them
but I did photograph
a significant number
and then we landmarked those twice
so we had 6,000 samples
and the conclusion was
there is no average face
so but we did
we obviously had all of that data
that we could draw on
to determine the variability
the maximum variability
across all of those features
and how individual faces really are
and did you go to the FBI
to present your findings?
yeah I did
I got to go to Quantico
it was awesome
X-Files Quantico
like Silence of the Lambs Quantico
Silence of the Lambs Quantico
so we went there
and I was in awe
everyone's seen the movies
and everyone knows Quantico right
and is it like the movies?
yeah it really is
really
so they've got this big compound
and you're driven through it
and an FBI agent
showed us around
and all he wanted to show us
was where the Silence of the Lambs was filmed
oh this is where Clarence Starling
made that phone call
and it was so odd
because he obviously thought
that was super cool
whereas I thought
being Quantico was super cool
and did you see people

jogging in hoodies with FBI
written in big letters
you saw that?
yeah and I saw
we drove past the firing range
and they were like
this is the firing range
the targets are over there
and I was like
you mean the bit we can't even really see
it's so far away
I was like
serious people can shoot that
like it was amazing
I loved it
it was the best trip I could have done
as a PhD student
imagine me
and then we're sitting around this oval table
and I get to present my results
to all these FBI agents
and they have to listen to me
right but I suppose
what they want is scientists
to provide them with some kind of a magic wand
to say well we can now
scientists can give you this tool
that makes your work a lot easier
but is your doctor say
there is no typical
prototypical face?
well we said there was no typical face
but ultimately
you know facial reconstruction
and recognition
has come so far since those early
we're talking 2005
2006 I was doing that
so it was the building blocks
of where we are today
with automated recognition etc
and it's kind of gone into some dark places
where various authoritarian nations
are using those kind of biometrics

to build surveillance states
in various parts of the world
yeah there will always be those kind of uses
but ultimately you can use it
when you're looking for terrorists at airports too
so the application
that comes down to the government of the day
but really it's the science
helps us to identify people
and exclude people
if we don't believe
that they are actually the person in the images
so you went back to Scotland
and started working in a forensic lab there
what was the nature of that work?
so that was at the University of Dundee
it was in the Centre for Anatomy
and Human Identification
and I was very lucky to get that
lectureship pretty much straight out of PhD
and I was working with
some of the best forensic scientists
in the country
it was probably one of the best known
forensic science provision
provided in the country
and now it's a Leather Hume Centre for Forensic Science
so yeah it's really done great work then
I was very lucky to be part of that team
and some of the cases that we worked on
were the standard skeletal identification cases
others we were asked to compare images
that were found on somebody's computer
or on their mobile phone
showing various elements of their anatomy
and a number of those were alleged
child sexual abuse cases
so they had somebody's hand
for example abusing a child and they wanted to know
is the person that we have the suspect
the same as the person who's in those images
or are they holding and potentially
distributing those images
and when you're looking at that photograph of a hand

what are the kind of determining factors
you can look at in that image
to see how they might pertain to
the hand of a suspect
so anything on the surface anatomy
so if you look at your own hand
you can see vein patterns
on the back of your own hands
now the superficial vein patterns
in everybody are unique to you
and they are partly genetic
so there will be a similarity
in the patterns between the back of your hands
if you look at those
but the superficial ones
they're not driven by any particular anatomical function
the deep ones are
you need veins in certain places
and arteries
but if you look at them
you can actually map those
and everyone's will be different
and your right and left hand will be different
because they are partly result of
pressure and the
embryonic pressure in the uterus
so they're going to be different
fingerprints are different for the same reason
even your own fingerprints, identical twins
they're different
so we look at vein patterns
we looked at knuckle creases
we looked at the back of the nails
and so yeah we compared all of those features
what kind of weight can be brought
to bear with that kind of evidence
is it as good as a fingerprint
or does it fall short of that?
it would definitely fall short of fingerprint evidence
although fingerprint evidence is now
classed as opinion evidence as well
so you will have an expert
that will give an opinion in court
as to whether two fingerprints or more

you were brought in as an expert
for the BBC TV series History Cold Case
tell me about this fascinating case
you were brought in which concerned
a whole lot of skeletons
that were found in the middle of Norwich
the town of Norwich, the city centre there
yeah well we did loads of great cases
and in fact that was when I was at the University of Dundee
and my boss professor
Dame Sue Black loved doing radios
she hated doing television but
like you mentioned CSI earlier
it was a research based course
it's a biology driven course
but they'd watch CSI and they'd go
oh you just push a button right
and it gives you like the last known address
and their name and everything else
and go well no
and so they wanted to become forensic anthropologists
with no clue as to what the scientific background was
so Sue's great idea
the BBC in the UK came to us
and she went we can use this as a platform
to educate people about what forensic science really is
and I want to do it but I don't want to face it
right okay
right
right okay alright this is what we're doing now
so yeah I got to go all over the UK
and all the cases we looked at
they weren't famous they were just skeletal
remains and they were archaeological
some of them dated back hundreds of years
but if there's one thing the British are good at
it's keeping records and we did go
I did go and look at all of the
archaeological records to determine
how much we could learn about these people
historically as well as from their
remains we applied all the forensic techniques
we reconstructed their faces
we looked at stabilisotopes which can

tell you about diet so we take bone samples and tell us what those people were eating when they were alive and not eating it by the same time and not eating so was it or were they eating predominantly a marine based diet it can tell you all that kind of information so we did all of that yeah and we found some amazing stories each one of them even though they weren't famous people always go oh what are these big famous stories well each set of remains was a story in itself and they were fascinating and there was one there was one set or group of remains from Norwich that ended up being probably Ashkenazi Jews and they were in this well in Norwich I was at a pogrom there was some kind of attack on the whole Jewish community we were never really sure because the Jewish community were telling us when we looked into this that there were no Ashkenazi Jews but the DNA was telling us for sure that they were that particular subgroup of the population because they tend to intermarry so genetically they're really tight so you could actually take their genes back to a religion which is unusual and were these medieval remains yeah you're testing me now I did that a long time ago I can't remember what like that seems to have really sinister overtones it did and we just didn't know we didn't know why they were there but it was a fascinating story and certainly we learned all these kind of bits of history that were hidden before that I found this other one that was probably a night we found

we looked at some juvenile
remains and children's remains
so we all sorts of things
were uncovered during that
it was amazing doing that
all these stories under the soil
of these kind of quite everyday
stories under the soil
stories under the soil you know
knowing about their shopping and walking over
the graves of these people
who've died in extraordinary
and probably horrific circumstances in the past
but you always wanted to come back to Australia
when did you finally make it back here for good
so we had the global financial crisis
in 2008
and really that really affected
especially academia in the UK
in terms of funding etc
so I was married but I didn't have any children
so still pretty agile
and flexible and I'd always wanted to come back
so in 2011
I suppose I started thinking about it
and
the end of 2011 I was offered a
position at the University of New England
in criminology so I decided to move
sideways into kind of behavioural sciences
rather than sticking with the hard sciences of
forensics although I still work in that
space as well and now combine the two
so yeah I was offered a lectureship
and haven't looked back
in 2014
you went to cover a story for a TV show
in Australia in the Belanglo Forest
tell me about this case
so yeah in 2014 I was working on a series
called Wanted for Channel 10
I was one of the co-hosts of that series
and my role was really as a kind of
forensic expert and criminological expert

so I was asked to go and look at a case
of a young woman whose remains were found
in Belanglo State Forest and everyone kind of assumed
Ivan Malat because that's what they think
when they think Belanglo
an unidentified woman?
an unidentified human arraign, she was in her 20s
discovered by trail bike riders in 2010
she wasn't a Malat victim
because he was already incarcerated
they knew that when she died
her remains were skeletonised
they knew her height
they knew that she was Caucasian
they knew
they had DNA, they had dental work
but she was not on a missing persons database
so they hadn't identified her
so we arranged to have her face
reconstructed as part of the program
we put that out, it was really to generate
new leads for the police because this case had gone cult
so you helped the facial reconstruction
of this body
so I didn't do that
a woman called Susan Hayes
Dr Susan Hayes down at Wollongong did that
but we used that in the program
the young woman's hair was also recovered
so we had distinct lengths of hair
that were built into that reconstruction
and I explained on the program
how a facial reconstruction works
so part of my role was educational
but we didn't get her identified ultimately
and then maybe in 2013 actually
and then in 2015 the news broke
of a toddler's remains
being found in a suitcase in South Australia
South Australia, quite some way
from the Blangley State Forest
Thousands of kilometres away
and so that child's remains
she was around two

and there was a blanket in there
that was homemade in the suitcase
with the remains as well as this little
pink dress
and so this was publicised to try and generate
some leads as to who this toddler
this child may be
and somebody called from the Northern Territory
to say I know that dress
they sent in a photo of a child wearing the dress
at the right age and they also
knew the blanket because it had been made
for the child by her grandmother
and so the child was actually then identified
via a Guthrie or Heal Prick Test
back at a sample that was held
at the hospital from when she'd been born
Alright the Heal Prick Test, the newborn babies
they still had it so they did a DNA analysis
to confirm that the child's remains
were in fact
Candeline Pierce who was the child
the question was then, well where's Carly
where's her mother, we've found the child
and so they did
a comparison
they looked for basically a biographical profile
of all of the unidentified diseases
across the country and Carly
came up in New South Wales
and so then a familial DNA link
was made between Candeline
and Carly to identify that they were
mother and daughter
Now the killer was later found to be
a man named Daniel James Holdham
tell me how he'd been trying to throw
the police off the scent
of the
DT perpetrated
Yeah so he'd killed Carly first
and taken her to Blangalow Forest
then he'd taken Candeline
he'd picked her up, he was staying in the ACT

at the time and taken her
down to South Australia
and in the interim he was accessing
Carly's social security
he was sending what I would call
proof of life messages to her family
so they did initially make a missing persons report
and then
they get these messages, she was kind of a strange
from her family
so she wasn't in close contact
with them, they weren't on the phone
but he sent enough proof of life messages
asking for money which they provided
so it was partly
financial, the motivation
but he was proving basically that she was
in close contact with her bank account was being accessed
so the missing persons report
was closed, so that's why no one was looking for her
no one knew
anything about what had happened to this mother and daughter
until those remains were found
and identified then they started to look at
who were the last people she was seen with
they looked at social media
who were they in photos on social media
with and they came across Daniel Holdham
and he's now
serving two life sentences for them
I was in court actually when he was sentenced
and so were her family
Candeline and Carly's family were in court
and they were incredibly stoic
and brave
throughout the sentencing
and yeah I sat there and watched him
I wanted to see that one through, I felt connected
to that case having tried to identify
in 2013 and failed
but I was very pleased she was
identified and she could be returned to her family
as could Candeline
So on the one hand

such people like that
satisfying to see such people being brought to justice
but there's a flip side to your work
you
also set up a thing called the justice clinic
at the University of Newcastle
looking into
wrongful convictions using DNA
DNA and other evidence to
look into cases of wrongful convictions
what are some of the common causes
of these maddening
wrongful convictions Sandy
Sometimes it can be
expert evidence that goes wrong so experts
either
misrepresent evidence or
the weight that's attached to evidence is
wrong and it kind of
misleads a jury to thinking that something is more
influential than it should be
it can be that the police
get tunnel vision, I've seen that a number of times
and I'm not disparaging the police at all
I think they do amazing work but that has
I have been known to produce verbal confessions
in the past that has been
that has happened yet you do get these kind of
renegade officers who
sometimes follow the wrong path
and eyewitness testimony is also
another huge problem
and also withholding of evidence
at trial like when the prosecution
doesn't disclose evidence
to the
defence that could be
exculpatory as I would describe it that could actually
provide a good defence to
the accused so there's a number of places
it can go wrong but those are really some of the
systematic ones that we see commonly
These cases are maddening
and I can't imagine how maddening they are for the

poor person who has been wrongfully convicted and sent to jail
do you find that such people
are they able to
hang on to some hope of justice
for themselves down the track
or do they quite commonly lose all hope
of
being found innocent of this terrible
miscarriage of justice? Well the ones who
come to the justice clinic at work
obviously are holding out hope that somebody will help them
we only look at cases where all the
appeals have been concluded
so not you know whilst there's an appeal potentially
outstanding we don't get involved we kind of
come in at the end of the process when all hope
has kind of gone I guess
and so the ones that have come to us
they are the battlers and the ones that
the cases I've seen overturned are
people who never gave up fighting
but also they have a white knight on the outside
it's a family member it could be a journalist
it could be somebody from the legal
professional it could be somebody like us
there are other
innocence initiatives around the country
but we call ourselves the justice clinic
instead because we do work
with the potentially wrongfully convicted but
we also look at long term missing persons
cases cold cases
so our work is broader than
just innocence but they need
that battler on the outside
More recently you've been looking
into the cases where
doctors and nurses healthcare
people
have turned out to be killers and in fact
serial killers now
you hardly need to say that these people are extremely rare
in the healthcare system we should
make that point though nonetheless

what did you learn though about such people
who are perpetrating such
utterly creepy and violent murders
Well this came about because in the UK
recently a woman called Lucy
let be was found guilty of murdering
6 neonate she was a neonatal
nurse and she's been accused
newborn babies sorry she was found
guilty murdering 7 and found
guilty of attempting to murder a further
6 and I heard in just the last couple of days
that there will be an 8th child
that she's going to be accused of having murdered
and she's an interesting
an interesting character and I kind of picked this apart
with my good friend and colleague Tim Watson and Rose
a criminal psychologist on we do our own
podcast and we did a special episode on this
we talked about all of the
different types of medical serial killers
so the doctors
the Harold Shipmans of the world
who are those angels of death
as we call them and that is
when men like that kill it's really power
over life and death that kind of
God complex and
partly financial in his
case as well but with Lucy let be so
she was convicted just
very recently she was
a very is a very quiet
character very diminutive
she kind of blends into the background
she's really you know nothing
special as you would say and I think she
did it partly for attention
so that we see that commonly with
female healthcare serial killers the attention
they get when a baby dies
so remember she's on this neonatal
ward she's got primary care
for these incredibly vulnerable children

and when they die
everyone gives her sympathy
all this drama
exactly that she is the centre of attention
so for men typically what you're
saying then is it's like this little filthy
secret they've got I have this power
and no one knows what I've been doing
it's this kind of creepy story they tell themselves
of power and dominance
but for women typically it's
more typically it's about getting attention
getting attention and in Lucy let be's case too
there's the potential
that she was also in love with one of the male
doctors who was the emergency
responder in the neonatal unit
one of them so he would be the man who would show
up when an emergency
took place so he's the guy
that would be called when one of
these deaths or almost
deaths happened in six cases and
she was found guilty basically on the basis
that she was the only one who
had access to all of those children
in all of those emergency scenarios
you wrote a book
called Mothers Who Kill
now we all know now the
truth of Lindy Chamberlain's
innocence the
very poor way that the
case against her was put together
when there are such
cases where
a woman is suspected of
having killed her own children
why are people
so quick to hang the crime on the mother in these
cases there seems to be something going on
there that oh she must have done it because she doesn't
look right she doesn't have the right
facial expression she doesn't she's not

weeping openly what's
going on in people's minds why are they so
quick to burn the witch
in these cases and I think that's exactly it it's the
Lindy Chamberlain effect isn't it we
all remember the footage of
Lindy Chamberlain going into court after being
accused of murdering Isaria all those years
ago grim faced yet
stoic grim face not emotional
not crying not doing
all the things that people expect and I think
that a number of other women have been
basically judged
by the public on the same ground
so I'm talking about Kathleen Fulbig
Kelly Lane all these women they didn't
cry they didn't they didn't do you know they weren't
the weeping mother
that that the public wanted to
see and ultimately in Kath's
case I mean I raised problems with that case in
2014 in Mothers Who Murder
but it was also Mothers Who Murder
colon and infamous miscarriages of justice
and I actually started with Lindy Chamberlain's
case because I wanted people to read the book
with an open mind and I raised out
in Kathleen Fulbig's case as well as
Kelly Lane's case and it was a really
unpopular thing to do then I got totally
vilified I got trolled
and because people want to silence
you it's like how dare you stick up for
quote a baby killer there was
always reasonable doubt in that case always
and so now the science
has eventually caught up and shown us that
a genetic abnormality is likely responsible
for Sarah and Lois deaths the two girls
in the Fulbig case yet
reasonable doubt was always in existence
in the Lindy Chamberlain case
how did you find that the expert

witnesses in her case had acted
oh well that was a whole big
mess it was a hot mess wasn't it that case
the the the blood evidence
in the car that wasn't even blood
the timeline that never worked
people still ask me if Lindy Chamberlain
did it and I was like
she didn't kill his area any more than
I did it's not possible in any
world that we exist in
and so the experts in that case
you know there was very damaging
evidence as there was in the Fulbig
case you sometimes
work at a place called a
tephonomy facility have I pronounced that right
yes what is it tephonomy
facility tephonomy relates
to what happens to the body
after death so decomposition so there's
a facility on the outskirts of Sydney actually it's run
by UTS just across the road
from where we are today and
we look at human decomposition and all
the elements that go with that so chemical
biological we
look at the environment in which these remains
decompose to the point
of looking at decomposition is better
establishing time since death because that
is a key factor the police need answered
when they find a set of remains
they go well how long have they been there
so how do you examine
do you photograph the body over time
as it decays well that's what my particular
project with a number of colleagues from
UNSW we actually
have mapped two sets of remains
now to bequeath remains donors who
have donated the body to the program
UTS and we have photograph
them in time lapse and so have

the whole process from
freshly deceased laid out
at the facility with all of these cameras
capturing all of that activity
including quite a lot of movement actually
that happens after death the arms move and stuff
you'd be amazed what serious the arms move
more than we would have imagined we're watching
it in time lapse going what is happening
it's to do with the foreshortening of
various tissues as the body decomposes
but I'm talking quite a lot
of movement that we never we didn't know about
oh god are you losing your mind when you
watch this stuff like it's hard enough
it was so it was supposed to move while it's
decomposing that's that's that's doing my head in
so interesting it's like
we would have thought that maybe a creature
had moved it but no because we've got it on
time lapse the arms actually moving
away from the body amazing nobody
had done that before so this is obviously
a critical factor knowing about
the rate of decomposition in bodies when they're found
in the wild so to speak
isn't it what are all the variable
factors at work here oh we could be for the next year
talking about all the variable factors it's
to do with the individual themselves are they
clothed are they unclothed what
how much activity insect activity
is available at the scavenger
activity are they in a car
is it hot is it cold what
what height are they at in terms
of you know above sea level
literally we could go on forever talking about
variables that affect decomposition but we
didn't have before this facility any way of
mapping that in an Australia Australian environment
at all all the data we relied on was from
the US and we're very different
environmentally to the US obviously

there are two ways of looking at such events
on the one hand you have
the ghastliness of it the horror of it
the smell must be just extraordinary
but there's another way to look at it too
which is to see this kind of extraordinary
natural process at work where
bacteria and insects and whatever else
are
breaking down a body returning its components
to the soil or to
wherever are you able to keep those two
things separate in your mind when you're looking
at these things totally I mean it's an organic
process isn't it and we're learning again
we're trying to figure out what happens
why in this particular environment and
again to help the police in identifying
human remains so
to some I guess there would be horror in that
to me there's a humanitarian
element to that when we're trying to help people
now I know people can donate
their bodies to science for
anatomical research at universities a friend
of mine has done that for her own body
can people donate their own bodies
for such research? Absolutely
people always ask me for the creed or forms
to tell them about the work that we do
so at UTS you can choose to leave
your body through the creed or program
to the medical side or you can actively
choose to leave your body to the
forensic side and you'd be surprised how many
people want to do that because they understand
that when somebody has died and they're unidentified
ultimately we're trying to give them their name
back and return them to their family
so they understand the power of that
and we incredibly respect for we
we consider them our silent teachers
and you know we really value
them and feel very privileged for

people to donate their bodies. They're going to have mine
when I'm done being an organ donor
UTS to get in my body. Really?

Yeah for sure.

I suppose there must be people who think
that doing this line of work would
make you somewhat unusual
a bit weird but then
like I just can't even imagine walking
into that room. I think I
could maybe watch it on a video but I don't know
how I could walk into that room
but I'm also thinking at the same time
on the other hand thing going on
that it's only recently we were so severed from
the natural process of death and human beings
have witnessed these things
throughout the entirety of human history
Are we the weirdos and are you the only normal one
here? Do you think

are we the strange people who've gone
a bit too squirmish around death
and the natural process surrounding death?
Well death is a natural part of life isn't it?

I think maybe I'm just better at
doing that and eating my lunch than
some other people are

You do have to be able to not think about it
you have to be able to separate
and when people start taking it home
then you can't do it anymore
and it's actually an outdoor facility
so there's lots of remains out there
and if you wonder out you look at your donor
and see what's happening.

During the Renaissance there were public autopsies
that used to take place in the open air
which would attract thousands of people to come
and watch and some of the most noble ladies
in the land would come down and sit down
and watch the process take place.

What kind of sense of your kind of really burrowing
sort of curiosity?

What primarily drives you is that sense

of curiosity or is it a strong
and powerful desire for justice in this world?
I think it's the combination.
I think I have this
very powerful interest in puzzles
and understand I want to know everything
I want to understand everything
it drives my partner crazy because I'm always like
well I don't understand that
I need better words
I need very specific words around that
and a really powerful sense of justice
and I really hope that we instill that
in our students at the University of Newcastle
because they're going to go out into the world
and be the next police, community corrections
etc and to send them out into the world
with those positive ripples
of having a really strong sense of justice
I think is something that hopefully I can contribute
to in a very small way.
It's been amazing speaking with you
thank you for sharing your story with us today.
Thank you.
We've been listening to a podcast of Conversations
with Richard Fidler
For more Conversations interviews
please go to the website
abc.net.au
slash conversations