November/December 2017
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Wishing a

HAPPY CHRISTMAS

To all members of the IAS!

From

John Ben, your Editor and
from all on Council!
Meetings and courses of interest

Horses Inside Out
Understanding How Your Horse Works Improves Performance

Annual Conference 2018
Structure and Function
Best Practice for Health and Performance
Saturday 24th and Sunday 25th February 2018
Holywell Park Conference Centre,
Loughborough University, Ashby Rd,
Loughborough LE11 3AJ

Call for Scientific Posters

Scientific Poster Presentation Area

The 2018 Horses Inside Out Conference will feature a display of 12 scientific posters relating to the theme ‘Structure and Function’.

Category 1: Student Posters. A certificate and prize will be awarded for the best and runner up research poster submitted by a student. Judge to be announced.
Category 2: Research Posters. Posters in this category can have been presented at previous conferences.

To submit a poster for the display, find out more information or to view the judging criteria please download the Poster Information and Submission Form:

Submission Dates:
1st December 2017: Latest date for sending the title and short description (No more than 100 words)
8th December 2017: You will receive notification of acceptance on or before this date
1st February 2018: Postal delivery deadline to: Horses Inside Out, 38 Main Street, Bunny, Nottingham. NG11 6QU

After discussion with Gillian Higgins (see page 5), Director of Horses Inside Out, she has agreed to extend the submission date for IAS until 1st JANUARY 2018 due to the time when this magazine is published!
The 2018 spring scientific meeting and A.G.M. of the IAS will be held at the University of Leicester.

Thursday 12th and Friday 13th April 2018

News from the Council
The Executive Council which is formed by the senior council posts of Chair, 2 Vice Chairs, President, Vice President, Secretary and Treasurer, and their role is a strategic one to plan for the future development of the IAS. They meet independently twice a year.

The other posts on the Council are junior to these and manage the routine running of the IAS. These include the Membership Secretary, Public Relations Officer, Education and deputy Education Officers, Journal Editor, Webmaster, Magazine and News Supplement Editor, Recruitment Officers. They meet in Full Council with the Executive twice a year in January and in June.

The Executive met at University College, London, on October 3rd where the main focus was to create a ‘scientific meetings template’ to help make the future organisation and running of our scientific meetings easier for both the Host and the Institute.

This was Tom Cornwall’s first officers meeting since he become Acting Treasurer of the Institute earlier this year.

The Council have it in their power to award Honorary Membership and Fellowship to persons who have been of great help to the IAS. They may also award Life Membership of the IAS to persons who have served on Council in recognition of many years of work on behalf of the Institute.

HONORARY MEMBERSHIP
This year at the autumn scientific meeting in Cork Ireland HONORARY MEMBERSHIP was awarded to both Jenny and Michael Whitbread of Adam Rouilly.

Adam Rouilly have been loyal sponsors of the IAS since the beginning and Jenny and Michael personally attend almost all of our scientific meetings and were instrumental in last year’s privileged visit to the Somso factory and museum in Sonnenberg and Coberg, Germany!

LIFE MEMBERSHIP
The Council have also announced the award of LIFE MEMBERSHIP to

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In recognition of their long service to the IAS.
The 2018 spring scientific meeting and A.G.M.

Dear Member

The 2018 Spring Scientific Meeting is being held at the College of Life Sciences University of Leicester, University Road, Leicester LE1 7RH, on Thursday 12th with registration between 10.30 and 11.30 and Friday 13th April 2018 closing after a tour of the facilities at approximately 15.00

All information including accommodation options, travel guides and program will soon be available on the IAS web site.

Steve Jacques, Michelle Lawrence and their colleagues are planning an excellent meeting with a real mixture of topical talks and your support will be greatly welcomed in supporting this event.

On the Thursday evening, there will be dinner and entertainment at the King Richard III. We start with canapés and wine served on arrival; this will be followed by a talk given by Matthew Morris. Then a private guided tour of Leicester Cathedral and finishing off with a medieval evening, in the King’s Suite. Positioned in the heart of the City those wishing to explore further can step straight into the lively nightlife of Leicester.

I am regularly asked about the timing of the meetings as it can be inconvenient or clashes with other professional commitments. The honest truth to this is university timetables and curriculums are far more flexible than they once were. The traditional teaching terms vary considerably between Universities and Country. On top of this the ‘penny has dropped’ at more and more institutions that their campus is prime location for conferences and various other financially lucrative ventures! Therefore the IAS has to be accommodated in an increasingly competitive market place; the dates are agreed by the Host member the meetings team to reflect the low price we charge for the meeting, together with a convenient time for the host. I am well aware that this can cause disappointment and even resentment, and would welcome any ideas you may have.

I am looking forward to seeing you all at the spring 2-day conference to be held in Leicester.

Wishing you all the very best for Christmas and 2018

Stephen Franey FIAS
IAS Meetings Coordinator

I.A.S. TRAVEL BURSARY

The I.A.S. is proud that it offers a Travel Bursary that is available to its Paid-up Member to assist with any of their educational / training /CPD needs.
The bursary is for up to £1000. Undttil the forms are available on the IAS website, you should contact Carys Davies, IAS Secretary (carys.Davies@nbristol.ac.uk) for details or application forms.
A Truly International Year: Education Overview 2017

By Sarah Nicoll (Education Officer) and Rebecca Norman (Deputy Education Officer)

The IAS Education Team has had a busy year with the annual competitions and the qualifications we offer, so we thought we would provide you with a brief overview of what has been going on.

This year all four competition categories were well represented at the Autumn Scientific Meeting with entries from across England, Scotland, Northern Ireland, Republic of Ireland, Australia and Bahrain. It was a truly international competition. Some of the successful competition posters will be displayed in forthcoming News Magazine editions. Also we will soon have a gallery of some successful posters displayed on the IAS website to show the world some of the amazing work our members carry out.

We are now accepting entries for the 2018 competitions so if you have some work that you are proud of why not enter it into one of the four categories. For more information on how to enter visit https://www.anatomical-sciences.org.uk/competitions/

The international theme continues with the IAS qualifications as we have a member undertaking the DATS in Australia and a recent CATS application from a member in South Africa. In addition, we have several CATS and DATS from more domestic locales currently underway.

If you are interested in the IAS qualifications or would just like to know more please visit https://www.anatomical-sciences.org.uk/education/

In further education news the education team is planning to launch a new qualification in 2018 aimed at those working in the anatomical bequeathal services, so stay tuned for more information if this is something that interests you.

The Education Team wishes all IAS members a wonderful festive season and a happy new year. See you in 2018.

Sarah and Beckie
Meet the Membership –
Gillian Higgins
Director - HORSES INSIDE OUT, OLD DALBY, LEICESTERSHIRE

Ed: Hello Gillian, thank you for agreeing to be interviewed for the ever popular ‘Meet the Members’ piece of the magazine.

Now, I know you are the Director at HORSES INSIDE OUT, an organisation that some of our members know and will understand and appreciate, but which may be unknown to others, myself included, so can you tell us a little of the organisation and what your work there involves?

Gillian: Horses Inside Out is an educational organisation showing riders, trainers, therapists, health professionals and anyone else interested in the welfare and training of horses how, by understanding anatomy, physiology and biomechanics, they can improve performance and reduce the risk if injury of their equine partners. This works takes me all over the world. The organisation has several threads:

- Live horse lecture demonstrations for riders, healthcare professionals, saddlers, farriers, riders and students
- Video based talks
- One, two or three day courses for saddlers, farriers, therapists and anyone else interested in understanding more about their horses
- Dissections
- An annual conference with leading international speakers

My main role involves researching, writing and delivering the lecture programmes. I am also the author of several popular internationally published anatomy and movement books and DVD’s.

I have recently branched out to produce a range of anatomical prints. Everything can be seen on my website www.HorsesInsideOut.com

What makes Horses Inside Out unique is, by using the horse as a living canvas, I paint the skeleton, muscles and other anatomical structures on the sides of the horse. Seeing the horse move with the skeleton painted on enables the audience or course participants to imagine how the bones are working under the skin thus bringing anatomy and biomechanics, a sometimes difficult subject, to life.

The ultimate aim is to help improve equine performance, soundness and welfare – for the good of the horse.
Ed: May I ask what led you into this work, was it something you always wanted to do?

Gillian: Before going to the Royal Agricultural University, I trained with the Midland School of Massage and Manipulation as a Sports and Remedial therapist. It was here, that I studied and developed a real interest in anatomy and biomechanics. Whilst at University I also trained as an Equine Sports and Remedial Therapist and a McTimoney Animal Practitioner. During my final year at University I began my Equine Sports Therapy Business. It soon became apparent that many of my clients could benefit from a greater understanding of anatomy and thus have more realistic expectations of their mounts and also recognise ways to reduce the risk of injury. I held an evening for my clients to explain this. As mighty oaks from small acorns grow, I was asked to give another talk and another. The business grew from this. In the course of one of my early lectures I was approached by an international publishing house to write an illustrative book. This I did and my books are now in 15 languages.

Ed: If you were not doing this work with Horses Inside Out, what other career or profession do you think you would have followed?

Gillian: I can’t say!

Ed: Is there a profession or a job you would you NOT like to do?

Gillian: Work in an office or in a city.

Ed: Now, can I ask you how you discovered the IAS and what led you to join?

Gillian: Having had contact with Kate Healy from Bristol Veterinary University with regards to some skeletons, she recommended I join.

Ed: And when away from work, what do you like to do in your spare time?

Gillian: I enjoy riding my 2 horses. I event. I also occasionally enjoying mountain biking and generally being in the outdoors.

I love creating my anatomical prints, anatomical models and any craft activities – basket making, printing and pyrography.

Ed: If you could have your choice, where would you choose to live? (Either a country, a town or place, a style of property, etc.).

Gillian: Through Horses Inside Out I have been lucky enough to visit many different countries. In fact, as I am writing this I am at the end of the third Horses Inside Out Australian Tour. We have taken a few days to visit family and holiday in Tasmania which is a gorgeous country. I really do love my little patch in England, just last year we bought a new home and base for Horses Inside Out which is very exciting, but I would love to retire to Tasmania.... Who knows!!

Ed: We now come to the well known list of questions that deal with your personal ‘likes’ and ‘dislikes’. Question number One; Do you have a favourite food?

Gillian: I do like good food and I like to try new things. Whenever I travel to a different country I like to sample the native cuisine.

Ed: And is there a food that you dislike?

Gillian: There is no food that I really dislike although recently I have reduced eating meat as I have become more sensitive to farming practices with animals. I like to try and eat local, low mileage sustainably produced food.

Ed: What is your favourite piece of music, or if you prefer, who is your favourite artist(s) or composer?

Gillian: I enjoy a varied range of music.

Please visit the IAS website: http://www.anatomical-sciences.org.uk/

Editor: John Ben F.I.A.S. Email news@anatomical-sciences.org.uk
Ed: Do you have a favourite colour?
Gillian: Pale / sky blue

Ed: And your favourite film?
Gillian: Rock of Ages springs to mind at this moment.

Ed: Do you have a favourite TV programme?
Gillian: No, I watch very little TV…

Ed: Do you have a favourite book or author?
Gillian: Probably Jane Austen. As a young person I loved the Anne of Green Gables series.

Ed: Is there a sound or noise that you love to hear?
Gillian: The sound of waves on the beach, water rippling over stones in a stream, the dawn chorus, the wind rustling leaves in the trees, rain on a conservatory roof and horses munching hay in winter.

Ed: And what sound or noise do you dislike?
Gillian: Traffic and city noise.

Ed: Who or what inspires you?
Gillian:
- I love the satisfaction of making new things whether it be a book or a lecture or a piece of artwork!
- I love to see and hear people having that penny dropping moment and appreciating learning new things about horse anatomy and biomechanics that I have facilitated.
- I am inspired by the beauty of nature, horses, anatomy and enthusiasm. I like to think that my work makes a difference to horses in the world as I believe education is the key to improving care, management and training practises with horses.

Ed: And who or what ‘turns you off’ in the creative sense?
Gillian: Negativity and harsh

Ed: And if I had the power to grant just one wish, what would you wish for?
Gillian: I think I would have to wish for the end suffering from wars and terrorism and for everyone to live in peace and harmony.

Ed: If you could be given the chance to spend one full day in the company of anybody, living or dead, who would you choose to meet?
Gillian: I think it would have been fascinating to spend a day with Edweard Muybridge or Leonardo Da Vinci or George Stubbs.

Ed: And the final question of the interview, Gillian, if Heaven exists, what do you think God will say to you when you arrive?
Gillian: I hope he will say I have been kind, a good communicator, empathic, helped people, and made a positive difference.

Ed: Gillian, Thank you for taking part. I understand you will be speaking at our Spring Meeting 2018 at Leicester University so I look forward to seeing you there and I hope you will enjoy being a member for many years to come!

Please visit the IAS website: http://www.anatomical-sciences.org.uk/

Editor: John Ben F.I.A.S. Email news@anatomical-sciences.org.uk
We send our Congratulations to Holly of Kings College London on her recent marriage to her partner Tobi Mathews! The happy couple, seen here with their daughter Bella, were married at the Holiday Inn Hotel on September 29th.

Please join with me in wishing Holly and Tobi every happiness for their future together!!
Halloween fun in Bristol!

By Carys Davies

On the 31st October, the Centre of Applied Anatomy, University of Bristol, held a Halloween themed Charity bake sale for students and staff.

The staff baked an amazing assortment of Halloween themed cakes and cookies to sell off and we raised £134 for the Anchor Society, http://www.anchorsociety.co.uk.

The Anchor Society has concerned itself with the care of the elderly in the Bristol area. Working in partnership with many organisations and charities who care for the elderly in the region, aiming to support isolated and lonely elderly in Bristol and the surrounding area.
Spooky graveyard scene with minty meringue ghosts was created by Journal Editor Sarah Gosling!

Our new Acting Treasurer Tom Cornwall made a very tasty guiness and chocloate cake!
There was a vote for the best themed cake...and this was won by one of our long-time members Liz Gaze! She made this pumpkin cake, which was white chocolate and raspberry sponge and had Smarties in the middle!! Well done Liz!

Thanks to all the staff and students at the CAA who made and bought cake and raised money for a fantastic charity.

Carys

Thanks Carys! There is always something interesting happening in Bristol!!

And to the other members, do you have news from your department to share with us? If so send it to me, I would love to hear from you! - JEB
The bizarre story of John Horwood
and his beloved Eliza Balsum.

Written by: Prof. Jan H T Smit (with the help of Dr. Q. Wessels)
Department of Anatomy, School of Medicine, Windhoek, Namibia

It is the year 1821 in Bristol, where the following events took place:
John and Eliza were lovers for some time but things took a turn when the young John (only
seventeen years old) spotted Eliza with another young man near her West Country cottage. The
sight was too much for the infatuated teenager, and he picked up a pebble and hurled it at Eliza.
She was struck by the pebble on the right temple and fell to the ground. The man that she was
with, William Waddy, took Eliza home where her superficial head wound was initially treated. A
days later however she went to the Bristol Royal Infirmary complaining of headache and to
have the wound properly dressed. She was seen by Chief surgeon Richard Smith who was also a
keen researcher and Anatomist doing dissections to teach aspiring young doctors. Dr. Smith
diagnosed that the wound of Eliza had become infected and that the infection had spread to her
brain. He insisted to perform trephination (drilling a hole through the skull) to "relieve" the
pressure inside the skull. After the operation, the infection did spread to the brain, and seven
days later Eliza died in hospital! Dr. Smith immediately notified the police and blamed John
Horwood for the death of Eliza. John was arrested and the following day accused of murder at a
trail held at the Star Inn in Bedminster, Bristol. Dr. Smith was part of the trail and a key witness
against the accused. Three days after his eighteenth birthday, John Horwood was hanged in
public. This happened at the New Bristol Gaol on April 13, 1821. He was accused of the "murder"
of Eliza Balsum. His body was immediately requisitioned by Dr. Smith for Medical research. This
was a common custom in those days. Dr. Smith dissected the corps of John in front of 80 people
attending one of his medical classes. Not only did Dr. Smith divert attention from his disastrous
operation on Eliza, but he also obtained a fresh cadaver for his medical class! Horwood's family
pleaded with the authorities to have the body released, so that they could have a proper burial
for John. The request was refused by the surgeon! A group of friends of John even tried to
hijack his body from the prison, but the attempt also failed.

A sketch of the young John Horwood.

The tragic story of the unfortunate John does not
end here. After his corps was dissected, Dr. Smith
had his body macerated and kept his skeleton on for
display to students and friends at his home. The
skeleton (with the noose around the neck) was later
on display in a cabinet at the Bristol University. As if
this was not enough, Dr. Smith had the skin removed
from the corps before maceration and send to a
tanner. In the meantime, he wrote a book about the
dissection of John Horwood. The cover of this book
was the skin of poor John Horwood himself! The
words "Cutis Vera Johannis Horwood" (The skin of
John Horwood) were written in gilded letters on the
front of the book.
Before his execution, and waiting in his prison cell,
John did admit to having violent intentions towards
Eliza and wrote the following: "Lord thou knowest that I did not mean to take away her life but merely to punish her" and later a letter with the following words: "John Horwood is my wretched name and Hanham gave me birth. My previous time has been employed in rioting and mirth. Eliza, oh Eliza dear! Thy spirit, oh, is fled! Thy poor mangled body lies now numbered with the dead. Curs’d is the hand that gave the blow. Curs’d the fatal stone which made thy precious life blood flow. For it has me undone!"

John Horwood’s story not only shows how harsh the justice system was in 1821, it also reveals that medical techniques were positively barbaric at the cost of many innocent lives! The story, however had yet another twist! Amateur genealogist Mary Halliwell, found some letters from the bereaved parents of John Horwood, pleading for the release of his remains and to have a proper burial for him. Mrs. Halliwell, 67 at the time, also discovered that she was related to John in that her great-great-grandfather was John’s brother. Mrs. Halliwell tracked down the remains of John at the University and was legally declared the owner of the skeleton in 2011. 190 Years after his execution, the remains of John Horwood was finally laid to rest in his home village of Hanham on the outskirts of Bristol on the 12th April 2011. "This was the wish of his parents, to have him buried in a dignified way" says Mrs. Halliwell. This will hopefully bring closure to this tragic story of John Horwood!

Mrs. Halliwell with the skeleton of John Horwood in the background.

The cranium of Eliza Balsum with the trephination hole clearly visible.
Now the last chapter in this interesting story: The cranium of Eliza Balsum, with the trephination hole clearly visible and handwritten notes on the inside, was discovered with the specimens of the "Langford collection" at Bristol. This collection was re-located to Namibia in 2016 for our new Anatomy Resource Centre! With the unpacking, we saw the inscription on the inside of the cranium and was able to research the tragic history of these two young individuals. Not only is it a fascinating chain of events that took place over almost two hundred years ago, but it also brought home the cruel history of our beloved subject of Anatomy and how bodies were obtained to bring us where we are today!

The proper funeral for John Horwood 190 years after his death! RIP John!

Prof. Jan H T Smit (with the help of Dr. Q. Wessels)
'The Anatomical Tattoo'
A new book by Emily Evans

'The Anatomical Tattoo' is an introduction to the growing phenomenon of anatomical imagery as tattoos and highlights the best examples in the world today. Working with over 80 tattoo artists from across the globe, this book showcases this fascinating new trend by documenting more than 150 anatomical tattoos. From historical anatomical engravings, to contemporary interpretations of medical illustration, the breadth of anatomical content and subject matter makes the collection of tattoos in this book as unique as the tattoos themselves.

(There's a nice article on it here: http://streetanatomy.com/2017/12/04/the-anatomical-tattoo-book-the-skin-as-canvas-for-anatomical-obsession/)
The Secret Language of Anatomy
A new book by Cecilia Brassett, Emily Evans and Isla Fay

The Secret Language of Anatomy is an initiation into the mysterious subject of anatomical terminology. Beautifully crafted illustrations uncover the close relationship between the parts of the human body and the evocative names given to them by anatomists. Decoding the body’s secret language brings to life the history of anatomical terms, and explains why some words are used to describe very different organs and structures. Complete with a guide to anatomical prefixes and suffixes, this book will appeal not only to medical students and practitioners, but also to readers interested in the history of anatomy, in the structure of the human body, and in medical etymology, as well as the history of language.----------- 'The anatomical language we use today isn’t designed to be exclusive, the preserve of the elite. Instead, it’s an international language which allows anatomists and clinicians across the globe to communicate with each other. The language can seem quite foreign if you’re not a classical scholar, but finding the meaning in those words unlocks fascinating secrets as well as understanding. The human body becomes a wonderland of curious details: spiderwebs inside the skull, crescent moons in the knee, a raven’s beak in your shoulder, a horse’s tail at the end of your spinal cord, a pea inside your wrist, and vine tendrils hidden inside the scrotum. This, then, is a guidebook to take with you, on your travels. Obscure meanings will become clear, hidden patterns will emerge, and exquisite gems will be revealed. Enjoy the adventure.' Professor Alice Roberts, Anatomist, author & broadcaster, Professor of Public Engagement in Science, University of Birmingham----------- 'This book should be mandatory reading for all students of anatomy.' Susan Standring MBE, Emeritus Professor of Anatomy, King’s College London, Editor-in-Chief, Gray’s Anatomy
The Back Pages

Submitted by Prof Robin O’Sullivan & Malcolm Halket

A BLACK ROUND

1. It is the largest venomous snake in Africa and one of the most deadly of all snakes. The venom in a single bite is sufficient to kill over 20 adult humans. What is it called?

2. In the film Monty Python and the Holy Grail, who guarded the bridge?

3. What name did Winston Churchill give to his depressions?

4. What is the name of the small mountain range on the North American plains which extends into South Dakota and Wyoming?

5. Gavrilo Princip, the student who shot the Austrian Archduke in 1914 and precipitated the First World War, belonged to which gang?

6. In what American science fiction film did a cat carry a miniature universe on a necklace?

7. What was the name of the horse which featured as the central character in the only novel written by Anna Sewell?

8. What was the name given to the uprising of Palestinians in Jordan in 1970?

9. At the beginning of the book Treasure Island, what is on the piece of paper that Blind Pugh hand to Long John Silver?

10. The start of the Great Depression on 24 October 1929 is known as?

ANSWERS ON PAGE 43

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Editor: John Ben F.I.A.S.  Email news@anatomical-sciences.org.uk
As Christmas is traditionally the time for ghost and spooky tales I have decided to bring you something fitting for an Edgar Allan Poe tale. Ever since I was a boy, many, many years ago now, I have had an interest in social history and the folklore and beliefs our ancestors followed, that explains why I recently bought myself yet another book on the superstitions of the British Isles.

While reading the chapter on death, premonitions of death and the corpse I came across the belief that "anything untoward happening to the corpse is likely to be seen as ominous, and a corpse staying limp for longer than the usual time was formerly taken as a sign that another death would soon follow. "In the case of my grandmother, aged 88, who was neither stiff nor cold the day she was buried, many were the solemn head shakers and foretelling of what would follow. When an old relative who had seen more than the allotted years of man, died 6-months later, many were the 'I told you so's' that went round the household." Wiltshire 1891. This notion was widely reported from the mid 17th century and well into the 20th, from most parts of Britain and Ireland and remained remarkably common in form and meaning." It does not seem to have occurred to the people of Wiltshire in 1891 nor the author in 2004 that this 88-year-old grandmother might still have been alive when she was buried!

So what if your last breath was only a poor assumption, a supposition? What if your family, the doctor, the coroner were all wrong, and you found yourself buried alive? You'd scratch and claw, scream and shout, and no one would hear you. A terrifying thought for most of us. There's a name for this fear: TAPHOPHOBIA, the overwhelming fear of being buried alive.

For centuries there have been stories, many of them myths, about people who met this panic-inducing fate. And real mistakes have indeed happened. According to Christine Quigley in her book The Corpse: A History, "in the early 1900s, a case of premature burial was discovered an average of once a week." Once a week! That's not just something to worry about—it's something to get to work on preventing. So, how to make sure that the dead are really dead? This month in Curio Corner I look at

Some of History's Best Strategies to Avoid Being Buried Alive!

Well, to begin with, in Europe and particularly in Celtic culture there is The Wake, an often riotous and noisy affair, noisy enough in fact to 'Wake the Dead!' which was one of its prime purposes. This custom stretches back to the ancient Roman where mourners waited eight days to bury a body, giving the supposed deceased ample time to snap out of it. But this may seem far too passive for Taphophobes, so enterprising proactive persons throughout history, and especially in the 19th century, have deployed a wide array of methods to ensure that dead means dead. In its simplest form there is the attending doctor.

The House call

Fearing a premature burial, wealthy Hannah Beswick, an 18th-century English woman, left her entire estate to her doctor, Charles White, with just one stipulation: her body could never be buried. Never! Instead, Dr. White was required to check on her corpse every day until he could be sure, really sure, that she was dead. This was a lot to ask, and at some point, White embalmed her body. He kept her mummified remains in his collection of anatomical specimens, and every day, for several years, the good doctor and two witnesses unveiled Beswick and made sure she was still dead. He later moved her body into an old clock case, and as Jan Bondeson
reported in his book ‘A Cabinet of Medical Curiosities Cabinet of Medical Curiosities’, the doctor opened the case “once a year to see how his favourite patient was doing.”

This was perhaps an exception as most people would have been buried. So let’s look at these ingenious 19th-century techniques aimed to make sure you were not buried before death.

“Life preserving coffin in doubtful cases of actual death,” a safety-coffin model by Christian Eisenbrandt. CHRISTIAN HENRY EISENBRANDT/PUBLIC DOMAIN

The Security Coffin

U.S. patent number 81,437 was issued in 1868. This particular invention was for a security coffin, which came with all the bells and whistles the not-quite-dead-yet could ever need. The design includes a rope, ladder, and bell. Wake up in the coffin? Ring the bell which has helpfully been attached to the rope you’re holding. Nobody around to hear that bell? Try the ladder, which inventor Franz Vester imagined would allow a person to “ascend from the grave.”

Franz Vester’s design just needed a kind passer-by to hear the ringing bell. GOOGLE PATENTS/ US81437
The Grave Window

Like Hannah Beswick, Timothy Clark Smith, a Vermont taphophobia sufferer, decided to rely on others to make sure his death wasn't announced too early. Smith asked to have a window installed on his grave, "six feet above him and centered squarely on his face," when he died. Today the glass has clouded with age and it's impossible to get a look at Smith, but imagine a breathy fog covering the glass, and Smith waiting for someone to notice. Of course, by all accounts Smith never had to have the assistance of a helpful passerby, and he died without incident in 1893.

The Easy-Opener

How, exactly, would the newly awakened lift those heavy coffin lids? Johan Jacob Toolen had it covered. His 1907 patent understood that the prematurely buried might be a little tired and incorporated easy-open lids so that the presumed dead wouldn't have to struggle for freedom. His design was tailor-made for the self-reliant not-dead person. "With very slight exertion on his part," Toolen explained, the person "can immediately obtain a supply of fresh air and may afterwards leave the coffin."
The Emergency Airway

Forward-thinking safety-coffin designers thought of everything. Gael Bedl’s 1887 design came equipped with an air pipe that would be opened if there were movement in the coffin. It also featured an “electric alarm apparatus,” which emitted an audible sound when the air pipe engaged. Bedl’s patent application noted that the air pipe could be made of any decorative material, being buried alive and all, no need to sacrifice style.

The most complete approach

William Tebb was a busy man in 1896. The businessman had devoted much of his life to his various pet causes (animal rights, anti-war, anti-vaccines), but one meeting in particular gave Tebb a chance to step into his role as advocate for the prematurely buried.

Please visit the IAS website: http://www.anatomical-sciences.org.uk/

Editor: John Ben F.I.A.S.  Email: news@anatomical-sciences.org.uk
Tebb met Roger S. Chew, a doctor who, through the eagle-eyed observations of a family member, narrowly avoided an early grave himself, in the early 1890s. After surviving his brush with burial, Chew devoted himself to medicine and to saving others from his almost-fate. Meeting Chew sparked something in Tebb, and in 1896 he founded the London Association for the Prevention of Premature Burial. Tebb, along with Dr. Edward Vollman (himself a survivor of a near-burial), eventually published the book *Premature Burial and How it May Be Prevented* in 1905.
The book outlined the various ways one might be mistaken for dead (trance, catatonic state, “human hibernation”), and provided case studies of humans and animals who, although thought dead, were revived. The book also included various techniques that had been used in the past (with varying success) to prevent this from happening. The authors explored every option, from using fire to blister the hand of the presumed dead person (which, they admitted, might not be effective because the person may be so out of it that they may not respond “even to the application of red hot irons”) to injecting the presumed dead with morphine or strychnine, which, well, if they weren’t dead before...

Premature Burial also explored artificial respiration and electric shock, which were both new ideas at the time. Ultimately, the authors admitted that all of their work might not actually be that effective. Dead would always be dead to the unimaginative and, as they wrote, “the appearance of death is generally taken for its reality.” When Tebb died, he didn’t take any chances—he was cremated one week later.

Our fear of being trapped in an untimely burial plot isn’t just a lingering 19th-century fascination; as recently as 2013, designs for coffins and instruments that claim to prevent premature burial have been submitted. Somewhere deep inside all of us is a lingering worry that what was supposed to be a final resting place might actually be what kills you.

Finally there are those who take premature burial in a more relaxed way. At the funeral of a 19th century German missionary, Reverend Schwartz, just as the coffin was being lowered into the grave the mourners were amazed to hear the voice of the prematurely buried priest coming from within the coffin and joining in with the singing of his favourite hymn!

John Ben a.k.a Benedictus
News ‘round-up’ from around the World

The body parts of more than 40 patients were kept at Wales’ biggest hospital without their families knowing

An inspection at the University Hospital of Wales in Cardiff found tissue, and in some cases brains, had been kept for too long

CATHY OWEN, WILL HAYWARD  8 NOV 2017

Large numbers of people’s body parts, including brains, were kept at Wales’ biggest hospital without their relatives knowing. An investigation has now been launched at the University Hospital of Wales in Cardiff after an inspection found “critical and major” failings over the storage of human tissue samples. It specifically had concerns regarding the cases of 42 patients where tissue, including five brains, had been kept for too long. The longest retention goes back five years, but most are between one and two years. The code of practice states that disposal should be within three months.

The health board has apologised “unreservedly” to families following the findings in the Human Tissue Authority’s report. Medical director Graham Shortland said Cardiff and Vale University Health Board (UHB) was in the process of disposing of tissue belonging to 38 patients, and are still trying to contact the families of four other patients. He said they only involved coroner and police cases and come from three Welsh police forces and the Gloucestershire Constabulary.

The inspection was carried out in August and looked at post-mortem practices including the retention and use of human tissue samples and organs removed after death. It found that the systems and processes to track human tissue taken at post-mortem were "not fit for purpose" and in some cases breached the Human Tissue Act.

The Act says that tissue can only be kept for research purposes if they have got consent from the person who has died or a close family member. After coroners have completed their work, the body and tissue must be either disposed of sensitively, returned to the family or consented for use for research or public health monitoring.

A statement released on Wednesday said: “Although the Human Tissue Authority (HTA) found that Cardiff and Vale UHB had met some of the HTA's standards, significant shortfalls were highlighted. The UHB has already addressed the priority areas and continues to work closely with the HTA to address further issues to agreed timescales. We have commenced an investigation to understand the causes of the significant decline in compliance to HTA standards since our last inspection in September 2012.”
They also found that the mortuary was not cleaned to the required standard and that security systems were not adequate.

There are currently no legal proceedings from any families involved.

Cardiff and Vale UHB have apologised to the families involved. In a statement, it said: “An inspection identified failings in three critical areas, 14 major areas and nine minor areas. The health board has since been co-operating fully with the HTA to improve areas identified and put things right. We believe at the present time 38 of these cases the family or the coroner provided instruction to lawfully dispose, we are currently in the process of disposing of these materials. In the remaining four cases, the relevant authority has attempted to contact the families involved. There are two cases where it remains unclear as to the instructions of the family family's wishes and they have yet to be resolved. One is in the process of being returned to the family in line with their wishes and the remaining case is a family that has been living abroad for several years and it has been difficult to establish contact.

“Our initial audits have identified that all of the material and human tissue was taken lawfully for legitimate reasons but we accept that as a Health Board we did not dispose of them within three months as required. Whilst there is no immediate evidence to suggest that we undertook any further activity on these cases, this is subject to ongoing detailed investigation.”

Are you one of the families affected by this? You can email WalesOnline on newsdesk@walesonline.co.uk

Found and submitted my David Hughes

300,000-year-old skulls that look shockingly like ours could rewrite the human origin story

Erin Brodwin, Business Insider

Precisely when and where did our species emerge? Anthropologists have struggled with that question for decades, and scattered clues had suggested the answer lay somewhere in sub-Saharan Africa about 200,000 years ago.

But new evidence outlined in two papers published in the journal Nature challenges that hypothesis. Instead, the authors describe recently discovered remains that suggest the first Homo sapiens showed up more than 100,000 years earlier than we thought in a place many experts didn't suspect. The fossils could represent the earliest known examples of H. sapiens ever found (if confirmed by further research), and they serve as evidence that members of our species lived beyond sub-Saharan Africa.

In 1961, a crew of miners was plowing into a dense wall of limestone in a hilly region west of Marrakesh when they struck a soft patch. The hardened beige surface gave way to a mound of cinnamon-colored dirt. Peeking out of the earth was a sliver of human skull.

A bit more digging revealed a nearly-complete skull, which the miners turned over to their field doctor. As word about the discovery spread, researchers flocked to the area. They uncovered more remains,
including several pieces of jaw bone and a fragment of an arm. At the time, scientists pegged the fossils as roughly 40,000 years old, a few thousand years before our extinct European relatives, the Neanderthals, were thought to have vanished.

But they hadn't dug deep enough.

**Skulls in the dust**

Anthropologist Jean-Jacques Hublin showing off one of the finds, a crushed human skull whose eye orbits are visible just beyond his fingertip. (Shannon McPherron, MPI EVA Leipzig)

Roughly 40 years later, anthropologist Jean-Jacques Hublin and his team from the Max Planck Institute excavated the half-dozen layers of soil beneath the land where the skull and arm bones had been discovered. There, the team found remains that they say belong to at least five individuals, along with a set of flint blades which had likely been burned, perhaps by nearby cooking fires.
Using a dating technique that measures how much radiation had built up in the flint since it was heated, Hublin and his team say the ancient bones belong to people who lived roughly 300,000-350,000 years ago. "These dates were a big wow," Hublin said on a recent call with reporters. Still, the biggest discovery didn't come until the team looked more closely at the skulls.

### A striking resemblance

When Hublin peered into the cavernous eye sockets of one of the skulls, he was astonished. Instead of the robust features he was accustomed to seeing on the faces of an ancient human ancestor like Homo erectus or Homo heidelbergensis, this face bore a striking resemblance to his own. Where an erectus skull had a single, protruding brow ridge, these individuals had smaller, separated ones. Rather than a large face and a flattened skull, these people had small faces and rounder skulls.

"The face of these people is really a face that falls right in the middle of the modern variation," said Hublin. "They had a skull that is more elongated than most of us, but I'm not sure these people would stand out from a crowd today."

Their braincase (shown below in blue) also seemed to fall somewhere between what one might expect in an ancient human ancestor and a modern human, albeit slightly more similar to those of our archaic ancestors.

This unique combination of advanced and archaic features suggests something profound, Hublin said -- he's convinced the Moroccan specimens "represent the very root of our species." In other words, all of the Homo sapiens ever found -- including those uncovered far beyond Africa -- may trace their ancestral linkages to the land that is today's Morocco.

That suggestion contradicts the prevailing anthropological logic that our species evolved somewhere deep in sub-Saharan Africa, in what some researchers have referred to as a "Garden of Eden," then gradually moved out to other parts of the world. Instead, Hublin and his team argue that Homo sapiens could have been living in terrain across Africa. "There is no Garden of Eden in Africa, or if there is, it is all of Africa," Hublin said.

According to Sonia Zakrzewski, an associate professor of archaeology at the University of Southampton, Hublin's discovery could encourage other archaeologists to change the way they think about human origins. "It really sets the world alight in terms of the possibilities for understanding the evolution of Homo sapiens," she said. "It certainly means that we need to rethink our models."

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Health

'Butterfly child' given life-saving skin
By James Gallagher Health and science correspondent, BBC News  8-11-17

A child has been given a new genetically modified skin that covers 80% of his body, in a series of lifesaving operations.

Hassan, who lives in Germany, has a genetic disease - *junctional epidermolysis bullosa* - that leaves his skin as fragile as a butterfly's wings.

A piece of his skin was taken, its DNA was repaired in the laboratory and the modified skin grafted back on. After nearly two years, the new skin appears completely normal.

The family's full details have not been released to protect their privacy, but Hassan's father said the transformation was "like a dream. Hassan feels like a normal person now, he plays, he's being active, he's enjoying his life and he's not the way he was before," he said.

Weak skin

Hassan was born in Syria and has had blisters and wounds all over his body since he was a few days old. Normally, the different layers of the skin are held together by "anchoring proteins". But the *junctional epidermolysis bullosa* means Hassan's DNA lacks the instructions for sticking his epidermis (the surface layer) to the dermis (the next one down).

There is no cure, and about four in 10 patients do not even reach adolescence.

Hassan attended the Children's Hospital at Ruhr-University, in Bochum, Germany, in June 2015. The seven-year-old was missing a massive amount of epidermis. Most of his body looked like a red-raw open wound.

Doctors were preparing the family for the worst. Dr Tobias Hirsch, from the hospital, said: "We initially decided to provide palliative care because we had no chance to save the life of this child."

But a team of biologists specialising in gene therapy were brought in from the University of Modena and Reggio Emilia, in Italy - and the parents gave approval for them to try an experimental therapy.
So how did they save Hassan's life?

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In September 2015, a 4 sq cm (0.6 sq inches) patch of skin was taken from an area where the epidermis was still intact. The biopsy was then infected with a customised virus. Viruses are good at getting inside cells, and this one contained the missing instructions for binding the layers of skin together.
The now genetically modified skin cells were grown to make skin grafts totalling 0.85 sq m (9 sq ft). It took three operations over that winter to cover 80% of the child’s body in the new skin.

Hassan’s father said his son had spent months covered in so many bandages he had looked like a mummy. But 21 months later, the skin is functioning normally with no sign of blistering. You can even pinch the once incredibly fragile skin, with no sign of damage.

‘Goosebumps’

Dr Hirsch said: “The kid is now back to school, he plays soccer, so there was a tremendous increase in quality of life.”

Dr Anna Martinez, who leads the national epidermolysis bullosa service at Great Ormond Street Hospital, told the BBC: “I got goosebumps when I heard this, it was just incredible. Today this treatment is not available and it is not going to be available in the next few months, but this is a massive advance in research and is going to give us hope going forward with gene therapy.”

Clinical trials

Epidermolysis bullosa is rare, but the charity DEBRA, which campaigns for EB patients, estimates half a million people are affected around the world. There are different forms of epidermolysis bullosa, including simplex, dystrophic and, as in this case, junctional. Each is caused by different genetic faults leading to different building blocks of skin being missing.

Prof Michele De Luca, from the University of Modena and Reggio Emilia, told the BBC: “The gene is different, the protein is different and the outcome may be different [for each form of EB] so we need formal clinical trials.”

Science and Technology

‘Magic mirror’ skeletons teach med students anatomy

Medical students are learning about anatomy in a creepy new way: by looking at projections of digital skeletons, organs, and muscles on their own bodies.

Magic mirrors, a new high-tech tool designed to teach future physicians about the structure of the body, generate the slightly eerie projections. The goal is to help tomorrow’s doctors get better acquainted with where critical body parts like bones, organs, blood vessels, and muscles typically nestle beneath the skin.

The teaching tool doesn’t actually X-ray the people who stand in front of it, but instead inserts images of anatomically correct 3D body parts within the participant’s outline.

Augmented reality turns live volunteers into anatomy lessons

Nassir Navab, a Whiting School of Engineering computer science professor and director of the Computer-Aided Medical Procedures Lab at Johns Hopkins University leads the work, in collaboration with physicians from the Johns Hopkins School of Medicine.

Source: Johns Hopkins University
Tayside & Central Scotland

Forensic artist reconstructs face of Scottish 'witch'

The face of a Scottish woman persecuted for witchcraft more than 300 years ago has been reconstructed by forensic scientists. Lilias Adie died in 1704 in prison before she could be burned for her "confessed" crimes of being a witch and having sex with the devil.

Locals buried her under a large stone on the Fife coast, perhaps believing it would stop her rising from the grave. Her remains were exhumed in the 19th Century by antiquarians. Her skull ended up in the St Andrews University Museum and was photographed before it went missing during the 20th Century.

BBC Radio Scotland's Time Travels programme and its historian Louise Yeoman wondered if it would be possible to make a digital reconstruction of Lilias Adie's face from the photographs alone.

Forensic artist Dr Christopher Rynn from Dundee University's Centre for Anatomy and Human Identification carried out the work using 3D virtual sculpture and forensic facial reconstruction methods. He said: "There was nothing in Lilias' story that suggested to me that nowadays she would be considered as anything other than a victim of horrible circumstances. So I saw no reason to pull the face into an unpleasant or mean expression and she ended up having quite a kind face, quite naturally."

The project is a follow-up to a previous collaboration between the Radio Scotland History team and archaeologist Douglas Speirs, which identified the likely spot on the Fife coastline for Lilias Adie's grave.

Presenter Susan Morrison said: "It was a truly eerie moment when the face of Lilias suddenly appeared. Here was the face of a woman you could have a chat with, though knowing her story it was a wee bit difficult to look her in the eye."

Lilias Adie was tortured in prison and it is believed she may have taken her own life.

Louise Yeoman said: "I think she was a very clever and inventive person. The point of the interrogation and its cruelties was to get names. But Lilias said that she couldn't give the names of other women at the witches' gatherings as they were masked like gentlewomen. She only gave names which were already known and kept up coming up with good reasons for not identifying other women for this horrendous treatment."

Please visit the IAS website:  http://www.anatomical-sciences.org.uk/

Editor: John Ben F.I.A.S.  Email news@anatomical-sciences.org.uk
Burials of suspected witches were unusual as their bodies were usually burned to ashes at the stake. It was feared the devil could steal such corpses and animate them to torment the living, which may explain why the stone slab was placed over the grave.

Louise Yeoman said Lilias Adie endured "horrendous treatment"

Louise Yeoman said: "It's sad to think her neighbours expected some terrifying monster when she was actually an innocent person who'd suffered terribly. The only thing that's monstrous here is the miscarriage of justice. Lilias died a lonely unmourned death, but she was also a courageous woman. Through this recreation we've been able to look at her face and see her as a person, and hopefully give her a more thoughtful place in Scottish history."
The Gruesome History of Making Human Skeletons

From quicklime to boiling to bugs.

BY SARAH LASKOW
OCTOBER 03, 2017

A skeleton awakens!WELLCOME IMAGES

HERE ARE SOME INSTRUCTIONS FOR preparing human bones for display, from circa 1543:

Step 1. Acquire a corpse. No, no hints about where or how. You’re on your own there.

Step 2. Cut away as much flesh as you can. Watch the joints and ligaments—you need those intact.

Step 3. Acquire a body-length box, with holes in the walls. Place the bones inside, and cover with quicklime (used for centuries in agriculture, warfare, and cemeteries, and now available online). Sprinkle with water and wait a week. Presumably, leave the box someplace where no one will accidentally open it.

Step 4. Locate a stream or other body of running water in which to place the box. Give it a week, to allow the stream wash away the now loose and decaying flesh. Step 5. Clean off any leftover flesh, and leave the skeleton to dry in the sun. The ligaments should keep the bones together. There—your very own human skeleton.

If you find this set of instructions foul, so did Andreas Vesalius, the 16th-century author from whom they’re derived. Vesalius was a hotshot Renaissance scientist with a talent for self-promotion. He was young, cocky, and skeptical of the medical establishment, which was still reliant on ancient Greek medical work that was already more than a millennium old at the time. In Vesalius’s opinion, skeleton-making was “time-consuming, dirty, and difficult,” according to Oregon State University historian Anita Guerrini.
He preferred a different strategy for revealing human skeletal anatomy. First, boil the body in a “capacious cauldron,” then skim away the fat and clean the boiled flesh from the bones. That way, you could actually see the joints, instead of leaving them hidden behind blackened ligaments.

“Now most of the skeletons used in medical schools are plastic, but the ones that were used a couple hundred years ago—they were all people,” says Guerrini. For centuries human skeletons have been bought and sold, though it’s rare for a commodity to have once been part of a person. But despite the long practice of hanging human bones in museums and academic institutions, “we really don’t have a good history of skeletons,” says Guerrini. After noticing how overlooked they had been, she began investigating the history and iconography of skeletons—how they were they used, how they were made, and how that knowledge was passed down through generations of scientists. Vesalius’s technique was one among many proposed strategies for creating a pristine set of human bones.

Vesalius’s description is the oldest-known set of such instructions, but by the 1540s, the practice had been around for some time, perhaps going as far back as the 1300s, as Guerrini recounted in a talk at Columbia University this past September. One 14th-century scientist, for instance, mentions “making an anatomy” from fleshless bones.

Vesalius became a professor in Padua, as chief of surgery and anatomy, in 1537, when he was just 23 years old, and he wrote De humani corporis fabrica (On the Fabric of the Human Body), which contains the skeleton instructions, before he turned 30. “He was brilliant, and he was very brash,” says Guerrini. His book, unusually, had a portrait of himself on the title page, and another on the frontispiece. While his older colleagues deferred to the medical works of Galen, the Greek physician who lived in the 2nd century, Vesalius preferred direct observation of the human body. He taught using dissection and seemed to have no qualms about using human remains. “With
characteristic macabre whimsy he recommended posing the skeleton with a scythe, or a pike, or a javelin, and suggested stringing the ear bones onto a nerve to make a necklace,” Guerrini said in her talk. He didn’t care much about the aesthetics of the bones themselves, though. The boil-and-carve strategy he advocated for would have left the bones mottled and brown. As skeletons became more popular as objects of display and learning, their appearance became more important.

They remained rare objects, though, until the 17th century, when the new science of osteology, the study of bones, increased their use in anatomical study. By the middle of that century, skeletons, both human and animal, started showing up in the catalogues of natural history collections and cabinets of curiosities, such as the elaborate, skeleton-filled dioramas built by Dutch anatomist Frederik Ruysch.

Soon students of both art and anatomy were expected to study human skeletons as part of their training, and the public grew curious as well. By the 1660s, there was a market for them in Europe. By the 18th century, displaying human skeletons became trendy. Guerrini found a 1716 advertisement for “The Moving Skeleton,” a public attraction “which by a mechanical projection performs several very strange and surprising actions, also groans like a dying person, smoaks[sic] a Pipe of Tobacco, and blows the Candle out, as naturally as if alive.”

By this time, anatomists wanted to produce clean, white bones. One physician made sure to leave his bones out for months to bleach in the sun. Another eschewed boiling bones and instead left corpses to rot in water, changed periodically. This “maceration” technique required pulling softened flesh away from the bones and
would have required a steely constitution. But the demand for skeletons was high enough that more people were taking on this job: In the early 18th century, one surgeon offered a course in skeleton-making.

While researching this history, Guerrini found that, some time in the 200 years after Vesalius, anatomists became more circumspect about their habit of stripping corpses of flesh and putting it on display. Vesalius, with his ear-bone necklace and artfully posed skeletons, was boastful of his work. By the 18th century,
anatomists were less eager to crow about it. Alexander Munro, an expert in osteology, wrote a whole book on bones without ever once mentioning how to make a skeleton. William Hunter, a generation later, told his students that they should acquire a skeleton for personal use, but never published his lecture notes explaining the process of creating one.

“I was struck by Hunter and Monroe’s aura of secrecy,” says Guerrini. “Looking at Hunter, in particular, he never published his anatomy lectures.” The only reason she knows about his skeleton how-tos is that his students took notes, and those notes are still in archives, hidden away from public view.

There is something eerie about the instruction that all, say, 30 students in an anatomy class should somehow acquire their own human skeletons. Hunter, Guerrini says, never specified where they were to find bodies, but students likely would have had to resort to grave-robbery, “resurrection men,” or bribing gravediggers or hospital workers. (Hunter’s brother was apparently an ace at body procurement.) Attitudes toward death had been changing in Europe, and the idea of a carving up a not-insubstantial number of bodies and selling their bones started to seem distasteful, even morally reprehensible. While Vesalius could joke about the fate of these bodies, “William Hunter acknowledged the ‘necessary inhumanity’ of dissection,” Guerrini says. That didn’t stop him from offering his own new-fangled techniques for skeleton-making. Like Vesalius, Hunter had strong opinions about the best strategies. “If you want the Bones to be white inject by the Aorta for two or three Hours which will return by the Veins,” he wrote, without specifying what, exactly, should be injected. “Then expose them to maggots.” Or, if you had enough time, you could simply bury a body in a box by an anthill. It was, at least, a less hands-on method of stripping flesh from bones.

Pathologists to Search Stephen Paddock’s Brain for Clues to Mass Shooting

Neuropathology experts warn that finding proof of dementia or trauma in the mass shooter’s brain isn’t likely to provide a definitive reason for his behavior.

BY DAVE ROOS, OCTOBER 31, 2017

A Stanford University lab will receive a high-profile shipment this week: the preserved brain of Las Vegas gunman Stephen Paddock. Since law enforcement investigators have failed to identify a clear motive in the October 1 shooting, which took the lives of 58 concertgoers, there is hope that killer’s brain may offer some elusive clues. But even if scientists find clear evidence in Paddock’s brain of a neurodegenerative disease like Alzheimer’s or a brain injury like chronic traumatic encephalopathy (CTE), will that help to explain why a reclusive gambler with no criminal record or extremist ties would open fire on a crowd of innocent people?
Dr. Clayton Wiley is a professor of pathology and director of neuropathology at the University of Pittsburgh Medical Center. Although he’s not involved in Paddock’s case, he regularly conducts brain autopsies for both academic research and for the Pittsburgh medical examiner’s office.

In an interview with Seeker, Wiley strongly disagreed with the notion that physical evidence of brain disease or trauma can explain or excuse aberrant behavior. He explained that the tools of a forensic pathologist are relatively “crude,” only able to detect clear evidence of a neurodegenerative disease like brain atrophy, or the telltale signs of CTE like tau protein deposits. But that’s where the pathologist’s expertise ends.

“Can a pathologist look at a brain and say that these changes are such that this person would commit mass murder, or this person would commit suicide? The answer is no,” Wiley said. “Unequivocally, no.”

Paddock’s brain will be sliced up and analyzed by Dr. Hannes Vogel at Stanford, who said in an interview with The New York Times that he would be paying particularly close attention to the frontal and temporal lobes. Paddock was 64 years old, and hereditary forms of frontotemporal dementia (FTD) can strike when an individual is still in their fifties. Symptoms of FTD include marked personality changes and impaired decision-making.

Vogel acknowledged that it’s “unlikely” that a person with FTD could carry out the meticulous planning necessary to pull off such a deadly surprise attack, but that he “wouldn’t want to leave any stone unturned.”

The examination of Paddock’s brain comes at an interesting time in legal dynamics of brain injuries. Earlier this year, researchers at Boston University confirmed that ex-professional football player and convicted murderer Aaron Hernandez suffered from Stage 3 CTE, the result of repeated hits to the head. CTE can only be diagnosed by an autopsy, but if juries had known about Hernandez’s condition, which is marked by aggressiveness, impulsivity, and explosiveness, it may have allowed him to plead not guilty by insanity.

Hernandez hung himself in his jail cell after being sentenced to 33 years in prison for the murder of his friend, Odin Lloyd. However, Hernandez’s post-mortem diagnosis of CTE could be used to defend his estate against civil charges. A similar defense could be used in civil suits against Paddock and his estate, if he was found to have a brain disorder that rendered him unaccountable for his actions.

The problem, explained Wiley, is that pathological evidence of a damaged or impaired brain doesn’t translate directly to certain outward behaviors. He used Alzheimer’s disease as an example.

“We can identify people who have neurological changes associated with Alzheimer’s disease who are not demented,” said Wiley. “They do not have clinical Alzheimer’s disease. And yet, if you looked at the autopsy report on their brain, it would say either ‘Alzheimer’s changes’ or ‘Alzheimer’s disease.’”

There’s an even weaker causal relationship between structural abnormalities in the brain and psychological conditions like schizophrenia and psychopathy, which are often associated with mass murderers.

Dr. Eyas Hattab, professor and chair of the Department of Pathology and Laboratory Medicine at the University of Louisville, told Seeker that no piece of evidence found during a post-mortem brain examination can reliably be cited as the cause of antisocial or psychotic behavior. That’s beyond the limits of science in 2017.

Hattab said that it would have been much more informative to run tests on Paddock’s brain when he was still alive. Paddock killed himself after his shooting rampage. “With a living person, we’re able to administer functional tests — fMRI scans, for example — that are far more informative than any structural abnormalities uncovered in an autopsy,” said Hattab. “Those scans could show us if there are any behavior-altering chemicals in the brain, or active regions in the brain that have been associated with antisocial behavior.”

As for this week’s high-profile examination of Paddock’s brain, UPMC’S Wiley is bracing for the usual unscientific media commentaries linking the brain and behavior. At the end of the day, he’s concerned that neuropathologists are being asked to perform a role that exceeds their understanding. “People will come away with the interpretation that somehow we have this magical skill of explaining how people behave by looking at tissue from their brain,” he said, “and that’s not possible.”
And finally

I like this. Looking very Steam Punk this is a coffee bean grinder from late 19th century! The label says "Come to Life - Last Drink".
Answers to the quiz on page 20

A BLACK ROUND

1. It is the largest venomous snake in Africa and one of the most deadly of all snakes. The venom in a single bite is sufficient to kill over 20 adult humans. What is it called?
   BLACK MAMBA

2. In the film Monty Python and the Holy Grail, who guarded the bridge?
   THE BLACK KNIGHT

3. What name did Winston Churchill give to his depressions?
   BLACK DOG

4. What is the name of the small mountain range on the North American plains which extends into South Dakota and Wyoming?
   THE BLACK HILLS

5. Gavrilo Princip, the student who shot the Austrian Archduke in 1914 and precipitate the First World War, belonged to which gang?
   THE BLACK HAND GANG

6. In what American science fiction film did a cat carry a miniature universe on a necklace?
   MEN IN BLACK

7. What was the name of the horse which featured as the central character in the only novel written by Anna Sewell?
   BLACK BEAUTY

8. What was the name given to the uprising of Palestinians in Jordan in 1970?
   BLACK SEPTEMBER

9. At the beginning of the book Treasure Island, what is on the piece of paper that Blind Pugh hand to Long John Silver?
   A BLACK SPOT

10. The start of the Great Depression on 24 October 1929 is known as?
    BLACK TUESDAY
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