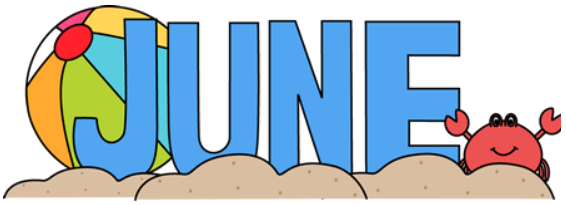
May / June 2017



IAS WEBSITE

The IAS has decided to use the changeover time between our webmasters as an opportunity to invest some of our reserve funds in upgrading and improving our website with the help of a professional designer.

Our website has proven to be increasingly important to us and is our 'shop window' for the world to see and learn about our activities. Our site receives thousands of 'hits' each year and it's hoped that this investment will bring in more suitable applications to join the IAS.

While this changeover is going on the current IAS website will be featuring a 'holding page' whilst the new site is in development. The work will be completed as soon as possible and we apologise for any inconvenience during this time.

Meeting of the Anatomy Associations Advisory committee (AAAC Formerly PGaPAC) in UCL in May.

During May there was a meeting of the Anatomy Associations Advisory committee (AAAC Formerly PGaPAC) at University College, London. The committee was formed out of our Memorandum of understanding with British Association of Clinical Anatomists and the Anatomical Society, and its remit is to promote and encourage best practice in the Anatomy sector throughout the UK and Ireland.
We were represented at the meeting by Wendy Birch (Chairman) and Steve Gaze (Vice Chairman) and it is hoped to tell you more of this meeting once the minutes are released.

Steve Franey (Vice Chairman) has stepped down as an IAS rep for this important joint committee and Council would like to thank him for his considerable efforts and dedication in attending these meetings from its very first meeting in 2012.

Brian Thompson of Newcastle University has kindly agreed to be our 3rd Representative at future meetings.

For your Diary - Meetings and Courses of interest

WE WELCOME YOU TO THE MEETING OF

Autumn Scientific Meeting

The Institute of Anatomical Sciences

UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

The autumn scientific meeting of the IAS will this year be held at University College Cork, in Ireland on

August 31st and September 1st.

Put these dates in your Diary NOW!

The prices for the Cork meeting are now available and we have made a board assumption on the exchange of £1/ €1.15

PLEASE NOTE: These are the starting prices for the Early Bird Special and once the offer is closed the prices will increase by approximately 10%, probably at the end of July. We will let you know when this increase will happen once the booking opens on the new revamped website.

One day conference including tea/coffee and lunch - €35 (£30)

Conference dinner including reception - €35 (£30)

2 day conference and dinner - €90 (£80)

Non members

One day conference including tea/coffee and lunch - €45 (£40)

Conference dinner including reception - €35 (£30)

2 day conference and dinner - €105 (£92)

Booking will be through the link on the new IAS Website which is undergoing a major revamp, but which will be available again very soon!

2018 Spring Scientific Meeting & A.G.M.

The Institute of Anatomical Sciences

UNIVERSITY OF LEICESTER

The 2018 spring scientific meeting and A.G.M. of the IAS will be held at the University of Leicester.

Dates to be confirmed by Leicester

IAS Prize Competitions

The meeting in Cork will also see the IAS prize competitions for 2017 which are open to members and non members alike.

There are 4 categories open for you to enter and they are

1 The Marjorie England Dissection Prize (for persons employed in human or veterinary anatomy)
2 The Student Dissection Prize (for students studying human or veterinary anatomy)
3 The Terrence Williamson Museum Prize (for prepared and mounted anatomy or pathology specimens)
4 The Open Competition Prize (for anything that does not fit the other categories eg a book or video presentation)

The posters on the following page were winners or merits in the 2016 competition.

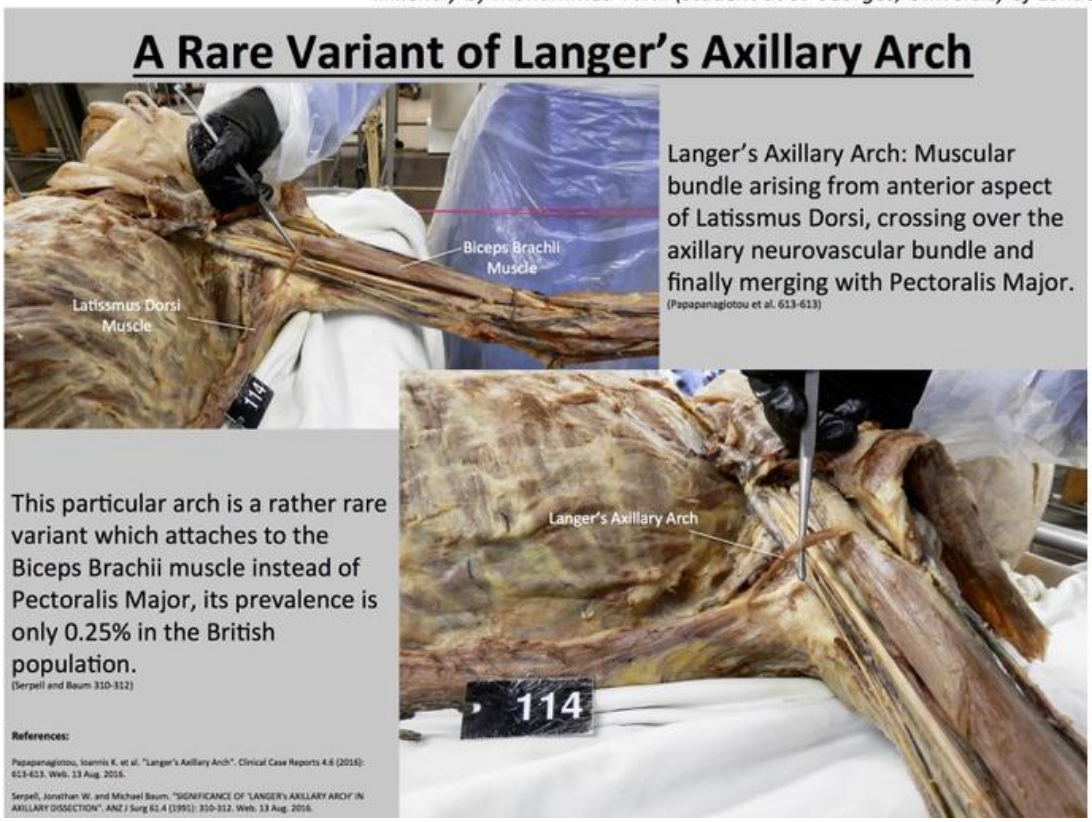
These are prestigious prizes bring kudos to you and your department / establishment. The completion can be international and they give a chance to measure your work against others, as well as giving you invaluable experience and feedback from the panel of very experienced judges.

Now is the time for you to start thinking of what YOU will enter for this year's competition!

The following are examples from last year.

IAS Student Dissection Prize 2016 – Best Human Dissection

.....entry by Mohammed Turki (student at St Georges, University of London)



Terrence Williamson Museum Prize 2016 – Merit

.....entry by Stephanie MacDonald and Kimberly Kroll (Teaching Laboratory Technicians, University of Bristol)

The Institute of Anatomical Sciences

All IAS competition categories can be entered by both IAS Members and Non-Members alike and all entries are judged by an experienced panel of anatomists.

Marjorie England Dissection Prize

The dissection itself must be the sole work of the entrant and may be of an animal or a human specimen.
The dissection will be judged against published criteria, technical and intellectual complexity and usefulness as a teaching aid.

Student Dissection Prize

The dissection may be produced by an individual student (or a group or students) of an animal or a human specimen and will be judged against published criteria, technical and intellectual complexity and usefulness as a teaching aid.
Best Animal and Best Human Dissections will be awarded and the overall winner of the competition will be selected from these two.

Open Competition Prize

This competition gives entrants the opportunity to display any type of anatomical work done by them that does not fit into another competition category.
Examples of previous entries include.....

- a series of histological slides
- anatomical drawings, paintings or sculptures
- construction of a poster as a teaching aid
- a publication or chapter in a book
- construction of a display stand for anatomical specimens
- the development of a computer programme
- production of a video or film

Terrence Williamson Museum Prize

Examples of entries for this Prize include:

- Osteology specimen(s) - either dry or fluid mounted
- Dissection/pathological specimen(s) mounted in a sealed museum display jar
- Specimens which have been plastinated, air-dried, freeze-dried, plastic- or resin embedded
- Corrosion casts/models

Be a published author.....
Entrants are encouraged to submit dissertations and technical reports written in conjunction with competition entries for publication (subject to successful peer review) in the JIAS.
For more information on the JIAS and to view the Instructions for Authors please visit http://www.anatomical-sciences.org.uk/journal/journal.html

How to enter:
Entry is mainly by photograph, with the exception of the Open competition where an example of the work (e.g. video or publication) may be additionally required.

Please see the IAS Website for full details of the entry specifications.
http://www.anatomical-sciences.org.uk/prize_comps/prize_comps.htm

All entries must be e-mailed to: education@anatomical-sciences.org.uk by Wednesday 16th August 2017.
Only entries sent to this address will be accepted.
Entry to a competition is free for IAS members and registered member students, and £5 per person for all non-members. Non-members entering the IAS Student Dissection Prize will be eligible to apply for 12 months free student membership*

All entrants will receive a Certified letter of Participation from the IAS
For further information, please contact the IAS Education Officer education@anatomical-sciences.org.uk
*conditions apply, see IAS website for further details

History of Anatomical Dissection at Cambridge,

Original talk given by Professor Dave Riches at the IAS Meeting on 10 April 2017
Transcribe for the magazine by Julian Baker

A most interesting talk opened our Spring Scientific Meeting at Cambridge University this year, with Professor David Riches talking on the history of anatomical study at the University of Cambridge.

He has very kindly forwarded me his presentation and together with my own notes, have attempted to give a potted version of his excellent talk.

History of Anatomical Dissection in Cambridge, Professor Dave Riches

The university was originally founded in 1209 and the original statutes placed the Faculty of Physic on same footing as those of Theology & Law

Original anatomical teaching would have taken place during reading of classical texts, all largely based on the teachings of Galen

Earliest records of anatomy and dissection by David Edwardes in 1532. A Greek scholar who graduated from Oxford in 1525 and recorded the first human dissection in England in 1531 and published the first anatomy book printed in England, "In anatomicen introductio luculenta et brevis."

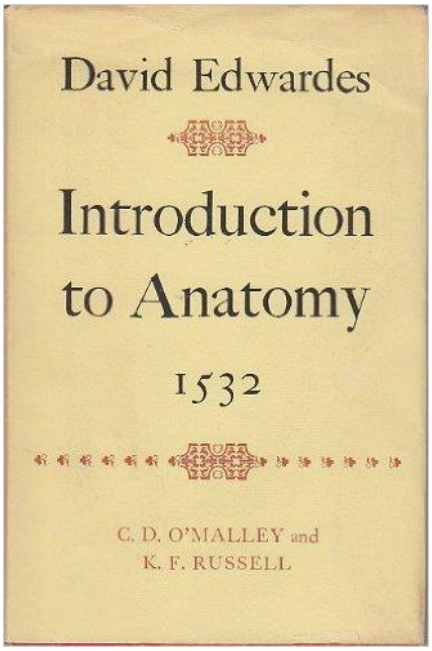


Fig 1. A translation of the first anatomy book printed in England

In 1549, anatomy became a statutory requirement for medicine.

There have been various sites of anatomy teaching in Cambridge over the years and the oldest school is now known as Regent House, but the first anatomy school appeared in 1716.

John Caius was an early professor of anatomy at Cambridge. He graduated in theology in 1533 and left for Padua in 1539 where he studied under Montanus and where he also shared a house with Andreas Vesalius with whom he disagreed on certain points.

He returned to England in 1545 and in 1546 became the first reader in Anatomy at the Barber Surgeons. He was president of the Royal College of Physicians nine times and was physician to Edward VI, Mary and Elizabeth I.

IN 1557 he refounded his old college, Gonville Hall and became master in 1559 and became responsible for gaining permission from Elizabeth I to obtain two bodies per year for dissection

In the college statutes he prescribes £1 6s 8d for dissection and this paid for everything to do with the dissections, including funerals. Bodies were treated with respect and the remains buried in St Michael's churchyard. He also dictated that all the college should attend the funeral of the dissected.

Thomas Lorkyn was the fourth Regius professor of Physic from 1564-1591. Regius professors where required to one "anatomie" a year on bodies of executed felons, but these studies were frequently neglected..

William Harvey another Regius professor wrote. "I profess to learn and to teach anatomy not from books but from dissection, not from positions of philosophers but from the fabric of nature."

Fig 2. John Caius (pronounced keys)

George Rolfe First Professor of Anatomy 1707 but fell afoul of his employers and was rather too keen on giving lectures at the Barber Surgeons, neglecting his duties as professor.

He was eventually deprived of his chair in 1728 for "contiuned absence for several years from his office", and was followed by several relatively inactive Professors of Anatomy.

The First School of Anatomy opened in 1716 in Old Printing House buildings and was shared with the school of Chemistry.

It was styled on old style anatomy theatre: a round building with dissection taking place in the centre. Originally a stage house for Queens, it was also used by the printing House for the display of books.

The first active Professor of Anatomy was Busick Harwood who also became the first Downing Professor of Medicine. He was interested in comparative anatomy and built up the museum with his own dissections.

Fig 3. First School of Anatomy

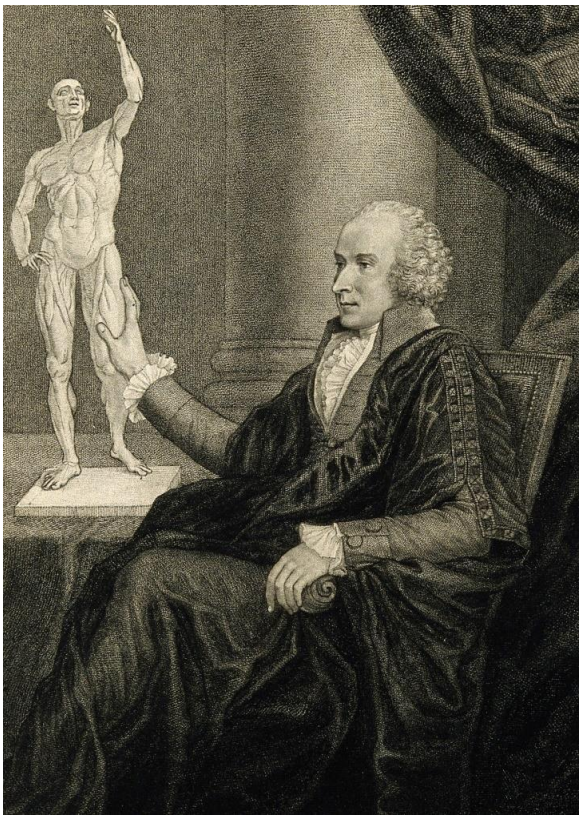


Fig 4. Busick Harwood

Other professors included John Haviland, 1814-1817, who instituted the first compulsory attendance at lectures, and William Clark 1817 - 1865 "Bone" Clark, who built an excellent museum with lots of wax models.

The second school of anatomy was opened in 1833, built on land vacated by the first Botanic Garden, with the "Round House" being transferred brick by brick from the original location in Queens Land and housing the museum.

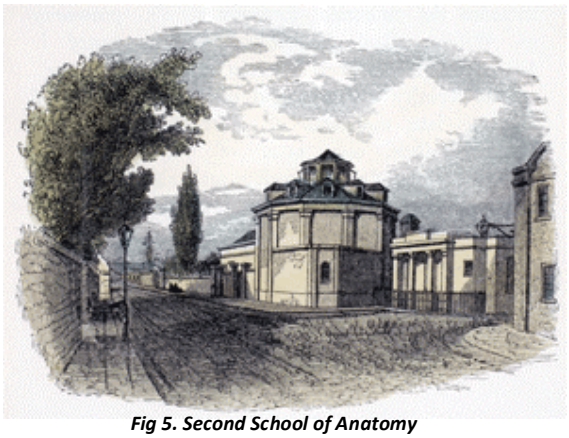


Fig 5. Second School of Anatomy

However the rows surrounding the activities of the 'ressurectionists' at the time, fuelled disquiet amongst the populace surrounding the procurement and there was a riot outside the Round House the year it was opened.

Sir George Humphrey a surgeon from Addenbrooke's Hospital, became First Professor of Human Anatomy in 1866-1883 and was also the last teacher of anatomy and physiology. He was a great collector of pathological specimens and his teachings were referred to as "Humphryology."

The medical school was built on the site of the second anatomy school. Opening in 1904 it also housed the Humphrey Museum of Pathology.

Alexander Macalister became the first full time professor of Anatomy 1883-1919 and was particularly interested in abnormalities and anomalies, keeping good records in the dissecting room.

Around this time, the increase in student numbers created a need for more cadavers and space and a temporary corrugated iron building alongside the round lecture theatre was erected which served as a DR from 1885-1891 before the third medical school, opened in 1891, could be built.

Fig 6. The temporary, corrugated iron dissecting room, circa 1885

The third school of anatomy provided a lot more space spread out over three floors, with a lecture theatre seating 280 students and a large dissecting room on the top floor

The fourth School of Anatomy opened in 1938, provided a large dissecting room, lecture theatre, classrooms and research facilities and is now part of the departments of Physiology, Development and Neuroscience.

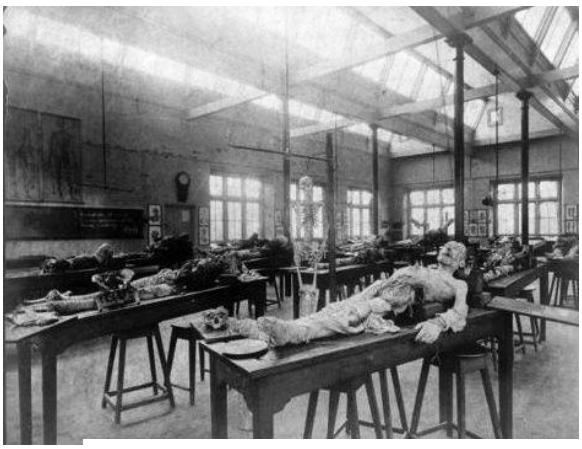


Fig 7. Third school of anatomy dissecting room

Fig 8. Fourth School of Anatomy

News of and from Members

By the nature of his job **Ben Whitworth** of The Dodge Co Ltd must be one of our better known members.

I am happy to announce that on May 26th Ben married his fiancée Caroline Augier.

Please join with me in sending Ben and Caroline our congratulations and wishing them a long and happy life together!

Congratulations also go to **Tom Cornwall** who has just been offered a job in the Centre of Applied Anatomy, University of Bristol, as a Teaching Associate. So Tom is leaving Carys's technical team to move to the Academic side where he joins Sarah Gosling.

Congratulations Tom, hope you will still find the time to be our Deputy Membership Secretary!! -JB

Meet the Council – Acting Deputy Editor
Lucinda Evans of Brighton and Sussex Medical School (BSMS)

Lucinda Evans

JB: Hello Lucinda, thank you for agreeing to be interviewed for the 'Meet the Council' piece of the magazine. After the AGM you spoke with Carys the IAS Secretary and said you might be interested in becoming Deputy News Editor for the IAS magazines and have now been 'co-opted' onto Council in that role, so this interview is also a way to introduce you to our wider membership

The interview questions are based on the The Marcel Proust Questionnaire which is a questionnaire about one's personality

So we start with your work, can you tell us about your work at Brighton?

Lucinda: Hi and yes! I'm Anatomy Technician at the Brighton and Sussex Medical School (BSMS) and have been since late 2015. It's great and time has flown.

A lot of it is probably "typical" medical school anatomy technician work, like setting up for teaching sessions and ensuring that cadavers and prosections are treated with respect and kept in good condition. The focus of the job changes dramatically depending on whether students are around (in which case regular teaching sessions are the priority), or on holiday, in which case the focus is more on working with things like our department's iPads, 3D printer, pathology pots, prosections and maintenance of the lab.

Probably the most atypical thing is that we don't have embalming facilities here; the team at Imperial College London embalm our donors before the undertakers bring them to us. Also, we have no Prosector In Anatomy at the moment so I'm currently the only member of technical staff. Between that and this being my first full-time job, I had a bit of a baptism-by-fire into both technical work and the world of anatomy; being introduced to the IAS by our previous Prosector (Tracy Young) has been a lifesaver! A fair chunk of my work at Brighton is only possible because of attending IAS conferences and mining you guys for tips!

JB: What led you into this work, was it something you always wanted to do?

Lucinda: There are some aspects of this job that I've definitely always known would be vital for me in a career – like working sociably with other people in a laboratory and biology-related field;

feeling like I'm doing something meaningful in the wider world; being somewhere I can keep studying new things; and working in a place where I get to both use my brain AND keep physically active, rather than sitting down doing something repetitive all day.

But I had no idea whatsoever that the role of "anatomy technician" specifically even existed until I saw it advertised.

I'd just graduated from studying Biomedical Sciences at Brighton University and was keen to stay in Brighton if possible. I was tempted to follow postgraduate study, but thought it might be unwise to commit myself to a certain career path without having ever worked full-time, and therefore having no realistic idea what that career would then be like! So I knew my interests, the things that were important to me, and that I wanted to make a commitment to doing "proper" work in a long-term role. When I saw this advertised it seemed like a perfect opportunity with perfect timing! I couldn't believe it and absolutely had to apply.

I thanked my lucky stars to get the job and still very much do – I had work experience and wasn't technically under qualified… but to tell the truth I had never actually seen a dead person in my life before working here.

JB: If you were not doing this work what other career or profession do you think you would have followed?

Lucinda: I mentioned postgraduate study and if I had followed that route, would probably have gone on to do genetics, which is another subject that I really enjoy and did for my final project at uni. It's being a redhead with two brown-haired parents that first got me interested in biology and the human body at a really early age! Anatomy, neuroscience and genetics are the three fields that I particularly love.

Having a healthy and active lifestyle is also important to me, so maybe something more along personal fitness or nutritional lines could also have been the case.

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

Lucinda: I don't think I could be a bus driver. Lots of sitting down, repetition, occasional aggressive people and not being able to play the radio or music or an audiobook while driving. I'm still only learning to drive a car at the moment and a bus would be even more difficult! So I admire bus drivers a lot, I couldn't do it.

JB: Can I ask what led you to join the IAS?

Lucinda: I was encouraged to join with very high recommendation from my line manager at the time, our ex-Prosector Tracy Young, when I joined BSMS.

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

Lucinda: As mentioned I'm learning to drive at the moment – I also like swimming, reading, drawing, baking and spending time with friends around Brighton - it's a great city for keeping entertained. It sounds tragically nerdy but I also really enjoy studying! One of the best things about working in a medical school is having access to the lectures and papers for students… I get to learn the interesting stuff, ignore the boring, and don't have to take the exams ☺

I'm also a Trustee of the registered charity Lipoedema UK and so help to write leaflets, organise events and fundraising for them whenever I can. Lipoedema is a painful fat disease that causes

patients' legs to become disproportionately larger than the rest of their body and hurtful to touch. It's often misdiagnosed as lymphoedema or even obesity when it first presents, but diet and exercise don't affect the fat at all; patients only lose weight from their upper bodies and become more visibly disproportionate, often developing eating disorders before receiving the correct diagnosis.

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

Lucinda: Probably a normal-sized house in Berlin. I've never even been there, but always had a vaguely romantic idea that I'd retire in Berlin. My favourite place anywhere is Wimbledon Village but to live there every day would spoil the magic.

JB: 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?

Lucinda: A good tiramisu.

JB: And is there a food that you hate?

Lucinda: A bad soggy tiramisu! So disappointing!! You had such potential!!!

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

Lucinda: My favourites change a lot, but I suppose that throughout life I've always loved Nina Simone.

JB: Do you have a favourite colour?

Lucinda: Grey

JB: And your favourite film?

Lucinda: The Moulin Rouge

JB: Do you have a favourite TV programme?

Lucinda: It was The Great British Bake Off! I'll just have to wait and see what it's like now.

JB: Do you have a favourite book or author?

Lucinda: Stephen King as an author, and my favourite of his is probably Firestarter.

JB: And which is your favourite word?

Lucinda: Irascible

JB: And your least favourite word?

Lucinda: Stupid

JB: Is there a sound or noise that you love to hear?

Lucinda: Kittens!

JB: And what sound or noise do you hate?

Lucinda: Microphone feedback

JB: Who or what inspires you?

Lucinda: Just good conversation in general, I think – any subject can be really inspiring, however boring you thought it was, if you have a chat with an interested/interesting enough person about it!

JB: And what or who 'turns you off' in the creative sense?

Lucinda: When people are dismissive of enthusiasm and treat people like they're "uncool" unless they act like everything is boring and beneath them.

JB: If you could change just one thing about yourself what would it be?

Lucinda: I actually wish I was slightly less interested in everything – it'd be easier to just really love ONE specific thing (like anatomy, of course) and study/work in it constantly, rather than feeling sad about all of the other things I love and that there's probably not enough time in life to do….. literally everything.

JB: If I had the power to grant just one wish, what would you wish for?

Lucinda: Definitely the ability to stop and re-start time (without ageing in the meantime!).

JB: If you could be given the chance to spend one full day in the company of anybody, living or dead, who would you choose?

Lucinda: Probably Anne Boleyn. But oh my goodness I'd dither about deciding for a long time before making the decision. I'm dithering now and it's not even real!

JB: And the final question of the interview, Lucinda, if Heaven exists, what do you think God will say to you when you arrive?

Lucinda: "Well, you can't claim that nobody told you so."

JB: Lucinda, Thank you for taking part and I hope you enjoy being a member and News Editor for many years to come!

IAS TRAVEL GRANT

There is still £90 in the Travel Grant which is available until the end of June. After that date we enter a new round of applications.
If you are interested in applying contact Carys, the IAS Secretary at Carys.Davies@bristol.ac.uk

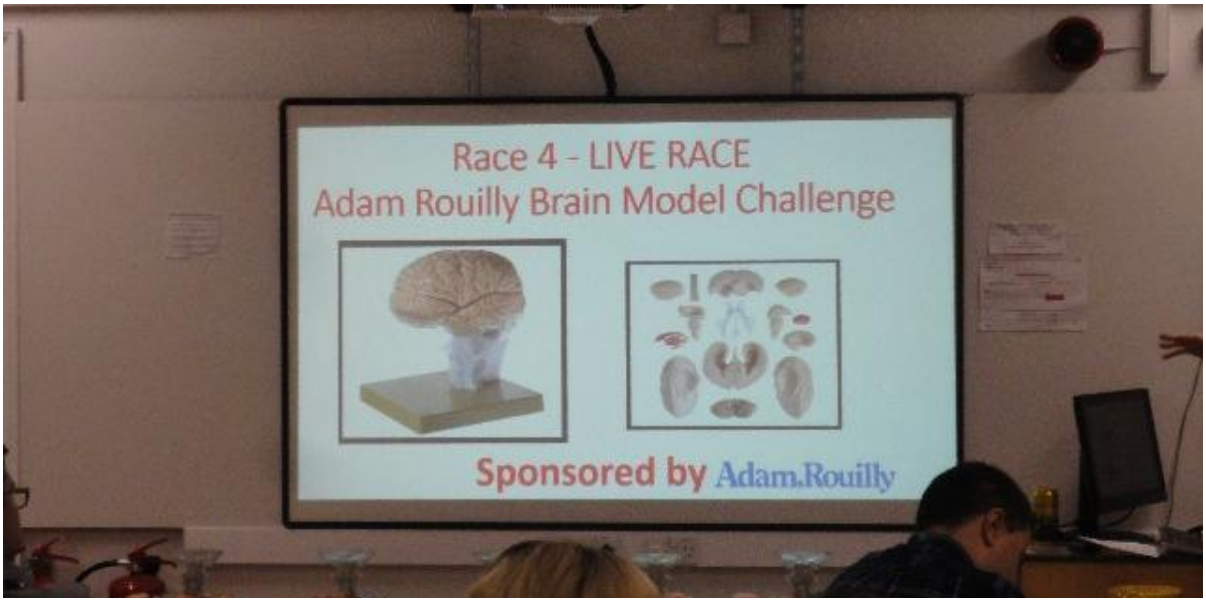
Comic Relief 2017 - Centre for Applied Anatomy Style

By Kate Healey

Red nose day 2017 was a racey affair for the Centre for Applied Anatomy at the University of Bristol. The charity and social committee organised a race night packed full of fun and laughter with the aim of raising money for Comic Relief.

The race night was unlike any other comprising of fun work related races with many staff and a few four legged friends getting involved. The evening was hosted by Tom Cornwall and included a combination of filmed and live races such as an obstacle wheel barrel race, office chair rowing, the Adam Rouilly Brain model race and even human hungry hippos.

The evening was well supported by everyone and particularly popular were the live races bringing out the peoples 'competitive' nature. The Adam Rouilly Brain model challenge saw Academics Jenny and Sarah go up against doctors Matt and Lucy and technician Tom in a tightly fought battle to see who could reconstruct the model fastest - experience proved to be everything in the end with Tom the clear winner.



The evening was a huge success raising an impressive £589.61 this would not have been possible if it wasn't for a valiant team effort to organise the filming, sponsorship and the running of the night itself.

Thanks must also to go to all our sponsors below who provided monetary contributions and prizes, but a special thank you must go to Adam Rouilly and Professor Roger Atkins for their incredibly generous donations.

Adam Rouilly

FRISKA twoday coffee roasters The co-operative food Sandwich Sandwich

A final thank you must go to everyone who supported the evening by taking part in the races, donating money or attending on the night. Without everyone's contributions this evening could not have happened.

Thank you Kate for this great example of Charity Fund Raising and 'Team Building' while having FUN from Bristol University! A good example of why Anatomy at Bristol is such a good department!

Do YOU have any events like this at your workplace? If so why not share them with us by writing a short article for the News Magazine just as Kate did. Remember all articles submitted to the News Magazine will gain you accreditation points. – JB

News of the AIC Manaja Academy in a deprived area of Kenya

John Ben

Some of the children inspecting the newly acquired plot of land! (see main story)

Dear Friends

It's been a while since I last gave you an update on the progress of our fund raising over Easter which was to raise money for windows to some of the classrooms at Manaja Academy in a deprived area of Kenya. To remind you the Academy is to provide education and social guidance (and also some good food) to hundreds of boys and girls who are orphaned or who come from the poorest families and give them a chance of a good education so they can get a good job when they leave and so have a brighter future rather than falling into a life of crime, vice or early marriage which is 'normal' and rife in the area. Our 'job' in the voluntary group Friends of Manaja is to raise awareness and sponsorship to help the community build and run this school.

After currency conversion and transfer charges a total of KSH 65,078 finally reached my friend Kerry Kyaa and this she is forwarding to the school. We will bring you more news and let you know as soon as the windows are installed. So thanks to all who contributed towards raising this money, particularly to Jes Squire who volunteered for her 'head shave'!

But cash for windows was not the only contribution to our Easter appeal as Gillian Butts Garnett who works for the UN in South Sudan contributed a new water tank (see photograph) in time for the anticipated seasonal rains which now makes 3 large rainwater storage tanks (10,000 litres each) the Friends have provided for the school and the children's welfare in this drought affected area!

Then another new Friend of Manaja, Rowa Yvonne from Nairobi, has also contributed a full scholarship for one of the neediest boys to cover his education until he finishes standard 8. He is currently in standard 3 ! Another wonderful contribution as I'm sure you will agree!

Finally a small grant was given to the school to allow then to hold a stakeholders meeting and come up with a strategic plan for the next 5 years. This way, it will be easier to see a technical breakdown of where the school's at, where they are headed and what gap there is. As before Kerry Kyaa and Winnie Maiko (daughter and mother and our key contacts in the village) will in time let us know which areas is the greatest need and so we can then direct each new fundraising event we do as we do now.

But now is the time we need to look forward and decide what we are going to do next. Last year in August to tie in with the UN's International Youth Day we had in Kenya the older children of Manaja Academy choosing to doing a 20km walk together with teachers, school board members and members of the Friends Group.

ALL the children wanted to take part to show how much the school and an education means to them, but in the end it was felt to be too much for the younger children to do and it was restricted to those pupils aged 8 to 11 years.

In the UK Jes Squire did her 50 mile sponsored bike ride which turned out to be closer to 70 miles!. Both were wonderful efforts and highly successful and we were able to provide the money to buy the small plot of land next to the school ready for expansion and more classrooms.

This year we are again organising events to link in with International Youth Day 2017 which is Friday, 11 August 2017. The theme of International Youth Day 2017 is "Youth Building Peace", and education is such an important part of bringing understanding and peace.

So what do you my friends think of all this? Also what suggestions do you have for our next sponsored event(s) ?

My thanks to all of you who help to contribute to the work of the Friends of Manaja Academy, and always remember that anything we can do to help the school, no matter how small, is helping to educate boys and girls and give them a good chance of a brighter and better future than they could otherwise expect!

If you are not already a Friend of Manaja and you are interested in joining us even if it is only to watch our progress, just let me know or go to our Facebook page 'Friends of Manaja Academy' and click to join! We would love to have you!

Best wishes to you all

Cheers

John

The Back Pages

QUIZ Submitted by Prof Robin O'Sullivan & Malcolm Halket

THE WIND BENEATH MY TAIL

1. It is incorrect to suggest that the song "You are the wind beneath my wings" was originally released as "You are the wind beneath my tail", as a tribute to a female aviator. In 1932 Amelia Earhart became the first woman to fly solo across which ocean?

2. Considering their diet, ruminants have little difficulty when it comes to generating wind beneath the tail. How many compartments are there in a cow's stomach?

3. In which film released in 1955 did the wind from a subway grating reveal Marilyn Monroe's attractive tail?

4. The oil of which herb is included in Woodward's Gripe Water, much favoured by English nannies for treating wind and colic in babies?

5. In 1274 and again in 1281, the Mongol Emperor Kublai Khan attempted to conquer Japan. To the great joy of its inhabitants, on both occasions the gods intervened and his armada was wrecked with great loss of life by typhoons. By what name do the Japanese call a Divine Wind?

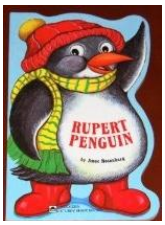
6. A hefty feed of oats and unripe carrots generates a lot of wind beneath the tail with unpleasant consequences for the people on the horse-drawn canal boat.
What canals did Giovanni Schiaparelli claim to have discovered in 1877?

7. As St. George stood over the fallen dragon he suffered third degree burns from the scaly beast's dying breath. St. George's Day is celebrated in England each year on what date?

8. Mini-skirted Babette shivered as the Alpine wind beneath her tail whistled down the Rhone Valley towards the sea. What is that wind called?

9. Studies have confirmed that the average person each day has fourteen occurrences of wind beneath their tails. Which recent British monarch had a reputation for being on the high side of average?

10. Rupert the Penguin thought his number was up as the predator rapidly approached, but fear induced a mighty expulsion of wind beneath his tail which propelled him like a rocket onto the safety of the ice sheet. What is the most ferocious species of seal, the one especially fond of penguin tartare?



ANSWERS ON PAGE 36

Curio Corner by Benedictus.

In these days of modern forensic science investigations it is difficult to imagine what it was like before DNA analysis became available. This and other modern techniques have transformed investigation beyond recognition, especially when it comes to identifying human remains when a body is found.

But have you ever wondered how such investigations were made before this technology became available? This month I thought I would tell you of a remarkable case from September 1935 in which anatomists played a very important part. This case is the once infamous case of Dr Buktyar Rustomji Ratanji Hakim who was also know in Lancaster where he practiced as

Dr Buck Ruxton

Background

Dr Buck Ruxton was a good looking Parsi-Indian doctor who practised in Lancaster in the 1930s. He was loved by many people in the community and was reputedly a good and diligent GP, well respected and popular with his patients. He was born in India of Indian and French parents. He was born on the 21st March 1899 and his real name was Bukhtyar Rustom ji Hakim.

Parsees are descended from the Persians and today most are found in Iran, Pakistan and Bombay. Buck Ruxton was educated in Bombay where he qualified as a doctor and he became Medical Officer to the Malaria Commission. On 7th May 1925 he married a girl called Motan who was a well to do Parsee girl. The marriage was short lived and he came to England and concealed all evidence of it.

He came to Edinburgh where he took a post graduate course in medicine and surgery after which he moved to London and that was the time he changed his name to Buck Ruxton. Whilst he had been in Edinburgh he had met a young woman called Isabella Kerr. Born in Falkirk she had worked in Edinburgh in several jobs. It was love at first sight for both her and Buck Ruxton and their romance blossomed very quickly.

They were married by 1930 and they came to live in Lancaster. At that time they had only one child Kathleen Elizabeth but the family eventually grew to three, the other two children being called Diana and Billy. They inhabited No 2 Dalton Square Lancaster. They seemed at first a contented family and his practice flourished with the doctor's surgery rarely empty. However Dr Ruxton began to suspect that she was having an affair and as his jealousy grew the neighbours soon heard violent quarrels taking place. On more than one occasion Isabella left Ruxton taking the children with her. On all of these occasions she took refuge with her sister Mrs Jeannie Nelson.

One of the worst rows took place in 1934. Isabella walked out yet again threatening never to return. However she did come back persuaded to do so only by her sister. A few months later she was dead and also dead was a 19 year old Morecambe girl named Mary Jane Rogerson. She had worked as a maid for the Ruxtons for 3 years. How these two women met their deaths is still one of the most fascinating in the history of crime today.

Murder

As Ruxton suspicions grew he became increasingly jealous of Isabella's popularity, allegedly exploding into fits of rage behind closed doors. Eventually his jealousy overwhelmed him and, on 15 September 1935, in the middle of a row Ruxton killed Isabella. Also present in the house at the time was their housemaid, Mary Jane Rogerson, and to stop her from discovering his crime before he could dispose of the body, he murdered her too. Ruxton then proceeded to dismember and mutilate both bodies to hide their identities.

The sheer gruesomeness of the Ruxton case caught the people's imagination. It was tragic but good reading for the sensation hungry public.

Mary Jane Rogerson

Meanwhile a Miss Susan Haines Johnson who together with a friend was visiting the Moffatt area from Edinburgh. The two women had been taking a morning stroll along a road between Carlisle and Edinburgh at a place called Devil's Beef Tub. This was two miles from Moffatt and over 100 miles from Lancaster. As the women were walking over a bridge one of them looked down and set off one of the biggest UK murder hunts of all time.

She thought she saw part of a human arm sticking up through the stream. Shortly after that more remains were sighted and they called in the police. It was the largest event that had happened in Moffatt and outside the scope of local police experience. Top Scottish experts were called in. The remains were so mutilated that at first that at first they did not know how many bodies they were dealing with. The main difficulty that the authorities had was that the whole torso of one of the bodies was missing. On each the eyes, teeth, ears, noses and fingers had been removed and the hands had been lacerated. The dismemberment showed a degree of knowledge and skill had been needed. There was also very little blood so the bodies had been drained. With all of this it was felt that the murderer would have needed anatomical knowledge.

However the murderer had made one fatal mistake and that for the police provided the vital ingredient. He wrapped some of the remains in newspaper. When the police checked with the newspaper publisher they found the newspaper was a special edition of the Sunday Graphic which could only have come from the Lancaster and Morecambe area.

Identification of the bodies

At first it was thought the bodies were of a man and a woman. The bodies were identified using the fledgling techniques of fingerprint identification, forensic anthropology to superimpose a photograph over the X-ray of a victim's skull and forensic entomology to identify the age of maggots and thus the approximate date of death. This was one of the first cases where such forensic evidence was successfully used to convict a criminal in the UK.

Experts involved in the identification of the bodies

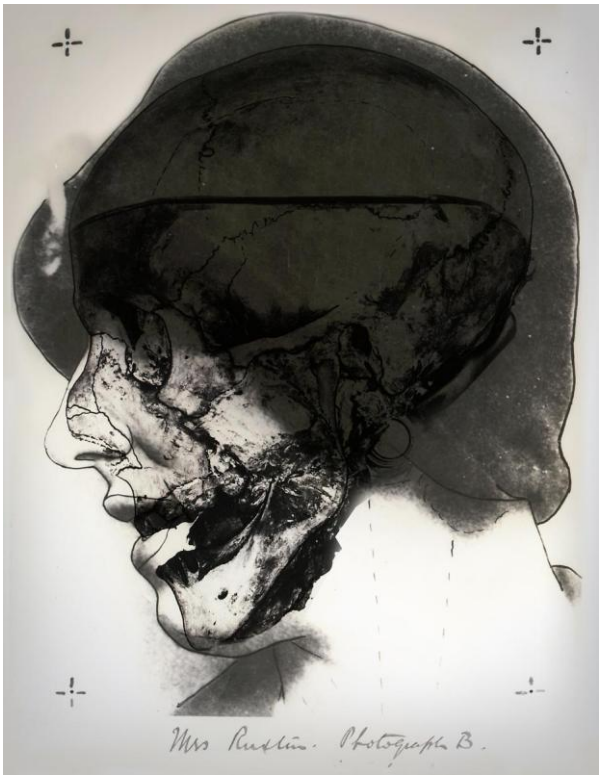
Over the next few days more than 200 body parts were recovered and a team of experts was established to determine first how many bodies were involved and the sex and age of the victims. This team was

- Professor John Glaister, Regius Professor of Forensic Medicine at the University of Glasgow
- Dr Gilbert Millar, Lecturer in Pathology at the University of Edinburgh
- Professor Sydney Smith, Regius Professor of Forensic Medicine at the University of Edinburgh
- Dr Arthur Hutchinson, Dean of the Edinburgh Dental Hospital and School
- Professor J C Brash, Professor of Anatomy at the University of Edinburgh

A preliminary examination was made at Moffat by Professor Glaister and Dr Millar, after which the remains were taken to the anatomy department at Edinburgh University for a more detailed investigation.

Within a few days the discovery of the human remains and guided to the Lancaster and Morecambe area by the special edition of the Sunday Graphic which had been use to wrap one of the body parts, the disappearance of the two women from Lancaster were being linked by the police. Buck Ruxton had said that Isabella and Mary were away on holiday in Scotland but the police were disinclined to believe him and his house was put under siege. The drains and debris were collected from No 2 Dalton Square and examined in the laboratory.

The police found a photo of Isabella wearing a tiara and this was taken to the expert team who were now working at Edinburgh University. They measured the tiara and calculated how far away from the camera Mrs Ruxton must have been standing. They then took a photo of the skull at the same distance and when superimposed the two photographs produced a perfect match.



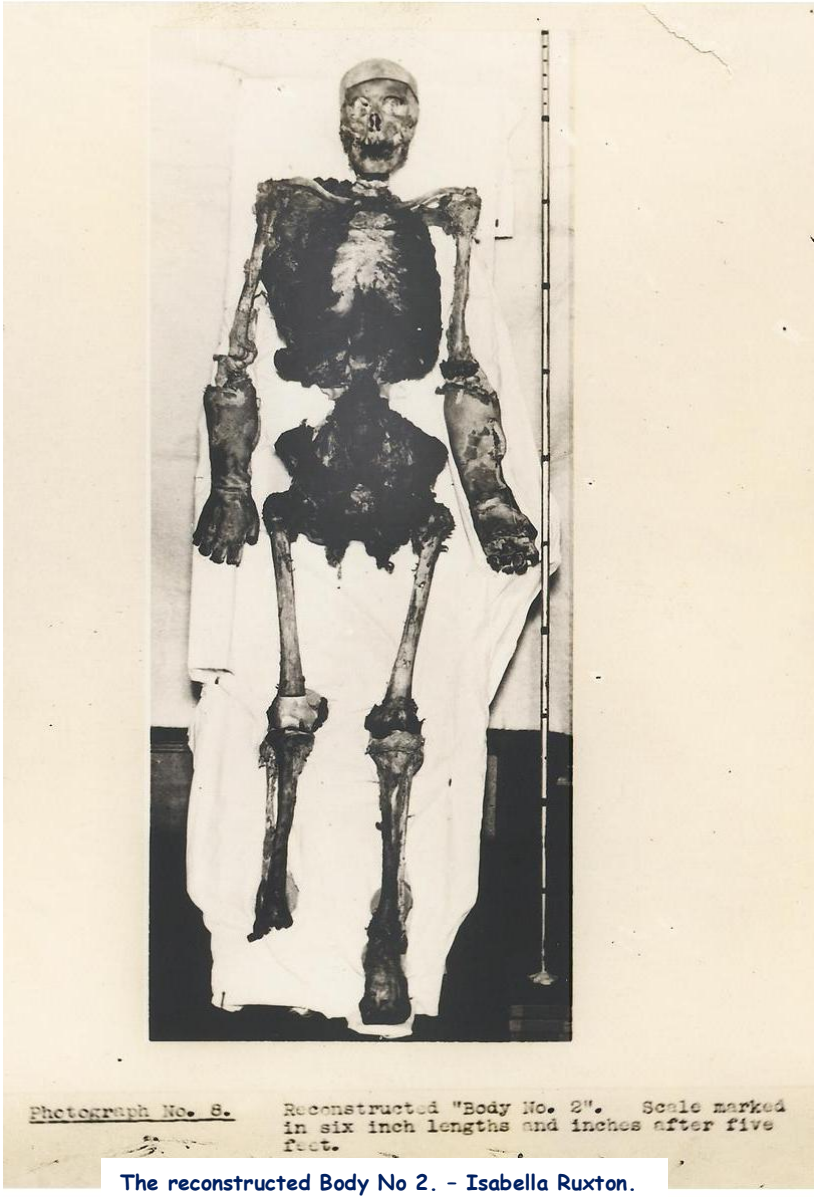
The Chief Constable of Lancaster at that time was Mr H Vann. It was very handy for him because his office was at the Town Hall opposite the Ruxton house. Large crowds of spectators gathered and patients still remained loyal to Buck Ruxton and still came to the surgery.

The police made several public appeals for help. One was for anyone who had seen a stone coloured car in the Milnthorpe area. They found out that Buck Ruxton had knocked a man off his bike in that area when he had gone on a mystery trip and they knew he owned a stone coloured Austin 12 Saloon.

The police were able to draw up a complicated timetable of Buck Ruxton's movements for several days before and after the alleged murder day of September 15th 1935. His behaviour was certainly very strange on all those days, but there is not space here to go into details.

Buck Ruxton was finally arrested by Chief Constable Vann after a two day continuous investigation. He was charged early in the morning of October 13th a month and a day after Mary Rogerson's father had last seen her alive. Ruxton made an emphatic if not very original reply, "what are you talking about". However he was charged with only the murder of Mary Rogerson at that time. It was not until November 5th that he was charged with the murder of his wife. Remains of the bodies when put together were labelled simply number one and number two. One being Mary and number two being Isabella.

The trial opened on March 2nd 1936. It was Norman Birkett KC for the defence and Jackson Maxwell Fyfe KC and Hartley Shawcross KC for the prosecution. The judge was Mr Justice John Singleton. They were all very experienced. There were 115 witnesses for the prosecution and 209 crown exhibits. The trial was held at Manchester Assizes and it took the prosecution four hours to make the opening statement. The trial lasted eleven days. One of the star witnesses against the doctor was his wife's sister Jeannie Nelson. The trial ended on 13th March 1936. It was the biggest murder trial of the century. The verdict was that Ruxton was sentenced to death by hanging. The jury had needed only one hour to reach the verdict. There were two main reasons for this. One was the volume of medical evidence. The other was that the carpets, wallpaper, skirting boards and the entire contents of the bathroom of No 2 Dalton Square had been taken to Glasgow University for examination and the findings pointed to murders.



The reconstructed Body No 2. – Isabella Ruxton.

In Lancaster a petition was opened for Dr Buck Ruxton. Within four days 2,500 people had signed it and within a week 6,000. It went before the court of appeal but was rejected.

On May 12th 1936 Buck Ruxton walked from his Strangeways cell to the gallows. He is buried in an unmarked grave in the grounds of the prison.

The News of the World published a confession by Ruxton dated October 1935. This was intriguing because on every occasion bar this one Ruxton had stoutly denied the killings. It is reported that the News of the World paid £3000 for the confession. The confession said "I killed Mrs Ruxton in a fit of temper because I thought she had been with a man. I was mad at the time. Mary Rogerson was present at the time. I had to kill her". And of Isabella he said "We were the kind of people who couldn't live with each other and couldn't live without each other".

His wife's remains were taken back to Edinburgh. Mary Rogerson's remains were taken to Overton churchyard. Funds were set up to help the Rogerson's and the Ruxton children. The Rogersons suffered another tragedy in February 1937 with the death of their son Peter.

Trivia

At the time of the trial a very popular song was 'Red Sails In The Sunset'. After a short time children in Lancaster were singing a little ditty to the same tune. And it was:

"Red stains on the carpet, red stains on the knife
For Dr Buck Ruxton had murdered his wife.
The maid servant saw it and threatened to tell
So Dr Buck Ruxton he's killed her as well".

- The house on Dalton Square where the murders were committed remained empty for decades because of its notorious reputation. Eventually, in the 1980s, the building was gutted and underwent substantial internal alteration. Thereafter, it became architects' offices. It remains a non-residential building: nobody sleeps there as the building is said to be haunted.
- The bath in which Buck Ruxton dismembered his victims was removed and used as evidence during his trial. Afterwards, it was used as a horse trough by the mounted police division at its headquarters in Preston.
- The dismembered remains of Mary Rogerson were buried in the churchyard at Overton, a small village near the neighbouring town of Morecambe.
- When initially questioned Ruxton denied he had ever been to Scotland. However, whilst he was in Scotland disposing of the evidence, his car was stopped by a Police Officer who had made a record of the registration number in his pocketbook, vital evidence at the later murder trial. This case took place long before the sophisticated forensic evidence gathering techniques of today.
- There was a pub called "Ruxton's" less than 50 metres from where Dr. Ruxton lived. However, after the trial the name was quickly changed to "The Square".

John Ben
a.k.a. Benedictus

News 'round-up' from around the World

A printout of this article was sent to me by one of our members who unfortunately didn't include their address and I was unable to read their signature. Also there was no reference to where this quite long article had appeared.
Normally I would not have considered using it, but after reading through I thought it important and interesting for our membership and decided to break with normal practice, re-draft it into a usable form and include it here.
If anyone can tell be where this article originated please let me know. - Editor

For decades, most people arranging a funeral have faced a simple choice - burial or cremation? But in parts of the US and Canada a third option is now available - dissolving bodies in an alkaline solution. It will arrive in the UK soon.

Its technical name is alkaline hydrolysis, but it is being marketed as "green cremation".

Robert J Klink spent his life near water. When he was growing up in the 1950s, his parents had a cabin on South Long Lake, in Minnesota, the land of 10,000 lakes. He learned to fish and hunt near the water's edge. It became a lifelong passion, and for many years he and his second wife Judi Olmsted kept a couple of cabin cruisers on the Saint Croix River. Bob would fish and shoot ducks, which he prepared and ate by himself.

Shortly before Bob's death in March from colon and liver cancer, Olmsted approached her local funeral home, Bradshaw Celebration of Life Center in Stillwater. She told the people there that her husband wanted to be cremated when his time came. She was surprised to learn that Bradshaw's offered two types of cremation: the one that everyone knows about, involving fire, and a new kind, which uses water.

A pamphlet explained that this "gentle, eco-friendly alternative to flame-based cremation" used an alkaline solution made with potassium hydroxide to reduce the body to a skeleton.

"At first, I was thinking, 'Well, I don't know about that," Olmsted says. "But the more I thought about it, the more I thought that it was the best way to go."

When we are buried, we ask our planet for resources a final time - wood for a coffin, cotton for the lining, stone for a monument. In the US, graves are usually either lined with concrete or the coffin is placed in a metal or concrete vault which will not decompose.

But cremation has an environmental cost too. To burn a single body, a cremator machine generates enough heat to warm a home in winter for a week, even in freezing Minnesota.

Bradshaw's are one of just 14 funeral homes in the world to offer this "green" option. Alkaline hydrolysis is said to be much more environmentally friendly than conventional cremation.

They offer both services at the same price and say the new kind of cremation has proved an unexpected hit. Of their customers who choose not to be buried - about half of the total - 80% opt for alkaline hydrolysis.

But environmental benefits may not the only factors influencing their decision. In choosing green cremation Judi Olmsted was mindful of Bob's lifelong love of water and she perceived, in the water-based method, an echo of childhood baptism, which she found touching.

Robert's memorial is held on the outskirts of St Paul, Minnesota, in St Andrew's, the light-filled Lutheran church the couple attended for years. The urn containing his powdered bones sits on a table next to flowers, photos and a wooden duck. The service opens with Amazing Grace and closes with How Great Thou Art.

Afterwards, I ask one of Bradshaw's funeral directors, Anne Christ, what reasons other people give for choosing alkaline hydrolysis. "There are some folks that we deal with that are very scientifically-minded and of course, interested in that environmental piece," she says. "But really it's more about their emotions at that point. I would say most of the people make that decision on a gut feeling about water being gentle."

Is dissolving a body in chemicals really gentler than burning it? Do people think about what goes on in alkaline hydrolysis? "There's a certain amount they don't want to know," she chuckles.

The machine

Bradshaw Celebration of Life Center is a long bungalow, surrounded by meadows and groves of slender trees. Described as "prairie-style", the building was designed by a former student of Frank Lloyd Wright.

The alkaline hydrolysis machine is located in the basement. It was installed five years ago at a cost - together with the viewing rooms - of about $750,000 (£580,000).

"We could have done it for less," says Jason Bradshaw, who manages the centre. "We just felt being that we were the first in this area - and one of the first in the country - we needed to put in that larger investment. Because we have tour groups that come through all the time, we have hospice, we have church groups. We have people who just want to see it, because it's so new."


Jason Bradshaw

He leads me down to the basement and into a circular room with a tinkling waterfall. The ochre-coloured wall contains a floor-to-ceiling window looking on to another room, with wooden sliding doors on the other side of the glass.

Jason disappears, switches on the lights in the next room, and pulls open the doors. And there is the alkaline hydrolysis machine - a rectangular steel box, 6ft high, 4ft wide, and 10ft deep.

It has a huge circular door covering almost its entire width, that wouldn't look out of place on a bank vault or submarine. (In fact, the same doors are used on submarines, although the manufacturer points out a crucial difference - submarine hatches are designed to open from the inside too.)

The industrial appearance of the machine jars with the sombre intensity of the viewing room. I wonder what sort of person would choose to watch their relative or friend being placed into this machine, which is known as a "tissue digester".

I watch Jason and his colleague, David Haroldsen, wheel a corpse through the door.

The body is not identified to me and is completely covered by a black woollen cloth, which Jason and David, wearing blue surgical gloves, delicately tuck into the edges of a steel tray. Then they open the big door, raise the tray to the level of the black cavity inside the machine, and slide it in. On the side of the machine is a computer screen with four buttons labelled "unlock", "test", "cycle" and "lock".

Jason closes the door, presses the "lock" button, and with a pneumatic hiss and a whirr, the door locks shut. Then he presses the "cycle" button. The machine beeps twice, there is another hiss and it begins to fill with water.

Jason, who has a degree in Biology and Chemistry, explains that the machine weighs each body and calculates how much water and potassium hydroxide to add. He says it's roughly 65lb per 600lb of water.

The powerfully alkaline solution, with a pH of about 14, is heated to 152C (306F), but because the digester is pressurised it does not boil.

"Alkaline hydrolysis is the natural process your body goes through if you're buried. Here we've created ideal conditions for it to happen much, much faster." In a cemetery this may take decades, depending on the conditions and the method of burial.

In the alkaline hydrolysis machine it takes 90 minutes, though the ensuing rinse cycle takes at least as long again.

After three to four hours, the door unlocks and the funeral director sees wet bones scattered across the metal tray, together with any medical implants the dead person had in their body. Metal hip and knee joints come out in perfect condition.

The manufacturers of the tissue digester have even proposed that, when more machines are in service, they could be collected and donated to the developing world.

By the end, all tissue has dissolved into the solution, which has drained into a separate tank, hidden from view. “It resembles either a tea or an ale,” says Jason. “You can actually see through it - and is really made up of salts and sugars. It has a bit of a soapy smell, which is not off-putting, but it is distinct.”

The room in which the machine stands has a smell similar to a dry cleaner’s.

The pH level of the effluent is tested, and if necessary adjusted. Then the liquid is released down the drain. It is sterile mix of amino acids and peptides, with no human DNA. Nevertheless, this disposal of dissolved tissue as a waste by-product, and its progress through the water treatment system, is the part of alkaline hydrolysis that troubles people the most.

Bradshaw’s dry the bones - either slowly, in a special cabinet - or quickly, in a tray placed inside a domestic tumble drier. “It works the best,” says David, with a shrug.

Then they are put through a machine called a cremulator, which pulverises them into a coarse powder. This is exactly the same machine that is used after a regular cremation, and as with a regular cremation, the word “ashes” is a misnomer. The difference is that the resulting powder is finer and whiter, closely resembling flour - and there is about 30% more of it.

So far, the Bradshaw’s tissue digester has processed about 1,100 bodies, roughly one every day. It was manufactured in the UK by a company called Resomation Ltd, which plans to install an identical machine in Sandwell, near Birmingham in the British midlands, at the end of this year.

Sometimes families want to help operate the tissue digester, Jason says. “We do have families that want to assist in placing the tray in - or to push the ‘cycle’ button to start the process itself. And some people would look at that and say, ‘Why would you ever want to be involved with that?’ Other people would say: ‘That was the last thing I could do for my mum or my dad.’

“I’ve been here when we’ve had three siblings, all standing next to the machine, and together they have all pressed the button to start it. And I kind of think of it like, if we’re standing at that cemetery and everybody’s going to take that first scoop of earth and place it into the grave - it’s sort of that moment of letting go.”

Death’s footprint

Around the world, 150,000 people die every day, and the number is rising as the world’s population increases. Today there are 7.5 billion of us on Earth, but by the end of the century it’s thought there will be more than 11 billion.

In some countries, space for graves is running out. In the UK, it is estimated that half of cemeteries will be full in the next 20 years. In parts of London, the council no longer offers a burial service, and the city has started re-using grave space, lowering bodies further into the ground and placing new ones on top.

The use of land for burial - and the constant upkeep of that land - has an environmental impact. Burial also typically calls for natural resources. Campaigners say that in the US vaults for coffins use up more than 1.6m tons of concrete and 14,000 tons of steel every year.

As for cremation, it has been estimated that a typical cremation has a footprint equivalent to about 320kg of carbon dioxide. Unless special measures are taken, dangerous toxins are released too, in particular mercury from dental fillings. This mercury returns to earth in rain and accumulates in the aquatic food chain.

How does alkaline hydrolysis compare, from an environmental point of view?

According to Dutch researcher Elisabeth Keijzer, who has carried out two studies for the Netherlands Organisation for Applied Research (work commissioned by a funeral chain, Yarden) it's much better.

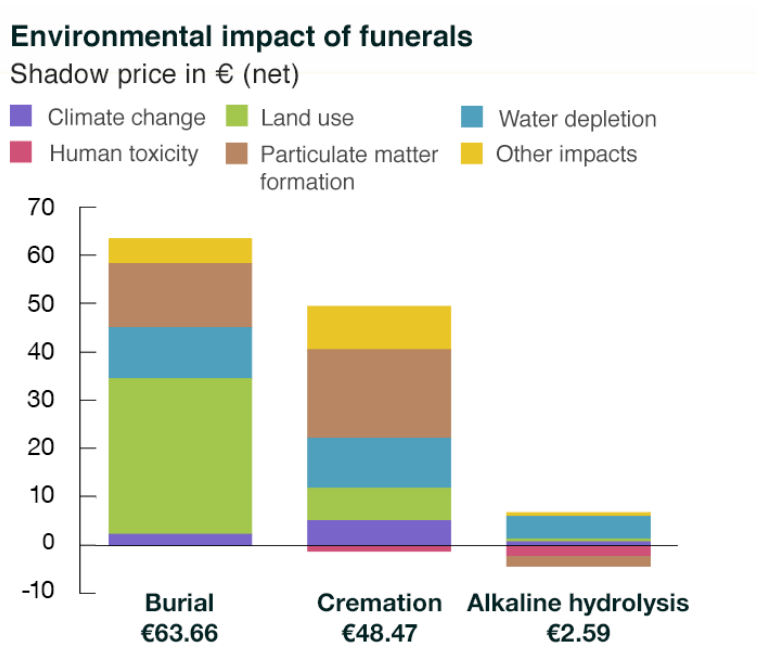
Her two reports published in 2011 and 2014 make for fascinating if macabre reading. She breaks down burial, cremation and alkaline hydrolysis into dozens of steps, which she assesses against 18 environmental impact yardsticks - such as ozone depletion, marine eco-toxicity and climate change.

In 17 of these categories alkaline hydrolysis comes out best. Cremation is worst in the most categories (10), but burial is deemed to have the highest overall environmental impact.

Alkaline hydrolysis is found to result in the emission of seven times less CO2 than cremation.

To summarise the results, Keijzer and her fellow researchers calculated a "shadow price" for each method - the lowest amount of money it would theoretically cost to either compensate for the environmental impact, or avert it.

For burial, the net cost was 63.66 euros per body. For cremation, it was 48.47 euros. For alkaline hydrolysis, just 2.59 euros.



Source: TNO report 2014 R11303, Utrecht, Netherlands

While Keijzer's work gives a more resounding endorsement of alkaline hydrolysis's eco-credentials than some previous studies, it makes assumptions about burial and cremation that do not hold for every country in the world.

There is little mention of the mercury pollution caused by cremation, because in the Netherlands this is routinely captured using expensive filtering equipment - yet this does not happen in North America.

On the other hand, the report assumes that a cremation involves burning a body in a coffin, which is routine in the Netherlands and the UK, but not in the US.

In some states - including Minnesota - a casket is rented to display a body before it is sent for cremation, which is standard practice with alkaline hydrolysis. This is significant because a full 28.89 euros of cremation's shadow price is the environmental cost of the coffin (and surprisingly, of that 21 euros is just the cotton lining).

Keijzer doesn't measure the environmental impact of natural burial, where a body is wrapped in a cloth and buried without a headstone.

There are other caveats too.

When you look at a person's carbon footprint over their lifetime, the disposal of the body accounts for only a tiny fraction - between 10 and 30 thousandths, according to Keijzer. She has also calculated that the funeral ceremony itself - all the mourners travelling to the service, all the cut

flowers and so on - has an impact on the environment roughly three times greater than the impact of the burial or cremation. But that said, Keijzer's work does suggest that “green cremation” may really be greener than the most common alternatives.

Sterile bodies

In 2001, British news broadcasts were filled with disturbing footage of cows being led to slaughter, piled up and burned.

It was the country’s worst recorded outbreak of foot and mouth disease - and inconveniently it came before British herds had been fully recovered from an earlier epidemic of mad cow disease (BSE).

It was estimated that up to 2% of the cattle burned were infected with BSE, and burning them in open fields was potentially dangerous.

Sandy Sullivan

“Ideally you would burn them in an incinerator, which is a controlled environment, but because of the vast quantity of cattle they were burning them in fields,” says the biochemist Sandy Sullivan. “And that actually has the potential of spreading BSE because of particles going up in the atmosphere.”

Sullivan spent five years lobbying the EU to allow a process that would completely sterilise infected carcasses. The company he worked for, WR2, had patented an alkaline hydrolysis tissue digester, and was already using it to destroy the remains of animals from research laboratories.

In the end, alkaline hydrolysis was not used to dissolve Europe’s BSE-infected cattle, though it was used in the US to dispose of elk and sheep infected with similar diseases.

The development that led to tissue digesters turning up in funeral parlours came a couple of years later, when Dean Fisher, director of anatomical donations at the world-renowned Mayo Clinic in Minnesota, started exploring the idea of using alkaline hydrolysis to dispose of the clinic’s cadavers.

Animal disposal in a tissue digester
(Joe Wilson)

He and a colleague got the chance to inspect a machine installed at a hospital in Florida, and were impressed with what they saw. “We were like, ‘Oh my God, look at that finished product!’” Fisher says, referring to the pure white bones that were left at the end of the process.

However, they felt that the top-loading machine, designed to process several bodies at once, was undignified. “It closed like a clam and we didn’t like that,” Fisher recalls. “We said, ‘Can you turn that cylinder in the other direction? Can you place a basket or tray in it with little holes that can move the fluid around during the course of the cycle and afterwards all the bone and all the prosthetics and everything are sitting in the tray?’ And that is what they designed for us.”

The new digester was an early prototype for the machine at Bradshaw’s in Stillwater, though it wasn’t quite so easy to use. Before each process the operator had to tighten 11 bolts on the door with a spanner, like a mechanic replacing a bus wheel.

But Sullivan saw the potential for the technology to be used commercially in funeral parlours.

Sandy Sullivan with a resomation machine
(Alamy)

After WR2 went bust in 2006 he formed a new company, Resomation Ltd, while his former CEO at WR2, Joe Wilson, formed another company, Bio-Response Solutions - and the two became the Pepsi and Coke of alkaline hydrolysis.

The last decade has been a challenging one for both men. “It’s a conservative market,” says Sullivan. “When you come in with a new idea, you know, it kind of puts the cat among the pigeons and you’re not easily accepted.”

It was the same for the pioneers of cremation, in the late 19th Century. In the UK, when the Cremation Society built a crematorium in Woking in 1879, the townspeople protested - leading the home secretary to ban the practice until Parliament approved the idea, and introduced legislation to govern it.

As it turned out, the advocates of cremation did not have to wait that long. In 1884, a well-known Welsh eccentric and self-styled druid, William Price, attempted to cremate his infant son’s dead body on a hilltop in Llantrisant.

He was arrested, but at his trial he argued that no laws stated cremation was illegal - and the judge agreed. Price was acquitted and Woking crematorium began operations the following year, without waiting for regulation.

Several more crematoria were built in the UK before the Cremation Act was passed in 1902. It then took decades for the practice to become completely accepted.

Woking Crematorium, Surrey, UK *(Alamy)*

It was only in the late 1960s that cremations outnumbered burials, and today there are three cremations for every one burial.

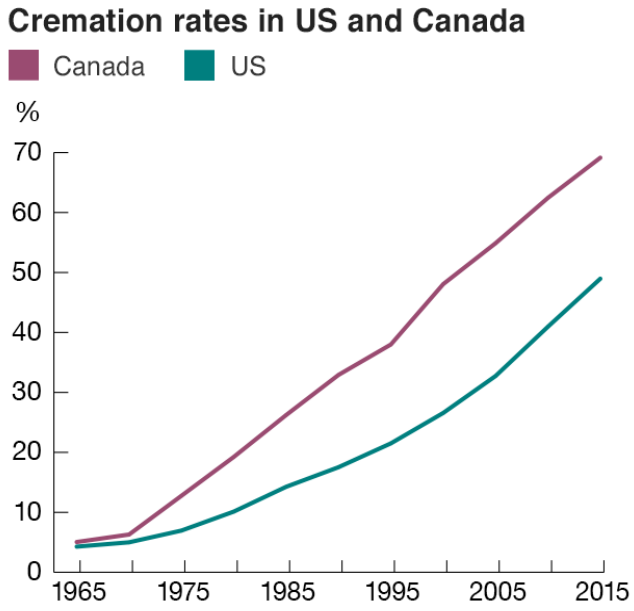
In the US, the process has been much slower. Over the past few years cremation has gradually been reaching parity with burial, and may now have overtaken it.

The regulatory vacuum that once surrounded cremation in the UK is now repeated with regard to alkaline hydrolysis. “It’s a Catch-22,” says Sullivan. “We’ve been waiting for them to pass a law to regulate it, but it’s not going to happen. So we’re going to install one and force them to pass primary legislation to allow us to be regulated - because we want to be regulated.”

Planning permission has been granted for a Resomation machine to be fitted at Rowley Regis Crematorium in Sandwell in the West Midlands, though the water authority has yet to issue a permit for the effluent to be drained into the sewer. Sullivan says he does not expect a problem.

The cost of such a machine is equivalent to, or slightly less than, the cost of filtration equipment that crematoria in the UK have fitted to capture mercury emissions.

William Price *(Alamy)*



Source: Cremation Association of North America (CANA)

But Harvey Thomas, chairman of the Cremation Society and chairman of the board that owns Woking Crematorium, says the business case is not sewn up.

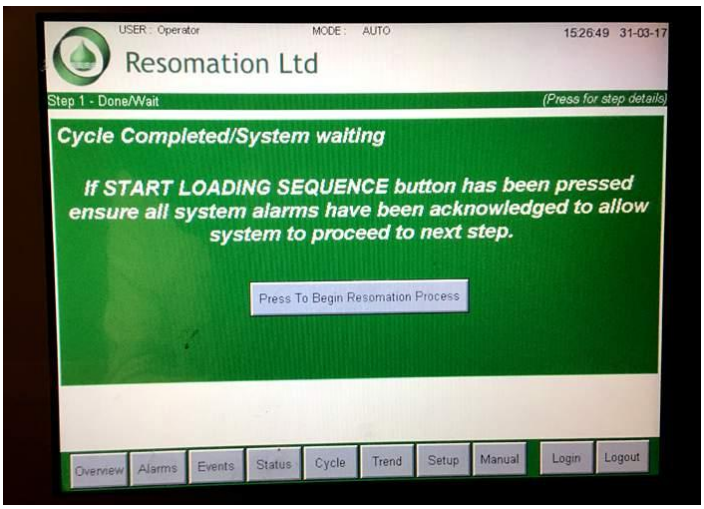
If the people who might choose alkaline hydrolysis are the people who would otherwise have chosen cremation, there is no commercial benefit for the crematorium, he points out. “Commercially, all you are doing is losing one procedure and switching it to another. Whereas, in order to be commercially profitable, you would have to have people who were previously going to be buried deciding to do Resomation.”

He also notes that it only takes an hour to incinerate a body in a cremator, while Sullivan’s machine, the fastest on the market, takes three or four times that long to digest a body. So the potential income per day is lower.

If North America has been slower than the UK to accept the idea of Green Cremation Harvey Thomas thinks he knows why.

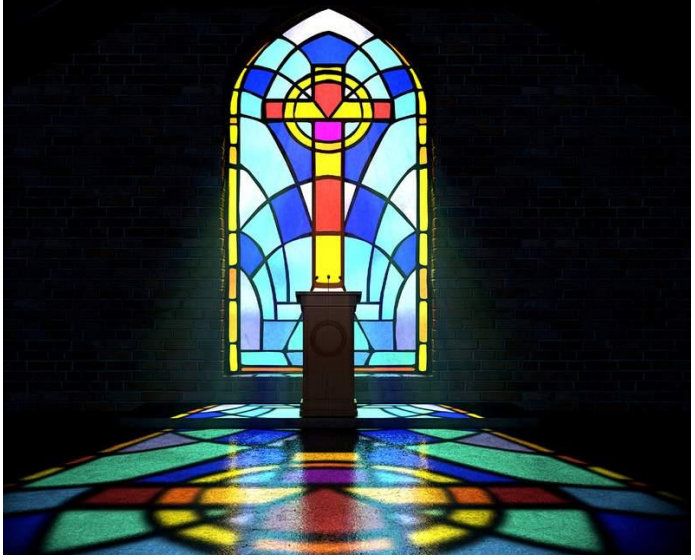
It has been approved in three Canadian provinces (accounting for two-thirds of the population) and 14 US states, with a further five states mulling legislation at the moment. It has been an uphill struggle though.

A state’s funeral rules are written into law by the local Board of Funeral Directors and Embalmers. Too often, Bio-Response’s Joe Wilson says, they are a “good ol’ boy” network that sees no value in challenging their successful business models. And in at least four states, the Catholic Church has played a critical role in blocking alkaline hydrolysis.



Touch screen on a resomation machine

'The ick factor'



"Dissolving bodies in a vat of chemicals and pouring the resultant liquid down the drain is not a respectful way to dispose of human remains." So reads a letter from the Catholic Conference of Ohio to the state legislature in 2012.

The previous year, the California Catholic Conference had written: "As Catholics we believe that the human body, once alive and animated by an immortal soul, possesses a moral dignity which must be honoured."

Similar letters were sent by the Church to lawmakers in New York and New Hampshire, and partly because of these interventions, alkaline hydrolysis is not currently legal in any of these states.

It's not just the Catholic Church that takes this view. The tipping away of the tea-coloured effluent troubles some people, whether they are Catholic or not.

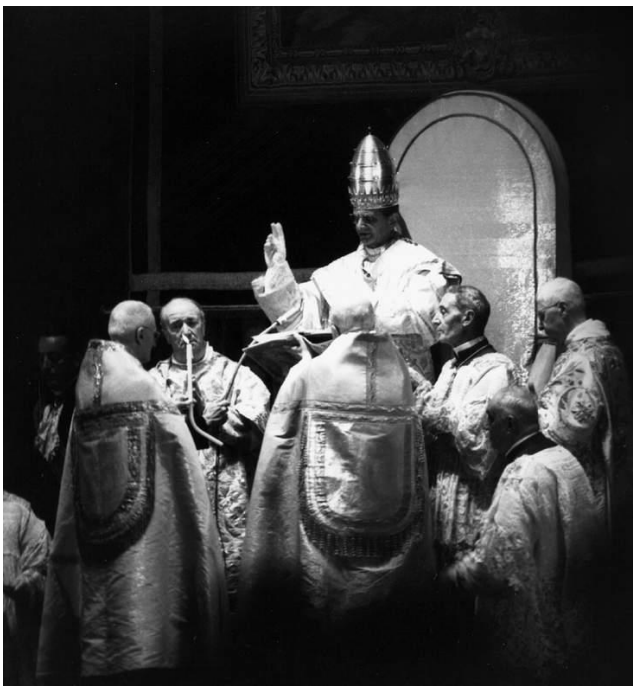
"That creeps them out," Philip Olson, a philosopher at Virginia Tech who has charted the rise of alkaline hydrolysis. "It seems like you're treating Grandma or any loved one like waste. That you're just flushing them away. It seems disrespectful, it seems irreverent."

But Olson, who once worked as an embalming assistant, points out that in the traditional processes of burial, cremation and embalming a distinction is made between funeral "product" - for example, the ashes - and "waste".

"If you look at the process of embalming, all of the blood that is drained from the body and the viscera that are extracted through the aspiration of the body cavity are sent down the drain as well," he says.

And unlike the effluent from alkaline hydrolysis, these blood and guts contain human DNA.

"The flashpoint of indignity with alkaline hydrolysis - specifically, pouring the liquid remains down the drain - is found in a similar form in the seepage after burial and in cremation through rain," she wrote in the National Bioethics Quarterly in 2008, referring to the process whereby smoke from a cremation ultimately falls back to Earth, sometimes in raindrops that are washed into drains.



Within the Catholic community, the ethicist Sister Renee Mirkes makes a similar point.

In her article Mirkes notes that cremation was in effect prohibited in the Catholic Church until 1963, when Pope Paul VI ruled that while burial remained the preferred method for disposing of bodies, cremation was not intrinsically evil and the faithful were free to choose it when necessity dictated.

She argues that the Church's position on cremation should apply to green cremation too, although she suggests it should be left to bishops to advise the faithful in their dioceses.

One reason attitudes to alkaline hydrolysis vary, Philip Olson says, is that people have different concepts of the corpse. For some, the dead body is primarily a sacred object, while for others it is something dangerous, to be sealed away underground within layers of steel and concrete.

The real fans of alkaline hydrolysis are those in the "eco-death" movement, he says, who see the body as a potential source of nourishment for plants and animals. The unloved effluent makes very good fertiliser - Joe Wilson says that some of his veterinary customers spray it on their lawns.

Body in an alkaline hydrolysis machine

Even when the tea-coloured liquid goes to the drain, it serves a useful purpose - it reportedly helps feed the bacteria in water treatment plants. This is not an aspect of alkaline hydrolysis that you are likely to see in any promotional materials.

When legislation on alkaline hydrolysis was drafted in New York, a few commentators drew a link with the 1973 dystopian movie Soylent Green, which imagines an America of the future in which dead bodies are recycled into high-energy green biscuits.

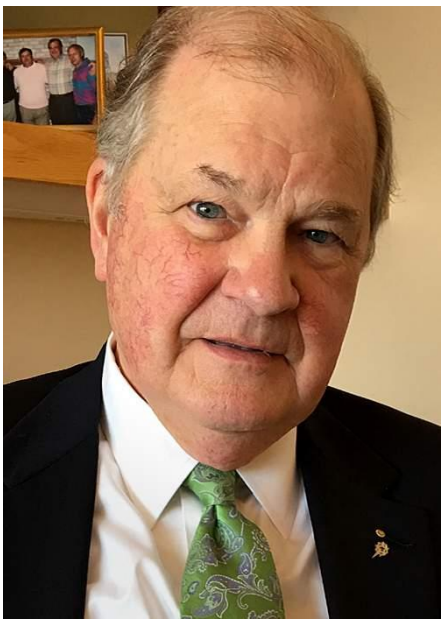
Others dubbed the legislation, which failed, “Hannibal Lecter’s Bill”, a reference to a series of novels by Thomas Harris, about a serial killer who ate his victims.

Some funeral parlours that offer the service keep quiet about it, for fear of upsetting the community. But market research has found that while a minority will always find the idea of alkaline hydrolysis unpleasant, if it is marketed in the right way - perhaps as green cremation, bio-cremation or water cremation - a section of the public can see its benefits.

Barbara Kemmis, the executive director of CANA, the Cremation Association of North America, relates a conversation about alkaline hydrolysis with two delegates at the recent International Cemetery, Cremation and Funeral Association Convention in Nashville.

“This person was just so disgusted by it, didn’t even want to have the conversation,” she recalls, “and the other person was like, ‘For me, that’s like a final spa treatment.’ I’d never heard that before, but I thought, ‘OK! It’s just so personal, this kind of ick factor. The point is to have choices, right?”

Jason Bradshaw’s 73-year-old father Jim has seen many changes in his business over the years - not only the rise of cremation, and the arrival of alkaline hydrolysis, which has proved so popular at the Bradshaw Celebration of Life Center.



Jim Bradshaw

“Fifty years ago people came in to visit with you and they’d say, ‘At my church we do it this way,’” he recalls. “People come in today, and they say, ‘Well, we’re not sure what we’re going to do. We might have it at a local bar. We might have it in a park. Well, I don’t know - maybe we’ll have it in the church, and by the way, will they let us serve liquor?’”

Surprisingly, he hasn’t made a final decision about what will happen to his own body after he dies. He doesn’t much like the idea of flame cremation, but he’s not sure about green cremation either.

“I have wondered what happens inside the vessel with the water. I would like to see that. But unfortunately - or maybe fortunately - I can’t see it.” It’s seriously tempting, he says, to instruct the firm to bury him in a casket that has been kicking around the storeroom for a long time - “it’s one way to get rid of it.”

But at the moment, he likes the idea of a natural burial best - no casket, no steel or concrete-lined vault, just a blanket around him to keep him warm.

So long, Robert Klink

BBC NEWS

Science & Environment

DNA of extinct humans found in caves - even in the absence of skeletal remains.

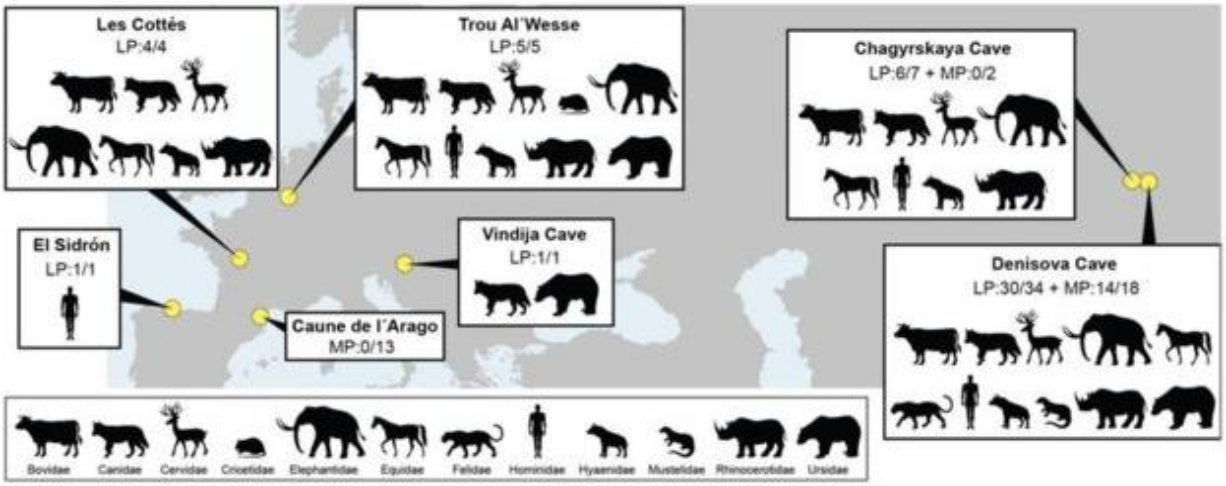
28th April 2017

The remains of Neanderthals had previously been found at Vindija Cave in Croatia

The DNA of extinct humans can be retrieved from sediments in caves - even in the absence of skeletal remains. Researchers found the genetic material in sediment samples collected from seven archaeological sites.

The remains of ancient humans are often scarce, so the new findings could help scientists learn the identity of inhabitants at sites where only artefacts have been found. **The results are described in *Science*.**

Antonio Rosas, a scientist at Spain's Natural Science Museum in Madrid, said: "This work represents an enormous scientific breakthrough. "We can now tell which species of hominid occupied a cave and on which particular stratigraphic level, even when no bone or skeletal remains are present."



The ***researchers also found the DNA of many animals - some of them extinct***

"We know that several components of sediments can bind DNA," said lead researcher Matthias Meyer of the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany. "We therefore decided to investigate whether hominin DNA may survive in sediments at archaeological sites known to have been occupied by ancient hominins."

The team collaborated with researchers excavating at seven dig sites in Belgium, Croatia, France, Russia and Spain. They collected sediment samples covering a time span from 14,000 to 550,000 years ago.

Back in the lab, they fished out tiny fragments of mitochondrial DNA (mtDNA) - genetic material from the mitochondria, which act as the "powerhouses" of biological cells. Even sediment samples that had been stored at room temperature for years yielded DNA.

Dr Meyer and his team members were able to identify the DNA of various animals belonging to 12 mammalian families, including extinct species such as the woolly mammoth, woolly rhinoceros, cave bear and cave hyena.

The scientists looked specifically for DNA from ancient humans in the samples. "From the preliminary results, we suspected that in most of our samples, DNA from other mammals was too abundant to detect small traces of human DNA," said co-author Viviane Slon, from the Max Planck Institute in Leipzig, Germany. "We then switched strategies and started targeting specifically DNA fragments of human origin."

Neanderthal DNA was retrieved from sediments in El Sidrón cave, northern Spain

DNA can be extracted even when the sediments have been stored at room temperature

The team members managed to retrieve DNA from Neanderthals in the cave sediments of four archaeological sites, including in layers where no human skeletal remains have been discovered. In addition, they found new samples of Denisovan DNA in sediments from Denisova Cave in Russia.

"The technique could increase the sample size of the Neanderthal and Denisovan mitochondrial genomes, which until now were limited by the number of preserved remains," co-author Spanish National Research Council scientist Carles Lalueza-Fox told the AFP news agency. "And it will probably be possible to even recover substantial parts of nuclear genomes."

Svante Pääbo, director of the Evolutionary Genetics department at the Max Planck Institute for Evolutionary Anthropology, commented: "By retrieving hominin DNA from sediments, we can detect the presence of hominin groups at sites and in areas where this cannot be achieved with other methods. "This shows that DNA analyses of sediments are a very useful archaeological procedure, which may become routine in the future."

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And finally

Shortly before passing away from cancer in 2002, American anthropologist Grover Krantz arranged to have his body donated to the Smithsonian but with one caveat, his remains and those of his much loved dog would be displayed to replicate this his favourite photo of the two of them

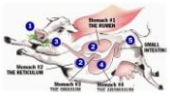
As for the dog, I can't find any record that tells us when the dog died or what he thought about this idea!!

Answers to the quiz on page 17

THE WIND BENEATH MY TAIL

1. It is incorrect to suggest that the song "You are the wind beneath my wings" was originally released as "You are the wind beneath my tail", as a tribute to a female aviator. In 1932 Amelia Earhart became the first woman to fly solo across which ocean?
   ATLANTIC

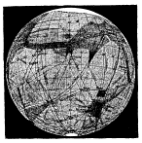
2. Considering their diet, ruminants have little difficulty when it comes to generating wind beneath the tail. How many compartments are there in a cow's stomach?
   FOUR



3. In which film released in 1955 did the wind from a subway grating reveal Marilyn Monroe's attractive tail?
   THE SEVEN YEAR ITCH

4. The oil of which herb is included in Woodward's Gripe Water, much favoured by English nannies for treating wind and colic in babies?
   DILL (accept FENNEL, but dill was the original)

5. In 1274 and again in 1281, the Mongol Emperor Kublai Khan attempted to conquer Japan. To the great joy of its inhabitants, on both occasions the gods intervened and his armada was wrecked with great loss of life by typhoons. By what name do the Japanese call a Divine Wind?
   KAMIKAZE



6. A hefty feed of oats and unripe carrots generates a lot of wind beneath the tail with unpleasant consequences for the people on the horse-drawn canal boat.
   What canals did Giovanni Schiaparelli claim to have discovered in 1877?
   THE CANALS ON MARS

7. As St. George stood over the fallen dragon he suffered third degree burns from the scaly beast's dying breath. St. George's Day is celebrated in England each year on what date?
   APRIL 23rd

8. Mini-skirted Babette shivered as the Alpine wind beneath her tail whistled down the Rhone Valley towards the sea. What is that wind called?
   THE MISTRAL

9. Studies have confirmed that the average person each day has fourteen occurrences of wind beneath their tails. Which recent British monarch had a reputation for being on the high side of average?
   QUEEN VICTORIA

10. Rupert the Penguin thought his number was up as the predator rapidly approached, but fear induced a mighty expulsion of wind beneath his tail which propelled him like a rocket onto the safety of the ice sheet. What is the most ferocious species of seal, the one especially fond of penguin tartare?
    LEOPARD SEAL

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