Oxford Medicine

THE MAGAZINE OF THE OXFORD MEDICAL ALUMNI

Oxford Medical Alumni

UNIVERSITY OF OXFORD

Spring/Summer 2022

Science of Uncertainty (Prof Sir Chris Whitty) | Insulin 100 Years (Prof David Matthews) | Covid-19 Update (Prof Charles Bangham) | Digital Carbon Footprint | and much more...

Pictured: Oxford Botanical Gardens* by Dr Neil Gibbons (Univ, 1974) Image 'summerized' by Oleh Gumennyi (17) ex Lviv.
*Established 1621 as Oxford Physic Garden - used for growing medicinal herbs to teach medical students.

Oxford Medical Alumni Update

Oxford Medical Alumni (OMA) promotes good fellowship amongst graduates from the Oxford Medical School by offering regular communications along with meetings in Oxford and elsewhere for continued learning, exchange of ideas, networking, and socialising.

REUNIONS

Reunions have been confirmed for 2022 for those who qualified in 1972, 1982, 1992, 2002 and 2012. A full schedule is on page 37 or via the link: **www.medsci.ox.ac.uk/get-involved/alumni/events-and-reunions/oxford-medical-school-reunions**. Details of the events and how to register will be sent to each cohort.

WE NEED YOUR HELP PLEASE: YEAR CHAMPIONS!

We need 'Year Champions' to review the lists of preclinical and clinical graduates in their cohort, and check they are complete and accurate. This will allow us to promote future reunions sooner and more efficiently. If you are willing to serve as the 'Champion' for your year, please contact **oma@medsci.ox.ac.uk.**

WE NEED YOUR HELP PLEASE: CAREER ADVICE FOR JUNIOR DOCTORS!

OMA recognises the challenges facing young doctors, some of whom are seeking inspiration and advice on their future careers. OMA is keen to facilitate informal relationships around providing career advice. If you feel you have something to offer (we are particularly looking for consultants, GPs and senior trainees who qualified between 1990 and 2012 and are up to date with training programmes and consultant recruitment), please contact Dr Will Seligman (**seligmanw@gmail.com**).

OXFORD MEDICAL LECTURE CLUB (OMLC)

The OMLC invites distinguished, entertaining, and interesting speakers to talk about their specialty and latest developments in clinical and scientific research. The meetings are currently held on the last Monday of the month between 13.00 and 14.00 at St Hugh's College and via Zoom. For more information on the schedule of upcoming speakers and topics, please go to pages 30-31 or this link: **www.medsci.ox.ac.uk/get-involved/alumni/events-and-reunions/oxford-medical-lecture-club.**

MEETING MINDS OXFORD, 16-18 SEPTEMBER 2022

We are delighted to announce that the programme for this popular meeting will be live, offering a wide array of talks, workshops, panel discussions and tours. OMA will present the Osler Lecture on Saturday 17 September at 16.00 BST, featuring Professor Sir Chris Whitty, Chief Medical Officer (CMO) for England, the UK government's Chief Medical Adviser and head of the public health profession. To learn about all the sessions on offer and to register, go to: **www.alumni.ox.ac.uk/events/meeting-minds.**

RECOLLECTING OXFORD MEDICINE

Inspired by Dr Peggy Frith (former President of OMA), this is a unique collection of oral history about medicine at Oxford from the 1940s onwards through a series of face-to-face interviews. Dr Derek Hockaday's hard work and skilful interviewing over the last 14 years has produced this special collection of memories: **//podcasts.ox.ac.uk/series/recollecting-oxford-medicine-oral-histories.**

RECONNECTING WITH FRIENDS AND COLLEAGUES

If you have lost touch with old friends and colleagues and would like to reconnect, please email us at **oma@medsci.ox.ac.uk** and we will do our best to help.

OMA ADVISORY BOARD (OMAAB)

Dr Lyn Williamson (President), Dr Roger Bodley (Honorary Treasurer), Dr Zoi Alexopoulou, Professor Sir John Bell, Sir Michael Dixon, Ms Christine Fairchild (Director of Alumni Relations for the University), Dr Laurence Leaver, Dr Tim Littlewood, Dr David McCartney, Professor John Morris, Professor Gavin Screaton, Dr William Seligman, Professor John Stein, Dr Catherine Swales, Dr Robert Wilkins, Dr Kevin Windebank, and Miss Caroline Valensise. Thank you to Dr Shing (Tom) Law for his service to OMA and the Advisory Board as he concludes his term.

FUTURE CONTRIBUTIONS TO OXFORD MEDICINE

We welcome your suggestions and contributions for future articles – they may be clinical, scientific, timely, creative, reflective, artistic, humorous.
Please contact **oma@medsci.ox.ac.uk.**

Editor: Dr Lyn Williamson, OMA President
Editorial Board: Dr Chris Winearls; Dr Tim Crossley; Dr Neil Snowise; Dr Luke Williamson

UPDATE YOUR CONTACT PREFERENCES

Contact **oma@medsci.ox.ac.uk** to let us know if your personal details have changed or go to the website at **www.medsci.ox.ac.uk.**

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Designer: Jess Aumonier

President's Piece

Dr Lyn Williamson
(St Anne's College, 1974)
OMA President

Uncertainty - we open with four feature articles on the theme of uncertainty in medicine, so you can be confident this is not a quick-skim edition. But persevere. Dealing with uncertainty is our USP. Chris Whitty leads by rising to Osler's challenge and defines the Science of Uncertainty. Tim Crossley, Chris Winearls and Alastair Graham explore uncertainty through the prisms of general practice, renal medicine, then, via orthopaedics to magical beliefs and ritual. Wherever next? Enjoy these authoritative, wise and thought-provoking pieces.

Insulin 100 years - David Matthew's excellent review of diabetes treatment past, present and future is complemented by Neil Gibbons and Amy Ross-Russell's sincere and compelling accounts of living and working with childhood-onset Type 1 DM. Insulin's dark side then rears up again in our letters section.

Ask a busy person - we are always grateful to Charles Bangham for his lucid Covid-19 updates. A heartfelt thankyou to all our contributors. Their eclectic mix of pieces foster the warm sense of belonging which reaches between editions and across generations.

What was it like to be a clinical student at the time of the Queen's Coronation in 1953? How has surgery changed over the decades? How did the clinical school evolve from such humble beginnings? Enjoy surprisingly candid and amusing accounts from three elder statesmen Terence Ryan, Malcolm Gough and Richard Mayhou, and look out for cameo appearances from JGGL and TDRH.

The medical student contributions are rich and varied. From the ebullience of the rowing reports to Joe Wilson's account of his impressive work with Covid Early Alert Service. The last words go to Hannah Chase and Sarah Peters with their honest debate about flying abroad to student electives which should speak to all consciences, especially when we see on their logarithmic 'CO2 emission sliding scale' that one long haul air flight is two metres below the table. More immediate is the carbon cost of sending and storing emails, so inspired by them, I deleted ruthlessly, and I feel much better.

Stay in touch and go well.

FEATURES ON UNCERTAINTY

CLINICAL UPDATES

COMMENTS, CONTROVERSIES AND LETTERS

OXFORD MEMORIES AND REFLECTIONS

OMA NEWS AND REVIEWS

MEDICAL SCHOOL

Uncertainty in Medicine and Public Health

Professor Sir Christopher Whitty
(Pembroke College, 1985) Chief Medical Officer (CMO) for England, the UK government's Chief Medical Adviser and head of the public health profession

'Medicine is a science of uncertainty and an art of probability' is one of the better-known aphorisms of Sir William Osler. I have been asked to reflect on the first of these: how we handle uncertainty in medicine and public health. Osler, who died during the great influenza pandemic of 1918-19, did not have access to the range of radiology, diagnostic instruments, blood tests, microbiological data and statistical techniques that we do today. These help us to reduce uncertainty to a greater degree, or to do so more quickly, than doctors in Osler's time - but uncertainty often remains before we have to act. Management of patients and public health in the face of uncertainty therefore remains central to medical practice, and always will.

There are some important differences between clinical practice and public health practice in how, as a profession, we make decisions whilst there is still uncertainty. Every discipline within medicine operates with different levels of uncertainty and handles it slightly differently. There are however some common themes for all of us. Every Oxford medical graduate reading this will have a better understanding of how they handle uncertainty in their own discipline than I would, but common to all of them are some important trade-offs that we are often not explicit about to the public, our patients and sometimes ourselves. My own biases in handling uncertainty are framed by a career in infectious diseases, acute medicine, epidemiology and public health. An experienced surgeon or general practitioner would have a different framework but with many common themes.

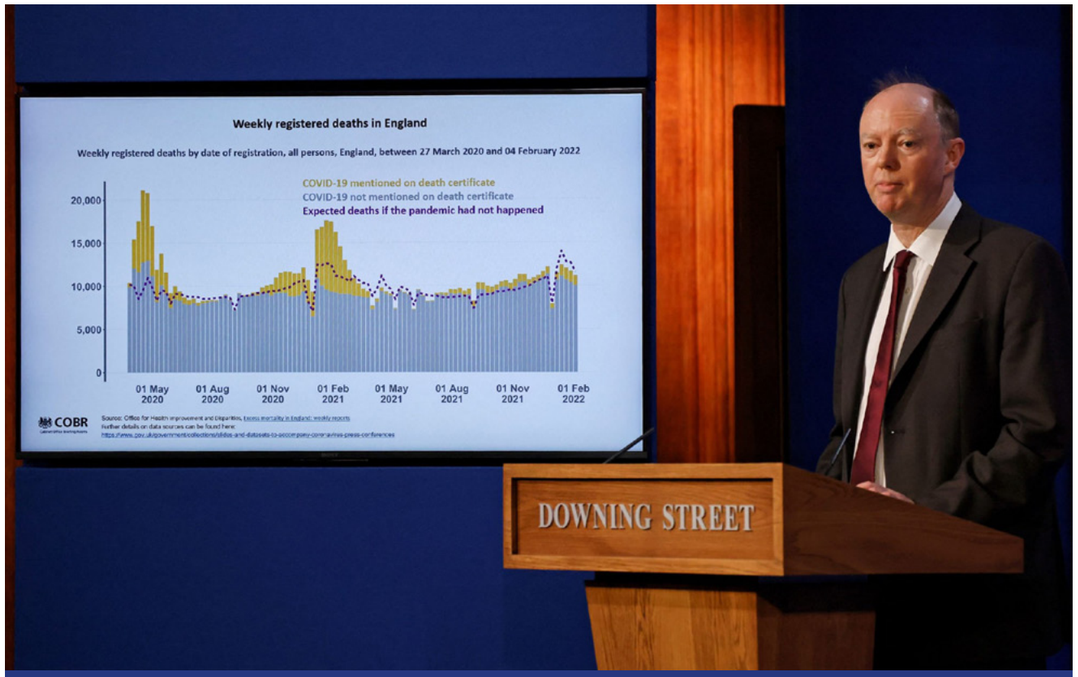
The first is the trade-off between speed and certainty. Whether dealing with a patient who first presents in A&E or general practice, or a new public health emergency, we start with substantial uncertainty and aim to reduce it as quickly as possible. In clinical medicine this is through history, examination, investigations and epidemiological data. The more time we have, the narrower the funnel of uncertainty becomes, as we systematically exclude diagnoses which initially seemed possible. For some situations, speed or decision-making has relatively little advantage and the rational response is to narrow the uncertainty to the point it is likely to be narrowed no further, even if that takes weeks or even months, and we can then give medical advice with a high degree of certainty. In other situations, including many emergency medical and surgical presentations but also public health emergencies, a delay before starting to act comes at a heavy price. Acting earlier runs the risk that the degree of uncertainty is so great we take the wrong action based on a false understanding of the problem; acting later runs the risk that precious time will be wasted and a worse outcome will ensue.

The second trade-off is between certainty and hazards/benefit ratio of the treatment, whether at an individual or population level. If for a treatment the hazards and cost to the patient, wider society and the NHS are trivial, it is rational to have a low threshold for doing it, even in the face of much uncertainty about whether it is the right thing to do. For example, if one is quite uncertain whether a patient has myocardial infarction it is wholly rational to give aspirin unless there are clear contraindications; thrombolysis requires a higher degree of certainty. The more dangerous, difficult and expensive treatment is, the more we need to narrow the funnel of uncertainty by taking more time, effort and resource over diagnosis of the problem. It is important when considering this to consider wider societal costs as well as individual costs; antimicrobial resistance is an example where the risk to the individual patient of acting is usually relatively low but the risk to society of multiple prescriptions based on low probability is high. This trade-off between certainty and hazard/benefit ratio is true also at a population or public health level; an intervention such as recommending more exercise needs much lower level of certainty than something with the cost and damage to society of a full national lockdown.

The third trade-off is between pragmatism and chasing a diagnosis to the end. Quite frequently in medicine we are not confident we know what the diagnosis is (considerable diagnostic uncertainty), but we are confident that all serious or life-threatening diagnoses, which are a small subset, have been reasonably excluded (low uncertainty about major harm). Alternatively, we may have narrowed it down to a small group of diagnoses which can be treated as a syndrome and accept that whilst a more definite diagnosis is possible, it is unlikely to provide much benefit to the patient. An example would be a diagnosis of pneumonia; it may be possible to find the aetiological organism but, in most hospitals, pneumonia will be treated with antibiotics to cover the great majority of likely causes. It would be possible to narrow uncertainty down further, but it would be disproportionate and probably retard final decision-making and treatment.

> *"....in public health emergencies, a delay before starting to act comes at a heavy price.*

Crosscutting across all of these are several issues, the first of which is the strength of the science involved. In some areas of medicine, the science is sufficiently strong that an accurate aetiological diagnosis is possible with a very high degree of certainty before treatment is commenced, if we have time. The question is whether getting that level of precision is the right thing to do medically, even though it remains technically possible. In other areas, science is not yet sufficiently developed that certainty is realistic even with maximal time and resource. This can be very unsatisfactory



Chief Medical Officer Professor Chris Whitty explains uncertainty to the general public during the Covid-19 pandemic

for both the patient and the doctor but in every area of medicine there are patient groups where we are no more able to diagnose aetiologically then in Osler's day, and we must proceed on the basis of high uncertainty which will never become more certain until science advances.

The second is consent. This is an area where individual clinical medicine and public health practice diverge in an important way. In particular when we are proceeding clinically with a potentially high-risk course of action (an operation or a drug with serious side-effects, for example) but based on diagnostic uncertainty, being able to discuss the level of uncertainty with the individual patient or occasionally their representatives is critical and allows them to balance risks and take a decision that works for them. A key skill of medicine is accurately transmitting the level of uncertainty as part of the consent process. Public health interventions, particularly ones from central government, do not have the ability to get individual consent. Elected representatives consent on behalf of society and they also therefore need to understand the level of uncertainty. In general, and reasonably, political leaders are more cautious consenting to higher risk public health interventions on behalf of others when there are high levels of uncertainty than they might do for a risky operation for themselves. For example, much of the commentary on the early stages of the COVID pandemic does not fully acknowledge the reality that political leaders around the world were being asked to consent to lockdown measures with significant social, economic, educational and non-COVID public health costs whilst there was still considerable uncertainty about the medium-term course of the pandemic, the disease and the efficacy of the public health interventions.

Another cross-cutting issue is prior probability, formalised as Bayesian probability. This is an area where medical training often handles uncertainty badly. Far more emphasis and prestige is given to clinicians who manage to identify a rare disease correctly, than the more subtle skill of recognising that a rare disease is unlikely in a particular group because of prior probability and proceeding accordingly. A 30-year-old non-smoking woman with chest pain is extremely unlikely to have myocardial infarction and multiple lines of evidence would be needed to convince a sensible clinician that she did; a 70-year-old smoking diabetic male with the same symptoms would need much less supporting data to be treated along a MI pathway. This is a rather obvious example but a lot of unnecessary treatments are started in medicine because doctors failed to take into account low prior probability and have a greater degree of certainty that someone has a diagnosis than they should.
A final crosscutting theme is what resources are available both diagnostically and for treatment. Investigating a patient for disease you cannot treat is often not the right decision even if it does reduce your own level of uncertainty, especially if doing so takes resources away from others who could have been treated. As medical science improves, and diagnostic and therapeutic options expand, the setpoint of how far it is rational to go medically to reduce uncertainty changes. This is especially stark in lower-resource parts of the world where doctors working in highly constrained health services need to marshal resources very efficiently.

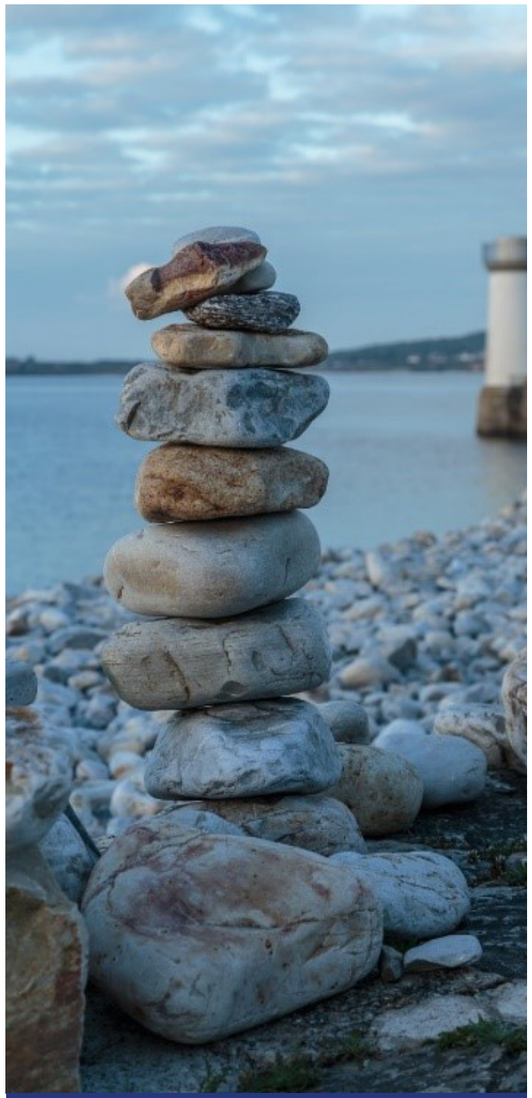
If we take these together it becomes clear where Osler's concept of the science of uncertainty in medicine is

important. At the extremes it is obvious how we handle it. If there is considerable urgency because the treatment is time sensitive, the prognosis if we do not treat is grave, the treatment is highly effective, safe and evidence-based, and the patient can give consent, then proceeding with high levels of uncertainty of the diagnosis, whether in clinical public health terms is rational. At the other extreme if there is no time pressure, the treatment has significant risks or downsides and there is a realistic expectation of more time will reduce the level of uncertainty then waiting to get more information and reduce further the funnel of uncertainty is clearly right.

Where the art of medicine intersects with the science of uncertainty is between these extremes. Many treatments may involve significant risk but considerable urgency, or no realistic prospect of reducing uncertainty over time. Deciding when to proceed despite the level of uncertainty, and when the correct action is to wait until uncertainty is reduced, is central to good medical practice. Most doctors do this instinctively, or through learned patterns of behaviour from their peers and training, and some do it systematically. If Osler were teaching today, he would probably be arguing for a more systematic approach, whilst being astonished by the level of certainty we can often achieve with current diagnostic tools.

In public health, primary care and some areas of secondary care, the level of uncertainty still present before a decision must be made, will always be higher than for most clinical medicine in a secondary care setting. In public health, populations are not amenable to testing with a degree of precision that individual patients are. Some areas of clinical medicine including general practice, care of the elderly and mental health, have to operate with greater degrees of uncertainty than many secondary care practitioners are used to. In the case of primary care this is because the availability of testing on demand is not present and short consultations do not allow extensive history taking; in care of the elderly, multiple conditions can intersect making a narrow diagnosis extremely difficult; in mental health, significant diagnostic uncertainty exists for many patients even given a lot of time. These disciplines are not alone but are examples of the fact that uncertainty is not evenly spread in medical practice.

The science of uncertainty that Osler identified however is central to all branches of medicine. This article aims to systematise only a few of the key points which are common across the whole profession.



'A Fine Balancing Act' Photo Dr Neil Gibbons

We are delighted to announce that Professor Sir Chris Whitty, will deliver the
2022 OSLER LECTURE

The Role of the State, the Medical Profession, and the Public in Preventing Ill Health

on Saturday, 17 September at 16.00 BST, on behalf of Oxford Medical Alumni.

This will be the keynote lecture of the popular MEETING MINDS OXFORD program 16-18 September 2022.

https://www.alumni.ox.ac.uk/events/meeting-minds

UNCERTAINTY

I Don't Know What it is But I Don't Think it's Serious

Dr Tim Crossley
(St Edmund Hall, 1974)
Retired General Practitioner

There may have been a time when specialists were viewed as failed GPs, but it wasn't for long, it must be admitted. Primary care, to coin a phrase, became levelled down to being 'just a GP'. This in some regards is compensated for by a lowering of expectation, and a corresponding need from the patient to play the Diagnostic Certainty game.

Never mind your opinion, I need a scan/test/referral/ procedure. Dr Crossley may be a nice guy but in the end I am not certain that he knows what he's doing. Actually, when I asked, he said he couldn't be 100% sure of anything.

From the patient's view the ground rules include first not revealing either their real worry or their goal, in precise terms, at least not immediately, for fear of looking foolish. The patient gets the first throw and now we're all good listeners we give them that, for maybe ninety seconds or a little over. And if as a GP you genuinely can keep quiet that long, most of the clues will be there so the consultation can thereafter be gently focussed, maybe with some sort of physical examination though it is largely for show. We form ideas. We may even form conclusions. But we also know that making a diagnosis on clinical grounds alone is seen as suspect and leaping to it doubly so: double again if you are thought, without the confirmation and certainty of a test of some sort, to believe the presentation is more of psychological distress than definable physical illness.

The path we seek to jog along is potholed and, in our haste to reach the end of it, we easily trip.

Let us assume the patient is a child with a fever since this morning. Perhaps the little one isn't drinking much, but he took some juice and perhaps has thrown that up in the car on the way. This ratchets the tension level nicely. There's a non-blanching rash pointed out by the parent, but it is eczema. The patient is co-operative with being examined – not a good sign – but no specific localising features except coryza are discovered and urine dip unremarkable; we have an unwell hot toddler, a bit dry and no decent explanation for it.

> *"The path we seek to jog along is potholed and, in our haste to reach the end of it, we easily trip.*

The first pothole is the assumption that we know what the parent is seeking. It is quite likely they fear meningitis especially if a case has been reported in the paper recently and want complete reassurance that it is not that; but they might fear something quite different, unexpected, even irrational. You have to tease this out obliquely, remembering rule one. And the clock is still ticking.

But for now we'll go with the meningitis anxiety. The second pothole is our uncertainty. We are tempted to say dismissively 'it's a virus' implying until the recent past some self-limiting trivia – but patients are wise now, and so are some of us. This phrase won't do, if it ever did. Worse, if the parent expresses their true fear aloud, we find ourselves hedging 'Well meningitis is very difficult to diagnose in the first few hours…' when we mean not that it is 'very difficult' but 'impossible'. Whilst understandably protecting ourselves from the utterly unexpected yet keeping some professional dignity, we fail to deliver the news the patient's parent wants and they will consider other options, like paramedics or a trip to A&E, or maybe ring their aunt who is an optician.

> *"A one in a thousand risk feels fifty/fifty. A near certainty like catastrophic climate change, feels improbable.*

We might consider explaining the size of the risk. The incidence of childhood meningitis in the 1980's when I started in practice amounted to seeing a case about twice in a working GP's lifetime. This is now much reduced, as the vaccines for Hib, Pneumococcus and more recently meningococcus were developed. The risk in our patient is thus vanishingly small so why not explain that? But this doesn't help. Personal perception of risk is a fascinating field, where emotion and anecdote triumph over science.

A one in a thousand risk feels fifty/fifty. A near certainty like catastrophic climate change, feels improbable. There are now whole academic departments of the public understanding of risk, and we need them desperately.

Yet we still need to explain to the hapless parent, and fairly quickly as there's a queue, that

a) We understand their anxiety but do not believe this is meningitis

b) We can make this judgement on the basis of history and examination alone

c) Pursuing the diagnosis with say X rays, blood tests, urine culture, admission, would not help and, implausibly, make things worse with spurious results and hospital acquired disease

d) Best management if the child's condition goes as expected and

e) What to do if it doesn't

Let us ask the lawyer to help...

'Now I have looked at all the paperwork, and your son, and then the paperwork again, and we think it is, on the whole, at this moment, unlikely that given the evidence we have to date (and this is provisional as discussed earlier) and the limitations of the clinical skills which I and indeed all practitioners are able to bring to bear on this circumstance, that is to say the level of skill and care one would normally expect from a clinician in these circumstances THAT the issue of meningitis is presently NOT in the forefront of diagnostic possibilities pertaining to the case NOTWITHSTANDING that further developments, changes, deteriorations and Acts of God might cause us to review the situation at the sole discretion of the responsible adult WHERIN the above opinion will be rendered null and void and no liability can be accepted on the part of the doctor his employer or the Secretary of State for Health."

> *"...we have to find the words to impart those messages, the sense of shared responsibility for handling the uncertainty*

From this we learn that lawyers are the arch risk-avoiders of the professional world. And for the issues which concern them no doubt they are best. But for the patient, merely concerned with life and death, it is a poor strategy. In primary care, we have to find the words to impart those messages, the sense of shared responsibility for handling the uncertainty, and yet accept that by definition the risk will go wrong on occasion. In truth the child is highly unlikely to have meningitis, but could still be cooking up a pneumonia or pyelonephritis, unusual though those are.

Communication skills training, the biggest advance in medical education in the last fifty years, focusses on the patient (ideas, concerns, expectations) staggering towards their diagnostic or pseudo-diagnostic label. The concept of uncertainty not only being an acceptable end-point but a persistent one is very hard to get across comfortably. The doctor who is themselves struggling to rationalise risk will struggle to impart confidence, and have many a sleepless night. Patients spot the nervous clinician and mistake anxiety for poor judgement, making them unlikely to follow advice.

It is tougher for secondary care. Here expectations of certainty are appropriately higher and the need to exclude sinister pathology on all minds. But doctors at any level cannot guarantee their work, in the way a car manufacturer does theirs: Ford knows (say) 1% of its vehicles may need a repair inside a year and just builds the cost of fixing into the price. Doctors know that no anaesthetic, even in the fittest patient, is literally 100% safe though much better than 99%. The pressure to get to 100% and the subsequent over-investigation and testing of patients is not seen as a problem by the public. There is a sense that if the scan doesn't give a clear answer there must be another which can. Or another even smarter doctor who knows of a scan which can.

Whatever happened to Masterly Inactivity? This powerful management technique beloved of politicians and physicians is out of fashion because we cannot allow uncertainty. We wait watchfully at our peril and like a hapless minister with a crisis feel the need to manage uncertainty by doing something rather than nothing. It takes the most advanced communication skills to impart the idea of living with a level of uncertainty whilst behind you is a glorious array of gadgets and nerdy types in white coats.

Primary care has the safety net of relatively easy access. Appointment systems aside, it is effective to say to a patient from whom one has taken a careful headache history and concluded clinically that we are not at all likely to be in brain tumour territory, to return if there are unexpected developments. This won't go wrong clinically, though it might organisationally. We can risk manage it: the hospital will order an MRI.

Medical self-confidence is a tricky zone between clinical skills, judgement, authority, humility, charm and a pretty good understanding of maths. One in a thousand is not fifty/fifty. There is no room for arrogance but space for giving strong guidance to patients, especially when the stakes are high; take the vaccine, it is safer than a couple of aspirin. For sure. Please.

> *"It takes the most advanced communication skills to impart the idea of living with a level of uncertainty whilst behind you is a glorious array of gadgets and nerdy types in white coats.*

A Retired Nephrologist Reflects on Assisted Dying

Professor Christopher Winearls FRCP *(Keble College, 1972)*
Consultant Nephrologist in the Oxford Kidney Unit 1988 to 2016

Recently, I had an hour to pass in the HQ of the RCP so I wandered around looking at the portraits. There was one of King George V's physician, Lord Dawson FRCP. On January 20th 1936 he had issued a bulletin, "The King's life is moving peacefully to its close." The King had COPD. It later emerged that Dawson had written in his notes, "I therefore decided to determine the end and injected (myself) morphia gr. 3/4 and shortly afterwards cocaine gr.1 into the [king's] distended jugular vein."

> *The debate on whether the law on assisted dying should be changed should be conducted rationally and calmly*

Both the London Royal College of Physicians and the BMA, have adopted a neutral position on assisted dying which for the avoidance of argument is not the euthanasia described above. They have been criticised by a lobby of palliative care and other physicians for doing so. My own thinking was originally orthodox. I was opposed. My certainty was challenged by listening to Lord Joffe speak at the RCP about his 2003 Private Members Bill for the House of Lords: Assisted Dying for the Terminally Ill Bill.[1] I am probably one in a minority of those holding an opinion, who read that Bill. I now believe that the BMA and RCP are right and here share my reflections, as a nephrologist, on this issue. The 2019 RCP poll showed that, 80% of Palliative Care Physicians were opposed to a change in the law. In other subspecialties > 50% of respondents were either neutral or in favour of a change. The issue continues to divide physicians

Through the windows of our old renal ward, the only view was of Sir Michael Sobell House, Oxford's community hospice.[2] They were both built in the 1970s, paid for by charitable funds and both were new services in the second half of the 20th century. The renal ward was where patients with what was insensitively called "terminal" renal failure started their dialysis treatment which could postpone their deaths for many years. The renal ward is now where patients come when they and their dialysis treatment are failing, sometimes to die. Sobell House was the natural and necessary result of a palliative care movement conceived by Dame Cicely Saunders in 1967. Unlike the renal ward it was a place where death was expected. Those of us who had worked in the wards of general hospitals before the palliative care movement have a special admiration for Sobell House. We remembered with shame the clumsy terminal care of patients with advanced cancer, behind closed doors in side rooms where we wrote up doses of subcutaneous morphine (there were no syringe drivers) or "Brompton's Cocktail".[3] These rooms were dubbed "the departure lounges" and the patients were not routinely included on the ward rounds. Death usually but not always came quickly as the doses of morphine were high, depressing respiration. There was a bit of mouth care, atropine to dry up secretions and silence the death rattle, and 4 hourly turning. We were relieved to be called to certify death. Relatives were in attendance during visiting hours.

It is so different now. Sobell House is a spacious building with single and double bedrooms; there is no extraneous noise and the atmosphere is serene; the staff are at their ease; the telephones are quiet and quickly answered; there is no through traffic and in the evening a drinks trolley comes round. There are no "Visiting Hours."

The palliative care consultants are wizards at pain relief. They use their experience of what drugs work in what combinations and what circumstances. They are good listeners and take their time with their patients and their families. They have one important advantage over other medical colleagues dealing with patients who are facing death or the possibility of it. The patients are expecting to die so the conversations can be comfortably about how and when it might be. There is no bluffing and no futile treatments tried or offered.

In the renal ward we were in a different position. We had the means to delay death in those with renal failure even if death would be preferable to the effects of the underlying disease. We also faced the patients in whom dialysis itself was becoming very difficult but not impossible to apply, who would die if we discontinued it. "We must carry on otherwise I will die," they say. We could not reply that death will come even if we carry on trying to dialyse them. There is an uncomfortable conflict of hopes, expectations and reality. Our palliative care colleagues cannot help us with managing this dilemma because we have not crossed the border between treating to defer, and treating to ease, death.

Palliative care professionals have another advantage. Most of the patients they are referred have cancer, a disease which is generally believed by the public to be, if not curable, then eventually fatal. They usually accept admissions to their precious beds, only those patients for whom they can do something useful. Nowadays they also provide outreach consultations to advise on management of dying patients in other wards but they do not have the ultimate responsibility for the patient.

The first Oxford haemodialysis patient was a 39 year old woman who in 1966 was admitted with terminal renal failure for palliative care. She was kept alive by peritoneal dialysis for 8 months until a machine became available. She survived to the age of 74, dying from a head injury after a fall. Dialysis was withdrawn.

Palliative care services in the hospital and the community do not have a monopoly on managing death. GPs and other specialists look after their dying patients too –those with end-stage cardiac failure and respiratory failure and degenerative neurological diseases. This can be much more difficult because the diseases are, unlike cancer, not seen as imminently fatal. The symptoms are less easily controlled and the suffering is more of helplessness than pain.

The Assisted Dying debate is about the notional hard border between palliative care and actually assisting a patient to die, a line that doctors should not cross. Actually there is less of a hard border, more a "no man's land", the extreme of which would be euthanasia. Palliative care physicians regularly tread within this territory which is justified by the doctrine of dual effect. The primary purpose of administering sedative drugs is symptom control and the secondary effect may the shortening of life. I have often seen the doses of drugs increased beyond pain control to remove the awareness of suffering so that the patient becomes progressively comatose and dies of respiratory depression. This is done kindly and gradually - there is no sudden death at the end of the needle. It is a gentle slope to death not an abrupt step. I am comfortable with this but it is in all but name assisted dying.

For dialysis patients it can be easier in some ways but ethically more difficult. If a dialysis patient has an apparently terminal illness or just a wish not to continue with what they perceive as burdensome treatment, and they have capacity, they can ask to stop their life sustaining and death deferring, treatment. I believe that some may be afraid to do so dreading the effects of renal failure. The mode of death does not involve pain, but nausea, breathlessness, foul smell and taste in the mouth and on the breath, involuntary jerks and itching. Although we try to palliate these symptoms our measures are not completely effective so the patient suffers and the family witness it.

If this decision is deemed rational and appropriate it will be accepted and enacted after a non-adversarial discussion. Autonomy will have been respected and death will occur in 4-10 days. We do our best to counter the uraemic symptoms. An alternative would be to assist death before the symptoms begin. This process of dialysis withdrawal can easily be challenged using the same arguments used against "assisted dying". How was it known for certain that the disease was likely to be imminently fatal? Could the burdensome dialysis treatment have been modified? How was it known that the patient had capacity? If they did, how was it known that they were not acting under duress? Respect for autonomy trumps all these challenges.

If, on the other hand, a patient lacks capacity and the continuing of life-sustaining dialysis is considered futile because the underlying disease is deemed imminently fatal the nephrologist can discontinue dialysis on the grounds of "best interests". There is no prolonged legal process involved but relatives and staff are consulted. Ultimately one physician makes the decision and enacts it. This process could also be challenged as the start of "the slippery slope". Indeed dialysis is discontinued in patients who have illnesses such as dementia, that are not imminently fatal, but are considered to make dialysis futile. The reason given is that the treatment is too difficult to deliver in a subject who cannot co-operate.

I have concluded that doctors do not have to choose one or the other side of this notional hard border. I cannot find the ethical difference between actively promoting death and the passive act of withdrawal treatment that leads to the same result. Our role is to ease the end of life and we should do so in the way most appropriate for the individual. I have not in my 45 years as a doctor been asked by a patient to assist them to die but many have asked me to stop preventing them from dying. Nor have I ever felt that assisting them would have been the right or necessary thing to do as they have approached death. However I believe that there might have been circumstances in which it would have been right.

The debate on whether the law on assisted dying should be changed should be conducted rationally and calmly. Emotive words like killing and execution should be eschewed; personal religious beliefs set aside; absolutes and vetoes denied. Patient choice should be respected. If we always fear a slippery slope we will never take the risk of ascending to something better.
There always has been a time to live and a time to die, but in the 21st century the question should be how?

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1. Lord Joffe was a South African human rights lawyer, a member of the legal team acting for Nelson Mandela in the Rivonia Trial. He emigrated to the UK and later became a Labour peer.
2. It is named for Sir Michael Sobell, a refugee from anti-semitism in Ukraine, an entrepreneur and philanthropist.
3. It is a mixture of morphine or diamorphine (heroin), cocaine, alcohol (sometimes gin), and sometimes with chlorpromazine to counteract nausea.

Magical Beliefs and Rituals in Modern Medicine

Mr Alastair J Graham
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Pre-enlightenment Europe was awash with magical beliefs following supernatural narratives, physicians included. And there were accompanying rituals. With the emergence of rigorous study of anatomy, physiology and then pathology, unpredictable illnesses became easier to explain. Only then could treatment be rationalised. Even today while we have named and elucidated most diseases, many still defy treatment. Magical thoughts persist, bubbling dramatically into public rhetoric when faced with challenges posed by modern life, flowers tied to lampposts rather than at gravestones, love padlocks on bridge, coins in fountains, 13th-storey taboo in tower blocks, unorthodox antiviral protection from antifreeze to aprons. Linguistic and music psychologists tell us we are hard-wired for language, rhythm, and harmony – perhaps irrational supernatural beliefs are similarly innate, answering Questions of Existence smouldering in our consciousness for millennia.

> *"Treatment uncertainty also generates irrational beliefs and ritualistic behaviour*

In the 1930s the anthropologist Evans-Pritchard visited the Azande people of Sudan and found a water-tight medical belief system: people fell ill because of curses, the curses could be reversed by witchcraft and ritual, and the symptoms could be eased with herbal remedies. If treatment failed there were fail-safe explanations which he called "secondary elaborations". There were no gaps in the narrative – all situations could be explained with no unanswered questions and no public anxiety. Compare this to our world of 'never events', hospital examiners, lessons learned: endless unpredictability and inexplicable events. Socio-anthropologists found identical oral traditions of disease narratives in other isolated population groups across the world. They explored folklore and ritual across diverse cultures in comparison with modern medical responses to uncertainty.

A protégé of Evans-Pritchard, the late Renée Fox also studied populations naive to Western medicine including the Azande in Sudan but also medical students at Cornell! She provocatively suggested that a medical school should train as much for dealing with uncertainty as for pursuit of knowledge. We face two major uncertainties in clinical medicine – diagnostic and treatment. Diagnosis is hidden within personal stories. In musculoskeletal medicine we now devote fewer teaching sessions to examination which feels concrete but yields little towards the diagnosis. After twenty-five years in hand clinics, I am still perplexed by symptoms on a daily basis and undoubtedly all other medical disciplines are the same. Many surgeons display intolerance-of-ambiguity on personality profiles, and find it unacceptable to sit on the fence; inappropriate responses to unexplained symptoms range from wrongly attributing symptoms to patient personality to 'shoe-horning' patients into the wrong diagnostic category. Renee Fox found these and many other instinctive yet irrational responses in her students. Despite our wealth of knowledge and rigorous training the narrative landscape of diagnostic, Western medicine has gaping holes. Treatment uncertainty also generates irrational beliefs and ritualistic behaviour. If treatment fails catastrophically, we have M&M meetings and we consult coroners, each with ritualistic elements. After a coroner's verdict we feel a weight is lifted from our shoulders – the case is closed and life can go on. Other professions create ritual when faced with existential questions. They too build temple-like structures, wear costumes, create hierarchies, use obscure terms and join in ritualistic events: think of law courts, parliaments, universities or simply the rigid structure of mundane minuted meetings that pervade the adult world. These group activities have orders-of-service and elements of drama.

'Magical' beliefs appear when we face uncertainty or risk, and many doctors react with routine and ritual. Routine gives us a sense of stability. Embedded routine, particularly in groups, can become ritualised and gains superstitious importance. While rituals were traditionally defined as irrational (often in the context of religion) a more modern approach is to see certain activities as evolving from common-sense but then becoming 'ritualised'. Until 1700, physicians, apothecaries and surgeons regularly consulted astrological almanacs when deciding on treatment; it is unclear when this disappeared from medical training. Are there ritualised elements in ward rounds, grand rounds, journal clubs, the WHO checklist, each of which aims to create order but magically seems to reveal truths or help avert harm?

Ancient Greeks used the Oracle at Delphi to help address profound issues of uncertainty. They inscribed three messages on the walls: **Know Thyself** (now articulated as epistemology, being able to tell between truth and myth in complex situations), **Nothing to Excess** (always sensible) and **Surety Brings Ruin**. Sometimes uncertainty should be accepted as a form of truth.

Be aware of the innate magical beliefs we and our patients invoke to help give a narrative to disease. Be aware of the effect of suppressing these beliefs in ourselves or denying them in our patients. Accept that having magical and irrational beliefs, creating stories with "secondary elaborations" and using rituals may be ancient and comforting ways of overcoming the anxiety of medical uncertainty.

COVID-19: An Update on Some Questions of Particular Interest

Professor Charles Bangham
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The scientific and medical literature on COVID-19 is now almost unimaginably large: a search of the PubMed database (June 10th 2022) showed over a quarter of a million publications containing the key word COVID. I can hardly aim to provide a useful summary even of the recent literature; in this article I shall simply focus on a small number of questions that have been of particular interest.

WHAT WERE THE ORIGINS OF THE COVID VIRUS, SARS-COV-2?

Few questions in science or medicine have been more contentious than this in the last two years, and few that have generated more conspiracy theories. It has been clear from the outset that the COVID virus originated in bats: the closeness of the genomic sequence to other bat coronaviruses leaves no doubt on this matter. But the question remains: how did it get from bats to humans? Setting aside conspiracy theories, two most likely possibilities emerged. First, scientists working on bat coronaviruses might have become accidentally infected with the virus, either while working in the Wuhan Institute of Virology or while in the field, studying bats in caves. Second, the virus could have been transferred to humans through an intermediate host, perhaps an animal in the Huanan market in Wuhan, where live animals of a great number of different species were on sale.

> *“ Most human viruses have emerged from animals, and new viruses continue to make the species jump*

Recent work by Professor Eddie Holmes and his colleagues[1] strongly favours the second of these explanations – infection of a human by a live animal in the Wuhan market. Eddie Holmes, who worked in the Department of Zoology in Oxford (1993-2004) and is now at the University of Sydney, is a leading expert on virus evolution. His recent study identified three main factors that favour the market origin of the virus.

First, plotting the positions on a map of the early reported cases of COVID as it began to spread showed that the epicentre of the outbreak lay in or near the market, which is some 25 kilometres from the Institute of Virology. Second, an exhaustive search of the publications and reports from the Institute of Virology, and of copies of research grant applications – some obtained under freedom of information requests – showed no evidence of SARS-CoV-2 being studied, isolated or handled in the Institute in the years before the pandemic, when there would have been no particular reason to suppress such information. Third, and perhaps most compelling, sequences of two distinct lineages of the virus were found in a systematic survey of swabs taken from different parts of the market. It is very unlikely that two different lineages of the same virus, neither of which had apparently been handled in the Institute of Virology, were introduced simultaneously by infected humans. And it is now known that many mammalian species can be infected with SARS-CoV-2, although we do not yet know which might have been the culprit in this case. As an aside, the virus appears to have become endemic among some other animals, in particular the white-tailed deer in North America: this and maybe other species may form a reservoir of the virus, which makes it still harder to eradicate.

The conclusion that COVID originated as a zoonosis is not revolutionary: most human viruses have emerged from animals[1], and new viruses continue to make the species jump, including, in the last few decades, HIV-1 and -2, Ebola virus, Lassa fever virus, Marburg disease virus, Zika virus, Nipah virus, Chikungunya virus, various strains of influenza A virus including H1N1 and H5N1, and the highly pathogenic coronaviruses that caused SARS in 2003 and Middle East Respiratory Syndrome (MERS; repeated outbreaks since 2012) and which are closely related to the COVID virus. Several of these emerging viruses have emerged from bats, as well as the SARS and COVID viruses: it is a curious and interesting feature of bats that they harbour a large number of viruses, for reasons that are still debated.

IS THE VIRUS EVOLVING TO BECOME LESS VIRULENT?

The quick emergence of the Omicron variant of SARS-CoV-2, and its remarkable rise to dominance throughout the world, has fuelled the view that the virus will evolve to become less pathogenic, because Omicron typically causes less severe disease than the other variants. It is important to realise that this is a non sequitur. In their classic work on the dynamics of infectious diseases[2], Anderson and May showed that a virulent pathogen can stably coexist with the host population, and natural selection does not inevitably lead to a less pathogenic strain. Indeed, there are many examples of such virulent pathogens that persist at the population level - rabies virus and (until its eradication by vaccination) smallpox virus, to name but two.

The most important selection force in the evolution of a virus depends on the type of infection that it causes. An important distinction here is between acute and chronic viral infections. In a chronic virus infection, such as that caused by many herpesviruses (Epstein Barr virus, herpes simplex virus, etc.), evolution has produced viral genes that suppress or evade the host immune response. Since these viruses persist in the individual long-term, there is less selection pressure

> *“ All viruses evolve, but they don’t necessarily become less virulent*

to transmit it quickly to another host. By contrast, in an acute, transient infection such as most respiratory viruses – included SARS-CoV-2 – there is strong selection pressure for increased transmissibility, and the Omicron variants BA.1 and BA.2 are each in turn more transmissible than the previous variants, largely because they replicate particularly well in the upper respiratory tract. But the mutations that make the virus more transmissible do not necessarily alter its virulence: virulence and transmissibility are very different traits, although they are not always completely independent of each other. The good news is that the less severe Omicron has quickly displaced the more pathogenic variant, and it is possible that the immunity generated (and occasionally boosted) by infection with Omicron will maintain a significant degree of protection against severe disease, because there is an important degree of cross-protection between different variants of the virus[3,4]. There is even evidence that T cells that recognize the less pathogenic common-cold coronaviruses already endemic in humans can give some protection against SARS-CoV-2[5].

We should note that, because of the unusually large number of mutations found in Omicron, it is widely suspected that it arose in someone with immune compromise, perhaps someone with HIV, which allowed the virus to mutate quickly without being eliminated. But this putative rapid evolution in one person does not invalidate the argument above that selection at the population level has been driven mainly by the transmissibility of the virus between people.

WILL THE VIRUS BECOME ENDEMIC?

The virus has already become endemic throughout almost the whole world. A ‘zero COVID’ policy is extremely difficult to maintain, and probably impossible except in small, isolated populations, such as on small islands. But it is still unknown whether it will become highly seasonal – “just another type of flu”. And it is still less certain whether and how it will continue to change: one of the main lessons of evolution is, of course, that it is unpredictable.

> *“ Vaccines attenuate viral infections, but rarely if ever prevent reinfection*

DOES IMMUNE PROTECTION AGAINST COVID WANE OVER TIME?

The immune response to any transient stimulus, such as a toxin or infectious agent, fades a little over time, and it has been well documented that the level of antibody against SARS-CoV-2 falls slowly over months. But two principles need to be borne in mind. First, and most important, immunity against viral infection is rarely, if ever, absolute: that reinfection has occurred after re-exposure to the virus is shown by the detectable boost in antibodies and T cells, even if the infection was asymptomatic. The benefit of immunity and, of course, the point of a vaccine, is to attenuate the infection, ideally to make it trivial or completely asymptomatic. Also, although the antibody levels fall, they do not continue to fall indefinitely, but tend to stabilize. Second, it has been well shown that immunity against one variant of SARS-CoV-2 gives a significant degree of protection against severe disease caused by the other variants [3,4]. This protection is partly mediated by T cells, which contribute importantly to protection, and which cross-react between the strains better than antibodies, because they frequently recognize not only the spike protein present in most COVID vaccines, but also the internal proteins of the virus, which vary much less between strains than does the spike protein. But we now know that a fourth dose of the vaccine adds a useful measure of protection against disease, almost certainly by boosting both the antibody and the T cell response.

> *“ Stronger national and international disease surveillance networks are needed*

An excellent verbal account of the immune response to the coronavirus was recently (June 1st) given in an interview between the Editor-in-Chief of the New England Journal of Medicine, Eric Rubin, and Penny Moore, an eminent viral immunologist in South Africa. The reader is strongly recommended to listen to this 20-minute conversation[6].

WHAT IS THE DISEASE MECHANISM IN LONG COVID?

Too little still is understood about this distressing and sometimes disabling condition, which has been discussed in these pages before (Oxford Medicine, June 2021). The symptoms can vary remarkably between people, and often within one person over time, even from one day to the next, apparently affecting quite different organs or systems. This variability has led some to suggest that it is a constellation of different conditions. But I believe we should use Occam’s razor, and start from the hypothesis that there is one – or a very small number – of common pathogenic mechanisms that underlie this bewildering condition. At least three strong candidates for such mechanisms can be identified: inflammation of the blood-vessel endothelium, disseminated microthrombi, and autoimmunity. Some evidence has been reported for each of these, but it is not yet known which, if any, is the most important. The huge numbers of people affected globally, and the uncertain prognosis of the condition, make research into Long COVID a high priority, and many large studies have been started. On an optimistic view, when solid progress is made in understanding Long COVID, we might be a little further on in understanding other post-viral conditions such as chronic fatigue syndrome.

WHAT DO WE NEED TO CHANGE, TO DO BETTER NEXT TIME?

The experiences of the last two years have provided countless lessons on how we could do better in the next epidemic or pandemic and improving pandemic preparedness has risen near the top of all health policy priorities. The problems in politics, economics, logistics and psychology are each enormous, and are well beyond my competence, and the ethical and social problems caused or exacerbated by the pandemic are also widely acknowledged. But one particular component stands out to me, from my own experience.
Until the 1990s the UK had the Public Health Laboratory Service, admired throughout the world for its work, especially in epidemiology and surveillance of infectious diseases.
The PHLS had its origins in the Emergency Public Health Laboratory in Oxford, which was set up during the Second World War under the direction of Professor Howard Florey.
In the mid-1990s, I was briefly Director of the Oxford PHL, before moving to Imperial College. From its establishment until the 1990s, the PHLS had a budget that was separate from the NHS. But policies changed in the 1990s, and investment in the successors to the PHLS has been progressively diminished. Whatever else we learn from the pandemic, it will be essential to strengthen the systems of surveillance for rapid detection and identification of infectious agents, both in this country and internationally.

A two-day conference was held at the Royal Society on 30-31 March 2022 on the Science of Covid: reference[7] has a web link to the recorded lectures, including several by Oxford medical and scientific alumni.

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Insulin Treatment – 100 Years of Therapy

Professor David Matthews
(Corpus Christi College, 1966) Emeritus Professor of Diabetes Medicine and Founding Chairman of OCDEM

The discovery and purification of insulin in 1922 – 100 years ago – marked a sea-change in medicine generally. Until that time there were a variety of non-specific medical nostrums that were known to be effective, and plant derivatives that seemed to have specific pharmaceutical functions. Extracts of foxglove (now known to contain digitalis) and willow-bark (known to contain salicylic acid or aspirin) are two such examples. Sheep's thyroid extract had been given for myxoedema at the end of the 19th century first by injection and then orally - it tasted disgusting so was mixed with anchovies and given as a sandwich! Thus, medical practice gradually moved to an understanding of 'chemical messengers' – the concept that one organ could produce substances that affected the whole body. This was formulated by Ernest Starling in 1905, who coined the word 'hormone' and from there began the whole discipline of 'endocrinology'.

So it was that in 1921 Frederick Banting, a young orthopaedic surgeon, in Toronto, who knew that diabetes in dogs (or at least glucose in the urine) could be caused by surgical removal of the pancreas, started to wonder if an effective anti-diabetic extract of the pancreas could be found. Mashing up pancreas to find this extract proved unsuccessful since the pancreas is the source of almost all digestive enzymes; a pancreas dissolves itself very quickly post mortem by the action of trypsin. Banting wondered whether he could prevent this loss by ligating the pancreatic duct, thus causing the enzyme-producing tissues to degenerate and leave the 'islets of Langerhans' intact. He approached the Professor of Physiology in Toronto, J.J.R. Macleod, an authority on carbohydrate metabolism, who derided the idea and suggested that the only likely outcome would be 'a negative result of great physiological importance.' Eventually, however, Macleod relented and allowed Banting the use of an old rundown laboratory, and then left for a fishing vacation in Scotland. A medical student, Charles Best, was chosen by the toss of a coin to help Banting. Within 6 months of this unpromising start, Banting and Best (referred to in Toronto academic circles as B2) had discovered a new hormone which McCloud termed 'insulin'. It reversed the diabetes of pancreatectomised dogs and could itself be extracted from dog pancreas. Shortly after this success came the discovery that the active extracts could be obtained from beef pancreas which Best obtained from the abattoir. The extraction procedure using ice-cold acid and alcohol, was perfected by James Collip, a biochemist who was visiting Toronto on sabbatical leave. In 1922 the first use of insulin injected in humans revolutionised the treatment of young-onset insulin-deficient patients (now termed Type 1 diabetes). What had been a certain death sentence now turned out to be manageable by daily injections of insulin. [Fig 1] The illustration and text are from Medical Clinics of North America, Nov 1923 pp672-3.

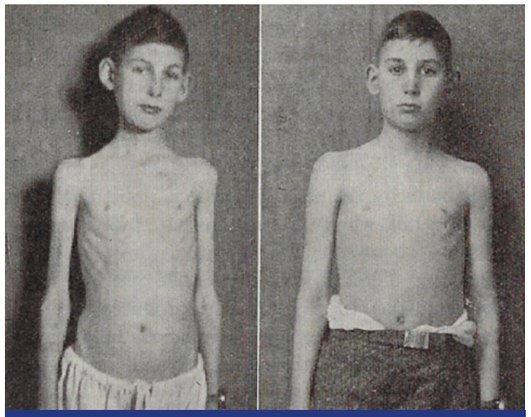


Fig.1 Subject PBBH Medical Clinics of North America 1923. One of the first subjects to receive insulin.

At entry to the Brigham Hospital he was given insulin and a diet of 500 calories. His diet was gradually increased until he was finally sent home on a diet containing 2100 calories with a carbohydrate content of 85 grams. Since insulin was started he has gained 19 pounds in weight, has grown an inch in height, has nearly doubled his strength, and, so far as he himself or his family realize, feels normally well and active.

The effect of four months' treatment in this case is well shown by the accompanying photographs. The insulin administered to this case was made by the Eli K. Lilly Company, of Indianapolis, under the trade name of iletin.

International recognition was instantaneous, and the 1923 Nobel Prize for Physiology/ Medicine was awarded jointly to Banting and Macleod. Banting was irritated with this decision and announced publicly that he would share his prize with Best, whereupon Macleod promptly decided to do the same with Collip.

By late 1923, insulin was available widely throughout North America. The European insulin production came primarily from two small laboratories in Denmark that made an arrangement that they could undertake their own manufacturing. They used pigs rather than beef for their source of insulin – a off-shoot of the Danish bacon industry. These two companies, Novo and Nordisk, merged in 1989, and became a huge pharmaceutical company. They invested heavily in research and supported academia – to the extent that they were the first major sponsors of the Oxford Centre for Diabetes Endocrinology and Metabolism (OCDEM) contributing substantially more than the NHS to the iconic building on the Churchill site which opened its doors in 2003.

Insulin was the first hormone to be effectively isolated and purified to an extent that it could truly be described as a pharmaceutical agent in the sense that we understand that term today. But it wasn't until the 1950's that Sanger, in Cambridge, worked out the chemical formula and a decade later that Dorothy Hodgkin took a close interest in the three-dimensional structure of the molecule.

Dorothy Hodgkin had graduated from Somerville College in 1932 with a first class degree in chemistry and then undertook a PhD in Cambridge, becoming an expert in X-ray crystallography. She worked on a number of molecules over the subsequent decades. She was appointed as the Royal Society's Wolfson Research Professor in 1960, a position she held for 10 years, and latterly she was a Fellow of Wolfson College (1977-1983). Over her lifetime she studied the three dimensional structure of many proteins that could be crystalised – a necessity for X-ray analysis. She once remarked, 'I was captured for life by chemistry and by crystals.' The 3-D structure of small molecules was revealed, and she gradually worked on larger and larger molecules and, hence, larger challenges. Steroids, penicillin, vitamin B_{12} all gave up their secrets. She received the Nobel Prize for her work on B12 in 1955. But her greatest achievement came in 1969 when she was able to identify the entire three-dimensional structure of insulin having first received a crystal of it in 1934. She was a prodigious worker – always dynamic and active despite severe rheumatoid arthritis. The illustration here [fig 2] is the National Portrait Gallery's wonderful painting by Maggi Hambling from 1985. What is shown are the four(!) busy arthritic hands illustrating the never-still nature of her working practice, with a model of the insulin molecule in the foreground.
Finally understanding the 3-D structure of large molecules

Dorothy Hodgkin painted by Maggi Hambling (1985). By kind permission of the National Portrait Gallery

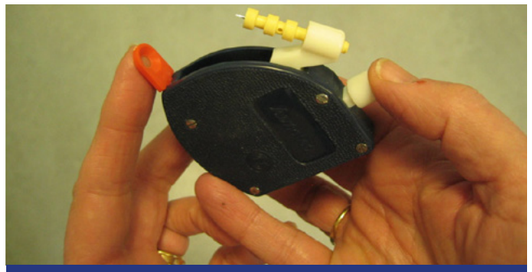
(insulin has a molecular weight of 5808 Daltons c.f. steroids of 362 Daltons) meant that chemical synthesis and indeed modification could be undertaken to alter its duration of action. It was not only the springboard for insulin analogues, but also allowed technologies to be developed for other breakthroughs in diabetes which used completely new molecules whose binding sites to receptors could be understood and therefore modified. Dorothy Hodgkin would have doubtless liked to live long enough to know that such technology has allowed rheumatoid arthritis to be almost completely controllable by infrequent injections of molecules that suppress specific auto-immunity.

But insulin action turned out not to be a simple problem. Any engineer designing a signalling system would want two packets of 'signal' (in this case insulin) to give roughly twice as much effect as one packet. And largely, in any single individual, that principle applies. But strangely, different people seemed to

require very different amounts to stay healthy. One person with established Type 1 diabetes (where no insulin is being secreted internally) could manage on perhaps 14 units daily, while another might require ten times that amount – 140 units daily. And it turned out that many of those with Type 2 diabetes (where some insulin is still being produced in the pancreas) had what appeared to be normal levels of insulin, except that the insulin didn't seem to be working properly. This was termed 'insulin resistance' and was an issue that was researched by Robert Turner (1938-1999) [Fig 3]. Robert worked in the old Radcliffe Infirmary where he set up the Diabetes Research Laboratory (DRL) in the department of the Regius Professor of Medicine, who at the time was Sir Richard Doll, the stellar epidemiologist who broke open the cancer risk of smoking, but who had no need of a lab. Robert was one of the first researchers in the UK to set up the 'new' insulin assay devised by Yalow and Berson in the USA (for which they too received a Nobel Prize). The DRL processed thousands of insulin samples from many human subjects to examine all aspects of the secretion of insulin and managed to shed light on the intricate aspects of insulin resistance and the complex profiles of insulin secretion in human subjects.

Robert Turner (1938-1999) from a Photograph on Canvas in the Oxford Centre for Diabetes, Endocrinology and Metabolism (OCDEM), Churchill Hospital

Robert Turner was a fine physician as well as an eminent researcher, and he saw many people with Type 1 diabetes. Up to the mid 1960's urine was tested for glucose with 'Clinitest' tablets – fruit pastille sized tablets - that had Fehling's test embedded with sodium hydroxide which when in contact with urine and water would boil and develop a colour indicative of the concentration of glucose in the urine. The tests were loathed and highly dangerous to use. Periodically a child would ingest the Clinitest 'pastille' with catastrophic consequences. Boehringer Manheim (BM) produced a test 'stick' which could be used to test blood by a colour change and these BM sticks became the mainstay in the 1960s to 70s of monitoring blood glucose among all diabetes patients. But a finger prick was needed to get a drop of blood on the stick, and this was difficult to manage. One had to hold a sharp lancet and stab this into a finger of the opposite hand. Robert realised that what was needed was a small trigger device to do the stabbing, but the trick was to get the lancet out again as fast as it went in. Looking at a toy cash register belonging to his children, he realised that when the drawer opened it rang a small bell in just this way. He adapted this spring mechanism into the Autolet which was the first of a wide range of devices to achieve the finger-prick. The Autolet still used the old exposed lancets and the illustration [fig 4] shows how large the blade of these were. But the device at least meant that there was no self-harm inflicted by one hand on the other!



The Autolet in action (1984)

Meanwhile other researchers in Oxford, not part of the University, had realised that the colour-developing sticks were both crude to use, difficult to time correctly (one needed exactly 30 seconds) and inaccurate. So under James Scott the start-up company called 'Medisense' began to use redox technology to generate tiny currents from glucose oxidase – also on strips, but this time measurable electronically. The device was marketed as ExacTech, and the DRL undertook all the device calibration and accuracy tests in their patient population. The technologists were so devoted to miniaturisation that they produced a device the size of a pen which had two disadvantages – one was that the screen was so small that only those with super eye-sight could read it (and so almost by definition no-one with diabetes), and secondly that the 'pens' disappeared at the rate that all our biros and pens disappear – down that strange crack in time and space. But this was the break-through into the modern technology used by all glucose meters today.

The ExacTech pen next to a ball-point pen.

ExacTech also produced the first transdermal sensor, again tested in the DRL, to which Abbott Laboratories, based in Witney, ultimately owe their ground-breaking technology of skin sensors wirelessly connecting to a small computer; this can sit in your pocket like a mobile phone and measure real-time glucose excursions ('Freestyle Libre').
What of the future of insulin treatment? There is much still to achieve in terms of managing the dosage and the need for injections, but there are now synthetic insulin analogues that have very fast action or very slow action which can be tailored to patient needs. Insulin pumps are now in widespread use. And there is research afoot to make giant implantable molecules that can break into subsections of insulin depending on the glucose environment, thus avoiding the need for repeat injections. What is certain, however, is that the universal death-sentence from contracting Type 1 diabetes is long in the past – an iconic medical achievement spinning out of Toronto 100 years ago from the astonishing work of Banting and Best.

A Fine Balancing Act

Dr Neil Gibbons
(University College, 1974) Retired General Practitioner

The answer to the question 'Do you remember where you were the day President Kennedy was assassinated?' has always stayed with me. It was the Paediatric ward of Essex County Hospital in Colchester. I was 7. I have a great debt of gratitude to my mother who saved me from a ketoacidotic crisis by recognising early symptoms of Type 1 diabetes. I was dragged unwillingly to our family GP, along with a bottle of wee. Pale as tap water it tested over 2% for glucose. The next day was the first of three weeks in hospital. Thus began my lifelong balancing act of glucose control.

In the early 1960s Type 1 diabetes was a rarity. IZS (insulin zinc suspension) once a day was the regime. It was delivered with a glass syringe and reusable stainless-steel needles, sterilised in a boiling pan of water on the Rayburn, and carefully injected after swabbing my leg with surgical spirit. Within a week of discharge the fear of being jabbed by my approaching parents, chasing me around the kitchen table, persuaded me to do it myself.

As for a strict diabetic diet, once I had got over 'you'll never eat ice cream or sweets again' (devastating for a young lad), I was introduced to the 'bread diet', in which everything related to one round of medium sliced (Betabake) white bread - carbohydrate equivalent of one apple, or one banana, 2 Weetabix, or one portion of potato. An instinct, however, taught me you can actually eat most things, only in moderation.

I set about life after diagnosis pretending nothing had happened, and I vowed that no one should ever know I was any different. To this day many friends and colleagues are unaware. As my insulin dose remained the same every day, I could keep a measure of control by matching exercise for the sugar load I was carrying. To achieve this I would exercise hard. I remember the stress of Oxford entrance exams shot my glucose sky high, so I would walk the streets at night to bring it down. One of the most frustrating and bedevilling features of diabetes is its ability to seemingly confound any logic. One day with identical insulin dose, similar food, comparable exercise, and no undue stress can result in a fatigue-inducing hyperglycaemia, and another day these factors provoke wild and unpredictable hypos. The balancing act can be monumentally tricky to tune - akin to helming a boat (something I later learnt to do), where you oversteer in one direction, and then the other.

Nevertheless, I was determined never to let it get in my way. Aged 9 I would cycle alone 20 miles into the heart of Suffolk countryside, with a pack of Dextrosol in my pocket. I never suffered a calamitous hypo in all my years of cycling, playing tennis or squash. Later in life I took up sailing and crossed the Channel many times with my family in our yacht. I was so unphased by diabetes that, when I spent 3 months on my elective on the Iowa Exchange Scholarship, I did not even take out any health insurance, foolishly thinking that as a fellow medic I would be taken care of. The one quality which helped me steer through was being well-boundaried, acknowledging I had to 'Say No' to challenges which threatened my control, like unreasonable working practices, or missing meals, or worse, delaying insulin shots.

There were times of concern, however. On going up to Oxford, after my first term, my Essex County consultant admitted me for 10 days over the Christmas vacation to stabilise me as I had some proteinuria. Fortunately this never recurred but it was a wakeup call, not to overindulge in college parties. My Hilary term collection exam performance suffered as a consequence of my time in hospital. My tutor never knew why.

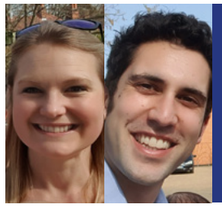
Once I joined the Clinical School I was put under the wing of Jim Mann by my GP, Bent Juel Jensen. Jim was very forward-thinking and urged me to change to biphasic insulin and test my blood glucose more regularly, something I never did. On reviewing my bloods, he declared 'You've got good genes!' having just received my profile from Tim Dornan (NDM), based on my HLA type (he had determined good diabetic outcome depended could be predicted by HLA). Forty-two years later and free of any micro or macro vascular disease I reminded a delighted Professor Sir Jim Mann (now in Dunedin, NZ) of this prophecy in an exchange of email. Medicine was always a career I was warned would be difficult for a diabetic - long hours vaguely feeling hypo at the end of a retractor, coping with irregular meals and night shifts. But most diabetics will recognise the notion of 'not being deterred'. Perhaps the most disturbing hindrance to career progression occurred at the point of applying for GP partnerships. This was the first and only time that my diabetes became an issue. Interviews usually went well until the question of health arose, as was allowed in those days. Despite my complication-free condition diabetes often became the stumbling block, though never admitted by the interviewing panel.

Now after 30 years as a GP partner, 8 years post retirement, life is very fulfilling. Wisdom and experience now demands a greater fastidiousness in diabetes control to protect from associated disease. Aggressive Dupuytrens contracture is a nuisance consequence of diabetes plus Irish/Viking genes, and this has led to much surgical attention (latterly by needle aponeurotomy).

> *"...nearly 60 years since my diagnosis, I am eternally grateful that life was not taken away at 7*

I have no regrets. Living with a lifelong condition places one in a unique position of being able to comprehend acute and chronic illness, and be more sympathetic to patients' needs, both physical and mental. It is this which drew me into General Practice at a time when cradle to grave care was possible.
100 years since Banting and Best isolated insulin and treated their first patient, and nearly 60 years since my diagnosis, I am eternally grateful that life was not taken away at 7. As a GP I have witnessed the frightening struggle of young diabetics, with parents awake through the night testing for hypos, as a result of the desire for tighter control, something I am glad I never endured on the old IZS regime. The potential for sensor-augmented insulin pumps will revolutionise the lives of many and make the balancing act much simpler.

Living With T1DM for 20 Years and Future Management



Dr Amy Ross Russell
(St Hugh's College, 2004), LTFT Neurology ST6 Wessex, tweets@amyrossrussell

Luke Williamson *(St Hugh's College, 2004) Rheumatology Trainee*

Dr Amy Ross Russell talks to Luke Williamson about living with T1DM for the last 20 years, how it's impacted her medical career, and where she sees the future of Type-1 Diabetes management.

Tell me about your diagnosis with Type 1 diabetes and what impact it had on you?

I have a vivid memory, aged 15, of sitting on the old lino of the kitchen floor, and hearing my mum read the result of a urine test for glucose, that she took when I'd described a few weeks of profound polydipsia and polyuria. As I was diagnosed early, as an outpatient, I had the chance to process the diagnosis without needing to focus on getting well.

> *"Diabetes is theoretically simple to manage, and in practice extremely difficult*

I found the diagnosis hard, but was lucky that I understood it, and was well supported. I'm from a medical family, and I knew a lot of the people looking after me. I think for me the most difficult part was accepting the identity of someone with a disability. I have always been determined not to let it stop me doing anything.

What challenges have you faced with diabetes during your medical career?

I think the hardest thing is the lack of a day-to-day routine. Diabetes is theoretically simple to manage, and in practice extremely difficult. I've been trying for 20 years, and I haven't cracked it. It is much easier if you have a rigid routine. So, if you know your activity levels, if you don't get too stressed or too tired, and if you do the same thing every day, including what and when you eat, you can get to know exactly what works for that routine. I don't live like that. I don't think any medic lives like that, and certainly medical training doesn't work like that. At least monthly, and sometimes daily, you change shift patterns, rotations, firms, activity levels, locations, mealtimes, and this doesn't calm down until quite far through your training.

The second issue is studying. This was probably hardest during medical school, although the exams go on for a while! Exams come with stress which pushes your blood sugars up and

> *"I've always found activity to be one of my greatest allies when managing my diabetes*

studying also come with inactivity. I've always found activity to be one of my greatest allies when managing my diabetes - regular exercise maintains my insulin sensitivity and if I need to get my blood sugars down quickly, I exercise. Insulin won't work if it stays in the subcutaneous fat - you have to move to get it into your bloodstream, so sitting for long periods of time at a desk and stress-nibbling is troublesome.

One of the biggest challenges I've faced with diabetes has been pregnancy. I lost hypo-awareness during my first trimester. That was scary. For the first time I felt vulnerable to this disease that I had always felt pretty in control of. It also impacted on driving. I had an hour-long drive to work and was on-call at night from home. I hated feeling like I was letting my colleagues down by not doing on-calls. I was surprised how challenging it was for me to have those conversations with my team, and to communicate my situation in a way that people could understand. The second time round I involved occupational health early, and it was a much smoother process.

How have you seen things change over the past 20 years?

I started injecting with syringes and vials of insulin, first BD with mixed insulin and then OD long-acting insulin with short acting at meals. On starting clinical school, I got an insulin pump, mainly triggered by night hypos after water polo training. The insulin pump only uses fast-acting insulin, running as a steady infusion in the background (with variable rates per hour), and you bolus every time you eat. It offers a lot more flexibility for activity and eating including being able to not eat for long periods of time.

With the pump I also started using glucose monitors, which have been miraculous. These systems are continuously improving; I now use a system called Dexcom which is linked to my smart watch, so I have continuous glucose monitoring direct to my wrist 24/7. It's discreet and convenient and allows you to review your trends over time and adjust accordingly.

Where do you see the future of treatment for Type 1 diabetes?

I think it's an era of massive technological development, and health data tracking and I'm optimistic that by embracing this we can automate much of the management of diabetes. I'm really excited about my next pump which will probably be at least a partly closed-loop system, where your basal rate is being calculated continuously in response to your blood sugars.

LETTERS TO THE EDITOR

Hypoglycaemia Cases - Guilty or Not Guilty?

Dr John Reynolds
(St Catherine's College, 1975)
Consultant Physician and Clinical Pharmacologist, JRH Oxford

I was very interested to read Neil Snowise's excellent account of insulin as a murder weapon in the last edition. As a physician and clinical pharmacologist I have undertaken investigations into a number of incidents of unexplained severe hypoglycaemia which have arisen in Oxford in the last 25 years, including murder and grievous bodily harm by a healthcare worker, attempted murder by a family member, suicide and attempted suicide, and most commonly drug dispensing and administration errors. Some of these involved insulin and others oral sulphonylureas.

> *"Perhaps the lesson in all this is never to dismiss severe symptomatic hypoglycaemia in a non-diabetic individual without thinking carefully of the mechanism*

Perhaps the most well-known case is that of the staff nurse Ben Geen who was working at the Horton emergency department (ED) in 2003-4. On February 5th 2004 a well-nourished middle aged man year was admitted to the Horton ED with abdominal pain and vomiting. The on call SHO felt he probably had gastro-enteritis and likely early alcohol withdrawal and he took some blood for investigations which included a blood glucose of 6.4mmol/l. Two hours later the man rapidly became unconscious and his glucose measured with a glucometer was 1.6mmol/l. Although he had a history of alcohol abuse there was no indication of liver failure and he had not been binge drinking, nor was he diabetic. The on call consultant wrote in the notes "it is difficult to explain the sequence of events" and during a conversation with colleagues the next day it became apparent he was not the only one with concerns about patients who had rapidly deteriorated in the ED. The consultant staff went through the notes of patients who had been admitted to ICU directly from ED in recent weeks and they identified 10 which were hard to fully explain. These involved 3 patients with unexplained hypoglycaemia, 7 with respiratory arrest, and 1 with both. Foul play was suspected and Geen was identified as the only staff member who was on duty for all 10 cases. He was arrested at work and was found to have a syringe in his jacket with a tiny amount of residual fluid in the luer lock which was later identified as vecuronium. Further cases came to light on investigation and he was charged with 2 counts of murder and 15 counts of grievous bodily harm. The majority of cases involved the use of the muscle relaxant, vecuronium but he also administered insulin and midazolam. Geen was sentenced to 17 life sentences in 2006 and the betrayal of the people of Banbury and his work colleagues took a very long time to heal.

A year later a 66-year-old man on a surgical ward was recovering from complicated cholecystitis. He had significant renal impairment following a transplant some years earlier. At 14.00 he was visited by a friend who stayed all afternoon, and shortly afterwards the man became unconscious, and his capillary glucose was recorded as 1.7mmol/l. Over the next 48 hours he required 650 gm of dextrose to maintain consciousness, but eventually he recovered with no ill effects. Suspicion fell on the poor visitor. A qualitative urine screen taken 2 days after the event came back strongly positive for sulphonylurea 2 months later. Insulin and C peptide at the time were both very elevated. Fortunately some blood had been saved in the biochemistry lab and it was sent to a specialist lab for quantitative analysis which showed a gliclazide concentration of 3.44mg/ml. A bit of careful pharmacokinetic back calculation suggested he had been given 320mg gliclazide (4 tablets) at around 14.00 on the day of his hypoglycaemic collapse. He had not been prescribed gliclazide, nor was there any recorded as ward stock. "Here we go again", I thought but on inspection a box of gliclazide was found in the drug cupboard left over from a previous patient, carefully alphabetically stored next to a pack of very similar looking furosemide which was prescribed at a dose of 160mg (4 tablets) at 14.00 (see photograph). It seems that the visitor was blameless (and fortunately unaware of my initial concerns) and this was a straightforward administration error.

Over my 25 years as a consultant clinical pharmacologist and physician I have seen 2 cases of severe hypoglycaemia due to acute liver failure which rapidly declared itself, one insulinoma, the two cases above and sadly too many prescription errors, administration and dispensing errors to recall.

Perhaps the lesson in all this is never to dismiss severe symptomatic hypoglycaemia in a non-diabetic individual without thinking carefully of the mechanism by which you think it arose.

Walker J., White R., Vale, A., Elliott, S., Wass, J. and Reynolds, J. Unexplained severe hypoglycaemia in hospital: a difficult diagnostic challenge. Br J Clin Pharmacol 2009; 67: 266-267.

Questions from Dr Neil Snowise to Professor Charles Bangham regarding his Article on pages 12-14

Dr Neil Snowise
(Corpus Christi College 1974)

Professor Charles Bangham
(Lincoln College, 1977)

NGS: I very much enjoyed Charles Bangham's excellent article and raised two queries:

"Several of these emerging viruses have emerged from bats, as well as the SARS and COVID viruses: it is a curious and interesting feature of bats that they harbour a large number of viruses." I am aware that bats harbour many viruses but do not get unwell, do we understand why this happens and can we learn anything about their immune system that may help humans?

CB Response: It seems to be generally true that bats harbour a lot of viruses, and that many of them are asymptomatic. There is good evidence that bats have a high constitutive level of expression of Type 1 interferons, which accounts for part of this protection. However, it is not the case that they are completely protected against all viruses: many of them do in fact get sick from the viruses. We also harbour several viruses that persist lifelong, in most cases not causing any disease. The classic examples are the herpesviruses, including HSV1 and 2, VZV, HHV6, and EBV: most of us get infected and never know about it, but an unlucky minority get severe or even fatal diseases, such as the bewildering array of conditions caused by EBV – infectious mononucleosis, Burkitt's lymphoma, nasopharyngeal carcinoma, and (very recent evidence, from an excellent study published in 2022) multiple sclerosis.

Why bats evolved like this is not yet clear. My own view is that, because they are more mobile than other mammals, they might come into contact with a broader range of pathogens than other species, and so there is a strong selection pressure to evolve a strong first-line (innate) immune response to viruses. But of course, like many evolutionary explanations, this might just be what I often refer to as an 'evolutionary Just So story', after Kipling.

NGS: You mention antibodies and T cell memory. We tend to only measure antibodies as a sort of surrogate marker for vaccine efficacy. But T cell memory could be very important. How do we assess this or do we just rely on it, to produce rapid antibodies if re challenged, so actually we cannot assess T cell memory?

> *"it is a curious and interesting feature of bats that they harbour a large number of viruses*

CB Response: I did my PhD and then spent most of my research career on the T cell response to viruses, so I am delighted that you bring them up. The importance of a rounded immune response to viruses, that is, one that consists of both antibodies, helper T cells and cytotoxic T cells is something I frequently mention. The helper T cells are of course essential for the antibody response and for the memory immune response – both B cell (antibody) memory and T cell (helper & cytotoxic) memory. Another key point is that there is an enormous and quite disproportionate emphasis on neutralizing antibody (nAb) in antiviral protection. But while nAbs are useful and important, they are not the whole antibody story: antibodies kill viruses by several different mechanisms, including complement fixation and antibody-dependent, cell-mediated cytotoxicity (ADCC), both of which depend on the Fc part of the antibody, and neither of which is measured by the standard in vitro assays of virus neutralization by antibody. Neutralization assays are quick, simple, and appealing ('virus neutralization' sounds good).

T cell memory can indeed be assayed (we have done countless experiments on this), but because the assays are more difficult technically, longer, and harder to standardize between labs, T cell assays are almost never used routinely as correlates of protection: only in research work.

Overall, antibodies (often nAbs) are measured as a surrogate or correlate of protection, but actual protection requires a lot more.

Erratum:

Oxford Medicine Autumn/Winter 2021: 100 Years of Insulin – A lifesaving drug and murder weapon by Dr Neil Snowise

The first paragraph on page 18 explains that pro-insulin is cleaved into insulin and C-peptide. A typo stated that "a low insulin:C-peptide ratio can provide invaluable evidence of exogenous insulin administration. This should have read a "high insulin:C-peptide ratio etc."

Thanks to Dr Derek Hockaday for spotting this error.

Derek Hockaday
(Brasenose College, 1947)

LINK TO ARTICLE: https://issuu.com/oxfordmedicalalumninewsletter/docs/oxford_medicine_autumn_2021

Sir Martin and Lady Audrey Wood with their first superconductor magnet

1984 0.5T Superman magnet

MRI – A First Encounter

Sir Martin Wood

Professor Christopher Winearls
(Keble College, 1972)

"Sir Martin Wood, founder of Oxford Instruments, a trailblazing university tech start-up that enabled the first MRI whole body scanner, died on November 23rd 2021."

So read The Times obituary. I encountered that scanner in 1982 at the Hammersmith Hospital. It was being evaluated by a pioneering academic radiologist, Professor Robert Steiner (another example of "Hitler's Gift," this one from Vienna to Ireland and then to the United Kingdom.*)

The patient was a 14 year old girl, who had bilateral facial palsies. Her GP remembered the association of this with hypertension, described by Sir John McMichael, (who incidentally had appointed Robert Steiner to his chair.) The BP was very high, so he referred her to the Professor of Medicine where, as was usual, she was seen by the Senior Registrar, me. The blood pressure was 230/150, the fundi Grade 4 and there was a left renal mass. I requested an IVU but Robert said," "I will do something much better – an NMR scan." "A what?" said I. He explained. It was a Nuclear Magnetic Resonance Image. I feigned comprehension. The NMR showed a tumour. The pictures were remarkable. He said, "You do not need anything more." I begged for conventional imaging but he was adamant. The urologists insisted so Robert relented, and we got an IVU and CT out of him. Because the renins were high we took samples from the IVC and the renal veins and bits of the tumour for every kind of examination and stored them. The tumour was removed and proved to be an adenocarcinoma. Our patient who made a complete recovery, was written up as a Lesson of the Week in the BMJ where it was spotted by a pathologist, Dr George Lindop who immediately flew from Glasgow to London to scoop up the samples. He demonstrated that the tumour had a population of granular cells containing immunoreactive renin.

> *..."I will do something much better – an NMR scan." "A what?" said I*

Before I presented this case on the Medical Staff Round, I asked whether I should try to explain how nuclear magnetic resonance could produce a picture. "Not necessary – everybody knows exactly how it works." This was, I knew, not strictly true of me, nor I suspect of my then boss.

NMRs were renamed MRIs because the word Nuclear frightened the patients. I never met Sir Martin Wood but if I had I would have told him about meeting his "Gift," to medicine.

**Hitler's Gift is Jean Medawar and David Pyke's account of scientists who were expelled, fled or rescued from Nazi persecution, to the UK.*

Anti-Racism Starts with Self

Dr Tom Bannister
(Jesus College, 2004) Emergency Medicine. Identifies and passes as a white man

I am a doctor in an Emergency Department, and I'd like to share with you how racism shows up in my work. A year ago, in the hospital where I work, we started an anti-racism campaign called EmbRACE. Our approach to anti-racism starts with looking inside yourself, being honest about what you see there, and sharing it so everyone can benefit. It's not easy, or comfortable, work. As you read, I invite you to reflect on what you accept, what you reject, and what you might do differently. Let's begin.

A few months ago, I saw two patients, both men of a similar age, one after the other, worried that they had something stuck in their throat. Each of them wanted an x-ray to put their mind at rest.

I told one patient that an x-ray wasn't necessary, but I ordered an x-ray for the other and reassured him that it was normal. I met the psychological needs of one patient, but not the other. One was White, the other was a person of colour. I don't need to tell you who got the x-ray.

I treated my patients differently (inequality) and their outcomes were different as a result (inequity). Racism influenced my medical practice and I contributed to the striking racial healthcare inequalities in our country. Black women in the UK are still four times more likely to die in pregnancy and childbirth than White women.

I treat people differently due to the colour of their skin because that's normal in our society. It requires ongoing conscious effort for me to embody anti-racism, it goes against the grain of our society.

Race, as we understand it today, was an idea created to enable slavery. In the late 1600s, the concept of race was used by White colonial leaders in America to justify the enslavement of people of colour. And for more than 300 years since, racist ideas have been woven into the fabric of our society. Our education system, our justice system, even our healthcare system, were forged during times when White supremacy was mainstream.

As long as I act in accordance with a society forged in White supremacy I perpetuate racism. That is why I can't be "not racist". I am either actively anti-racist, or tacitly racist. Racism isn't just a few bad people doing bad things (overt racism). Racism is a feature of our society, which we act out every day (structural racism).

Addressing racism requires us to change society, but it starts with changing ourselves.

I have to acknowledge racism and engage with it. I can't bypass the issue by claiming that I "don't see colour" and am therefore

not part of the problem. Children as young as four are aware of race and reinforce existing racial inequalities through their behaviour.

I have to acknowledge my race and the impact that it has. In a society that prioritises the needs of White men, my race and gender give me power and privilege, whether I choose to identify with my race or not.

I have to take action to bring about a more equitable world. I can choose where I spend my money, who I vote for, which words I use, who I spend my time with, which meetings I attend, what I read, what I listen to, who I promote, platform, or defer to, and how I practice medicine. Every choice I make says something about what I stand for. Anti-racism is a way of being. It is a series of deliberate acts in answer to the following question: "how does this choice advance the cause of racial equity"?

EmbRACE, our anti-racism campaign, is building a community across healthcare in the UK. We'd be delighted if you choose to join us.

EmbRACE is a commitment to follow your own anti-racism journey, but to do so in the company of others who are walking a similar path. EmbRACE is an invitation to reflect on how racism shows up in your life and to share those thoughts with others. We write a newsletter that offers our readers things to watch, listen to, read, attend, ponder or do. But I believe each article has the greatest impact on the person who writes it. Writing for EmbRACE invites you to engage with racism, to sit with the feelings that come up, and to have the courage to share them in writing. A bit like this.

The EmbRACE team can be contacted at: embrace.manchester@gmail.com

Poem from COVID Bed

Dr Adam Barnett
(New College, 2007)
Anaesthetist, Whipps Cross and Lister Hospitals, London. Medical adviser HALO Trust. He's just finished his first novel

Adam is an anaesthetist at Whipps Cross University Hospital and The Lister Hospital, Chelsea, and a medical adviser for the HALO Trust. He's just finished his first novel. He lives in London with his wife, son and an expanding menagerie of animals.

I've read of you. Hid from you.
Fought you through masks and nitrile skin and a hundred varieties of imported waterproof gown.
Chinese, European.
One which smelt of cigarettes that I think was Turkish.

I've stood at the foots of beds listening to the hiss-puff of the bellows inflating and deflating ravaged lungs.
I've called mothers, sons, daughters. I've called neighbours who only knew you slightly because there was no-one else.
I've said things like "much the same" and "No news is often good news" and "Of course she remains critically unwell. Something could happen at any time."

I've held hands through sweat and plastic and bullied people into lying on their fronts hour after hour.
"You really don't want to end up on ICU"
"If you can avoid intubation, do it."

> ***"But now, in a stranger's house. You're here. Inside me. Co-opting my machinery to stamp out copy after copy of the strands that shook the world.***

And I've said "This could all have been avoided if he'd've been vaccinated. Tell everyone you know."
Sometimes they believed me. Sometimes they didn't.

Sometimes I felt rage. Mostly I felt nothing.
I just showed up. It was boring, mostly.
It soon became boring. Inconvenient. Just a job.
A sweaty, thirsty job.

Once I burst out crying for no reason.
The wall of hearts along the river at St Thomas's - I cannot go there often. I cannot not go there.

I used to swear at that fat headed fop on TV.
Tell me honestly, are any of you surprised? About the parties?
Never forget that bullshit about testing your eyes.
Vote them out. The lot of them.
In memory of those dead. Of their dithering, their incompetence and their lies.

But that is all a dream now. A story for my son.
About the times he was born in . A story
he will never understand. A story I will never understand.

It is over. Or, I thought it was.
Nearly over. But now, in a small, darkened room, not even my own. Two lines - one bold, one barely there.
But that one makes all the difference.

Here you are at last. I thought you would come.
That time a bung fell out of my mask and left a hole I only found as day broke and I peeled off my gown.
After how many intubations? Eight? How many had I done with this hole? How many invisible blooms had I sucked into my warm, moist lungs?

I waited for you then. But you never came.
And slowly I came to believe you never would.

But now, in a stranger's house.
You're here. Inside me. Co-opting my machinery to stamp out copy after copy of the strands that shook the world.

But I am ready. Oh yes, I am ready for you.
I have taught my soldiers well. They know your face.
And in my molten blood, they bud and bud until they are legion.
And send great gouts of antibodies swarming, thick as starlings. To stick to you. To mark you out.

For the cells that boil like bees to defend the hive.
For I am hive.
Thirty seven trillions strong.
Strong.
Strong.
And soon, sweat breaks like dawn,
and I know
we are winning.
We are winning.

Patient Choice?

Dr Will McConnell
(Green Templeton College, 1988)
Respiratory Consultant, Dorset County Hospital NHSFT)

A middle-aged woman enters, tucking a tissue into her coat pocket. Dr Sutton moves two more chairs next to the desk and gestures to the four chairs.

"Whichever one you like. The choice is yours"
She eases herself into the chair next to the desk.
"Good choice. Now what can I do for you?"
Dr Sutton sits at the desk and pulls the keyboard closer to him. He peers at the monitor whilst tapping on the keys as Mrs Jenkins speaks, "Well over the last week, I've developed..."
"Jenkins, Joan, isn't it?" he interrupts.
"That's right."

> *"Look I don't want these choices. Can't you just tell me know you think is best?'*

Mrs Jenkins continues, "Well, over the last week, I've developed a bit of a cough, particularly when I go to bed...."
Dr Sutton interrupts, "Dry and tickly or productive and fruity?"
"Fairly dry, actually."
"Or thick and sticky? Or barking and bloody?"
"Quite dry."
"Are you sure? It's just that with barking and bloody, you get a chest X-ray this time; the others get an X-ray next time."
"But it is dry."
"Fair enough. It's your choice."
Dr Sutton stands. "Right, I suppose I'd better have a listen to your chest."
Mrs Jenkins laughs nervously, "Do I have a choice?"
Dr Sutton briefly laughs in return, then sits down earnestly. "Actually, that's a good point. Do you want me to listen to your chest or – er - do something else?"
"Such as?"
He struggles to think of an alternative, "Well - um – I could dance on the desk, or sing a song, or..."

"Perhaps you should have a listen to my chest."
"Good choice."
"Big breaths – or little ones, whatever you choose"
Mrs Jenkins takes a few deep breaths.

"So, what do you think, Doctor?" she asks.
"Well, the options are: simple reassurance, or futile course of antibiotics, or concerned look leading to further investigation. Whichever you prefer."
"What's the concerned look?"
"It's something like..."
Dr Sutton furrows his brow, shakes his head and draws in a deep breath through his teeth.

Mrs Jenkins frowns, "Oh, I don't like that. How about the reassurance?"
"Yep, not a bad choice. Very popular with the old ladies. Sort of goes "Yes, well, I see a lot this and it never turns out to be anything. It'll all settle down in a week or so, you'll see""
Mrs Jenkins is rather unconvinced. "I think I'd prefer to go for the antibiotics."
"OK, which antibiotic would you like?"
"What sorts have you got?"
"Well, there's quite a selection"
He hands over a copy of the BNF. "Take your pick."
Mrs Jenkins flicks through it, looking rather lost. "Could you, perhaps, advise one in particular?"
"Well, they're all as futile as each other, so you might as well choose on the basis of side effects. Do you want a rash, hepatitis, kidney failure or diarrhoea?"
"Look, I don't want these choices. Can't you just tell me what you think is best?"
Dr Sutton chuckles to himself, "Ah, I'm afraid that isn't an option."
"In that case, perhaps you can refer me to someone who can express an opinion about coughs."
"Well, let's see what we've got." He turns to his computer screen. "Black, grey or red?"
"I'm sorry?"
"Hair colour – what's your preference in your doctors?"
"I really don't care."
He moves his mouse and consults the computer, "Well, there's a red head in Southampton, if you like, two greys in Bournemouth..."
"Just find me someone local who knows something about coughs."
"Right. Right. Yes. OK. "

He scans the computer screen, "Coughs...coughs...coughs. Hmmm, there's no mention of coughs, as such. There's a Dr Coffer. He's quite tall. Oh, oh, oh – he's got copies of Country Life in his waiting room...."
"Look, I really don't care what reading material he has – nor am I interested in his collar size, the breed of his pet dog or where his mother goes on her holidays."
"16 and a half inches, Yorkshire terrier and Colwyn bay."
Mrs Jenkins is becoming exasperated. "I mean what a ridiculous database – what a stupid, idiotic basis on which to make a decision."
"Look, there's a chap in Basingstoke who knows a bit about chests. He's slim, early sixties, bit scary but a pretty good head of hair."
"This is ridiculous. Look, I don't care if he's a 6 foot stud with a 9 inch willy"
Dr Sutton picks up a ruler from his desk and holds it up the computer screen. He raises his eyebrows, impressed. "Ten inch, actually."
He nudges the screen slightly towards her, as Mrs Jenkins leans forward slightly to get a closer view.
"I suppose I'll just have to go for him then."
"Good choice"

The Oxford Clinical School in 1953: Notes from President of Osler House's Diary

Professor Terence Ryan
(Worcester College, 1950) Retired Consultant Dermatologist

In 1940 a clinical school was improvised in Oxford to cater for students who would normally have been joining London Medical Schools but were evacuating their students. After much argument the Medical School was fully established in 1946. Prof Terence Ryan (1953) shares his memories of that time.

Legend '1953 Oxford Clinical School Intake' except Terence Ryan who is taking the photo

The Clinical School

I enjoyed being a clinical medicine student in 1953, as part of two intakes of eight students, the smallest intake in any year. We were looked after well in Osler House previously bought and so named by Lord Nuffield.

We were tutored in groups of four in the neighbouring Radcliffe Infirmary by the Nuffield Professors Witts and Chassar-Moir, doctors Mallam, Cooke, and surgeons Mr Corry, Mr Till and Mr Elliot-Smith. However, the small firms often relied on the first assistant to do the teaching. The Surgical Tutor (Mr Harold Ellis) was especially friendly and even took part in my Tynchewyke Pantomime.

The great debate of our time was whether there should be undergraduate clinical students. Some, like Professor Witts wanted the Medical School to be small and postgraduate. Others, like Curt Hellman felt students "must have done research without showing he had any other interests," and loathed the "rugger" or "Tynchewyke" types. Several members voted against even thinking of a sports pavilion. In the debate, I noted "Why shouldn't medical students be treated as intelligent human beings and not just as something you had to teach? Badenoch, Reynell, and Chassar-Moir ignore students unless they are teaching them." I remember we thought they should come and cheer us at every Saturday afternoon rugby match.

We also discussed whether GPs should be recruited to teach us in the hospital. Very few in 1953 had agreed to have us sitting in their consultations in family practice. The Gastroenterologist Dr Sydney Truelove in 1955 had clearly expressed to some students his view that "GPs should be more involved as clinical assistants in hospital practice leaving me in my role as an academic more appreciated and enabled to do research".

He also apparently said "students are part and parcel of the hospital and should be available to help at all times". We were not quite so keen on that idea believing in the importance of sport and play.

Student Life

I was elected President of Osler House in 1954 and I have my rather long and pompous notes written before student meetings. I was asking for the creation of an adult atmosphere, with no beards, whistling, nor gaudy waistcoats! I think this request came from Dr Cooke. However, he had to suffer the new Regius who whistled Mozart's clarinet concerto whenever he walked down the quarter of a mile corridor. We did say the bedside manner we were learning did not have to feature outside the hospital, or even in its corridor (along which I once rode my Lambretta).

As is often the case with such small numbers, the problem was how to find the numbers for the next Rugby match or for the Tynchewyke pantomime. We wanted larger intakes and blamed the small intake on the reputation of the hospital in Oxford Colleges. I was in four pantomimes and as women were not allowed to be members of the Tynchwyke Society in those days, I played several transgender roles and for the fourth, at the piano, I was the orchestra. In 1956 I wrote 'Handsome and Dettol'. The new Regius Professor George Pickering, the first with research beds, was my villain. I lost control of the routine rag, we all got fined £20 by the Regius, and one of us got rusticated! The fine was secretly paid by our supporting surgeon Mr Ted Maloney. A year later I did get the Regius' house job!

Ed: We found a photo of young Terence Ryan amongst the Physiology School Finalists 1954. Left Terence Ryan, and noted incidentally on right is a young John Ledingham

Interview with Malcolm Gough MS FRCS, Consultant Paediatric and General Surgeon Oxford 1966-1991

David Cranston
(Wolfson College, 1983) Emeritus Associate Professor of Surgery, University of Oxford, and Consultant Urological Surgeon Oxford University Hospitals Trust

Malcolm Gough was born in 1927 but in 1937 the family moved to Sydney where General Electric of America, had sent his father to develop an Australian branch, based in Sydney. Initially the secondment was for three years but in 1940 it was neither sensible nor permitted for the family to return to England, so Malcolm's secondary education was at Knox Grammar School in North Sydney where he became involved in rugby, swimming and lifesaving representing the school in all three.

From the age of 12 at the weekends and holidays, he and his friends often went off with sandwiches for lunch on their bicycles in the morning, only to return in time for an evening meal. Similarly at other weekends he would go away with the Boy Scouts orienteering, having been provided with a sharp knife and potassium permanganate to incise and treat any snake bites. Fortunately, they were never needed, which was just as well as in later years they were shown to be useless!

Spared the trauma of bombing, rationing or evacuation which affected his future wife, Sheila, the family returned to the UK in 1945 at 24 hours notice on SS Orantes which had returned Australian troops home from Europe and the Middle East. News of the atomic bombs came while on board in the Indian Ocean, and the Japanese surrender was announced on the 2nd September, the day they arrived in Bombay. The harbour was crowded with 20 to 30 ships full of troops initially prepared to sail to Burma to join the 14th Army Division, but two days later, on the now overcrowded ship they left for Southampton.

Back in England, having already decided on a career in medicine, Malcolm set out to visit all the London medical schools and after several rejections he arrived unannounced at St Thomas's hospital at midday, a critical time as Miss Robinson, the strict admissions secretary, was at lunch and the young assistant was most helpful. Colonel Thompson, the Dean, happened to have his door open, heard the exchange, and invited this fit suntanned 18-year-old in. When Miss Robinson appeared 20 minutes later her protestations were overruled and three weeks later, on 2nd October 1945 Malcolm joined the preclinical school where 40% of the intake were ex-servicemen. One, who had been in the Navy in a destroyer escorting ships in the Arctic convoys to northern Russia, became a great friend and was later best man at their wedding. He became a General Practitioner in the West Country.

At the end of the first year Malcolm won the Natural Science scholarship for £150 which covered the annual fee of 52 guineas for the next three years. He became a clinical student in 1948 at the inception of the NHS, and the initial female students from Cambridge joined them. For the next three years he played rugby in the front row of the scrum, and he always felt that was good training for becoming consultant surgeon! He was in the winning team of 1950, the first win for Thomas's since 1926, and as part of the celebrations they were taken to Simpson's in the Strand for dinner by the 1926 team, most of whom had survived the war years. His only ailment during this time was recurrent tonsillitis which led to a tonsillectomy in 1949, an uncomfortable experience relieved somewhat at the time by the secretary of the medical school, Brigadier Crockford, congratulating him for winning a British Medical Association prize essay for medical students and saying that the medical school would be pleased to pay his expenses to go to the BMA meeting in Harrogate.

He qualified in May 1951 and a six month Casualty Office post was followed by six months as a house surgeon where, with some apprehension, he was responsible as an anaesthetist for a children's tonsil list at the nearby Waterloo hospital using, (as he describes it) 'open ether and hope!' Saturday after lunch to Sunday evening on alternate weekends was the only time off, and at the end of his year at Thomas's he married Sheila – unusual at the time for it was then expected that marriage should following training not accompany it.

A short service commission in the RAF followed, first to RAF Scampton, the home of the 617 Dambusters Squadron, and then Berlin where their first child Ian was born. In a latter attachment to a flying station in West Germany he persuaded one of the fighter pilots to take him up for his first experience of high-speed flight. He ended up with the rank of Squadron Leader and frequently used the facilities of the RAF club in Piccadilly, often with Sheila, when home from Germany.
Back in England, a Pott's fracture put an end to his rugby career for St Thomas's Hospital medical School, but at the same time he learned that he had passed the FRCS after lining up in a queue in the late afternoon outside the examination hall, giving his number to one of the college staff and just being told "pass", as opposed to "fail"! Quite an introduction to the Royal College of Surgeons.

A one year locum at St Thomas's and Great Ormond Street gave him the privilege of working for Sir Denis Browne in the seven months before his retirement. In 1960 he was awarded a Fulbright Grant which took him to Harvard for a year as a research fellow in Boston, taking the family out on the Queen Mary and returning home on the Queen Elizabeth.

Malcolm Gough

Back in London he formed a neo-natal club with two other senior registrars and was later appointed as a consultant surgeon in 1965, with six sessions at University College Hospital as a general surgeon and three sessions at St Thomas's hospital as a neonatal surgeon. Even in those days in London traffic was getting busier and he was finding it increasingly difficult get between the two hospitals and so when he saw an advertisement for a consultant job with a major interest in paediatric surgery in Oxford, it was a very attractive proposition, even though it was fairly widely known that surgical relationships in Oxford were far from perfect.

He drove down to Oxford one sunny Saturday morning to have a closer look at the Radcliffe Infirmary and bumped into one of the surgeons, Tim Till, in full hunting pink seeing his patients before joining the Heythrop Hunt. He thought this was an encouraging sign!

The interview later took place in the impressive boardroom of the Radcliffe Infirmary, and Philip Allison the Nuffield Professor of Surgery was later very helpful to Malcolm following his appointment. On the same day in 1966 Joe Smith, who also came from London, was appointed as a consultant surgeon with an interest in urological surgery.

Malcolm started work at the Radcliffe Infirmary, which he described as a big family, where consultants had their own dining room (which was not always the case in later years) but it facilitated discussion and patient referrals. The person who looked after them at the time had been in post for many years and remembered that before the war one of his main afternoon jobs was to put out the dinner jackets of the junior staff on their beds so that they could come and change before they went to the formal evening dinner.

In the days before CT or MRI scans, there was often a diagnostic laparotomy on the operating list. Malcolm did the first laparoscopy in Oxford, having learned the technique in London. He persuaded The Nuffield Trust to buy a laparoscope, for by using that one could diagnose undescended abdominal testes in a child, and biopsy lesions in the adult liver, without the need for more major surgery.

Adult private practice was good, for many of the patients were academics, insured by their colleges, and they wanted to come into the Acland Hospital. For a consultant to do private practice one took a 9/11ths contract, although many were working about 14/11ths!

Malcolm set up a general surgical training rotation scheme for registrars and continued with his previous research, on neonatal intestinal circulation and necrotizing enterocolitis working with Geoffrey Dawes in the Nuffield Building. On Friday afternoons he had peripheral general surgical clinics in Wantage, Witney or Bicester, which was appreciated by mothers who then did not have to take their children into Oxford.

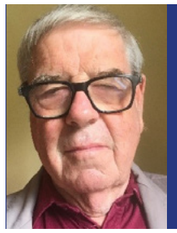
The two paediatricians, Victoria Smallpiece and Hugh Ellis were delighted to have a paediatric surgeon as they had been pressing to get someone in Oxford who could look after surgical needs of children in a population of over three million people in the Region. Initially alone, if Malcolm needed a holiday he had to ring up London and Birmingham and make sure that they were happy to accept the Oxford burden, until he was joined by Nick Dudley. Jenny Price was the theatre sister who took his first case at the Radcliffe Infirmary in 1966 and she also took his last case at the John Radcliffe hospital in 1991. A great privilege for him.

Malcolm was also trained in vascular surgery, and helped David Tibbs with that until Peter Morris arrived in 1974. In 1975 he joined the move to the new John Radcliffe site in Headington. With two full day operating lists a week, starting at eight thirty and finishing at about seven in the evening. He had friendly and excellent anaesthetists including Alex Crampton-Smith, James Mitchell, David Hodgson, Richard Fordham, John Stevens and Neil Schofield.
Clinical students were an integral part of the old firm structure, and the 'Gough Kettlewell firm' latterly 'Gough Kettlewell and Cranston' was the first firm to set up a mortality and morbidity survey, with lunchtime meetings on a Wednesday also attended by medical and nursing staff, before a joint ward round. These meetings led to a BMJ publication of the annual work load of a surgical firm, the first of its type.

In 1990 Malcolm became President of The Association of Surgeons, of Great Britain and Ireland and following his retirement in 1991 he worked as Postgraduate Dean after the untimely death of Ralph Johnson due to an anaphylactic reaction to a bee sting. Sheila died in 2019 but Malcolm remains well in his own house in Bletchington, with some of his family close by.

A true story has now gone as one of the medical legends of Oxford: In the Radcliffe Infirmary the main theatres were situated extraordinarily on either side of the main corridor and on one occasion an elderly couple wandered into Malcolm's theatre by mistake and asked "Is this the way out?"
He was operating at the time and without looking up answered "It is for some!"

The Medical School was Small.... Clinical Medicine Transformed



Richard Mayou
(St John's College, 1958) Emeritus Professor of Psychiatry. His research and clinical work was concerned with psychological consequences of major physical illnesses and with "unexplained" medical symptoms. He was founder of the national professional organisation for liaison psychiatry within the Royal College of Psychiatrists.

In October 1958 I arrived at St John's College, then a small unpretentious place. The following Monday our Physiology year, including David Warrell and three school friends, met nervously outside the Anatomy dissecting room. We would have little awareness of clinical medicine or of the tiny Clinical School. When several of us asked Victor Coxon, the lugubrious Reader in Physiology, for advice about where to go for our clinical courses he told us that the RI was a dim provincial place with "*no consultants with whom I would wish to sit down to dinner*". Of course, he was wrong and had not realised that Sir George Pickering, Regius Professor of Medicine 1956 to 1968, was making big changes. We met Sir George in our first year, when he invited us to sherry at 13 Norham Gardens. Lecturers were placed around the room, and we moved from one to another when Sir George rang a hand bell. Since then, we have seen Oxford Medicine utterly transformed and I have been fortunate to have had a truly unique view.

Psychiatry

In 1973, having trained at the Maudsley Hospital, I returned to Oxford as a Lecturer in Psychiatry (and later Clinical Tutor and Clinical Reader). The University Department, founded in 1968-9 as the first of Sir George's new academic departments, was already growing fast. Professor Michael Gelder, the outstanding psychiatrist of his generation, was the dominant figure rapidly creating an impressive academic centre and promoting student teaching and graduate training. He also very remarkably achieved a modus vivendi between divided clinicians at the Warneford and at Littlemore, where the prickly Bertram Mandelbrote, on the so-called A side had broken off relations with colleagues on the B side. Michael, the local choice to succeed Doll as Regius, was tough and chilly at work (though charming in his personal life) and this was probably the reason that he never received the public recognition he deserved.

Clinical Medicine was growing fast around us. Few of us knew that Richard Doll, who had succeeded Pickering as Regius in 1969, was quietly building on Pickering's ambitions. There were new departments, beginning in 1972 with Paediatrics (Peter Tizard) and Clinical pharmacology (David Grahame-Smith) and crucially, two new Nuffield Professors, Peter Morris (1974) and David Weatherall (1974). Doll convened weekly Saturday morning planning meetings of key people: Gelder, Ledingham, Weatherall and Morris and one or two others. Dr (later Dame) Rosemary Rue of the Oxford Regional Health Authority helped to obtain NHS funding and championed part-time training for women doctors.

Clinical Medicine Board

I wanted to know more about Medical School and was elected to membership of the Board of the Faculty of Clinical Medicine in 1989. I found that the Faculty had a tiny office with the Secretary Jennifer Noon (later the very able David Bryan), an assistant and Mr Messer and Mr Tidy who looked after student administration. The Board met three times a term at 9.00am on Saturday mornings in the gloomy Van Houten Room at the University Offices. Coffee and a croissant from the Maison Blanc were essential. The general style of the Board and its committees was autocratic. The Regius, Henry Harris (1979-1992), had strong opinions but little understanding of clinical medicine. I was also a member of the largely inactive *General Purposes Committee* and of the *Applications Committee* where Sir Philip Randle, Professor of Clinical Biochemistry, briskly approved graduate status paperwork put without reference to the rest of the committee. I eventually discovered rather effective discussion in the *Planning and Development Committee* where the usual suspects were briskly and knowledgeably chaired by Michael Gelder.

My impression was of an administration which was not keeping up with the dramatic success of the Clinical Departments, the growth and increasing regulation of the Clinical School, the financial complexities and external pressures on the University. The seventeen departments had considerable independence without the means to collaborate or communicate. All this had not mattered in the past, but problems were emerging. When Michael Gelder retired in 1994 Ken Fleming, Clinical Reader in Pathology, who had reformed the Applications Committee, became part time *Director of Planning and Development*.

General Board of Faculties

In 1991 Jim Holt unexpectedly told me he was standing down from his membership of the General Board, and asked me if I would like to replace him, assuring me that it would not be demanding. The Board was the University's senior academic committee with extensive responsibilities but little financial power. As I arrived in 1992 its uneventful pattern of business was about to change dramatically. It was already apparent that the Central Administration was failing to cope with needs of an internationally distinguished research university. *The Franks Commission* of 1966 had diagnosed many of the problems, but their recommendations had been only partially implemented and now the Vice Chancellor (Peter North 1993-7) was about to launch the *North Commission of enquiry*. My arrival on the Board coincided with two more immediate and related issues which would severely test the failing administration: university funding changes and the relationship between Clinical Medicine and the central university.

The newly established *Higher Education Funding Council for England* (HEFCE) had developed a funding model based on the 1992 *Research Assessment Exercise*. The Board had the task of developing RAE based formulae for allocation of Oxford's income to departments. Discussion of the flawed HEFCE methodology was complex and often fraught. It was particularly difficult for Clinical Medicine which had a very large research income but lacked the means to comment or respond collectively.

At the same time the relationship between Clinical Medicine and the centre was becoming much more difficult and ill-tempered. It was greatly exacerbated by the inadequacies of the University Chest (Finance Department) and general Wellington Square bewilderment and by in by the lack of communication and financial expertise within Clinical Medicine. As a psychiatrist and the only person from Clinical Medicine to be a member of major University committees I could see misunderstandings on both sides leading to a worsening marital crisis.

> *"I wanted to know more about Medical School and was elected to membership of the Board of the Faculty of Clinical Medicine in 1989.*

Many in medicine who had previously taken little notice of the University were outraged by the new HEFCE resource allocation. Powerful department with large research incomes, especially the NDM, felt especially cheated out of large research overheads and believed that *Nuffield benefaction*, Lord Nuffield's munificent 1936 donation to of two million pounds to promote clinical medical science had effectively been stolen. One head of department mischievously and inaccurately denounced the University to the Director of the Wellcome Trust, causing the University much difficulty.

When early on I tried to discuss the problems with David Weatherall, now Regius, he brushed me off saying he "*was fed up to the back teeth with Wellington Square*". He was overburdened and badgered from all sides about financial complexities he did not understand but lacked executive power. Despite this he had was one very great success, the bargain acquisition by a reluctant University of the Regional Health Authority site in 1996 to become the Old Road Campus.

When John Peach, an astrophysicist, became Chairman of the General Board in1993 we talked about the Clinical Medicine problem which he saw as his top priority. He asked me: *"If David Weatherall fell under a bus who would there be to deal with?"* John began to meet people and attended Clinical Medicine Board meetings which he found totally unlike the other Faculty Boards: *"You all sit there like stuffed dummies waiting for the Regius to tell you what you think."* He also tried to educate the General Board. This included a bus trip to the JR for presentations after which David Weatherall took us up to the roof where he pointed out the many research buildings to a largely astonished group.

Progress was very slow. John Peach and I talked about how to resolve the intractable stumbling blocks and suggested that it might be time for one of the General Board's regular departmental reviews. He thought the highly respected Sir David Smith FRS (President of Wolfson and previously Professor of Rural Economy and then Principal of Edinburgh University) would be an effective chairman with the personal skills to win over David and others. So it proved to be. *The Report of the Review Committee on the Organisation of the Clinical School 1996* found general dissatisfaction. It also noted, but strongly disagreed with, a submission by Robert Turner, head of NDM's large diabetes research group, on behalf of a number of senior people which called for Clinical Medicine to become financially independent. The recommendations included:

- There should be a full time Dean with membership of central university bodies
- The Regius chair should continue as a separate academic role
- The Dean should urgently review administration within the Faculty
- The University should negotiate a resource allocation procedure
- The Committee went beyond its remit and called for an integrated, preclinical, and clinical, medical school and a Director of Preclinical Studies.

The report was accepted with little discussion and David Weatherall proposed Ken Fleming as Dean. Ken, powerfully supported by David Bryan, set about building a new administration with clear lines of accountability and decision making which could work closely with the central University.

Medical Sciences Division

In 1999-2000 I had another unexpected view of the central administration when I was Assessor (alongside the two Proctors) on behalf of Nuffield College. This included membership of all committees and it was already apparent that there was a much happier and a more effective working relationship with Clinical Medicine. The really big issue during the year was how to implement the radical recommendations of the North Commission to devolve large financial and other responsibilities to five (later four) Divisions responsible for around 100 major departments. To the surprise of Colin Lucas, a pessimistic and not wholly convinced Vice Chancellor, Congregation readily accepted the proposals.

The Medical Sciences Division, established in October 2000, combined preclinical and clinical departments and had substantial devolved powers. Ken Fleming became Chairman of a Board, including the unremittingly vigorous and independently minded John Bell, Regius from 2002 and supported by an enlarged and capable Divisional Office. Very active subcommittees reported to the Board and liaised with University counterparts. They included *Planning and Resources, Educational Policy and Standards*, chaired by Dame Fiona Caldicott, and two committees which I chaired, *Libraries and IT* and *Building and Estates*.

Although not always easy, a transformed infrastructure made it possible the continue the ambition and creativity that Tony Hope captured in the opening words to his memoir in the last Newsletter: *"The University of Oxford has a Byzantine structure. That is a strength. It may be difficult to start new ventures but, if pursued with determination, it is nigh on impossible for anyone to stop them."*

Critics Corner: OMLC Lecture Series

Dr Sarah Ball
(Somerville College, 1974) Conservation Geneticist and retired Consultant Paediatric Haematologist

For individual links to the videos of the lectures, please visit: **https://www.medsci.ox.ac.uk/get-involved/alumni/events-and-reunions/oxford-medical-lecture-club** and click onto each lecture title for access to the video.

'Renal Anaemia: has EPO had its Day?'
Monday 31 January 2022
Professor Christopher Winearls, (Keble College, 1973), Associate Professor of Medicine at the University of Oxford and Emeritus Fellow and former Senior Research Fellow in Clinical Medicine at Jesus College.

For this lunchtime talk, Professor Winearls cast himself as the modest narrator of the story of erythropoietin, and how it opened up the fascinating world of oxygen-regulated pathways. This was presented in the format of a chronology of unfolding evidence rather than as a polished pre-packaged exposition, in keeping with the speaker's claim to have been strongly influenced in his career by the motto of the Royal Society – take nobody's word for it. The story was inevitably familiar to many but not all of the audience (which was even more than usually eclectic and erudite), but it was reeled out with zen-like calm in the face of numerous

> *"to fill in the pieces of the puzzle in a discovery that met the Nobel Prize criterion*

technological glitches, in a way that was always accessible and interesting. It was good to be reminded of the key roles of the different scientists and clinicians as their approaches converged to fill in the pieces of the puzzle in a discovery that met the Nobel Prize criterion of both changing the scientific paradigm and being of great benefit to humankind (as well as suggesting novel products for performance enhancement in competitive cycling ...).

> *"The motives of the single HCP killers seem much simpler*

'Brain Fever: How Vaccines prevent Meningitis and other Killer Diseases'
Monday 28 February 2022
Professor Richard Moxon FRS, Emeritus Fellow of Jesus College, former Action Research Professor of Paediatrics and the former director and founder of the Oxford Vaccine Group at the University of Oxford.

This talk took us through the development of vaccines for bacterial meningitis, with an intriguing dip back into the history of the paradigm that specific organisms cause specific disease. In common with other impressive talks in this series, the essential close cooperation between scientist, clinician and pharma was evident in this talk, perhaps unsurprisingly, given that Prof Moxon was the founder of the Oxford Vaccine Group. Overall this was a lovely talk, encompassing clinical paediatric infectious diseases and the evolution of the scientific design of vaccines from the early observation that the causative bacteria were in some way protected from being phagocytosed by neutrophils, to the systematic study of bacterial genomic sequences. Prof Moxon more than lived up to his introduction as the "archetype of a pioneering clinical scientist". And do buy his book "Brain Fever". Royalties are going to meningitis charities, highly apposite given that the development of the meningitis vaccines were made possible

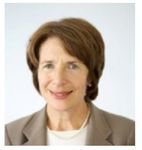
> *"archetype of a pioneering clinical scientist"*

by the extraordinarily generous financial support of the National Meningitis Trust, a charity founded by a family who had lost a child in a meningitis outbreak, a reminder of both the devastating impact of meningitis and the increasing participation of patient groups in medical research.

'Kill or Cure - Medical Murderers'
Monday 28 March 2022
Dr Neil Snowise, (1974, Corpus Christi College), Visiting Senior Lecturer at the Institute of Pharmaceutical Science, Faculty of Life Sciences and Medicine, King's College London.

After an eclectic medical career to date, including anaesthetics and general practice, Dr Snowise is now Visiting Senior Lecturer at the Institute of Pharmaceutical Science, King's College London. But his talk, although entertaining and erudite, was not about the heroic treatment of devastating new diseases with exciting new drugs with a thrillingly knife-edge therapeutic margin. No. This was about true crime, specifically about murders committed by healthcare professionals, subdivided into serial and single killers. The means for these crimes are generally those easily on hand for HCPs, including insulin, opiates and air embolism. Tip: try glibenclamide rather than injected insulin, to reduce the risk of detection. The motives of HCP serial killers, we were told, "are the subject of much academic speculation", but likely include Power and Control, Attention and Praise, and, alarmingly, Just For Fun. The latter conjured up disturbing memories of undergraduate physiology and pharmacology practical experiments. The motives of the single HCP killers seem much simpler. This category is largely made up of mid-life male doctors who dispose of their wife in favour of a mistress, having taken out a life insurance policy on their wife shortly before her demise, with clumsy forging of prescriptions of the lethal agent of choice. Did they never read any Agatha Christie? And are they just the tip of the iceberg? I found myself looking somewhat apprehensively at the rest of the audience. Mid-life male doctors in abundance, all far too clever to get caught. A few did sport Shipman-like beards, which succeeded only in making them look both kindly and trustworthy. Appearances can be deceptive. Time to step up the stringency of the revalidation process.

Weatherall Lecture 2022: 'From Watchdog to Enabler: Regulation in COVID and After'
Monday 25 April 2022
Dame June Raine DBE FMedSci (1971, Somerville College), Chief Executive of the Medicines and Healthcare products Regulatory Agency (MHRA) in the UK.



The Medicines and Healthcare Products Regulatory Agency (MHRA), headed by Dame June Raine, tends to keep its light under a bushel. This masterclass of a talk was an eye opener for me. Probably in common with many others, I had previously envisaged the MHRA as a rather dry supervisory agency, scrutinising applications and reports, approving or disapproving, licensing. Here we saw a very different version, learning of the MHRA's agile response to the challenge of Covid-19, enabling the use of Covid-19 vaccine outside the clinical trial setting in a breathtakingly short time, as well as facilitating the Recovery clinical trials, once again at an impressive speed, with an early demonstration of the important benefit of dexamethasone. Once again in this series of lunchtime lectures, there was a recurring central theme of collaboration between scientists, clinicians and pharmaceutical companies, but here also revealing the skilful guiding hand of the regulator. Outside Covid the MHRA continues to orchestrate strong links between basic science and real-world data, for example in the Yellow Carding biobank initiative, drawing on genomic

> *"the MHRA's agile response to the challenge of Covid-19*

data with the aim of reducing the burden of adverse reactions, working proactively, planning, delivering. This superb talk was a fitting addition to the august series of Weatherall Lectures, established in 2012 and continued in honour of the late Prof David Weatherall, mentor to many in the audience.

> *"The treatment of asthma was stuck with different combinations of the blue inhaler and the brown inhaler (plus advice to stop smoking and avoid cats)*

'Trials and Tribulations of New Drug Discovery in Asthma'
Monday 30 May 2022
Professor Ian Pavord MA DM FRCP FERS FMedSci, Professor of Respiratory Medicine at the University of Oxford, Honorary Consultant Physician at the Oxford University Hospitals and Professorial Fellow of St Edmund Hall.

The treatment of asthma was stuck with different combinations of the blue inhaler and the brown inhaler (plus advice to stop smoking and avoid cats) until precision treatment came along. In this articulate and informative talk Prof Pavord gave another convincing illustration of science-driven advances in medicine, in this case the efficacy of monoclonal antibody-targeting of IL-5 in adult-onset severe eosinophilic asthma. It all made total sense, though as a haematologist I was initially confused by FeNO as the acronym for the predictive inflammatory marker; why not FENO? While on nomenclature, some system for the prefix of the names of monoclonal antibodies would make life simpler. This talk, as is usual for the series of medical lunchtime talks, stimulated lively and interesting discussion in the Q&A section.

LIST OF UPCOMING OMLC LECTURES

The meetings are currently held between 13.00 and 14.00 at St Hugh's College and also live streamed via Zoom.

'The Role of the State, the Medical Profession, and the Public in Preventing Ill Health' by Professor Sir Chris Whitty:
Saturday, 17 September at 16.00
2022 OSLER LECTURE

'The Cortical Regulation of Sleep' by Dr Lukas Krone:
Monday 31 October

'The Operation Drawings of Barbara Hepworth' by Professor Paul Bowness: Monday 28 November

'William Osler and China' by Professor David Cranston:
Monday 19 December

'HIV/AIDS 40 years on' by Professor Chris Conlon:
Monday 30 January

'Brain on Fire: Extinguishing the Concept of Immunity Privilege' by Professor Sarosh Irani:
Monday 27 March

NEWS & CONGRATULATIONS

PROFESSOR SIR DAVID WARRELL, (Christ Church, 1958) Emeritus Professor of Tropical Medicine, Nuffield Department of Medicine, is appointed Knight Commander of the Order of St Michael and St George for services to global health research and clinical practice. Professor Warrell was the founding director of the Mahidol Oxford Research Unit in Thailand, part of the Centre for Tropical Medicine and Global Health in Oxford, and its international Tropical Medicine Research network. Over the last 50 years, Professor Warrell has worked in Africa, Asia, Oceania and Latin America. His research interests included respiratory diseases, relapsing fever, rabies, malaria, and venomous and poisonous plants and animals.

PROFESSOR SIR CHRIS WHITTY, (Pembroke, 1985) received a KCB (Knight Commander of the Bath) in recognition of his role in battling COVID-19. Professor Whitty is the current Chief Medical Officer for England, the UK Government's Chief Medical Adviser and Chief Scientific Adviser for the Department of Health and Social Care. His academic career has seen him elected Fellow of the Academy of Medical Sciences, Gresham Professor of Physic and Professor of Public and International Health at the London School of Hygiene.

DAME JUNE RAINE, Somerville 1971) has been appointed Dame Commander of the Most Excellent Order of the British Empire (DBE) in recognition of her services to medicine and public health during the Covid pandemic. Dame June is currently Cheif Executive of the Medici es and Healthcare Products Regulatory Agency. (MHRA).

PROFESSOR FIONA POWRIE FRS (Linacre College, 1986) Professor of Musculoskeletal Sciences (Nuffield Department of Orthopaedics, Rheumatology & Musculoskeletal Sciences) and Director of the Kennedy Institute of Rheumatology, is appointed Dame Commander of the Most Excellent Order of the British Empire (DBE), for services to Medical Science. Professor Powrie has made major contributions to our understanding of the immune system. Her early work provided very important support for the existence of regulatory T lymphocytes, adding very strong data so that it is now universally accepted. Turning her attention to the gut she has been a leader in working out how the bacterial content interacts with the immune system. Her scientific contribution is unique and has been transformational to our understanding of how the gut bacteria and the immune system interact.

PROFESSOR RICHARD J HAYNES, (Magdalen College, 1997) RECOVERY trial coordinator, has been appointed MBE for services to Global Health. "I am excited, flattered and embarrassed to receive this honour. I am only receiving this because of the incredible efforts of my friends and colleagues in the RECOVERY team and wider university. I dedicate it to them, and to all our collaborators at hospitals in the NHS and around the world who have given themselves to this effort."

DR STEVE LOCKHART (New College 1977) has been awarded Fellowship of the Academy of Medical Sciences (AMS). Fellowship is a prestigious honour and recognises Dr Lockhart's contributions to medical science and the development of novel medicines. Dr Lockhart has had an outstanding career leading vaccine research. His most recent role has been dominated by COVID-19 vaccine development. He spearheaded the clinical development of the novel Pfizer–BioNTech COVID-19 vaccine, Comirnaty(tozinameran), at record speed, with UK being the first country to approve the vaccine in December 2020.

DR NIKITA VED of Department of Physiology, Anatomy and Genetics (DPAG) is appointed a Member of the Most Excellent Order of the British Empire (MBE) for her services during the COVID-19 pandemic. In particular, Dr Ved is recognised for her vaccine outreach work as part of The 1928 Institute, an official Oxford spin out which she co-founded. The 1928 Institute was established in 2020 as a think-tank and continuation of the original India League (est. 1928). The not-for-profit is designed to research and represent British Indians, provide analysis on the emerging events in the Indian Sub-continent and within its diaspora, and be a platform for dialogue for the diaspora with the aim of disrupting 'echo-chambers'.

Please contact the OMA Team (oma@medsci.ox.ac.uk) regarding any news you would like to be considered for entry in the next edition of Oxford Medicine.

Obituaries

DR DONALD LANE (1935 – 2022)

Dr Donald Lane was a much-loved physician and musician. His life will be remembered for his dedication to medicine and his contributions to Oxford music. All who met him found him a kind, compassionate, gentle man, and they greatly valued his medical expertise.

Donald came from relatively humble beginnings that were dogged with tragedy. His twin sister died at birth, and his younger brother Robert died of cystic fibrosis at the age of 15, when Donald was 17. Despite this, and the disruption of the war, Donald went to Rutlish grammar school in Merton and excelled at science and music, the latter gaining him a scholarship to Christ Church to study Chemistry. On arrival at Oxford, the very recent death of his brother caused him to change to medicine. Thus, the scene was set for a career in medicine, and a lifelong interest in music.

Donald's interest in respiratory medicine was clearly influenced by his brother's disease, but also by people he met during his training, such as physiologists Dan Cunningham and Brian Lloyd, and neurologist Honour Smith. He did junior jobs in Redhill, Oxford and Manchester, where he went on to do a DPhil with Jack Howell in 1970. They studied ventilatory control in respiratory patients and this involved many lumbar punctures for acid base measurements. Donald returned to Oxford and was made a consultant in respiratory medicine at the Radcliffe Infirmary, and a respiratory physician at the Churchill hospital, in 1971, a post he held until his retirement in 2000.

As a consultant he developed a particular interest in asthma and, not surprisingly, cystic fibrosis. He wrote a popular book for patients on asthma (with Dr Anthony Storr a psychiatrist) in 1979, with a third edition 12 years later. His contributions to respiratory medicine in the UK were considerable and he was made the annual president of the British Thoracic Society in 1994. Another marker of his concern for patient welfare was his considerable involvement with the creation of the National Asthma Campaign in 1990, amalgamating separate asthma charities (the Asthma Research Council, the Asthma Society and the Friends of the Asthma Research Council). He was vice-president of this charity for many years from 1993 and helped establish the National Asthma Training Centre, which taught hundreds of health care staff about asthma care. Donald also continued his interest in research and supervised several doctors for higher degrees, me included.

In 1978, Donald had been asked by the parents of a nurse (Jill Broadis) who had died of a melanoma, to organise annual memorial concerts to raise funds for the Nuffield Department of Surgery. These Jill Broadis Concerts grew from strength to strength and evolved into three a year, with ever increasing forces involving health care professionals, their families, and friends. Donald ran and conducted the orchestra for over 25 years until 2005, raising money for many medically related charities. It is interesting that in an interview with his contemporary, Dr Derek Hockaday in 2013, Donald said that he would most like to be remembered for establishing and running the Radcliffe orchestra, pointing out correctly that the 100th concert would come up in 2016. The orchestra continues to flourish 45 years later and will be doing a memorial concert for Donald in November 2022. There are many medical musicians in Oxford and beyond for whom the orchestra allowed them an opportunity to gently return to playing again after enforced breaks.

Donald was always fascinated by tales of medicine from years gone by, and some years ago after his retirement he started an extraordinary book called 'The Poet, The Practitioner and The Professor'. These three highly imaginative stories, based on fact, are about John Keats (who initially trained in medicine and died of TB), Dr George Bodington (a 19th century GP with revolutionary ideas about the treatment of TB), and Professor William Osler of Oxford (who had a particular interest in TB and its treatment).

Donald retired to Deddington and continued to organise many musical events, especially encouraging young talent. He had always been interested in composing, but it was only on retirement that he was able to take composition lessons from Cecilia MacDowell, allowing him to compose in earnest; and the Radcliffe Orchestra performed some of his pieces. In February 2011, coincident with his 76th birthday, he organised a concert of his and MacDowell's songs in the Holywell Music Room; and for his 80th birthday in 2015, he initiated a concert of his and others' works at Deddington Church. In all, he composed over 75 pieces.

Written by Dr John Stradling, Emeritus Professor of Respiratory Medicine, University of Oxford.

PROFESSOR GODFREY FOWLER OBE (1931 – 2020)

'Father of General Practice Teaching and Research at Oxford University'
Founding Head of Department at Nuffield Department of Primary Care Health Sciences.

Godfrey Fowler, who died on 29th March 2020 at the age of 90, was the father of general practice teaching and research at Oxford University. He was born in Wolverley, a village in Worcestershire, and was the first in his family to attend University - both his parents had left school at 14. He was also the first pupil at the local grammar school to gain Oxbridge entrance, winning a scholarship to read medicine at University College in 1949. He admitted that he found his first year socially challenging - his choice of rock-climbing as a favourite undergraduate pastime could be seen as a metaphor for much of his early career. Fortunately he survived the inevitable night climbs of College and University buildings, including the infamous Radcliffe Camera overhang.

Godfrey moved to London to undertake his clinical training at University College Hospital. He qualified in 1955 and then completed a number of junior hospital posts, mainly in paediatrics. In 1959 he decided to pursue a career in general practice and his first post was back in Oxford – a 12-month trainee appointment at a practice on Banbury Rd. His obvious clinical skill and good nature soon led to him being offered a partnership – and he was still working at the same practice when he retired 40 years later, although the practice had by then moved to Beaumont St.

In 1961, he was first appointed as a College doctor (at Queen's College). He was not impressed by the clinical service on offer to students and he developed a detailed proposal for a student health service. Although the proposal was never implemented in full by the University, the case for a mental health service was accepted and the consequent University Counselling Service still provides vital support for today's students. And of course, Godfrey and his GP partners subsequently became College doctors for at least five other Colleges, including Balliol and University. Godfrey's involvement in teaching was initially informal – he offered one-week placements in his practice to students interested in experiencing general practice and subsequently helped organise placements in other Oxfordshire practices where students stayed with the GP's family for 2 weeks to experience the reality of providing 24-hour community care. But by the early 1970s the General Medical Council was demanding that general practice training in medical schools should be formalised. Oxford University eventually agreed to appoint a part-time Clinical Reader in general practice to organise this.

Godfrey was appointed to this Clinical Reader post. Although at first he was on his own, a sole GP within a Department of Social Medicine, he gradually managed to raise funds to recruit two GP colleagues (Theo Schofield and Martin Lawrence) as part-time Clinical Lecturers. They helped him devise a curriculum, train a cadre of GP tutors, and manage the task of organising teaching in GP practices across Oxfordshire. Although Godfrey had had no training in research methods, he soon recognised that organising teaching was not enough in itself – research was needed to provide an evidence-base for what was being taught. Exploiting his host Department's interest in preventive medicine and smoking prevention, he started by recruiting a DPhil student to undertake a randomised trial of the effectiveness of brief stop-smoking advice by a general practitioner. The results of this trial still inform national and international policy on smoking cessation.

Over the next two decades Godfrey gradually developed a formidable academic unit - providing high quality teaching, raising substantial grant income, and publishing important research papers. Godfrey himself became an internationally recognised expert in tobacco control. In 1996 he was awarded the title of Professor. Although the University Department of Primary Care was not created until the year after he retired in 1997, the spadework was Godfrey's.

Godfrey's work was recognised during his lifetime by his appointment to Fellowships of the Royal College of General Practitioners in 1978 and the Royal College of Physicians in 1996. He received an OBE in 1989. He is survived by his wife Sissel (to whom he had been married for 61 years), his son Jeremy, and a grandson. His son Adrian died in a tragic accident at Oxford station in 1995.

Written by David Mant, Emeritus Professor of General Practice, University of Oxford.

DR (GEORGE) GORDON MACPHERSON (1941 – 2021)

Gordon MacPherson died following an intracranial haemorrhage on 14th November 2021. Gordon (Corpus Christi, BM MA DPhil) was Reader in Experimental Pathology at the Sir William Dunn School of Pathology and Turnbull Fellow, Tutor in Medicine, and Senior Tutor at Oriel College but these titles do little to capture his spirit, or the breadth of his career.

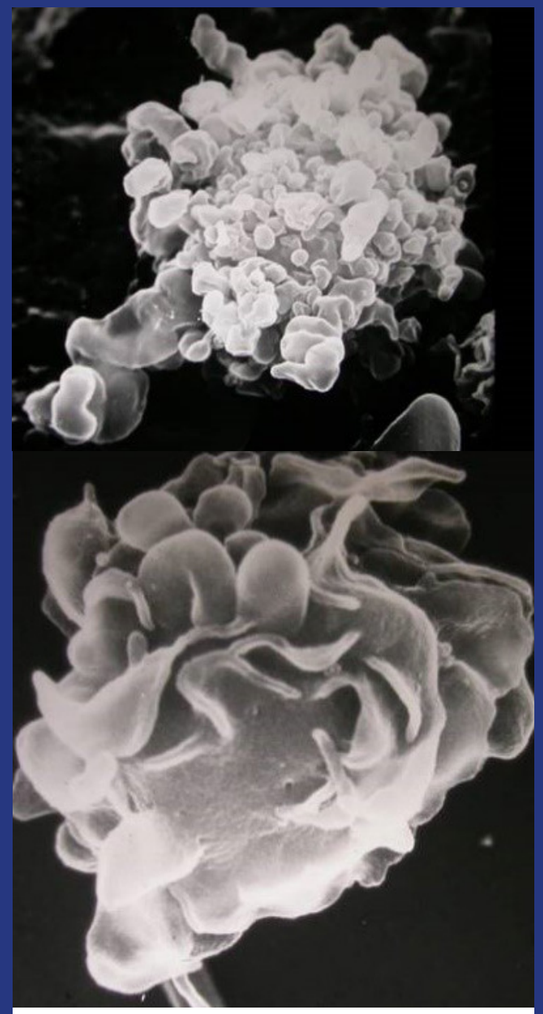
The son of a sculptor, Gordon studied medicine (with cricket) at Corpus and then the London Hospital. He returned to Oxford to undertake a DPhil on megakaryocytes and platelets. His career in Immunology started with a Florey Fellowship at the John Curtin School of Medicine in Canberra, under Bede Morris. On returning to Oxford, Gordon's work on transplantation continued. In the late 1970s, Gordon identified dendritic cells derived from rat afferent lymph, before many believed them to be a distinct cell type. Over the remainder of his career he elucidated many aspects of their heterogeneity and revealed their functions in presentation of different types of antigens and in transporting prions.

Gordon was a fine teacher. Many will have benefitted from his skill in gently encouraging them to think more deeply than they perhaps considered possible. His enthusiasm for Immunology was apparent to those who attended his lectures and through his co-authorship, with Jon Austyn, of the well-received textbook 'Exploring Immunology: Concepts and Evidence'. Gordon was also firmly empathetic with students and expertly chaired the University Counselling Service through a period of transformation.

Portrait from the Dunn School archive, Bodleian library

Gordon was not necessarily one for tradition, but he initiated the annual Burns Night celebration in Oriel College, facilitating his enjoyment of single malt whiskies. On Burns Night this year the College flag was flown at half-mast as 'a mark of fondness and respect'.

Gordon had an infectious sense of fun, was fine company and an excellent



scanning electron micrographs of afferent lymph dendritic cells courtesy of Chris Pugh.

In Memoriam

Dr William James Appleyard FRCP
(Exeter College, 1954) died February 2022

Professor Aaron Beck
(Wolfson College, 1986) died November 2021

Dr Louis Botha Bok
(The Queen's College, 1932)
notified in December 2021 of his death

Mr William Michael Cooke
(Merton College, 1955) died March 2022

Professor Matthew Jeremy Norton Crocker
(New College, 1994) died January 2022

Dr Bridget Ann Davies
(Somerville College, 1950) died April 2022

Dr Charles Kybett Davies
(Magdalen College, 1949) died April 2022

Professor Derek John de Sa
(Jesus College, 1963)
notified in March 2022 of his death

Dr David Hallen Elliott OBE *(*
Magdalen College, 1961)
notified in January 2022 of his death

Dr Philip Morris Fleming
(Pembroke College, 1960) died February 2022

Dr Peter Jonathan Haslett
(Hertford College, 1981) died February 2022

Dr John Richard Henderson
(Balliol College, 1953)
notified in March 2022 of his death

Dr John Russell Hughes DM *(Oxon) MD PhD*
(Exeter College, 1950) died March 2022

Dr James Henry Marigold
(Magdalen College, 1967) died February 2022

Dr Graham Austin Herrock Miller DM FRCP
(Jesus College, 1948) died January 2022

Dr Cynthia Mary Phillips
(Lady Margaret Hall, 1937)
died December 2021

Dr Robert Julius Reichenbach
(Merton College, 1966) died March 2022

Professor John Thomas Edwin Richardson
(St John's College, 1967) died March 2022

Dr Edward Sumner
(Magdalen College, 1960) died May 2022

Dr Elizabeth JULIE Erika Sutherland FRCP
(St Hilda's College, 1954 nee Neale)
notified in January 2022 of his death

Mr Abhijeet Narayan Tavare
(Balliol College, 2012)
notified in December 2021 of his death

Dr John Saville Thurston
(St Edmund Hall, 1980)
notified in February 2022 of his death

Dr Jean Elizabeth Velecky
(Somerville College, 1941) died March 2022

Dr Chester White MBE TD
(Merton College, 1952) died November 2021

Dr Timothy Campbell Wood
(Hertford College, 1949)
notified in January 2022 of his death

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Reunions 2022

50 Year Reunion 2022

The early April sunshine bathed Balliol quad for the 50 year reunion of those who matriculated in Medicine in 1965 and/ or qualified BM BCh in 1971. A straw poll had revealed that lunch was the preferred option and 40 of us, including some partners, gathered, drinks in hand, around the enlarged photograph of Physiology Finalists 1968 to identify our younger selves. Most of us had completely forgotten the existence of this aide memoire and were unaware that it is still displayed in the nether regions of the Physiology Department. Lyn Williamson, President of Oxford Medical Alumni, and the Oxford Medical Alumni Relations Manager Bella, who organized the event brilliantly, were on hand to ensure that all went well. 'Balliol did us proud' said one alumnus. As a Balliol man he might have been biased but that was indeed the case. The SCR provided a welcoming environment, the staff were helpful and the food was excellent to the surprise of many of us who remembered the college catering of another era. The more formal part of the proceedings finished with toasts to absent friends, to our partners who had put up with us through the difficult decades of professional life and lastly to us who had survived and were healthy and sufficiently able to meet again in Oxford after half a century.

Helen Issler *(Lady Margaret Hall, 1965)* and **Graham Winyard** *(Hertford College, 1965)*

1968 Physiology Finals Photo

1971 Clinical Graduates, Balliol College, Saturday 2 April 2022

WE ARE ALSO DELIGHTED TO ANNOUNCE THE REST OF THE REUNION DATES FOR 2022

10th Reunion (2012 graduates): BBQ Lunch
Saturday 6 August at St Hilda's College

20th Reunion (2002 graduates): Dinner
Saturday 10 September at Magdalen College

30th Reunion (1992 graduates): Dinner
Saturday 3 September at St Peter's College

40th Reunion (1982 graduates): Dinner
Saturday 26 November at Balliol College

50th Reunion (1972 graduates): Dinner
Saturday 8 October at Balliol College

Medical Student Working in the COVID early Alert Service

Mr Joseph Wilson
(Oriel College, 2016)
Newly Qualified Doctor

From August 2020 to March 2022, the University ran its own in-house COVID-19 test and trace system – the Early Alert Service (EAS). A collaboration between the University and Oxford University Hospitals NHS Foundation Trust (OUHFT) involving everyone from retired public health officials to medical students in their first year of clinical training, more than 12,000 PCR tests were performed, approximately half a million lateral flow devices issued, and y people vaccinated on University sites.

However, despite best efforts, our ability to limit the spread of infection within the University and the wider Oxford community was repeatedly hampered by the Government's inability to enact suitable, proportionate, yet impactful policies when necessary.

The clearest example of this is Trinity Term 2021: the relaxing of restrictions and removal of government support coincided with the emergence and swift dominance of the Delta variant within the UK. Compounded by the relative paucity of vaccinated students due to the nature of the vaccine rollout, plus the increased socialising characteristic of Trinity and the want to make up for lost socialising, our community was at particular risk. The government's lack of practical policy and guidance for higher education institutions and verbose insistence that it would all blow over left the University in a precarious position: continue to align with the Government as it had done throughout the pandemic or go further than Ministers presented as necessary and de facto announce that Oxford University believed that the Government was getting this wrong.

Ultimately, the University toed the government line, but quite quickly we saw cases surge with multiple sources of infection with transmission occurring at events deemed to be COVID safe. Arguably, we learnt our lesson for when the Omicron variant took hold in the run up to Christmas 2021. Through EAS testing, we detected one of the first Omicron infections in the UK. The forensic work of our results liaison team swiftly identified the source of infection and isolated the index case; overnight we quadrupled our testing capacity in which our dedicated team of more than eighty medical students were instrumental. Although cases began to rise, and they rose quickly, we were confident of where in our community transmission was occurring. Subsequently, and in direct contravention of Government guidance, the Vice Chancellor cancelled all Christmas parties and encouraged working from home where possible. Were it not for the diligence of EAS, and the University's willingness to act on its findings, I believe there would have been a swifter Omicron wave in Oxford with a real potential to further squeeze local NHS services already under immense strain.

Following the Government's abolition of isolation requirements and testing availability earlier this Spring, the University chose to dissolve EAS. This action, however, must not be conflated with the University taking the position that the pandemic is over. Moreover, it signifies that there was no longer the foundation of Government support on which EAS required to be a successful infection control tool. How can staff and students possibly know that they are close contacts if widescale testing is no longer available? What good is there in us continuing to test in-house if there if the requirement for isolation and support has been removed?

Having reflected on this almighty near two-year ordeal, a few thoughts come to mind. Firstly, if we end up in a position once again requiring EAS, we now have a solid framework that we would implement. Many lessons were learnt en-route, but our willingness to act on our mistakes was fundamental to the success of EAS in which I take a lot of pride. Secondly, gratitude to those who stepped up, thinking their public health and clinical days were firmly behind them, and taking the time to guide those such as myself for whom this was very much their first rodeo.

EAS was a real success in limiting infection within and maintaining the productivity of the University in response to one of its greatest adversities throughout its long history. Whilst hoping our doors never have to reopen, if they do it can only be as an adjunct to sensible, effective, nationwide policies.

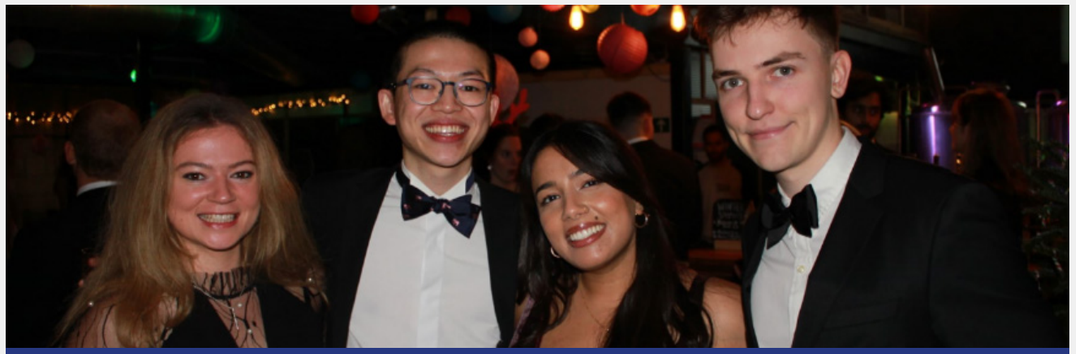
Osler House News

Caroline Valensise
(Pembroke College, 2013)
Osler House President

Where has the time gone? We are now approaching exam season, evident by the copious number of empty coffee jars in Osler House. The last 6 months have certainly been memorable, with the return of the Osler Bop, the new Osler Winter Party, the 5th years halfway point dinner at Somerville, and the finalist celebratory February dinner at Freuds. Alongside these glamorous evenings, we have put on bops throughout the year, allowing all the clinical medics to let loose and forget about the troubles that come with closing the curtain on a ward round.

Our cohort has also been lucky enough to experience the amazing facilities in Osler House. The building was officially re-opened without restrictions on the 27th March, allowing for full use of the study rooms, gym and bar. Inductions for the gym and bar staff training are currently underway to allow for a tremendous summer term. In May the winning painting from the Osler House COVID Art Competition was unveiled. Although the year is nearly up, there is still plenty to look forward to. We are already starting to plan the annual Osler House Summer Garden Party fuelled by the finest weather Oxford can offer.

My sincerest thanks go out to the current Osler Committee for their hard work over the year!



Medics at the Osler House Winter Party

Support AccessGEM, the Graduate Entry Medicine Bursary: A Student-led Initiative

Morganne Wilbourne
(Magdalen College, 2020)

We are a group of current graduate entry medical students working to create a need-based bursary for future students on our course. We're hoping to raise an initial £125,000 to endow support for one student on the course. Graduate-Entry Medicine (GEM) is a unique pathway into medicine that attracts students into medicine at later stages of life and encourages them to blend previous academic and life experiences into their medical careers. Unfortunately, GEM is an expensive course for students, the majority of whom carry debt from previous degrees, are financially independent from their families and may even be in positions of parental responsibility. On top of that, the funding that is available to students is often not sufficient, and most Oxford scholarships can't be accessed by GEM students. As you can imagine, many potential applicants simply do not apply to the course and many students who do enrol, face immense financial hardship for the duration of their studies.

To address this, we have been working to create the *AccessGEM* bursary. This student-led initiative aims to provide *liveable* bursaries to GEM students for the duration of their studies. We believe that Graduate-Entry Medicine at Oxford should be accessible, regardless of financial status, and that this is a key milestone in eroding systemic barriers in medicine and creating a diverse workforce that represents the community it serves. If you are interested in supporting our efforts, please follow the link or scan the QR code to share your email address with us to find out more!

https://forms.office.com/r/7Ur71dzDCz

Rowing News and Congratulations

Beinn Khulusi
(The Queen's College, 2017)
OHBC Alumni Officer

Osler House Boat Club: Year in Review

This was another highly successful year for Osler House Boat Club. Following the club's double blades-winning end to its first year back in the college rowing world at Summer Torpids 2021, it was important that the club kicked on and continued to grow. This goal was accomplished, and then some. It has been my pleasure (as last year's Co-President and this year's Alumni Officer) to watch the club grow from a small group of dedicated rowers who would store the boat outside and paddle on weekends, back to a large part of the lives of clinical medical students in Oxford, with a stable home in Balliol boathouse, two boats, and a huge number of rowers. With the addition of the men's side and further success both on and off the water for the women's side, the club has had a year worth remembering.

Women's 1st VIII

It has been another year of sheer domination for the crown jewel in the Osler House armada, the Women's First VIII. At Torpids, W1 once again produced a series of classy performances which belied their lowly place in the starting order. The squad was bolstered by the arrival of two extremely strong 4th year rowers, Sophie Thompson and Zuzanna Borawska, the transfer of 5th year Julia Halligan in from St Hilda's, the emergence of the world's hardest-working novice Alex Wood, and the retention of the core of the Summer Torpids crew. In an extraordinary pre-Torpids decision, a Captains' Meeting motion presented by the club passed nearly unanimously, elevating Osler House W1 two divisions in the Torpids starting order from Division 7 to Division 5 (in the name of "not bullying 18-year-olds who have just learned to row with our crew of university-level rowers"). This proved somewhat token, as W1 blew away the competition in their new division anyway, going +5 and winning blades whilst barely breaking a sweat.

However, the real marker of progress was seen when W1 competed in Summer VIIIs for the first time in many years. A competition in which OHBC have had huge historical success with 9 headships, the crew started atop Division 4. A special mention must go out to 6-seat Kat Beck, who arrived just 5 minutes late for the meet time on the first day of VIIIs having commuted from a conference in Milan. There were some thoughts in the college rowing community that Osler House would finally be shown up as the "small-track bullies" of the lower divisions when it came to facing some "real crews" at this level. However, such doubters were quickly silenced as W1 seamlessly continued their road back to the top, swiftly dispatching two college 1st VIIIs (St Hilda's and Queen's) before Donnington Bridge en route to a +4 finish in Division 3. Now ranked 34th on the river and still climbing with ease, it would take a hardened contrarian to argue that Osler House are not soon to be major players in college rowing once again.

Going forward, the crew will benefit hugely from the purchase of a new boat, which thanks to the generous donations to our fundraisers all year, is soon looking like a possibility. With a top-end boat to carry our top-end crew, the sky will once again be the limit for Osler House W1, as it was for many decades in the 20th and early 21st centuries. It is extremely exciting to think about where this crew will be in ten years' time, with a continuous influx of talented and enthusiastic rowers. Can Osler House W1 become the first college crew to reach 10 Summer Eights headships? Watch this space.

Men's 1st VIII

The story of the year in OHBC has been the restoration of the men's side. In Torpids, the boys arrived to the qualifying "Rowing On" race with high hopes and not-quite-as-high levels of training in the bank. This proved a step too far at the time, with M1 losing out on the final qualifying place in a dead heat-settling coin toss. Never to be dissuaded, however, the crew kicked on. With the purchase of a set of blades and a 3rd hand shell (lovingly nicknamed the "Blue Bullet") from Hertford College for a princely three-figure sum, the men's side were given freedom to organise outings independently. Enthusiastic leadership from captain Raghav Ramachandran and social secretary Mattie Hayes ensured that, come Rowing On for Summer VIIIs, the boys set a strong time and qualified easily. In the week, things may not quite have gone to plan in racing terms (with "spoons" secured, being bumped every day), but the men's side could quite honestly not have received a bigger boost. Their sense of humour, dress sense (see pictures!) and friendliness to every crew they encountered (read: crashed into during the warmup) fostered an incredible atmosphere which was noticed far and wide – recruitment for the men's side has never been higher than in the days since Summer VIIIs, and we have high hopes for the continuing upwards trajectory of the side. For a crew that did not exist this time last year, the future could not be brighter.

Women's 2nd VIII

Osler House W2 has always been a unique crew. Where other colleges use their W2 to field novice rowers, some of whom are new to competitive sport, Osler House has always had a deep pool of strong rowers who want a lower training burden, or already-strong sportswomen wanting to move to rowing. Therefore, it is unsurprising that Osler W2 had another spectacular year as one of the premier 2nd VIIIs on the Isis, as well as being the heart and soul of the social side of the club. In Torpids, the crew went an admirable +2 in search of promotion to fixed divisions, a goal we are confident of achieving next year. In Summer Eights, a mixed W2/3 crew went a stunning +4 (for the first time since 1992, a year in which none of the crew were yet born!) with the technique and power on show from novices and rowing veterans alike securing promotion from Division 7 to Division 6. Led by cox Meirian Evans and senior rowers such as Rebecca Conway-Jones and Ines Rayment-Gomez, the bonding of a group of very different individuals to form a cohesive crew who had a whale of a time racing together epitomised everything we love about Osler House Boat Club. A highlight for all involved was the double bump on the final day; with bankriders not allowed on Saturday of Eights, it was instead the W1 crew who ran next to the speeding W2, shouting distances as they closed on the University College crew they pursued. After a clean, technical and powerful row, the bump was met with rapturous celebration for the motley crew, never the same on any two days of the competition, who have taken both the sport and the club to their hearts.

Outside of OHBC

Osler House Boat club are proud to represent all medics on the river, whether they row with us or not. For that reason, it would be wrong not to include the big story of this Summer VIIIs: sixth year medic Hannah Farley, after 10 years rowing for Univ W1 (including her DPhil) secured the college's first ever headship on her last day of racing. Huge congratulations go out to her and the rest of the club. Commiserations, on the other hand, to 4th year Ayman D'Souza, who missed out on headship with Christchurch M1 on the final day. There will be other opportunities, and we're sure he will reach the top of the bumps chart next time.

In the University squads, we had representation from two of last year's Osler House blades-winners: Rosie Lynch (OUWLRC, Tethys 4+) and Oriane Grant (OUWBC 4+). OHBC's Head Coach and another of last year's blades-winners, Katherine Maitland, won the Princess Grace Challenge Cup at Henley Royal Regatta with Leander Boat Club. Huge congratulations to all three for their hard work and many successes!

The Future

In the short term, there are several exciting events on the horizon. We are planning on hosting our first Alumni Dinner in August. The club has had such an impact on the clinical school experience of so many, and we will be thrilled to celebrate that with all who hold OHBC dear. There is also the first upcoming fixture against our varsity rivals at Addenbrookes Boat Club ("The Baddies from Addies") in the inaugural Clinical School Boat Race. The home leg will be held in Oxford in September, and the return leg in *the other place* at some point in the Spring. As always, we would love to see any alumni who are interested in attending these events; your continuing support and encouragement is one of the things which makes rowing for Osler so special for all of us.

In the longer term, we are looking to purchase a new women's shell, especially following the success of the new men's boat. This would ensure that our W1 can move from being competitive on a college scale to competition on a regional, national, and international level, with regattas such as Henley and the Head of the Charles being targets. This would also ensure that we can provide for our beloved Women's 2nd VIII, keeping sport going in Oxford even when the 1st VIII are competing elsewhere. One such complication this year occurred when the W1 had to withdraw from the United Hospitals Bumps racing in London due to W2 having to qualify for Summer VIIIs on the same day. Any and all donations to the club are always welcome at https://www.gofundme.com/f/osler-house-boat-club .

All that remains is to thank everyone who has made rowing with Osler this year possible. To our President, Jen, who has kept the club running through many challenges; our captains Heather, Lucie and Julia who have organised so much for so many people; to Lyn Williamson and David Sprigings, for being our enthusiastic and ever-present connection to the medical school and OHBC's many wonderful alumni; and of course to all of our supporters, in both the financial and emotional sense, without whom none of this would be possible. We send our deepest gratitude, and will never forget how lucky we all are too.

Please do keep in touch:
@oubc_oxford
@ohbc.oxford
oslerhousebc.president@gmail.com
Gofundme: https://gf.me/u/zcf4kp

A Pandemic Pantomime
Doctor Flu: The Shoe Must Go On

Meirian Evans
(St Catherine's College, 2017)
Tingewick Serenity

Things took quite the turn after last writing in December. The Omicron variant threatened to put a stop to our plans to stage the first Tingewick since 2019, and the first Tingewick out of Oxford. University restrictions cancelled the final week of December rehearsals. So, convinced we'd all be in lockdown by January, we worked on backup plans (a Tingewick 'mockumentary'...) Against all odds, with a carefully re-written risk assessment, fully masked, socially distanced and LFT negative audiences, and understudies for almost every character, we somehow made it to the Amey Theatre in January for a sell-out run of *Doctor Flu: The Shoe Must Go On*, to an audience of over 1000 over 4 nights.

And what a show it was. The curtains opened on Staff Testing at the JR in 2020 where Rose and her fellow Tingewick writers were volunteering after COVID had put a stop to their own Tingewick pantomime. Rose met the mysterious Doctor in Osler Mess, who transported her back in time to the 90s where they managed to land the leading roles in the 1996 production of Syndromella after auditioning alongside some familiar faces from the Medical School! Meddling in the past created chaos back in 2020, which forced Rose and The Doctor back to 1996 to undo their mistakes to save not only the John Radcliffe, but also to save Tingewick's future. Our splendid cast of 110 4th year medics dealt wonderfully with all the ups and downs of a 'pandemic Tingewick', stepping into new roles and learning new dances at short notice as other cast members went into isolation. Behind the scenes, a 30-strong Tingewick firm worked tirelessly to bring the show we'd spent a year working so hard on to life.

Thanks to our audiences who came, despite all the challenges, and dug deep at the end of each evening – we raised £13,500! This combined with the rest of our fundraising events puts the 2021 Tingewick total at over £42,000 for Oxford Hospitals Charity and Calon Hearts, which is the most raised in recent memory and will make a huge difference to our charities.

The new Tingewick Firm are already hard at work raising money for the 2022 charities, which are Oxford Hospitals Charity and Helen & Douglas House, with an upcoming 26 mile walk from Tingewick Hall to Tingewick village, a raffle and the Three Peaks challenge before the pantomime later this year. To stay in the loop, please follow Tingewick Society on Facebook, rita_tingewick on Instagram or @RitaTingewick on Twitter.

You can donate to the 2022 total at
www.tingewick-2022.raisely.com

Pre-clinical School News

Professor Robert Wilkins
(St Catherine's College, 1990) Director of Pre-Clinical Studies, Course Director of the Biomedical Sciences Programme, Associate Professor in the Department of Physiology, Anatomy and Genetics, and Tutorial Fellow at St Edmund Hall

When I last wrote in Michaelmas term 2021, I hoped the academic year would proceed smoothly, although I anticipated some bumps along the way. As I write this brief report, in the middle of Trinity-term, third year students are sitting Finals, second year students are anxiously waiting for the results of the 1st BM papers taken at the start of the term, while teaching of first years is winding down as they settle into revision for their exams in mid-June. For the first time in three summers, Trinity term is proceeding as usual, and that is very pleasing to report!

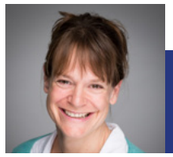
All teaching has returned to pre-pandemic formats - in-person, whole cohort, mask-free - with online delivery only retained in a small number of instances for pedagogic reasons. (One silver lining of the pandemic lockdowns was the discovery that some material could be more effectively delivered online.) Pre-clinical students are once more able to studying collaboratively in the Medical Sciences Teaching Centre between teaching sessions.
After the upgrade to the ventilation system, teaching has resumed in the anatomy suite, bolstered by the appointment of two Clinical Anatomists by the Department of Physiology, Anatomy and Genetics, who are providing an excellent - and highly appreciated - anatomical education for our pre-clinical students. Sharmila and Rumyana have already made several innovative changes to the way that we deliver teaching in this area, and plans are afoot to start using virtual reality headsets to enhance students' experience further.

As the academic year draws to a close, we turn our attention to recruiting the next generation of medical students, with in-person Open Days in late June and the resumption of the residential UNIQ Summer Schools after a two-year online hiatus.

Finally, we have welcomed two new members of staff to the Undergraduate Studies Office in the MSTC: Louise Taylor has been recruited to the role of Senior Administrative Officer, with responsibility for admissions and year 3 of the course, while Olivia Kemsley has been appointed to a newly-created Academic Administrator role. That takes the headcount in the office to six, a far cry from the days that many of you will remember when Glenys Davies ran the pre-clinical course single-handedly, but reflective of the increasing internal and external administrative and regulatory requirements associated with delivery of the course.

Large Physiology Lecture Theatre with new air conditioning system. Recently renamed 'Blakemore Lecture Theatre' after Professor Sir Colin Blakemore (RIP 27.6.22)

Clinical School Update: Emerging from the ashes - not quite a phoenix, but still flying



Dr Catherine Swales
(Wadham College, 1997) Director of Clinical Studies

I've started this paragraph umpteen times, and then thought "But is 'business as usual' really worth saying?" and deleted whatever I've written. This time however I've had a small epiphany, or reframing, or realisation, and will leave that line in place. After the last few weeks, months and years, 'business as usual' is absolutely worth saying. The more familiar steady-state has been woefully lacking of late, and toddling along is a welcome pace. That said, whilst it feels that the COVID waters have (at least temporarily) receded, there is much debris left behind, with which we all struggle. Many students feel underprepared due to COVID-limits in the early clinical years, anxiety and stress levels are high, and faculty are stretched to try help in limited time. On the NHS side, staff are worn out and bruised, but still having to pitch extra-hard to keep services afloat: staff absence is at an all-time high due to ill health and stress, many trainees are asking to work at less than full time, rota gaps are deep and wide, and the backlog (a dreaded word in any clinical meeting) is at toppling heights. The emergence from the worst of it is perhaps not the resurrection we were all hoping for – but good things, happy stories, successes and joys are still to be found, not least amongst our students. They bring good news in so many unanticipated shapes and forms: the unsolicited emails from colleagues to tell me a 4th year stayed late in the night to sit with a patient until their family could make the drive down, from a 5th year to ask for a year off to become Editor of Student BMJ, or another for 3 years to do their dream DPhil, from an IMT to explain that when the F1 had to go off sick the students shared out the tasks and bloods and clerking to cover, that Oxford won the Duke Elder prize in ophthalmology again (we had 5 candidates in the top 10%!), and perhaps best of all "they are just such a joy to have around, so committed and kind"... That last one sticks in my mind most of all. I get a lot of those, and they make me smile every single time. Many readers may remember Basil Shepstone, who taught generations the whys-and-wherefores of radiology. He used to say: "Everyone here is clever, but you also need to be kind". I'm paraphrasing a bit, but over 20 years have elapsed since he said that to me so a) I think that's ok and b) I know it's what he meant. Wonderful chap, and wasn't he right?

And it is more 'business as usual', at least on the wards and in GP practices. Alas, face to face teaching is still facing a stuttering start however – so much of our teaching space is embedded in Trust property and subject therefore to different, more stringent social distancing rules than University space alone. I think I speak for all our faculty and most of our students (!) when I say that online has its advantages, and hybrid learning is here to stay, but we'd love to actually be together in 3D, at least for the Patient Doctor and F1 Survival courses, Laboratory Medicine, and DCS teaching each week. I daren't quite hope yet, but the new academic year, just round the corner now, might bring such things.

And as for those students who don't have a new academic year just round the corner – the finalists with a new job, a new city, a completely new phase of life starting in August, thank you for everything. For your grit, and fun (bordering on the anarchic!), your intelligence and compassion – and for holding us to account. My colleagues are right: you are a joy to have around, and I'll miss you when you're not. Take care out there and stay in touch!

Should I Stay or Should I Go?: The Environmental Cost of Medical Electives

Hannah Chase
(Green Templeton College, 2018)

Sarah Peters
(Somerville College, 2016)

Over the past 3 years our work on Education for Sustainable Healthcare projects has made us increasingly aware of the impacts on health the climate crisis is already having worldwide. Thus, as our electives approached, the stark difference in the carbon footprint of flying afar compared to staying on British soil presented a moral dilemma. We made different decisions:

Sarah decided to stay in the UK, working on the 'Bleeding Green' project which focuses on reducing waste in the clinical skills lab here at Oxford, and with a team in London looking at the environmental impacts of propofol. She also spent time in the emergency department at the Horton hospital and finally 8 days walking the 99-mile Beacons Way trail.

Hannah flew abroad and lived with a family in Nepal. She split her time between shadowing a general surgeon in a tertiary government Hospital in Kathmandu and a GP in a rural hospital in Charikot 6 hours East of the capital. She also spent her week's down-time in nature, on a trek to Annapurna Base Camp.

How easy was the decision to fly or not to fly?

S: For me it was straightforward. 2 years ago I committed to only flying under exceptional circumstances. Although there is much debate over the purpose and impact of individual lifestyle choices as a method of tackling climate change, for as long as I have been involved in climate action, I have seen my own lifestyle as an integral part of my campaign for greater systemic solutions.

H: I deliberated hard on whether it was still morally acceptable in 2022 to fly abroad as a white privileged Brit to a developing country. I find it impossible to justify my decision at any academic level. Return flights to Nepal are four times the carbon footprint of what individuals should be aiming for per year to achieve effective mitigation of climate degradation. I try and lead by example and this felt completely hypocritical against the work I have been doing. At the end of the day it was an emotional, selfish, decision to take a once in a lifetime opportunity - 2 months of immersion in a completely different culture, at home and in healthcare.

> *"Ultimately, air travel is unequivocally damaging to the planet's health.*

On reflection was it the right personal decision for you?

S: Yes. I gained hugely from my elective without the need for flying. It was fantastic to have time exclusively devoted to sustainability projects, which are usually stuffed around the sides of all my other medical school commitments. The exceptional supervision and experience I gained at the Horton as really boosted my confidence for starting as an F1 doctor. Completing the entirety of Beacons Way was such a gift - an opportunity for reflection and powerfully presented to me the importance of what we are working to save.

H: Yes. I had such a rich experience in all aspects of life and healthcare in Nepal with emotional and physical experiences that reading no book would never replicate. From

Charicot farewell, Nepal

> *"as a minimum, we believe students should be asked to consider the environmental impact of their placement*

experiencing a new culture, watching patients turn up for surgery having to provide their own surgical kit (which they could often barely afford), to watching fracture repair under ketamine sedation alone because there is no anaesthetist. I spent much time reflecting on planetary health and sustainable healthcare - a global issue in need of global solutions. Minimal resources make the system more sustainable by necessity, yet Western medicine is their aspiration. I would be lying if I said Nepal made me more hopeful on a planetary health front given the understandable aspirations

How do you both feel this dilemma should be managed going forward?

The decision is personal. There is no single right answer and much to gain from both options. International travel allows people to learn from other cultures, including finding solutions to the climate crisis, as well as wider personal experiences. Within healthcare there are many examples of how international collaborations inform more sustainable practices, including where higher resource settings can learn from practice in lower resource settings. Without these cross-cultural experiences it is easy to fall into line without challenging institutional norms: individual clinics, hospitals or nationally accepted norms. The environmental emergency we all face demands ubiquitous self-reflection. Ultimately air travel is unequivocally damaging to the planet's health.

As a minimum, we believe students should be asked to consider the environmental impact of their placement both in their organisation and as a point of discussion in their reflections. To achieve this effectively they need to be well informed; Bristol medical school held a medical student debate as a dynamic method of engaging the year group. Dr Trevor Thompson reflects on the 2020 debate here - perhaps something to consider at Oxford.

Oxford Medical School Planetary Health Update

Dr SanYuMay Tun has started in her role, half a day a week, as lead of Education for Sustainable Healthcare. Another workshop was held in March, with many faculty members and students sharing the progress and further aspirations. The results of the Planetary Health Report Card were published, including for Oxford.

The good news - an improved score ('C' from a 'C-'). Bad news - still very much bottom half and our potential to improve is going to be limited without more systemic change in attitude by the medical school.

In the Clinical Skills Laboratory all non-sharp single use clinical equipment is now cleaned, repackaged and re-used. As well as greatly reducing the amount of waste generated, this provides students with a practical view of sustainability in action in clinical settings. We have been sharing the techniques we have pioneered for equipment re-use with other centres, with the ambition of upscaling nationally for an even bigger impact.

Digital footprint: The CO_2 Cost of Emails

Although small in the grand scheme of things, reviewing our overflowing inboxes full of untouched messages, is an easy rapid win for all of us who are both addicted to, and inundated with digital communication.

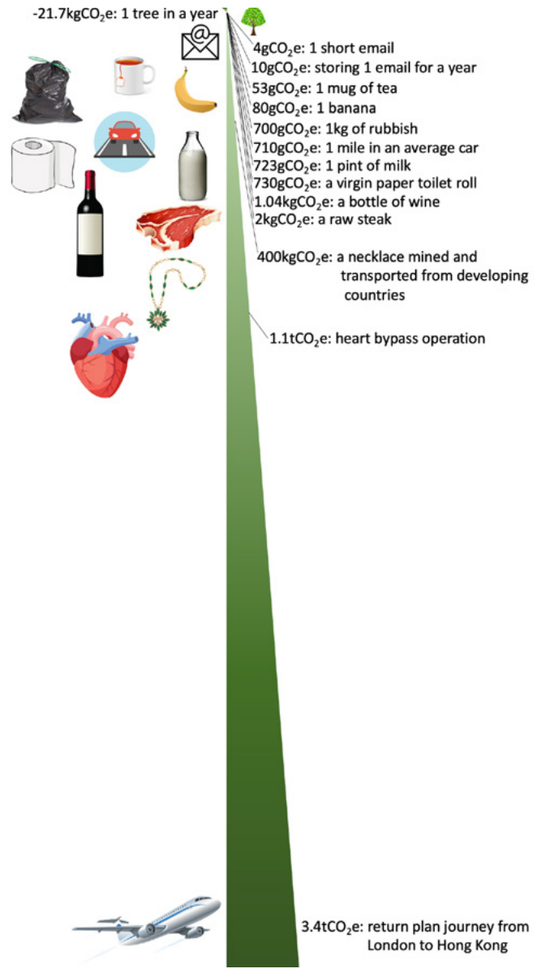
- The culprits are greenhouse gases produced in running the computer, server and routers but also those emitted when the equipment was manufactured.
- Sending even a short email is estimated to add about four grammes (0.14 ounces) of CO2 equivalent (gCO2e) to the atmosphere. To put this into perspective, the carbon output of hitting "send" on 65 mails is on par with driving an average-sized car a kilometre (0.6 of a mile).
- It gets worse when you send an email with a large attachment, which puts about 50 gCO2e into the air. Five such messages are like burning about 120 grammes (0.27 pounds) of coal.
- Receiving a spam message—even if you do not open it—has an environmental impact of 0.3 gCO2e.
- One stored email is equivalent to 10g of CO2 per year
- The global carbon footprint from spam annually is equivalent to the greenhouse gases pumped out by 3.1 million passenger cars using 7.6 billion litres (two billion gallons) of gasoline in a year.
- Here is something to keep in mind the next time you type in a non-essential Google enquiry: A web search on an energy-efficient laptop leaves a footprint of 0.2 gCO2e. On an old desktop computer, it is 4.5 gCO2e
- Recent research suggests that 64 million unnecessary emails are sent every day in the UK, contributing to 23,475 tonnes of carbon a year. That's 115,931 flights from Heathrow to Madrid

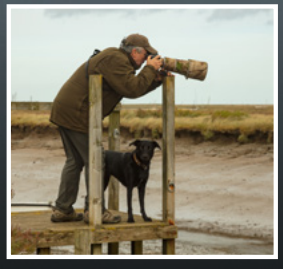
These are facts from these two websites - do you really think that any of these facts will create behaviour change?

https://phys.org/news/2015-11-carbon-footprint-email.html, https://eco-age.com/resources/how-reduce-carbon-footprint-your-emails

With 1.5million people employed in the NHS, this is an example of small individual actions potentially making a significant collective difference. So why not clean out your inbox, unsubscribe from unwanted newsletters. You will certainly much better.

Even though this scale is logarithmic, the carbon cost of a single long-haul flight would be 2 metres below the bottom of the table!





Great White Egret **© Dr John Reynolds** *(St Catherine's College, 1975) Consultant Physician and Clinical Pharmacologist, Oxford*

'Just four miles from level 7 at the JR, the Otmoor RSPB reserve has been one of the places I gravitate to for a quiet hour or so at either end of the day. It is a remarkable place with an abundance of wildlife where I can indulge my hobby of wildlife photography and let the bustle of the day job quietly subside'.