Winter 2023

KING'S PARADE

THE MAGAZINE FOR MEMBERS & FRIENDS OF KING'S COLLEGE, CAMBRIDGE

In this issue

FROM THE NEW PROVOST

Gillian Tett

It's been a fantastic start to my first term as Provost. Having lived 'in the shadow of King's' – with a sense of admiration – when I was an undergraduate at Clare, I've been delighted to become part of this vibrant community.

When asked why I wanted to become Provost, I said it was to convene more of the most brilliant minds and help the next generation of students and Fellows tackle some of the world's greatest challenges, ranging from the climate to AI to pandemics and political polarisation. I very much want to bring the world to King's as well as bring King's to the world.

Arriving during Freshers Week, it was a joy to get to meet students as we learned our way around the College. I have been blown away by the range of outstanding research our Fellows pursue, as well as by the passion for discovery our students display across academic and extracurricular pursuits. The staff too have welcomed me warmly and it's been fascinating to explore different aspects of College life in their company.

So far I've hosted film screenings, jazz sessions, debates about the environment and global economy – and even a Halloween party in the Provost's Lodge. I've enjoyed some fantastic concerts in the Chapel. We're celebrating the completion of the Chapel roof restoration and the installation of the new solar panels on the roof. It's an important milestone on our road to becoming more sustainable, and a symbol of change to inspire others. And I look forward to celebrating my first Christmas in College and taking part in the Festival of Nine Lessons and Carols.

I've also had a chance to start meeting alumni here in the UK and further afield, and I look forward to meeting many more of you around the world in the new year. I know that King's has an amazing community of supporters, and we are grateful for all you can do to sow the seeds of inspiration for the next generation – be that with money, mentoring and much else. Thank you!

"I very much want to bring the world to King's as well as bring King's to the world."

Contents

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CHAMELEON MECHANISMS, CERN AND WOMEN IN STEM

Anne-Christine Davis © Jooney Woodward 2023. Photographed for '50 Portraits – An Exhibition'

King's Life Fellow Professor Anne Davis has spent more than four decades exploring the mysteries of the cosmos while blazing a trail as the first woman to hold many positions in mathematics and theoretical physics in Cambridge. She has consistently advocated for better representation for women at all levels of academia and has been the University's Gender Equality Champion for STEM subjects since 2014.

She sat down with fellow mathematician, and former Provost Professor Michael Proctor, to reflect on her life and career for *King's Parade*.

When do you think you first knew you wanted to be a scientist?

I remember at five years old going home from school and saying to my mother I want to be a scientist when I grow up, it's fun.

My first love was chemistry; organic chemistry, which is quite fun when you learn it for the first time. But also physical chemistry, which is actually physics. And I sort of realized after a year that what I was really interested in was physics, not physical chemistry. But then when I was in the sixth form, I read books from quantum mechanics and also cosmology and so I kind of drifted towards doing fundamental physics; quantum theory, cosmology, relativity. And I think I've got more mathematical over the years.

Where did you go to university?

I went to Royal Holloway to study physics. I came from a working-class background, an inner city comprehensive school and thought there's no way I could have been accepted by Oxford or Cambridge, so I didn't apply.

And when did you know that you wanted to pursue academic research rather than just enjoy the subject?

I just found physics so interesting, I wanted to continue. I knew wanted to do a PhD, certainly by the second year of my undergraduate. I was offered a place at Bristol as a particle experimentalist in their Physics Department, which was near my home, but I didn't really fit in with the experimental group. So I became a theorist. I was originally a particle physicist not a cosmologist.

Did you receive encouragement? And do you think that was a gendered problem?

When I was an undergraduate, the year I was in, the women were better than the men. Somebody picked up that I was quite bright and it encouraged me in my final year. But when I was doing my PhD, I wasn't particularly encouraged. The experimental group didn't trust me. They were very into hardware; and when it came to me, they didn't really know what to give me. You know, how can you trust a girl with a screwdriver? So I worked on phenomenology.

I really think that my career took off as a postdoctoral researcher at Imperial. When I went there it was like night and day and where I really felt comfortable doing theoretical physics, and actually became more mathematical.

After Imperial I was two years at CERN [as a research fellow in the theory division] and it was an astonishing place. There were about 100 theorists.

I later discovered from [Professor of High Energy Physics] Val Gibson that I was the first woman who had a position in the theory division at CERN. There were visitors but there were no other female CERN fellows.

After CERN I was at Princeton's Institute of Advanced Studies for nine months before I came to Cambridge on a Research Council Advanced Fellowship. I think I might have been the first Advanced Fellow in the Department [of Applied Mathematics and Theoretical Physics] and they regarded me as a postdoc.

And then you got a job at Cambridge, presumably as a Lecturer?

No, I've never been a Lecturer. There were very few such jobs around, so I applied and got what was then called a Non-University Teaching Officer position at King's; they're called College Teaching Officers now, a much nicer name. When David Crighton became Head of Department he discovered that there were no women on the faculty. He arranged with King's that I would become an Assistant Director of Research jointly supported by King's and the Department, and then put me in for promotion to Reader, which I got immediately. This was in 1995–96.

I became a Professor in 2002 and ten years later, they offered me the Professorship of Mathematical Physics (1967), which was quite astonishing to me. I couldn't quite believe it. Peter, the Head of Department, came into my office and said, 'if you were to be offered the

"I dedicated my inaugural lecture as the first woman Professor of Mathematics at Cambridge to those other women before me who should have been professors but were not able to be."

Chair of Mathematical Physics, would you accept it?' And he waited there until I said yes and then he went away, having asked for a copy of my CV. As the first woman University Professor in Maths at Cambridge I dedicated my inaugural lecture to those other women before me who should have been professors but were not able to be.

You obviously joined King's because you wanted to join a College and they offered you a position. But no doubt it suited you very well in terms of its ethos?

Early on in my career when I needed it, King's supported me. And most of that I think was down to the [then] Senior Tutor, Tess Adkins, who was very supportive. Also King's has a philosophy of accepting students from backgrounds that other Colleges might not, and nurturing them and they thrive. Coming from a working-class background, I was keen to encourage people from the state sector and comprehensive schools.

You've studied some of the most fundamental questions about the universe, like why its expansion appears to be accelerating. Tell us more about your research.

I worked on a number of things over the years. One of the things that I didn't discover, but I developed, is what's called the chameleon mechanism. This is a model that's called modified gravity. It extends Einstein's equations in the most simple extension you could think of by including a scalar field that has no direction and depends on space and time. If you extend Einstein's equations, you usually introduce what's called the fifth force, some extra force that we haven't seen. And we know that there are very strong constraints on the forces in the solar system. But the chameleon actually has a clever way of evading these constraints. So then it can do interesting things. And I was instrumental in developing this theory and also in showing ways for testing it.

More recently, I've been looking at general modifications of Einstein's theory rather than being model specific and writing down the general way that such a theory would interact with ordinary matter and what that would do in various situations. What makes it necessary to introduce these modified theories? It was hoped that these modified gravity theories could explain the accelerated expansion of the Universe that we are seeing. Unfortunately, it doesn't appear to, but it also goes beyond that because it's a way of testing Einstein's theory of gravity in situations you would never have thought of before. I've worked on this for so long now and we've had this problem for over 20 years. My feeling is that we are missing something completely fundamental and I haven't a clue what it is and neither does anybody else. I think we're now at a stage that there's a hint that not everything is right, but we don't know what it is. And I keep thinking that somebody who thinks outside the box might come up with an idea but it hasn't happened yet. I hope it happens in my lifetime.

You've done an enormous amount to encourage the representation of women in mathematics and science. I've heard you on many occasions chart the progress or lack of it towards what would seem to be the right amount of representation. So, how much do you feel encouraged by the progress that's been made?

I don't think we should sit back and think 'job done', but there has been progress. In the UK, there are far more women professors now than there were when I became a professor. There are problems in mathematics at Cambridge; the number of women undergraduates is not really increasing; we ought to get the same percentage of women as those doing Further Maths A level. And we don't.

Do you think there is decent progress among academics, though there are fewer women in the pool?

I think so. There are certainly more women research students and postdocs than there used to be. In the two Maths departments in Cambridge there are certainly more women than when I first came to Cambridge, but of course there's still some way to go.

Finally, you are retired, but show no signs of slowing down. What comes next for you?

Oh, I don't know. I can't say I've got a vast amount on the horizon at the moment, a couple of projects to finish. I'm still thinking about the big mysteries and continuing to collaborate on papers, most recently on dark energy and how we might detect it. But I'm looking to do something slightly different.

Chapel roof restoration complete

SOLAR PANEL INSTALLATION UNDERWAY

Michaelmas Term 2023 saw the end of the much-needed conservation work to the Chapel roof completed.

The entire lead covering was removed, recast and replaced, all while maintaining access to the building for visitors, daily services and concerts. A team of experts from across the UK, skilled in the use of reclaimed materials, worked on the project over the past year.

Arrays of 219 REC Alpha 420 Pure-R photovoltaic panels will be fixed to each of the north and south slopes of the Chapel roof, which is the single largest potential opportunity for renewable electricity generation on the main College site. It will supply electricity to the Chapel and Gibbs via the College's internal electricity network.

To follow the progress of the panel installation and learn more about what King's is doing to become more sustainable, visit: **https://kingscollege.shorthandstories.com/agreenerfuture/**

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SUMMER RESEARCH STUDENTS

SHOWCASE THEIR WORK

The King's Summer Research Programme gives undergraduate students the opportunity to gain hands-on research experience.

Two parallel programmes, the Gatsby Summer Research Programme for the Sciences and the King's Summer Research Programme for the Arts and Humanities, give King's undergraduates a chance to find out what research and the research environment in their chosen field is really like.

Thirty two students presented summaries of their work at a showcase event early in Michaelmas term, honing their communications skills on stage and through an accompanying poster session. *King's Parade* caught up with two summer research students to hear about their experiences.

Emily Allsup (Natural Sciences): The King's Summer Research Project has given me the opportunity to see the world of research from a new perspective, allowing me to get actively involved in a fascinating corner of science.

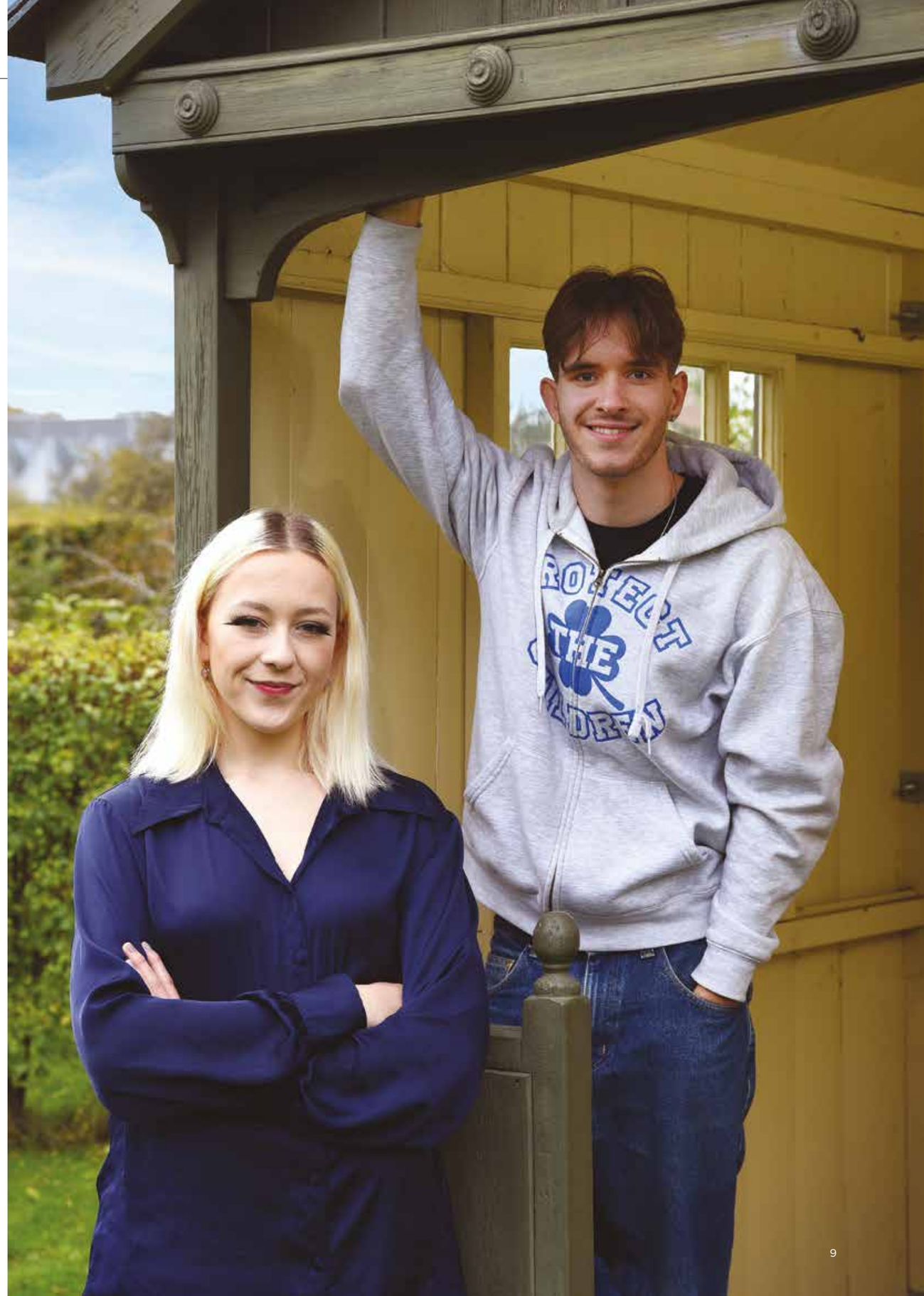
For 8 weeks, I worked alongside the ANUBIS group in the High Energy Physics Department, developing a dark matter detector for CERN's Large Hadron Collider. My project focussed on the optimization of the resistive plate chamber, a system which tracks the positions of muons from cosmic rays. Once fully developed, the detector will search for electrically neutral massive ultra-long lived particles as they usually appear alongside dark matter.

It has been very interesting to learn more about particle physics, as it hasn't yet been covered in much depth so far in my studies and I am grateful to King's for granting me this experience.

Rory Chappell (History): My project centred around health policy challenges, specifically addiction, in my home of Lewisham. It allowed me to explore academic research beyond a single faculty and discipline, which is really exciting. I study history but after Cambridge I hope to work around public policy, specifically in the NHS. The research project has provided me with great insight into tackling questions of health policy for the first time. The opportunity to conduct my own field work, through interviews, has highlighted the urgency of issues, most pressingly the intersection between poverty and addiction. The project energised me to spend time on an important area that I believe not only is overlooked, but where I feel I can help play my own tiny role within the community.

"The research showcase was a culmination and celebration of all the students' hard work this summer. Students should be proud of their efforts and we are hugely grateful to all of the project supervisors for their support for the programme and its students."

Fellow and Financial Tutor James Dolan



MY PhD

with Jeanne-Rose Arn

Gates Scholar and fourth-year PhD student Jeanne-Rose Arn explores the legal and moral ramifications of self-deception.

My research focuses on the moral and legal responsibility of the self-deceiver. Self-deception is a critical topic in today's world yet remains unexplored in law. Using philosophy of mind, moral psychology, and the law, I propose a new model of self-deception and develop a framework to account for the responsibility of self-deceivers.

Photographed in the Turing Room, Gibbs Building

"Are people who unconsciously acquire false beliefs, despite possessing the correct evidence, responsible for the harmful actions they take based on these false beliefs?"

The nature of self-deception is a matter of debate. Philosophers of mind find self-deception puzzling as it raises two apparent paradoxes: first, it seems impossible for a person to hold two contradictory beliefs, and second, it seems impossible for a person to intentionally believe a proposition knowing it to be false.

Despite this, moral philosophers have attempted to understand whether the self-deceiver is morally responsible for the actions they take based on their false beliefs. This has led to diverging conclusions ranging from the self-deceiver not being morally responsible on the basis that self-deception is merely a mistake, to the self-deceiver being fully responsible on the premise that self-deception remains somehow intentional.

In law, we do not have a clear framework to treat self-deceivers. Moreover, the topic raises a broader question. Law is largely based on the assumption that most of our actions are conscious and controlled. What to do, then, with research in cognitive sciences demonstrating that significant portions of our mental processes are unconscious and prone to biases?

In the first part of my PhD thesis, I propose a novel model of self-deception based on recent empirical research. I argue that self-deception stems from an initial self-regarding belief that has a too-high threshold of revision. This leads the self-deceiver, when confronted with new data, to unconsciously reason in a biased way and form a false belief thinking that this belief is warranted when it is not. Therefore, self-deception can be defined as a mistake of the person regarding their own mental state.

In the second part of my PhD thesis, I examine blameworthiness for ignorance and mistakes. I draw up a framework of moral responsibility for wrongdoing, in cases where the person is not conscious of their self-deception, based on social structures. In particular, I argue that self-deceivers are blameworthy for their harmful actions when they are in a position of power relative to their victims.

The third part of my PhD thesis looks at how this account of blameworthiness fits the law. I conclude by proposing an account of negligence in which objective relationships of power play a significant role. This account contrasts with the common view, wherein negligence is linked to the person's reproachable internal state, which is not of great use for cases where the person has no control over their unconscious processes as in cases of self-deception.

Painting led me to the law. Born into an artistic environment in Geneva, I was taught that relevance in the treatment of a subject involved three steps: observation, decomposition, and re-composition. When I chose a university degree, I picked law as a course where I could apply this process. I saw law as a constant reinterpretation of society and was intrigued by the idea of re-composing its fundamental elements to adapt to evolving norms.

My legal studies mainly addressed black-letter law. To understand the theoretical basis of the law and its rationale, I undertook, in parallel, a second degree in philosophy. This provided me with sound methodology to identify the values that underlie legal norms and mediate their articulations. I then attended Harvard Law School, where I learned to leverage my interdisciplinary background to address issues in policymaking and subsequently in my practice as an international arbitration lawyer.

Through my academic, policy, and law practice experiences, I've noticed that certain aspects of the law struggle more than others to keep pace with the rapidly changing world. One such area is the influence of false beliefs on responsibility, coupled with the quick dissemination of information on a global scale. This is what incited me to undertake my research on self-deception.

Recently, I listened to [Provost] Gillian Tett discuss the idea of the 'entrepreneurial mindset,' which she defined as being willing to defy the status quo and 're-imagine the world', whether it be in research or outside of academia. This idea resonates with me. I share this drive for creativity, risk-taking and to challenge established norms by adopting different standpoints. At King's, I have discovered an exceptional environment in which to do so.

In addition to providing the environment in which to connect and learn from leaders in their fields and to be part of a vibrant community, the College abounds with endless opportunities in the present and for the future. This, in turn, instills in me the confidence that I will continue to find ways to contribute to the pursuit of innovative changes long after completing my PhD.

Sitters and artists:

1. Professor Charlie Loke
   Anna Paik
2. Professor Dame Anne Glover
   Christian Hook
3. Timi Olumide-Wahab
   Xanthe Burdett
4. Professor Danielle Allen
   Jannick Wildberg

NEW FACES ON THE WALLS AT KING'S

Reflecting the dynamic intellectual and cultural life of the College today

Portraits of past heads of house and Fellows are the hallmark of most Cambridge colleges. Look around a dining hall or a head of house's lodgings, and you can see a story unfold, one of changing intellectual icons, fashions in clothing and artistic choices. Even at King's, highlights of whose remarkable art collection can be seen at the Fitzwilliam Museum, the cast of characters in this story is still relatively traditional and uniform. However, there is now a new story to be told about the College today, and who hangs on its walls.

"For some time King's has been on a quest to broaden the diversity of its art collection, particularly its portraits of members of the College community", comments Nicky Zeeman, who has been Keeper of the College Collection since 2014, in addition to her role as Professor of Medieval and Renaissance English in the Faculty of English. "There is a real appetite within the College to increase the representation of women and people of colour in the portraits displayed publicly, better to reflect the make up of who we are as a College."

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"There is a real appetite within the College to increase the representation of women and people of colour in the portraits displayed publicly, better to reflect the make up of who we are as a College."

A mix of donations and commissions, made possible through philanthropic support, has been essential to this ongoing project, which has been organized by a specifically created Portraits Committee. Among the first contemporary oil portraits of women at King's are those of Life Fellows Dr Tess Adkins and Professor Dame Caroline Humphrey, which hang in the corridor outside the Wine Room. Each is situated in a landscape which holds great meaning for her – Tess, Iona, Scotland and Carrie, Mongolia respectively. Honorary Fellow Danielle Allen (KC 1993) donated a portrait of herself by artist Jannick Wildberg. The three most recent commissions depict biologist Professor Dame Anne Glover (KC 1978), by Christian Hook; immunologist Professor Charlie Loke (KC 1953), who this year celebrated 50 years as a Fellow of King's, by Anna Paik; and current KCSU President Timi Olumide-Wahab, by Xanthe Burdett. Each sitter chose the artist who painted them, and the portraits have already made an impact on College life, displayed in the Hall alcove. We hope to continue commissioning such portraits and to develop the College art collection in ways that enable it to reflect the dynamic intellectual and cultural life of the College today.

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BEHIND THE SCENES

Tim Ford joined the King's Maintenance Department in 2008 as a decorator, aged just 22. Fifteen years on, he is now Planned Maintenance Coordinator, responsible for making sure that the College's buildings provide a safe and sustainable environment for staff, students, Fellows and visitors alike.

'It's very rewarding if I can go home at the end of the day and feel we made someone's circumstances better. Basically, I like solving problems – and happily, most of the time most things can be fixed!'

From water leaks and overflows to electrical issues and problems in student rooms, Tim and his team of 11 tradespeople are rarely quiet. He looks after the maintenance of all the College's 37 buildings – from the city centre sites to the new accommodation on Cranmer Road and Barton Road and out to the boathouse at Chesterton.

It involves both co-ordinating the response to day-to-day issues and managing longer term planned work and compliance requirements. One of Tim's main achievements has been the development of the College's eMaint reporting system, replacing the old paper-based process 'where someone needed to remember what needed doing when.' Now when there's an issue, a matrix assigns priority based on what the user of the space needs. Every space in King's – over 4000 of them – is captured on the system, from fire alarms and ventilation units to electronically operated doors for disabled access.

Over the course of a year there can be as many as 7,000 requests coming into eMaint. When does it tend to get busiest? 'The work really peaks during Freshers' week. The aim is to let everyone know where they stand when a problem needs sorting. We know we must be doing something right though as we get very few complaints about getting back to people in good time.'

'There's a fantastic range to this job, which I really enjoy. At one point I can be looking at an upcoming project with the Fellows, at the next helping get a solution to an issue in a student's room, and then the next talking to the drainage contractor or discussing our alternatives to gas boilers, as part of the College's decarbonisation programme. Sometimes when I'm having lunch in Hall I think back to work before I joined King's and eating a sandwich on a muddy building site – the contrast couldn't be greater!'

NEW SEASONAL RELEASES FROM

King's College Choir

Rutter Orchestral Carols features arrangements of well-known favourites such as *Silent Night* and *O Holy Night* and original works for choir and orchestra by John Rutter. His original carols include *All bells in paradise* and *All the stars looked down*, which is dedicated to the late Sir Stephen Cleobury. The Choir made the recording with the Britten Sinfonia in June 2023 and individual tracks were released online throughout November. Scan the QR code to stream or purchase digital recordings.

The Choir is also on an international tour ahead of a Festival of Nine Lessons and Carols, which will be broadcast live on BBC Radio and around the world at 3pm GMT on 24 December.

- **15 December, Pfarrkirche St. Marien Rheydt, Mönchengladbach, Germany**
- **17 December, Concertgebouw, Amsterdam**
- **20 December, Barbican Centre, London**

"It was a pleasure to record a handful of John's carols, some old, some new, in these colourful orchestrations. Both John Rutter and the Britten Sinfonia are long term friends and partners with King's College Choir; hopefully these new tracks will add a bit of magic to people's Christmas this year."

Daniel Hyde, Director of Music, King's College

IN CASE YOU MISSED IT...

50 portraits of 51 remarkable King's women, captured by Jooney Woodward, an award-winning photographer who works on film, formed the cornerstone of the 50 Years of Women at King's Festival in June 2023.

On display in the Chapel between June and September, the portraits are now online and will remain on long-term display in the College, becoming part of the permanent art collection and turning an intangible heritage of King's women into something solid and visible.

50 Portraits: an exhibition is now available to view online at **www.50yearsofwomenatkings.com**

SHARE YOUR MEMORIES OF THE GIBBS BUILDING

In 2024 we'll be marking the 300th anniversary of the Gibbs Building. Sitting at the very heart of King's, it plays a seminal role in College life – from the setting for nerve-wracking admissions interviews to countless supervisions. We'd love to hear your memories of Gibbs. Please send to **communications@kings.cam.ac.uk**, and we hope to share as many as possible over the coming year.

Save the Date

2024

Tuesday 9 January
Provost Drinks Reception, San Francisco

Saturday 16 March
Foundation Lunch

Saturday 23 March
20th, 25th & 30th Anniversary Reunion

Friday 3 May
Alan Turing Lecture

Thursday 16 May
King's Golf Day

Saturday 18 May
King Henry VI Circle Lunch

Saturday 1 June
10th Anniversary Reunion

Wednesday 19 June
King's Affair

Saturday 22 June
Members Afternoon Tea

Friday 27 September
50th Anniversary Reunion

Saturday 28 September
35th, 40th & 45th Anniversary Reunion

Saturday 26 October
1441 Foundation Dinner

Sunday 1 December
Procession for Advent

For up-to-date information about events:
www.kings.cam.ac.uk/events/calendar

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