

Issue 37 | Spring 2023

# Front Court

Trinity Hall Cambridge



## HIGHLIGHTS

The music makers

Celebrating creativity

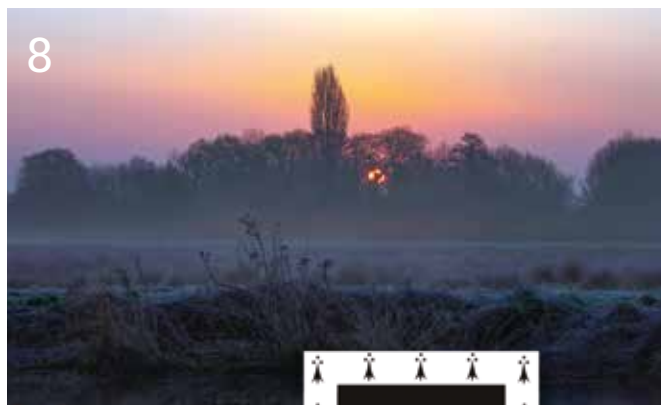
Origami engineering



TRINITY HALL  
CAMBRIDGE

# Contents

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14



3 Message from  
the Master

4 Trinity call: student  
engineers' clandestine  
phone network

6 The music makers

8 Celebrating creativity:  
Trinity Hall Arts Festival

10 RESEARCH:  
Origami engineering

13 THA Secretary's Report

14 MAKE A DIFFERENCE:  
You gave together to make  
a difference

15 MAKE A DIFFERENCE:  
In times of need, you  
are there

16 FIVE MINUTES  
with a Fellow

18 NEWS IN BRIEF

20 Your global community



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This edition of *Front Court* is bursting with creativity. One of the things I've been thrilled to discover, alongside impressive intellectual achievements, is the abundant artistic and inventive life of College, much of it supported or, indeed, created by alumni.

# Message from the Master

by Mary Hockaday | Master



**B**efore Christmas, I sat in Chapel for the Advent Service listening to the premiere of a beautiful new carol, commissioned by our Director of Music, Andrew Arthur, and composed by alumna, Anna Semple (2015). A few weeks later, I enjoyed a special screening in the Lecture Theatre of a film co-directed by alumnus Jon Sanders (1962), *A Clever Woman*, with the chance to talk to Jon and others involved in the making of the film afterwards.

This is all part of Trinity Hall's Arts Festival, celebrating creativity across the community, which would not have been possible without your support. As you can read within, the Festival has engaged students, staff and Fellows. Our College nurse, Jo Rhodes, is a terrific photographer.

Intellectual endeavours need creativity. Innovation in any field involves the making of new connections. I hope you'll enjoy reading about the link between maths and colouring in, and engineering and origami – creative thinking about serious numbers and forms, with real world benefits and purpose as well as abstract beauty. I'm quite confident that a College filled with creative buzz is also working and thinking hard.

Sport and exercise can do the same. It's been great to see some real success recently. Rosa Millard (2020) rowed to victory in this year's Boat Race while CUAFC Women's President, Neve Mayes (2020), led the team to the semi-finals of the BUCS National Cup.

We've been delighted to see recognition for Trinity Hall Fellows and alumni. Professor Vasant Kumar has been elected as a Fellow of the Royal Society of Chemistry. Visiting Fellow Professor Campbell McClachlan and Professor Lorand

Bartels have both been appointed to senior positions at the trade disputes tribunal between the UK and EU. Two alumni, Tom Scholar (1987) and Mike Williams (1960) were recognised in the New Year Honours list.

In other news, I'm delighted to say that Professor Jan-Melissa Schramm has been elected as Vice-Master for the next four years. She is Professor of Literature and Law with expertise in the history of the English novel and the wider cultural relations of law and the humanities. Meanwhile, we've heard from our previous Vice-Master and Acting Master Dr Daniel Tyler, and I'm pleased to say that he and his family are settling into sunnier climes in Sydney and we wish them well. We also miss our College counsellor, Julie McCrae who left us last term, with Trinity Hall's great gratitude for supporting so many students.

We're planning to bring creativity to some College thinking about the climate challenge. What can we do about our own direct carbon use? How can we support research in technological solutions and effective communication to bring about change? How can we connect what we do with our local community as well as the global academic world? We're just beginning an exciting journey, and I look forward to engaging with you in time.

We may need a little mischief too. In no way, of course, do I condone students clambering over our ancient buildings, but if you read about what Tony Nixon (1973) and others got up to in the 1970s (a story I heard in person at a recent THA dinner), I challenge you not to celebrate what I will carefully describe as initiative. Creative initiative indeed.





# Trinity call:

## student engineers' clandestine phone network



> Tony Nixon, summer 1976

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by Paul Holland | Director of Communications

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**Climbing through attics, clambering over roofs and laying submarine cables was all in a day's work for Trinity Hall students in the 1970s: just to create their own version of social media.**

Tony Nixon (1973) now lives in Otley, Yorkshire having retired from a career as an engineer, designing control systems for high-speed machinery making food and drink cans.

But from 1973 to 1976 Tony spent his time studying to become an engineer and, with a group of friends, creating a labyrinthine web of telecommunications cables to connect a clandestine network of student telephones.

"It was an era when students did not generally have access to phones. The College provided landlines for the JCR President, the Organ Scholar and, possibly, the Boat Club Captain, but the rest of us had to make do with a rather fetid call box at the bottom of E Staircase. Fifty years ago subscriber trunk dialling did not extend to the whole country and if I wanted to phone my girlfriend in rural Lancashire I had to call via the operator. Our phone system was confined



[RETURN TO CONTENTS](#)

to a small number in the College. We didn't use it for much, mostly just to arrange to meet. You'd pick up the phone, dial, and say: 'Bar tonight?' or 'Shall we meet in 1st or 2nd Hall?' That was it, but it was the technical challenge and the adventures while installing it that made it fun.

"We had nine extensions and no privacy, as all calls could be heard by anyone picking up their phone.

"I was not keen on climbing round the rooftops and attics at dead of night laying cables, but I did have a room at the top of D Staircase where it was possible to put an exchange (in a 'Rover' biscuit tin) just outside the window.

"The exchange had to be outside because of the noise it made. I specialised in the installation of the concealed internal wiring usually from the window of the room to the drawer or cupboard where each phone was concealed. You could not have them on-show or the bedders would have been curious."

Tony says he was dragged into covert communication by a fellow engineer who had a friend at King's College who'd obtained some scrap equipment from the Marconi Company.

"But we needed some cable. We had 30-foot lengths of it, with 25 pairs of wires twisted together in each length. To untwist them we dropped them down a three-story staircase in King's and hung them there. Then we soldered the lengths together, wrapped the joints in insulation tape, and covered them in bitumen paint for camouflage."

Fortunately, the College was "festooned" in General Post Office (GPO) phone wires so it was easy to "tuck a few more in". But how to extend their network to King's College to include their co-conspirator? "At dead of night in January 1974, we used the scaffolding alongside the Old Library to install cables in the guttering. The cables went down inside a drainpipe, were buried in the gravel to L Staircase and then up inside another drainpipe to emerge and become tucked in amongst GPO wiring.

"The wires ran all along the front of the Thornton and Latham Buildings to another exchange on the top floor of Q. This second exchange had the most ambitious part of the scheme, a submarine cable laid from a punt we had shares in, connecting our system to the one at King's."

The system grew over a period of months from late 1973 through early 1974. Extra telephones were bought as needed, often from electrical surplus shops on the Tottenham Court Road.



> Tony Nixon working on the engine in Barnoldswick

Most of the 'subscribers' moved out to Bateman Street or St Clement's Gardens for their second year, but the system in College was revived when they moved back in October 1975. "It was handed on when our year graduated in 1976 and ran for at least another year. Does anyone reading this know what happened after that?" Some of the wiring across the front of L Staircase was still visible in 1998.

Nowadays Tony keeps his hand in with engineering and volunteers to help look after a 100-year-old steam engine in nearby Barnoldswick... and remembers his days at Trinity Hall with fondness.

In 1999, Tony's younger son came up to Trinity Hall. By then students could pay to have a landline in their room, with direct dialling in and out, and soon after that, mobile phones became ubiquitous.



**“It’s all about making a space where people feel comfortable and encouraging them to explore their music.”**

© David Valinsky

# The music makers

> Julia De Luca practicing piano in the WongAvery Music Gallery

Trinity Hall's Music Society has been enriching the cultural life of College for more than 100 years. Since its formation in the 1920s, the Society has welcomed countless students to explore their creativity, build their confidence and experience the joy of music-making.

Third-year musician Julia De Luca (2020) oversees the Society's busy weekly recital programme, one-off performances and its day-to-day running in her role as Music Society Chair. She's passionate about keeping the cultural life of College accessible to everyone: "We've been doing quite a lot of pop, jazz and musical theatre recently, as well as classical music. We want the Society to be super inclusive and diverse, so we have informal music-making sessions as well as scheduled performances and the wonderful professional concerts organised by Andrew, our Director of Music. The bands are great fun and our 8pm Wednesday recitals are really lovely occasions. We have performers from Trinity Hall and elsewhere in Cambridge, which is brilliant to explore different perspectives and learn new things. We even have 'regulars' who are in the audience every week."

But it's not just members of the Music Society and current students that Julia encourages to come along. Alumni, staff, Fellows, family and members of the public are all welcome to experience what Trinity Hall has to offer: "Relationships with all members of Trinity Hall and the wider Cambridge community are really important. The music scene in Cambridge is amazing and the community is incredibly supportive. It's so lively in College that we want to share these experiences with as many people as we can. We were excited to see the Master at one of our recent, informal performances. And I also learned recently that our Director of Admissions, Dr Marcus Tomalin, plays the lute and Dr James Wood, recently Acting Senior Tutor, used to work in the music industry."

As well as a wealth of musical talent, enthusiasm and variety within Trinity Hall, we're also fortunate to have some exceptional practice and performance spaces from the "Victorian salon-like concertina vibes" of the Master's Lodge Drawing Room to the relaxed atmosphere of the Music Room and the "amazing new WongAvery Music Gallery".

Collaborations help keep the positive community atmosphere alive. The Music Society has worked with Pink Week and the Minerva Festival, and their biggest production in recent years was a huge team effort: "Our recital co-ordinators Alex and Charlotte did an incredible job with our production of *A Little Night Music* in February. They directed the musical and brought together the actors, band and support staff from all across Cambridge. It was the first big production we'd done in years, so it was amazing to see, and we were grateful to have the support of the Trinity Hall Arts Festival."

Looking back on her years at Trinity Hall, Julia is particularly proud of her friends who have grown sufficiently in confidence to perform in front of an audience for the first time: "One of my friends has such a good voice but had never sung in public before or had any formal singing lessons. I thought he might enjoy singing with a band so a few of us got together to form this band and put on a performance. He did a really great job and seeing the community grow is really, really nice. It's all about making a space where people feel comfortable and encouraging them to explore their music. It doesn't have to be a perfect performance. Bring your musical interpretation to a piece that you really love and care about. People will see your passion for music and, for me, that's more important than a note perfect performance."

Recitals are every Wednesday at 8pm during term time.  
Capacity is limited but everyone is welcome.

Upcoming events: [trinhall.cam.ac.uk/music-events](http://trinhall.cam.ac.uk/music-events)



> Actors in *A Little Night Music*





# Celebrating creativity: Trinity Hall Arts Festival

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by Dr Jane Partner | Fellow in English

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Trinity Hall's Arts Festival is a year-long celebration of creativity that reveals hidden talents and diverse artistic interests across our community. The project has been conceived as a joyous re-launch into the world of culture after lockdown, and as the start of a drive towards raising Trinity Hall's profile in the arts.

As the act of envisioning new possibilities, the creative process is intimately connected with the aims and methods of education, and it is an integral part of research and teaching across all disciplines. The presence of artistic works and events in Trinity Hall provides an inspiring backdrop for our shared experience of teaching and learning, as we each in our different fields seek to be open to new possibilities and achieve the fullest personal self-expression.

Throughout this academic year, rolling call-outs for funding applications have given students, staff and Fellows the chance to propose artistic projects. So far, the Arts Festival Steering Committee, composed of a collaborating group of students and Fellows, and with the generous support of the Bursar, has been able to fund 12 creative undertakings...and counting.

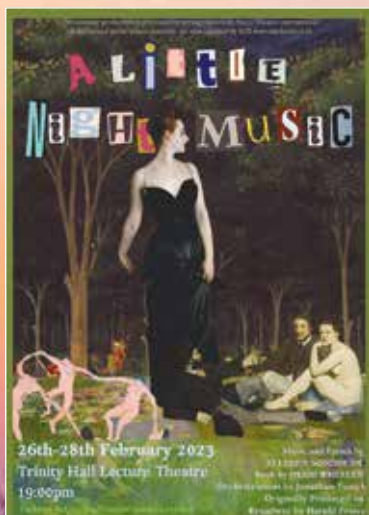
The musical life of the College is always a very rich one and a source of great pride, but this year sees an exceptionally impressive programme of events. A series of prestigious professional concerts includes performances by Trinity Hall's Director of Music, Andrew Arthur, playing harpsichord concertos

with the Hanover Band; a programme of Mozart, Schoenberg and Schubert played by the Odysseus Piano Trio; and a recital of music for Clarinet and Piano featuring works by Brahms, Weber, Lutoslawski, Saint-Saëns and Poulenc, performed by Joe Shiner and Michael Dussek. Further events have included a fascinating lecture recital by Henrik Persson introducing the stunning Edward Lewis Viol of 1703, two performances of Bach's iconic *Goldberg Variations* played by keyboard-player Stephen Farr, and an unforgettable organ recital given by Martin Baker in the College Chapel – featuring improvisations inspired by the Stephen Cox sculpture exhibition *Encounters in Stone*.

The Chapel Choir has continued to undertake a busy schedule of services during term time, and they looked forward to their concert tour of Prague in April 2023. Throughout the year, the celebrated WongAvery Music Gallery has provided a superb venue for the Trinity Hall Music Society's eclectic weekly series of student recitals. Most recently, a highly successful student production of Stephen Sondheim and Hugh Wheeler's 1973 musical *A Little Night Music* (directed by music student Alex Wrathall (2021) and a Trinity Hall student team) took place in College, complete with an orchestra that left the

[RETURN TO CONTENTS](#)





> Left: *A Little Night Music* promotional poster  
Above: *A Clever Woman* promotional poster

Lecture Theatre bulging.

In other areas of the performing arts, *Spontaneous Reactions* led by Jordi Ferrer Orri (2018), PhD in Physics, saw scientists improvising theatre to highly comic effect. The College's venerable and much-respected Preston Society for drama was re-formulated two years ago as the Preston Film Society, which continues to be active in making and screening short films, including *Tickets to Earth* by English finalist Fin Scott (2020). The College has also been delighted to showcase the talent of Trinity Hall alumnus and director Jon Sanders (1962) by screening his film *A Clever Woman*, which had recently been shown at the Edinburgh Film Festival. Bingbing Shi (2019), PhD student in modern Chinese literature, organised a screening of *Mr No Problem* (2016), an independent film about a farmer's daily life during the Second Sino-Japanese War. The director Mei Feng attended the screening and engaged in discussion about the film.

The year-long exhibition of sculpture by Stephen Cox RA, curated by Professor Alexander Marr, underpins our other ongoing activities in the visual arts. A lecture connected to the exhibition, by world-renowned expert on 'Yogini', Professor Vidya Dehejia (Columbia University), took place in March. Cristea Roberts Gallery kindly lent five works by Honorary Fellow Cornelia Parker CBE RA, for display in the JCR. The five works were selected by last year's JCR President Kate Valentine (2020) with Picture Steward Alexander Marr. They are available to view in the JCR and will be displayed until the end of Easter Term. Impressive skills in landscape photography have been on

display through work by the College Nurse Joanna Rhodes, and there is some stunning nature photography to be exhibited by Jamie Clarkson (2017), PhD candidate in Engineering.

Professor Louise Haywood was in conversation with academic and artist Dr Vanessa Marr (Brighton) about her creative research practices and her community projects including the *Domestic Academics Quilt*, which presents personal reflections on the COVID lockdowns by UK-based women academics with caring responsibilities. The quilt was on display and there was a chance to participate in the 'Trinity Hall Pandemic Creative Workshop' by making a quilt square to then be combined into a larger piece.

Trinity Hall's Hesperides Literary Society, also recently re-founded after a venerable history, continues to be active with student-led events. English finalist Anna Chandler de Waal (2020) continues to edit the enticingly illustrated literary zine *Lunulae*, whilst MPhil student in English Giselle Parnal (2018) is curating a journal of poetry and experimental writing entitled *Naviformes*.

There is much more to follow in the remainder of the academic year. A very exciting new art commission will be on display in the Dining Hall during Easter Term, and in May my exhibition, *Reformations*, will present new artworks that I have made in response to the Old Library. More on that in the next issue...

> Sunrise at Grantchester meadows, March 2022



## RESEARCH

# Origami engineering



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by Charles Gai (2017) | Engineering

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Smart structures, also known as deployable structures, are a family of structures with shape-changing behaviours. A smart structure's geometric shape and spatial volumetric size can drastically change from a compact configuration to a large structure. The most interesting thing about them for me are their immense possibilities. The combinations of elements bring fascinating and unique spatial motion.





## “The Venus flytrap. On the surface, perhaps, a simple folding structure. But consider the potential applications of its grabbing ability, dexterity and sensitivity.”

### Nature does it best

Smart structures can also be described as structures which have the ability to optimize performance when there is a shift in the environmental condition. They include biomimetic materials and morphing structures, the former deriving their forms and patterns by taking inspiration from nature.

Plants and insects have developed complex geometric forms to adapt and survive. When folded, an earwig wing is one fifteenth of the wing surface size when in motion. Imagine the portability of an object that can neatly fold to one fifteenth of its original size.

The Venus flytrap. On the surface, perhaps, a simple folding structure. But consider the potential applications of its grabbing ability, dexterity and sensitivity. A portable assistance machine that can grasp and move objects of any size, weight or shape; a debris collection machine in space or the ocean. What if we added more folds, multiple arms or combined its properties with a metamaterial? What could we achieve, working together with our colleagues in biology, robotics and other fields?

We engineers are inspired by the world around us. By the natural world, by each other and by artistic forms.

### Creative collisions

Origami art and origami engineering are two intertwined subject matters. By studying existing artistic forms, engineers can understand the underlying physical principles behind origami art and propose even more interesting forms.

Origami engineering is an active research field that focuses on devising novel physical properties by studying the relationship between creases and folding patterns. There are many folding patterns with their own characteristics. One such pattern is the Miura-ori folding pattern. Trinity Hall's own Professor Simon Guest has explored the geometry of metamaterials using the Miura-ori fold pattern, examining out-of-plane bending and twisting stiffness.

So how does this help us engineer for modern society? We use the knowledge and inspiration gained from art and nature to devise solutions and improvements for our evolving world. Stent grafts that adapt to the morphology of the patient; better folding patterns for recycling bags to increase strength and storage efficiency; and new, innovative metamaterials with vast and undiscovered potential. Smart structures are also leading the way in emerging aerospace technology. Their ability to cover a large area when deployed and occupy the minimum area in their compacted configuration makes them ideal for applications such as folding solar panels.

But what about in our daily lives? Where might you or I regularly see a practical smart structure application that benefits us? It is, of course, the umbrella. Often pocket-sized and able to shield us from the elements, umbrellas are the perfect example of a simple, useful smart structure.



© Aweil/shutterstock.com



**“Often pocket-sized and able to shield us from the elements, umbrellas are the perfect example of a simple, useful smart structure.”**



Evolving interdisciplinary practice has made all this possible, and I plan to be part of its continuing advancement.

### My research

My current research interest lies in the field of elastic multi-stable mechanisms. These are mechanisms with multiple stable motion paths that are strain-free and geometrically compatible. The structure can jump between different unique motion paths by applying an external load.

Right now, I'm focusing on linkage mechanisms. These mechanisms are typically made up of revolute joints and rigid bars. They have been around for centuries. A good ancient example is pantographic writing equipment where identical images can be traced and recreated. Our own joints are a good biological example. A range of linkages have been proposed over the years, along with advancement in tessellation, coupler motion and manufacturing techniques. However, large-scale industrial applications of these complicated mechanisms have rarely been exploited due to the development of gears and other means of motion transmission when researchers were more interested in power transmission, such as bicycles transmitting paddling power to the wheels. Gears are more efficient and reliable for power transmission and can be more compact in terms of size. However, my research is less concerned with power transfer and more with spatial translation that linkages can achieve.

My research focuses on the effect of elasticity on linkage mechanism's kinematic motion. The aim is to broaden the possible applications for linkage mechanisms. I am particularly interested in how we can create new spatial

kinematic motion or switch between existing motion paths by intentionally introducing non-rigid bars. For example, creating a linkage mechanism with bars made up of two different materials.

Researchers have recently begun to draw inspiration from linkage modelling methods to tackle problems in origami-based structures, such as thick panel folding. In the future, I plan to focus on the possible synergies between origami and linkage mechanisms, such as non-rigid panels.

### The future

Right now, my research is dedicated to understanding the first principle of elastic smart structures. A thorough understanding of the underlying principle can enable us to design structures more efficiently. We could lower the mass of satellites by reducing the number of actuators required, or design increasingly advanced, minimally invasive deployable devices for medical patients and practitioners. The possible applications are vast but to get there, we need a solid understanding of the general principle to efficiently design custom structures. All to the benefit of society.

Smart structures on their own may not seem like the most fascinating thing in the world, but they form the backbone of novel innovation in fields like aerospace, healthcare and daily product design.

As for myself, I need to stay curious. There are always new and interesting things to learn. The creative relationships between art, science and history expand the boundaries of understanding and invention.



# THA Secretary's Report

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by Dr David Billett (1968) | THA Secretary  
[trinhall.cam.ac.uk/tha](mailto:trinhall.cam.ac.uk/tha)  
[thapresident@trinhall.cam.ac.uk](mailto:thapresident@trinhall.cam.ac.uk)

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The Association has continued to move forward with successful events this year, unhindered by Covid restrictions.

The programme in College in September included a fascinating panel discussion on the challenges of good leadership in times of misinformation. The following AGM was also accessible online, offered as a hybrid event for the first time. Finally, the reception and Annual Dinner provided wonderful food and great company, enjoyed by 115 members and their guests in which seven decades of matriculation were present.

We held our first Regional Dinner in November at the Royal Armouries Museum, Leeds. The venue was memorable; we dined in the War Gallery, overlooked by armoured warriors on horseback. Our new Master, Mary Hockaday, spoke about her positive view of the future of the College as it plans for the next phase of its outward looking development. Many present were able to greet her personally. The dinner was again preceded with an excellent talk; Tristan Langlois (1986), Head of Education at the Armouries, described the medieval origins of the Armoury in the Tower of London, and its move in 1996 into the splendid purpose-built accommodation in Leeds.

Our second Regional Dinner in February was at the Merchants' Hall, Bristol. It was a well-attended and hugely enjoyable event. Alumni spanning seven decades and their guests, mainly from the Bristol region, enjoyed each other's company, a first-class meal and wonderful service in the splendid reception rooms of the Merchants' Hall, as well as an update from the Master.

The 2022 survey and continuing feedback from alumni is encouraging the Committee in its quest to diversify events and formats whilst retaining regional flavours which are clearly appreciated.

The THA Volunteering Awards are a vital part of our engagement with the student body. The criteria for the Awards have been broadened to make them more flexible in terms of location, timing and financial support. It is hoped that improvements in information and publicity will also encourage applications.

We are saddened to report the deaths of two stalwarts of the Committee. Martin Williams (1966), who died in October 2022, had been Financial Officer for 10 years until 2008. You can read Martin's obituary on the website: [trinhall.cam.ac.uk/obituaries](http://trinhall.cam.ac.uk/obituaries). Bob Ely (1950), who died in January 2023, was elected in 2005. As an emeritus member since 2015, Bob retained close engagement with the Committee.

The THA welcomes interest in serving on the Committee as it seeks to maintain a diverse matriculation year range and experience in the membership.

As always, we are indebted to all the staff of the Alumni & Development Office for their constant support.



> Tristan Langlois, Head of Education at the Armouries, speaking to guests



## MAKE A DIFFERENCE

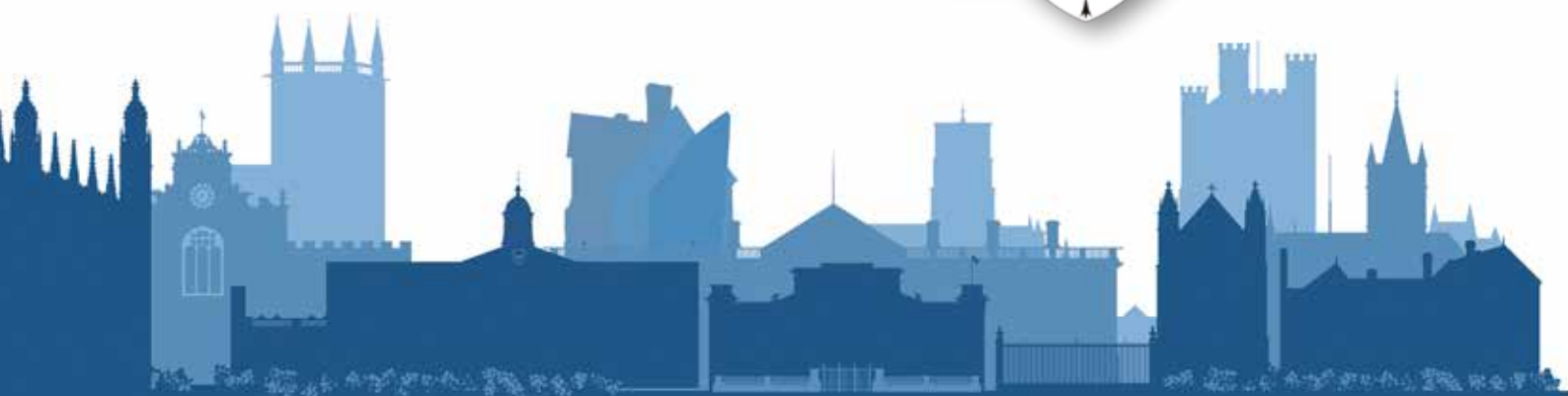
# You gave together to make a difference

Do you remember tapping the 'donate now' button back in December during our Give TogetHER campaign?

Maybe you donated £1, maybe you donated £100. Your choice to tap that button, along with more than 470 others who also care about the welfare of our students, is giving students peace of mind during the cost-of-living crisis. Your gifts are reducing stress and helping undergraduates and postgraduates enjoy their time at Trinity Hall without the pressure of financial worries.

Since our first Giving Day in 2020, you have donated almost £1 million to support Trinity Hall students. You are helping students focus on their studies. You are giving students inspiring opportunities. You are enriching their Cambridge experience.

Thank you.



Help Trinity Hall students: [trinhall.cam.ac.uk/donate](https://trinhall.cam.ac.uk/donate)



## MAKE A DIFFERENCE

# In times of need, you are there



© Nick Saffell, University of Cambridge

**Your support benefits one third of undergraduate students. Some of these students find themselves in unexpected financial difficulties and need help.**

Imagine worrying that your time at Cambridge, and your future, is in doubt because you don't have the money for necessities? Your support can alleviate these worries and gives students experiencing financial difficulties the freedom and opportunity to flourish.

You make a tangible difference to Trinity Hall students, but they say it better than we ever could...

**“Your support made sure I could afford rent, food and expenses during my year abroad. You have dramatically improved how much I have been able to enjoy this year. Thank you so much. I feel freer than I ever have. It is a wonderful feeling.”**

MML undergraduate, 2020

**“My family had financial difficulties this year and your kindness has been essential in supporting my basic needs at university. You are helping to make sure that every student is given an equal opportunity at Cambridge. And you have inspired me to donate myself when I am financially able to. Thank you.”**

Physiological Sciences undergraduate, 2019

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# Five minutes with a Fellow

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Dr James Davies, Gott Research Fellow in Mathematics, joined Trinity Hall in October 2022. He's a graph theorist, daydreamer and gamer.



> Dr James Davies



### How do you describe your work?

Much of my work is in Graph Theory, which can be thought of as the study of large 'networks'. A graph is a structure amounting to a set of objects in which some pairs of the objects are in some sense 'related'. Thus, many real-life problems can be abstracted to problems in graph theory. A recent topical application of graph modelling is tracking the spread of COVID-19 infections. A graphical approach allows us to visually represent connections between people and places. It can help us understand more about how the pandemic 'moved' and how to develop strategies to mitigate the impact in similar scenarios.

### Why maths?

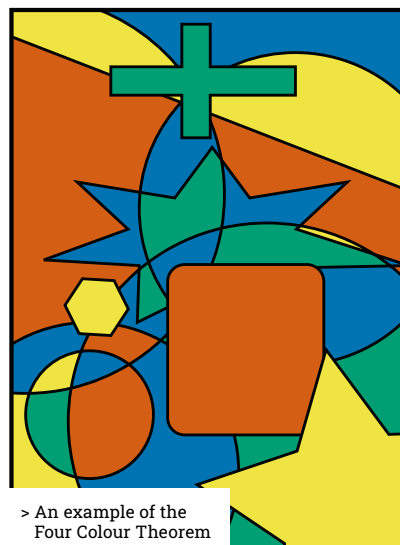
Growing up I was always encouraged to like mathematics. I am, and very much always was, a daydreamer. While being an inattentive student was probably not ideal, I would often be thinking about some made-up puzzle or problem. I believe this helped improve my problem-solving abilities so going into mathematics research where I could spend a lot of my time thinking about hard problems was a natural future. Problems in Graph Theory are often easy to understand, but hard to solve, so it was easy to get hooked on this area of research.

I particularly enjoy graph colouring problems. These problems assign colours to a collection of objects so that no two related objects receive the same colour. The aim is to allocate colours efficiently to use as few as possible. The classical example is colouring a map so that countries sharing a border receive different colours. The Four Colour Theorem says that this can always be done with just four colours.

These colouring problems can help us visualise and plan real-life scenarios. One of the most popular applications is flow problems, such as airline scheduling. You can also solve popular puzzles such as Sudoku using graph colouring methods.

### How does creative thinking help your work?

When trying to solve longstanding open problems, creative thinking helps you come up with possible approaches or ideas that may not have been considered before. If a problem has already been worked on a lot, then you can expect that the usual avenues of approach have already been thoroughly explored. So, a solution often requires either an entirely new approach or a creative twist on an existing approach. There is often more to learn from a creative solution than from the answer.



> An example of the Four Colour Theorem

### What are you currently working on?

I'm working on problems in Euclidean Ramsey Theory. The most well-known problem in this area is the Hadwiger-Nelson problem. The problem asks for the minimum number of colours required to colour the plane (a 'flat' two-dimensional space) such that no two points at distance one from each other have the same colour. It is known that the answer is between five and seven. The lower bound of five was a breakthrough by Aubrey de Grey, an alumnus of Trinity Hall. I recently discovered that in any finite colouring of the plane, you can always find a pair of points of the same colour so that the distance between them is an odd number. With Rose McCarty and Michał Pilipczuk we further showed that 'odd number' can be replaced with things like 'prime number'.

The appeal of the Hadwiger-Nelson problem is its beauty. Solving it would generate much excitement. With current techniques, a complete answer appears completely out of reach, so there would be a lot to learn from a solution.

### How can maths surprise us?

A lot of people assume that mathematics research is a very solitary activity and are surprised when they learn how social it is. You meet some amazing people and there are some wonderful collaborations where together you feel greater than the sum of your parts. Collaboration can be a lot of fun, and after weeks of struggling together on a problem, it is very exciting when you are able to finally solve it together.

### What do you enjoy outside of academia?

I enjoy playing board games and video games. I like online multiplayer games for socialising with friends that live further away. Recently we've been playing *Valheim*. I also like hiking, which you often get the chance to do travelling for work.



# News in Brief

Read more at  
[trinhall.cam.ac.uk/news](http://trinhall.cam.ac.uk/news)

## SPORT

### BOAT RACE CLEAN SWEEP

In an exceptional day of racing, the Light Blues took all four Boat Race victories. Trinity Hall undergraduate Rosa Millard (2020), in seat two, stroked her crew across the line four and a half lengths ahead of Oxford in a time of 20 minutes and 29 seconds. A fantastic achievement and great performances from all the crews.



> Rosa Millard

## IMPACT

### Wychfield's trim trail

New outdoor fitness equipment has been installed at Wychfield thanks to generous alumni donations. The 'trim trail' is made up of multiple pieces of apparatus such as pull-up stations and rope climbs around the edge of the sports field. The new additions give Wychfield residents new opportunities to exercise outdoors and enjoy their surroundings.

> Trim trail at Wychfield



> Professor Deborah Prentice

## UNIVERSITY

### Next Vice-Chancellor of Cambridge

Professor Deborah Prentice, Provost of Princeton University and eminent psychologist, will begin her term as Vice-Chancellor of the University of Cambridge on 1 July. She will take over from Acting Vice-Chancellor Dr Anthony Freeling.

## STAFF

# New Vice-Master elected

Professor Jan-Melissa Schramm has been elected as Vice-Master of Trinity Hall for four years from 1 April 2023. This follows her role as Acting Vice-Master in Lent term 2023. Professor Schramm is Professor of Literature and Law in the English Faculty, and has a great deal of College and University experience.

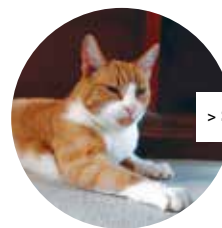
Professor Schramm said: "Trinity Hall supported me in the earliest stages of my career two decades ago, when I first started out as a College Teaching Officer in English. It's so rewarding to be able to give something back to the College community."



> Professor Jan-Melissa Schramm



> Silly the cat exploring his home



> Silly the cat

## COMMUNITY

# Meet Silly the cat

There's a new feline face at Trinity Hall. Silly is the Master's cat and has spent the past few months making College his home. He likes to explore the grounds and can often be found relaxing in the Fellows' Garden and on Latham Lawn, enjoying the spring sunshine and the attentions of students, staff and Fellows.





# Your global community

Our extraordinary alumni community spans the globe.

Since 2018, we have held events in more than 30 cities worldwide, not to mention all the informal gatherings organised by Regional Reps. Wherever you are in the world, you're sure to find support and connections nearby.

[trinhall.cam.ac.uk/events](http://trinhall.cam.ac.uk/events)

[trinhall.cam.ac.uk/get-involved](http://trinhall.cam.ac.uk/get-involved)

## Diary dates

**13 May**

Baroque Music for Violin and Harpsichord

**13 May**

Engineering Society Dinner

**17 May**

Berlin Event

**21 May**

Social Innovation Lecture 2023

**8 June**

Trinity Hall at the Mall Galleries

**10 June**

Music for Clarinet and Piano

**17 June**

Last day of May Bumps

**22 June**

June Event (sold out)

**8 July**

50th Anniversary event (1973)

**15 July**

Reunion (1977, 1978 & 1979)

**19–21 July**

San Francisco event  
San Diego event

**2 September**

Reunion (1991, 1992 & 1993)

**9 September**

25th Anniversary dinner (1998)

**12–17 September**

Hong Kong event  
Singapore event

**21 September**

60th Anniversary lunch (1963)

**22–24 September**

University Alumni Festival

**23 September**

THA AGM & Cambridge dinner

Please check the website for more information and to book:

[trinhall.cam.ac.uk/events](http://trinhall.cam.ac.uk/events).



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RETURN TO CONTENTS