

EMMANUEL 2018 REVIEW



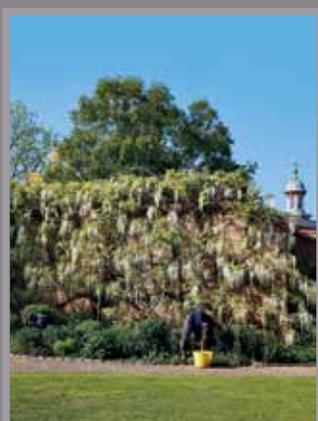
HERE IN OUR OWN COLLEGE GARDEN *the bursting buds*
ARE JUST BEING KISSED TO WAKEN AND OPEN TO FULL
BLOOM BY THE SOFT TOUCH OF LIGHT WHICH THE SUN SENDS
DOWN, GIVING A WARM GLOW TO *these early spring days*

AUSTRALIAN CADET OFFICER BILLETED IN NORTH COURT 1918



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The cover shows the wisteria in the Fellows' Garden, just bursting into bloom

Photograph: Marcus Ginns

Acknowledgements

Emmanuel College would like to thank all those who have assisted in the production of the Review, including:

- UK Autodrive, Milton Keynes team p. 4
- Clinical Skills Unit, Addenbrooke's Hospital p. 10
- 19th Cambridge Brownies p. 11
- Museum of Classical Archaeology, University of Cambridge p. 12
- National Youth Music Theatre p. 13
- Villiers Park Educational Trust p. 14
- University Arms Hotel p. 16

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VIEW FROM THE LODGE



I'm writing this the morning after the Boat Club Dinner (yes the May Bumps went brilliantly thank you – three sets of blades!) surrounded by the noise and kerfuffle of a June Event in preparation. The marquees are up, electric wires are being tidied away and the decorated college is in festive, party mode. By tomorrow it will be gone, though, and we'll be preparing for the next event: graduation, with more marquees and – we hope – a picnic in the sunshine on Front Court. Another generation of Emma graduates will make their way into the world, and in the blink of an eye I'll be welcoming the 2018 freshers to their life-long membership of Emma.



How the wheel of an academic year turns: increasingly fast, some say, and it certainly seems that way to me. Five years have flown by, and while on the surface little has changed and our age-old rituals continue, underneath we are living in a different world.

For a start, higher education is no longer on the back burner of public policy. We have new institutions (the Office for Students), new targets (especially for admitting more students from disadvantaged backgrounds and minority communities) and new measures of success: to add to the REF (Research Excellence Framework) and the TEF (Teaching Excellence Framework) we now have the KEF (Knowledge Exchange Framework). Emmanuel has always done well against these measures, helped by our high academic standards and our meritocratic, welcoming approach. But we need to do more, so this year we have entered into a partnership with the education charity Villiers Park, to help us reach promising young people in schools in Essex with little experience of sending students to good universities. These students will attend courses and receive special tutoring to put them in a position, should they wish, to apply to the top universities in the country after their A-levels. Two such students, who we have funded to attend a week-long course at Villiers Park, write about their experiences later in this *Review*.

We have entered into a partnership with the education charity Villiers Park, to help us reach promising young people in schools in Essex with little experience of sending students to good universities

Second, each year our students need increasing support from us. While most are funded by loans to pay their fees and living costs, many have no money for the vital extras that make life here so special, such as sports kits and music lessons. Even more need help with necessary elements of their studies, including travel costs for dissertations, language lessons, internships and other tripos-related work. Some of our students couldn't manage here at all without the bursaries and grants we offer. We are also seeing growing demands for help from those suffering from stress and mental health problems. We use income from our carefully nurtured endowment and generous donations from Emma members to support students in all these ways.

Each year our students need increasing support from us

Finally, there is no longer an automatic assumption that graduates from Emmanuel – or indeed any other Cambridge college – will walk into a well-paid job. Indeed that often feels very far from the case to our graduating students. Many report increasingly tough competition, the huge amounts of time needed to make applications and prepare for interviews (particularly hard to do when they are revising for exams), and worry over the looming repayment of student loans. We know we need to do more to help our students not only while they are here, but also as they prepare to leave us and enter the workplace.

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All this and more shapes our thinking about the next steps for Emmanuel, liberated by our purchase of a building, Furness Lodge, and the plot of land just behind South Court. Elsewhere in the *Review* we report on the architects we have commissioned to help us and our ambitions for the site. For me this has always been a project about people and community as well as about bricks and mortar. The next few months will see us developing ideas to make this a reality, and to put in place the elements that will help Emma adapt to the needs, pressures and opportunities of the future as well as continue the traditions that make us the college we all love.

I have met many Emma members in the past year, in college, elsewhere in the UK and further afield, and am looking forward to visiting more in Hong Kong, Auckland, Sydney, Singapore and Delhi at the end of the summer. It is a privilege and delight for me, and I am constantly struck by your loyalty, interest and enthusiasm for our plans. We're always very keen to hear your thoughts and suggestions, and will let you know how our thinking develops and how you can help us realise our dreams.

Fiona Reynolds
Master



SHARED TRANSPORT

AS AVAILABLE AND AFFORDABLE AS RUNNING WATER

JOHN MILES — FELLOW

The hallmark of a developed society is not that even the poor have cars. It is that even the affluent use public transport. (Enrique Penalosa, former Mayor of Bogota, paraphrased)

Movement is a characteristic of all animal life and mechanised movement has become one of modern human life. From the invention of the wheel to the development of manned space flight, improving the way we travel has been a fixation of engineers and many of them have left their names in our history books: Brunel, Ford and Whittle are a few well-known examples. And, trailing behind these super-stars, are countless other engineers, transport planners and politicians whose names have never hit the headlines but who have contributed to improving mobility for their times. Each generation has faced its own challenges, but as our predecessors have solved the great problem of providing affordable and ubiquitous mobility for the masses, we now face the consequences of that success, with issues of congestion, pollution, consumption of natural resources and road safety.



Driverless pods could become part of the multi-modal shared transport system of the future. These vehicles are currently being trialled as part of the UK Autodrive industrial research project in Milton Keynes

In response to these challenges, it has become fashionable to demonise cars. They are blamed for guzzling precious natural resources, choking our roads with their presence and choking us with their exhaust. If that isn't bad enough, they are also killing and maiming an unacceptable number of people each year in avoidable road accidents. Therefore they are bad. We should be more sensible and use buses and railways instead.

London is frequently cited as a place where the tide has turned and, we are told, fewer people now own cars and more choose to take the bus or tube for their everyday journeys. This is true, but few appreciate the scale of public subsidy that sits behind this great success. London's buses and underground system are subsidised at a scale that would be unaffordable if repeated across the whole of the UK. In addition, there is not the capacity in our railway system to provide a meaningful alternative to road use. Our railways currently carry around eight per cent of our total passenger-miles, so we would need 12 times as much railway infrastructure to replace road transport directly with rail.

No: while we demonise the car, there is no other form of mechanised transport that offers anywhere near the same level of convenience and personal mobility to ordinary people. And the benefits of personal mobility are legion, despite the obvious problems. So, can we develop new means of transport that continue to provide affordable mobility at the grand scale, whilst simultaneously solving problems of congestion, pollution, consumption and safety? This is the focus of my research.

The signs are promising. The emergence of low-emission propulsion technologies in the form of electric and hydrogen-fuelled vehicles, combined with advances in computing, information and



communications, is helping us to cut to the heart of the dominance of the private car, which is almost universal in its appeal, because of its convenience and affordability. Shared transport systems, however, are inherently more efficient than private transport systems. But, until shared/public alternatives begin to match the car's star attributes, road users will continue to be reluctant brides. So, the challenge is to design shared transport systems that have the attraction, convenience and affordability of the car.

If you could call for a shared service that picked you up from your door in a clean and attractive vehicle, and took you quickly and conveniently to your destination for a fare that is less than the cost of parking, you would use it without a second



thought. This is a far cry from the current public transport offering of fixed-route, fixed-timetable buses and trains. These arrangements suit the delivery system rather than the traveller, and are dictated by the economics of operation. However, the advent of autonomous vehicles and handheld communications devices has the potential to change that economic equation. It is rapidly becoming possible to match traveller demand with available vehicles in real time and at

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city-scale. If these systems were to use driverless vehicles, the service would be affordable.

Despite the apparent simplicity of this argument, the journey of tomorrow will not be accomplished by introducing one single new form of transport. There will continue to be a place for mass transit, buses, taxis, bikes, walking and (maybe, even) driverless pods. This is because different needs are best served by different systems. Each

element will, of course, be delivered by a new generation of electric, low-emission, vehicles, but it will be the ability to string these services together to provide one convenient, affordable, multi-modal journey that will make the biggest difference for us all. When shared transport systems become 'as accessible and affordable as running water' (to quote Travis Kalanick, the first CEO of Uber), we will have released the stranglehold of the car on our daily lives.

John Miles joined the Fellowship at Emmanuel in 2012, when he came to Cambridge as ARUP/Royal Academy of Engineering Professor of Transitional Energy Strategies

PALE BLUE DOTS

IN SEARCH OF EXOPLANETS

VINESH MAGUIRE-RAJPAUL — FELLOW





Left: Doppler spectroscopy, the main technique Vinesh and his collaborators use to study distant worlds, involves ultra-precise measurements of starlight that has been split into its constituent frequencies or colours



In 1990, after travelling through the solar system for 13 years, NASA's *Voyager 1* spacecraft turned to look back at the inner solar system and captured a final few images before its cameras lost power. One of these images featured a miniscule bluish-white speck, suspended precariously among colossal bands of scattered sunlight: Earth, seen from six billion kilometres away.

Some time in the early 1990s, as a child growing up in apartheid South Africa, I stumbled upon this image in a doctor's waiting room. I was awed to think that this 'pale blue dot ... a mere mote of dust, suspended in a sunbeam ... a lonely speck in the great enveloping cosmic dark' (to quote Carl Sagan) has been home to every human and known form of life that has ever existed. I was staggered by the contrast between humanity's imagined self-importance, and the objective tininess and fragility of our entire planet.

Soon I wanted to know: are there other pale blue dots somewhere out in space? Might such planets also be teeming with life? Or are we truly alone?

Are there other pale blue dots somewhere out in space? Might such planets also be teeming with life? Or are we truly alone?

I didn't have to wait very long for a tantalising clue, because in 1995 the first confirmed exoplanet – a planet orbiting a star other than the Sun – was discovered. Fast forward to 2018, and we have now discovered thousands of exoplanets. We estimate our unexceptional galaxy alone to contain more than several hundred billion exoplanets (!), and we're even starting to figure out which gases exist in some of these planets' atmospheres.

Yet finding exoplanets is really, really difficult. Until 2015 we weren't even sure what Pluto's surface looked like, and Pluto is 5000 times closer than the closest possible exoplanet. As exoplanets are almost always too faint and tiny to be seen directly, we have to study them by the changes they cause in their parent stars. These changes can be almost unimaginably subtle: brightness fluctuations of a few parts per million, or velocity 'wobbles' of tens of centimetres, on stars many trillions of kilometres away. When you consider that stars themselves are racing through space, pulsating, spinning, violently ejecting hot plasma and more ... well, it all gets a bit complicated.

I develop and apply tools for detecting and studying the most elusive exoplanets

That's where my own research comes in. I develop and apply tools (physical models, mathematical techniques, computational methods) for detecting and studying the most elusive exoplanets. Inevitably this requires a better understanding of the complexities of their host stars.

In essence, my research aims to discover smaller exoplanets around a wider variety of stars than has previously been possible. Although we have discovered thousands of exoplanets, we've not yet managed to discover Earth-sized planets

orbiting a comfortable distance from Sun-like stars. Our ideas about our place in the Universe would be profoundly shaken if we could confirm that the cosmos abounds with exoplanets with all the right conditions for life as we know it, to say nothing of life as we don't know it ...

During my doctoral studies in Oxford, I developed tools that enable astrophysicists better to disentangle stellar signals from those of genuine exoplanets, and I helped discover several new exoplanets. I also proved that what we thought at the time to be the closest exoplanet to Earth – Alpha Cen Bb – actually didn't exist! But I have little interest in being a 'planet killer'. I strongly suspect there are many Earth-analogue pale blue dots out there in the vastness of the universe and I very much hope to learn about them in my lifetime.

Besides looking for new planets, I also conduct research on science education. I believe that science, and especially physics, education too often fails to enlighten or inspire students; I am also troubled by the lack of diversity in STEM (science, technology, engineering and mathematics) disciplines.

Outside academia, if I'm not in a dark techno club in Berlin, or curled up with a good book, you can probably find me behind the lens of a camera. In recent years my wife and I have enjoyed creating award-winning photographic accounts of life 'inside' or behind the scenes at the University of Oxford, and we hope to find time to expand this project from Oxford to Oxbridge. After all, Cambridge is surely one of the most beautiful and awe-inspiring places on this planet.

Each year we elect three or four fully-funded Research Fellows, to join the Fellowship at Emma for three years and embark on post-doctoral studies. Vinesh Maguire-Rajpaul joined us in October 2017



TINKER TEACHER

ELIZABETH MCGREGOR JACOBIDES
RESEARCH STUDENT



Tinkering is a newly identified creative, inquiry-based, construction approach to education, which focuses on learning by doing, by trial-and-error and through play

As a practitioner-researcher, my data comes from once-weekly two-hour workshops with marble machines that I facilitate and record at a school in London as the 'Scientist-in-Residence'. Over 30 weeks, all the pupils (aged six to 11) come once to do the same activity in workshops, constructing a path from scratch for a marble to travel down. While I offer them a starter challenge – to create the longest trip possible for the marble – they often set their own. Examples include the challenge of building from the ceiling to the floor, creating a game from the unpredictability of the marble's movement and making a roller-coaster loop-the-loop. As they work, they engage in an investigation they have chosen themselves, creating problems to solve and repeating possible solutions, using their initiative, creativity, evaluation, knowledge and communication skills as they test and revise their marble runs, often developing problems and challenges for themselves.

It is important for individuals to understand and use science as a way of knowing the world. I am passionate about creative learning and bringing about an appreciation of science as a dynamic process, and I hope that my research will lead to a greater understanding of what kinds of meaningful learning about science tinkering may offer in a classroom.

With undergraduate degrees in both theatre and biology, and over ten years' experience as a primary school teacher in the US, I moved to London in 2013 and began running science workshops for primary school pupils. Through this work and the questions it prompted me to ask, I got in touch with Dr Winterbottom, who introduced me to 'tinkering', and who is now my supervisor on this unexpected and exciting journey of a PhD.

I am now finishing my second year of a PhD in educational research and am fortunate to be a Cambridge Trust Scholar, with an Emmanuel studentship from the Roger Ekins Foundation to support my work. I am conducting some of the first systematic empirical research on

tinkering by carrying out an exploratory case-study, which is investigating whether and how primary school pupils encounter aspects of the nature of science during a tinkering activity called Marble Machines.

Tinkering is a newly identified creative, inquiry-based, construction approach to education, which focuses on learning by doing, by trial-and-error and through play. Following my MPhil, which looked at tinkering's relationship with a growth mindset, my PhD looks at tinkering's potential for students to encounter and acknowledge the sociology, philosophy and history of science and the associated characteristics of scientific knowledge.



FILM FACTOTUM

ARON PENCZU
RESEARCH STUDENT

I feel I've learned almost as much in Cambridge's theatres as in its libraries this year. I've been involved in student film and theatre as much as I could in my spare time

I studied English as an undergraduate at Emma and was able to return this year to pursue an MPhil in film and screen studies thanks to the generosity of donors to the Late 80s Fund and other Emma members. It's been the most productive and rewarding period I can remember.

The course is wide-ranging: finding my path through it has been one of the challenges and pleasures of the year. I'm interested in bringing a practical criticism mentality – being precise and enthusiastic about form, with an interest in understanding films on their own terms – into my writing, and have also enjoyed borrowing ideas from philosophy and literary criticism, from Aristotle to Russian formalism and contemporary moral philosophy. In the Michaelmas term I wrote about film style and the Holocaust in relation to a film made by a fellow Hungarian, *Son of Saul*. Then, during the Lent term, I wrote about the dialectic in André Bazin's film criticism, and about morality and spectatorship in Eric Rohmer's *Contes moraux*. In my thesis I investigated film's relationship to tragedy through Carl Th. Dreyer's extraordinary late films.

I feel I've learned almost as much in Cambridge's theatres as in its libraries this year. I've been involved in student film and theatre as much as I could in my spare time, and directed an adaptation of one of Ingmar Bergman's films at the ADC in the Lent term. I plan to spend next year gaining some experience in professional film and TV production, as well continuing to work on my own projects, and then to apply to both PhD programmes and film school that autumn.

Emma's community, aptly summed up in the wit and kindness of its porters, constitutes an important part of its charm. I've enjoyed returning to the squash courts, where (although I'm an unexceptional player) I've spent more – and more fulfilling – hours than in any other arena of sporting encounter. I am conscious of my debt to the college, to my remarkable thesis supervisor, David Trotter, and above all to the donors who have made this year possible.

BECOMING A DOCTOR

MOLLY HUNT
CLINICAL MEDICAL STUDENT

Before their final year of study, and with the help of funds from Emmanuel, medical students complete a seven-week elective placement. As someone with a keen interest in paediatrics, I chose to split my time between Great Ormond Street Hospital (GOSH) in London and the Royal Children's Hospital (RCH) in Melbourne.

The first few weeks at GOSH allowed me to see cutting-edge medicine right on my doorstep in a location that has so much to offer. During the day, I watched doctors, nurses and other healthcare professionals work as a team to provide excellent care to patients and their families. I spent the evenings with family and friends, whilst preparing for my Australian adventure. Having never travelled on my own before, this trip represented an enormous (but exciting) challenge.

After a very long journey, I settled into Melbourne life pretty quickly. The hospital itself gave me a fascinating insight into the similarities and differences between the British and Australian healthcare systems. I worked in adolescent medicine, a specialty which isn't yet fully established in the UK, but one I grew to love. Meanwhile, I made the most of evenings and weekends, often meeting up with fellow elective students. We explored countless restaurants and museums, travelled along the Great Ocean Road and even attended the opening night of the Melbourne Film Festival! I returned feeling more knowledgeable about my future career and excited at the prospect of future opportunities to travel.

My elective provided me with a huge amount both personally and academically, and I am incredibly grateful to Emma and the University for supporting me.



The Clinical Skills Laboratory gives students practice in essential medical techniques

My elective provided me with so much both personally and academically, and I am incredibly grateful to Emma and the University for supporting me



I PROMISE THAT I WILL DO MY BEST

RACHEL KEMP
CLINICAL VETERINARY STUDENT

‘I promise that I will do my best ... to help other people’: a memorable part of the Girlguiding promise that I first made as a Rainbow, aged five. The range of opportunities Girlguiding has offered me over the years, particularly internationally, has been astounding and I’ve made life-long friendships. Having had so many amazing experiences, I wanted to share my excitement and enthusiasm for Girlguiding and give something back to this fantastic charity.

Thanks to generous support from Emmanuel’s Charities Committee and help from the porters with my fundraising, for three weeks last summer I and five other leaders from the UK were able to take part in a Girlguiding Overseas Linked with Development (GOLD) project in Ghana. This was one of eight sustainable community-based development projects run by Girlguiding in 2017 in partnership with other Guide Associations around the world.

Traditionally, Guiding in Ghana has been based in schools and led by teachers. But through our interactive training sessions, we were able to introduce new Guiding techniques to encourage young girls to take the lead themselves and to help recruit new leaders from outside the education system.

Whether we’re learning first aid or exploring the outdoors, helping to empower, inspire and educate girls is fun and exciting!

Visiting Ghana was an amazing experience that I will never forget. We learned to work as a team and think quickly on our feet when plans changed at the last minute, skills that I’m continuing to find useful as I lead the 19th Cambridge Brownies unit alongside my veterinary studies. Whether we’re learning first aid or exploring the outdoors, helping to empower, inspire and educate girls is fun and exciting!



TIME TRAVEL

EMER O'HANLON – UNDERGRADUATE

In the four years I spent at Emmanuel, I was lucky enough to receive three grants to travel during the summer: once to Athens and the Peloponnese, then to Sicily, and finally to central and northern Greece. As I studied classics, the reason was simple: to see extra material that tied into what I was studying. The reality, however, was much more. The ancient world seemed at once nearer, yet at the same time more enigmatic than before, which encapsulates what I love about classics.

In a subject that concerns the visual arts, seeing in person what you have been studying makes a crucial difference. It is a pleasure to soak in vast sites such as the Valley of the Temples at Agrigento, or the sanctuary at Epidauros. Exploring ruins can feel very romantic, but the real joy comes in the practical aspects: figuring out which buildings stood where, finding unusual architectural features, or simply identifying kitchen stoves and toilets can foster a sense of connection to the ancient world. I know I'm not alone in getting a shiver of excitement each time I see a hypocaust (stacked terracotta tiles, evidence of Roman underfloor heating), even though you'd be hard pressed to find a Roman site without them. These are the physical reminders of what the Romans cared about and their ingenuity in building, and seeing them in person is exciting and illuminating in a way that pictures in a book or online can never be.

As much as these grants were linked to what I was studying, they have also shaped it. The curriculum at Cambridge is broad but the extra travel enabled me to explore parts of the course that especially interested me and to discover new parts to which I could return later. A visit to the site of Mycenae in my first year led to my interest in the Minoan part of the archaeology paper in my third year, and my trips that year to Byzantine sites were partially responsible for my dissertation topic, as well as my decision to study Byzantine art at the Courtauld Institute next year. Cambridge rewards independent study



Cambridge rewards independent study and thinking, and in the study of art and archaeology it is very difficult to achieve this without visiting sites and museums yourself

and thinking, and in the study of art and archaeology it is very difficult to achieve this without visiting sites and museums yourself. Without these grants, I couldn't have nurtured my love for the visual arts; and although one or two of my supervisors might have preferred me to stick to studying literature (which I swore at my interview was my real passion), my experience has been all the richer for incorporating visual art and archaeology.

Each summer, I've joked that Emmanuel pays for my holidays to Greece and Italy. While my friends smile and nod – thinking, no doubt, 'Isn't it nice for some?' – they would also probably be horrified if they knew what these trips entail. Archaeological sites never seem to get any

shade, which means several hours of being outdoors in the height of the Mediterranean summer. Early starts are essential so as to get the most of the cool mornings. Respite comes in the form of indoor, air-conditioned museums, but even then you are resigned to hours on your feet, as well as to intense concentration. These trips have not been easy, and yet I still call them holidays because the experiences have been some of the best in my life. For me, my degree has only been as exciting and enriching as it was because of my ability to travel during the summer.

Without these grants, I couldn't have nurtured my love for the visual arts



EMMA IN THE PARK

HEATHER CONDER – UNDERGRADUATE

I was fortunate enough to join the 2017 company of the National Youth Music Theatre (NYMT) to take part in a production of Sondheim & Lapine’s *Sunday in the Park with George*, directed by Hannah Chissick, which ran for six performances at The Other Palace in London’s West End and received five-star reviews. I have always been very interested in musical theatre, so it was very exciting to have an opportunity to work with professionals in a London theatre.

Sunday in the Park with George is one of my favourite musicals: it is modelled on Georges Seurat’s pointillist artwork *A Sunday Afternoon on the Island of La Grande Jatte*, and the production explores the different characters in the painting and the life of the artist. The first act is set in 1884 Paris in the lifetime of Georges Seurat, whereas the second propels us to 1980s New York, where Seurat’s great-grandson is experiencing similar troubles in his artistic and social worlds. It is a very challenging work, both musically and thematically, exploring the tensions of love, art and the nature of the human condition.

Sondheim’s music is very challenging, often written to mimic speech with many overlapping parts. I played one of the characters in the painting during Act 1 and the photographer at an art gallery in New York in 1980s Act 2, two very different roles straddling a time frame of 100 years. This allowed me to develop two completely different idioms: stillness and etiquette in the painting for the spine-tingling Act 1 finale of *Sunday*, and exuberance and sharp choreographed movements for the 17-part sequence of *Putting it Together* in the second act.

We rehearsed for 12 hours a day for two weeks, refining the score to the last detail and carefully blocking the complex interactions. Singing and perfecting this challenging music with such a talented company was an honour; I will never forget the intensity of the numbers with the



full company, complete with incredible lighting, clever choreography, a soaring chamber orchestra and beautiful period costumes.

The musical contained so much depth that I decided to write my Part II music dissertation on Sondheim’s treatment of pointillism in relation to the music of the production. Working in such detail on the show gave me a new insight into the intricacies of Sondheim’s writing, and I feel lucky to have been able to take part in such a rarely performed and beautiful work. I am hugely

grateful for the support I received from the Hockley and Burnaby funds at Emmanuel in helping me take advantage of this fantastic once-in-a-lifetime opportunity.

I feel lucky to have been able to take part in such a rarely performed and beautiful work. I am hugely grateful for the support I received



EMMA OUTREACH AT VILLIERS PARK

CORINNA RUSSELL – ADMISSIONS TUTOR, EMMANUEL COLLEGE

MATT DISTON – ASSISTANT PROGRAMME DIRECTOR, VILLIERS PARK

As part of our commitment to enabling bright but less advantaged students to fulfil their academic potential, Emmanuel has entered into a partnership with the social mobility charity Villiers Park Educational Trust. Through the Inspire 2INVOLVE initiative, Emmanuel funds places on a programme of targeted, subject-specific residential courses at Villiers Park. Students selected for the Inspire residential courses are given access to the latest ideas and research, challenging them to explore beyond the A-level curriculum. The teamwork, research and presentation skills developed on these courses not only help the participants prepare competitive applications for leading universities; students on the programme are also supported in devising and delivering student-led educational projects that benefit their school communities, gaining themselves an INVOLVE award. Academic and admissions staff at Emmanuel also benefit from partnership with an organisation with a proven track-record of improving outcomes for gifted students from under-represented backgrounds; in turn, we are able to pass on our knowledge of the admissions process and subject requirements to those delivering the programme.



PELUMI

The Villiers Park Inspire course definitely does what it says. I chose neuroscience as it is a difficult subject with a strong link to medicine, so I decided to challenge myself. The pace of the course, albeit fast, was enlightening as to what pursuing a career in science would be like. The tutors were incredibly passionate about their fields and I became much more curious about certain concepts such as synaptic transmission and uses and methods of scanning, which I had never encountered before. My favourite part of the course was the dissection of a sheep's brain: it was great to see the anatomy I had learned about. I thoroughly enjoyed the discussions as it was an opportunity to learn more about different opinions people had on certain topics. I am now much keener to learn about topics that aren't a part of the A-level syllabus.

I am committed to pursuing a career in medicine. This course, however, has also opened my mind to different opportunities in careers in science. My zeal for learning has significantly increased and I am very much inspired to aim higher



The course was reassuring for when I go into higher education, through the experience of independent working, tutorials and discussions with other students



It allowed me to challenge myself. I know now I shouldn't be afraid to think outside the box and that I should be more confident in the way I think / how I process information

Pelumi (left) and Mary (right) are studying A-levels at an academy in Essex, one of Emmanuel's link areas in the scheme, which pairs Cambridge colleges with local authority regions. Both chose to attend the neuroscience residential course this May, where they were given an intensive grounding in the science of the brain, eventually delivering presentations on topics such as Alzheimer's disease and epilepsy.

MARY

Surprisingly, I loved the Inspire course. I was kind of scared that I might not understand what was going on and that I wouldn't be able to 'fit in', but I was wrong. Not only did I find it interesting and intriguing but I also loved finding I could apply knowledge from my A-levels and it would be developed by the course. The reason why I found the course so interesting was also due to the amazing lecturers. By the end of the five days, I was already wishing for more time. Being surrounded by people who are interested in the same future goals as you, is just so refreshing and incredible.

I am very shy and timid and this course helped to get me out of my shell. We were put in groups, which I wasn't very fond of at the beginning, but I'm grateful for now. It really pushed and encouraged me to make new friends. This was such a cool experience: they were from many diverse places, some even from northern areas. I feel very proud that I became confident and comfortable around new people so fast.



For our INVOLVE project, Pelumi and I are planning on making a club/group in school that is mainly centered around stress and ways to deal with it. It will involve topics ranging from help with personal statements all the way to meditation. We hope to expand it from our sixth form to the secondary school and even to primary schools in the area

EMMA'S FUTURE

SARAH BENDALL – DEVELOPMENT DIRECTOR

It has been clear over the past year that the time spent on the preparations we have reported in previous issues of the *Emmanuel Review* – the conservation statement (2015) and last year's master plan – has been well used. While our vision is centred around enhancing, strengthening and developing the Emma community, both socially and intellectually, it is made possible by acquiring Furness Lodge and the adjoining car park from the University. This gives us the chance to reorient and reorganise the southern end of Emmanuel, providing significant new facilities by transforming South Court, refurbishing Furness Lodge, and introducing a beautiful new building and green spaces.

After a call for expressions of interest to over 25 firms of architects who we thought might be well placed to help us, four were invited to submit an outline proposal. At this stage we were interested to discover their approach to the project and how they would work with us, as well as their thoughts on building density and the spatial relationships that might be developed. After hearing their presentations, visiting their offices and buildings they had worked on

Stanton Williams' architecture is about how people experience place and how place affects them. Their work reconnects people with their environment through the careful manipulation of the sensual qualities of light, material and space. They create spaces that support and encourage the expression of contemporary life

elsewhere, we were delighted to appoint Stanton Williams as architects for the project.

Stanton Williams – www.stantonwilliams.com – have particular experience in working on complex and challenging sites, and designing buildings that are sensitive to their cultural, social and physical contexts. Their buildings in Cambridge – the Sainsbury Laboratory at the Botanical Gardens (which won the Stirling Prize in 2012), the Simon Sainsbury Centre at the Judge Business School, and residential accommodation at the new University district of Eddington – demonstrate the practice's work in many spheres. They have designed the Berrow Foundation Building at Lincoln College, Oxford, while in London, they are the architects for new public spaces at the Royal Opera House, and for the new Museum of London at Smithfield Market.

This summer, Stanton Williams are developing their ideas and questions, so that in the Michaelmas term we can consult widely within the college, and we will be keen to know what Emma members think too. Together we can come up with a scheme during 2019 that takes full advantage of this once-in-a-generation opportunity.



Furness Lodge, the westernmost building in Regency Park Terrace





South Court

Area for re-development

Furness Lodge



EMMANUEL COLLEGE FINANCES

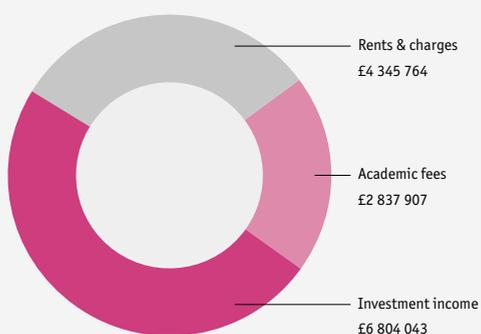
MIKE GROSS – BURSAR

As our plans for Emmanuel's next steps start to take shape and we discuss them with Emma members, several ask questions about our finances. Some of the answers are below; if you have other questions, please get in touch.

What is the college's income and how is it spent?

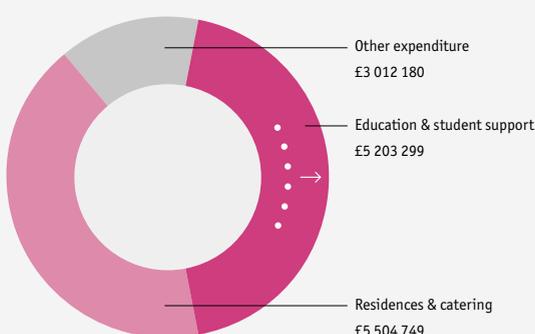
Income 2016/17

Our income of about £14m/year is from three main sources:¹

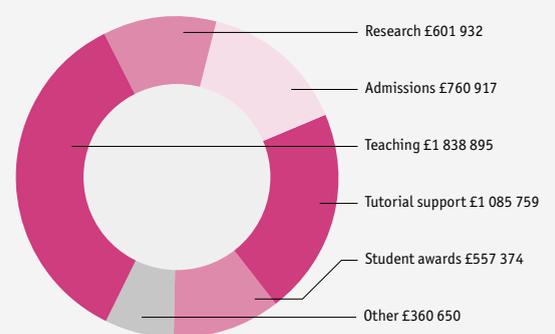


Expenditure 2016/17

Our operating costs are about £13.7m/year:



Breakdown of our costs of education and student support 2016/17



¹ For income and expenditure from donations see p. 21

In Cambridge, each 'home' student pays £9250 in fees, which is split 50:50 between the college and the University. Once the cost of the Cambridge Bursary Scheme is deducted the college receives £4000 per undergraduate, but this is insufficient to meet the cost of teaching, supervisions and student support, which came to some £8300 per undergraduate in 2016/17. The first call on the college's financial resources is to meet this funding gap of £4300 per undergraduate and to underwrite the quality of the education we provide, and we need some £50m of capital to do this.

We use unrestricted endowment and investment income to support the annual running of the college and this helps fund a broad range of college activity, including:

TEACHING (£1.8m) For example, we employ four Fellows as College Teaching Officers to provide college supervisions in key undergraduate subjects.

STUDENT SUPPORT (£1.6m) For example, we provide financial support when students incur additional costs associated with their studies or need help with travel costs, research for dissertations, medical or other special needs.

ADMISSIONS & OUTREACH (£0.8m)

For example, we employ two Schools Liaison Officers and undertake a wide range of outreach work with schools.

RESEARCH (£0.6m) For example, we elect three stipendiary Research Fellows each year and also periodically elect other stipendiary and non-stipendiary Research Fellows in particular subjects. We also award some full and part scholarships to graduate students and meet a range of research expenses incurred by Fellows.

BUILDINGS (£0.7m) Expenditure on maintaining and improving college buildings each year is significant. Many are listed and require particular care and attention.

How wealthy is the college?

At 31 July 2017 the college's reserves totalled £253 million. Of this, £220 million are investments that generate income to sustain the college's current activities. The balance of £33 million comprises assets that cannot be income-generating, for example student houses off the main site and heritage items. These reserves either form the college's endowment or subsidise the costs of supporting and educating our academic community.

What is the college's endowment?

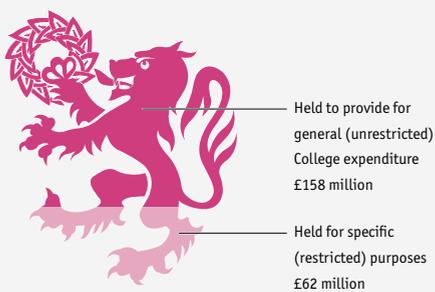
The endowment is around one-third of the college's total reserves. It is made up of the capital that is unexpendable and must be held in perpetuity. It has been built up since Emmanuel's foundation through gifts and bequests, and some assets – such as some parcels of farm land – have been held throughout the history of the college. The endowment is primarily invested in commercial property and shares, and provides us with a permanent source of income.

In July 2017 the endowment was valued at £86.75 million. Of this, £24.75 million (28.5 per cent) was given for specific (restricted) purposes stipulated by the donor, for example for named scholarships or prizes, and £62 million (71.5 per cent) was for general (unrestricted) college expenditure.

The balance of our investment assets, ie £133 million, is held as non-endowment (non-permanent) reserves. Again, 57.2 per cent can be used for general purposes while the remainder is held within particular trust funds and must be used as the donor wished.

This gives us a total of unrestricted assets of £158 million that are used to support the college's core purposes.

Income-generating investment assets £220 000 as of July 2017

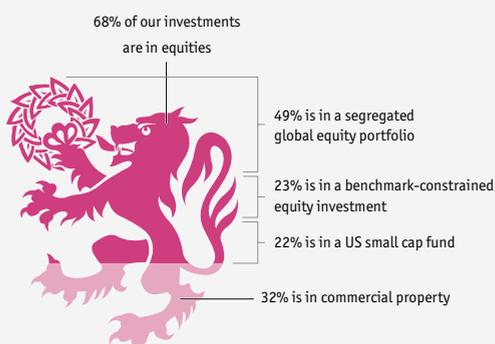


Restricted funds are often held to provide named scholarships and prizes or to support the college activities stipulated by the donor

How are the college's investments managed?

The exact asset allocation adopted by the college varies over time, but in general we invest in real assets – commercial property and shares – that match our long-term purposes. All are managed by professional external managers. Our main equity funds are with Sarasin & Partners, Allianz Global Investors and de Lisle Partners. Bidwells advise us on commercial property. We observe good practice from the endowed charity sector and we seek strong long-term total returns without taking inappropriate investment risks.

While the purpose of the college's investments is to provide sustainable income, we also own some commercial properties in the centre of Cambridge. Some may in the future be put to an operational use, but in the meantime they generate significant rental income.



How do we determine what income to take from the college's investments?

We manage the endowment, and other funds, with two aims. First, we need to ensure we can meet today's requirements and generate sufficient sustainable income to support the college's operational requirements; second, we must protect the endowment for future generations and maintain the real value of the capital. To meet these objectives we must look to the long term.

We take income annually from our investments at a rate of four per cent of a back-dated and smoothed valuation of the assets. Thus we can budget for the income that will be available to support college activities and we can smooth it across economic booms and busts.

How has the college funded the purchase of the new site?

The college is buying the land south of South Court, including Furness Lodge, from the University at a cost of £7.5 million. We have funded the purchase by taking a £20 million loan at an interest rate fixed for 40 years at 2.43 per cent. The balance of the loan has been invested in our commercial property portfolio and the rental income generated will be sufficient to

meet the interest due on the loan. This means the site has been acquired without needing to sacrifice future endowment income.

How will the college fund a further contribution to its development project?

We budget to maintain our expendable reserves at a level that allows for significant future capital expenditure. We are therefore able to commit £12 million to the planned development. Effective budgeting also means that we can absorb a consequent loss of investment income.

However, if we were to commit a greater sum from the college's capital reserves this would cause significant detriment to our annual investment income, and therefore to our ability to sustain our current educational and academic activities. There is general pressure throughout the University to improve and expand provision for students, both educationally and in terms of broader student welfare, with consequent rises in costs and greater reliance on income from the endowment. Sustaining and enhancing endowment income, at the same time as embarking upon a very substantial capital project, is a significant challenge, which can only be met with support from our members.

Student numbers & fees

HOME/EU				
	Number of students 2016/17	% maintained schools for admission in 2017	Fees 2017/18	Living expenses 2017/18
Undergraduates	417	65.5	£9250	c.£9000
Graduates	181		c.£10 000 ¹	c.£10 000–£13 000 ²
OVERSEAS				
	Number of Students 2016/17	Fees 2017/18	Living expenses 2017/18	
Undergraduates	45	c. 25 000 ³	c.£10 000	
Graduates	65	c. 25 000 ⁴	c.£10 500–£14 000 ⁵	

1 Fees vary according to course. Most are in the range of £8000–£12 000
 2 The lower figure is for a 9-month course; the higher figure is for one lasting for 12 months or longer
 3 Fees vary according to course. Most are in the range of £20 000–£30 000
 4 Fees vary according to course. Most are in the range of £22 000–£27 000
 5 The lower figure is for a 9-month course; the higher figure is for one lasting 12 months or longer



THANKING DONORS

Support from our members means a great deal to the college and we say thank you in various ways:

All benefactors

- ✦ are listed in the *Emmanuel Review*
- ✦ receive invitations to occasional events in college, including garden parties for donors
- ✦ are invited to an annual party in London for all donors in the previous year

All who pledge legacies to Emmanuel

- ✦ receive invitations to occasional events in college, including garden parties for donors

Master's Circle

£10 000 or more received

- ✦ are offered membership of the Master's Circle and invited to an annual dinner in college
- £50 000 or more received

- ✦ are offered membership of the Master's Circle and invited to an annual dinner in college
- ✦ are invited to the annual Gomes lecture and dinner

£100 000 or more received

- ✦ are offered membership of the Master's Circle and invited to an annual dinner in college
- ✦ are invited to the annual Gomes lecture and dinner
- ✦ are invited to a Fellows' Guest Night in May or December

Benefactor Bye-Fellows

£250 000 or more received

- ✦ receive invitations to a number of college events
- ✦ are able to dine at High Table on a number of occasions each year
- ✦ are listed in the *College Magazine* and the *Cambridge University Reporter*
- ✦ are admitted at a ceremony in the Parlour
- ✦ have their names recorded on a board in the Old Library

Benefactor Fellows

£1 000 000 or more received

- ✦ receive invitations to many college events
- ✦ are able to dine at High Table on several occasions each year
- ✦ are listed in the *College Magazine* and the *Cambridge University Reporter*
- ✦ are admitted at a ceremony in the Parlour
- ✦ have their names recorded on a board in the Old Library



LATE EIGHTIES FUND UPDATE

The Late Eighties Fund was established in 2011 by Emma members who matriculated between 1984 and 1990, to help students suffering from financial hardship. In 2017-18 £35 000 has been disbursed as follows:

£12 500 as half of the college's annual payment to Villiers Park for 18 students to take part in Inspire2INVOLVE (see pp. 14-15)

£9850 towards the college's share of Cambridge bursaries for 24 first-year students

£5000 towards the funding of an MPhil in film & screen studies in 2017-18 for Aron Penczu (see p. 9)

£5000 towards the funding for a PhD student in Asian & Middle Eastern studies, who is working with Dr Laura Moretti (see *Emmanuel Review* 2015)

£2000 to three students suffering from financial hardship because of a change in family circumstances

£500 to a student who needed to stay in college over the Easter vacation because there were no suitable living and working conditions at home

£150 to a student going on a research internship in organic chemistry in the Netherlands

Securing Emmanuel's Future



LEGACIES

There are several ways to include Emmanuel in your Will. Please ask the Development Office for a brochure giving suggested wordings and explaining about different types of bequest, and for information about how a legacy could reduce inheritance tax liability. We also suggest you consult your solicitor. We are very grateful to those who have already remembered the college in this way.

I HAVE SET AN *Acorn*, WHICH WHEN IT BECOMES AN *Oake*, GOD ALONE KNOWS WHAT WILL BE THE FRUIT THEREOF · SIR WALTER MILDMAY



FUNDS RAISED Donations 1 June 2017 to 31 May 2018

Donations received & receivable	£5 011 470
Gifts in kind ¹	£150 340
Legacies pledged	£175 000

¹ Fees not charged for managing part of the college's investment portfolio and for consultancy regarding fundraising

HARDSHIP FUNDS & RENT BURSARIES 2016-17

173 grants
£188 500 awarded
£124 196 from hardship funds, balance from endowment
£16.50 to £5000 is the range of grant per person

GRADUATE FUNDING 2016-17

£257 605 to enable 12 graduate students to come to Emmanuel

FUNDS RECEIVED 1 June 2017 to 31 May 2018

Buildings, facilities & grounds ¹	£152 283
College future development	£2 641 130
Library	£19 008
Student activities ²	£76 785
Student support, hardship & access ³	£626 095
Studentships & scholarships ⁴	£1 171 132
Teaching & research ⁵	£15 605
Total	£4 702 038

¹ Includes a donation towards maintaining the gardens and Paddock

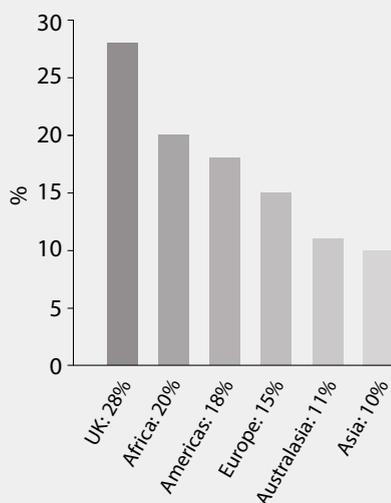
² Includes donations to the Emmanuel College Boat Club Association, for the Performing Arts Fund and the sports ground

³ Includes donations to support students with tuition fees and to aid our outreach projects

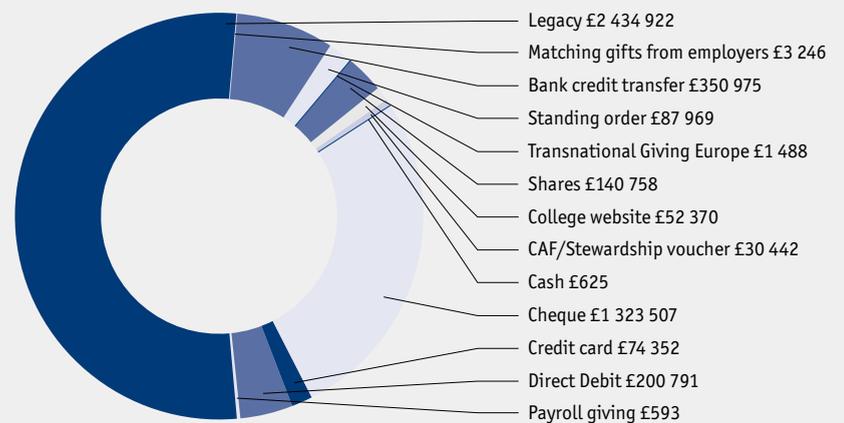
⁴ Includes the Olive Ward Prize for French, the Peter Ward Prize for economics and the Peter Slee History Prize

⁵ Includes Odgers Fund to support the study of law at Emmanuel

PARTICIPATION RATE BY REGION

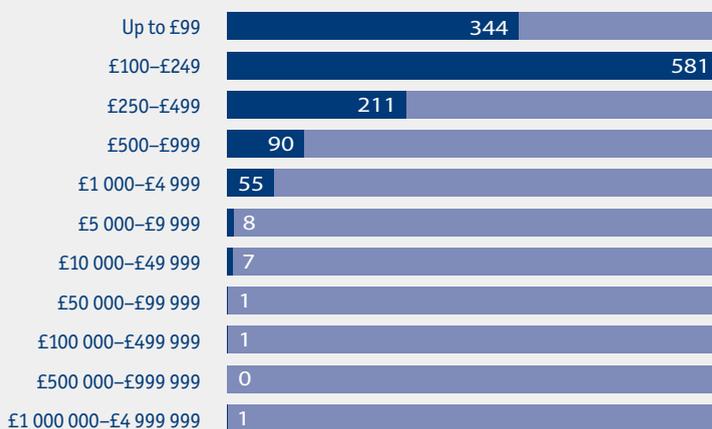


SOURCES OF FUNDS RECEIVED 1 JUNE 2017 TO 31 MAY 2018



NUMBER OF GIFTS RECEIVED

(average donation for gifts under £10 000 is £289)



SUMMARY FIGURES 2017-18

25% of Emma members asked made a gift to the college

87% of gifts were under £500

64% of donors asked the college to allocate their gift to wherever the need is greatest

30% of living members have made a donation to Emmanuel in the last ten years

34% of living members have made a donation to Emmanuel

TAX

Emmanuel College is a registered charity, number 1137456

The Development Office can advise on tax-deductible giving through, for example, Gift Aid, charity cheques, gifts of shares, payroll giving, legacies and charity beneficiaries on death from 'alternatively secured pensions'

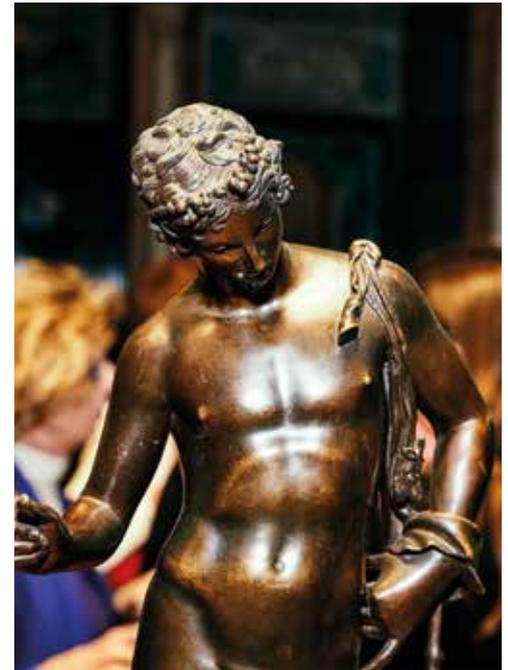


EMMANUEL SOCIETY

Every member of Emmanuel is also a member of the Emmanuel Society, which joins up the community: students, Fellows and the wider membership. The Society organises a wide range of events in the UK and overseas, which are aimed to meet interests of as many members as possible. It also helps current students with advice about careers and job applications. The Society is not involved with college fundraising.

The Society's programme is publicised in *The Emmanuel Newsletter*, which is published three times a year, in a monthly e-news and other occasional emails, and is listed on the website www.emma.cam.ac.uk/members/events. Please come to whatever interests you and let us have any suggestions for other events. Offers to help are very welcome.

Among the Society's events in 2017-18 was a lecture in the splendid setting of Leighton House, London by Emma member James Fox (2001), who spoke on *Blue*. There was a capacity turn-out as can be seen by the photographs here. There was also a family garden party in College, at which jazz was played, faces painted, the swimming pool much used, bouncy castles enjoyed, treasure hunted, tea consumed and pictures drawn. Dr Penny Watson also gave a fascinating talk on dogs.



The Emmanuel Society and Development Offices share staff and rooms on D staircase, Front Court: email emmanuel-society@emma.cam.ac.uk tel 0044 1223 762792

VISIT EMMA

- ✦ Dine at High Table (matric 2011 and earlier): www.emma.cam.ac.uk/dining or 0044 1223 762792 (free for members, payment for a guest)
- ✦ Student guest rooms with shared facilities: www.emma.cam.ac.uk/guestrooms or 0044 1223 334255
- ✦ Private meetings, meals and conferences: conferences@emma.cam.ac.uk or 0044 1223 331978

EMMA ONLINE

We send a monthly e-news (we need your email address)

Emmanuel College Members (private group): www.facebook.com/groups/554901871328458

Emmanuel in America: www.facebook.com/groups/emmausa

Alumni of Emmanuel College

Follow EmmaCambridge

Follow EmmanuelCambridge



EMMANUEL'S GARDENS

CHRISTOPH KEATE – HEAD GARDENER



For many people Emmanuel's gardens are a place to relax, read, see ducks, sit on the grass and meet friends. They are a place to study, to celebrate after exams or to take a quiet moment to think and reflect. For some the gardens are a view from a window or a walk to a morning lecture or to an evening dinner party.

For the team that look after them the gardens are a place of work, of daily challenges and opportunities: pruning roses, weeding borders, repairing cobblestones, clearing autumn leaves, planting bulbs, clipping box hedges, raking paths and cleaning tools.



Emmanuel's gardens are forever changing, with colour, shapes, perfume, textures and sound that each day inspire those who study and work here



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