



IN THIS ISSUE

Senator Tom Udall and Larry Sabato on the US elections

Oxbridge's Greenest College

Downing College Boat Club:
Sesquicentennial celebrations

From the Archives: The
Sylvester Harding miniatures

Music: Downing Organ
Scholars past and present



DOW@CAM

THE DOWNING COLLEGE MAGAZINE
VOL 24 WINTER 2012 – 2013

Dow@Cam is published annually by the
Downing College Development Office.

Editor in Chief:

Barry Everitt

Publication Co-ordinator:

Donna Thomas

Writer:

Becky Allen

Editorial Board:

Bill Adams

Gabrielle Bennett

Amy Goymour

Paul Millet

Jane Perks

Graham Virgo

Guy Williams

Address:

Development Office

Downing College

Cambridge CB2 1DQ

Email: development@dow.cam.ac.uk

Website: www.downingcambridge.com

Development Director

Gabrielle Bennett

gb247@cam.ac.uk

Deputy Development Director

Thomas Northcote

tn272@dow.cam.ac.uk

Development Officer (Alumni Relations)

Donna Thomas

dt396@dow.cam.ac.uk

Development Officer (Legacies,

Stewardship, Research & Data)

Susan Luton

sal53@cam.ac.uk

Events and Data Assistant

Claire Varley

cav10@dow.cam.ac.uk

Cover: Professor Barry Everitt with JCR
committee members Lydia Donaldson,
Emma Potter, Antoni Schilling,
Aly Monaghan and MCR committee
members Hannah Brooke, Jacqueline Ward
and Dhiren Mistry.

Doug Stuart Photography November 2012

Registered Charity: 1137455



I am writing on a beautiful sunny New Year's day – possibly the first day without rain since before Christmas – and the College looks gorgeous, its stone bright in the winter light. We have been the only residents of Downing during the last ten days, apart from invading members of our families and it has been a restful and happy final Christmas and New Year in the Lodge.

This academic year is already flying by and by the time you read this issue, my successor as Master will have been elected. It is therefore inevitable that I have been thinking about some of the remarkable changes that have taken place during the last ten years.

First and foremost has been the major change in the funding of higher education. In 2004, a few months after I became Master, the UK government's Higher Education Act resulted in an increase in tuition fees to £3,000 a year (from the £1,000 'top-up' fee introduced in 1998). We were concerned even at that stage about the impact that this would have on students from financially disadvantaged backgrounds applying to Cambridge. However, this turned out to be but a taste of what was to come and the Browne Review of 2009 resulted in a fundamental shift in the way that higher education is funded, with more of the cost being placed on students through tuition fees of up to £9,000. The loans taken out to fund their university education have to be repaid by graduates after starting work, as soon as they are earning £21,000 per year, which is a challenge

The Master's Voice

for someone living and working, say, in London. The first students admitted under this new regime arrived last October and they will face debts of at least £35,000 after a 3 year degree course when loans for tuition and maintenance are taken together. For those students from financially very disadvantaged backgrounds, the bursary and maintenance schemes are adequate, even good. But they are discounted rather steeply to zero as parental income increases and here there is a real concern for the children of parents now described as being in the 'squeezed middle'. A major challenge for Downing and, of course, the University, then is to make sure that we have the resources to ensure that nobody is dissuaded from applying to study here because of the fear of this burden of debt. There have already been noticeably increased calls on our hardship funds and it is easy to see why they will increase further.

Against this background, it was perhaps surprising that more students applied to study at Downing than at any point in our history – 880 for some 124 places. Selecting students to be admitted, with each applicant having two interviews conducted by Fellows and their colleagues, is an enormous task that takes 3 weeks before Christmas. We have increasingly to de-select applicants before interview based on the very considerable amount of data that we now have on each of them. The criteria for admission are extraordinarily high and many more achieve them than can secure places. It is therefore right that we devote enormous care and attention to the process but, as the decision letters

are mailed out on January 3rd, there will inevitably be many disappointed bright and ambitious young students who must think again about where they will invest substantial sums of money in their university education. One difficult outcome of the introduction of tuition fees has been that the University has had to sign an 'Access Agreement' with the 'Office for Fair Access' (OFFA), which has the power to prevent Cambridge (and other HEIs) from charging its £9,000 tuition fee if it cannot satisfy the regulator that it is making adequate provision for widening access and encouraging participation. We take our outreach activities very seriously and have had a full time School and College Liaison Officer to lead them for over a decade. However there is now no escaping the fact that we have top-down regulation of undergraduate admissions. The challenge for us at Downing is to select the best applicants in terms of their achievement and potential, but within the context of the University's access agreement (which you can find on the OFFA website). Had I been asked in 2003 if this is where we would be within 10 years, I would have been well wide of the mark in my predictions. However, we are fortunate in having excellent applicants and we are focused on providing an exceptional environment in which our students can study and fulfil their potential. Helping to achieve that is the best and most important aspect of being Master of Downing.

There have been remarkable changes on the domus in the last decade. Donations from an impressive 750 alumni enabled us to restore our beautiful Hall. Less glamorous, but extremely important was the complete restructuring of the west range, especially the kitchens and servery, but also the administrative offices on the first floor. Having excellent kitchens and excellent chefs means that Downing students, Fellows – and alumni when they return to visit – can enjoy what is surely the best food in Cambridge. The exceptional generosity of the Howard Foundation enabled the building of a remarkable, elegant and functional theatre – opened by Honorary Fellow Sir Trevor Nunn two years ago. This has not only provided

us with an exquisite arts venue, but is also a key component of our very successful conference business, which also depends on having a very high standard of rooms for guests that are, of course, enjoyed by our students for much of the year. The new Grifphon House that backs onto the car park behind the bar (above what used to be Oddbins) was opened in October and provides yet more superb rooms for first year students during term and other guests for the rest of the year, for example those enjoying bed and breakfast accommodation while visiting Cambridge. These business activities provide a vital source of College income that therefore supports students. The college bar has also recently undergone a major refurbishment, operating as the Butterfield Café during the day, but metamorphosing into The Lord Butterfield Bar in the evening. You can read more about both on page 1. All these buildings are now linked by a landscaped road replete with bicycle racks, no sign of mud or water-filled holes and a new gate to the Downing site, again made possible through the generosity of the Howard Foundation.

One consequence of being elected Master of Downing, although nobody really explains why, is Presidency of the Boat Club. I knew about this of course, having rowed for the College when first elected as a Fellow in the 1970s, but I was not really prepared for the pleasure – and exercise – it has given me. As you will read in this issue, it is the 150th Anniversary of DCBC, to be marked by a row past at Henley in July. It has been a very special and successful time for DCBC during this last decade. The women's 1st VIII won the Lents Headship for the first time in

the Club's history in my second year as Master, retained it a year later, and have since won and retained the Mays Headship; they are currently Head of both Lents and Mays. The Downing men's 1st VIII are second in both Lents and Mays and so this year there is the possibility of the first ever double headship. But as Ian Watson, the Director of Rowing knows only too well, the bumps are unpredictable and headships are hard won. The remarkable Leo Judd, who has been coaching Downing rowers for the last 30 years, describes (page 8) his association with DCBC and in doing so explains why the Segreants are an enduring source of support for the club. Both he and I present particular hazards to cyclists and pedestrians when riding on the towpath during the bumps. I shall miss my role as President and the remarkable qualities of so many of our rowers who combine commitment to this unique sport – you either get it or you don't – with high academic achievement: last year the Club captain, the women's and the men's captains all gained 1sts in the tripos (law, classics and neuroscience). They knew that fulfilling their academic potential had to come first, but with focus and organisation it is also possible to row, as it is for other students to play sport or music, to sing, act and pursue other interests and thereby achieve success across the board. The starting point for our students, especially in the current economic climate, is that they must place their academic studies first.

A particular source of enjoyment over the last decade has been my meetings and interactions with



Barry Everitt, Graham Virgo and Richard Stibbs at undergraduate matriculation October 2012

alumni at MA graduations, reunion dinners here in Downing, receptions and social events in London and other venues in the UK, Hong Kong, Singapore, Europe and across the US from New York to San Francisco and San Diego. These reunions both allow me to meet again students I had taught or for whom I had been Director of Studies or Tutor in the past and also introduce me to many more who were at Downing both during and before my time as Fellow and Master. It is always interesting to discover what our students did following graduation, some staying within the subject of their undergraduate study, but many used their degrees as a springboard, having changed discipline with great success. Many of you have chosen to support Downing financially by making donations to our Catalysis endowment fundraising campaign or to support specific College needs, such as hardship or education funds, the new biomedical research fellowship (described on page 15), the library, the boat club and of course our Grade 1 listed buildings which are so expensive to maintain. I have expressed my gratitude to each of you individually, but I am very happy to be able to do so collectively here; your support of Downing is vital and will secure its future.

Many of our alumni have become closely involved again with the College, for example by becoming advisors to our investments committee, by being members of and chairing our Campaign Board or joining other fundraising groups, or by joining the committee of the Downing Association. It was a delight to see Dr Kate Dyer elected as this year's President of the Association; I was Kate's DoS and supervisor when she was here reading first natural sciences and then transferring to medicine. Her election also emphasised to me how long I have been at Downing! I have also had the privilege of welcoming back to Downing alumni who have achieved special distinction in their careers, electing them to Honorary Fellowships. This year we admitted three distinguished lawyers, Sir Kim Lewison, Sir David Lloyd Jones and Sir Richard McCombe – all three having been appointed Lord Justices of Appeal, a remarkable Downing phenomenon. We have also elected as Honorary Fellows the Booker Prize-winning novelist Howard Jacobson, the eminent theoretical physicist, Professor John Cardy FRS and



Sir Stuart Peach, who is head of the new UK Joint Forces Command. They join such distinguished alumni Honorary Fellows as Sir Trevor Nunn and, as of this New Year's Honours list, Sir Quentin Blake. You can read more about what is going on in Downing now in this issue of DOW@CAM which covers a wide range of topics. Graduate student alumnus and US Senator Tom Udall, describes his life and that of his distinguished family in American politics while Larry Sabato, a former Thomas Jefferson Fellow from the University of Virginia sheds more light on last year's US elections. I suspect that we will hear more about the 'fiscal cliff' in the months ahead, since only a truce and not peace seems to have been agreed by Republicans and Democrats on New Year's day.

I have enjoyed enormously my time as Master of Downing, even in the face of dramatic challenges brought about by the financial crisis and the marked change in the funding of undergraduate education.

Our current and distinguished former organ scholars, Dominic Wong and Carl Jackson, discuss music in the College and the need to replace the organ in the chapel, which is on its last pipes. Professorial Fellow in Applied Mathematics, Paul Linden, who re-joined

the Fellowship two years ago on his return from the University of Southern California in San Diego, describes his internationally acclaimed research on environmental fluid mechanics and the way it can be applied to help reduce greenhouse gas emissions, while Junior Bursar Dick Taplin describes Downing's very successful green initiatives, while explaining that there is more to do. Paul Barker, Fellow in Chemistry, describes the very successful Fellowship and student exchange relationship that Downing has with the southern Californian liberal Arts College, Pomona. Downing has similarly successful and valued international relationships with Keio University in Tokyo and with the University of Virginia. Finally, our superb archivist, Dr Kate Thompson, describes the remarkable collection of miniatures painted by Sylvester Harding between 1790 and 1799 and how they arrived in Downing's archives.

I have enjoyed enormously my time as Master of Downing, even in the face of dramatic challenges brought about by the financial crisis and the marked change in the funding of undergraduate education. I hope that some of the reasons why are clear from the above. Being elected Master was perhaps even more special for me because it was not something that I ever expected to happen or indeed aimed for. The circumstances were such that it happened and I have been very privileged to have found myself in this role, with all the fulfilment that it has brought. I have also been fortunate that my academic life in the Department of Psychology has flourished and that there has been national and international recognition of my research during the time that I have also been Master. It has been a joy to share this experience with my wife Jane, who has supported me in my role as Master despite her own extremely demanding clinical and research career, and with my daughter Jessica, who in the same time period, has gone through GCSE's via A levels to Oxford and London. We shall miss living in the Lodge in the centre of Cambridge and having such a close and enjoyable contact with members both current and past. In fact, I shall miss everything about Downing.

Barry Everitt



Downing Update *New Developments*

Griphon House

The conversion of the former offices at 14 Regent Street was completed in July 2012 with the re-named Griphon House being formally opened by the Master to wide acclaim. All 22 rooms have ensuite bathrooms and are luxuriously furnished to hotel standard, with three large communal kitchens and dining rooms. The style of the building and its decorations include elements of Art Deco design. Many of the windows have spectacular views overlooking either the College grounds or east towards Parker's Piece. The first lucky student residents were some of the first-year undergraduates arriving



in College for the start of Michaelmas Term. During College vacations the new superior ensuite rooms provide B&B accommodation, adding to Downing's reputation as having some of the best College accommodation and conference facilities in Cambridge.



Butterfield Café and Bar

Opened by the Master in November 2012 and welcoming its first student customers, this building is the Downing café by day and the Lord Butterfield Bar by night. The College has expanded to 715 students since the Butterfield Building was first built, inevitably putting pressure on space – and, of course, each generation demands somewhere contemporary in which to

relax. With that in mind, internal walls are out and a “shabby chic” theme is in. During the day, the College serves good coffee but at night the combined café and bar becomes the domain of the Bar President and his staff. One of the last student-run bars in Cambridge it is, we believe, also one of the most on trend and friendly places for students to meet.



A Political Life



Downing alumnus **Tom Udall** is the senior United States Senator from New Mexico and a member of the Democratic Party. He previously represented New Mexico's 3rd congressional district as a member of the United States House of Representatives from 1999 to 2009.

Albert Schweitzer once said, "I don't know what your destiny will be...But I know one thing: the only ones among you who will be really happy are those who have sought and found how to serve."

How one defines service or, for that matter, happiness, is of course subject to interpretation. But, in my family, there is a long tradition of public service. My grandfather, Levi Udall, was elected Chief Justice of the Arizona Supreme Court. He used to say, "If the good people don't go into public service, the scoundrels will take over and the people will get second class government."

Certainly my father, Stewart, and my Uncle Mo took my grandfather's words seriously. Both served in Congress, and my father was Secretary of the Interior for Presidents Kennedy and Johnson. In 1976, Mo ran for President. He wrote a memoir titled "Too Funny to Be President." That may have been true. When he lost the nomination to Jimmy Carter, he quipped, "The people have spoken, the bastards!"

One might conclude that it was inevitable that I would enter a life in government. On the other hand, I have five brothers and sisters who chose other paths. They insist that I got the defective politics gene. Fortunately, my cousin Mark Udall, who was elected to the U.S. Senate from Colorado, was similarly afflicted and keeps me company in that regard.

When I arrived in Cambridge in the fall of 1973, I had not yet decided what a life of service would mean for me. I only knew for sure that I wanted to study the law,

and I wanted to study it in England, at the source. So, for the next two years at Downing, I focused on English common law. This profoundly deepened my understanding of the foundations of American jurisprudence.

Cambridge also brought me into contact with formidable public figures like Archibald Cox. He was teaching at Cambridge, following his infamous firing by President Nixon as the Watergate special prosecutor. Professor Cox was a sterling example to me of how the law can enable one to pursue a career in public service at various points in one's life.

Corruption thrives under cover of darkness.

My grandfather was right—good government depends on the integrity of its public servants.

Certain issues have engaged me throughout my career, first as New Mexico Attorney General, then as a U.S. Congressman, and now as Senator. Health and the environment. Energy. Civil liberties. Ethical government. And it is the latter—ethical government—that is crucial to all the rest. Open, transparent government is essential. Corruption thrives under cover of darkness. My grandfather was right—good government depends on the integrity of its public servants. That integrity is threatened by the current flood of money that is swamping the American political landscape.



Money has always had the potential for corruption, as periodic scandals in our history will attest. But, the state of affairs now, with a green light from the U.S. Supreme Court, is very troubling. The Court's Citizens United decision ruled that corporations deserve the same free speech protections as individual Americans. This enables outside groups, so-called Super PACs, to spend as much money as they want for or against a candidate, so long as they are "independent" of the campaign. That is a fake wall, and it ignores the real world of politics.

When my grandfather ran for the Arizona Supreme Court, he spent a total of \$925.86 on his campaign. Super PACs spent more than \$1 billion in the 2012 election. Much of that money was used to pay for attack ads by groups that did not even have to reveal who was supplying the cash. Elections should be about the quality of ideas, not the biggest bank accounts.

The long-term solution is to return the power to regulate elections to the Congress and the States, and I have proposed a constitutional amendment to do exactly that. James Madison argued in the Federalist papers that the Constitution should be amended only on "great and extraordinary occasions."



We are now faced with such an occasion. Fair elections are a founding principle of the American republic. They should not be for sale to the highest bidder.

Not surprisingly, the political climate in Washington has been a paralysis of hyper partisanship. It is a bit like punting the Cam in very shallow waters. Muddy and sluggish. The use of the filibuster to block legislation in the Senate has reached historic proportions. This is not a distinction in which we can take pride. The Senate, so often paralyzed by the need for 60 votes to accomplish anything, is too often a graveyard for good ideas. I am encouraged that the

Senate majority leader has expressed his support for my and other colleagues' call for rules reform.

The recent elections in America revealed a deeply divided electorate. But, I believe that the people, of all political persuasions, are clamouring for a government that works, for a government that actually gets something done. They are, rightly, demanding that we, as it were, change the way we do business.

In the new Congress, I am hopeful that we will change the Senate rules, limiting the excessive use of filibusters, and we will also address campaign finance

reform. We are at a point in time when the American public will accept, and deserves, no less. The challenges are too great, and the stakes are too high, for a government of gridlock to continue.

I recall my time at Downing with great fondness. In the years since, I have found that there are three criteria for a successful life in politics and, actually, for a successful life in general. Focus, perseverance, and wise counsel. If I have worked to cultivate the first two, I have been exceptionally fortunate in the third. Beginning with my parents, and continuing with my amazing wife, Jill, and our daughter, Amanda, I have never lacked for sensible advice of the highest order.

My dad observed that, whatever our accomplishments in life, it is the answer to one simple question that will matter the most: what does the circle of family and friends who know you best think about you? He also said that one's life can be thought of as the writing of two stories. One is the story of who you wanted to be. The other is the story of who you are. Those are humbling thoughts, and for those of us who presume to stride the corridors of power, they are essential ones as well.

Tom Udall 1973



**Senator Tom Udall,
July 2009**



Sabato's Crystal Ball



In 1982, **Dr Larry Sabato** was a Thomas Jefferson Visiting Fellow at Downing. Now Robert Kent Gooch Professor of Politics at the University of Virginia and an influential political analyst, we talk to Sabato about protests, politics and polling.



What do you remember most about your time at Downing?

"I had marvellous spacious rooms near the front gate, and often dined at High Table. I wish I had consumed less sherry, though. I would have gotten more done. But the conversations were stimulating.

My terms coincided with the Falklands War. I recall one large, noisy demonstration that snaked around all the colleges, with participation from many students and townspeople. Being of the Vietnam War era, I was used to demonstrations – except this was PRO-war."

You were also a Rhodes scholar and lecturer at the University of Oxford. What impact did Oxford and Cambridge have on you?

"As a result of my time at Oxbridge, I've followed British politics closely ever since. I usually go over to the UK for a few days to watch any general election there. It's fascinating and very different than our own – more about party than personality, for one thing."

You were part of the BBC's live TV coverage of the 2008 US presidential election. What was that like?

"I will always remember the 2008 broadcast. I'd done the BBC before in other elections, but the Obama victory riveted the world and the BBC was much watched. I heard from hundreds of people around the globe.

The BBC covers elections with an emphasis on vital issues and the broad meanings of the vote. It is less enamoured of bells and whistles, and

more inclined to go in-depth with the key players. Substance not glitz defines its coverage."

You have an impressive track record of accurately predicting US election results. Did you predict an Obama win in 2012?

"This year we projected a comfortable win for President Obama in the Electoral College; it was controversial – we ruined a lot of people's days – but proven correct. We picked 48 of 50 states correctly. We also accurately selected 31 of 33 Senate winners, 10 of 11 gubernatorial winners, and 97% of the winners in the 435 House races.

The most interesting thing is how the changing demographics of the nation are transforming the politics – the growth of the Hispanic and Asian populations, the decline of the white proportion of the vote, and so on."

You call your polling website Sabato's Crystal Ball – is polling a science or something more arcane?

"We rely on election models, polling averages, private tracking polls from the campaigns and parties, and good sources built up over four decades. I'll leave it at that. It's a secret sauce.

The real question is, why try to predict winners when they will be known for sure in due time? For us, the answer is easy. The central mission of the University of Virginia Center for Politics is civic education. Prognostication is a useful, enjoyable hook to get people talking about politics. We link our Crystal Ball to our mock election for elementary and secondary students –

the largest such election in the nation, with two million votes cast this year."

You've taught some 14,000 students. How can we ensure young people don't disengage with politics?

"Politics may not always be a pleasant enterprise, but in a democracy there is no responsible alternative to being engaged. Sooner or later, most people learn this, and smart students see it right away. Today's young can be a tad cynical, too much so, but they can be drawn into discussions about issues that matter to them – jobs, individual rights, climate change, and so on. The best way to involve 18-29 year-olds is to listen to their concerns, and show them how they can use those concerns to influence campaigns and politicians."

Neo-classical architecture aside, what does Downing share with UVa?

"The camaraderie, both among faculty and the students, is superb. The long history of the two colleges and their accumulated traditions encourages a sense of belonging to an institution that matters."

Sabato's Crystal Ball:
www.centerforpolitics.org/crystalball

Becky Allen

The griffin goes green



Downing is top of the Cambridge University Environmental Consulting Society's green league table, the only Oxbridge college with Carbon Trust accreditation, and has the highest percentage of students signed up to Cambridge's switch-off campaign. We talk to **Dick Taplin**, Downing's Junior Bursar, about the college's green credentials and why they matter.

If you've tried cutting your own carbon footprint, you'll know sustainability isn't as simple as it sounds. With hundreds of students and a domus dominated by historic buildings, cutting carbon is an even greater challenge for a Cambridge college like Downing.

"It's a difficult college in which to make a lot of environmental changes because I have basic problems with planning," Junior Bursar Dick Taplin explains. "I would love to put double glazing in these windows but we're having some difficulty in persuading English Heritage to allow us to take out the few remaining historic panes, even to replace them with similar glass. And while we have some wonderful south-facing roofs, we clearly can't put solar panels on them because they are part of a listed building and would be seen from ground level."

Despite these challenges, significant carbon savings are possible, thanks to the college's creativity and commitment. "I set up a regular regime of meter readings from all our houses for gas and electricity. We had a problem on the domus because we had one big electricity meter, which meant I didn't know where it was being used, so we invested in sub-metering which monitors use by staircase."

Feeding back the data to students via JCR and MCR green officers, and using it to target specific areas for improved insulation, has produced impressive results: over the past two years, the college has cut gas and electricity use by 14.4% and 11.4% respectively – exceeding the 11% target it set in its so-called 11/11 policy.

"We have cut our carbon footprint by over 10%," says Taplin. "Together with rainwater harvesting, solar water heating and the ground source heat pump in our Howard Theatre, two arrays of solar panels were installed on the historical buildings in early 2012 delivering further savings. Annual energy savings are currently running at £45,000 representing 10% of the total bill."

Saving money is pleasing, but it's not the main driver for Downing going green. "In many ways we're more concerned with the educational and environmental impact," he adds. "We actively try and involve students, and the message is getting through; for example in the student switch off campaign, Downing had the highest sign up rate. I'm sure they'll take that environmental awareness with them when they leave Downing. It's part of our role, part of their education, and we're happy to do it."

College visitors, especially those attending events at the Howard Theatre, may also leave Downing with a few more green ideas. Freed from the constraints of historical buildings and thanks to the

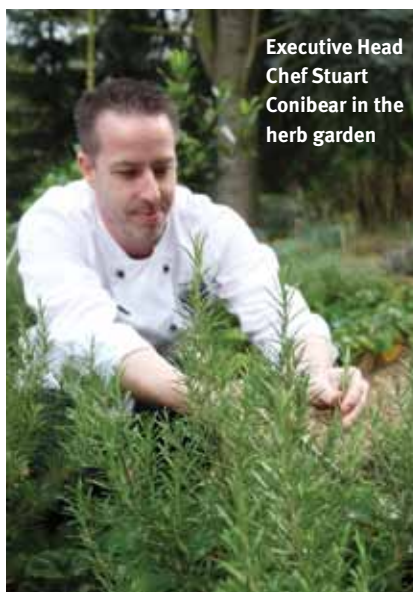


generosity of the Howard Foundation, the conference facilities have been built with a raft of energy and water-saving features, and are surrounded by thoughtful green touches.

Between the Howard Theatre and Fellows' garden is an apiary and a herb garden, even in the depths of winter packed with parsley, sage, oregano, bay, thyme, lavender and chives. "The bees are next door to the herb garden so they can feed off its flowers, and the caterers use them too. They go out in their whites to cut fresh herbs which will be in your meal an hour later," says Taplin. "We're very proud of it. Hats off to the Senior Bursar for providing so much support. We are well ahead of other colleges."

Cambridge being Cambridge, Taplin is thinking even further ahead. A new combined heat and power plant may be on the cards for Cambridge, which Downing would be part of, and university researchers are developing exciting renewable energy sources. "One of the beauties of Cambridge is that you do meet people from other disciplines. At lunch recently I was talking to a couple of professors about generating electricity through photosynthesis," he says. "If I can't put silicon on my roofs I can probably put moss on there!"

Becky Allen



Executive Head
Chef Stuart
Conibear in the
herb garden



Green Buildings

Downing Fellow and G.I. Taylor Professor of Fluid Mechanics, **Professor Paul Linden**, gives an insight into his work and research at the Department of Applied Mathematics and Theoretical Physics. The research is focused on environmental fluid mechanics and involves the study and development of models showing the fluid flow in low-energy buildings, its influence on the design of naturally ventilated buildings and the associated benefits of a dramatic reduction in energy consumption.

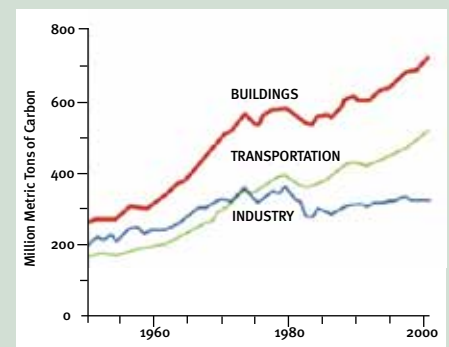


As New York recovers from the aftermath of Sandy and the UK has experienced the second wettest year on record – the wettest June since records began in 1766 – it is interesting to reflect on the possible causes of these unusual weather events. The atmosphere and our weather are driven by energy from the sun, solar radiation that is absorbed by greenhouse gases (GHG) to provide the moderate temperatures that allow life on Earth. Without the atmosphere the temperature at the surface of the Earth would vary from -3°C at the equator and approximately -100°C at the poles. GHG trap the radiation reflected from the ground and, as the amount of GHG in the atmosphere increases more of this radiation is absorbed and there is more energy to drive weather systems. Measurements over the past 250 years or so since the start of the industrial revolution have shown an increase in carbon dioxide concentration in the atmosphere from 275ppm to 385ppm. This increase in GHG means that additional incoming solar radiation is now absorbed compared to the mid eighteenth century, providing significant extra energy to drive weather systems.

Where does this increase in carbon dioxide concentration come from? The

figure from the US Department of Energy shows the US contributions to carbon emissions from buildings, transportation and industry since 1950 showing the effect of increasing urbanisation of the world's population (over 50% of the global population now live in cities compared with less than 30% in 1950). In the UK about 30% of GHG emissions are associated with buildings, and of this approximately 40% is a result of heating and cooling.

Modern buildings increasingly take the form, literally, of greenhouses – constructed with much of the façade consisting of glass – that absorb solar



Sector contributions to global carbon emissions

radiation and consequently, even in northern climates like the UK, need air conditioning to provide comfortable



Centre for Mathematical Sciences, Cambridge

Photograph: Dr Mark Charter

interior temperatures. Air conditioning is also being introduced into heritage buildings such as museums to preserve artefacts. And air conditioning is very expensive – it requires about ten times as much energy to keep a building cool as it does to keep it warm, since removing heat is much more difficult than supplying it.

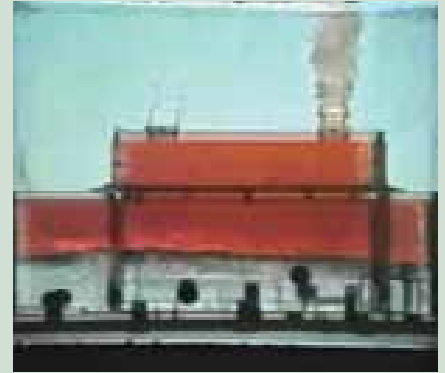
Over the past twenty years or so there has been an appreciation that it is possible to design low-energy buildings (even zero energy) if air conditioning is replaced by some other form of ventilation such as natural ventilation. This is, of course, the traditional way we ventilated buildings before air conditioning was invented in the early 1900s, using the forces associated with the wind and temperature differences to generate airflow through a building. Indeed ingenious technologies such as the classical ‘wind towers’ in Iran date back 1000 years. However, modern buildings provide new challenges that require new solutions. How do we keep the interior temperatures to within modern comfort limits using only natural cooling, at the same time maintaining good indoor air quality and dealing with noise and safety issues? How can new building materials be harnessed in the most efficient way and the building optimised for its particular climate?

These questions of air flow and heat and pollutant transports lie at the heart

of fluid mechanics, a subject which spans applied mathematics, physics and engineering. New developments in understanding air flow in buildings have come from recent experimental and theoretical work, based on laboratory models of buildings. The breakthrough came from the realisation that it is possible to model a full-scale building in the laboratory provided water was used instead of air. Mathematically the flow of water and air are equivalent and perhaps surprisingly water is less viscous than air, so its use prevents frictional effects dominating the flow in small-scale laboratory models. The figure shows a model of displacement ventilation where hot (red) air accumulates in the upper part of the building and drives the flow of cool (clear) air in from below. This mode of ventilation is the preferred mode when the most efficient removal of heat is required.

Mathematical models of this flow show that the depth of the cool zone can be

Modern buildings increasingly take the form, literally, of greenhouses – constructed with much of the façade consisting of glass

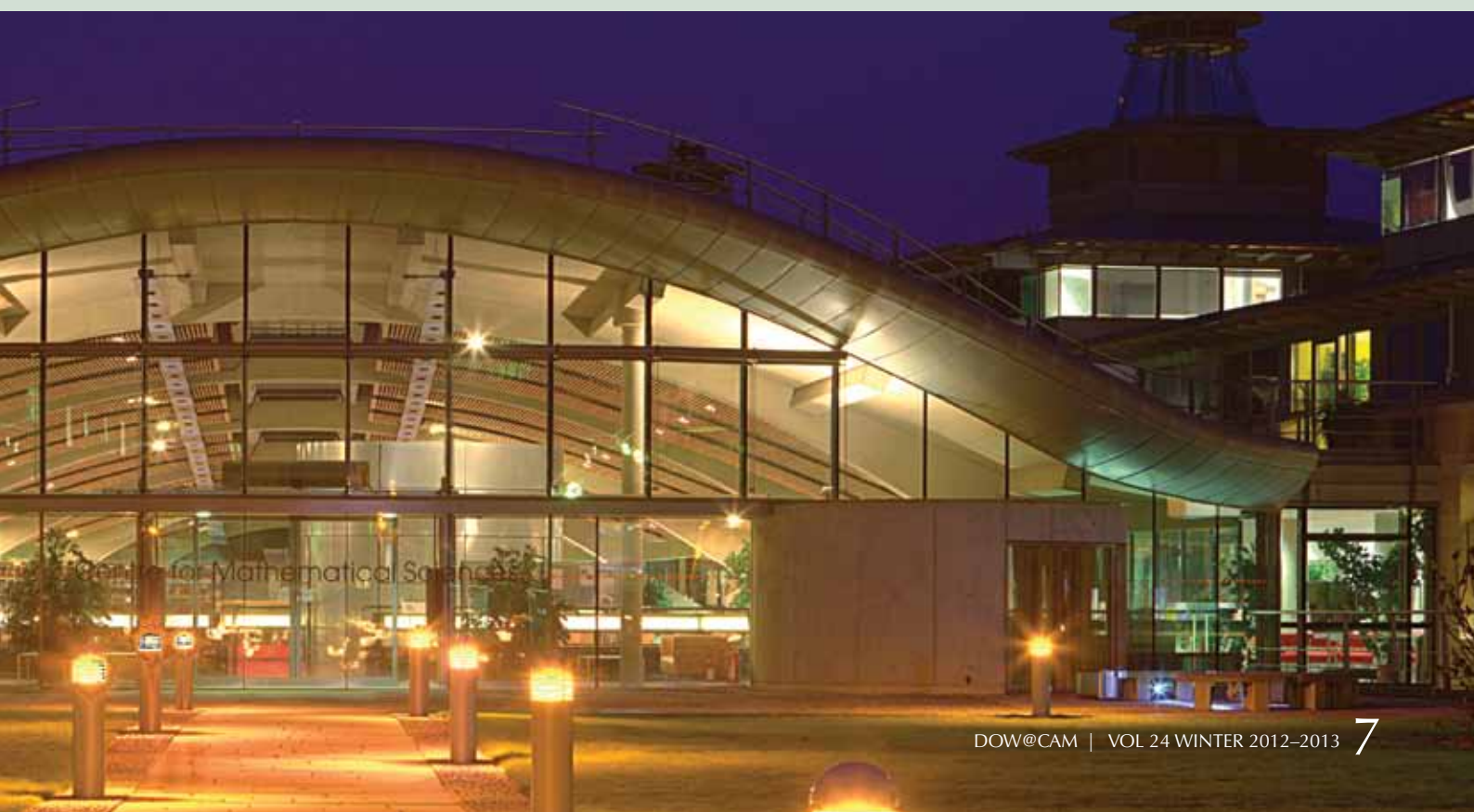


Laboratory model of displacement ventilation

controlled by the sizes of the openings alone and that best control is achieved by having relatively small upper openings. This principle is applied in the Centre for Mathematical Sciences (CMS) where the glass towers at the top of the two side pavilions provide the outlet for the hot air.

As exemplified by CMS, these advanced naturally ventilated buildings are not passive buildings. The building has a sophisticated control system that automatically opens vents in individual offices and controls blinds in offices and common spaces. The potential to reduce energy consumption by buildings using such techniques is huge and an essential part of a strategy to reduce GHG emissions from the built environment.

Paul Linden



DCBC 150th Anniversary



A truly significant milestone has been celebrated this year with the 150th Anniversary of the establishment of Downing College Boat Club. This event was marked by a reception at the historic Watermen's Hall in London on 28th November 2012 where DCBC members past and present met to toast the club's founding and reminisce over past glories and perhaps a few disasters. The occasion was marked by the unveiling of a specially commissioned sesquicentenary flag. DCBC stalwart **Leo Judd**, current Captain of Boats **Zara Goozee** and Director of Rowing **Ian Watson** reflect on what DCBC means to them.



In sitting rooms, hallways, studies, downstairs loos, attics, outside sheds and other places of display or storage for a rainy day, throughout the country and elsewhere, are the framed crew photos, presentation oars, rudders and bow shields, the visible reminders of the history of the last 150 years of the Downing College Boat Club. Add the race programmes and innumerable menu cards covered in the flattering and the not so complimentary comments of one's DCBC peers. May Crews' Honour Boards and other memorabilia adorn the state of the art Boathouse, built with the many donations of old heavies and in particular with the substantial contributions of members of the 1971 May crew. And for more DCBC nostalgia, visit the Captain's Room. Everyone remembers their time at Downing rowing - the friends they made, the comic situations and outrageous behaviour, gruesome early morning outings, the blisters and the cold, May Term trips to Clayhithe, training camps, summer regattas, the adrenaline of bumping races, crowded banks, the ecstasy of that bump, bumps dinners, the disasters and, of course, mainly the triumphs.

The DCBC sesquicentenary – 150 years of toil and sweat, tears but mostly laughter, sometimes triumph and sometimes disaster but always friends and fun

In the "The Long Haul, the Story of the Boat Club" published by the Association in 1982, Stanley French wrote in detail of the early history and struggles of the DCBC to be established. In 1862/1863, Downing was a small College and prior to that even smaller. To quote Stanley "There were very few Downing men and most of those there had no wish to row; they were too old, too rich, or too idle, or all three."

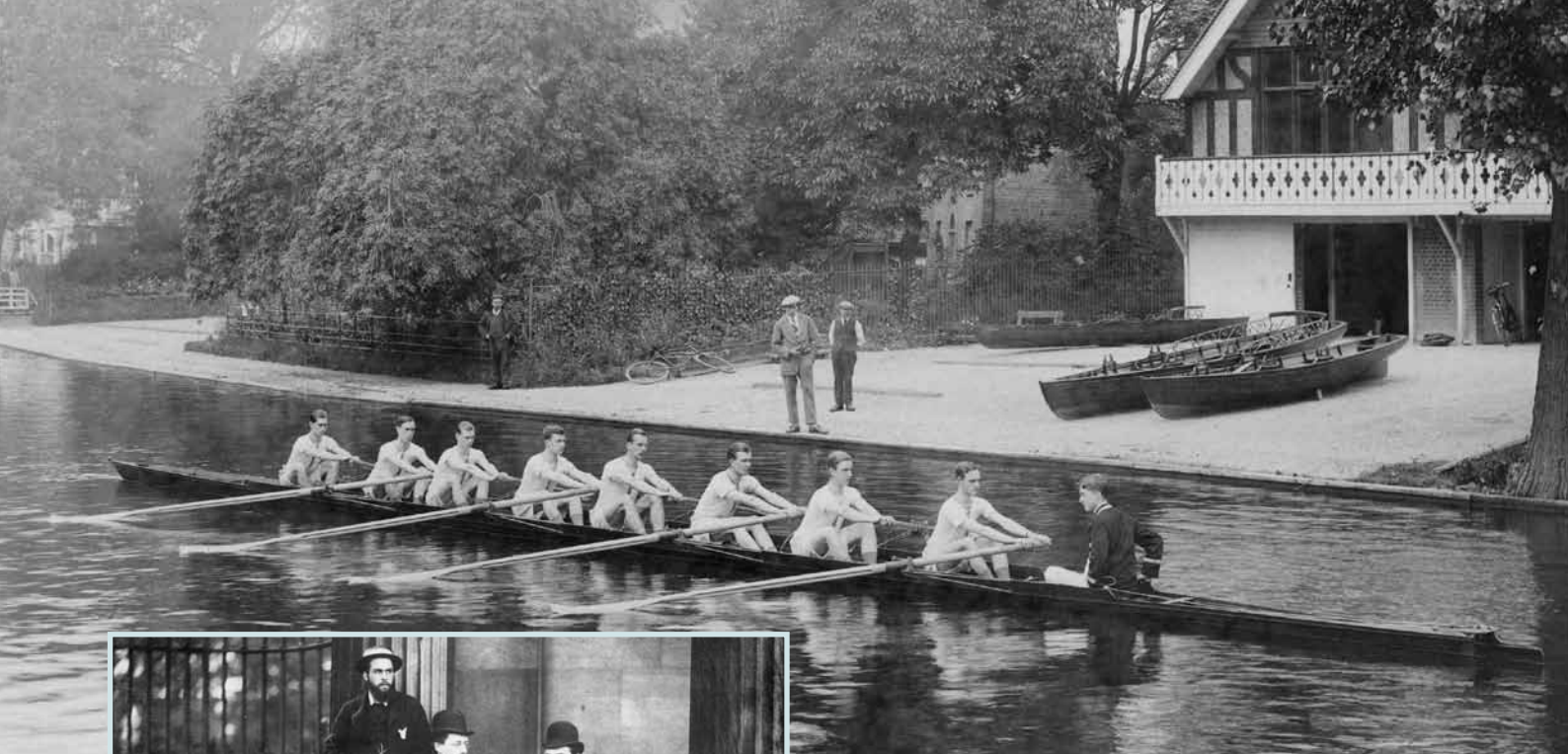
Stanley brought that story up to the point in 1982 when, having failed to go Head of the Mays in 1981, the final climb for the Head for the first time would be achieved.

Within the lifetime of those reading this article, the fortunes of the DCBC have been transformed. I have been lucky to see it all since 1965. When I came up, DCBC was not a leading college boat club. Four years previously the 1st May

VIII had moved for the first time into the Mays First Division and Mike Bevan was the first Downing Rowing Blue for over 100 years. He had been told, I believe, by the powers that be that should he row for Downing he would not row for the Varsity – hence a ditty sung at Bump Suppers for some years after. Mike rowed for Downing! It was possible that being 12th or so in the Mays the 1st May Boat could slip back as so many colleges do. However the club spirit was incredible – virtually no one had rowed before and the entire club relied on novices. As it turned out, the excellent and continuous emphasis on training novices ever since has paid off handsomely.

To channel and focus the enthusiasm and ambition to succeed needed the support of the College and good coaches. The current Master has been a tremendous supporter of DCBC as were





**Downing Boat,
May 1877**

his predecessors, demonstrating their bicycling skills along the towpath. Senior Treasurers who have found funds to help. Old members have contributed most generously and many will remember Chris Hammond, a major benefactor of DCBC. No Mays Races were complete without Chris charging along the towpath forcing a way through for us in the bank party to follow the crew. The club has become well equipped with a programme of purchases and disposals under the direction of an Executive Committee, a striking contrast to earlier years.

The coaches, Denys Lawrence, Joe Bailey, Graeme Hall, Alan Inns, our present Director of Rowing, Ian Watson, and many more, whether DCBC or from outside, have encouraged, taught, directed and advised.

DCBC has had a variety of boatmen. When I arrived there was the ever optimistic and cheerful Bob Biffen who could almost be guaranteed to ensure some equipment failure at a crucial moment. A boatman of the old school with lots of tips after it had all gone

wrong. Doug Larkin always smoked a smelly pipe. With really good forward planning he rebuilt his classic motor in his backyard only to discover he required a crane to lift it out. John Leckowski or John the Boat served loyally for more than 20 years helping DCBC to some of its greatest successes.

Women have been an integral part of the transformation since 1981. There have been the major significant achievements – the first Headships of the Mays and Lents by the men in the 1980s and by the women since 2003. These were breakthroughs of psychological as well as physical barriers. The unique winning of the Fairbairn Cup and Head of the Lents and Mays in 1996/1997. Currently the women have been Head of the Lents and Mays for two years and the men are second on the river in both. The races won at Henley (a Ladies Plate Final and several semi-finals) and at Women's Henley. Bumps galore and happy days. The story is littered with the successes of crews and members of the DCBC in the wider rowing world with our Olympians, Internationals, Blues, Goldie men,

Blondie women, Lightweights and club oars. But the DCBC is more than these. It is a real club encompassing anyone who takes to the water with a Magenta blade with each generation standing on the shoulders of their predecessors which, with the peculiar construct of the bumping races, makes the continuum of the club all the more evident. I am very conscious of this as the finishing coach of the Men's 2nd VIII for the Mays for the last 30 years where the crews have moved up and down (no lower than 7th in the Second division!) and up (now the highest College 2nd VIII and still poised to go into the First Division).

An impartial observer might wonder on how it is that an athletic club can engender such loyalty long after active participation, especially when the opportunities to see the Club perform are very limited. But rowing is not a sport, it is an obsession. Somehow the camaraderie epitomised in the Segreants takes deep root in the psyche. After 150 years the DCBC continues, with the support of the College, in particular that of the Master, Barry Everitt, and Senior Treasurer, Susan Lintott, and its old members, to reach for its principal objectives to be Head of the Lents and Mays and to win elsewhere. There are now many Downing men and women and many of these wish to row; they are young, full of life, hard working, and keen to achieve. *Feroces Ad Mortem.*

Leo Judd 1965



Downing's Director of Rowing **Ian Watson**, former international oarsman and one of the few professional coaches on the Cam, reveals his recipe for success

My job title is Director of Rowing, which sounds posh, but I don't tend to use it. I'm a boatman and a member of the College staff. The Boat Club is here for the students, and I'm here for them. I'm happy to coach at 06:30 in the morning if that's what they need. The boathouse is the students' and the students are the job.

Downing is one of the only Colleges with a full-time coach, and that consistency makes all the difference. There's only one way to row, and you have to coach around that. If you rely on coaches who have never been taught to row properly themselves it's a downward spiral, like Chinese whispers.

I arrived at Downing in 2006. The men were 5th and 6th in the Mays and Lents and now they're second. The women were 11th and 5th and are now head in both. I believe that's down to the consistency of coaching here, that investment.

But I do encourage the students to invite alumni back to coach. It gets an interaction going between the grass roots in the Boat Club and the alumni association, The Segreants. We have an annual alumni day. When I started here, I gave them all the best equipment – the reverse of what used to happen. Since then it's been really popular, and alumni have raced in the Head of the Cam for the past three years.

As much as you look after the students, it's important to look after the people who've gone before. It's key to any club, and it helps the students in other ways. Apart from fundraising there are some big connections to be had, which can help students find their way in the world.

I love competition. I'm still keen to watch the Olympics, and the students are inspired by our Olympic rowers. Annie Vernon came to the pub with them. That makes it real. About half the Freshers try rowing when they arrive at Downing. The challenge is keeping that interest alive, because it's hard to train. It's about early mornings. In the winter it's cold and

dark. Keeping going is hard, but that also teaches some life lessons.

In the 1980s the former boathouse on this site used to house the old University Social Club Boat Club, which is where I learned to cox. So it was interesting coming back and seeing the change. We used wooden boats and blades then. Now it's all carbon and plastic. The training and the facilities have changed too. The old boathouse had a fire place and took ages to warm up after outings. Now there's heating and hot showers.

The best part of the job is success – not mine but the students' – seeing crews progress and ultimately win. And in my time here I've seen the Boat Club foster strong friendships and even marriages, and it's nice seeing that too.

Apart from the early mornings, there isn't really a downside. The students go to the Head of Charles in Boston every year so I train in the summer to race there. I still enjoy it, but as soon as term starts the job takes over again.

Interview by Becky Allen

The Captain of Boats, **Zara Goozee**, writes from the Captain of Boat's Room

The long and vibrant history of the Boat Club is evident from my surroundings. Although many things have changed throughout the 150 years, and in fact the Boathouse, the equipment we use, and even the banks of the River Cam itself may well be unrecognisable to the first members of the Club, the DCBC attitude remains unchanged: "Feroces Ad Mortem", the attitude that has seen the Boat Club rise to one of the strongest positions during its 150 year history. With the Women at Head of the River, and the Men in 2nd place in both the Lent and May Bumps, there has been plenty to celebrate. Downing students have become accustomed to the sight

of a burning boat in the Domus. The Women's squad, in particular, has seen much success since the first female boat formed in 1981. The same resolve that drove these first women of the Boat Club to form a crew remains today and has resulted in the dominating performances of the Women's squad in recent times.

In addition to our recent success on the water, DCBC continues to be a great community. Both The Tribe and Camenae (the male and female social clubs, respectively) run regular events, and the year ends with the legendary Tribal Barbecue. More than ever in this, our 150th year, we have the perfect



opportunity to look back and appreciate the dedication and commitment of past students, members of College, sponsors and coaches that brought the Boat Club into existence, kept it running in difficult circumstances, and allowed we current students to be the privileged few who get to keep DCBC on top as one of the most successful Boat Clubs on the Cam.



Sylvester Harding miniatures

FROM THE ARCHIVES

As a boy, the late 18th century miniaturist and engraver Sylvester Harding was sent to London to an apprenticeship with a hairdresser. He ran away at the age of fourteen and spent several years in a company of strolling players before embarking upon a successful career as a miniature painter in 1775. College archivist **Kate Thompson** sheds light on how a delightful volume of his work arrived in the College collection.



One of the more unusual items in the care of the College Archives is a volume of 134 miniatures painted by Sylvester Harding between 1790 and 1799. Harding was a well-known artist of his day and the National Portrait Gallery has 215 portraits associated with him; for further information, see <http://www.npg.org.uk/collections/search/person.php?search=s&LinkID=mpo7071&role=art>.

The College's collection was produced for Sir Busick Harwood, Professor of Medicine from 1800 to 1814. In his *Reminiscences of the University, Town and County of Cambridge from the year 1780*, Henry Gunning recalled: 'Harwood's room [in Emmanuel College] was hung with portraits – in fact the walls were nearly covered. He became possessed of them in a somewhat singular manner. A painter in water-colours, named Harding, came to Cambridge; he was patronised by Farmer, and Harwood was very desirous of serving him. He therefore requested all the members of the University, with whom he was at all acquainted, of whatever age or station, to sit for their portraits; and as the charge was moderate, and the likenesses very striking, but few refused compliance.



When they were completed, he had about six or eight placed in a frame, and hung in his room'.

Harding exhibited at the Royal Academy from 1777 to 1802 and appears to have made annual pilgrimages to Cambridge to paint miniatures for various clients. The route by which this volume reached Downing is a twisted and circuitous one. The owner from about 1915 to 1952 was one V P Kitchin, who recorded its provenance in the current volume, which dates from a later period, most likely from the nineteenth century. He acquired it through the Casson family, who had inherited it from the grand-daughters of William Harwood, Sir Busick's brother. When Kitchin wrote the note, there were only 93 watercolours, but he was later able to buy the remainder from another member of the Casson family. He also referred to the fact that there were a further seven in the Fitzwilliam Museum, which are still there. Kitchin produced an index of the drawings and noted: '[names] occur in an early 19th century list made in an old album with metal clasp-lock, wherein were kept the miniatures themselves, not stuck in, but loose between the leaves. I surmise



that there were several such albums and that the present compilation of names is incomplete'.

In 1986 another direct descendent of William Harwood offered the miniatures to the College as a gift, but it is not clear how they came into her ownership. The then Master, Sir John Butterfield, took a personal interest in them, but after he retired knowledge of their interest and historical value appears to have diminished. In 2001 a conservation survey recommended immediate removal of the miniatures from the album but sadly funds to do this could not be found and they are still in the same condition as when they were received. It is hoped to raise the necessary funds in the next few months; unfortunately, the College cannot apply for 50% of the cost from the National Manuscripts Conservation Trust, as it does not fall within their criteria. The present head of the Cambridge Conservation Consortium has estimated the cost at between £6,000 and £6,500, and the College Archivist would be glad of any suggestions about how the necessary funding might be sourced.

Kate Thompson

Pulling out all the stops



Unlike many areas of college life, being an organ scholar at Cambridge has changed little over centuries. Current organ scholar and second-year law student **Dominic Wong**, and **Carl Jackson** MVO, Director of Music at the Chapel Royal, Hampton Court and organ scholar at Downing from 1978–81 compare notes about life in the loft.



Dominic Wong

"I have no memory of not being able to play the piano because I've been playing since I was three years-old," Dominic Wong tells me as we sit in his room on H staircase. In addition to a small stipend, the room with its piano are what Dominic receives as part of his organ scholarship at Downing.

In return, organ scholars – and there are two at Downing – are responsible for accompanying chapel services and conducting the college choir. In addition, Dominic is standing in as Selwyn's organ scholar, accompanying the college's mid-week services, which leaves him time for little else.

"Being an organ scholar is a time-consuming position, but at Downing it's better than some other colleges because we only have one service a week," he explains. "And because we don't have a Director of Music, we are in charge of organising, conducting and accompanying the choir."

Like Wong, Carl Jackson first sat on a piano stool at a tender age. "I started playing the piano when I was five years-old, then joined the local church choir and became fascinated with the sound of the organ. I started having organ lessons at the age of 12," he remembers. "There is something special about walking into a church or cathedral – it's hard to put into words – the sensation of hearing an instrument able to fill a large building with a rather special sound."

Despite the organ's power, it is the piano that Dominic feels closest to. "I enjoy playing the piano much more. I'm actually a pianist pretending to play the organ," he confesses. "Playing the organ is more like controlling a huge machine, because you don't actually make the sound, you don't blow into the pipes, you press a button which controls the air that goes into them, so you have a different kind of connection with the instrument."

Although organ scholars have duties that other Cambridge students do not, Dominic says playing music is an important counterpoint to essays and supervisions. "Every student here needs something other than academic work and it just happens that for me it's music. Other students dance or play football. It's the same thing – something that allows you to do more work, or work in a different setting."

And while Cambridge has some spectacular organs, Downing's is not among them. "I remember the organ at Downing being a rather modest instrument in terms of its size and ability to allow one to play a wide repertoire," Carl recalls. Dominic is more uncompromising: "We have a lot of nice organs in Cambridge, just unfortunately not at Downing. In fact, it would not be an exaggeration to say it's the worst organ in Cambridge. It's a very small organ with a very limited number of stops, so there's not much you can do with a piece," he says. "The organ is like an orchestra. You have specific stops designed to sound like specific instruments, so Downing's organ is as limiting as an orchestra would be if it had only three violins and a couple of bassoons."

Both organists have high hopes for a new organ due to be commissioned



Carl Jackson

for Downing chapel this year. According to Carl: “The state of organ building is quite healthy in some areas – there are many fine builders in the UK, Europe and America. I recently played the new organ at St George’s, Hanover Square; when you play and listen to it there’s something about it that tells you it’s truly musical. The pipework sings at you, it doesn’t scream.” Which is what he’d like for Downing: “The organ has got to be one with true integrity ... Above all, it has to be an instrument that’s musical.”

Despite spending three years playing such a modest instrument, Carl went on to a hugely successful career after leaving Downing. After teaching at Hinchbrook School, Whitgift School and St Paul’s Girls’, he went on to become Director of Music at both Kingston Grammar School and the Chapel Royal, Hampton Court Palace, and in 2012 was made a member of the Royal Victorian Order (MVO).

Of his time at Downing, he says it was the absence of a Director of Music at the college that stretched him as a young musician. “Being able to conduct a choir during my early years has been invaluable,” says Carl, “and those types of organ scholarships are very useful and need to be maintained if young musicians are to gain hands-on experience of running a choir.”

Like Carl, Dominic hopes to go on to a career as a performer. “I’m enjoying studying law tremendously, but the legal profession offers little excitement in comparison with the subject itself,” he says. “I’m more of a performer than an academic, so I hope to go to study the piano at a conservatoire after Cambridge. My main concern is that I want to develop my skills and I’ll worry about my career afterwards.”

He loves the fellowship among organ scholars at Cambridge, and the amount of good music in the city. “We have a very nice organ scholars’ group, so we all know each other and work together, sharing music, master classes and concerts,” says Dominic. “And musically, Cambridge is a great place to be. Last year I helped with an opera – *Die Fledermaus* – which was exciting because I was surprised to discover how many good singers we have in Cambridge.”

Becky Allen



A New Organ for Downing College Chapel

Downing College’s current organ has become unfit for purpose. The instrument was built by Walker & Sons in 1966 and overhauled by Grant, Degens & Bradbeer Ltd in 1982. However, problems with its original design mean that it has musical limitations and is both unreliable and expensive to maintain.

Knowing this, several very committed alumni and Fellows have spearheaded important efforts to raise the money to replace it. In the early and mid – 2000’s money was raised, including gifts in memory of late Master Stephen Fleet, for the Organ Fund and these donations remain at the ready to fund the new organ, though short of the approximate £350,000 required. However, in 2011 an alumnus donor and former choir member re-invigorated the effort with a donation of £50,000 substantially increasing the Fund and bringing the College within reach of commissioning a new instrument. Initial conversations with organ builder Kenneth Tickell are underway to commission a hand-made, custom-built instrument to suit the style and intimate nature of our Chapel.

A new organ will substantially enhance solemn and ceremonial events including College services, memorial services, funerals and weddings. A new instrument will also give Organ Scholars the ability to bring inspired music to Chapel services and for our Chapel Choir to act as ambassadors for the College as well as add to the cultural life of all our students and alumni.

All past donors to the Organ Fund should know their gifts will directly support the new organ. Fundraising efforts continue to raise the remaining £190,000. With a favourable response, an opening celebration for the new organ is planned for 2015. Such is the time needed not only to finish the fundraising but more importantly for the organ builder to fully design, build and install a wonderful new organ for generations of students and alumni to enjoy.

Events and Initiatives

Catalysis Campaign Update

We have now passed the halfway point of the Catalysis Campaign with £10.2 million raised towards a goal of £20 million with 1740 alumni giving to the cause. This is an extraordinary achievement under the circumstances. Against the backdrop of the turbulent economic environment, to surpass the £10 million mark is a testament to the fact that Downing alumni and donors are hearing the message and answering the call.

That message is: after a woefully under-endowed start in 1800 the College needs a far more stable financial underpinning to face the future. The heart of the Catalysis Campaign is

about increasing the College's general endowment. A healthy endowment means never having to ask awkward questions such as "do some subjects need to be cut?" or "do we need to sell off some of the houses in Lensfield Road?" to be able to continue to educate, challenge and inspire students, whatever the external pressures.

The Catalysis Campaign has five broad areas of Teaching and Learning, Research and Discovery, Heritage and Environment, Support and Services and Culture and Community, with specific projects within each one so alumni and donors can choose with confidence to invest directly in whichever area



resonates most with them. For example *The Everitt Butterfield Research Fellowship in Biomedical and Biological Sciences* mentioned on the opposite page is part of the broader theme of Research and Discovery, so alumni who choose to support it are also adding to the progress of the Catalysis Campaign.

Our challenge is to keep up the momentum and push forward towards the final goal of £20 million. No doubt a fine celebration awaits for many alumni who have so kindly supported the College in this Campaign but as we pass the halfway point, Downing is truly grateful for the generosity of everyone who has got us this far.

LONDON ALUMNI RECEPTION 2012

Last year's London Alumni Reception was held on 20th November at The Royal Society of Medicine. The event proved to be particularly popular this year, with places selling out well in advance. As many Downing members will know, the evening marked Professor Barry Everitt's last London Event before he retires as Master in 2013,

a fact that he reflected on in his humorous and heartfelt address to guests. A particularly pleasing feature this year was the number of recent graduates in attendance many of whom had come along to see the Master and wish him well.





The Everitt Butterfield Research Fellowship in Biomedical and Biological Sciences



Barry Everitt will step down as Master of Downing later this year and 2012 marked the 25th anniversary of the end of John Butterfield's

term as Master, making this a particularly poignant time to honour two of the College's most beloved Masters. The two have shared a career-long passion for research, which they have passed on to generations of undergraduates and postgraduates over the years.

Downing has, until recently, supported the early careers of post-doctoral researchers by electing a Research Fellow each year in one of four broad research areas. The College's endowment is not large enough both to do this and at the same time meet the increased demands on it to educate undergraduate and postgraduate students, and the Governing Body has with great regret decided it can no longer afford to provide the required funding for research Fellowships.

To fill this need, and commemorate both Masters, Luke Nunneley and Kate Panter (both 1981) are working with a committee of alumni from different years and disciplines to spearhead the effort to raise the necessary funds to create and endow *The Everitt Butterfield Research Fellowship in Biomedical and Biological Sciences*. Over £1 million is required to fund the Fellowship in perpetuity.



John Butterfield, in addition to his significant clinical contribution to the treatment of diabetes, had an enormous influence as Regius Professor

of Physic on medical research and education by providing the foundations for the international recognition of Addenbrooke's Hospital and Clinical School enjoyed today. He was also instrumental in supporting the early research career of the present Master, Barry Everitt, through their close association within the Fellowship at Downing. Barry has been and remains deeply committed to his research in behavioural neuroscience, the objective of which is to diminish the personal and social tragedies that are associated with addiction to drugs.

The Everitt Butterfield Research Fellowship in Biomedical and Biological Sciences will support the early career of an exceptionally talented young researcher who will go on to make significant contributions to medicine and the sciences related to medicine in the future. It will also bring with it an expectation of undergraduate supervisions in medical and biological sciences. This activity, as every alumnus knows, is at the heart of the College education system and, in this case, the Fellowship will bring our undergraduates into teaching contact with young and enthusiastic researchers who only recently completed their undergraduate and graduate education and therefore readily understand the challenges today's students face.

Progress to date is impressive with £320,000 raised as this magazine goes to press. The Committee and the College will keep alumni updated on this important effort. In the meantime, to speak with someone further about the Everitt Butterfield Fellowship, please phone the Development Office 01223 334850 or email development@dow.cam.ac.uk or co-chairs Luke Nunneley luke@nunneley.org and Kate Panter kate@katepanter.com.



EVERITT BUTTERFIELD COMMITTEE

Patron

Lady Butterfield

Co-chairs

Luke Nunneley (1981)
Kate Panter (1981)

Committee

John Scott (1977)
Alwyn Heong (1979)
Penny Furniss (1981)
Chris Harborne (1981)
Steve Smith (1981)
Alison Maycock (1983)
Dipti Chitnavis (1984)
Richard Young (1987)
Karen Beaumont (2003)
Jennie Doolan (2005)



The Science of a Liberal Arts College

Insight from the Downing/Pomona College Fellowship Exchange



Most people will be aware of the US Liberal Arts Colleges and the unique undergraduate education that they provide. Some will have encountered students from some of these elite institutions, who come to take graduate courses in Cambridge. Fewer will have experienced these undergraduate institutions at first hand. Paul Barker, Fellow in Chemistry, explains.

Downing has strong links with Pomona College, in Claremont in southern California, and the Downing/Pomona College Fellowship Exchange provides a wonderful opportunity for academics from either institution to visit the other and experience the different approaches provided by each College to teaching students.

Pomona produces outstanding students, many of whom progress to top graduate schools, including our own. Readers who are ex-members of the MCR of recent years may have encountered the Pomona students who have won the Downing Graduate Scholarship for graduate study in Cambridge. This year, two other Pomona students also won prestigious Cambridge graduate scholarships from the Gates and Churchill Foundations, and this is not unusual. Not surprising you might say, given that a quick search will reveal Pomona to be at or near the top of college rankings.

So how does Pomona operate? Having access to this perfect opportunity to visit and work there through the Pomona/Downing Fellowship Exchange, I find it surprising that it is 8 years since a Downing Fellow has taken up the opportunity. Our colleagues at Pomona visit every year and have to compete with each other for the right to come in this direction. Unanimously,

they have had productive and wonderful stays at Downing.

It was with great curiosity that I took up the fellowship in March 2012 to visit Pomona in the Californian Spring. Having post-doc'd in North America I was well aware of the different structure of the universities on that side of the Atlantic, but I had my eyes opened to the inner workings of this top Liberal Arts College. I saw opportunities that we in Cambridge could take, particularly for improving the research experience provided for our undergraduate students, especially in the scientific disciplines.

Founded in 1887, Pomona is actually one of the older Colleges in the US. Built in what was then desert, the vision of its founders was for a garden in the 'leading new townsite' (1887 advert) nestling at the foothills of the San Madre mountains

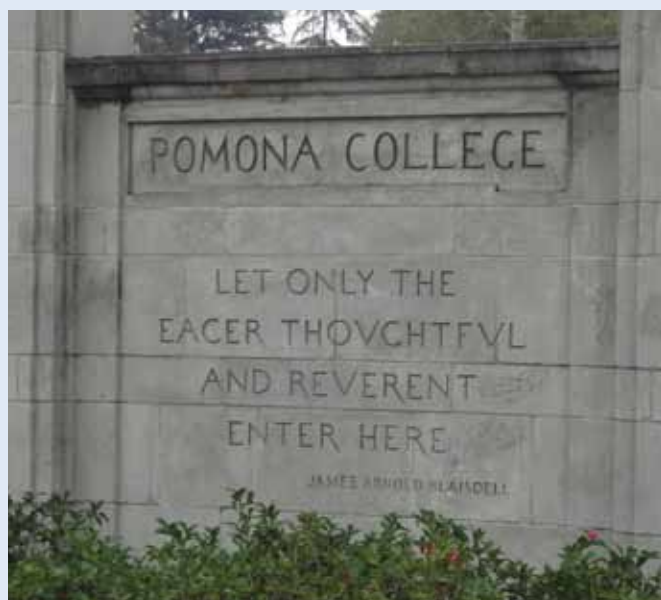
rising majestically to the NE. It certainly is a lush oasis but now suspended in the web of freeway 'car parks' that connect the sprawl of the LA basin, which is full to overflowing.

Pomona College is also no longer alone, being one of the 5 Claremont colleges – separate Liberal Arts Colleges with a combined undergraduate community of 4-5000 – all on one 'campus' but each with their own character (sound familiar?). Certainly, the physical boundaries between these separate colleges are not obvious and each benefits from the others in sharing facilities and courses. This concentration of academic activities make the village of Claremont one of those places that instantly feels academic, with the influence of students and faculty alike being reflected in simple things like the cinema listings and the breakfast menus.

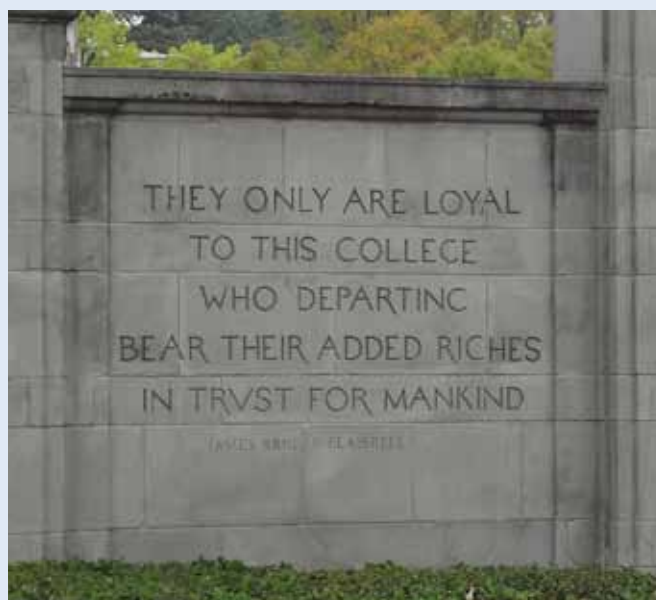
But I didn't just visit to sample a different and fantastic breakfast every day for 3 weeks. I did have the specific goal of hooking up with an academic working in a field that I need to know more about for my own research. Prof. E.J. Crane, in the Chemistry and Biology departments, works on sulfur metabolising bacteria found in volcanic muds. This sounds like a great reason to go hiking into some of the more remote Californian landscapes, but EJ is also a microbiologist and biochemist interested



Pomona students taking course 101: Humans vs Zombies conflict resolution.



Inscription on the original entrance to Pomona College



Inscription on exiting the gates of Pomona

in the different chemistries used by these organisms to live in extreme chemical environments. I am interested in the metal-containing proteins that these organisms use to respire and move electrons around, powering their cellular activity. Understanding these systems is crucial for engineering organisms that can economically be put to use in energy harvesting or bulk chemical production or even electronics. I would like to thank EJ for hosting me and for his time and insight into the microbiology I learned. It has set me off in a new direction.

However, as well as helping my research thinking, EJ gave me the opportunity to give some of my undergraduate lectures to his third and fourth year students and I hope that I enlightened them in the area of metalloprotein function. Interacting with these students and seeing first hand the facilities and output from the undergraduate-driven research effort also made me realise just how we might unlock this community of budding scientists in Cambridge.

As a result, I learned three things.

- Undergraduate research is hugely beneficial to both parties – undergrads and faculty. In Cambridge it can be seen as a drain on resources with little benefit to either party because undergraduate projects are often too short.
- Teaching and international quality research can go on hand in hand.

- A relatively small amount of funding for people in summer vacation projects has a great impact on the confidence and quality of the research scientists that graduate.

Let me embellish these points a little further.

Often US undergraduate courses are seen as being too broad by their European peers, particularly in science. This neglects the fact that in comparison with our students, Pomona graduates will have spent more time in their third and fourth years in research labs, mainly because they have more substantial project requirements built into their courses and because funding opportunities for summer vacation work in these labs are available. The Pomona faculty in Chemistry and Biology can therefore structure their research to be done by undergraduates in overlapping timeframes and tackle big research like any other academics. In top places like Pomona, faculty are active in the laboratory as well, keeping their hands working and providing direct interaction with, and inspiration for, the undergraduates. The hundreds of undergraduate vacation projects for second and third year students need significant funding. The Pomona endowment is 30 times that of Downing and approximately a third of that of the whole of Cambridge University and the Cambridge Colleges combined, yet it has around 1500 students at any one time. It is perhaps no surprise, then, that they

can fund 90% of applications for long vacation projects, in all disciplines, not just science. But the use of donations small and large to enhance the research experience of Pomona science undergraduates is key to the continued strength of the scientists it produces.

I want to thank all those I met at Pomona who helped make my time there a thoroughly enjoyable and surprisingly productive one. But I am especially grateful to the following people: to Prof. E. J. Crane for hosting me and introducing me to his small, sulfur-loving colleagues but most importantly to Sandy Fenton and Assistant Dean, Prof. Jonathan Wright, for the time they gave up to make my stay special and as untaxing as it could be. Sandy and Jonathan are currently the team overseeing the Pomona/Downing Fellowship Exchange and I arrived at a time when they had the complex task of matching the 180 or so summer student placements with specific funds donated for the purpose, a system absolutely central to the provision of the fantastic research opportunities available to Pomona students. I hope I have brought a little of the Pomona system back to Cambridge and will try to implement change in our approach to undergraduate research in chemistry that will enhance the training of the leading Cambridge scientists of future generations.

Paul Barker

DOW GALLERY

Photographs reproduced with the kind permission of Barry Everitt



EVENTS CALENDAR 2013

2 FEBRUARY

Griffins Club Dinner

6 APRIL

Annual Reunion Dinner

Pre-1953, 1953, 1963, 1973, 1983, 1993, 2003

27 APRIL

Segreants Club Dinner

30 APRIL

1980–1985 Reunion Event

11 MAY

MA Awards Dinner

15 JUNE

Donors' Garden Party

27 JUNE

Graduands' Reception

20 JULY

1749 Society Garden Party

28 SEPTEMBER

Alumni Day & Association Dinner

OCTOBER/NOVEMBER

London Reception TBC

DECEMBER

Varsity Rugby

2014

FEBRUARY

Cranworth Law Event TBC

Please note that the information above may be subject to change and you are advised to contact the Development Office for confirmation.

For further details on any of the events listed, or to find out what else is happening throughout the year, please visit the Development Office website
www.downingcambridge.com

Join the Downing Conversation Online



www.facebook.com/downingcollege



www.linkedin.com



www.twitter.com/downingcollege



www.flickr.com/photos/downingcollege