



LENT 2006

ISSUE 6

THE UNIVERSITY OF CAMBRIDGE MAGAZINE FOR GRADUATE STUDENTS

The background of the cover is a photograph of a stone archway in a building. The archway is made of light-colored stone and leads to a courtyard. In the courtyard, there is a wooden door and a window with a decorative frame. The ground is paved with stone tiles.

CHOOSE YOUR OWN ADVENTURE: CAREERS AFTER CAMBRIDGE

A MIDDLE GROUND ON CLONING?

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Degree and Beyond...

There are many reasons why we pursue a postgraduate degree here at Cambridge: to learn about the subject, to participate in interesting projects, to qualify for a job, to delay the job hunt, or to simply see where the degree takes us. In the end, however, we all want our degree to somehow contribute to our search for the ideal career.

From my own and my friends' experiences in career decision-making, I've learned that many students are confused and frustrated about what they want to do for the rest of their lives. It's a difficult choice to make – after all, your final decision will affect you perpetually. Or will it?

Nowadays, the volume of opportunities and options in the world of employment is boundless. The abundance of employment opportunities allows students to have greater chances of working in highly focused specialities, but negatively, can also complicate their process of narrowing down to a particular field of interest. Fortunately though, most students are no longer rushing to decide on a long-term career choice, but are instead aiming to adopt work short term post graduation. Usually the form of employment they select during this course either overlaps with or is related to their future profession. The idea that skills gained from one employment are transferable to others has encouraged many to explore different fields of work. For example, many students take on summer jobs of teaching English in foreign countries, and I would assume not all of them want to become teachers in the future. Their experiences through teaching, travelling, becoming acquainted with a different culture and language can facilitate their development in professions such as academia, business, science, politics and media.

We are now living in an era when we no longer need to decide on a career choice at a young age and stick to it for eternity. Despite this, many postgraduate students are still facing difficulties finding that general direction of interest. Some are afraid they will make the wrong decisions, others simply have too many interests. For those still in search of employment out there, the cover story for this issue focuses on your postgraduate degree and beyond. We aim to provide you with as much information as possible in areas of job hunting, entrepreneurship and academia.

Good luck on your search!!!

Jane Ding
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A middle ground on cloning?

Ben Dickins

Cloning is often in the news with articles drawing our attention to the perceived moral problems in this area of genetics. The latest headline-grabbing story, however, involves probable scientific fraud. There is now serious doubt about the reliability of several papers published in leading academic journals by celebrated Korean stem cell researcher Hwang Woo-Suk. Scientific misconduct is shocking, though sadly not unprecedented, but it seems that the combined impact of moral doubt and moral turpitude will be substantial. So, in the midst of what will undoubtedly be a noisy debate, perhaps it is time to reverse the usual approach to this topic and consider how understanding the science might inform our moral stance.

"Tate Twins" © Tom Dickens

Imagine two factories that make squares. Factory One (see figure) is a traditional factory which produces squares using two templates, each of which is used to cut parts from two larger squares of material. The parts so produced are joined to make new squares. Factory Two has adopted a new technique: it simply cuts squares directly from one larger square of material.

Factory One is sexual reproduction. Factory Two is cloning. In Factory One the product (small square) differs from either source of feedstock (large squares) because it is sampled from both. In the same way, an offspring derived by sex differs from either parent because it derives one half of its genome from each parent. But, during the subsequent manufacture of squares or development of offspring many extra factors can create additional variation between parents and offspring. For example the availability of nutrition during pregnancy can affect a baby's birth weight and its future risk of developing a range of diseases.

In cloning, it is these developmental factors alone which act to create differences between the offspring (product) and its parent (feedstock). Cloning is achieved by transferring the nucleus from an adult cell (of the individual to be cloned) into a fertilised egg. In theory, this egg goes on to develop into an embryo and, if implanted into a host's womb, into an entirely new individual. This is reproductive cloning. In therapeutic cloning the embryo

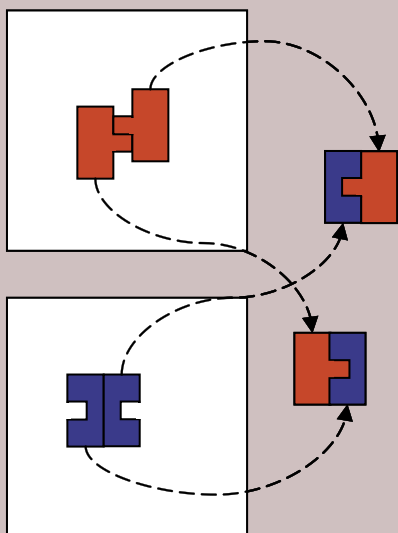
is simply used to obtain stem cells, which are cells that can be used to repair damaged tissues.

Among the countries with more lenient controls, such as the UK, therapeutic cloning is possible, but reproductive cloning is banned. Opposition to reproductive cloning is often expressed in the notion that cloning would violate the uniqueness of individuals. But, as just explained, clones would, in fact, differ from their parents. So why is there a problem?

Perhaps the problem is quantitative. Clones would not differ as much from their parents as would normal children. But identical twins are natural clones and, in fact, a clone would be predicted to differ more from its parent than would twins from each other. This is because twins share a common environment (at least in the womb). Clones, on the other hand would grow up at a different time and therefore in a substantially different environment from their parents.

Perhaps there is some particular kind of variation which clones do not show? For example, they may look different, but behave similarly. Twins again can provide insights here. Studies show that, while many psychological traits (such as levels of intelligence or addictive tendencies) tend to be shared by twins, twins are not always identical in these traits. It is always possible that some traits, not yet measured, will be identical in all pairs of twins, but

FACTORY ONE



FACTORY TWO

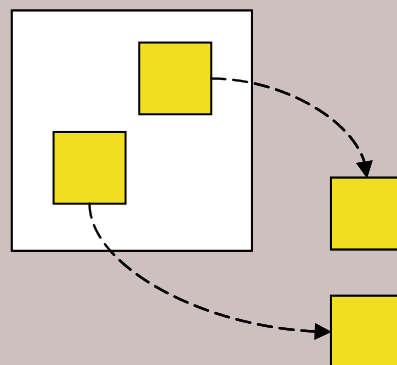


Diagram: Two factories that make squares. The two types of template represent the requirement for parents of different sexes.

then this wouldn't be a sound argument against cloning and such traits might be invariant in some families too.

These arguments, I suspect, will remain unsatisfactory to the reader and this is where an understanding of biology may prove particularly illuminating. To introduce this we should first consider the problem of classifying species, which was faced by early naturalists.

Taxonomy, or the classification of plants and animals, was different in pre-Darwinian times. Naturalists held that members of one species were identifiable by an essential similarity of design. Essential features reflected the Platonic ideal or essence of that species. Now, all creatures vary, and unless there are as many species as individuals, this meant that some of this variation was irrelevant or accidental. In much the same way we can describe the properties of a perfect circle but understand that any particular attempt to draw one will be marred by errors of production which create differences between renditions. Taxonomists' aim was to distinguish circles from squares by paying attention only to the essential differences and ignoring the others. The problem was that this did not work. The frequent occurrence of intermediate forms led to constant bickering over which differences were really essential and which were accidental.

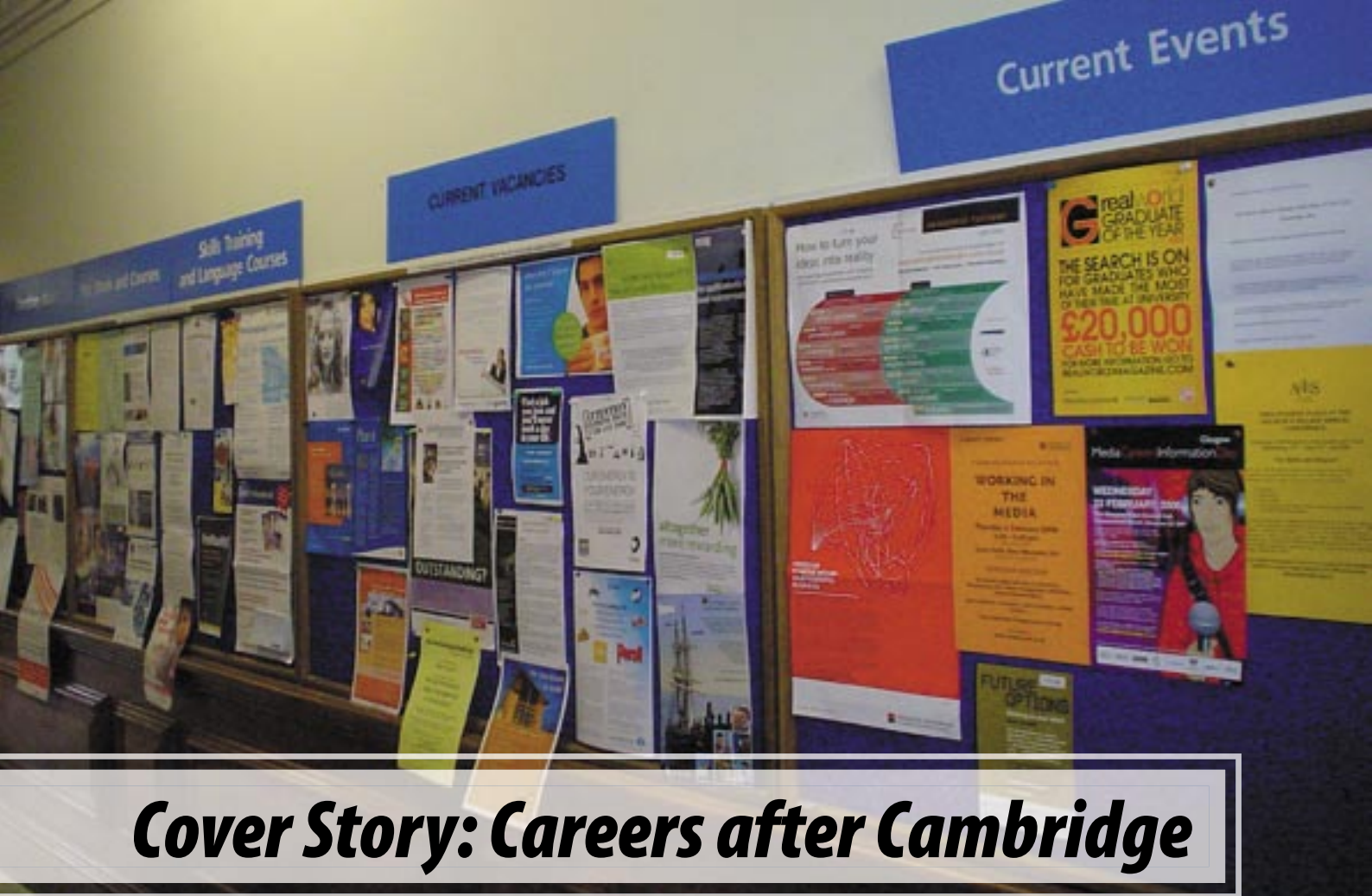
From a modern (Darwinian) perspective this failure is unsurprising. We understand that all creatures alive today share a common ancestor and one form gradually changes into another or others. Examples of gradual change and speciation (the emergence of new species by lineage splitting) have been observed in the wild. This means there are no such things as essences nor are there timeless, essential differences between kinds. Modern taxonomic classifications are based on our best hypotheses regarding the relations between forms and are to some extent arbitrary. (For example, it is arguable whether humans deserve to be in a separate family from chimpanzees and gorillas: they are clustered into a subfamily.)

So, to say that cloning violates the uniqueness of individuals is problematic because people, like other

animals, do not have essences. Even if they did, there would be no reason to suppose that essences reside in the genes, which are the historical legacy of evolution in each of us. In fact, it seems that, when we are grappling with problems without understanding the phenomena involved, we tend to seek essences where there may be none. Arguments about the "sanctity of life" often levelled against both types of cloning may involve this tendency too.

So does this mean that both types of cloning are acceptable? Well, referring to types of anything ought to ring alarm bells again. The distinction between two types of cloning is clever and interesting. It is clever because weighing the costs and benefits associated with cloning and coming down both for and against it in different cases looks very reasonable. We have already questioned the perceived costs of cloning, but if there really were heavy costs (for possibly novel reasons or simply because of these perceptions) this distinction might begin to seem euphemistic as the costs would clearly outweigh the benefits in either case. But the distinction is also interesting because it seems to be an attempt to clarify the moral issue by looking at the real effects of cloning for the patients or consumers who might benefit from it.

Cloning is a very modern social problem. Were it not for the technology, the dilemma would not exist. Humans, on the other hand, with our socially-cooperative moral sense, are not quite so modern a species. Our capacity for moral reasoning would have developed in a context in which the main human beings with whom we interacted were fully conscious adults or children and not 16 or 32-cell embryos in a test tube in the laboratory. So, it is not surprising that our moral focus would lie with the former and not the latter. Perhaps this is why we have been relatively successful in framing the issue around the consumers of reproductive technologies first and foremost. But when we have tried to understand the nature of the costs involved, our lack of knowledge and natural reasoning biases have combined so that we have resorted to an essentialist approach inappropriately. Cloning is, in a rather fundamental sense, partly a moral problem, but a fully scientific one.



Cover Story: Careers after Cambridge

The University of Cambridge has an excellent Careers Service which offers advice and guidance for students seeking employment after their education. Jane Ding interviewed Alison Walsham, a Careers Advisor, to get an understanding of what the Service offers for postgraduate students. The visit proved quite educational, as the Service provides an enormous sea of information and resources for undergraduates, postgraduates and even alumni. If you haven't yet registered at the Careers Service you should start soon and discover the opportunities awaiting you. <http://www.careers.cam.ac.uk>

What services does the Careers Service offer, especially for postgraduates?

The Careers Service offers a very wide range of services, ranging from one-to-one advice, group sessions, briefing sessions of specific sectors, skills sessions and events. Individualised discussions with Careers Advisers run year-long, while most events, usually in the form of Careers Fairs, occur during Michaelmas and Lent Terms. These events are organised to enable students to meet organisations and alumni.

Postgraduate students are divided into MPhil and PhD students. Inductions are provided at the beginning of Michaelmas terms to inform students, particularly MPhil students, of the services provided by the Careers Service. This allows students to become aware of the tight time scale throughout the year and to give them a head start in organising to attend events of interest to them.

The Careers Service does run sessions that target postgraduates specifically. There are workshops for students who are certain they want to move away from laboratory bench work in order to educate them about other science-related career choices. The Service also offers CV sessions for students either wanting to stay within or move out of their focuses. The Interview Technique Sessions for PhD Life Scientists have been very popular, and also cover panel interviews for those staying in academia. Students can also participate in one-to-one video interviews, which provide them with valuable personal feedbacks.

What events do you have planned for Lent Term?

With four major events in Lent 2006 already behind us (Financial Services, Blue Chips, Media and The Works covering For more than Profit sectors), there remains The Cam Connect Event on February 22nd, which involves high tech companies, local businesses and biotech companies. The Summer Recruitment Event in Easter

Term aims to mop up last minute applicants for jobs starting in September. It was very successful last year, involving over 25 organisations.

Can you help students obtain post-doc research funding?

The CLICK Email Listing contains more than 60 fields of career interests to produce targeted information to individuals. Within the fields is a category called “Research opps for post-docs/PhD Students” which provides announcements for postgraduate students looking for fellowships and other funding schemes. The service is automated and updated frequently, with archives from previous years available to students wanting to see what has been offered in the past.

Can you help students obtain vacation work?

Vacation work for postgraduates is quite an interesting concept. They help students with the desire to move away from academia gain experience in other fields. The Careers Service has contact information for organisations offering short-term work ranging from several weeks to months. For long-term vacation work postgraduates must negotiate with their supervisors about the amount of time they want to take off.

“Vacancies Online” offers a list of jobs available for students looking for work in specific fields beginning and ending at specific times. Under the “Vacation Opportunities” section students can search for work between terms. Updated vacancies are automatically sent to students’ email accounts.

What resources and websites would you recommend for job searching?

It’s too large a topic for this article, but as a starting point The Careers Service website offers a large amount of information and links. Vacancies Online provides a list of current and prospective job openings, with links to organisations and employers.

How can students improve CV and interview techniques?

The Careers Service offers two free handbooks to students looking to improve their CVs and cover letters. The first one, called “CVs and Cover Letters”, provides tips on producing effective résumés tailored for specific jobs as well as examples of student résumés from a wide range of specialties. The second handbook is a supplement for postgraduates. The website and online Diary list all the resources and sessions for developing interview techniques.

What advice can you give to international postgraduates wanting to pursue a career in UK?

While many international postgraduates from Cambridge are considered high profile candidates for organisations, not all employers are willing to recruit non-EEA graduates because they will need to have work permits. A number of large international companies such as consultancies

and banks are quite accustomed to obtaining work permits for employees, but most small organisations are either not used to or not prepared to do the extra work. The Careers Service is not allowed to provide individual advice on obtaining potential work status. The Service’s vacancy information identifies organisations that may consider applications from international postgraduates, but that is the limit of the services offered.

What is the employment rate of postgraduates from Cambridge, and how does it compare to the rate for students from other UK universities?

It is very good. Approximately 1000 PhD students graduate from Cambridge every year. Of the 70% who respond to our enquiries, the overall unemployment rate is only 2%. This is in line with the national averages, which is about 2% in biological sciences, 4.5% for physical sciences and engineering, and 2% for social sciences. For the 1000 M.Phil students graduating every year from Cambridge, the unemployment rate is only about 3.4%.

What guidance can you offer to students who have little or no idea on that they want to do after receiving a postgraduate degree?

Quite a number of students coming to the Careers Service do not have much idea about what they want to do. The Service offers personalised discussions to help students identify their strengths, weaknesses, values and skills. There are many tools the Service use for assessments, including ability tests, psychometric tests and personality tests. Though a time-consuming and tedious process, self-awareness provides invaluable information in discovering which jobs are suitable for the student. The Service provides support to help students understand what is interesting to them; however, they cannot provide students with answers.

Final Advice: Start early! The Careers Service isn’t just there to help final-year students. If you start to use the Service early you will benefit from learning about events ahead of time, receiving tips on networking and becoming acquainted with the resources that the Service offer. These are particularly useful for first-year PhD students who are not sure of their plans after graduation.

Myth: The Careers Service focuses mostly on jobs in fields of management, consultancy, banking, law.

Businesses in these areas make a lot of visual noise (posters, presentations and such) during Michaelmas terms in order to attract the most capable Cambridge students. The Careers Service certainly does not favour jobs in these areas over ones in other focuses. There are many events offered by the Careers Service in Lent terms to promote work in media, journalism, broadcasting and charity. The Careers Service is impartial and does not give special treatments to particular employers.



The Entrepreneurial Spirit at Cambridge

Johanna Busch and Ronak Shah

Over the past few years, there's been a general hum of excitement around Cambridge, and the buzz word on people's lips has been "enterprise." Evidence of increasing interest and enthusiasm in enterprise has been demonstrated by new organisations and programmes dedicated to spreading the entrepreneurial spirit at Cambridge. The Centre for Entrepreneurial Learning (CfEL), for example, was established in 2003 and operates out of the Judge Business School. CfEL, whose stated mission is to "Spread the Spirit of Enterprise" throughout the University, hosts networking events, provides practical hands-on business training, and teaches courses for those looking to pursue an entrepreneurial path. Another entrepreneurial-focused organisation, the Cambridge-MIT Institute (CMI), was established in November 1999 and states a similar creed: "To undertake education and research designed to improve the UK's competitiveness, productivity and entrepreneurship." CMI offers six different year-long Master's programmes to this end, in areas ranging from Nanotechnology to Chemical Engineering. Other indications of entrepreneurialism at Cambridge include various student organisations such as CUE (Cambridge University Entrepreneurs), CUTEC (Cambridge University Technology and Enterprise Club), and BIB (Biology in Business). CUE and CfEL have also brought together industry leaders, investors, and entrepreneurs at the weekly Enterprise Tuesday events to inspire the next generation of budding entrepreneurs.

Yet, have these events and organisations been successful in attracting student interest and cultivating a spirit of enterprise among the student body? From the overflowing Enterprise Tuesday events and participation in student society events, it seems as if enterprise is indeed gaining ground among the student population. In addition, the recent CUE Business Plan competitions (CUEBiC and 3P) attracted a diverse mix of students from across a variety of departments. The scope of current finalists range from MBA students, biologists, engineers to a

large contingent from the CMI MPhil in BioScience Enterprise programme. This programme, which operates at the interface of science, business, law and technology, focuses on the commercialisation of scientific applications and innovations. The Academic Director of the course, Professor Jim Murray, states that the course seeks "to provide the knowledge, understanding and insight to enhance the development of entrepreneurship... To this end we bring the experience of around 80 [external] lecturers and speakers to provide dedicated teaching."

Given this programme's evident interest in entrepreneurship, we approached some students from the programme about their ideas and perspectives on the spirit of enterprise. How do students themselves define the entrepreneurial spirit? Gerhard Symons, whose team CamStent is a finalist in the CUEBiC business plan competition, stated, "I believe that entrepreneurship is having the vision to innovate, the will to challenge the status quo, and having the drive to realise the vision." Fellow classmate Ponarul Palanisamy adds, "Entrepreneurship is about making the impossible possible," while 3P finalist Conrad Uy says it's "about making dreams happen." The students' opinions, however, diverged greatly when posed with the question as to whether entrepreneurship is an innate trait or a trait which can be acquired through active learning. Symons posited, "I believe that entrepreneurial traits can be nurtured, encouraged and can be regularly exercised to become second-nature." Palanisamy, however, disagreed. He stated, "I think it is something in your blood. You need to have the right vision and attitude, make the right choices confidently, and persevere to be successful as an entrepreneur." CUEBiC finalist Chin Tah Ang agreed with Symons, saying, "No one is the perfect entrepreneur, but I believe everyone can be taught and helped along."

But let's take a step back from these aspiring young bloods and turn to more established academic entrepreneurs in



Inside the Careers Service © Jane Ding

the Cambridge area. We interviewed William Bains, co-founder of biotech companies Amedis Pharmaceuticals Ltd. and CEO of Rufus Scientific, and Jim Murray and Geraldine Rodgers, Academic Director and Biotechnology Manager of the Challenge Fund, respectively. We asked them if they had any advice to give aspiring entrepreneurs. Bains had a grounded view of entrepreneurialism, stating that, “Actually, most of what it takes is years and years of very hard work. The inspirational moments and the networks and the mentors and the personality traits and so on are just the things that enable you to do that work. And [it takes] an obsessive desire to see something done, no matter what the cost.” While the new generation of entrepreneurs often sees a fast-paced, rapidly developing field, Bains urges them to take a bit of consideration into mind. Dr Rodgers agreed: “Prepare yourself for hard, punishing and maybe rewarding work.” Dr Murray added, “Essential qualities [for an entrepreneur] include enthusiasm, bloody mindedness tempered by a touch of reality, and above all a total dedication to the big idea that ignores the many long hours of hard work required.” While they encourage aspiring entrepreneurs to take on a child-like wonder and enthusiasm, their common theme is that dedication, perseverance, and hard work are all necessary attributes – the ideal of entrepreneurialism needs to be moderated with the nitty grittiness of day-to-day hard work.

Yet there is a whole new generation of budding entrepreneurs looking forward to taking on the challenges and obstacles that entrepreneurship entails. These budding entrepreneurs can only benefit from the foundations laid down by the initial innovative entrepreneurs who have preceded them, such as Hermann Hauser, Sir Richard Friend, Sir Greg Winter, Andy Richards and many, many others. New entrepreneurs coming out of Cambridge’s science, engineering, and business departments can build upon these foundations and profit from the highly connected and established network of entrepreneurs, investors, and academics that operate within the Cambridge area.

The Way of the Consultant

We asked Sharon McKeown, 31, engagement manager at McKinsey & Company, what it was like to enter the consulting profession after completing a PhD. She completed her PhD in chemical engineering, as well as an MEng, at the University of Cambridge.

Why management consulting?

Before my PhD I spent several summers working as a process engineer; whilst I enjoyed the personal interactions and pragmatism, the work soon became intellectually repetitive; on the other hand, academia was rich in problem-solving but I found the overall experience both isolating and frustrating in its focus on such a narrow sliver of content. I wanted a career that offered the right combination of problem-solving, teamwork, pragmatism and variety – I was impatient to experience as much as possible after years working in a lab.

Has your experience been different from other graduates?

The main differences concern roles and peer groups. Since most undergraduates join as business analysts, and most postgraduates join at the entry level above, joiners with a PhD are expected both to take on extra responsibility and to progress more quickly than undergraduates.

What advantages has your PhD offered you?

My postgraduate experiences have helped in a number of ways: the confidence to own and independently run complex processes, the patience (or perhaps sheer persistence!) to see things through to completion, and a high tolerance of ambiguity, based on constantly facing the unknown while exploring new research areas.

What have you gained from working at McKinsey?

Three things stand out for me. Firstly, skills: the apprenticeship at McKinsey is one enormous learning curve; I’ve learnt to think in a more disciplined way – balancing rigorous analysis with rapid synthesis, logic and intuition – and focused on both communications and influencing skills. Secondly, I continue to satisfy my need for experience and variety – no two weeks are ever the same! Thirdly, but most importantly and corny as it may sound, I’ve made some special friends.

Any advice for postgraduates hoping to enter the industry?

Consulting isn’t for everyone and can be a particular shock to the system for postgraduates joiners. Make sure you carefully research consulting as an option – try out some cases studies, attend consulting workshops, meet the people. If you’re serious about entering the industry, then practice, practice, practice!

Chris Lowe: Serial Entrepreneur

E. Kioupritzi

GOWN had the pleasure of talking to Professor Chris Lowe, Director of the Institute of Biotechnology at the University of Cambridge. Prof. Lowe is one of Cambridge's leading serial academic entrepreneurs, having established seven spinout companies from the university. He is currently working with Dr Sabine Bahn on an eighth, PsyNova. These companies have developed products across a wide range of applications, including proteomics, diagnostics and biosensors, and operate internationally. The Institute of Biotechnology actively collaborates with, and receives sponsorship from, multinational corporations such as the pharmaceutical giant GlaxoSmithKline (GSK). In this interview, Prof. Lowe talks to GOWN about some of the companies he's co-founded, what is currently going on in the exciting world of biotechnology, and offers advice to budding entrepreneurs.

Initially the business man in him blossomed as a PhD student when, having in his hands a dominant patent unique in the world, he decided to take advantage of the opportunity to commercialise the products. The product was sold to a US firm and then subsequently to a Swedish firm. After being on the market for over 35 years, the products are still being sold and continue to make a profit.

CRL: My first firm started from research that I'd done in the 1960s. I had got very demoralized by my earliest experience with very good technology and a dominant patent, which was exploited outside the UK. I wanted to do something about it, so in 1986, I had a contact with a guy who was a millionaire; he came along and suggested that we should do something in this area. He was going to bankroll it initially and then we'd sink money into it afterwards, which we did, and that was the formation of the Affinity Chromatography Ltd. After a while it became obvious that most of our markets were in North America, so we needed some form of alliance in North America and thus formed a joint venture with a Canadian company and then it took off from there. That company is now up and running and employs about 150 people on both sides of the Atlantic.

GOWN: *Do you still sit on the Boards of Directors of this company?*

CRL: No, I have no contact with it at all other than I'm a shareholder of course and I watch the share price.

GOWN: *Was it easy to let go of it?*

CRL: It's a natural process you know. What happens – I'm putting a research hat on now – is that the research moves on and the company moves in a slightly different direction. It's taking some of your original technology and putting it into the marketplace. By the time they get it to the marketplace, you've moved on to do other things as well; so, no I don't think it's painful at all.



Professor Chris Lowe © IoB

GOWN: *So you still saw yourself as primarily being a researcher?*

CRL: Absolutely! Everything the company is doing even today was almost all started by me and I'm fairly happy with that. I'm quite happy to watch it, just let it go, and I look at the share price, keep an eye on it. We have another one called Affinity Sensors Ltd which was initiated entirely from here (IoB) in collaboration with an electronics company, Plessey. We set up the first deal in the UK, sponsored by the DTI, to link a pharmaceutical company, which was then Fisons, with an electronics company [Plessey]. That was the first in the UK and I was involved in putting that deal together. That then led to a military application called the 'resonant mirror'. The company isn't that large – about 50 people – but it's a product that's still up and running.

GOWN: *In the case of Affinity Chromatography it sounds like it was quite simple to get the funding because you had contact with the multimillionaire who provided the initial funding.*

CRL: He bankrolled it initially and then we started to sell products quite quickly because in that case we were selling into the biopharmaceutical industry. It was a service to them, it didn't have

a long lead up time, and so we were able to get actual sales quite quickly.

GOWN: *So as a service-based firm it had lower start-up costs?*

CRL: Yes, quite a lot lower than we would usually expect. We had a very good relationship with Novo Nordisk and we produced – I say we, most of the research was actually made here in the Institute – but then with the company took it forward and that material produced Factor 7, a clotting factor; this is now the first of its type to go through the FDA [Food and Drug Administration]. I'm very proud, as it came out of here; all the work was done here originally.

GOWN: *By senior academics, post docs or by PhD students?*

CRL: Well, either by senior academics or PhD students or post docs.

GOWN: *And have they remained to work on the research after that?*

CRL: No, it was taken in house at Novo Nordisk and they put it right through the whole process, including all the validation for the FDA. That has gone through the FDA now and it's the first design system for a pharmaceutical protein anywhere in the world. So something to be proud of. It's interesting that Factor 7, when it started, was not considered a large market to biopharmaceuticals; it was originally about \$300-350 million a year. But now the latest estimates, because it is been used for other applications, upped that to about \$1 billion a year.

GOWN: *Have there been any cases when PhDs have formed their own companies?*

CRL: Lumora was an example of that where we had a post doc as opposed to a PhD and with one of our members of staff, Jim Murray. Originally it came out of some of the work done with Jim but I didn't have anything to do with that as I had so many things to do, so they took it ahead and had support from Germany, from a number of German sources and the support came from one of our people on our Master's course in Bioscience Enterprise (MBE). He has lots of contacts in the German financial industry and they put money in to set it up and get it running and so on, so that one was set up that way. We had a company set up from our Master's course but I don't think any of the PhD students have set up anything to my knowledge.

GOWN: *The people on the master's Course people must be slightly more business oriented.*

CRL: Yes of course! What we try to do is to engineer it so our MBE people talk to our PhD students so that there's a bit of interplay and hopefully something will come out of that! But with one of them, the one that won the prize 2 years ago [bSure] set up by Dr. Nora Szasz, I think is about to be sold at a reasonable profit. We helped out quite a lot with that here in terms of getting the patent sorted out and also allowed her to do some experiments here, just to exemplify their thinking. We had quite a hand in getting that off the ground. Very satisfying, as well.

GOWN: *It sounds like the Institute of Biotechnology is a good place for new ideas and ventures to be incubated.*

CRL: It's mostly about providing the right environment I think and we try to encourage people to do it if they want to. But we don't encourage people to do it if they don't want to, it's up to them. There are people who come and do their PhD and they want to go on to a more stable environment, like GSK or whatever, and there's nothing wrong with that either. But you know there are some people who don't want to do that, they want to go out and do something themselves.

GOWN: *Does it help that in your field there's a relatively small number of big companies that you can work with.*

CRL: You can say that but if I take the Smart Holograms Ltd as an example, it's a rather unusual example in many ways. It's a generic technology that you can apply to almost every sector you can imagine; if you then look at it in that context you can link it with every big company in the world! So it depends on how you look at it. The difficulty there is in deciding exactly where you want to take that technology and where you are going to put your effort in, as opposed to licensing or whatever. Our strategy is to stick to the high value biomedical applications which we will develop in-house, then all the other applications will be licensed out. There'd be some R&D involved in it but basically you'd license out all the other opportunities, of which there are multiple ones. It's a big market, which is why the company's doing so well; it's a unique technology.

GOWN: *What kind of advice would you give to budding entrepreneurs? What would you say if they've been researching for 2-3 years and they have their bright idea; what should they do with that idea?*

CRL: Well assuming they own it and have got access to it all, which is of course the first thing to do – make sure it is well tied up, so that you own it, you have it protected – then I think, providing you believe in it, and it's going to work, then you go for it.

GOWN: *Just go for it?*

CRL: Yes, just go for it; why not?

GOWN: So present your ideas to whoever you can?

CRL: Yes, well it depends on what sector it is. Some are easier than others, quite frankly. Software for example or some of the engineering ones are relatively straightforward because it's almost a finished product right from square one and then it's how you market it that counts. A lot of the biosciences stuff you have a 5, 6, 7 year lag period before you get to market. What we're now doing with PsyNova [a therapeutic company] is going to take at least another 7 years, I'd guess.

GOWN: And that's looking for further funding from the research councils to keep things going on?

CRL: No, well we are looking for all sorts of funding but we have VC money lined up for that now. We're just doing the legal due diligence and hopefully we'll have the money in the bank by the end of the month.

GOWN: And the VCs take their little equity stake of the venture.

CRL: 'Little' did you say? No, things don't work that way. You know, the riskier it is at the start, the more they take of course, so as you build up the value the percentage they take gets smaller and smaller. So the secret is to try to build it up as much as possible before you take VC money because you don't want them owning all the company. But the danger is that it takes longer to build up that way. You see you have to balance how fast you want to get it in the market versus how much equity they'll pinch.

GOWN: So for the first time entrepreneur it's possible that they may have to settle for whatever the VCs offer.

CRL: Well, I don't personally think there's any shame in giving away a part of your company, if not a lot of it, as long as you get it up and going. I mean to me, 1% of 100 million is worth more than 100% of nothing. If you look at it in that sense then it's just a matter of how you balance these things. Unfortunately a lot of younger people particularly, overestimate the value of what they have. That's one of the first mistakes every young person does – they think that this is the best thing since sliced bread. Now what they're not taking into account is the fact that it's got to be made, it's going to be developed further, go through all the appropriate regulatory hurdles – that costs serious money! So someone taking it on is going to put really serious money behind it and therefore the value to them is much less. You know, a lot of younger people particularly don't understand that equation. The argument is that research is say 1, development is 10 and marketing 100, so it goes to a 1:10:100 ratio. So in that sense you pay 1% for the research you see. You can see what I'm trying to get at. It's true. With Cambridge Sensors, it took 12 years to get to where we are now, 12 years of development. I don't know how much money has gone into it, probably quite a lot. But it is a nice little product, people out there like using it.

GOWN: So it's not only about making money but doing something that is beneficial to yourself and other people.

CRL: It's also about a degree of satisfaction as well. I personally like the satisfaction of seeing some of the work we did, holography for example, commercially exploited. When I look back over the research history of that and I look at some of the comments made by referees and research councils and so on it really makes me smile, quite frankly. All the work that went originally into Affinity Chromatography, now Prometic, all that work was turned down by the research councils. And just to show that it isn't just me, the guy who did the Transgenic Tomato that's been on sale in the US for years was also turned down at the same time as ours. We've compared notes on that since. So the holography was heavily criticized by the research councils, saying "that's going to go nowhere and you're not getting funded anymore". This is where you have to believe in what you are doing. I believed in that product and still do; it has tremendous opportunities in front of it now. You have to stick with it and if you believe in it, you stick with it until you get it right.

Sometimes it's not obvious how right it's going to be until someone comes sideways at you. You don't always see these things and the holography was one of those. The reason we got into that in a big way was that we could see the security applications of it, making really secure holograms and that's what made us think about "okay we can do this, we can do that now, we can start to build in some complexities", and from then onwards we thought "hang on, there's lots of biomedical applications as well".

It does take a while, that's the point I'm making to you. We've had Smart Holograms running for quite a long time. We tried to produce a business plan 8-9 years ago and it was a miserable failure because we could only see certain things at that stage and it took a few of these lateral things to come in before we really started to realize what you could do with that. We transformed the whole business plan overnight. For example, Akubio, a company from the chemistry department with in my view relatively straightforward technology compared to what we're dealing with, that has not proven particularly successful. They've put a lot of money into the technology, maybe 3 million or so, and it's really not taken off. People say "Look at that lot, they've put a lot of money into that and nothing came out of it, why should we put money into this?" and it's true, it does happen.

GOWN: So sometimes it has nothing to do with the technology itself but rather the confidence of the market.

CRL: Yeah, just whether the market is willing to invest in something, which the general public might not accept. It's as simple as that.

GOWN: So you've gotten lucky in that there have been times when you had people believe in the technology as much as you have.

CRL: Yes! If you can demonstrate that you really do believe in it then they will fund it. A track record helps of course! With ACL, Affinity Chromatography Ltd, they backed us for that and I had no track record prior to that and that's because it was obvious that the technology was a good technology – which it was, a world leading technology – and secondly because we believed in it. And that's what they're backing; they are backing you as an individual.

GOWN: So becoming a successful entrepreneur comes down to having a certain personality?

CRL: Personality has a lot to do with it! I sit on the university venture capital committee as you know and we have all these guys come in to make presentations. Quite honestly, some of them I wouldn't back, I don't care what they came up with, because you're looking at the individual, and you're asking "would I back that person now? Would I give him my personal money to invest in anything?" and if the answer is no to that, forget it, it doesn't matter what they're selling. And on the other hand you can get a guy coming in with much less well developed technology but because they have the mindset where they're flexible and move around and clearly they can sell things, you might well back them.

It's not just being a salesman; you need to have something behind it. That's especially the case in high tech. You need to have a reasonable knowledge of the technology, it doesn't have to be world shattering, world leading knowledge, but it has to be enough to really repudiate what the plus points and the minus points are, so you can be realistic about it. Then you've got to have that outgoing personality to be able to actually take it out there and sell it.

Resources for the Entrepreneur

Cambridge University Entrepreneurs (CUE)
<http://www.cue.org.uk>

As an organisation run by and for the benefit of students, CUE aims to encourage an entrepreneurial lifestyle among its members. Its business plan competitions form its focus: the 50k CUE Business Creation Competition (CUEBiC) and 3P – People, Planet and Productivity. Competitors are offered mentoring advice from experienced entrepreneurs and access to the wider Cambridge scene.

Cambridge University Technology and Enterprise Club (CUTEC)
<http://www.cutec.org>

Another student organisation, CUTEC also aims to provide assistance through access to experienced entrepreneurs. The centrepiece of its year is the annual Technology Ventures Conference.

Centre for Entrepreneurial Learning (CfEL)
<http://www.entrepreneurs.jbs.cam.ac.uk>

Based in the Judge Business School, the CfEL was launched in September 2003 with a mission to "Spread the spirit of Enterprise". It offers a range of courses, including the popular "Enterprise Tuesday" programme, a free evening programme open to all Cambridge University students and staff, in which business people introduce the basics of technology enterprise.

Cambridge Enterprise
<http://www.enterprise.cam.ac.uk>

Cambridge Enterprise is a recently formed University body that brings together the commercialisation activities previously undertaken by the Technology Transfer Office, the University Challenge Fund and the Cambridge Entrepreneurship Centre. Cambridge Enterprise can provide advice to prospective entrepreneurs on matters such as routes to commercialisation, licensing, forming a company, and protection of intellectual property.

Cambridge Network
<http://www.cambridgenetwork.co.uk>

Founded in 1998, the Cambridge Network brings together like minded people from the worlds of business and academia. Networking events provide opportunities to discuss ideas, look for advice, or find prospective partners, customers or funding.

Cambridge Angels
<http://www.cambridgeangels.net>

If you think you're ready and serious about starting a company, Cambridge Angels is one of the investment opportunities available. They invite the submission of business plans on their website. Usefully, the website provides a chapter on writing a business plan from Jack Lang's excellent book "The High-Tech Entrepreneurs Handbook".

*Pleasure or
Propaganda?
Art of the
Qing Court
at the Royal
Academy of
Arts*
Joyce Liu



Annoymous, *Portrait of the Xiaosheng Empress Dowager*, Qianlong period, 1751
Hanging scroll, colour on silk © The Palace Museum, Beijing

‘China: The Three Emperors 1662-1795’ is the Royal Academy of Arts’ contribution to the ‘China in London 2006’ campaign devoted to the promotion of Chinese culture in the British capital. The exhibition is an ambitious survey of Imperial China’s tremendous capacity as a sophisticated cultural producer of aesthetic objects by highlighting the ‘golden age’ of fine art production in the Qing Dynasty. During the reigns of a father-son-grandson succession of the three most powerful Emperors of the Qing Dynasty – Kangxi, Yongzheng and Qianlong – art patronage was used both as a symbolic and political instrument to depict peace, prosperity and order in China.

Both aesthetic pleasures and political meanings are moulded into some 300 objects including refreshing varieties of ceramics, paintings, poetry scrolls, textiles, and jade sculptures currently on loan from the Palace Museum in Beijing. The first room

features full length portraits of the three Emperors, adorned in magnificent yellow silk robes embroidered with dragons of exquisite detail. Despite the impressive magnificence of these emperors, it is the portrait of a lady who steals the limelight from them. Painted in 1751 to commemorate her sixtieth birthday, the portrait of the Empress Dowager, as the mother of Qianlong Emperor and the Imperial matriarch is strikingly grand. While seated on a throne adorned with ten dragons, she wears an exquisite winter Court dress and a pearl studded crown, and her expression betrays more than a subtle hint of condescension.

In the following room, anonymous Qing Court artists were responsible for capturing scenes of everyday life in the Courts of the Emperors. Long silk scrolls stretching to 12 metres show minutely detailed scenes of the emperors' entourage, including the micro-expressions of grins and grimaces on the faces of soldiers travelling with the Emperors between the Forbidden City and other palaces. In *Bird's Eye View of the Capital*, completed in 1767, we see a spectacular architectural perspective of Peking (modern day Beijing) painted in a perfunctory, rather than an artistic manner. Evidently, there was an underlying political purpose behind the creation of this city blue-print, in order to emphasise the progress and prosperity of the capital.

The three Emperors also depicted themselves in multiple roles as warrior, intellectual, and patriarch ruler. Descended from the Manchu warrior tribesman who invaded northeastern China in the twelfth century, these Emperors used art to



Lang Shining, *The Pine, Hawk and Glossy Ganoderma*, 1723-35, hanging scroll, colour on silk
© The Palace Museum, Beijing

synthesise Chinese and Manchu lifestyles and attitudes. For example, religious Buddhist scrolls were written in both Chinese and Manchu languages. The Court fashion and hunting portraits deliberately portray the ethnic Manchu heritage. In a series of portraits, the Imperial Concubines are depicted wearing three earrings on each lobe, while the princes and Emperors are frequently shown hunting and horse riding through mountains and forests, the favourite activities of Manchu tribesmen. Aside from being skilled huntsmen, the Yongzheng and Kanxi Emperors were also elegant Chinese scholars, as demonstrated by their poetry and calligraphy, while the Qianlong' Emperor was an aggressive arts patron who reflected and commented on everything he collected.

In fact, it was during the long reign of the Qianlong Emperor (1736-1795) that the synthesis between Eastern and Western art intensified. As a result of the artistic diplomacy extended by the Catholic Church, Jesuit missionaries brought with them new material and knowledge of mathematics, sciences and styles of art production to China. A key intermediary was Giuseppe Castiglione (1688-1766), presumably known also as Lang Shining,



Lang Shining, *Springs Peaceful Message*, c. 1736
Hanging scroll, ink and colour on silk © The Palace Museum, Beijing



Lang Shining, *The Qianlong Emperor in Ceremonial Armour on Horseback*, 1739 or 1758, hanging scroll, ink and colour on silk
© The Palace Museum, Beijing

an Italian monk who became a favourite painter in the Courts of Yongzheng and Qianlong Emperors. In paintings of natural scenes such as Qialong Emperor Shooting Deer, *The Qianlong Emperor in Ceremonial Armour on Horseback*, and *The Pine, Hawk and Glossy Ganoderma*, Castiglione combines western perspectives of animals, with Chinese subjects and themes. The novelty of these 'fusion' paintings served as a public relations instrument that reinforced the Emperor's image as the powerful and fearless commander-in-chief. Thus, the art of the Qing Court reflected interdependence between the political and cultural strategies of the Emperors.

Like every exhibition, 'The Three Emperors' is not without its weaknesses. The show was one-sided and I would have liked to see more art works which embodied eclectic and even dissenting visions of the Qing Court. If possible, the exhibition might also have included objects from Taiwan's National Palace Museum, another main repository of valuable Chinese art, controversially established in Taipei during the last years of the Chinese Civil War in the late 1940s. Despite these shortcomings, I finally discover some of the exhibition's finest works located in the penultimate room. Devoted to Chinese landscape paintings, calligraphy, and poetry by the literati, a respected class of intellectual scholars from outside the Forbidden City, the works in this room alludes to the

nostalgic and emotional sentiments of the fallen Ming Dynasty that preceded the Qing Court through their realistic and abstract portrayal of nature. The ink-splash style paintings by Shitao, Wang Shimin, and Gong Xian are particularly worth a closer viewing.

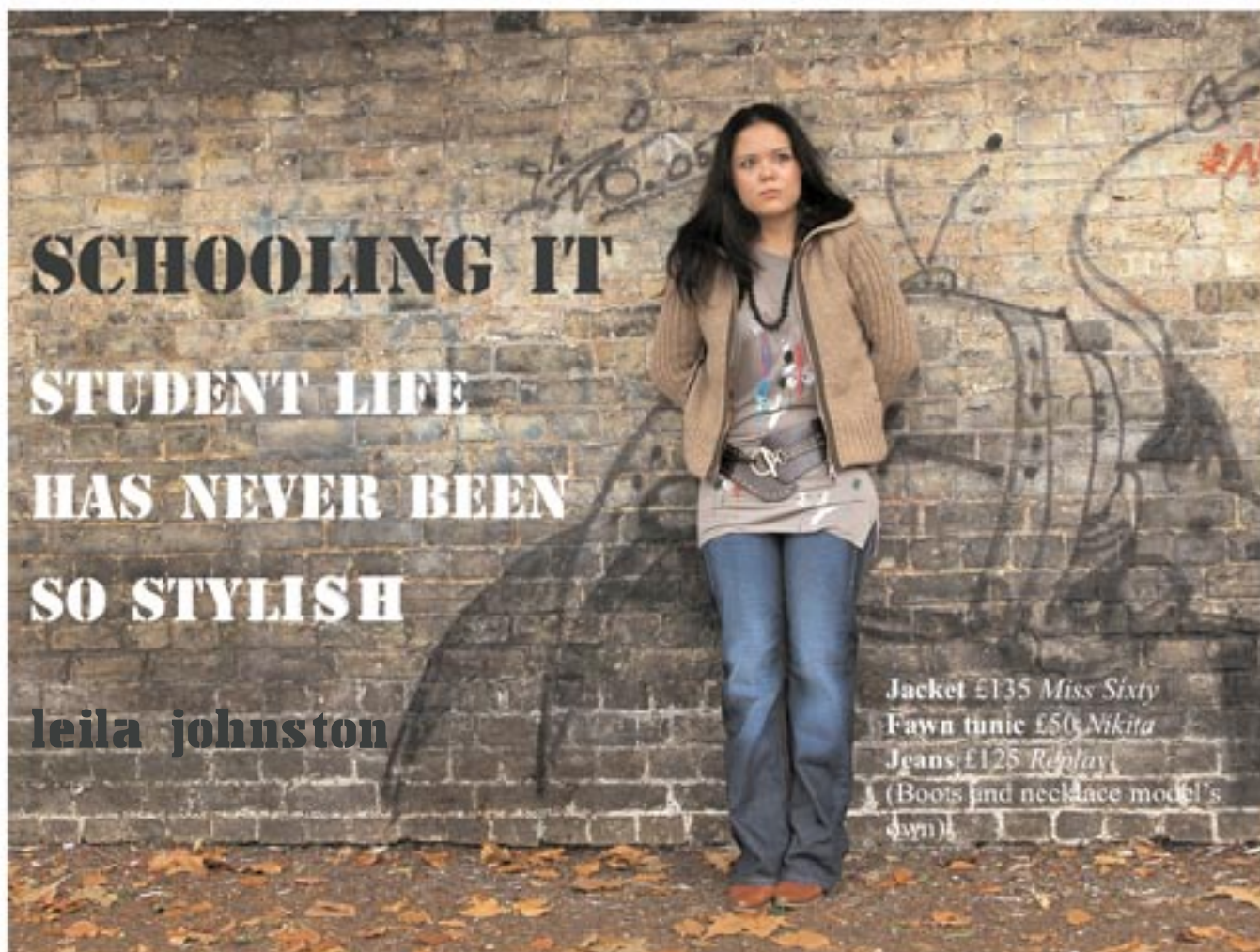
In retrospect, the message of 'The Three Emperors' is clear: in order to sustain itself and perpetuate longevity, a superpower needed to cultivate an auspicious and stable universe. The workshops of the Forbidden City produced artworks used by the Emperors for instrumental and intellectual reasons. The exhibition emphasises how the symbolic production of meaning reflected a golden age in the Qing Dynasty; however, the exhibit gave the viewer only a selective view, omitting art that might have intimated at the foreboding signs of the turmoil and chaos that would eventually lead to the fall of the Qing and the end of the Chinese monarchy in the early 20th century. Ultimately, as the last governor of Hong Kong Chris Patten says, the 'Three Emperors' exhibition is good to think with and reflect on the past, present, and future of China and its enduring civilisation.

China: The Three Emperors 1662-1795
Royal Academy of Arts, W1, until April 17th 2006.

Tickets £11, £7 (student concession)
<http://www.threeemperors.org.uk>



The Nine Elders of Huichang, 1787, green jade boulder
© The Palace Museum, Beijing







Black top (above left) £75 *Miss Sixty*
 White Coat *Firetrap*
 Green top with polkadots *Miss Sixty*
 Jeans £125 *Replay*
 All clothes available from **Revolution**
 Cambridge 01223 328288
 Sarah modelled for us on location at
 Kings College, Cambridge.

Cultural confusion is a clothes horse with a garish hangover

Katie Turnbull

British culture is possibly a little ill-defined at present. Research by the CRE (Commission for Racial Equality, 2005) found that the average British person's concept of 'Britishness' was a mess of unbelievable proportions. Findings presented Brit identity, amongst other things, as an affiliation with the national symbols of the Union Jack and the Royal Family; critical elements to our sense of national identity – how rich our cultural reference point must be to call upon such institutions. Furthermore, our great values were identified on a sliding scale from 'politeness' through to 'hooliganism'. There appears to be a limited space for aesthetic cultural forms, in this admittedly simplistic analysis of Britishness.

So what's my point? I ask myself the same question. As we hear so often these days, society is in that state of flux and cultural crisis that is the aftermath or 'midmath' of the big giants known as Globalisation and Multiculturalism. It looks as if our little collection of isles has fast become party to a kaleidoscope of ideas and new waves of aesthetic values. Well if you have been to India, you must have bought the T-shirt, a souvenir that now come in the form of the alternative-look beaded sandals that yell 'ethno-liberal and individual.' This sparks the question, 'where is the Brit in Culture?'

I vaguely remember Brit culture being given great exposure of a surprisingly positive nature in the press about seven or eight years ago, when Tony and his funky cabinet were hanging out with British pop stars (not that anything has changed) and Geri Halliwell was doing her bit for Brit girl power, by popping out of a piece of fabric, identifiable

as a Union Jack, at a prestigious British music award ceremony. Politics and music are not so far apart, and Tony and Geri actually have far more in common than one might think. Tony Blair originally started out on his ladder to fame in a rock band, and Geri ended up looking for credibility as a UN Ambassador of Goodwill – a brief career, rather unsurprisingly, in both instances.

In order to investigate the existence of British culture on a more local, day-to-day scale it would be of interest to take issue with one of these symbols of 'Britishness'. So, for arguments sake, and to try and get to the point – there is one – we shall give consideration to the body wrap of a dress in which Geri bashed out her girl power tunes. To give them credit, the Spice Girls had real energy...also translated as real selling power, i.e. the root of trashy Pop Culture that dominates the visual and the audio mainstream. Selling out is a pre-requisite to 'artist' status, and is written in the contract before they even allow you in front of a camera lens. And like accountants, the tycoons measure their investment's progress, as their digitally enhanced voice and x-rate clothing / music video are unquestionably rewarded by the hearts, minds and cash of the masses (or their parents', as the case may be).

So back to the Brit Idol and UN Goodwill Ambassador Geri and her revealing take on the national symbol of British Pride. She wore it well. But just how far can this cultural heirloom go in a fast paced world of consumer fashion? The flag obviously wasn't enough for Geri. So what constitutes Englishness in the clothing industry? Is there such a thing? Most readers would have noted the high street clothing





© Morguefile.org

ranges on display for the past few months, and would most definitely have bought something; even if it was just a huge tropical flower accessory for that bar crawl you went on last Saturday. There are only a few things to say. Fashion has become its own victim – we could see the early neurosis of the fashion retailers' rearing its ugly head a couple of years ago, when day-glow yellow waved the flag for an 80's revival.

It is simple – Individualism has gone mad! Over patterning, clashing tones and corrosive colours have reached a peak, but there seems to be no end in sight, for this mass-scale destruction of style. It looks as if a military operation was planned and implemented overnight, whereby 1,000 SAS trainees were ordered to paintball the entirety of high street clothing collections – some kind of bizarre inspiration brought to some fashionista and her military husband one night, whilst watching a marathon special on 'Changing Rooms'.

You are no longer able to walk into a once respectable, by high-street student standards, shop and buy a little black dress. That dress has evolved – no, mutated – into a sparkly, sequined, shiny, plastic-fabricated, pleated baby-doll dress of brutishness. That's brutish, not British, but you will be forgiven for thinking they are one in the same, judging by the fashion collections that have created these shop floor eyesores. You know which items of clothing we are referring to here. It's as if every possible design, from every conceivable era and culture, has been randomly scrap-booked together, to give you that 'unique look' for the season. It's a fashion massacre. And for such an exposé of choice, there is so little to choose from. Clash is hip, but

it requires a certain degree of complementarity – all value judgements I know. However, this is a long tried and tested basis to fashion, which has been flung out of the window and replaced by an inconsistency of ideas. It is obvious that we are moving toward a trend of wearing less than nothing, but a skirt still needs a top and vice versa.

Clothes are taking on a life of their own – the jockey is being ridden by a horse called 'global consumerism'. It's overstepping the mark when clothes become individual, attributed with a sense of self and a right to be garish if it wants. I say we fight for human rights – the clothes are taking over! It's time that clothes stopped wearing us and we started wearing the clothes. Readers, you have seen them – there is a fashion victim that passes you everyday, looking excruciatingly uncomfortable because the clothes are so much more charismatic than them. A plea to the fashion industry – we would be much more flattered and less stylistically challenged if you didn't make our wardrobes look as if they were the products of individualistic competition in the race for profit. The safest way through this tidal wave of excessive bohemian chic is to wear what suits you. But this is a democracy; so feel free to wear what you will. As for the future of clothes and culture in Britain, that is anyone's guess. But I wouldn't be surprised to find everybody in minimalist garb, after the sensory over stimulation of present day trends. Good luck with the fight for fashion freedom.

For now it looks like multicultural fashion is feeding consumerism, but what is feeding British Culture? Moreover what has become of the red, white and blue cool?



Letter from Hong Kong and Beijing

This December proved to be an exciting month for me for two reasons. Firstly – and this is personally embarrassing – it was the first time that I had gone to another non-English speaking country (China) alone. (I have not even been to neighbouring Malaysia on my own!) I am embarrassed to acknowledge that while I am in my twenties, I have always had at least one other travelling companion to other non-English speaking countries.

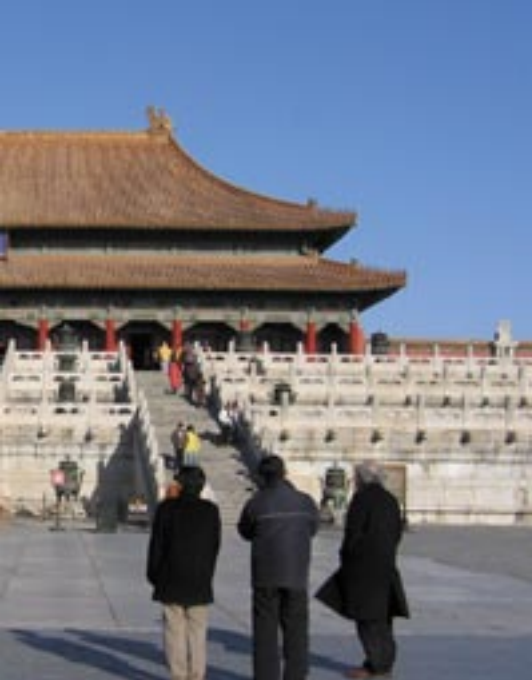
Secondly, I finally had the chance to visit Beijing, which is one of the three places I have always wanted to visit. (Washington, DC and Jerusalem are the other two cities on my list). As an ethnic Chinese, I have always been fascinated by the history and the people of China. I had particularly been looking forward to visiting the Forbidden City, the previous home of the Imperial Emperors during the Ming and Qing dynasties.

The first leg of my travels brought me to Hong Kong. It was part of my work assignment – to assist in the presentation of a paper for a conference organised in conjunction with the World Trade Organisation (WTO) Ministerial Summit. Although I had been to Hong Kong about a decade ago, it was still amazing to see how remarkably packed the city is. You see people everywhere! There really is a sense of 'buzz' about the place. It's easy to lose track of time in this city, especially since shops close late and the streets are usually quite crowded. While journeying to Jerusalem may give one a sense of religious feeling, going to Hong Kong gives one a sense of energy and entrepreneurialism – the sense that one can start a business and just 'make things happen.'

Still, what was remarkable was not so much what I did see in Hong Kong, but what I did not see – that is, large scale public demonstrations. Unfortunately, riotous demonstrations have been a key feature in WTO Ministerial meetings since the WTO Ministerial meeting in Seattle in 1999. In fact, I saw more riot police than demonstrators. Certainly, there were demonstrations (as many of you probably saw on BBC or CNN) but I cannot shake off the nagging suspicion that the demonstrations were not as serious as the media portrayed them to be.

The next leg of my trip brought me to Beijing. After arriving at Beijing Airport, I realised that I had to wait for a quarter of an hour or so for my friend to pick me up and I decided to head to a place to have a drink. I was pleasantly surprised to find Starbucks at the airport and ordered my usual drink – café mocha. As I held my drink, I reflected





on the strangeness of the situation. There I was in Beijing, an ethnic Chinese from Singapore visiting my American friend whom I met in Chicago (who was born in Hong Kong), sitting in an American chain, Starbucks, and listening to Christmas carols. It was strange to finally find myself in China and even stranger to be sitting in a Starbucks rather than a more 'traditional' environment (perhaps drinking tea in a tea-house would have been more appropriate).

What does one make of China? Like the ice-cream flavours at Haagen Dazs, there are many theories and catchy phrases one could choose from: 'The coming collapse of China'; 'Three Billion New Capitalists'; 'China Inc'; 'One billion customers'; 'Does China Matter?'; 'The Search for modern China'; 'China wakes'; 'Red Star over China'. Sometimes, one gets the feeling that we are not so much looking at China but seeing our own reflection in China.

I must confess that even being somewhat familiar with the key statistics of China did not prepare me adequately for what I saw in China – the high rise buildings, the reasonably clean streets, and the modern infrastructure. It is one thing to read about the rapid development of China but it is another thing altogether to step foot into China and see its transformation for yourself. After all, it was only 3 decades ago that China emerged from the excesses of the Cultural Revolution.

Although I was in Beijing primarily to meet up with my American friend, I squeezed in some time to meet up with professors at the prestigious Beijing University and at the influential Chinese Academy of Social Sciences. Speaking to a couple of scholars and ordinary Chinese, one gets the sense that most of them are too eager to point out the myriad problems facing China. This is not to say that they are not proud of China's achievements but that they are aware that there is still a long way to go before China can be fully developed. Most are amused or rather puzzled as to how there could be so much talk about China becoming the next superpower within 30 years or so. Yet the sense of pride is unmistakable.

In the span of thirty years, China has truly had an amazing transformation. While there is still much work to be done and many problems to face up to (especially environmental ones), it is probably true to say that the 'Chinese people have finally stood up'. But now that they have stood on their own two feet, the question now becomes, where will they go from here?



The Higher Parts of Home

Aurelie Herbelot

I was born in Savoy: a 3790 km² area of mountainous land at the Swiss border and the most Western side of the Alps. According to my mother, my natural incapacity to communicate verbally is directly linked to my origins: we, Alpine folks, are careful not to waste our rarefied oxygen on small talks. Being loyal to this ancestral tradition of silence, I beg you to understand that I would be entirely useless at describing the dazzling mountain peaks and the scent of heart-warming fondues in candlelit chalets. These things cannot be told through words. They have to be experienced.

Come to think of it, I don't really have to write anything. I am only succumbing to the temptation because it seems to me that, if my honourable reader ever visits the ancient realm of Savoy, he/she should know a few amusing facts about the area.

So there. I shall first explain that, from the times before the Roman Empire to the end of the 19th

century, Savoy was always a European country in its own right. A bit like Lichtenstein, Luxembourg or Switzerland, if you like. It had a troubled history, admittedly, which came from being so small and also because of the politicians' inability to understand that all we mountaineers really wanted was to live in peace with our families and animals. So in the first century BC, Savoy (then called Sabaudia) was conquered by the Romans and was only relinquished five centuries later, in 437 AD. One interesting episode of the Roman era is how Hannibal took his elephants through the Alps on his way to kicking the Romans' backsides. From time to time, someone finds a big bone in the mountain and claims that it belongs to one of Hannibal's elephants. Then people argue about whether the bone is correctly dated and whether it really is elephant-shaped. We also have a number of ancient potteries at the bottom of a lake nearby (Lac du Bourget, the largest lake in France) but they have the bad habit of disappearing through an underground stream.

As well as being linked to the Great Roman Empire, Savoy has its own claims to territorial expansion. Sicily, Cyprus and Sardinia were once part of its possessions and the only reason for its being part of France in 2005 is the dishonesty of one of its sovereigns who traded it for some military help in his doomed conquest of the world.

People often ask me if I come from a good wine region. The answer is no, although I may be biased by my general dislike for alcohol. To compensate for the mediocrity of the drinks, we have the best cheese in the whole entire world. I recommend you try a slice of old 'Tomme' bought from a farm in the mountains – the less cheese left after you have removed the outer layer and various greyish protuberances, the better.

As well as scrumptious cheeses, Savoy offers nice ski resorts, some of which host many VIPs and are just too expensive for you and I. If you are poor, the best attraction is the view from the mountain tops. With the environmental issues of our times, I would make the most of the experience, remembering that those vantage points – that let you see across borders to foreign lands – were at the bottom of the ocean in prehistoric times. Go for a walk in the Margériaz and you will find yourself literally treading on sea fossils, despite an altitude of 2000m.

The reason why I insist on culinary delicacies and natural wonders is that Savoy does not have many other claims of fame. Its capital Chambéry did host the famous philosopher Jean-Jacques Rousseau in the 18th century. Because he liked the landscape, liked even more the charms of his hostess, Mme de Warens, and had a gift for eating and sleeping at places without opening his empty purse, he

sojourned in Savoy for a little eternity at the Charmettes residence.

And since we are talking about famous visitors, Chambéry also looked after the Holy Shroud (the cloth in which Jesus is supposed to have lain after his death) for roughly a century. Admittedly, we nearly let it burn in 1532 – the reason for the marks alongside Jesus' body – but someone heroically rescued it from the flames, proving that the accident did not happen through a lack of care or religious fervour. It is still possible to see the niche it was kept in at the castle in Chambéry. The reason the Holy Shroud is not there anymore is that we lent it to the city of Turin in 1578, and they cunningly forgot to give it back. I don't know why we did not complain or get lawyers involved. I guess we were busy getting ready for Winter, cutting wood and making the animals comfortable. Holy business or not, you can't be late for the first snows.

This leads me, in roundabout ways, to my personal definition of home. I have lived the whole six years of my adult life in Cambridge. Somehow, the Backs and the old Marketplace feel very much like home; people I consider part of my family live here and I have come to call mine flat, frosty countryside that wakens, yellow with rape seeds, in the first days of Spring. Home, too, is the mountainous landscape and silent habits of the hard-working, nature-loving folks of the old Savoy. And I can't help but mix the oversized sun of the Fens with the pink forests of mountain dusk.

I tell you, home is not about borders, geopolitics or mother tongue. It is the sights and memories you call your own.



This is the story of...

Rushing

Tarek Mouganie

The Rushing project began in September 2002; its aims are to deal with cultural and social identity, the thirteen imaginary characters form the basis of the project. An online forum, for individuals to discuss their ideas and present their work on being part of a third culture world, was launched in September 2005. For more information on the project and to submit work, please see: <http://www.mouganie.com/rushing.html>

The original thirteen characters established during the project are represented below. These fictitious personalities tell the story of Rushing, from the process of name giving (Matthias) to that of death (Amrit and Amal).

Ever been in the middle of a conversation where the majority reminisce over theme tunes of the cartoons they used to watch when they were younger, only to find that your eyes glaze over with ignorance? *You're not alone.*

Ever find yourself trying to say something very important in one language and yet, by its translation into the language of conversation, all meaning is lost as it escapes your mouth? *You're not alone.*

Ever discovered that your relationship is going down the drain simply because you are not understood and expect certain actions to be obvious and yet different from what is actually occurring? *You're not alone.*

Ever thought that if the question 'Where are you really from?' and the need for people to define your origins and background were removed, you'd get along better with doing what you do, where you do it? You're not alone, Rushing feels the same way.

Rushing was born on the 16th of September 2002. His father, who was of mixed origin, died at that precise stage in his life, leaving him with nothing but his name. Now, don't get me wrong when I say he was born on the 16th of September, for our dear Rushing existed way beyond then, however, he lied in a dormant state until his emancipation.

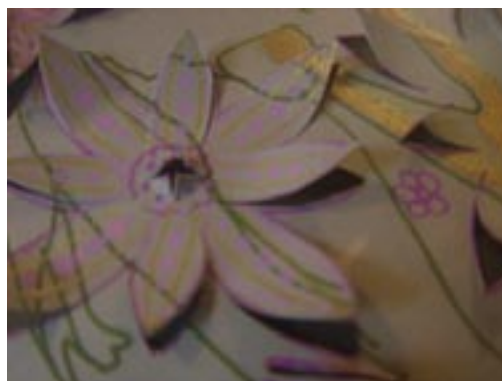
Rushing was a beloved friend of mine and this is his story, told in my own words. However, I feel that the best way to understand Rushing is to meet his friends; he was an extremely introverted person and, well, let's just say his friends help us understand who he really was and tried to accomplish...

The first one up is Matthias; he's the sporty one of the lot and the first person Rushing grew close to after his father's death on 2002. A professional marathon runner always on the go, Matthias is the first born of quite a large family and a lot was expected of him; he'd be a doctor or a lawyer, depending on which parent you'd ask. After meeting Rushing during college, Matthias decided to pursue his career in sports and has done a good job of it, he's won several gold medals and runs his own sports camp for disabled kids.



Matthias

Melanie and Phoebe



All images in this article © Tarek Mouganie



Abigail



David

Melanie and Phoebe are the identical twins that kept Rushing on his toes. Both are incredible flirts but polar opposites – our dear man was besotted by the both of them and kept going round in circles. If only his heart weren't a hotel.

Abigail is an old family friend that Rushing kept close simply because she reminded him of his mother who died during his birth. Abi is nothing but a selfish soul that used Rushing to verify the choices she's made during her life.

One thing I must add is that Rushing was an extremely generous man with his time. During one of his summer breaks, he worked with Matthias and met David, a teenager paralysed from the waist down. David and Rushing grew very close, they spent a lot of time together and developed a symbiotic friendship that lasted till the end – they needed one another.

The summer after meeting David, Rushing left for a trip around Africa, a place he's always wanted to go. He was in the west when he met his first love, Akosua. Akosua and Rushing were not meant to be, they shared a lot of stories and experiences with one another but that reservoir was soon emptied during her reciprocal visit; they had nothing left to say to one another.

In his first year of college, Rushing was introduced to Thesauros. Their friendship was pivotal in a lot of the decisions he made in his life. Even though Thesauros has a very close and tight family relationship, I've always admired it; it certainly has helped Rushing along his way.

During a Christmas Eve dinner at David's family home, Rushing met David's older brother Daniel and his former partner Antigone. Daniel and Antigone's relationship intrigued Rushing simply because it was selfish. Everyone looked up to Daniel; he was the doctor and the breadwinner of the family, he was also the epitome of what Matthias detested. Antigone was silent throughout the dinner.

After a fling with Melanie, Daniel married Phoebe a few years later; they now have two kids and are very happy together. Rushing takes pride in his introduction, well, one of them at least.



Thesauros

Daniel



Antigone





Dakota

On that same festive holiday, where Rushing met David's family, he decided to visit his childhood home; it was his form of facing the ghosts of his past or, as he put it, a cleansing ritual. There, in that house, was when he met Dakota.



Immanuel

Rushing never forgot how he met Dakota, and every time he told the story it would go the same way: she walked out of the house in her pyjamas and held him by the hand, but as she was only five years old, she could only fit his middle and index finger in her palm. She then led him to the back garden to show him the Christmas tree. This was no ordinary tree though, it had engravings on it as well as the seasonal tinsel, engravings of the names of the past guests that visited the house, including Rushing. He soon discovered that his mother had written it on the tree when she had conceived him; her name was on there too. Dakota's family simply carried on the tradition.

Sofia



Soon after breaking up with Akosua, Rushing met Immanuel, his second love. Immanuel was a naïve and vulnerable individual who caused Rushing to lose his true love, Sofia, whom he'd known for years and yet knew nothing about. Sofia and Rushing fell in and out of love throughout their lives and are now, after years of separation, both settled with people that remind them of their former loves.

This, my dear readers, is where I come in. Amrit, my husband, and I, Amal, met Rushing during his last years. He spent many days in his hospital bed telling us the stories of his loved ones, those he met throughout his years and those that left him behind as they moved on with their lives. Most of them visited him, although those that meant the most to him kept their distance.

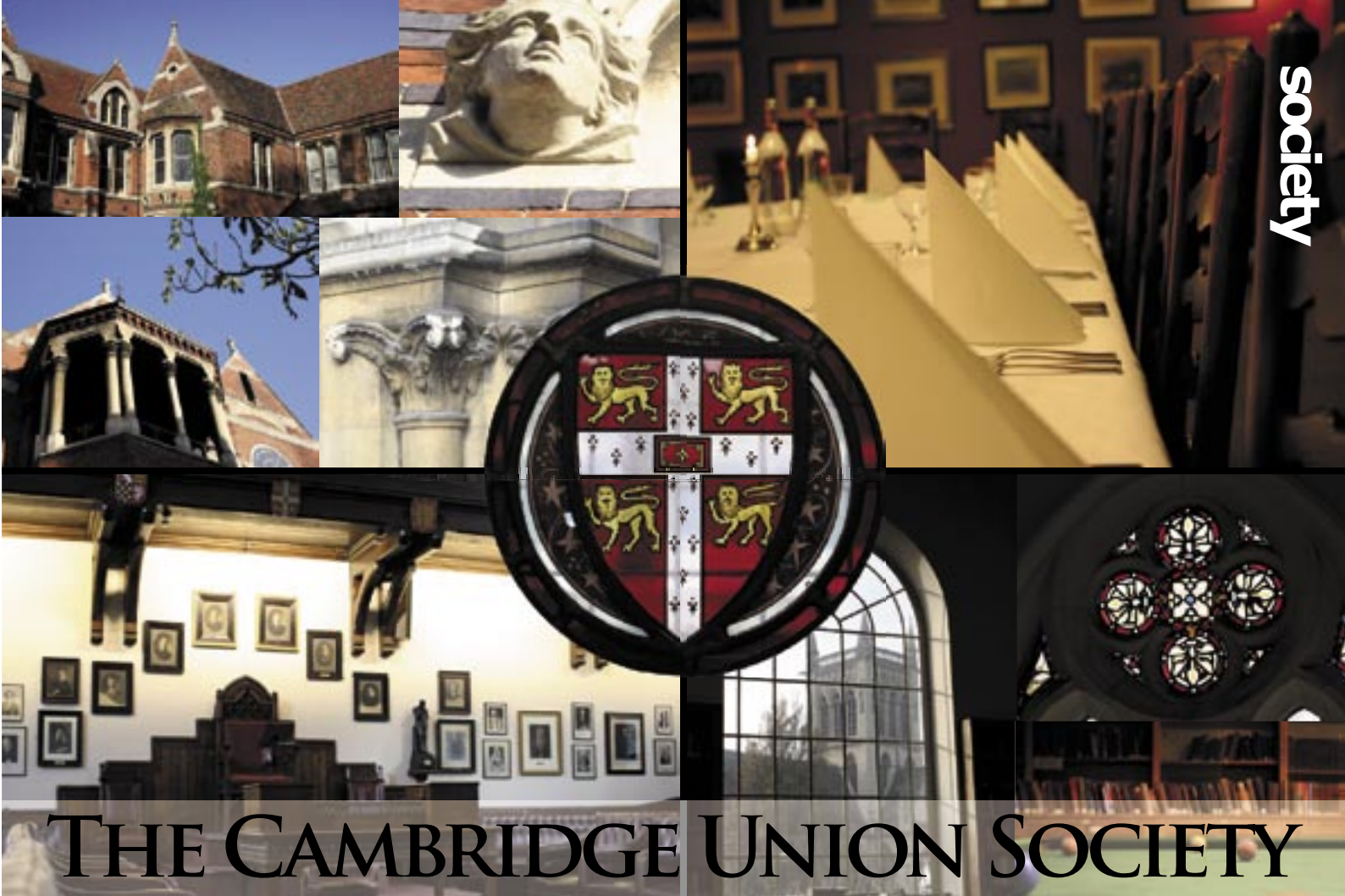
They did not know who I was nor did they have any idea about what Rushing and I would get up to during the early hours of the morning. All they did know was that by being the varying individuals that they were, and the fact that they were subconsciously dependent on Rushing, they were all one and the same.

Amrit



Amal





THE CAMBRIDGE UNION SOCIETY

Pimms, punting, prodigious professors.....aaaah all that is quintessentially Cambridge. But surely there must be more. In a random sample of students, I discovered other iconoclastic references - the thirteenth century architecture, an esteemed alumni, and, should you be so inclined, a direct trajectory to the nation's leadership roles were equally associated with students' perspectives of the "Cambridge experience."

The Cambridge experience is indeed all about seeking a balance between academic excellence and the abundant opportunities available for social networking. Nowhere is this more apparent than at the Cambridge Union Society. Almost two centuries after it was first established, this prestigious society continues to embody robust intellectual rigour and social exuberance.

The Cambridge Union Society attracts the most illustrious figures in politics, science and the arts affording Cambridge students the opportunity to engage in fierce debates with the

likes of Chief UN Weapons Inspector, Hans Blix, the Chief of MI6, Sir Richard Dearlove and Sven Goran Eriksson. As well as the famed debates, the Union also hosts enlightening round table discussions and speaker meetings with key opinion leaders. From inequities in the developing world to political inequities, the Union grapples with the contentious issues of the day directly with those in power.

When not jousting with eminent personalities, Union members are to be found indulging the plethora of exotic entertainments on offer. Masked Balls, Jazz and Cocktails, wine and chocolate tastings and the most tempting, ice-cream giveaways are just some of the delights available. In the words of Entertainments Officer, Katie Harries, "debauchery, decadence, and frivolity sum up entertainments at the Union - and all contained within a Grade II listed building!"

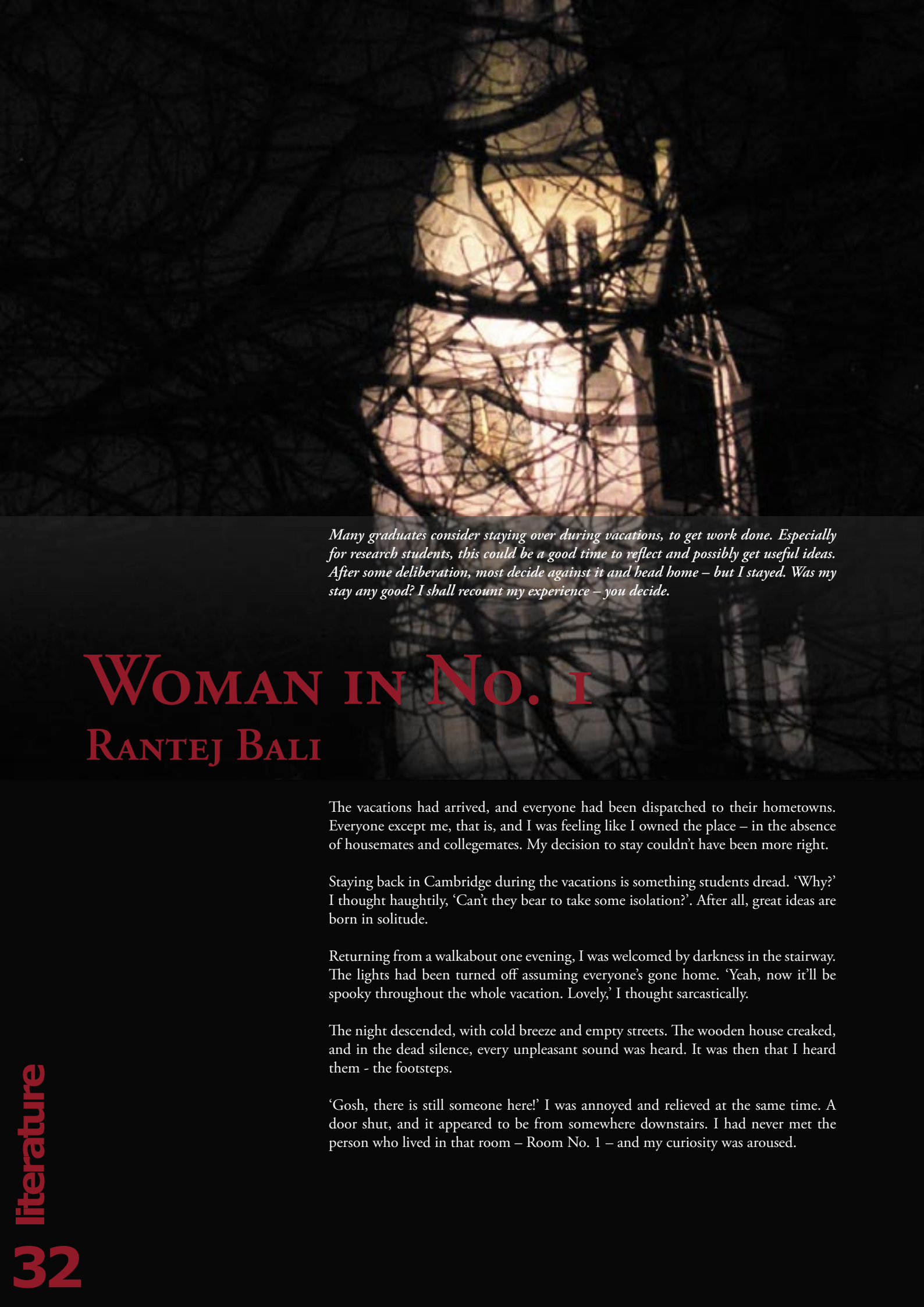
If respite from academic life is what you need, the Union offers the Moutbatten room where members can enjoy the daily papers over fresh coffee or relax

over a game of pool next door. For stunning views of St John's and the largest selection of fiction outside of the UL, visit the spacious Keynes Library with it's astounding repository of 30,000 works. If the idea of transgressing those college boundaries appeals to you, then the Union bar is the perfect place to mix, mingle and fraternise.

The Cambridge Union uniquely provides its members with access to opinion leaders as well as a rumbustious social life, maintaining its position at the epicentre of the Cambridge student experience.

All that remains is for you to get involved and make the most of what's on offer. Check out the website at www.cambridge-union.org for full details of this terms events then come along and join in. You never know - you may find yourself rubbing shoulders with George Galloway or even the more salacious Sex and the City star, Kim Cattrall.

*Seema Yasmin
Press Officer
The Cambridge Union Society*



Many graduates consider staying over during vacations, to get work done. Especially for research students, this could be a good time to reflect and possibly get useful ideas. After some deliberation, most decide against it and head home – but I stayed. Was my stay any good? I shall recount my experience – you decide.

WOMAN IN No. 1

RANTEJ BALI

The vacations had arrived, and everyone had been dispatched to their hometowns. Everyone except me, that is, and I was feeling like I owned the place – in the absence of housemates and collegemates. My decision to stay couldn't have been more right.

Staying back in Cambridge during the vacations is something students dread. 'Why?' I thought haughtily, 'Can't they bear to take some isolation?'. After all, great ideas are born in solitude.

Returning from a walkabout one evening, I was welcomed by darkness in the stairway. The lights had been turned off assuming everyone's gone home. 'Yeah, now it'll be spooky throughout the whole vacation. Lovely,' I thought sarcastically.

The night descended, with cold breeze and empty streets. The wooden house creaked, and in the dead silence, every unpleasant sound was heard. It was then that I heard them - the footsteps.

'Gosh, there is still someone here!' I was annoyed and relieved at the same time. A door shut, and it appeared to be from somewhere downstairs. I had never met the person who lived in that room – Room No. 1 – and my curiosity was aroused.

The next day brought an inch of snow that quickly melted, but it was good amusement in an otherwise uneventful day. Up in the common kitchen, I was lost in my thoughts while watching a boiling pot. 'I'd like to use the microwave,' said a voice, startling me. 'The one downstairs is out of order,' the voice continued. I turned around, and only managed an 'Okay'. There stood a woman in a black overcoat and large hat. Her long hair deliberately covered most of her cheeks. The rest of her face was pale with high cheekbones. A pair of tinted glasses was perched on her broad nose, concealing her eyes. She turned to use the microwave, as I searched for any familiar features. 'So you live downstairs, in No. 1?' I asked, trying to break the eerie atmosphere. She continued to stare at something, presumably waiting for her snack. 'Yes, in No. 1, for 3 years now.'

'That's unusual,' I thought aloud. Students normally had to move every year, a college requirement everyone loathed. 'I live in No. 4, directly above yours.' I tried to sound friendly.

'You're staying over during the vacation?' she asked. 'Yes I am, and until now it's been okay. Wish the stairway lights were working though. It's a bit ungodly when I get home late at night.' I said with a grin.

The microwave gave a ring and the snack was ready. She took out her food and turned towards the door, all the time facing away. 'Don't worry about the lights, you'll get used to it. Have a good vacation,' she said and left as quietly as she had come in. There were footsteps, and then the door shut.

'Yeah, all I needed is an unfriendly housemate to stay over with,' my sarcasm reaching new heights. 'Have a good vacation she says, ha.' This was the only conversation I had with anyone that day.

The night was a sleepless one, the breeze continued, the house creaked and the footsteps echoed. Suddenly, staying behind for vacation became a bad idea. 'Should have gone to London and stayed with friends,' I thought, drifting in and out of slumber.

Suddenly, there came a piercing, insane laughter. I jumped up, and looked at the time. It was 2:15 AM and rain was pouring down. 'Must be drunk people on the street,' I thought, and fell back into the bed. The rain had made it cosy inside, and this time sleep engulfed me.

It was then that I heard the most horrific blood curdling scream. 'Aiiiiiii!!!!!!', it seemed to be a continuing dream, though I was awake now and my heart was thumping, and I was sweating profusely. It was 3:15 AM, and still raining. This needed to be investigated, for it was just outside my room. 'Oh what the hell, she must've seen a ghost.' 'Aiiiiiii!!!!!!'

it came again and I instinctively ran to my door in the dark, forgetting that I was only in shorts. It was pitch black and suddenly very quiet. Then came the footsteps and the door shutting – all in the usual sequence.

Admittedly, fear crept in and every instinct told me to flee. Holding myself together, I made my way down to room No. 1. 'Shall I knock?' I hesitated for a moment, but then proceeded to unceremoniously bang on the door. After a few seconds the door opened. She didn't turn on her lights and I caught the faint reflection of her glasses. 'What is it?' she demanded angrily. 'Why are you banging on my door at this hour?'

'Err, I heard screaming,' I fumbled, 'and thought something was terribly wrong.'

'So you had a nightmare, and decided to wake me up. You're pathetic. Can't you take a bit of isolation? Now go back and put a shirt on, you're sweating like a scared child. Hahaha.' She gave that same piercing insane laughter as she shut the door into my face. It was true; I was sweating like a pig, and now wondered how she noticed it. With a hurt ego and some relief I returned to my room, gulped some water, and feel back to sleep, exhausted.

Awakening to a pleasant and sunny morning, it all seemed like a dream, though I was sure it was real. After a relaxing shower and hearty breakfast, I decided to walk out into town, and enjoy the weather. 'Good morning, pleasant day isn't it?' said head porter John, as I passed by. 'Ah! The Porter's Lodge is open again! Indeed a pleasant day John, and a relief after last night.' 'Why? What happened last night?' he was always concerned about security. 'Oh nothing serious John, loud laughter and screaming from downstairs... No. 1, woke me up. It seemed like something was wrong, and was instead rebuked for having a nightmare.'

'Oh but you must've had a nightmare,' explained John with a straight face, 'and you must know, nobody has lived in No. 1 for three years now, not since the women there died under mysterious circumstances.' I didn't know this of course, and was overwhelmed with a numbing sensation. In retrospect, it was a blessing to have been ignorant about this ghastly detail.

That was it, I left for London that very day, and did not return until the vacation ended. I've compelled myself into believing the whole episode was a hallucination and a nightmare – that's how I've recovered.

I felt duty bound to recount my experience, in the hope that you won't make the same mistake of staying in this town during the cold and dark winter month.

Cambridge University Kickboxing Club

Soren Denim

Kickboxing started in the US during the 1970s when American karate practitioners became frustrated with strict controls on martial arts competitions that didn't allow full contact kicks and punches. When the sport began, many questions were raised about the high risk of injury. As a result, safety rules were improved and protective clothing was added. As this is a relatively new sport there are no long-term traditions. The sport has undergone changes and been refined during the last two decades. TV rights to bouts have become ever more popular, thus allowing the sport to recently take on its first professional fighters.

In the early days the rules were never clear – one of the first tournaments had no weight divisions and all the competitors fought off until one was left. A very young Benny Urquidez reached the final. Weighing in at 10 stones Urquidez faced the 14 stones Dana Goodson. Urquidez won the tournament by pinning Goodson to the floor for more than 10 seconds, which was part of the rules back then. Modern day kickboxing in its competitive form has its basis in boxing with the ring and the boxing guard, and also allows kicks to the body and head. Victory is either gained by knockout or is granted to the person who lands the most number of kicks and punches to the opponent in three two minute rounds.

Kickboxing has also encompassed itself as one of the best all body workouts and has become popular throughout the world in versions such as tai-bo and body-combat, both of which take kickboxing movements and choreographs them to music. There are many different forms of kickboxing originating from many different parts of the world, and depending on the type, the rules are slightly altered to allow variations of strikes and skills.

- **Muay Thai:** Thai boxing/kickboxing - strong emphasis on knee and elbow strikes.
- **Savate:** French kickboxing - allows the use of shoes; is also the form the university teaches.
- **San Shou:** Chinese Kickboxing - takedowns and throws are legal.
- **Bando:** Burmese Kickboxing - any part of the body may be used to strike and be struck.
- **Japanese kickboxing:** similar to Muay Thai, but elbow strikes are prohibited.
- **Full Contact Karate:** "American" Kickboxing - padding is used most of the time and in some cases body armour is used.
- **Shoot boxing:** one version of Japanese kickboxing which allows throwing and submission with standing, similar to San Shou.

The University club is now in its 10th year, and has grown in strength and numbers; most members have never done any kickboxing or martial arts before and all sessions are run for beginners and intermediates. Sessions last for between 1 and 2 hours depending on your level of commitment. Each training session starts with a warm up, followed by drill work and pad work, and finally sparring for anyone that wants to try putting their knowledge to the test. The club has been represented at the UK University Kickboxing Championships, and last year competed in the World University Championships with 3 of our fighters coming in the top 4 spots in their individual weight classes.

If you are interested in kickboxing and fancy having a go, come down to Parkside community college every Sunday of the term at 19.00hrs. All you need is loose fitting tracksuit bottoms and a t-shirt. More information can be found at <http://www.srcf.ucam.org/cukbs/>



© CUKBS

Some basic moves you could try at home include:

Roundhouse kick

Stand with the right side of your body facing an imaginary target with your knees bent and your feet shoulders' width apart. Lift your right knee, pointing it just to the right of the target and pivoting your body toward the same direction. Kick with your right leg, as though you are hitting the target. Repeat with your other leg.

Front kick

Stand with feet shoulders' width apart and arms at a 90-degree angle in front of your shoulders. Bend your knees slightly, and pull your right knee up to your chest. Point your knee in the direction of an imaginary target. Then, kick out with the ball of your foot. Repeat with your other leg.

Side kick

Start with the right side of your body facing a target. Pull your right knee up to your left shoulder, and bend your knees slightly as you kick in the direction of your target. The outside of your foot or heel should be the part that would hit the target. Repeat with your other leg.

Hetal's Guide to PhDs

The Truth They Don't Want You To Know!

<i>Time</i>	<i>Expected Progress</i>	<i>Actual Progress</i>
1st year	You learn all the background knowledge and techniques you need.	You doss/mess/lazy about having a great social life and rowing/partying/drinking/dating/being human is all that you are concerned with.
2nd year	You get all your experimental work done and have your results.	You either get all your work dumped on you at once and you have 3 days to do it all in or you still think you are a 1st year and mess about a bit with a few experiments to break up the endless parties. Nothing works whichever option you take.
3rd year	You analyse data and write up your thesis.	You suddenly realise that this is the last year you will get any money and you panic! You work your backside off day and night and still nothing works. You want to die but are too poor to afford the necessary gun/knife/pills/rope/ladder to climb up King's chapel so you can jump off the top.
4th year	You get a well paying job as a Research Scientist at a good company or you go and do a Post-doc at a prestigious University. Either option above leads to lots of well-received research papers.	You are poorer than the crazy man outside Sainsbury's that sells the Big Issue. You are so poor that you even start to envy him; he eats better than you do. Something finally works 6 months in, you fall to your knees and kiss the relevant instrument not caring that it is covered in deadly chemicals and now your lips will probably rot and fall off. You have 3-6 months to write your complete thesis as you have never even written the title since you started. You have to pass the viva, you hope that you have the Spanish Inquisition and Satan as examiners but you just aren't that lucky. You pass (eventually and with so many corrections you might as well burn the original and start again) and graduate.
Working Life	Fame, fortune and funding await you as you rise through the ranks of your chosen field	You start paying taxes for the first time in your life and wish you were a student again as their stipend is more than your wage after the Government has got its hands on it.
In the End	You die.	You die.
After Life	You end up in Heaven where you have numerous PhD students and post-docs that you never have to bother supervising. They create countless papers, which have your name on them as first author, and funding bodies line up around your lab-cloud to throw bags of money at your feet.	You end up in Hell where your eternal damnation is to do a PhD that has no hope of succeeding or ever ending. You are grateful that it is at least warm in hell, your previous lab was too cheap to turn up the heat and six of you would huddle around a Bunsen burner just to keep warm.

Who am I kidding, it will never be over. They will find my mummified corpse still gripping a test tube and a note written in my blood, sweat and tears saying "please work, please, please, I want to graduate!!!"

wanders off back to the lab bench as this is only as far as her chains will stretch

greater expectations

We welcome applications from all degree disciplines. To find out more please visit www.mckinsey.com

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