The Gates Scholar is the publication of the Gates Cambridge Scholars’ Society. Articles and photographs may be submitted on any topic relevant to the Gates Cambridge community. In keeping with the Society’s goal of representing current scholars and alumni from around the world, individual issues of the magazine usually include articles on a variety of subjects from a number of authors.

Articles that offer a window into the lives and work of current or past Gates Scholars or articles that tackle large interpretive questions relevant to the Gates mission are particularly encouraged. Highly focused contributions are welcome, but preference will be given to submissions that are of interest to a diverse cross-section of readership in more than one discipline of study. Finally, because there is limited space in any one issue of the magazine, contributors should understand that any article submitted for publication may be subject to editorial approval and modification.

The Gates Scholar is printed by Cambridge University Press.
Welcome

Gates Scholars’ Council

Chair
Rachel Pike ’06, PhD candidate in Chemistry

Secretary
Tom Johnson ’06, PhD candidate in Clinical Neuroscience

Treasurer
Robert James ’07, MPhil candidate in Early Modern History

Internal Officers
Caitlin Casey ’07, PhD candidate in Astronomy
King Lemuel Mills ’07, MPhil candidate in Development Studies

External Officers
Hamish Forsyth ’07, MBA candidate
Amparo Flores ’06, PhD candidate in Engineering for Sustainable Development

Alumni Officers
Kate Brandt ’07, MPhil candidate in International Relations
Molly Crockett ’06, PhD candidate in Experimental Psychology

Social Officers
William Liechty ’07, PhD candidate in Chemical Engineering
Vijay Kanuru ’06, PhD candidate in Chemistry

Technology Officers
Gregory Jordan ’07, PhD candidate in Molecular Biology
Jonathan Breidbord ’07, MPhil candidate in Medical Sciences

Editor-in-Chief
Aisling Byrne ’07, MPhil candidate in Medieval and Renaissance Literature

Gates Scholars’ Alumni Association

Co-chairs
Jennifer Gibson ’01, PhD in International Studies
Hilary Levey ’02, MPhil in Modern Society and Global Transformations
Andrew Robertson ’01, PhD in Molecular Biochemistry

Regional Coordinators
Boston, USA - Ashleigh Hildebrand
Cambridge, UK - Munkit Choy and Luis Briseno-Roa
Canada - Josh Morhart
Greece - Nathan Arrington
London, UK - Vinut Nagarajan
Los Angeles, USA (Southern California) - Jenn Picopco
Middle East - Trivikram Arun Ramanathan
Midwest Region, USA - Philip Geheb and Shefali V. Mehta
New York City, USA - Rebecca Jones and Susana Goldfinger
Northwest Region, USA - Cara Wall-Scheffler
San Francisco, USA (Northern California) - Nathan George
South Asia - Hua Gao and Bonny Ling
Southeast Asia - Nathan Arrington
Southern Region, USA - Wendi Adelson
Spain - Antonio Alberola Catalán
Switzerland/Germany - Moncef Tanfou
Washington DC, USA - Cyndee Carver

As I was looking through the recent list of 2008 American Gates Scholars, I was struck by the tremendous diversity of disciplines we study. While the variety was clear as I read about some of next year’s entering class, it was even more obvious when I thought about our community as a whole. In the midst of such a diverse group of scholars, the question emerges: what binds us together?

To be a Gates Scholar is to share a belief that graduate education is more than merely mastery of a subject area. We are deeply committed to our work, our results, our reading - but only because we recognize these elements as our powerful tools with which to effect change. Entire movements are born on the basis of the commentary and analysis provided by academic scholarship.

We cannot, however, start with grandiose ideas that change will occur instantaneously. Graduate study should begin with introspection. We must first question all we have been taught in the past, all the knowledge that brought us to Cambridge. The perspective this internal questioning gives enables us to turn our gaze outwards and focus on the challenges in the world around us.

But it is not our goal merely to identify problems. It is our aspiration, particularly as Gates Scholars, to propose solutions. We have given a commitment - conscious or not - to proffer answers to the questions we raise. And it is to the crafting of these answers that we bring the historical perspective of the humanities, the precision and technology of the sciences, and the creative approach of the arts. Here, our diversity is our strength. This is what binds us together.

This is the mission of the Gates Cambridge Scholarship, and the structure of the program affords us another strength. With over eighty countries represented in Cambridge this year, the Gates community has a uniquely international perspective on the problems we study. We have the great opportunity to interact and build relationships with one another, and we have the obligation to apply what we learn from these relationships to our work.

As classes of Scholars are added through the years, and as the alumni network extends throughout the globe, we owe it to the Gates Scholarship to keep this pledge of collective responsibility in mind. This issue of The Gates Scholar highlights the shared commitment of four current and two former scholars to the world we live in. From the malfunctioning of protein folding leading to crippling disease, to the social relationships in a Thai slum under construction, to the conservation of world forests and their ecosystem benefits, these Scholars are taking their insightful critiques and turning them into solutions.

I am proud to be part of a group so committed to improving the world.

Rachel Pike
Chair, Gates Scholars’ Council
Women in Kuwait
Progress and challenges to their advancement

Kuwait is a society in transition trying to reconcile tradition with modernity as it advances. Nowhere has this impact been greater than on the rise of women within the past 50 years as they have finally obtained the right to vote and stand in parliamentary elections. But will Kuwaitis accept women's entrance into politics?

A society in transition

Kuwait is a Muslim country with strong religious and traditional conservative elements, yet it has displayed a streak of liberalism unique in the Arab world. It has a parliament, called the National Assembly, elected by the people in free and democratic elections, and one of the most active women's rights movements. Consequently, there arises a clash between traditional and progressive voices as Kuwait advances and struggles to reconcile religion and culture with modernity.

Despite the rapid advancement of women in education and work, it was only in May 2005 that the last obstacle to the debarment of women from the halls of political leadership were at last rent asunder as they were finally granted the right to vote and stand as candidates in elections for the National Assembly. But the question is begged, how will Kuwaiti society receive women when they stand for elections and campaign? And since over 50% of Kuwait's population is under the age of 30, and it is the youth of today who will determine the Kuwait of tomorrow, what are their perceptions of women's rights and roles? These questions formed the line of inquiry for the research I conducted last year with a Fulbright grant as I sought to investigate a society in transition.

Youth perspectives

I began by distributing surveys to students at various universities the results of which confirmed that their social values differed according to social class. Tribal Kuwaitis for example tend to strongly adhere to tradition whereas some progressive urbanites are educated in the west and send their children to American and English schools. Thus in the survey responses, only a quarter of male and female students at government universities replied ‘yes’ that they would be willing to vote for a woman with half answering ‘no’ and another quarter ‘unsure.’ Conversely, at the private American University in Kuwait (AUK), about 75% of female students and half of male students replied ‘yes.’ Yet in responses to subsequent questions, one can sense a contradiction in the values of the youth. For example, when students were asked to rate their degree of agreement to the statement, “Women's participation in the National Assembly will have a positive effect on Kuwaiti society,” a significantly larger percentage (between 40-50%, of male and female students at government universities) agreed.

Thus, while these results confirm that exposure to the west and western forms of education play a strong role in liberalizing traditional societies, I began to realize from speaking to young people that the same person who may not vote for a woman does not object to their membership in parliament and also realizes that the participation of women can have a positive effect on society. Even though women were disbarred from membership in parliament, the past 50 years in Kuwait gave time for women to become highly educated, as a result of the state's progressive education policies. Many rose to prominent positions in society such as the president of Kuwait University and the ambassador to the UN. Thus, while men and women may not be prepared to vote for women for a variety of reasons, a greater number acknowledge the positive influence that women's participation has had on society and their ability to contribute in the future.

Implications for development

In fact, the advancement of Kuwaiti women can in some sense be said to be a settled question in the long run. In the future, women will increasingly take up roles of leadership as a consequence of their superior performance and numbers in schools and universities. The 2005 Arab Human Development Report notes that in Kuwait primary education, girls outperformed boys in all subject areas. Likewise girls have been entering university in much higher numbers not only in Kuwait, but in other Persian Gulf countries as well, so that the current student population at Kuwait University is 70% girls with even normally male-dominated subject areas having an equal if not greater female presence. Women make up the following percentage of students: law 61%; science 59%; engineering 48%; Islamic law 48%; and business administration 67%.

Hence it is ever more intriguing that in a society where about 60% of the electorate is female and women are graduating in greater numbers with superior performance from universities, women themselves form the greatest impediment to their own advancement when the conditions are ripe for their progress should they desire it. From interviews conducted with some prominent women, a lack of consciousness among Kuwaitis was emphasized as the key obstacle currently facing women. Enlightenment is needed to reconsider aspects of rigid and outworn traditions and customs while adhering to the essential elements of religion.

This implies the need for a consciousness-centered approach to development based on an education of values, in addition to the material sciences and arts, with external institutions and laws taking on a supporting role - a subtle but vital difference. We can then understand that in Kuwait and elsewhere the legal situation is not the major determining factor of a woman's advancement. Rather it is the liberality and broad-mindedness of the family and society that largely determines the educational and social opportunities of a woman. Through a better understanding of Islamic societies, hopefully an appropriate discourse will develop to engage the Islamic world and promote the advancement of women.

NABIL WILF
Class of '07, PhD candidate in Genetics
I’m currently in Thailand carrying out research on a country-wide slum upgrading program that aims to improve the living environment of 300,000 poor households. This project stands out because it relies on the communities making things happen for themselves: a slum community wanting to upgrade itself must first prove to the Community Organisations Development Institute (CODI), a public agency, that it is strong enough to do so, by setting up a savings group for housing purposes, and demonstrating community strength by collectively resisting eviction threats. CODI will then channel infrastructure subsidies and cheap loans through the community cooperative, assist in negotiations with landowners, and help in drawing up new layout plans with the households.

My particular interest lies in the impact of the upgrading process on community cohesion and social relations both within the community, and between the community and outside agents such as government agencies and the landowners. My research is qualitative in nature, relying on semi-structured interviews with household members, community leaders, and representatives from the various stakeholders in the upgrading process. Though a community may successfully complete the physical upgrading of their living environment, the risk is that community participation then falls as households focus on earning a living in order to repay the debts on their new home, and disputes may emerge as community leaders chase up loan repayments. What can be done to maintain the collective spirit and encourage good governance? Is it such a bad thing that households revert to an “each to himself” attitude once they have their house registration in hand? Why should people be forced to participate in such activities? After all, I can hardly imagine residents of a Cambridge street forming a cooperative and taking out a huge collective loan to rebuild their houses.

During my field trips to various upgraded and squatter communities, I have been struck by the hospitality of my interviewees. These people are poor, burdened with heavy debt for their new houses, and yet they give me their time, invite me into their houses and offer me drinks. As can be expected anywhere else, the communities are not perfect: some people default on loan repayments, there are disagreements between the committee representatives and households, and not everyone turns up for drain-cleaning “events”. I think, however, it is important to recognise that building new homes, with security of tenure, is a huge achievement in itself, even though maintaining a spirit of cooperation is, of course, desirable.

As most upgraded communities are leasing government land, I am interested in the relations of government agencies with the communities. In many cases, seeing the communities rebuild new legal homes for themselves earns them the respect of the government agencies and district officials, who previously may have done little to help. Combined with populist policies from the government, this could represent an institutional shift in the relations between the state and the poor, but there remains much to be done.

In terms of the practicalities, I think not being a Thai helps, as people know I am not working for an official agency looking to evict them. Community members are surprisingly willing to open up to me – I suppose it’s not every day an inquisitive blonde “farang” with a crutch (badly-timed knee injury) comes asking about their lives. I have lost count of the number of times I have repeated the fact that I can speak Thai because I was born in Thailand. I wear my yellow “royal” shirt on Mondays and blue one on Fridays (the colours of HM the King and the Queen) as the locals do, have learnt that mobile phones will always be answered, whether at an academic seminar or a noisy community network meeting, and have accepted that I will invariably get lost in a taxi trying to find a community with only the vaguest of directions. Above all, I have realised that without the kindness of strangers, my PhD would be going nowhere.

DIANE ARCHER
Class of ’05, PhD candidate in Land Economy
Avoiding the Crowd
A new approach to studying conformational disease

Misfolded proteins can sometimes aggregate within our bodies, potentially causing serious harm. A new biophysical technique may give us an unprecedented look at how this process occurs at the molecular level.

The next time you drive down a busy highway, take a moment to reflect upon the amazing job your body does to keep its own traffic flowing. Like the cars beside you, the proteins that carry out the vital processes of life can also break down. Imagine trying to drive a Volkswagen with its frame bent to an extent that its wheels no longer line up. Similarly, a protein with a misfolded three-dimensional shape will likely fail to carry out its functions. Our bodies generally excel at clearing these protein car-wrecks. Extensive quality-control mechanisms exist within our cells to identify misfolded proteins, and these proteins are then re-folded correctly by helper proteins or are destroyed. Sometimes, however, misfolded proteins can escape our cellular quality-control processes. When this happens, we are at risk from our body's version of a multi-vehicle pileup.

The chemistry of conformational disease

Alzheimer’s, Parkinson’s, and Prion disorders like those responsible for the Kuru outbreak in Papua New Guinea or Mad Cow disease, all involve proteins that are misfolded. The misfolded proteins avoid destruction because they appear very similar to their original form. These proteins can then bind to other identical proteins and create aggregates that severely damage our cells. Disorders of this nature are called conformational diseases. These are often characterised by the appearance of large protein deposits that our cells have difficulty clearing.

My work this year focuses on understanding how this harmful aggregation process takes place. Professor David Klenerman heads our research group in the Department of Chemistry, where we use biophysical techniques to observe protein interactions at the single-molecule level. Like many of our projects, this one arose from working with a biomedical researcher who wanted to answer a question that was difficult to approach using existing biological techniques. Cambridge Professor of Medicine David Lomas, an expert in a class of conformational disease known as serpinopathies, has been trying to understand how proteins called serine proteinase inhibitors (serpins) accumulate within our bodies. Our two groups now work together to characterize the aggregation of neuroserpin, a protein that can cause premature dementia when it accumulates in cells within our nervous system.

Witnessing disease, one molecule at a time

My experiments on neuroserpin take place at the single-molecule level, which is a relatively new approach to studying biology. Currently, most biological experiments examine the net effect of at least tens of thousands of species, resulting in what are called “ensemble” studies. If we return to our busy highway, an ensemble experiment might measure something like the total amount of emissions released into the atmosphere by vehicles on a given day. In a single-vehicle study, however, one would capture information related to individual cars. This allows us to decipher heterogeneities within the ensemble. For example, we may identify small subgroups of vehicles that give off far greater or far fewer emissions than the average, thus giving us a clue into the types of cars present on the road.

My laboratory employs a technique called Single-Molecule Fluorescence Spectroscopy. This technique takes advantage of the fact that certain molecules can fluorescence - they emit light of a specific colour when exposed to light of a different, higher-energy colour. We use these fluorescent “tags” as beacons into the single-molecule world.

The setup involves a confocal microscope focused on a minuscule volume of the sample solution, lasers, and light detectors. I study samples of neuroserpin taken at varying points of time during the formation of aggregates. As molecules float through the laser beam, one at a time, their tags absorb the energy of the laser and emit light of a specific colour. This emission is then picked up by the light detectors. I generally have one half of the neuroserpin proteins tagged red and the other half blue. Detecting red and blue light at the exact same time provides evidence of two or more neuroserpins bound together. Based on the quantity of light detected, we can also determine how many individual neuroserpins make up each bound species. Large aggregates have more tags and emit more light. Hence, this strategy provides us with a powerful way of obtaining in-depth information about the aggregation process.

While neuroserpin is a fascinating system in itself, we are also developing methodologies that will likely prove invaluable in querying other conformational diseases in the future. As our population ages, these diseases are likely to become even more prevalent. We hope that this new approach will help us to generate much needed insights into this important class of diseases.

ALBERT CHIOU
Class of '07, MPhil candidate in Chemistry
Synthetic Biology
Reprogramming plant development

Synthetic Biology is an emergent discipline that seeks to engineer biology, applying concepts borrowed from other disciplines such as electrical engineering and systems biology.

One of the most significant achievements of human society has been the progress in industrial technologies, from artisanship to semi-automation. A foundational concept that fueled this industrial revolution was the standardization of mechanical parts and processes, which subsequently led to decoupling of the design of powered machines from the fabrication of their components. This standardization enabled the reliable re-manufacture of the machinery and the creation of inventions by incorporation of existing components into new systems.

Standardization, and other engineering principles such as modular design and abstraction, have also propelled computer manufacturing since the invention of the first transistor six decades ago. These paradigms have permitted electrical engineers to build highly complex systems, such as computers, from a list of well-characterized microelectronic components. Thus, the use of interchangeable, modular, and standardized parts has been crucial for the dramatic innovation seen across the industry.

Recently, biology has been seen as the next discipline to be influenced by this engineering doctrine. A new discipline, called Synthetic Biology (SB), has emerged, with the aim of designing and building complex and predictable systems from modular and standardised biological components.

A fundamental concept underlying SB is that the standardization, modular design, and abstraction of biological parts could facilitate bioengineering in the same way found in the computer industry. The application of this doctrine to every scale of the biological hierarchy, from single molecules to whole cells, and the use of de novo DNA synthesis facilitates the rational design and construction of new biological systems from scratch, or the modification the existing ones, to carry out novel functions.

The construction of biological systems with new or improved functions is a powerful approach for the creation of new renewable technologies. Although the number of applications being sought is enormous, the scope and potential for this area are still immeasurable at this stage.

The construction of biological systems with new or improved functions is a powerful approach for the creation of new renewable technologies. Although the number of applications being sought is enormous, the scope and potential for this area are still immeasurable at this stage.

In our group, we attempt to design simple genetic frameworks for the engineering of self-organized tissues in plants. Plants comprise the major source of biomolecules on earth and the possibility of reprogramming their development in order to create novel plant organs acting as biochemical reactors is highly tempting. In this project, we are focused on engineering pattern formation, growth, and development in the plant model Arabidopsis thaliana. My challenge is to reprogram cell development in roots using artificial gene activators acting simultaneously in adjacent cells. A very important achievement in my project has been the development of a system for laser-induced gene activation in individual cells (see figure).

In order to create artificial tissues, and hopefully organs, we need to clearly understand the development of its natural counterpart. Multicellular organisms are composed of a myriad of different cell types with diverse functions. In plants, cells are created from a group of continuously dividing cells (stem cells), which are organized in regions called “meristems”. These regions provide new cells to the growing tissue and these cells, once originated, can undergo elongation, another cycle of cell division, differentiation to one specific cell type, or more exactly, a sequence of these events. The major challenge of developmental biology has been to understand how these cellular processes and the whole organ development are orchestrated in order to reach a determined, and reliably repeatable, organ shape and size. I have created a novel tool to analyze quantitatively and in vivo the response of each cell to the multiple signals directing the developmental program across the tissue.

Our attempt to build artificial plant tissues, in addition to opening a new horizon for biotechnology purposes, will lead to a better understanding of the fundamental laws that underlie plant development. Accordingly, SB not only views biology as a technology itself and its constituents as components for engineering, but also allows thorough testing of current models and theories by reconstruction of isolated systems.

Although this nascent area is still trying to create its own intellectual and physical infrastructure in Europe, it has already captured the attention of many US research institution and funding bodies such as the Bill and Melinda Gates foundation, which funded a SB approach for anti-malaria drug production in Berkeley. We, as a group, have fixed short and long-range objectives to collaborate in the development of this exciting and promising new discipline.

For further information, please see http://www.plantsci.cam.ac.uk/research/jimhaseloff.html.

FERNAN FEDERICI*, JAMES BROWN & JIM HASELOFF
*Class of '05, PhD candidate in Plant Science
Politics & Power
Research on women in Argentina

In an Argentine meeting hall, 18 elected officials gather to make a deal; three are women. Political scientists wonder why female politicians are underrepresented, and whether increasing their presence changes political decision-making. For me, answering these questions requires conducting research in a different language, setting, and culture.

A research setback

A few months ago, in an internet kiosk in the heart of Buenos Aires, my colleague and I were mystified. We had just visited the Ministry of the Interior, where we received candidate lists from the last five legislative elections. In downloading the files, a setback occurred: the files all possessed the extension “WB1”. After searching Google Argentina, we discovered that the files came from the 1990 version of Quattro Pro (an Excel precursor). Danny—my colleague from the University of California at Berkeley (UC Berkeley)—began searching for on-line file converters, a perfect instance of troubleshooting fieldwork dilemmas in Argentina. These moments characterize the larger, and more exciting, project of studying female politicians.

Argentina’s relevance

Argentina was the first of eleven Latin American countries to pass a quota law, meaning that political parties must nominate specified percentages of female candidates for each election. In Argentina, the electoral quota is 30 percent, and parties ignoring the quota are barred from entering the election. Thus, as of 2007, women comprised 36 percent of the Argentine Chamber of Deputies (the lower chamber) and 43 percent of the Senate. Yet, there still exists variation in how parties “fill the quota” when ordering names on the candidate lists. Observers suggest that prominent male candidates are placed higher, with women—as the less important candidates—placed lower. To test this hypothesis, Danny and I spent two days requesting candidate lists from the Ministry of the Interior.

My Ph.D dissertation in Political Science at the University of California, San Diego, asks whether female legislators in Argentina enact different policy priorities than male legislators. With Danny (more formally, F. Daniel Hidalgo) and Gregory Rafter at UC Berkeley, I conduct one component of this research. We look at the number of women elected to the Argentine Congress, their prominence in the party, and the types of policies passed by the congress. We ask whether there exists a relationship between the quantity of women, the prominence of women, and the type of policy. The intuition is that female legislators’ gender leads them to support more “women friendly policies”—namely, policies that affect gender rights (eg. abortion) and social wellbeing (eg. education and healthcare).

Fieldwork challenges

Fieldwork in Argentina is not always smooth. Technology is often outdated, bureaucrats are often unreliable, and secretaries often ignore phone calls (though such hurdles surely occur in the United States)! Learning to communicate effectively across cultures also poses challenges. For instance, during my first trip in 2005, I sought interviews with female legislators. I introduced myself—in fluent Spanish—as a Ph.D candidate. Three weeks later, I complained to an Argentine friend that my response rate was lower than expected. She had me rehearse my introductory speech, and quickly realized the problem: in Argentina, a Ph.D candidate means one who seeks admittance to a Ph.D program, not one who has already begun one! I had unwittingly presented myself as a less qualified investigator.

Women in power

Missteps notwithstanding, the Argentines I met are eager to help with contacts, data and opinions on women’s political influence. Argentine women have achieved great visibility in recent years: in addition to the large numbers of female legislators, women have served on the supreme court, in the cabinet and now as the chief executive. In October, Argentines elected Cristina Fernández de Kirchner to the presidency in October. While many compare Cristina Fernández to Hilary Clinton—they are both former First Ladies—Fernández, unlike Clinton, had a political career (including one full senate term) before her husband reached the presidency. Despite women’s greater presence, policy change remains slow. Susan Franceschet, at the University of Calgary in Canada, and I have shown that female legislators introduce ever-increasing numbers of bills in the policy areas of gender rights, violence against women, sexual harassment and reproductive rights. Nonetheless, only three bills have become laws that are meaningful to Argentine citizens: one extends the quota to labor union directorates and two mandate that contraceptive devices and procedures be publicly available. Danny (who eventually did convert the Quattro Pro files to Excel), Greg, Susan and I are among many researchers working to explain the policy effects of female politicians not just in Argentina, but throughout the world.

UNDER WAY

JENNIFER PISCOPO
Class of ’03, MPhil in Latin American Studies
From the Greenhouse to the Forest
It turns out we may need trees more than we thought

Deforestation contributes nearly 20 per cent of global greenhouse gas emissions. With the right incentives, this can be changed and forest conservation can become an easy solution to climate change.

The CEO of Royal Dutch Shell recently wrote an open letter calling for a planned transition to a new low-carbon (and thus, climate-friendly) energy future. His suggestions for meeting the inevitably increasing demand for energy that the future will bring while simultaneously reducing carbon emissions include a mix of policy fixes such as creating tradeable carbon credits and technological fixes such as the still nascent technology of capturing and storing carbon underground so that it never enters the atmosphere. His proposal had one major omission: forests, nature’s version of carbon capture and storage.

Nature’s way

At this point in the Climate Change debate, it is common knowledge that burning fossil fuels for energy use is the main culprit in the generation of greenhouse gases, namely Carbon, which drive the planet’s warming. What is less known is that the cutting of forests, whether to make way for new crop plantations, new cattle ranches, or new construction, is also a major contributor, accounting for 18 percent of global Carbon emissions. That is more than the entire transportation sector, which contributes 14 percent of global Carbon emissions. Indonesia and Brazil, numbers four and five respectively on the list of top greenhouse gas emitters, have earned that dubious honor due to emissions from high rates of deforestation.

A standing forest is what is known as a ‘Carbon Sink;’ it absorbs carbon dioxide from the air, releases the Oxygen as a byproduct, and then uses the Carbon to generate energy through photosynthesis, effectively storing it in its trunk, leaves, and roots. When the trees are cut down, Carbon is released into the atmosphere adding to greenhouse gas emissions. The logic follows, then, that our future energy strategy should include not only low-carbon energy sources but should also rely heavily on protecting standing forests and restoring degraded forests. Doing so would avoid new emissions and it would create new natural Carbon sinks by increasing the number of trees sucking up the Carbon in the atmosphere.

To market, to market

For those of us in the conservation world, the idea of protecting forests to minimize emissions of greenhouse gases poses a dilemma that we know all too well: standing forests do not generate income for their owners in the way that they do when logged and replaced with crops or cattle ranches. The creation of markets for buying and selling carbon credits – essentially allowing buyers to lower their net carbon emissions by paying sellers to decrease their emissions – has the potential to change this dynamic. Most exciting for environmentalists is that the carbon value of the forest can be relayed into broader conservation goals by protecting sites that also serve as habitat for endangered or migratory species, or are important for protecting watersheds and providing other ecosystem services.

Unfortunately, ‘Reduced Emissions from Deforestation’ (or RED; meaning ‘protecting forests as a means of mitigating climate change’), has been excluded from the Kyoto Protocol – the treaty to which most countries have bound themselves to emissions reduction targets. Other carbon markets, referred to as ‘voluntary markets,’ do allow RED credits. These include the Chicago Carbon Exchange and independent retailers, such as the Carbon Fund, which allows you to calculate your personal carbon footprint and pay to preserve enough forest to offset it. Without recognition under Kyoto, though, the incentive to invest in forest conservation is minimized. Environmental groups, however, scored a hard won success at the recent climate negotiations in Bali, Indonesia. There, signatories agreed to spend the next two years discussing the technical aspects of RED, with an eye towards integrating forest conservation as a viable mitigation activity in the post-Kyoto agreement that will come into force in 2012.

Looking for the easy answer

Fuels made from corn, sugar cane, soy and a host of other non-carbon emitting materials are being looked upon as the solution to our energy and climate dilemma. Last year, the EU announced that in order to meet its 2020 target of lowering carbon emissions it would require that 10 per cent of all transport energy needs be met through the use of biofuels. Almost immediately, there were protests that biofuels are not the easy answer they appear to be, as forests, which act as carbon sinks, are often felled to make room for biofuel crops. Biofuels, thus, often cause more greenhouse gas emissions from deforestation than they save by avoiding the use of fossil fuels. In January of this year, a leaked European Commission report echoed these concerns, essentially damning the EU biofuels target. This episode demonstrates the transition to a low-carbon energy system will not be easy, but it is clear that forests will have a key role to play.

LINA BARRERA
Class of ’02, MPhil in Environment & Development
Introducing the Gates Ambassadors

Reach out for the stars

In seven short years, the prestige and opportunities provided by the Gates Cambridge Scholarship have continued to grow, and so has the level of competition among applicants. While this serves as a testament to the increasing achievement of the scholarship, the Gates Community should do more to reach out to underrepresented communities and promote the benefits of an international education as a Gates Scholar. In order to meet this challenge, the Gates Scholars Alumni Association (GSAA) and Gates Scholars Council, with guidance from the Gates Cambridge Trust, are developing an outreach and application support initiative titled the “Gates Ambassadors Program”.

The Gates Ambassadors Program aims to further the Trust’s mission of attracting a diverse pool of Gates Scholar applicants, to provide all potential applicants with an equal opportunity, and to benefit the Gates Society and Cambridge University at large. By developing an accurate, uniform message, Gates alumni and scholars nearing the end of their degrees will reach out to both public and private universities, student organizations, professional networks, and other partner organizations to promote and inform potential applicants about the Gates Cambridge Scholarship. Gates Ambassadors will field technical questions such as application deadlines and selection criteria, as well as speak to the broader benefits that accompany an international education at Cambridge. The GSAA have already initiated several outreach events with the help of partner organizations such as the Gates Millennium Scholarship and Cambridge in America. Through continued efforts, the Gates Ambassador Program will be able to reach and inform a much broader audience with a wider array of interests and talents.

Every Gates Scholar has benefited profoundly from the Gates Scholarship in some way; this initiative will allow us to share this incredible experience with an expanded pool of deserving individuals who would not have otherwise considered such an opportunity. If you are interested in participating in this program, please email Tristan Brown at gatesambassadors@gatscholar.org. By attracting talented individuals, we will help develop our future global network of peers, colleagues, leaders and friends.

ANDREW ROBERTSON
Class of ’01, PhD in Genetics

Globalisation

Prometheus unbound or the discontent of civilisation?

“It was the best of times, it was the worst of times,” Dickens’ fabled depiction of Victorian England seems to Peter Nolan, the Sinyi Professor at Judge Business school, a more fitting model for modern globalisation.

In a talk given as part of the Gates Distinguished Lecture Series, Prof Nolan argued that capitalist globalisation has been an incredibly positive force for developing countries; and he enlisted an unlikely ally. “Karl Marx more than Adam Smith,” said Prof Nolan, “understood the progressive power of capitalism in unifying the world.” Marx predicted that capital would be concentrated in the hands of a few, making possible rapid technological progress. “Big business do things better than small business,” said Prof Nolan, drawing an boxing analogy. “Instead of the little Bugsy Malones jabbing about, we have the true heavy weights—GM, Toyota—fighting it out for the love of consumers.”

However, despite all the optimism, Prof Nolan believed the world to be in a more dangerous state than ever before. The concentration of wealth in a handful of firms leads to extraordinary inequality, especially as most of these firms are based in western countries who are intent on pursuing their political interests.

Global capital is also wreaking havoc on ecology. The Living Planet Index—an indicator of global bio-diversity—has declined 30% since 1970.

To face these challenges, Prof Nolan called for greater global regulation to end the phase of wild financial globalisation. “The U.N. is the only capable institution,” he said. “I’m against divorce, we have to stick with it however painful.” His outlook agreed with that of Freud in “Civilisation and Its Discontents”–the future of mankind depends on its ability to master human aggression.

“Though to a certain extent [Prof Nolan] rejected the rosy picture of neoliberalism,” said Alexandra Cox, Gates Scholar’07, after the talk, “he could have addressed those places in global south in particular that have been subjected to structural adjustment programs and whose citizens have faced a real decline in social and economic well-being.”

JAMES ZOU
Class of ’07, Candidate for Certificate of Advanced Study in Applied Mathematics
Family Life at Cambridge

Being a Gates scholar, father, and husband

When I interviewed for the Gates scholarship, I told them my wife was expecting and how excited I was. I found the Gates foundation to be very accepting of my family. After arriving and struggling to find housing, for which my college was unprepared, we settled in and love it here. Now, as my daughter gets older, we are moving to a larger flat. We were nervous about our already strained finances. Wonderfully, in Lent Term, the Gates Trust announced they would be offering need-based funding for spouses and dependents.

Home life enriches my work life. I have recently been reviewing some of the taxonomy of primates and mammals and it is so much fun having my daughter on my lap looking at pictures and making animal noises. When I tell my wife about an idea or get excited about my work, it is thrilling to see my daughter getting excited too. Not that she understands, she is just happy that I am happy.

There are sacrifices to being a dad, like not being able to attend certain activities or to have a night life, but we still have fun. We love visiting the Gates room and many scholars have met my daughter. Sometimes Gates events are advertised as family-friendly but then unfortunately are not, but as a young scholarship we are all learning to interact with people of various backgrounds. Overall, we have found the scholars very open and inviting.

TIMOTHY O'CONNOR
Class of ‘07, PhD candidate in Zoology

The Fruits of Labour

A campaign for socially responsible investment

When Kate Brandt (Gates Class of ‘07) set out to change her university's investment policies, she wasn't really sure what would come of her efforts. In 2005, Kate was a sophomore at Brown University, and like many aspiring young students, she wanted to make a difference on her campus and in the world.

A Vision

With a keen understanding of how investments can fuel progress and development while simultaneously having destructive social consequences, Kate reasoned that her university's investments should be focused on producing benefits without the negative ramifications. Moreover, Kate believed that Brown University should do more to foster socially responsible investments which in turn may promote sustainable development.

In 2005, Kate and her classmates introduced a resolution to the Brown student government which called on the Brown Corporation, the governing body of the University, to “Establish a Social Choice Fund within the Brown University Endowment, into which students, alumni, parents, and supporters can donate their money to be invested in mutual funds and stocks selected on financial and socially responsible criteria.”

After becoming the undergraduate representative to the Brown Board of Trustees and getting the student government and the Brown Community Council to endorse her resolution, Kate, along with her fellow undergraduates, lobbied the university president and governing body to establish a socially responsible choice for past, present, and future donors to the university.

The Fruits of Labour

Just as Kate was learning that she would be heading to Cambridge last year as a 2007 Gates Scholar, Brown University was acquiescing and developing the socially responsible investment fund for which Kate and her colleagues had lobbied so long.

Though Kate did not set out on her quest knowing that her goal would be realized, she did set out with the knowledge that it was the right thing to do. "I knew that by helping lead the effort, I would learn a lot, I would educate my fellow students, faculty and administrators at Brown, and hopefully something positive would come from my efforts," Kate said.

Perhaps this is a lesson for all of us: sometimes the experience of the journey is just as rewarding as the fruits waiting at the destination.

TRISTAN BROWN
Class of ’06, MPhil in Environmental Policy
A Burning Issue
Why education isn’t, but ought to be

Despite the striking diversity of the Gates Scholar community, there is at least one assertion that would get everyone’s head nodding: education is crucially important. U.S. voters agree, invariably ranking education among the most pressing issues of public policy. Other indicators also reflect the critical importance of education, such as average lifetime earnings and even life expectancy. It is unequivocally clear that more and better education is a good thing.

Given that, why is education not a more prominent issue in our public discussions throughout the United States? Why isn’t it a burning issue? Is it because education is predominantly a local matter? Is it the fact that we view education as if it were in perpetual crisis, constantly on the verge of collapse, and therefore as a prohibitively difficult problem? Do we see access to healthcare and alleviation of poverty as more important antecedent steps to ensuring equality of opportunity? Or is it the shameful prevalence of that deprecatory and false notion that “those who can’t, teach”?

At the end of the day, there are plenty of reasons why we might avoid tackling the challenge of improving our educational systems; however, as anyone who has benefited from education could tell you, there are also many reasons to take it seriously. Simply put, through improving our educational system we can create a citizenry that is more competitive and vibrant and a society that is more fair. My fellow Gates Scholars, let’s make education a burning issue.

Education Development in Arabia
Reaching out to the West

Education empowers people to develop their communities. Currently, the Persian Gulf is reaching out to the West to help build top universities to advance intellectually. This is an unprecedented opportunity for western academics to play a positive role in the development of the Middle East.

"Regard man as a mine rich in gems of inestimable value," wrote Bahá’u’lláh, the Prophet-Founder of the Bahá’í Faith. "Education can, alone, cause it to reveal its treasures, and enable mankind to benefit therefrom." And the light thereof provides the source to promote the development of nations and to illuminate the external luster of material civilization.

While the oil-rich Persian Gulf states have until recently focused on purchasing the illusion of being developed countries, their educational systems have declined in quality as their social welfare systems bred a culture of dependence on the state, which is antithetical to a culture of learning. And "external lustre without inner perfection is 'like a vapor in the desert which the thirsty dreameth to be water.'" However, today's leaders recognize the need to bring forth the treasures hidden within their citizens in order for their countries to advance intellectually. Last autumn in Saudi Arabia, King Abdullah announced the building from scratch of a graduate research institution and endowed it with more than $10 billion. But money alone cannot buy the essential social values on which a truly viable university depends. Accordingly, King Abdullah has enlisted the support of three prominent US universities to help pick the faculty and develop the curriculum. These partnerships will provide an opportunity for US academics to play a positive role in the material and social development of the Middle East by, for example, encouraging the use of solar energy in the desert and promoting a just exercise of freedom. By participating in such endeavors, we, as Gates scholars, can help build top research institutions in societies around the world which currently lack them. To this end, I endeavor to combine my interests in the Middle East and science to hopefully return one day to the Persian Gulf and to aid in its advancement.

2 Cambanis, Thanassis, Saudi King Tries to Grow Modern Ideas in Desert. NY Times, 26 Oct. 2007.
The Tables Have Turned
Gates Alumni join the Gates Scholars’ selection process

In February, five former Gates Scholars had the opportunity to sit on the Gates Cambridge Scholarship selection panels. As a former Gates Scholar, the experience of sitting on the other side of the table was a bit surreal but certainly rewarding. Throughout the process, I was continually encouraged about the future of the Gates Cambridge

Going into the interview process, I was unsure what to expect or what role each member of the panel would play. There were five interview panels in total: Arts, Biological Sciences, Computer Science/Engineering/Mathematics, Physical Sciences and Social Sciences. An oceanographer by education, engineer through advanced study and nuclear operator by training, I was pegged to sit on the Physical Sciences Panel. While my background may seem eclectic, I found myself at home when during their interviews, many of the applicants addressed the importance of global warming, climate change, polar studies, nuclear waste remediation and other technical problems related to physics and chemistry.

Prior to conducting our first interview, our Panel Chair, Dr. Timothy Mead, cordially set out some guidelines and led the panel in a discussion about the types of questions we should ask. The most rewarding part of the entire process was our truly collective effort. There was so little conflict among the panelists that I routinely caught myself remarking so. Our questions came easily, and the dialogue with the interviewees was actually fun, although at times challenging to the prospective Scholars (as it should be). Our Panel seemed to fall into an easy rhythm: we tended to ask at least one question about the candidate’s proposed area of study, a question about his/her passion for the topic, a question about his/her potential role as a Gates Scholar and a larger policy/application question with respect to their proposed topic of study. While these questions typically took up the majority of the 25-minute interview, occasionally there was time for a few extraneous or follow-up questions, which always proved interesting. We ventured into everything from sports to government policy to natural phenomenon.

After each interview, we would quickly summarize our impressions among the group and move on to speak to the next candidate. At the end of each day [there were two days], while our objective to reduce the candidate pool down to a third seemed challenging, there was very little disagreement between panelists about which candidates we would support in their bid for a scholarship. The decisions came almost naturally. The hardest part about the selection process seemed to be assigning tangible numbers to rank the candidates in the four proposed areas of evaluation - leadership potential, intellectual ability, learning for the greater good and suitability of Cambridge.

After about an hour of debate and discussion, our Panel reached a decision. We had six scholars we fully supported and a seventh we were almost as sure about, depending on how the numbers from the rest of the committees played out. The group’s consensus made my conviction in our choices even stronger. I caught myself thinking about how honored I am to be part of an organization with so many intelligent, caring, committed individuals. From the new Scholars I helped to interview, to the Panel of distinguished scholars and leaders that I served on, clearly there is a strong core of individuals that care for Cambridge and developing the Gates community.

While the interviews demanded a large majority of our time in Annapolis, no great gathering of Gates and Cambridge associates can be complete without a few social events. One evening, we had a beautiful formal dinner at the home of the Superintendent of the Naval Academy, where Admiral Fowler, the Superintendent, and his wife displayed years of tradition, honor and service. Sitting at the Naval Academy in the Superintendent’s house, in my dress uniform for one of the last times, I realized the important role of the traditions of Cambridge, St. John’s and the Naval Academy. All three institutions aim to produce the best in their fields; all have a heritage that is undeniable; and all play a prominent role in the world at large.

The weekend in Annapolis and the interview process was capped off by a dinner at Harry Browne’s, where we celebrated this gathering of people, another impressive class of Gates Scholars, and of course, Louis Blair’s birthday. Somewhere among the socializing and celebrating, Dr. Mead whispered to me that our top seven made the cut to become Gates Cambridge Scholars. The decisions were so straightforward and so cordial! Our hard work had truly been fruitful. In selecting the 45 new American Scholars, the Gates Cambridge Scholarship community promises to expand and thrive. I am proud to have been a part of this process, in this group of ambitious and enthusiastic scholars.

The weekend went on to be an amazing experience, filled with camaraderie and a sense of community. It was a joy to spend time with old friends and meet new ones, all of whom share a common goal of making a difference in the world. I am grateful to have been a part of this process and look forward to the future of the Gates Cambridge Scholarship community.
On Sunday, March 9, Gates Scholar alumni in the Washington, DC area joined up with some Harry S. Truman Scholars for a delightful and stimulating Sunday brunch. The event was hosted by Dr. Margaret Cary, a prominent government advisor and close friend of the Gates Cambridge Scholarship, in her beautiful home in northwest DC.

The Gates and Truman alumni shared stories, great conversation, and developed new friendships. The highlight of the occasion was the riveting stories and sound advice from the guest speaker, Ms. Phyllis O. Bonanno, who served as a personal assistant to President Lyndon Johnson and as the first director of the Office of the U.S. Trade Representative. The brunch truly was a delightful occasion and will hopefully serve as the beginning of a long and sincere relationship with Harry S. Truman Scholars.

CYNTHIA CARVER DeKLOTZ 
Class of ’02, CASM Mathematics

On the evening of Friday, December 7th, six Gates Scholar alumni attended a dinner in New York City at Gordon Ramsay’s new restaurant at The London hosted by the new Chief Executive Officer (CEO) of the British Council, Martin Davidson. That evening we enjoyed delicious food and delightful conversation as we learned about the new cultural relations initiatives of the British Council during Mr. Davidson’s first visit to the US as CEO. The British Council, who helped organize and sponsor the Gates Scholars dinner and event at the British Embassy in September 2007, is currently focused on dialoging about the role of cultural relations in strengthening international partnerships and relationships, particularly in a rapidly changing world. In addition to the Gates Scholar alumni, dinner guests included key figures in cultural diplomacy and the arts, including experts from Lincoln Center, Brooklyn Academy of Music, and The New York Times. Gates Scholar alumni Susana Goldfinger and Andrea Pizziconi contributed to the lively after-dinner debate and discussion and a wonderful evening was had by all in attendance and we enjoyed connecting and building our own cultural relationships.

HILARY LEVEY 
Class of ’02, MPhil in Modern Society & Global Transitions

Melinda Griffiths - After completing my MPhil at Cambridge in 2006, I returned home to South Africa to start my PhD in Bioprocess Engineering at the University of Cape Town. I am now one year into my project on optimising oil production by microalgae for use in making biodiesel. The global vision and business experience I gained in Cambridge has greatly enhanced my work and general life outlook - thanks to the Gates Scholarship for making this possible!

Maile A. Martinez - In June 2007, I was hired as a Program Manager by Reel Grrls, a nonprofit organization that works to empower young women from diverse communities to realize their power, talent and influence through media production. I mentor teen girls with a wide variety of backgrounds, experiences and interests in Seattle, Washington, sharing my knowledge of film and media with them. I am continually inspired by their incredible work and insights. Life in Seattle is good! Check out Reel Grrls at www.reelgrrls.org or www.youtube.com/reelgrrls.

Alejandro J. Ganimian - I have founded a youth-led non-profit organization by the name of “Educar, Integrar, & Crecer” (Educate, Integrate, & Grow- EIC) that helps poor children in Argentina have access to quality education. You can learn more about EIC at www.eicargentina.com.

Phillip Geheb and his wife, Sarah, just celebrated the birth of their first child, Oliver Michael Geheb, on March 5th. He was 8 lb 1 oz and 21.5 inches long. Mom and baby are healthy.

Lina Sestokas - I graduated from Washington University in St. Louis in August 2007 with a Master’s degree in Clinical Psychology. Since then, I have moved to the San Francisco Bay Area and started a job as an administrative associate for the information security team at Google.

Elizabeth Sowers - After receiving an MPhil from the Faculty of Social and Political Sciences at Cambridge in 2005, I completed another Master’s degree in Demographic and Social Analysis at UC Irvine in 2007. Since then, I have enrolled in a PhD program in Sociology at the University of California, Irvine, which I expect to complete in a few years.
2003

Scott Barry Kaufman - I was recently awarded the Frank X. Barron Award by Division 10 of the American Psychology Association. The Award, given in memory of notable creativity researcher Frank X. Barron, honors students’ superior contributions to the study of the psychology of aesthetics, creativity and the arts.

Joel Jennings - I married Beth K. Anderson, esq. in Graham Chapel at Washington University in St. Louis on September 1st, 2007. I am currently teaching at Saint Louis University, and Beth has a private law practice in St. Louis. There are several of us in the Midwest who are planning a small ‘reunion’ this spring. If you are in the Midwest and are interested, please contact me at joel_jennings@gatesscholar.org.

Chiraag Bains - In July, I will graduate from Harvard Law School. This summer, I am getting married to Tara Ramchandani, an amazing young woman from Philadelphia who is also graduating this year. I will stay in Boston for a federal district clerkship with Judge Nancy Gertner. If any of you find yourselves in the area, please be in touch.

Emily Murphy - I’ve branched out from my neuroscience training into law. I’m a research fellow at Stanford Law and on the MacArthur Foundation-funded Law and Neuroscience Project. It has been a steep learning curve! Joe DiMento and I love living in the Bay Area.

Anna King - I graduated in 2005 with a PhD in Criminology. I am currently the Director of Research for the Crime and Justice Institute (Boston, USA). After earning my PhD in July of 2005, I worked as an Assistant Professor/Lecturer at Keele University (UK) before doing a Post-Doctoral Fellowship at Rutgers University with the National Institute of Health’s Institute for Mental Health Services and Criminal Justice Research.

2002

Jessica Stebbins - I received my MPhil in Social and Economic History from Cambridge in 2004. Since then, I have attended and graduated from Yale Law School and now work as a litigation attorney in Los Angeles, CA.

Amy Jones - The new Gates Scholar list is posted - how exciting! What a life changing event for everyone involved! I am in both the Seattle and NYC areas for now. Anyone else in those areas, let’s get together.

Lina Barrera - I am still living in Washington, DC, where I have been since completing my studies at Cambridge in 2003. I am also still working with Conservation International. In the past two years my work has shifted almost entirely to working with Development Banks on minimizing the environmental impacts of their lending. In April I married my long time partner, also a fellow Cambridge graduate, Matthew Wilburn.

Max Gwiazda - After post-doctoral scholarships in Paris and Rome in 2001 I have returned to Cambridge as a research associate in the Department of Architecture. I am working on an ESRC-funded project entitled, ‘Conflict in Cities and the Contested State’ (www.conflictincities.org). It investigates the extent to which the urban fabric and everyday life can absorb and manifest conflict in Jerusalem, Belfast and other divided cities.

Axel Gelfert - Having spent the past year as a Visiting Fellow in the Department of Philosophy, National University of Singapore (NUS), I have been appointed to a tenure-track Assistant Professorship, funded by a new Research Cluster on ‘Science, Technology, and Society’. I am particularly looking forward to teaching courses in philosophy of science and technology, as well as history of philosophy. So far, Singapore has proved an excellent place for research, teaching, and spirited debate (and, it should be duly noted, for all varieties of Indian, Chinese, Malay, and Indonesian food).

Matthew Varilek - Last summer I moved back to my home state of South Dakota after several years in Washington, DC. I am still enjoying working for one of my home-state Senators, and I am hoping to connect with other Gates Scholars who may be in the vicinity. My email address is m_varilek@hotmail.com.

Robert Perrons - Wendi Adelson (wendiadelson@gmail.com) and I are always interested in hearing from Gates Cambridge Scholars in the southeastern USA. We’re planning future events in the area. Interested? Contact Wendi directly for more details!

Andrew Robertson - I’m currently a visiting scholar at UC Berkeley working on the UCB Global Health Initiative - a campus wide, interdisciplinary initiative to address global health challenges. This is, of course, in addition to also being a 1L at the UCB School of Law.
Cambridge Events

Visit of Mr William H. Gates, Sr
Date: Wednesday, 28 May

Easter term Colloquium on Public Health
Time: 3-4 pm
Venue: Gates Scholar Room, University Centre

Annual Gates Scholar Dinner & Photograph
Time: TBA
Venue: Wolfson College

Distinguished Lecture Series
'Containment and Democratic Cosmopolitanism'
by Ian Shapiro
Date: Thursday, 5 June at 6 pm
Venue: School of Pythagoras, St John's College

Visit from the National Association of Fellowship Advisors
Date: June 16, 10-12 am
Venue: Gates Scholar Room, University Centre

Garden Party
Date: July 8
Venue: Wolfson College

New Scholars Orientation 2008
Date: 29 September-2 October
Venue: The Lake District
Further orientation events for new scholars will be organised in Cambridge from 3rd to 5th October.

Worldwide Events

Ongoing throughout summer - meetings between new scholars and alumni across the world. If you are not receiving emails from Hilary Levey about this, please email her directly hlevey@princeton.edu and be sure your email address is up-to-date in our online directory.

Cover Picture: Skydiving in Namibia
Photograph courtesy of Sarah Nouwen, Class of '05 PhD candidate in International Relations