



THE SCHOLAR
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UNIVERSITY OF
CAMBRIDGE

**JOURNEY BEYOND
THE WELCOME MAT**

Employment struggles of
refugees post-resettlement

CONTENTS



The Scholar, 2016

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The Scholar Scholar is the publication of the Gates Cambridge community. Articles that offer a window into the lives and work of Gates Cambridge Scholars and Alumni or articles that tackle large interpretive questions relevant to the Gates Cambridge 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. Contributions are subject to editorial approval. Ideas expressed are those of the authors alone.

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Scholars and alumni from across the community share their professional activities and accomplishments.

EDITORS' NOTE

As editors of *The Scholar*, we suffer from an embarrassment of riches. Each year, as new Gates Cambridge Scholars matriculate at the University of Cambridge and former Scholars join the ranks of alumni, it becomes harder to choose which of their many tremendous accomplishments to feature in these pages.



Editor-in-Chief
Bo Shiun Lai '13

The articles we have selected to fill this edition of *The Scholar* represent a special characteristic of the Gates Cambridge community: its tremendous geographic and cultural diversity. At Cambridge, the Gates Cambridge Scholarship brings together students from around the world, binding them together permanently into a community that spans continents and, increasingly, generations.

What is more, this year's magazine highlights the breadth of scholarly and professional interests within the Gates Cambridge community. Our Scholar and alumni contributors address a wide range of timely and important issues. They reflect on the Gates Cambridge community's contributions to fields as diverse as neuroscience, humanitarian aid, and arctic studies. They highlight technological developments and propose new policy directions. They grapple with the big issues of the day and draw attention to less prominent corners of the world and areas of study.

This diversity, both intellectual and cultural, fosters a spirit of collaboration, curiosity, and exploration within the Gates Cambridge community. The results are striking.

Consider just a small sample of the articles that appear in these pages. Thandeka Cochrane, a current Scholar from South Africa, muses on how fieldwork shapes the researcher, seen through her eyes as an anthropologist

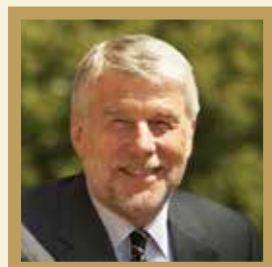
working in Malawi. Arazi Pinhas, a current Scholar from the United States, writes about the intersection between astronomy and biology and the search for signatures of life on planets outside our Solar System. Luis Perez-Simon, an alumnus from El Salvador, attempts to understand the reasons behind the thawing relationship between the United States and Cuba. And Pradipta Biswas, an alumnus from India, comments on the exciting future made possible by advances in eye gaze tracking.

These articles, along with the others in this year's magazine, reflect only a sliver of the varied interests and accomplishments of the Gates Cambridge community. There are still so many conversations to have and uncharted paths for us to explore together. For that reason, we encourage all Scholars and alumni to attend the first-ever Gates Cambridge Biennial Alumni Conference, which the Gates Cambridge Trust will generously host on 15–17 July 2016. At the Biennial, a series of discussions, talks, and informal events will connect Scholars and alumni, bridge professional and geographic divides, and create opportunities to learn and to grow.

Finally, this magazine would not have been possible without the hard work of our writers and the Gates Cambridge Trust. We have nothing but gratitude for their contributions, and we hope you will enjoy the fruits of their labour.



RE-CONNECT @ BIENNIAL 2016



This summer sees the Gates Cambridge Trust embark on a major experiment: the first Biennial Alumni Conference, which will be held at St John's College, Cambridge on 15 – 17 July 2016.

The Alumni Association (GCAA) had requested such an event before my appointment as Provost, but in developing the Trust's new alumni strategy, interacting with the GCAA, Scholars and University, it was clear to me that much more needed to be done, in addition to volunteer work by the GCAA, to help current and past Gates Cambridge Scholars connect and stay connected.

The Biennial 2016 therefore aims to bring together a large number of Gates Cambridge Alumni and Scholars to engage in professional development, academic and social activities. The programme and content were devised entirely by members of the GCAA Board, alumni and scholars since they know best about what should appeal to, engage and interest alumni. The programme is indeed outstanding and the weekend will offer dynamic discussions about issues facing the globe from climate change to immigration, best-in-class professional development workshops from our new Learning for Purpose program, and opportunities to re-connect with old and new friends in the gardens of St. John's College. We are fortunate to have an excellent and incredibly

diverse roster of speakers across the entire weekend – from world-leading academics and practitioners to your fellow Scholars and Alumni who are fast becoming the next generation of leaders in their fields.

This first Biennial is intended to provide an opportunity to re-imagine the connection with your Gates Cambridge community and the University of Cambridge. The Trust has made a major financial commitment to the event, including bursaries to help alumni travel to the event with no charge for accommodation, meals and refreshments.

I hope to welcome back many alumni to Cambridge, to enable you to re-connect with each other, current Scholars, and the Trust and thereby further strengthening the Gates Cambridge global network.

You can find full details about the event at www.gatescambridge.org/biennial2016.

See you in July!

Professor Barry Everitt FRS
Provost

FROM EBOLA RESPONSE TO PROSPERITY

Field notes from Sierra Leone

Songqiao Yao (China, 2014) – MPhil Geographical Research

After years of civil war and recent survival of Ebola, Sierra Leone is now more than ready to grow its local economy. Although still in its initial phase, our project, Mama Tamatis, will strive to create demand for farmer's produce by building a local tomato paste brand. If tomato waste can be turned into paste, livelihood and food security can be improved.

The Kabala district, located in the northern mountains of Sierra Leone, is well-known for producing good quality of fruits and vegetables. Haja Sondu Marah is the chairwoman of the Koinadugu Women's Vegetable Cooperative. She organises over 300 female farmers across 60 different villages, and brings their produce to market.

During the Ebola outbreak, the ban on national transportation meant that farmers in Kabala could not transport their harvest, resulting in extreme wastage. Since November 2015, Sierra Leone has become Ebola-free, but a similar wastage problem still exists. Over 60% of produce is lost due to poor infrastructure and lack of cold-chain transportation; perishables such as tomatoes are most affected.

Tomato paste is a key ingredient in Jollof Rice and Groundnut stew – two dishes loved by Sierra Leoneans. However, most of the product is imported. In January, I visited Sierra Leone with two colleagues to study the feasibility of a local tomato paste enterprise, in order to capture the value of the tomato crop within the country and improve the livelihood of farmers. A successful example is Mountainlion Agriculture – a local rice company that works with over 5,000 smallholder farmers. During the Ebola



crisis, they distributed hundreds of bags of rice, helping many survive the quarantine period.

Arriving shortly after Ebola, almost everyone still had vivid memories of the epidemic. Many lost close friends and family members. But the fact that Sierra Leone combatted Ebola has also instilled hope and a sense of accomplishment in people. Our local partner, Hamid Marah, a young and brilliant Sierra Leonean, has written a passionate article arguing that the country has been fighting the diseases

of poverty and corruption for decades. Since we can defeat Ebola, why not the other social disease?

Biography: Songqiao Yao is currently a Skoll Scholar based at Oxford's Said Business School. As an educator, activist, and entrepreneur, she has experiences working on global environmental challenges such as food, water, and climate change. She has co-founded a healthy juice and snacks brand in Beijing and is now starting a tomato-processing project in Sierra Leone to reduce waste and strengthen local food security.



HARNESSING THE POWER OF SIGHT

Eye gaze tracking becomes a potent tool

Pradipta Biswas (India, 2006) – PhD Computer Science

Wouldn't it be efficient if you could turn on the radio while driving, simply by looking at the dashboard? Or, how about reusing technology developed for severely disabled individuals in state-of-the-art fighter aircraft?

These things are possible with the use of eye gaze tracking, the process of measuring either the point of gaze (where one is looking) or the motion of an eye relative to the head. One area of my research explores the uses of eye gaze tracking as a direct controller of electronic displays, and I have invented new algorithms to accommodate

inaccuracy in eye gaze tracking for controlling on-screen cursors. Another focus includes analysing "jitter" in eye movements to assess increase in cognitive load (the amount of mental effort) during human-machine interaction. My algorithms have been validated using a Tobii EyeX tracker, which is one of the cheapest available infra-red gaze trackers.

Applications of my research include developing new assistive technology for people with severe disabilities by combining eye gaze tracking with an assistive interaction technique of repeatedly highlighting different screen elements. The new technology allows faster interaction speed compared to previous examples. Working with British Aerospace Systems, I have also explored the use of eye gaze tracking inside the cockpit of Eurofighter Typhoon aircraft and demonstrated that an eye-gaze controlled interface equipped with a target prediction technology can reduce pointing and selection times compared to existing joystick-based interaction. In user studies conducted in India involving first-time computer

users, it was found that novice users can undertake pointing and selection tasks significantly faster with target prediction technology than with a conventional computer mouse.

Finally, I am collaborating with Jaguar Land Rover to facilitate human-machine interaction in cars, investigating different machine learning algorithms to combine finger tracking with eye gaze tracking. My user studies highlight that technologies initially developed for people with different ranges of abilities can be beneficial for non-disabled individuals under situational impairment, such as piloting an aircraft or driving a car.

Future research will focus on reducing response times and establishing the best position and placement of the eye gaze tracker in vehicles and other operating environments.

Biography: Pradipta Biswas is a Senior Research Associate and Engineering Department Fellow affiliated with Wolfson College, University of Cambridge.

RE-DISCOVERING VOICES

Using tablet technology for speech rehabilitation

Brielle Stark (United States, 2012) – PhD Clinical Neurosciences

The world nowadays is technology-dominated, with the tablet at the forefront. The tablet has generated information at our fingertips – and now could also play a huge role in helping thousands recover their speech after stroke.

With the arrival of the portable tablet and applications – or "apps" as they're normally called – you've got the world at your fingertips. You can do your grocery shopping, plan a holiday, monitor your sleeping pattern, learn a new language and, as new research has shown, relearn speech after a stroke.

Stroke is the leading cause of disability in the USA, with one-third of people experiencing language loss. To put that into perspective, that's, at minimum, 120 million people in the developed world. There aren't enough speech and language therapists available to treat those numbers – and that's where apps come in.

At present, there are over 60 apps for language rehabilitation available, but none have been shown to be effective for language recovery. But, there's a huge amount of potential for using them: they're self-motivated, portable, adaptive to the user's needs and difficulty level, and often pose only

a one-off cost. It's well known that stroke sufferers are often middle aged and older, but this poses no problem: ageing populations are increasing their engagement with tablets. In fact, adults over the age of 65 make up 18% of tablet ownership.

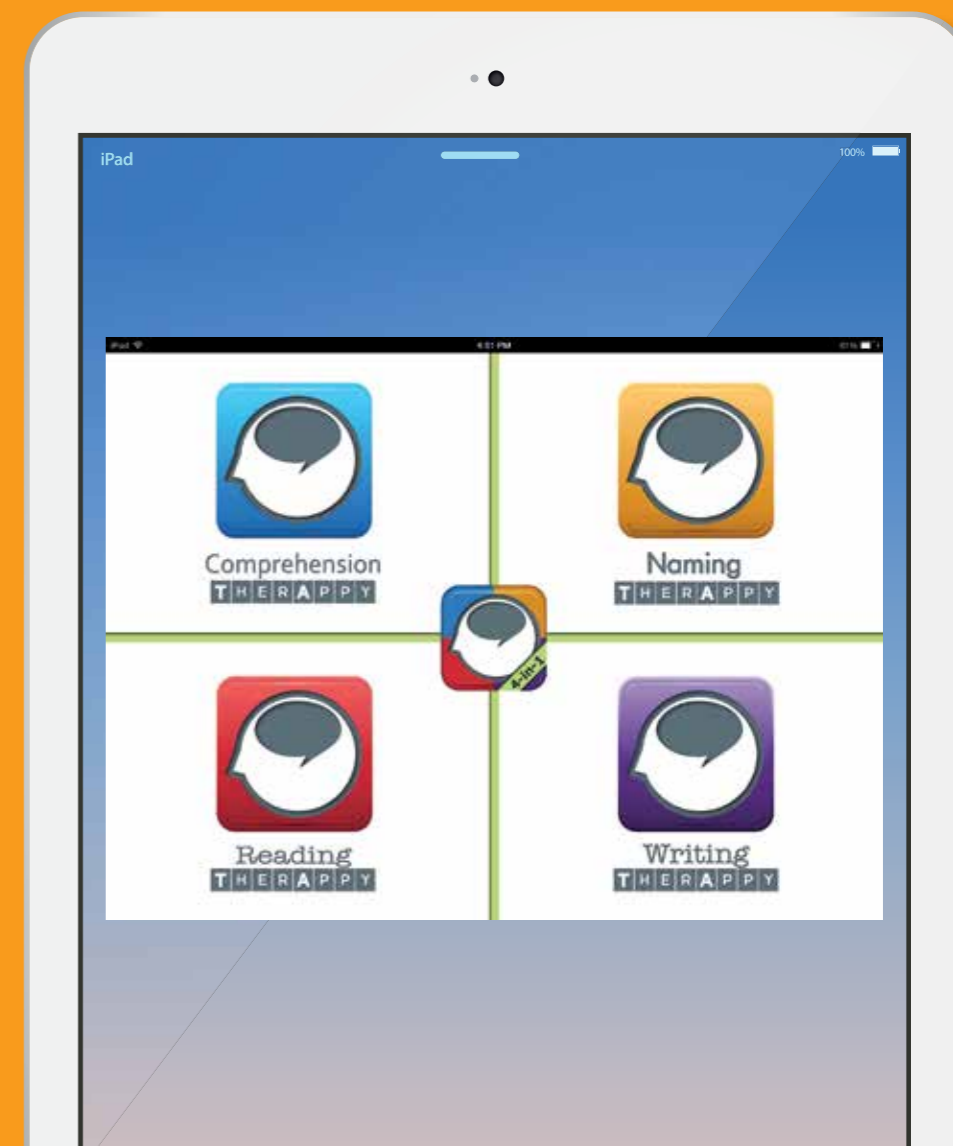
In a study conducted during my PhD, I showed that using a specialised language app every day for four weeks produced huge effects on spoken speech and was more effective than a brain-training game in a group of post-stroke participants. Most interesting was the fact that 70% had never before used a tablet, and that all of the study participants were more than

a year down the line of experiencing their stroke.

Right now, the need for speech rehabilitation outweighs the resources available, and apps provide an exciting opportunity for further research across all acquired disability rehabilitation.

While I use Duolingo to improve my French, apps for speech therapy are helping thousands reclaim their voice.

Biography: Brielle Stark has been involved in disability awareness for over ten years, and uses her passion for science to explore new directions in rehabilitation.



TRUST IN THE MODERN ERA

Fostering accountability through cryptography

Joseph Bonneau (United States, 2008) – PhD Computer Science

Years ago, I was discussing running for Gates Cambridge Scholars' Council with a fellow Scholar, Stella Nordhagen. We both agreed we'd like to run for president, but we also wanted the opportunity to work together. We agreed to a simple solution: we'd flip a coin to decide who would run for President and who for Vice-president. That way we'd both agree it was fair and neither would feel bad about the order.

One small problem: Stella was in Ethiopia at the time and I was in Cambridge. How could we flip a coin while separated by thousands of miles and be sure neither of us was cheating? Stella suggested we could have our friend Talia, whom both of us trust, flip the coin and email us the result.

As a cryptographer, I couldn't pass up the opportunity to solve this problem mathematically. As it turns out, flipping a coin remotely is a problem we've known how to solve for decades. All we need is a function $f()$ that is strictly one-way: that is, given $f(x)$, it is impossible to recover x except trying many guesses for x and seeing if we get lucky. Given this, we pick random numbers x and y and swap $f(x)$ and $f(y)$. Then we reveal our choices.

As long as we chose numbers big enough that neither of us could realistically guess the other person's number – on the order of 10^{24} – the result can be mathematically proven to produce a random result, with no opportunity for cheating.

In general, this is what cryptographers do: replace trust in people or institutions with difficult mathematical problems. Most people may think of cryptography as encrypting a message to ensure confidentiality. Indeed, the Greek roots of the word "cryptography" are "secret" and "writing." In modern times it means protection from the plethora of Internet service providers and routers (many controlled by governments) that carry your communications around the globe. Instead of trusting these intermediaries to not read your message, by encrypting you only have to trust that they can't break your encryption scheme.

Once you start thinking about cryptography in terms of removing trust, a whole new world of applications opens up. Take currency:

My dream is that someday everybody learns enough about cryptography to demand that it be used and reduce the level of trust we must place in our universities, in our employers, and in our governments.

traditional money requires trusting the government to print a limited supply of paper artifacts with special security features that are difficult to counterfeit. It also requires transferring these physical artifacts to make a payment (unless you bring in another trusted party, like a credit-card company). Cryptography can replace all of these requirements mathematically. The first protocol that achieves this in a reasonably efficient way, Bitcoin, is complicated. I've been co-writing a lengthy textbook on how Bitcoin works and I've taught a semester-long course on it. There are also a number of technical questions remaining to make a cryptographic currency that works on a global scale.

and others have shown that modern governments can and do wiretap communications on a massive scale. Computers make this cheap enough to do. The response has been increased use of encryption in applications like Apple iMessage to WhatsApp. But this can mean it's difficult for governments to collect anything. Cryptography is not good at encoding a fuzzy societal trade-off, such as "governments can do some surveillance on a limited basis." Technology makes many cases all-or-nothing.

Slowly but surely, encryption has turned the corner in terms of publicity. In the early 90s, when the U.S. government sought to ban the

We can potentially replace government currency issuers using cryptography, as well as dozens of other trusted institutions, from auction houses to stock exchanges to escrow services to notaries. Collectively, this new technology will raise profound questions about the role of trust in modern society. Cryptographers often have a strong libertarian bent, believing we can and should replace institutions whenever possible. Not surprisingly, most of these institutions don't want to be replaced, and in many cases there are real downsides to replacing them.

Cryptography is not politically neutral. Mass surveillance is a perfect example. Historically, government spies could steam open letters if they really wanted to, though this was expensive. Citizens could encrypt their messages – and many did, from Mary, Queen of Scots to Thomas Jefferson. But this was also expensive and slow, so most letters were not encrypted. This led to perhaps a reasonable balance. Reading everybody's mail was usually too expensive, outside of certain extreme historical cases such as the German Democratic Republic.

Today, it's very hard to achieve the same trade-off. Leaks from Edward Snowden

export of cryptography, a somewhat ragtag group of technologists banded together to campaign against it in "the first crypto war." Today, we're seeing the second crypto war, with governments around the world angling to add backdoors to encryption systems. This time, a much broader coalition is fighting back, from technologists to human rights advocates to major Silicon Valley tech companies. Many people have come to realize the right to private communication is critical, even if they don't know much about how encryption works on a technical level.

But, as I've argued, cryptography has so much more to offer than just confidentiality. We have the opportunity to add strong levels of accountability and transparency to a variety of institutions that we simply have to trust today. My dream is that someday everybody learns enough about cryptography to demand that it be used and reduce the level of trust we must place in our universities, in our employers, and in our governments.

Biography: Joseph Bonneau is a Postdoctoral Researcher at Stanford University and a Technology Fellow at the Electronic Frontier Foundation.

THE MODERN INDIAN WOMAN

Constituting the new middle class

Asiya Islam (India, 2015) – PhD Sociology

What does it mean to be the “Modern Indian Woman”? As Indian society undergoes rapid economic and social change resulting in the growth of the middle class, Asiya reflects on how young women in India are challenging restrictions on their mobility and claiming access to public space.

“Everyone in India thinks they are ‘middle class’ and almost no one actually is,” concluded a recent study by the Pew Research Centre. This claim has been a matter of debate in recent years among scholars. The “New Middle Class” in India has been sized up variously, ranging from estimates of 20–30% to only 2%. I see the middle class to be as much, if not more, imaginative as material. It is not only income, consumption practices, ownership of resources but also ideology that determines whether one can be middle class.

In this project of middle classness in India, gender relations have come to acquire great significance. While gender segregation, including the practice of purdah and restriction of women to the home, was once a luxury only the rich could afford and was therefore desirable, the norms have flipped now. With working class women working out of necessity and upper class women working to maintain their status, the aspirations of the middle class with regards to women have undergone huge change. Indeed, the Modern Indian Woman – educated, employed, mobile – has become an important symbol of middle classness.

With these changes have come new anxieties. As more women enter education and employment in India, concerns about their “safety” are raised. The public spaces accessible to women in cities are still very selected;

it is interesting to reflect on how while it is desirable for women to be seen in shopping malls, their loitering around neighbourhood corners would still be frowned upon. Why do certain spaces become “dangerous” for women and others don’t? How is it that women’s safety in public spaces becomes an issue but women’s access to public spaces is not discussed?

These restrictions on women’s mobility, constituted through family, community and peers, are increasingly being negotiated and contested by young women. These young women

in education and employment are, therefore, constantly shifting the boundaries of ‘good’ middle classness, by claiming spaces that previously belonged to men. I look forward to witnessing the revolutions in homes, neighbourhoods, cities when I go for fieldwork to Delhi in a few months’ time!

Biography: Asiya Islam’s research explores the gendered politics of the formation of the middle class, focussing on how mobility is negotiated by lower middle class women in urban India.



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FROM PRESIDENT TO DEFENDANT

Uncharted territory in international justice

Sophie Rosenberg (France, 2014) – PhD Politics and International Studies

Emotions ran high in the courtroom. Sitting in the public gallery at the International Criminal Court in The Hague, I watched a historic tug-of-war between law and politics.

For my PhD research on the challenges of pursuing justice for wartime crimes, I was observing the trial of Laurent Gbagbo, former president of Côte d’Ivoire and the first ex-head of state tried by the Court. After elections in 2010, incumbent President Gbagbo disputed the results that declared his opponent, Alassane Ouattara, the victor. Both sides were accused of serious crimes in the ensuing clashes between pro-Gbagbo and pro-Ouattara forces, which killed more than 3,000 people. Gbagbo was eventually transferred to the International Criminal Court on charges of crimes against humanity.

When international judges try a former leader who lost a war, without trying the winning side also accused of grave crimes, the court system risks appearing as a purveyor of biased politics rather than impartial justice.

I observed this friction between politics and justice while conducting fieldwork in Côte d’Ivoire, interviewing various stakeholders including Gbagbo’s former envoy to the UN, members of Gbagbo’s family, current government officials, and diplomats. Everyone agrees that national reconciliation

must incorporate justice for all victims. But since only the losing side has so far been tried, accusations of “victor’s justice” tarnish the reconciliation process. From the current president’s perspective, however, prosecuting perpetrators who still have influence within the army risks seriously destabilising the country.

Before starting my PhD, I approached this struggle between impunity and accountability from a practitioner’s perspective. For several years, I worked for Amnesty International, researching the Democratic Republic of Congo. With access to policy-makers, I lobbied for victims by collecting their testimony and sharing evidence of criminal abuses.

Now, as a researcher rather than an activist, I can analyse these situations as a tug-of-war with weighty concerns on both sides. Conflicts in Syria, Libya, and Congo – to name a few – raise similar questions of criminal accountability. But even with new tribunals and different defendants, the challenge of ensuring justice for all victims while preserving order and security remains as thorny as ever.

Biography: As part of her PhD at the Department of Politics and International Studies in Cambridge, Sophie Rosenberg is conducting fieldwork in Cote d’Ivoire, France, the Netherlands, and Mali. Prior to her PhD, she worked for Amnesty International based in London and Nairobi.



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COMING IN FROM THE COLD

U.S. foreign policy toward Cuba

Luis Perez-Simon (El Salvador, 2011) – PhD Latin American Studies

The normalization of U.S.-Cuba diplomatic relations seeks both to help the island nation rebuild its economy and to strengthen U.S. influence in Latin America and beyond.

"I have come here to bury the last remnant of the Cold War in the Americas," said President Barack Obama to both Cubans and the world on 22 March, 2016 from the stage of the Gran Teatro de La Habana. Though many have asked "why now?" few have dealt seriously with the first part of the question: "why?"

The last visit to Cuba by a sitting U.S. president took place over 88 years ago. In the intervening years Cuba was shunned by the international community, at the behest of its northern neighbour. Though security concerns may have justified this approach from the U.S. perspective during the Cold War, since the

early 1990s this part of U.S. foreign policy has proven counterproductive to American interests both regionally and internationally. Unfortunately, socio-political events on both sides of the Florida Strait derailed previous rapprochement attempts by the Kennedy, Ford, Carter, and Clinton administrations.

Perhaps surprisingly, the domestic policy of the island's socialist government has had little bearing on the normalisation of commercial, cultural, and technological exchanges between the two countries. Neither the single-party system nor the virtual internment of its own citizens nor Cuba's restrictions on individual liberties have affected U.S. political pressure or economic restrictions on the island nation. Admittedly, these undemocratic measures are the main reason why the embargo remains in place even today. However, it has always been Cuba's anti-American policies and militant internationalist involvement that have instigated America's animosity.

Ever since the Cuban Revolution overthrew the Batista regime in 1959, the only constant political and moral counterbalance to American hegemony in the hemisphere has been Cuba. Cuba's relentless denunciation of U.S. neo-imperialism allowed it to exert significant influence in Latin America and the rest of the developing world. While Washington has strived to maintain an acceptable and productive level of internal peace in Latin America by guaranteeing security and political stability, this was sometimes achieved by promoting the very things it wished Cuba to overcome: a totalitarian state apparatus, restrictions on civil liberties, and human rights abuses.

As Cuba survived stoically (albeit in poverty) both the fall of the Soviet Union and the ratcheting up of the embargo by the U.S., it became obvious to Latin America's burgeoning "pink tide" governments that the superpowers' heavy-handed interference in domestic and regional issues during the Cold War had led to socio-political and economic instability in the decades that followed. Beyond Cuba's steadfast refusal to compromise their socialist socio-political model, it was its humanitarian missions to Africa, the Americas, and Asia that gave it the moral standing that the U.S. craved among Latin American democracies. These humanitarian interventions, as well as Cuba's moral and ideological influence among developing nations, ultimately forced Washington to reconsider its long-standing position toward Havana.

Starting with the V Summit of the Americas in 2009, a large majority of Latin American nations began pressuring the Obama administration to reintegrate Cuba into its regional strategy. The European Union, too, made gestures favouring inclusive policies toward Cuba in 2013. It became clear that a major boycott of the VII Summit of the Americas would ensue if Cuba remained excluded.

Shortly after the unexpected handshake between Barack Obama and Raul Castro at Nelson Mandela's funeral in December of 2013, secret and intense

negotiations between Havana and Washington – mediated by the Vatican – took place. They led to the historic December 17th 2014 announcement of the intent to normalize relations between the two foes. The handshakes and meetings that followed in Mexico at the VI Summit of the Americas, and the opening of embassies in August 2015, laid the groundwork for President Obama's visit in March 2016.

One might assume that the pace of the evolving diplomatic thaw between Washington and Havana will depend on how quickly Cuba carries out economic and political decentralization. However, as president Obama made clear, the U.S. government hopes that "Cuba can continue to play an important role in the hemisphere and around the globe ... [and] that it can do so as a partner with the United States." In other words, Cuba may remain socialist as long as it helps the U.S. guide geopolitical and strategic developments in the Americas. It seems as if the United States has finally come in from the cold.

Biography: Luis Perez-Simon is Co-Director of the Centre for Integrated Caribbean Research at the School of Advanced Study, University of London. He focuses on the English, Spanish, French and Dutch Caribbean, specifically the areas of Colonial and Post-Colonial History, Human Geography, Politics and International Relations, and Economics.



© LUIS PEREZ-SIMON



JOURNEY BEYOND THE WELCOME MAT

Employment struggles of refugees post-resettlement

Carlos Adolfo Gonzalez Sierra (Dominican Republic, 2015) – MPhil Latin American Studies

The conflict in Syria provoked a humanitarian crisis that propelled the struggle of refugees onto the international consciousness. As news outlets focused on resettlement as the panacea for the crisis, images of refugees being warmly welcomed into Western countries flooded our news cycles. Resettling in a new country, however, is just the first step for those fleeing violence.

As I witnessed while working at a resettlement agency in Lancaster, Pennsylvania, finding gainful employment is the next step in an invisible journey towards integration that begins after news cameras are turned off. Countries can learn from deficiencies in the U.S. resettlement program, the world's largest, as they attempt to draft a long-term strategy to meet a growing demand for resettlement.

The goal of the U.S. resettlement program is self-sufficiency and

integration. Refugees are encouraged to find employment as soon as they obtain the proper employment documents. As an employment specialist at Church World Service (CWS), one of nine government-contracted resettlement agencies, I assisted our clients identify, secure, and maintain employment.

Limited English proficiency presents the biggest barrier to employment. Employers, even those in manufacturing, are increasingly reluctant to hire individuals with limited English skills, thereby narrowing

the job prospects of refugees. If able to find employment, the challenge then becomes earning a living wage.

According to a report by the Migration Policy Institute conducted between 2009 and 2011, working-age refugee men were more likely to work (67%) than their U.S.-born counterparts (60%), suggesting that the refugee programme is achieving its goals. Though this emphasis on securing employment soon after arrival is conceivably a good idea, it limits the long-term economic success of refugees.



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The urgency placed on finding employment compels many to accept low-paying positions. Doctors, chemical engineers and experienced teachers had few employment options other than meat-packing plants, warehouses or hotels. Though hopeful they would, the majority of our highly educated clients would never practise their professions again.

Frustrated by their grueling working conditions and low wages, clients would return to our office demanding better jobs. Sometime I would be able to place clients in skilled jobs as bank tellers, chefs and electricians, but, more often than not, their limited English proficiency and lack of transferrable skills would simply lead to a different factory.

During intake, the majority of clients mention learning English and enrolling in school as their major goals. Limited resources to pay for living expenses for the first six months after arrival, however, prohibit us from prioritising training programmes that might help clients gain the necessary skills to access higher-paid work.

The impact of this funding deficiency is clear. Approximately 58% of refugees with more than twenty years of residence were not English proficient. It is therefore not surprising that a higher proportion of refugees are low income than the native-born population, 44% and 33% respectively.

The report also shows that the socioeconomic condition of refugees is deteriorating. Refugees who arrived

between 1995 and 2000 had median household incomes equivalent to 62% of U.S.-born households at the time. In contrast, the median household income of refugees who arrived in the last five years was equivalent to 42% of the U.S.-born population. Shrinking employment prospects and insufficient access to English language and job training helps explain this widening income gap.

A policy focused on long-term integration, rather than short-term self-sufficiency, is in both the interest of refugees and the United States. Providing a resettlement grant that would cover a family's living expenses for at least six months, instead of the current one to three months, would allow refugees to enrol in intensive language training, significantly



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JOURNEY BEYOND THE WELCOME MAT

CONTINUED

increasing their job prospects. It would also provide highly skilled refugees with the option to enter school or revalidate their professional credentials. From the government's perspective, higher incomes translate into a larger tax base and a lower reliance on public assistance services, which refugees are eligible for upon arrival. It also means stronger overall communities.

The impact of this funding deficiency is clear. Approximately 58% of refugees with more than twenty years of residence were not English proficient.

Public debates over refugee resettlement often incite strong emotions. Imagining ourselves in the refugees' shoes tends to push nationalistic sentiments aside. Ask yourself: if you had to resettle in a country with drastically distinct language and cultural norms, what resources and how much time would you need before starting to work? If done appropriately, welcoming refugees does not have to be a humanitarian burden, but could yield long-term socioeconomic benefits to the host country. An integration-oriented resettlement policy is the first step towards ensuring that the initial welcome mat does not lead directly to a downward staircase.

Biography: Born in the Dominican Republic and raised in the United States, Carlos Adolfo Gonzalez Sierra is a passionate activist and scholar committed to reducing inequality in the Americas.

INITIATIVES TO RAISE AWARENESS ABOUT MIGRATION IN CAMBRIDGE

Andrea Binder (Germany, 2014) – PhD Politics and International Studies, Sabrina Gabrielle Anjara (Indonesia, 2014) – PhD Public Health and Primary Care, and Fabrice Langrognnet (France, 2014) – PhD History

Riddled with migration-related challenges on an unforeseen scale, 2015 may well go down in European history as a turning point – provided it prompts a real, collective understanding of this global phenomenon and wide-ranging sustainable actions.

In the urgent intellectual effort to design solutions that alleviate the perils of long-distance migration, the contribution of the Cambridge community had been, as of early 2015, relatively modest. We felt the time had come to shake things up.

In May, along with another student, Maria Olimpia Squillaci, we launched the Cambridge Migration Society, which immediately received strong support from the Gates Cambridge community.

On June 5, we hosted a lecture on the inception of a global migration framework by the U.N. Special Rapporteur on the Human Rights of Migrants, Professor François Crépeau.

A few days later, with the generous support of the Gates Cambridge Trust and Scholars Support Fund, we convened a panel featuring five high-ranking professionals at the forefront of the emergency response to the refugee crisis in the Mediterranean.

We followed up with a seminar series, one of the various initiatives currently running in town. Cambridge now seems more eager than ever to join the much-needed global conversation about migration.



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YUKON'S ENDANGERED ISLAND

Canada's vulnerable arctic treasure

Jodi Gustafson (Canada, 2015) – MPhil Conservation Leadership

When many consider the Arctic, they envision barren landscapes devoid of human habitation; but for some, the Arctic is simply home. The opportunity to travel to Yukon's Herschel Island Territorial Park to create a documentary film fostered an appreciation for the impacts of climate change on northern residents.

Herschel Island, or Qikiqtaruk as it is known in Inuvialuktun, has for centuries been a traditional hunting, fishing, and whaling site for Inuvialuit – the indigenous people of Canada's Western Arctic. From the late 1800s to the early 1920s, the island was a thriving whaling station for American whalers. Today, the Island is perhaps best known as one of the most recognised sites of climate change impacts in the Arctic, studied by institutions worldwide.

In 2008, the World Monuments Fund placed Herschel Island on its 100 Most Endangered Sites Watch list, citing rising sea levels, eroding coastlines, and melting permafrost as imminent threats. When visiting the island in 2012, it was the repercussions these impacts are having on local livelihoods and culture that resonated the most. Park rangers described how, for the first time, they found caribou that had starved to death on the island. A critical food source for Inuvialuit, the animals

had perished due to unprecedented mid-winter rainfall freezing atop snow and preventing caribou from foraging below. Locals recounted stories from elders describing how coastal inlets were used as protection from storms when traveling along the North Yukon coast; these inlets no longer exist due to infill by eroding banks from permafrost thaw.

While the landscapes, resplendent with unique bird species, were stunning, the impacts of thawing permafrost were hard to escape. Diminishing sea ice has led to higher exposure of coastal areas, unearthing graves from the whaling period and artifacts dating back thousands of years. A team from Yukon Government's Heritage Branch noted that eroding coastline had required them to relocate the historic Northern Whaling and Trading Company building inland twice in the past ten years.

Food prices in remote Arctic communities are steep, and many

residents, such as the Inuvialuit park rangers I interviewed, depend on full-time harvesting of climate vulnerable species. Despite newfound challenges presented to current and future generations by climate change, several young Inuvialuit, such as Edward McLeod, strive to maintain their hunter-gatherer culture. After watching Edward meticulously fillet freshly-harvested Arctic Char, in the same way his grandmother taught him, I felt a profound respect for these people and their connectivity to the land. Their ability to adapt and thrive in the Arctic will serve them well as they unjustly deal with the outfall of climate change impacts in their unique homeland.

Biography: Jodi Gustafson was born and raised in Canada's Yukon Territory. Her work has focused on climate change impacts and wildlife conservation efforts in both the Arctic and Antarctic. Her film can be viewed at <https://vimeo.com/73013007>

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© CAROL IBE

INVESTING IN AFRICA'S FUTURE SCIENTISTS

A major force for sustainable development

Carol Nkechi Ibe (United States, 2015) – PhD Plant Sciences

Africa is a continent endowed with abundant natural and human resources yet it is considered one of the poorest continents in the world. For decades, Africa has struggled to feed its rapidly growing population and to prevent disease outbreaks as seen in the recent Ebola crisis in 2014. Poverty in the continent continues to eat deeper into the fabric of the society, transferring from generation to generation. Scientific advancements through research are vital to sustainable development in Africa, but adequate investments must be made to boost scientific research and research-based education in the continent.

Science, technology, engineering, and mathematics (STEM)-based education and research are major driving forces in the process of innovation. Africa, just like the rest of the world, has benefited immensely from scientific

breakthroughs, especially in the field of medicine. For instance, life-saving pharmaceutical drugs against malaria and typhoid fever and vaccines against yellow fever, polio, and Hepatitis B all came from groundbreaking scientific discoveries supported by long-term commitments and strategic investments in the developed world.

Presently, many universities and tertiary educational institutions in Africa lack the infrastructure, practical knowledge, funding capacity, and modern teaching and learning tools they need to produce skilled scientists and industry leaders who can contribute to Africa's development through scientific research. I am from Nigeria and I did my undergraduate degree there, so I understand how these limitations are hampering creativity, innovation, and high productivity in the society.

If Africa is not giving adequate priority and investing in training its future scientists, how will the continent be able to make inventions that can solve some of the continent's numerous agricultural and health care challenges? African governments, funding partners, and key stakeholders must put bureaucracy aside and join forces in establishing the right framework and effective strategies that support scientific research and STEM-based education because it will help build the required human capacity to foster research, innovation, and sustainable development in the continent.

Biography: Carol Ibe is the founding president of JR Biotek Foundation, a not-for-profit organization established to enhance bioscience research and STEM-based education in sub-Saharan Africa.

SEARCHING FOR A NEW EARTH

Using bio-signatures to hunt habitable exoplanets

Arazi Pinhas (United States, 2015) – PhD Astronomy

The discovery of astrobiological life will captivate everyone. The James Webb Space Telescope and the Transiting Exoplanet Survey Satellite may accelerate our ability to discover life.

In the last twenty years we have witnessed the discoveries of thousands of exoplanets, or planets outside our Solar System, and in the last few years, the emerging field of astrobiological modelling has been at the forefront of detecting signatures of life on these exoplanets.

In astrobiological modelling, the first test of an exoplanet's habitability is its orbital distance from its host star. If this falls within the "Goldilocks zone" where liquid water may exist, a transmission spectrum of the atmosphere is taken as the exoplanet passes in front of its star. The composition of the atmosphere reveals its temperature, as well as the possible presence of any biosignature gases.

Biosignatures are molecules that indicate the presence of organic life. They are manufactured by metabolic processes in living organisms that may accumulate sufficiently in the atmosphere, while not otherwise produced in large quantities in the absence of life. For us on Earth, the prime example is diatomic oxygen (O₂), a by-product of photosynthesis



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that makes up approximately 20% of our atmosphere. Other possible biosignatures include water vapour and methane.

Researchers filter atmospheric spectra for molecules that do not occur abiotically. A diverse range of exoplanetary spectra have been recorded. For each exoplanet, astrobiologists, biochemists, and astronomers have created corresponding models of possible stable biosignatures based upon the composition of its atmosphere.

However, astronomers have yet to find suitable exoplanets for biosignature searches because atmospheres of small rocky exoplanets, the type believed to support generative life, are not

observable using current telescopes. Likewise, had we lived on an exoplanet orbiting the nearest star (Proxima Centauri), current technology would be incapable of detecting Earth, let alone search for biosignatures. Moreover, any future detection can only indicate possibilities of life rather than certainty of a second cosmic genesis. But human curiosity is our telescope in time. It transports us forward to seek what may be.

Biography: Arazi Pinhas researches theoretical aspects of exoplanetary astronomy and is passionate about the human condition. He believes a science freed of all pretence can further humanity's intellectual development and human connection.

NEUROLOGICAL CHAMELEON

The hidden face of dementia

Elijah Foo Keat Mak (Singapore, 2013) – PhD Psychiatry

"Some days are better than others, and then the light is switched off, and he would crawl back into this void, unreachable to the world around him," Mrs. Elizabeth (not her real name) shared this poignant vignette of her husband with me at a conference last year.

It took a protracted two years and multiple consultations with doctors before the diagnosis was clear. Fluctuating cognition, apathy, falls, confusion, hallucinations, and depression. All of these debilitating symptoms are manifested in Dementia with Lewy bodies (DLB), a neurological disease that could take the shape and form of other conditions. As such, it is also the most common neurological disease most of us have never heard of.

Yet DLB is the second most common neurodegenerative dementia after Alzheimer's disease, accounting for up to 10-15% of dementia cases. Caused by abnormal protein deposits in the brain that build up over time, DLB affects up to 100,000 people in the UK alone. Patients often experience

a host of symptoms mimicking the classical features of other neurological conditions, such as cognitive deficits in Alzheimer's disease and motor disability in Parkinson's disease. As the disease progresses and takes greater hold over patients' lives, cognitive functions begin to fluctuate wildly – as alluded to by Mrs. Elizabeth. This often triggers a cascade of anxiety problems including paranoia, apathy, and depression.

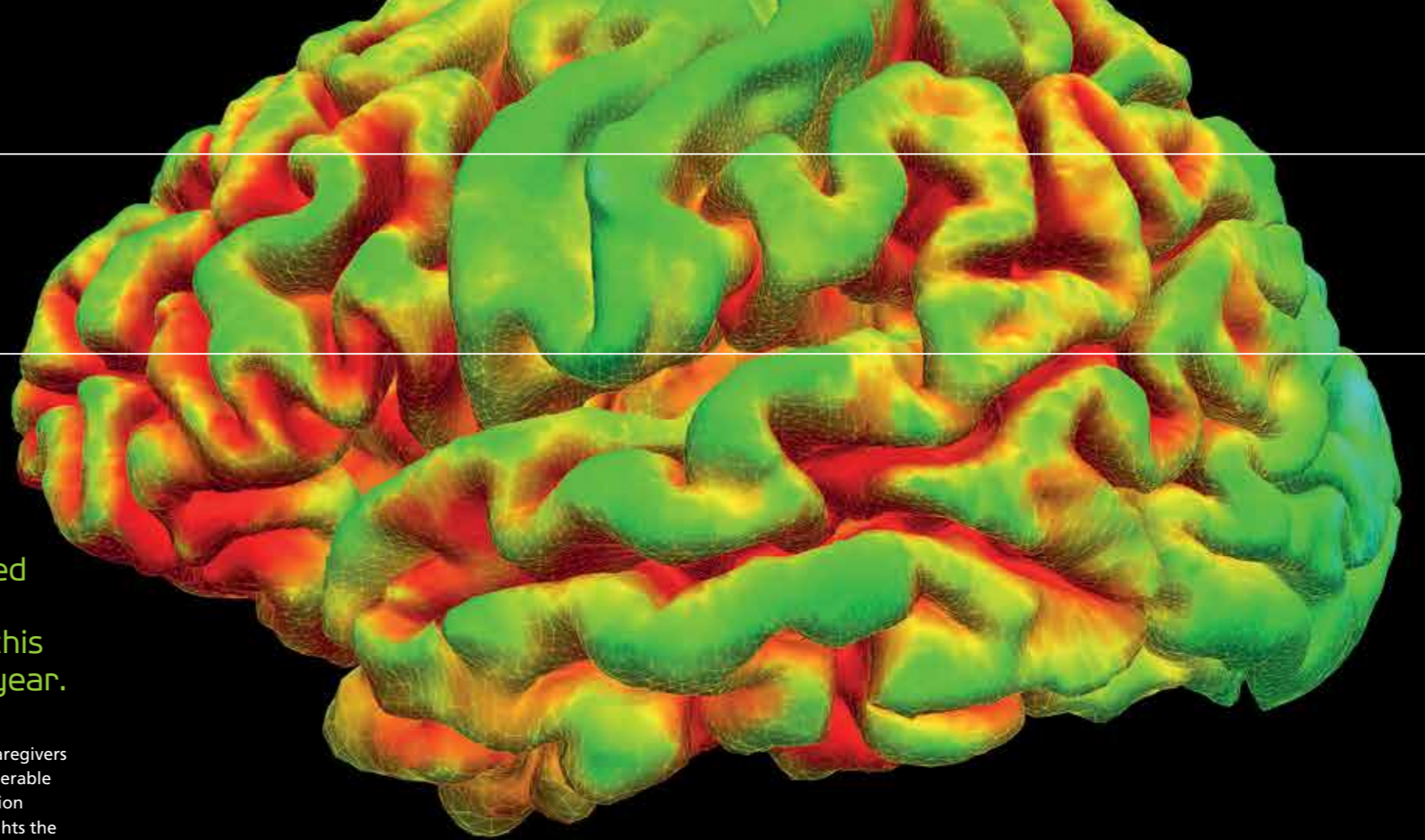
Unfortunately, many physicians are unfamiliar with its laundry list of multiple and variable combinations of symptoms which fluctuate both in severity and in an alarmingly unpredictable manner. Worryingly, all of these factors often converge to obscure the true diagnosis of DLB, either at all or until later stages of

dementia. This leaves many caregivers unprepared and patients vulnerable to potentially deadly medication side effects. This point highlights the importance of clinically distinguishing DLB from other dementias such as Alzheimer's disease.

"Does it actually matter?" Very often in my work, patients and caregivers often assume a standardised routine of therapeutic intervention, since DLB and Alzheimer's disease are both classified as variants of the dementia syndrome. However, antipsychotic medications – often prescribed for behavioral problems that can occur in Alzheimer's disease – should be used with extreme caution for DLB patients since they are particularly vulnerable to sudden changes in consciousness and other life-threatening symptoms.

In the past decade, therapeutic trials in DLB have also been few and far between. At the recent DLB International Conference in Florida last December, experts attributed this lack of progress to a preoccupation to develop drugs tailored for Alzheimer's disease and an unfortunate reluctance of regulatory bodies to recognise DLB as a distinct clinical entity.

Where are we in terms of understanding the mechanisms of DLB, most of which were virtually unknown until a decade ago? Due in large part



© ELIJAH MAK AND PROFESSOR JOHN O'BRIEN

to a close collaboration between researchers in the United Kingdom, Japan, and USA, the global research community has made tremendous progress in disentangling the myriad of features associated with DLB. Since the landmark meeting held in Newcastle-upon-Tyne in 1995, there is increasing international consensus for the diagnostic criteria of DLB.

Professor John O'Brien, my PhD supervisor, has developed diagnostic tests such as the dopamine transporter SPECT scan, which can readily distinguish DLB from Alzheimer's disease with more than 85% accuracy and is now widely available at hospitals. My own neuroimaging research at the Old Age Psychiatry Group has also revealed additional differences in the brains of DLB patients when compared to Alzheimer's disease.

By analysing the differences in brain volumes measured from two sessions of magnetic resonance imaging (MRI) across 12 months, we found striking patterns in DLB and Alzheimer's disease. While the brains in Alzheimer's disease patients undergo severe

and accelerated global shrinkage over 12 months, brain volume loss is surprisingly milder and even similar to healthy controls in DLB.

This finding suggests that the use of multiple MRIs could help clinicians improve the accuracy of a DLB diagnosis. Evidence from neuropsychological studies has also reported a distinctive pattern of cognitive impairment in both conditions, with DLB patients showing intact memory but worsened visuospatial abilities compared to Alzheimer's disease.

Other findings from functional MRI are also pointing to prominent disruptions in brain connections in DLB. Recently, the Old Age Psychiatry group has started to investigate in vivo amyloid and tau using PET imaging from the Wolfson Brain Imaging Centre in Cambridge (see Figure Illustration). By looking at these pathological deposits in the living brain over time, Prof John O'Brien's research is well-poised to yield significant progress in our understanding of disease progression in dementia conditions.

Alongside research progress in DLB, the untimely death of actor Robin Williams – who had been suffering from DLB – has also fuelled unprecedented public awareness on this neurological chameleon. In the same vein, the pharmaceutical industry is also taking interest, with several upcoming studies looking at multiple pathways for disease modification (i.e. chemical pathways, fibril proteins, etc). "We are also studying the mechanisms of neuroinflammation, an area that is understudied in DLB but may well emerge as a treatment target," said Professor John O'Brien.

We are still facing monumental odds in this fight against dementia. But for the millions of patients and caregivers like Mrs. Elizabeth, I am optimistic that a combination of innovative research, improving health-care standards, and novel treatments will give patients a fighting chance against dementia.

Biography: Formerly a research fellow at University at Buffalo (USA), Elijah Mak is currently a final-year PhD student at the Old Age Psychiatry Group in Addenbrooke's Hospital.



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EXPERIENCING WITCHCRAFT

© THANDEKA COCHRANE

Stories from the field

Thandeka Cochrane (South Africa, 2015) — PhD Social Anthropology

What do you do when you live in a place where witchcraft is real? When you hear whispered tales of demons, watch an exorcism performed in a back garden, learn of children seized by witches? It's simple: you begin to believe.

It was my last night in Chituka village on Lake Malawi. I lay in my bed listening to four-year-old Ruby vomiting and crying in the next room. She had malaria, a sickness which had, just the night before, taken another child in the village. As I drifted off to

sleep my heart was full of fear for Ruby. I slipped from the world of dreams into a world of nightmares. I was standing in front of Ruby's door in the darkened house. Before me were huge, hideous monsters with slaving maws and bloody claws, trying to get into the room. The demons, I knew, were there to kill Ruby. And so I fought them with all my might, screaming in terror, but filled with the determination to save her. I awoke covered in sweat, adrenaline running through my veins. In the dark of that night, as I lay panting on my bed, I knew, with absolute conviction, that I had just entered the spirit world and fought real demons.

How can researchers categorise such experiences in the field? I believe in the laws of physics and empirical reality, but in Malawi my security in these beliefs began to crumble. This is one of

the great challenges of anthropology – what do we do when the reality we encounter in the field does not match our own? Mostly, we tend to rationalise away these contradictions: it was just a nightmare. But is it fair to the people we engage with to act as if they are deluded and only we “see clearly”? The deep immersion of fieldwork will, inevitably, profoundly impact the researcher. My experiences in Malawi have not converted me to belief in witchcraft, but they have made me wonder about the certainty with which we assume that the world is indeed the way we think it is.

Biography: Thandeka Cochrane is first year PhD candidate in Social Anthropology from South Africa. Her research focuses on English language children's literature that is being brought into Malawi through development projects.



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TERRORISM THEN AND NOW

International law and the problem of definition

Joseph McQuade (Canada, 2013) – PhD History

Although terrorism dominates contemporary headlines, the search for a universally acceptable definition for this word remains elusive. Aside from the rather unhelpful truism that "one man's terrorist is another man's freedom fighter", we tend to lack a nuanced or consistent usage of the term which, in practice, tends to be more useful as a political than an analytical category.

For the historian, language is never accidental or incidental but is rather deeply embedded in a complex set of social, cultural, and political contexts. Many contemporary commentators give the impression that terrorism is a new form of violence, demanding an increasingly expansive array of laws, surveillance programs, and military interventions. But to understand the emergence of terrorism as a legal or political category requires understanding it in a longer historical continuum that stretches back well over a century.

My work interrogates the history of terrorism as an idea rooted in the international context of the first half of the twentieth century. Of particular interest is the Convention for the Prevention and Punishment of Terrorism, the first international law to target terrorism as a discrete category of crime, which was passed by the League of Nations in 1937.

In seeking an internationally acceptable definition of terrorism, this Convention foreshadowed many of the issues that would drive subsequent problems of definition up to the present day. In particular, the Convention sought to determine whether terrorists should be regarded as political offenders or whether terrorism constituted a "world crime" against civilisation and



The assassination of King Alexander I of Yugoslavia in 1934 was the event that prompted the League of Nations to investigate the question of international terrorism. In the above image, police detain Vlado Chernozemski immediately following the attack.

humanity, distinct from any form of legitimate politics.

Unfortunately, contemporary debates surrounding terrorism rarely situate it in any kind of larger historical context, focusing instead on its apparent immediacy and novelty. This lack of perspective makes it easy to repeat the mistakes of the past, or to adopt policies doomed to failure from their inception in attempting to counter the very real dangers posed by

acts of political violence. Understanding the long history of international attempts to define terrorism is a necessary first step towards properly understanding the headlines of today ... and of tomorrow.

Biography: Joseph McQuade is a PhD candidate and historian at the University of Cambridge. His work examines the origins of terrorism as a legal category and political idea in India and the world.

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TAKING A CAREER ROAD LESS TRAVELLED

Dr Eva-Maria Hempe (Germany, 2007) — PhD Engineering

My career has been characterised by a passion to make a difference – which at times meant taking risks and changing direction.



My advice to Scholars is to widen their horizon. Cambridge is a great place for interdisciplinary collaboration and exploration.

I started a PhD in quantum optics in autumn 2007. One year in, it became increasingly clear that my academic work did not fully satisfy me as it felt too removed from the real world. I decided to change course and by autumn 2008 I was working at the Engineering Design Centre, collaborating with the NHS on applications for engineering design thinking in the design of healthcare services. One aspect I looked into, and published a paper on, was the role of carers in health service design. My study was the first to quantify the value of carers' contributions, strengthening the case for user involvement in the health service design process.

Since leaving Cambridge, I have been working as a consultant for Bain & Company. I mainly work on healthcare projects, including nursing homes, pharmaceuticals and medical technology. My work leads me around

the globe, co-creating results with our clients both at their headquarters as well as with local staff.

Just over a year ago, I took 10 months off regular Bain work and joined the World Economic Forum in Geneva. There I led a project on how to prevent non-communicable diseases. My role involved working with a wide range of stakeholders from the public and private sector to facilitating workshops around the world, including in Davos and China, and publishing a report "How to Realize Returns on Health" that positions health as an issue that extends beyond healthcare.

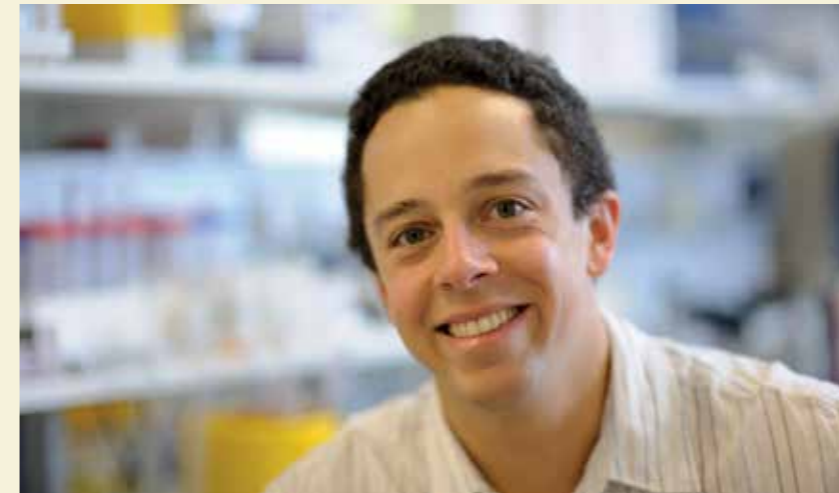
Looking back, Cambridge was a turning point and a life-changing experience for me. I discovered that I did not have to limit myself and the Trust helped me by supporting my transfer to engineering and health. As Gates invests in people not projects, it enabled me to find my passion.

My advice to Scholars is to widen their horizon. Cambridge is a great place for interdisciplinary collaboration and exploration. And make friends – you will be hard pressed to find so many fascinating, interesting and extraordinary people in one place again. Upon leaving, nurture and sustain these friendships. One of the most precious things I took from Cambridge, is my group of Gates friends – and we still meet at least once a year!

REINVENTING BIOLOGY ONE MOLECULE AT A TIME

Dr. Vitor Pinheiro (Brazil, 2001) — PhD Biochemistry

My career has followed what is generally considered a typical academic path: doctoral training, followed by postdoctoral research, followed by becoming a group leader with research lines of my own.



I have learned that I should ask the most ambitious questions and throw everything at it. I have learned that I can shape my habits and environment and achieve far more through collaboration.

That is not to say that the road was easy or straightforward – a huge change in field between PhD and post-doctoral research (going from bacterial pathogenesis to protein engineering) and a high-stakes bet on an emerging field made the journey quite interesting.

I developed the first synthetic genetic materials (XNAs) in my postdoctoral research, proving that DNA and RNA are not unique despite being the only genetic materials on Earth. I am now continuing that line of research to demonstrate that XNAs can have a role in living cells, as well as pursuing a number of related lines aimed at re-engineering some of biology's core processes.

But the path could have been very different. As a Brazilian who had done his undergraduate away from Brazil, there were few routes to pursue doctoral training at leading institutions. My family pressured me to return to Brazil, where I probably would not have pursued a career in science. In that context the Gates Cambridge Scholarship was transformative. It allowed me to continue my career at Cambridge, be part of a completely new project, and enabled all that has come since. It allowed me to acquire the relevant skills and to grow beyond what I thought I would.

I have learned that I should ask the most ambitious questions and throw everything at it. I have learned that I can shape my habits and environment and achieve far more through collaboration. That would be the basis of my advice to current scholars and young alumni: set yourself ambitious goals, work back from what you want to achieve and plan your path. Then, get involved, reach out to mentors in and out of the Gates community. There will be setbacks. There will be dead ends. The plan may have to be rewritten so get started!

PROFESSIONAL UPDATES

2001

Arne Morteani (Germany – PhD Physics) was appointed a General Partner at the Environmental Technologies Fund (ETF), a venture capital fund he had helped build since joining in 2007. The team raised over \$260m in capital and is investing it in environmental technology companies around the world.

2003

Adewale Adebawu (Nigeria – PhD Social Anthropology) published a book based on his University of Ibadan thesis. The book, titled *Nation as Grand Narrative: the Nigerian Press and the Politics of Meaning*, was published by the University of Rochester Press. Last year, he also published *Yoruba elites and ethnic politics in Nigeria: Obafemi Awolowo and corporate agency*, the first academic book on one of Africa's most powerful and progressive elites.

Sarah Dry (USA – PhD History and Philosophy of Science) was awarded a Public Scholar grant, newly established in 2015 by the US National Endowment for the Humanities to support the writing of popular scholarly books. The grant will support the research and writing of her book on the history of how scientists have studied ice, liquid water and water vapour in the Earth's environment.

Nathan George (USA – CASM Mathematics), now a co-owner of Spats Restaurant and Saloon in Berkeley, California, reopened the sports bar in October, 2015.

2004

Ella McPherson (USA – PhD Social and Political Science) and Afrodita Nikolaeva (Republic of Macedonia – PhD Education; Class of 2014) spoke at this year's Cambridge Festival of Ideas in a debate on censorship by omission. They also helped organise a session entitled Post-conflict poetry: fractures into unity.

2005

C. Wallace DeWitt (USA – MPhil Oriental Studies) is an associate in the banking regulatory group of Allen & Overy LLP, the London-based international law firm, working in the Washington, D.C. office.

Ramon Maluping (Philippines – MSc Veterinary Medicine) has been named as the first recipient of the Huwarang (outstanding) Overseas Filipino Worker. Ramon was selected for the award because he was judged to have made a significant impact on the lives of his family, his community and the people he works with overseas.

2006

Peter Barkley (USA – MPhil Computer Speech, Text & Internet Technology) presented his work on automated scheduling for military flight training squadrons at the Defense Entrepreneurs' Forum (DEF) Innovation Competition on 8 November, 2015 and won first prize. His project uses integer programming to optimise flight training in the U.S. Naval Academy's Powered Flight Program, and in the 24 weeks of testing, it saved the U.S. Navy over \$600,000. This approach applies broadly to all of the flight training done by the U.S. Navy and the U.S. Air Force. The Air Force alone spends over \$700 million on flight training each year. He is a Naval Aviator currently stationed in Annapolis, MD at the U.S. Naval Academy, where he teaches operations analysis and mathematics.

Padipta Biswas (India – PhD Computer Science) led a research team which looked at helping people with physical impairments to access technology.

Kathelijne Koops' (Netherlands – PhD Biological Anthropology) research has provided new evidence of cultural diversification between neighbouring chimpanzee communities. This research was published in the Nature journal *Scientific Reports*.

2007

Eva-Maria Hempe (Germany – PhD Engineering) authored the World Economic Forum report "How to Realize Returns on Health," which was presented and launched at the Annual Meeting of the World Economic Forum in Davos in January 2016. She returned to Bain & Company as a Project Manager in February 2016.

A co-founder and CEO of Zephyrus Biosciences, **Kelly Gardner** (USA – MPhil Bioscience Enterprise) sold her venture-backed startup to Bio-technique, a leading life science company. Kelly spun Zephyrus out of her Ph.D. lab at UC Berkeley in 2013 and led a team that was commercialising novel life science tools, which allow for high resolution views into tumours and other complex biological samples. Researchers have used these instruments to gain new insights into the biology of cancer, stem cells, neurology, and human disease and development. <https://www.bio-technique.com/press-releases/press/20160321>

Nabil Wilf (USA – PhD Biochemistry) has accepted a position at Rand Merchant Bank, South Africa's leading investment bank, in their prestigious Class Of program. He is currently a credit analyst in the resource finance team and will rotate through the bank before choosing an area to specialise.

2009

Usha Chilukuri Vance (USA – MPhil Early Modern History) has joined the law firm of Munger, Tolles & Olson as a Litigation Associate and is now located in San Francisco.

2010

Thabo Msibi (South Africa – PhD Education) received the University of KwaZulu-Natal's highly prestigious distinguished teacher award in recognition of his work on diversity.

Fiona Roughley (Australia – LLM) is a barrister at Banco Chambers, Sydney. In February she was named in the Chambers Asia-Pacific 2016 Guide as one of the region's top 16 Junior Counsel. She was also listed in the 2015 Doyles Guide (published in September) as one of Australia's leading Junior Counsel for commercial litigation and dispute resolution.

2011

Benjamin Cole (USA – MPhil Computer Science) recently joined the newly launched startup, KnowMe, as the Director of Product. Founded by Oscar-nominated and Emmy-winning filmmaker and serial entrepreneur, Andrew Jarecki, KnowMe is the easiest way to express yourself authentically with video.

Greg Nance (USA – MPhil Management) relaunched ChaseFuture, an EdTech platform he founded from his Fitzwilliam dormitory, as Dyad, which now includes career advice services in addition to college admissions consulting. The company was recently named "Asia's Most Promising Startup" at the Echelon Summit and was invited to share insights on global education at the World Economic Forum.

Kevin Nead (USA – MPhil Epidemiology) is currently a second year radiation oncology resident physician at the University of Pennsylvania. He conducts research focused on oncology and cardiometabolic diseases, utilising traditional retrospective and prospective datasets as well as novel bioinformatics approaches to analyze electronic medical record data.

Diana Pirjol (Romania – MPhil Public Health) speaks at the event "Management of patient organizations," which brought together representatives from the Romanian Government, National Insurance Fund, journalists, patient organisations, and experts to discuss ways in which patient organisations and other health care institutions could better perform their duties. She spoke about different ways

these organisations could monitor and evaluate their activities in the light of the EU structural funds.

2013

Devinn Lambert (USA – MPhil Biology) was awarded the Presidential Management Fellowship and has taken a position in the U.S. Department of Energy, Bioenergy Technologies Office. There she is a Technology Manager for Advanced Algal Systems and works with industry, academia, and national laboratory partners to advance the U.S. bioenergy sector. Devinn's research in algae, funded by the Gates Cambridge Scholarship, strongly contributed to her attaining this position.

Mona Jebri (Palestine – PhD Education) set up a social enterprise to help unemployed Palestinians. Mona took part in a business incubation session to support her plan to set up a remote working agency in Gaza.

Bo Shiun Lai (Canada & Taiwan – PhD Pathology), along with his lab mate, launched the world's biggest e-Commerce site for aptamers with funding from the Government of Hong Kong.

Ilana Walder-Biesanz (USA – MPhil European Literature) has joined Yahoo! as the Product Manager for Yahoo! Mail for Android. She is also working for San Francisco Classical Voice and Stark Insider as a theater and opera critic. In the past year, she has (co-)published four papers in narrative psychology (*Journal of Personality and Social Psychology*, 108:3:476-96); feminist analytical philosophy of language (*Hypatia*, DOI:10.1111/hypa.12224); Golden Age and Romantic Spanish theater (*HARTS & Minds*, 2.2); and Renaissance Italian pastoral drama (*Italian Studies*, forthcoming).

Bingchan Xie (Canada & USA – MPhil Clinical Science) reported a novel way of potentially treating primary hyperaldosteronism by selective blockade of the calcium channel, CaV1.3, in *Scientific Reports* of the Nature Publishing Group. Her investigation provides evidence for the value

of targeted treatment to cure hypertension caused by aldosterone-producing adenomas. Bingchan is currently a MD-PhD candidate at Yale School of Medicine and will be pursuing a PhD in immunobiology.

Xie, C. B. et al. Regulation of aldosterone secretion by CaV1.3. *Sci. Rep.* 6, 24697; doi: 10.1038/srep24697 (2016).

2014

Riaz Moola (South Africa – MPhil Advanced Computer Science), the first recipient of the Google Community of Practice grant in South Africa to lead a one-year project improving computer science education nationally, secured a partnership between his startup (Hyperion Development – www.hyperiondev.com) and Google to expand Hyperion's computer science training projects across Southern Africa, supported by \$100,000 in new funding. He was an Associate Product Manager Intern at Google in 2015 working on Google Search.

2015

Carlos Adolfo Gonzalez Sierra (Dominican Republic – MPhil Latin American Studies) was selected to the inaugural class of the Schwarzman Scholars program to study for a master's at Tsinghua University in Beijing, China. Gonzalez Sierra is one of 111 scholars selected from an international pool of more than 3,000 applicants. The first class of Schwarzman Scholars is composed of students from 32 countries and 75 universities with 44% from the United States, 21% from China, and 35% from the rest of the world.

Veselina Petrova (Bulgaria – PhD Clinical Neurosciences) won the British Neuroscience Association Undergraduate Award in December 2015 for her research on a novel mouse model of Alzheimer's disease at the University of Edinburgh. The award of £250 was presented at the British Neuroscience Association Christmas Symposium on 14th December in King's College, London.



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