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**ADELPHI  
GENETICS  
FORUM**

*exploring  
heredity and  
society*

# Adelphi Review



[www.adelphigenetics.org](http://www.adelphigenetics.org)

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Adelphi Genetics Forum, 19 Northfields Prospect, London, SW18 1PE

Tel: 020 8874 7257

[www.adelphigenetics.org](http://www.adelphigenetics.org)

General Secretary: Mrs Betty Nixon

[executiveoffice@adelphigenetics.org](mailto:executiveoffice@adelphigenetics.org)

Review Editor: Mr Robert Johnston

Charity No: 209258

## EDITORIAL

Welcome to the first issue of the *Adelphi Review* which bears a striking resemblance to its predecessor, the *Galton Review*.

You'll be well aware by now that the Galton Institute has become the Adelphi Genetics Forum and a full explanation of the rationale behind the name change can be found on page 4 where our President, **Professor Turi King**, gives her thoughts on this important decision. If you'd like to express your opinion, please don't hesitate to write to me via the General Secretary.

As the world returns to some semblance of normality, I'm delighted to inform you that our Annual Conference will indeed be held this year on Wednesday 5 October at the Royal Society. The details can be found on pp. 18 and 19.

Also in this issue we have the latest version of 'My Life in Genetics' with one of our Trustees, **Dr Jess Buxton**, and our Treasurer, **Professor Andrew Read**, provides another interesting Book Review.

May I also recommend you have a look at our new website at [www.adelphigenetics.org](http://www.adelphigenetics.org) which is now close to completion.

**Robert Johnston**  
Editor

## **A LETTER FROM THE PRESIDENT**

### ***DEAR MEMBERS AND FELLOWS,***

You will have seen that the The Galton Institute has undergone a name change becoming the Adelphi Genetics Forum. So why have we decided to do this?

The Galton Institute was named after Sir Francis Galton who, as you will know, was a hugely important scientist working in the 19<sup>th</sup> and early 20<sup>th</sup> centuries. He was one of the founding fathers of the science of genetics as well as making foundational contributions to other fields including statistics, meteorology and psychology.

However, some of his views and his work have darker implications. Along with many scholars of his time he held views about race and social class which might have been acceptable then but definitely not now. Among these, he introduced and fostered the ideas of eugenics.

Galton described eugenics as the scientific study of factors which affect the what-he-called 'inborn qualities of humans and future generations' but developed this to the 'breeding out' of so called "undesirable" characteristics from the human population by excluding people judged to be inferior and promoting those judged to be superior. It was these ideas that sparked the formation of the Eugenics Education Society, which later became the Galton Institute.

To be clear, the new Forum completely rejects his and all other eugenic and racist ideas as morally unacceptable and scientifically flawed, and nothing the current Forum does in any way supports or furthers such ideas. Nor have we ever benefitted financially from Francis Galton. Thus, while we would still wish to hon-

our Galton's immense scientific achievement, it was decided it was time to discuss a possible name change.

Hence a working group of trustees was formed to discuss the issue, first whether or not it was felt a name-change was required, and then to consider what that new name might be. After discussion, it was decided that having his name attached to the institute threatens to affect our ability to carry out our mission of furthering the scientific study of all aspects of human heredity within society. It was felt that keeping the Galton name suggests that, at best, we are insensitive to the connotations and perception of Galton from the viewpoint of modern society and, at worst, suggests that we support all his ideas.

Therefore, it was decided that a name change was necessary and, after many hours of deliberations, the name *Adelphi Genetics Forum: Exploring Genetics and Society* was chosen for the following reasons. It was felt that we cannot and should not cover up the origins of the Institute. Not least because part of our work is to show how flawed that thinking was and how far science has moved us from these ideas. And therefore the name references that the first offices of the Eugenics Education Society were in the Adelphi District of London, at 6 York Buildings.

The literal translation of the Greek Adelphi is brothers but as well as meaning brother or sibling, it means fraternity, with no gender implication, and friends with mutual respect. We therefore feel "Adelphi" is suitable as it gives a sense of family, community and support. Hence we are acknowledging where the institute started but also more firmly to the future and how the Forum can continue to help educate and inform about human heredity and society.

**Professor Turi King**  
**President of the Adelphi Genetics Forum**

## **My Life in Genetics**

### **An Interview with Dr Jess Buxton Trustee of the Adelphi Genetics Forum**



Dr Jess Buxton

#### **Tell us about your early years and what first appealed to you about genetics**

I grew up near Burton on Trent in Staffordshire, a town known mainly for its breweries - to this day the smell of hops takes me straight back to my childhood! My favourite subject at school was Biology, thanks mostly to our extremely enthusiastic A-level teacher. Learning about the structure of DNA and how it encodes the information passed from one generation to the next sparked a lifelong interest in genetics.

I went on to study Genetics at Leeds University, where I learned about the powerful 'new genetics' techniques that were enabling

scientists to identify the mutations underlying inherited conditions such as cystic fibrosis. I wanted to contribute to this exciting area of research, so I applied to study for a PhD in Human Genetics at St Mary's Hospital in London (now part of Imperial College). Shortly after joining, the group moved to Charing Cross Hospital and it was there that our work helped identify the cause of myotonic dystrophy, a type of inherited muscle weakness. It turned out to be a new type of mutation, a kind of 'genetic stutter' caused by an unstable bit of repeated DNA. In those days, we used specific probes labelled with low-level radioactivity to study differences in people's DNA, which were then revealed using X-ray film. I vividly remember the day we puzzled over the strange smears that were so different from the sharp bands we usually saw - before the realisation dawned that it wasn't a failed experiment, rather, we had found exactly what we were looking for! I certainly didn't appreciate at the time how rare these moments are in science, but I was hooked.

### **What is your main area of interest?**

My scientific interests have remained focussed on understanding the contribution of genetic variation to human disease. I've been very fortunate to have had two bites of the research apple. After my PhD, I investigated the different causes of another rare genetic condition, Angelman syndrome, at the UCL Institute of Child Health London. During a ten-year career break from research taken for family reasons, I worked in science communication and so (just about!) managed to keep up with the many advances being made in genetics and genomics. In 2009, supported by a Wellcome Trust Career Re-entry Fellowship, I returned to the lab to work on telomeres - protective caps found at the ends of all chromosomes, composed of DNA repeats bound to proteins.

In most tissues, telomeres shorten with each cell division. Telomeres are often likened to the plastic tips found at the ends of shoelaces; if the ends of your shoelaces are frayed and tip-less,

it's probably time to buy a new pair. In the same way, cells with very short telomeres are likely to have accumulated widespread DNA damage, marking the end of the cell's useful life. Research carried out by myself and others has shown that shorter leukocyte telomere length (LTL) is associated with increased risk of age-related conditions such as coronary artery disease. Through further studies carried out in Finnish and rural Gambian populations, our research identified a range of factors associated with LTL: fitness levels, weight gain throughout life, long-term unemployment, some genetic variants and even season of conception.

**What do you consider to be the greatest challenges for genetics in the future?**

I think possibly the biggest challenge is how much we still have to learn about most of the information encoded in the human genome, and how it is used during development, throughout life and in response to disease and injury. It turns out that humans only have around 19-20,000 protein-coding genes, far fewer than originally expected. So our relative complexity is down to how this information is used - how genes are switched on and off in different cells, and at different times. Gaining a deeper understanding of gene regulation will be essential for working out how genetic variants in non-protein coding regions exert their effects.

**What role do you think the Adelphi Genetics Forum can play?**

Another challenge for those involved in genetics is to communicate some of this uncertainty - how much we currently *don't* know, despite the mind-boggling speed with which whole genome sequences can now be obtained. Public engagement with genetics remains vital, and the Adelphi Genetics Forum has an important role to play in explaining not only the promise of recent advances in this area, but also their limitations.



**Previous contributors to the *My Life in Genetics* series:**

Published in the *Galton Review*:

<b>Professor Nicholas Wood</b>	<b>Issue 15</b>
<b>Professor Dallas Swallow</b>	<b>Issue 14</b>
<b>Professor David Galton</b>	<b>Issue 13</b>
<b>Professor Andrew Read</b>	<b>Issue 12</b>
<b>Professor Veronica van Heyningen</b>	<b>Issue 11</b>
<b>Professor Dian Donnai</b>	<b>Issue 10</b>
<b>Professor Philippa Talmud</b>	<b>Issue 9</b>

**Teachers' Conference**

**Free conference for A-level teachers in Manchester**

On Friday **1<sup>st</sup> July, 2022** the Adelphi Genetics Forum is holding a conference *Recent Advances in Genetics* for A-level teachers. This is being held at the Nowgen Centre in Grafton Street Manchester and is a free ticketed event with coffee/tea/lunch also being provided free. Topics included in the programme:

**Professor Andrew Read:**

Genome wide association studies and polygenic scores

**Dr Panos Sergouniotis:**

Stem cells and their applications

**Professor Turi King:**

Genetics and ancestry

**Professor Gregory Radick:**

Curriculum reform in introductory genetics

**Dr George Burghel:**

Precision medicine

**Dr Rhona MacLeod:**

Careers in genetics

**To apply for a ticket:** [executiveoffice@adelphigenetics.org](mailto:executiveoffice@adelphigenetics.org)

or via the Adelphi Genetics Forum website at:

<http://www.adelphigenetics.org/events/>

**IUSSP-BIEA Seminar on Looking Backward, Looking Forward:  
African Demography in Historical Perspective,  
OI Pajeta, Kenya**

**30 November - 2 December, 2021**

**Seminar report**

The IUSSP Scientific Panel on Historical Demography together with The British Institute in Eastern Africa (BIEA) and the London School of Hygiene and Tropical Medicine organized a seminar on African demography in historical perspective in OI Pajeta, Kenya on 30 November to 2 December 2021. The seminar was sponsored by the IUSSP, the Wellcome Trust, the Jan Wallander and Tom Hedelius Foundation, and the **Galton Institute**. Sarah Walters and the BIEA were the local organizers.

There is a resurgence of interest in Africa's demographic past. Evidence on past population trends is essential to respond to core questions in African history, such as the human cost of the slave trade; the impacts of colonialism on health, wellbeing and the family; the effects of post-colonial policies on households and livelihoods; long-term trends in mortality and migration; and the influence of religion, education and employment on intergenerational relations and the social organisation of reproduction. Improving the evidence of Africa's past populations will illuminate how people have managed their resilience and reproduction over time, in the face of environmental, epidemiological, political and economic change.

Understanding the historical origins of African demographic regimes may also help to influence current and future population trends. This is important given Africa is projected to account for more than half of all global population growth by 2050, with implications for both demographic



Conference venue at the Sweetwater camp

dividend and migration. In particular, contemporary demographers have called for interdisciplinary and historical approaches to improve understanding of the contexts of fertility transition in the region, including its stalls, reversals and exceptional age- and parity-specific dynamics, as well as the historical context of the AIDS pandemic.

The seminar brought together 26 participants from Kenya, Uganda, Belgium, France, The Netherlands, Spain, Sweden, Zambia, the United Kingdom, and the United States. 21 participants were present in Kenya and 5 participated virtually. 21 papers were presented dealing with different contexts in both time and space, as well as different aspects of demography and population history. Presentations showcased the growing availability of historical demographic micro-data through new digitisation projects, including the use of both parish registers and hospital records for historical demography. The variety, quality

and accessibility of such micro-data was discussed, including the relative advantages of various denominational records, e.g. Anglican records for occupational data (Meier zu Selhausen & Weisdorf) and Catholic and Lutheran records for 'family cards', which enhance family reconstitution (Walters, Doyle, Pöhlmann & Rafferty; Thibon). Participants assessed the completeness and quality of these records and described work to improve demographic reconstruction through linking and comparing with historic hospital records (Doyle) and HDSS data (Walters, Doyle, Pöhlmann & Rafferty). Consideration was also given to historical legacies of missionary influence for healthcare (Baumert; Bolt and Cilliers) and current sexual health and HIV trends (Chiseni), using historic annual reports and contemporary DHS data.

The use of other data sources included census and Demographic and Health Survey (DHS) data, oral histories, qualitative archival research and official reports, genealogical data and health and demographic surveillance site (HDSS) data. Innovative methods were introduced to maximise the exploitation of DHS, census and HDSS data to study long-term trends in fertility and marriage, such as the use of an extended Own-Child Method to impute full birth histories and reconstruct fertility from census data back to the late-1940s in Kenya (Timaeus), and the use of sequence and cluster analysis to consider compositional change in reproductive regimes using HDSS data in Senegal during the 1940s-70s (Bras, Remund, & Delaunay). The importance of revisiting pre-transitional fertility rather than taking the 1970s as a baseline for the study of trends was stressed. Cilliers & Mariotti presented the application of Cure models to study the South African settler fertility transition using genealogical data.

Other studies considered long-term change in adolescent fertility (Garbett & Perelli-Harris) and the contribution of marriage and union formation to fertility change using DHS data (Grant and Kohler). Golaz considered the reporting and recording of marriage over time in DHSs from Uganda and Kenya, and Thibon focused on changes to demographic regimes in Burundi and Rwanda during 1980-1993, assessing narratives about mounting population pressure at that time. Marco-Gracia & Fourie exploited the full series of South African censuses from 1911-2011 to re-examine the unusual pattern of high female to male child (<5 years) sex ratios over time in the region. Bolt



Professor Lynn Thomas (University of Washington) gives a virtual presentation about the history of Kenya's abortion debates

and Cilliers revisited colonial official statistics, presenting an exciting new dataset based on the digitisation of health data from Blue Books and Annual Medical Reports from African countries under British rule, which they are using to consider trends in health provision and funding over time, linked to demographic outcomes.

Several of the papers focussed on Kenya, considering regional fertility change over the past 70 years and identifying the need to consider local as well as national influences of colonialism and Christianity on demographic regimes (Timaeus, Ojaka, Gitu). Ojaka called for more local studies based on microdata from parish registers and health facilities, especially to understand trends in Central Kenya through the 1950s-70s—a suggestion met by Doyle's description of microdata in that region. Thomas described the 'layering' of debates about reproduction, focussing on abortion, and showing the interactions between international, national, and individual concerns in policy and outcomes in Kenya.



The seminar participants at  
the Sweetwaters camp, OI Pajeta, Kenya

Amone's paper focussed on the demographic impacts of the slave trade in northern Uganda, showing the relevance of past patterns of slave raiding for ongoing settlement practices in the region. In a dedicated session on migration, participants described how patterns of movement have arisen, shifted, and changed from the mid-eighteenth century through to the present. Manning discussed how rates of out-migration were higher in the context of the slave trade than they are today, even if absolute numbers of migrants today are far higher. De Haas and Frankema show how the global "age of mass migration" (1850-1940) was characterised by the rising importance of intracontinental migration, and the contraction of intercontinental trends. Menashe-Oren and Bocquier show how differences in natural increase between rural and urban areas explain observed trends in urbanisation during 1985-2015 far more than in-migration to urban areas.

On the final day of the meeting, we held a discussion session to reflect on how lessons from the past can and should inform current and future knowledge about population change in Africa. We also held a workshop session to discuss possibilities for future collabora

tions, key research themes and prospects for further expansion of data and methods in African demographic history. We recognised a lack of research on mortality in our seminar and a concentration of work on East, Southern and Anglophone Africa. We discussed potential for summer schools, future research workshops, joint publications, and the further development of the African Population History Network (APHiN) to support work in this field.

The seminar was organized under difficult circumstances, first scheduled in March 2020, but postponed due to Covid-19. Also, the final seminar was affected by various Covid-restrictions, such as mandatory mask wearing and daily testing. Despite these constraints, it was fantastic to connect with colleagues in-person, and the virtual presence of those who were unable to join us in Kenya was a great addition to the seminar.

**Sarah Walters**  
**London School of Hygiene and Tropical Medicine**

### **Grants for conferences and workshops**

The Adelphi Genetics Forum makes awards of up to £1000 to help meet the cost of organising and running conferences or workshops on topics relevant to the Institute's aims. We will under special, exceptional circumstances increase funding up to a maximum of £2,000, if the request is well justified.

Full details of the grants can be found on our website at: <http://www.adelphigenetics.org/grants/grants-for-conferences-or-workshops/>

## **BOOK REVIEW**

**The Diet Myth: The real science behind what we eat –**

**Tim Spector** Weidenfeld & Nicolson 2015; 2nd edition 2020.

**Spoon-fed: why almost everything we've been told about food is wrong - Tim Spector** Jonathan Cape 2021

Everybody these days has to have their pet allergy. Mine is to books on diet and healthy eating – or worse, Internet lifestyle pundits. All those uber-confident know-nothings yelling their simple certainties at us while raking in the cash from their marketing arm. But you can't accuse Tim Spector of being one of those. As most readers will know, he is professor of genetic epidemiology at King's College, London and an NHS consultant, well known for his twin studies and for the Zoe smartphone app that, among other things, generated survey data on Covid symptoms at an unbeatable rate and scale. At very worst, a sceptic might accuse him of being an uber-confident know-an-awful-lot. And he does know an awful lot, but actually he's not uber-confident. Within the general message that the healthiest diet is rich in diverse vegetables, and that highly processed foods are bad, he's very undogmatic about what to eat.

I should plead guilty to having once had a simple certainty of my own when thinking about obesity. Surely you can't cheat the laws of physics: calories in - calories out = calories to fat. QED. Obesity is therefore the result of eating too much and exercising too little: a moral failing. His chapter on Energy and Calories put paid to that simple certainty (though I wasn't convinced by the evolutionary arguments). The physics can't be wrong, but maybe there's rather more to obesity. Your gut is not a simple boiler but has a life of its own – and what a teeming life it is! Tim Spector has been studying the gut microbiome for many years, leveraging metagenomics, his twin studies and the Zoe app to generate huge amounts of data that take one far beyond my erstwhile simple certainties.

The 2015 book is rather charmingly structured as a run through the list of ingredients you might find on a supermarket food label. So there are chapters on 'Total Fats', 'Saturated Fats', 'Animal Protein' and so on. Each is written in an easy style with anecdotes and studies suggesting the relevance - or more usually, lack of relevance – of that ingredient to obesity and other health issues. It's written for the



intelligent layman, but provided with extensive references to the serious scientific literature. Fashionable fad diets get a lot of stick; the positive parts are very undogmatic about details, but again and again he comes back to his studies on the gut microbiome, making the case that a diverse and healthy gut flora is a major key to good health and a long life. In summary, a stimulating and entertaining read.

I read this book before tackling the second one because I wasn't sure whether that was necessary prior reading or whether the second book was basically a reiteration of the same material. It does indeed cover much of the same ground, but this time each chapter is headlined with a myth – a common belief or even some official guidelines – and debunks it. Some myths are unexpected in this context: 'All processed food is bad for us' or 'Local food is always best'. There is more emphasis on the ecological and environmental consequences of diet choices, in addition to any health issues. The importance of a diverse microbiome is taken as a given. Overall the message is low-key and not at all shouty: we are all different, and different people react differently to different foods – but ultra-processed foods are to be avoided, and a diet including a wide variety of plants is likely to be best. The bad guys are the food industry giants and governments issuing one-size-fits-all dietary guidelines.

So should we follow Spector's recommendations? I'm not qualified to pass judgement on his science: the literature on diet, obesity and health is so vast and varied that an enthusiast can always find studies to support his views. But Spector comes with far better credentials than the average diet-book author. And it's clear that the current jungle of diets and guidelines has done little to stem the global epidemic of obesity and diabetes. For myself, having by good luck – and not by any consciously 'healthy' lifestyle – reached ripe old age without suffering any of the malign consequences of 'Western' diets, I complacently feel if it's not broke, don't fix it. But for many people it is broke, and if you need a fix Spector's answers look a lot better than most of the alternatives. Anyway, you'll enjoy reading these books and being made to re-evaluate a lot of what you thought you knew. And you never know – they might change your life for the better.

**Andrew Read**  
**Treasurer of the Adelpi Genetics Forum**

**Adelphi Genetics Forum  
Conference 2022  
*Living with the Eugenic Past***

2022 marks the bicentenary of the birth of two men whose pioneering work mattered hugely for the science of human genetics, Gregor Mendel and Sir Francis Galton. But their work also mattered hugely for the development and popularization of the dismal project that Galton enduringly named “eugenics”: the breeding of “better” people through science. In recognition of the Adelphi Genetics Forum’s descent from the Galton Institute and, ultimately, the Eugenics Education Society – and in keeping with a longstanding tradition of support for public and scholarly discussion and reflection on eugenics – our conference this year is devoted to the problem of how best to live with the eugenic past. What are the demands of justice when it comes to the victims of eugenics? How should universities and other institutions involved in eugenics deal responsibly with that involvement? Can present-day biology education and research be improved to help safeguard the future from the mistakes of the past? These are among the questions to be taken up with guidance from our international group of distinguished speakers, beginning with Ms Elaine Riddick, who, having suffered coerced sterilization in North Carolina in the 1960s, has gone on to become an influential champion of eugenics’ victims. Other speakers will be offering perspectives from the history of science, moral philosophy, science education, genomic medicine and law. Near the end of the day there will be a lecture from the science writer and broadcaster Dr Adam Rutherford, author of *How to Argue with a Racist: History, Science, Race and Reality* (2020) and, most recently, *Control: The Dark History and Troubling Present of Eugenics* (2022).

**Gregory Radick  
Professor of History and Philosophy of Science  
School of Philosophy, Religion and History of Science,  
University of Leeds**

**Wellcome Trust Lecture Hall**

**The Royal Society**

6-9 Carlton House Terrace, London SW1Y 5AG

on  
**Wednesday, 5<sup>th</sup> October, 2022**

**Speakers:**

**Ms Elaine Riddick**

Chairperson, Rebecca Project for Justice, Georgia, USA

**Professor Joe Cain**

Professor of History and Philosophy of Biology, University College London

**Professor Zofia Steplowska**

Professor of Political Theory & Director of the Centre for the Study of Social Justice, University of Oxford

**Dr Brian Donovan**

Senior Research Scientist, BSCS Science Learning, Colorado, USA

**Professor Anneke Lucassen**

Professor of Genomic Medicine & Director of the Centre for Personalised Medicine, University of Oxford; Professor of Clinical Genetics, University of Southampton

**Dr Adam Rutherford**

Science writer and broadcaster, UK

**Professor Michele Bratcher Goodwin**

Chancellor's Professor of Law & Director of the Center for Biotechnology and Global Health Policy, University of California Irvine, USA

Admission is free, but strictly by ticket, available from:

[www.eventbrite.co.uk](http://www.eventbrite.co.uk)

or The General Secretary  
Adelphi Genetics Forum  
19 Northfields Prospect  
London SW18 1PE

[executiveoffice@adelphigenetics.org](mailto:executiveoffice@adelphigenetics.org)

[www.adelphigenetics.org](http://www.adelphigenetics.org)

