

*Galtonia candicans*

# The Galton Institute

## NEWSLETTER

Issue Number 76

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### EDITORIAL

In the Queen's Birthday Honours a knighthood was awarded to Professor Robert Edwards to join his Nobel Prize. This a great honour for him and a delight for the Institute, but it is a shame that as so often it was awarded long after it was deserved.

In May 2011 a past President of the Institute, Professor Margaret Sutherland, died and there is an obituary in this issue.

We have reports of two excellent meetings; that of the 6th European Human Behaviour and Evolution Association describes three very full days. I hope the inclusion of abstracts from the Contemporary Childbearing and Evolutionary Theory meeting at Oxford will be welcomed.

I am most grateful to Professor John Beardmore and to Patrick James for their book reviews as this is a feature I wish to expand. Also included is a very personal introductory account by Patrick James of an extended South Welsh family; more may be published in future issues.

The Institute is enabled to carry out its work in supporting the study and disseminating knowledge of human heredity and associated disciplines by the generosity of past members in making bequests to the Institute. I would like to encourage current members to consider acting in a similar generosity of spirit when making or revising their wills. Such bequests are most useful when the use of funds so generated is unrestricted. Nevertheless funds desig-

nated for any purpose which lies within the remit of the Institute will be welcome. advice on this is to be found on page 11.

Contributions to this Newsletter are always welcome, but please remember that it is not a peer-reviewed publication so it is not suitable for all material.

### Obituary

Professor Margaret Sutherland  
1920-2011

Margaret Sutherland, who died on 29<sup>th</sup> of March, was a gifted linguist who achieved first class honours in both her M.Ed. and her B.A. at Glasgow. She pursued an academic career, working in the departments of education at Queen's, Belfast, and Leeds Universities before retiring to St. Andrews. Her research interests focussed on educational psychology and sex differences in education. In addition to her academic responsibilities she contributed to the work of a variety of academically related bodies such as the U.G.C. and the University Council for the Education of Teachers. She was honoured by the French government by appointment as *Chevalier* in the order of the *Palmes Academiques*, a distinction valued but nevertheless, given her commitment to the cause of equality of treatment for women, a title she could be forgiven for regarding as ironic.

Margaret Sutherland served, with characteristic vigour, on the Council of the Institute for twenty years from 1973 and as its President 1987-1993.

**John Beardmore**

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## The European Human Behaviour and Evolution Conference 2010

The 6<sup>th</sup> European Human Behaviour and Evolution Association conference was held from the 24<sup>th</sup> to the 26<sup>th</sup> of March 2011, at the Justus-Liebig University of Giessen, Germany. Attended by over 130 academics and students from about 20 countries, the meeting sustained the association's aim of inter- and sub-disciplinary communication across the human evolutionary behavioural sciences. Six distinguished plenaries and 49 presentations spanned the range of evolutionary behavioural research from Cultural Evolution to Evolutionary Psychology, Human Behavioural Ecology and Evolutionary Medicine; all notable for their sophistication and scope. When talks had finished, attendees mingled over drinks at the poster sessions, at which 37 academic posters were showcased.

For their tireless efforts, congratulations and thanks go to this year's organising committee from the Justus-Liebig University of Giessen; Eckart Voland, Joerg Wettlaufer, Ulrich Frey, Johannes Johow, Hannes Rusch, Charlotte Stoermer, and Kai Willfuehr. The huge success of the conference and the excellent scientific programme is to their credit. Special thanks go also to the President of Justus-Liebig University, Prof. Dr. Joybrato Mukherjee, for his patronage. **The Galton Institute**, the Giessener Hochschulgesellschaft and the Deutsche Forschungsgemeinschaft all provided generous financial support.

### DAY 1

The first plenary of the conference was given by Kim Hill, whose captivating talk on the origins of human uniqueness highlighted profound and fundamental questions about our

status as cooperative and cultural animals. The first session followed, in which Shakti Lamba presented her work on experimental public goods games in a tribal community in India, and David Lawson presented his work on the life history trade-off between fertility and child survival using data from Sub Saharan African countries. The session was closed by Lucie Clech, who talked on social networks and out-migration patterns in rural and urban Ethiopia. The second session was entitled Attractiveness and Fertility, with Edward Morrison opening discussion of whether facial attractiveness is a stable phenomenon. Antonio Silva followed with a talk addressing whether facial attractiveness is heritable and/or related to reproductive success.

The second plenary lecture was given by Carel Van Schaik; echoing the issues brought up in Kim Hill's plenary, Van Schaik emphasized the importance of cooperative breeding to the genus *Homo* in setting us on our path to modernity. The plenary was followed by a session on Life History Theory. The first talk by Rebecca Sear reviewed evidence from all currently published studies on relationships between height and mortality and/or mating success. David van Bodegom presented the results of a longitudinal study on selection for longevity in a polygamous population in rural Africa. After coffee, a set of parallel sessions began. In the first, on Machiavellianism, Alyson Blanchard presented research on 'Uncaring Fathers and Psychopathy', using an online survey methodology examining attachment styles and parental bonding. Minna Lyons elaborated on the theme in a study examining its relationship with childhood experience and functioning in social relationships. Tamas Bereczkei presented results of fMRI scans showing that individuals scoring highly on Machiavellianism use high-level cognitive processes while making decisions in social dilemmas.

Continuing the theme of Life History Theory, the second parallel ses-

sion focused on Early Life Contingencies. Charlotte Stoermer presented work on the historical Krummhoern population, and Paula Sheppard presented her work on the effects of father absence on male reproductive decisions in a British cohort. Kai Willfuehr closed the session with a talk on clustering of infant deaths in second marriages, in historical Krummhoern and Canada.

In the evening a 'science speed dating' event was held, during which attendees spent 5 minutes discussing each others work and getting to know one another before moving along to speak to their next 'date'.

### DAY 2

Karl Grammar delivered the morning plenary lecture on the current status of attractiveness research in evolutionary psychology. The morning session on Mating Strategies followed the plenary, and the first talk, given by Martin Fieder focused on mate choice and health characteristics. Laura Fortunato presented a game-theoretic appraisal of the paternity threshold model. Following coffee, talks focused on Preferences and Constraints in Mating. Gert Stulp presented work on the relationship between lab-based and actualized preferences for height in UK men and women and Jan Antfolk presented findings from a Finnish study on sexual interest and sexual behavior. Kelly Cobey gave the results of a study on elderly US males, showing that testosterone levels are positively associated with the lifetime number of opposite sex partners. Alexandre Courtiol ended the session with a talk on mutual mate choice, assortative mating, and mating preferences.

The fourth plenary, after lunch, was given by Peter Richerson who outlined the case for Cultural Group Selection, another important theme of this year's conference.

Two parallel sessions followed, on Cultural Evolution and Coopera-

tion – Assortment, respectively. Micael Ehn presented a model and empirical test of specialization as a function of societal development, interpreted from a cultural evolutionary perspective. Christina Matthews presented her work on the conditions leading to in-group favouritism and group markers in experimentally controlled microsocieties. Julian Garcia presented a computer simulation model of cooperative behavior based on assortment and population structure. The final talk in the session was given by Patrick Heady, who presented data from a comparative project on European kinship ties.

The final two sessions of the day were on Kin and Reproduction, and Cultural Transmission. In the first, Johannes Johow presented analyses on the Krummhoern showing that reproductive strategies may be contingent on socioeconomic stratification. Paul Smaldino presented an agent-based model of parental involvement in human mate choice. Aida Nitsch, using a historical dataset from Finland, showed evidence for both cooperation and competition between siblings in aspects of mating and resource acquisition. Curtis Atkisson presented the final talk of the session, comparing hypotheses relating to kin support and kin influence on reproductive outcomes.

Alex Mesoudi gave the first talk in the Cultural Transmission session, presenting comparisons of human social learning strategies under experimental conditions. Christine Caldwell followed with a further experimental study of microsocieties, and arbitrary symbolic communicative conventions. Alberto Acerbi showed how the cultural transmission of preferences creates fashions and fads that replicate empirical distributions. Ulf Toelch closed the session with a talk on trait 'stickiness' in cumulative cultural evolution, based on repeated experimental investment games.

### DAY 3

The fifth plenary was given by

Manfred Milinski, whose talk focused on cooperative behaviour in experimentally controlled dilemmas, in particular the climate change game. He discussed the implications for this dilemma in the real world.

A session on Game Theory followed the plenary, with the first talk from Kengo Tane, focusing on experimental evidence for the reversed observer effect. Tuende Paal, also using experimental games, examined the role of Machiavellianism in a competitive public goods game setting with costly punishment. Following coffee, Social Learning was the focus of attention, with a talk presented by Thomas J. Morgan on the evolutionary basis of human social learning. Joanna Bryson reviewed microbial evidence that secondary replicator systems can enhance host fitness, for example, by promoting cooperation. Masanori Takezawa presented results of computer simulations on two social learning strategies, and Anne Kandler, presented a mathematical model of the interplay between social transmission and individual learning.

The final plenary lecture was given by Thom Scott-Phillips, winner of the New Investigator Award for 2011. His talk covered the broad range of communication, cognition and the origins of language, in particular focusing on human inferential communication.

Parallel sessions on Face Recognition, and Cooperation – Dynamics followed the plenary. Anthony Little began the session by presenting on how exposure to visual cues of pathogen contagion influenced males and females to moderate preferences for masculinity and symmetry. Tamsin Saxton presented the results of a lab-based experiment where females altered faces to increase their attractiveness.

In the session on the dynamics of cooperation, Elizabeth Oberzaucher gave a talk on the heuristics of error

management as a function of sex differentiated strategies in experimental patience games. Ulrich Frey showed that across studies, individuals make decisions influenced by group behaviours and situational context rather than pursuing clearly-defined individual strategies.

The final sessions focused on Hormonal Variation and Attractiveness, and Darwinian Medicine – Adaptations and Beyond. The first was opened by Indrikis Krams with a talk on Hormonal Variation and Attractiveness. Pavlina Lenochova presented findings from a body-odour experiment during and after pregnancy. Jan Havlicek presented evidence of odour detection as well as facial and vocal preferences by females. Lisa de Bruine ended the session with a presentation on masculinity preferences of women across regions of the USA. The final session on Darwinian Medicine was opened by Geoff Cole, who presented the results of spectral analysis of phobia-related images. Markus Rantala followed with a talk on the relationship between male body attractiveness and immune-response. Keith Morgan presented on the evolution of psychopathy, using evidence from an experiment on car salesmen in the UK. The final talk of the session and the conference was given by Annemie Ploeger, who reviewed the literature on the developmental conditions related to Autism and Schizophrenia.

With the conference at a close, the delegates congregated at a local Giessener brewery, where the prizes for the best student talk, won by Thomas J Morgan, and best poster, won by Roland Eve, were awarded. Finally, all that was left to do was celebrate a very successful conference with dinner and a German beer.

**Heidi Colleran**

**EHBEA** would like to thank **The Galton Institute** who helped support this conference with a grant of £1,000.

## Contemporary childbearing and evolutionary theory

A two-day workshop at St John's College, Oxford

31 March 2011 – 1 April 2011

organised by Anna Rotkirch, Stuart Basten and David Coleman.

The workshop brought together 35 researchers to discuss contemporary childbearing and reproductive behaviour from cross-disciplinary perspectives, notably demographic and Darwinian. It focused on the use of life history theory to explain fertility preferences and reproductive outcomes, including kin support and sexual selection and their effects on the course of natural selection; the effects of social norms, learning, personal preferences and personality on contraception and childbearing; and why fertility levels appear to be recuperating in most developed societies while remaining at the lowest levels in a few areas, for example in urban Asia.

Fourteen papers from across the social and biological sciences were presented. Between them, these papers covered a wide array of settings, data sources (and interpretations), theories and methodologies. In particular, it was felt that presenting findings from one disciplinary viewpoint to proponents of another was a highly useful exercise and one which should be developed in the future.

As well as the presentation of papers, time was devoted to debate and discussion concerning both the general relationship between demography and evolutionary studies, as well as possible future research avenues and collaborations. A general consensus was that there was a real need for greater collaborative

effort between the disciplines and that workshops of this kind should be encouraged and replicated in the future.

The abstracts of presentations are available now on the website of the Oxford Centre for Population Research (OXPOP) website [www.spi.ox.ac.uk/oxpop](http://www.spi.ox.ac.uk/oxpop). The Powerpoint presentations will shortly be available there and on the website of the St John's Research Centre. The abstracts are also printed below.

The initial budget was £4196; a few additional costs were later incurred. **The Galton Institute** kindly contributed £1000, the St John's College Research Centre £2000, the European Human Behaviour and Evolution Association £1000 and The British Society for Population Studies £350.

**David Coleman**

St John's College and Department of Social Policy and Intervention,  
20 April 2011

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### ABSTRACTS

#### *Evolutionary approaches to fertility*

**Rebecca Sear**

*Evolutionary Anthropology Research Group, Dept of Anthropology, Durham University*

Fertility is one of the key components of reproductive success, and therefore has been the subject of much research from evolutionary behavioural scientists. If the aim is to develop a complete understanding of human fertility – why people have children, why they have the number of children that they do, and why these characteristics should vary between individuals and between populations – then the work done by evolutionary scientists must be

included as part of that endeavour. Here I draw together those areas of the human evolutionary behavioural sciences which have focussed on fertility.

Most work on fertility from such researchers is in the related disciplines of human evolutionary (or behavioural) ecology and reproductive ecology. Both sub-disciplines are interested in explaining human behaviour and physiology in its ecological context, using the theoretical framework of life history theory. They differ in the focus of their investigations: human evolutionary ecology is concerned with observed behavioural outcomes (fertility in this case); while reproductive ecology is concerned with the proximate mechanisms which bring about such behaviour (i.e. reproductive hormones). The sub-disciplines of cultural evolution and evolutionary psychology, which have also begun to contribute to the analysis of fertility, will also be mentioned.

How these approaches can be applied to contemporary childbearing behaviour will be discussed, including how these disciplines can help explain: the timing of childbearing (why some women become mothers in their teens while others delay until their 30s); why fertility has declined to such low levels in much of the world; why overall fertility varies between individuals and populations.

#### **Darwinian selection and fertility**

#### *Opportunity for sexual and natural selection in Finland*

**Jenni Pettay**

*University of Turku*

Humans exhibit a pronounced ecological flexibility through social and cultural adaptations, which is often referred to in order to cast doubt on the continued relevance of Darwinian selection in our species. While advances in molecular genetics

and epidemiological analyses demonstrate recent selection on specific loci or traits, a lack of direct studies measuring the overall strength of selection in human populations has led to fierce debates within and outside the scientific world, and continues to fuel disagreement even among scientists applying evolutionary theory.

Using longitudinal data on historical agricultural Finnish populations, we show that individual differences in early survival and fecundity induced large variance in reproductive success, even among wealthier individuals. Variance in mating success influenced reproductive success in both sexes, but men had greater variance in mating and reproductive success than women, despite a monogamous marriage system. Overall, sexual selection alone could have triggered a shift in the average value of a trait to up to 0.39 SD after a single generation of directional selection, corresponding to 25% of the maximal shift engendered by total selection. Our results therefore demonstrate an opportunity for intense natural and sexual selection and contradict claims for minimal evolution in complex agricultural human societies.

***Risk of breeding failure and shifts in life-history traits in recent human demographic transition***

**Jianghua Liu**  
*University of Sheffield*

Radical declines in fertility and postponement of first reproduction in recent human demographic transitions have posed a challenge to interpreting human behaviours evolutionarily. The challenge has stemmed from insufficient evolutionary insight into individual reproductive decision-making and rarity of datasets recording individual long-term reproductive consequences throughout the transitions. This study uses such data from ~2,000

Finnish mothers (first births: 1880s to 1970s) to show that assuring a low risk of breeding failure (failing to raise any offspring to adulthood) underlay both fertility and first reproduction shifts.

Specifically, with steady improvements in offspring survival, the fertility level required to satisfy a low breeding failure risk got lower; subsequently, maternal fertility declined by means of an earlier age at last reproduction. Postponing first reproduction started when breeding failure risk approximated to zero even for those starting reproduction late. Interestingly, despite vastly differing fertility rates at different stages of the transitions, the number of offspring successfully raised to breeding per mother has remained relatively constant over the period. These results stress the importance of measuring long-term success of reproductive strategies by including measures of offspring quality and suggest that psychological dispositions to avoid breeding failure may explain several key features of the recent life-history shifts in industrialised human societies.

***Twinning: Direct or indirect selection?***

**Ian J Rickard**  
*University of Sheffield*

An appreciation of how and why fitness traits vary between individuals can inform our knowledge of evolutionary and demographic processes. Exploring the strength of selection on individual traits, understanding patterns of covariance between traits can help illuminate the processes that underlie this variation. I address this subject by (1) studying the strength of selection on twinning and traits associated with twinning in a pre-industrial Finland. Next I (2) present one hypothesized physiological basis for variation in twinning propensity between women and (3) test predictions of this hypothesis using contemporary data.

Finally, I (4) discuss what implications this hypothesized axis of variation might have for understanding individual variation in reproductive capacity and strategy in contemporary industrialised and non-industrialised populations.

***Intergenerational continuities in childbearing: an update and replication***

**Mike Murphy**  
*London School of Economics*

A number of studies have shown that fertility patterns of parents and children are positively correlated, although the relationship is frequently designated as 'weak'. Evidence from both historical data sets and recent large-scale surveys in a number of developed countries up to the later part of the Twentieth Century was brought together and presented in Murphy (1999). This showed that the association was tending to become stronger over time. This presentation updates and broadens the geographic coverage to enable additional data to be added to the database on intergenerational continuities in childbearing published in Murphy (1999), and in particular to establish whether these trends have continued into this century. The principal indicator used will be product moment correlations of fertility in successive generations, which is the only variable widely available.

The presentation will also discuss how far patterns vary between socio-economic groups, such as by educational level, to assess how far these attenuate the strength of the relationship and vary between different countries as discussed for earlier periods in Murphy and Wang (2001).

References: Murphy M (1999) Is the relationship between fertility of parents and children really weak? *Social Biology* 46(1-2):122-145; Murphy M and D Wang (2001) Family-level continuities in child-

bearing in low-fertility societies. *European Journal of Population* 17: 75-96.

***Are elder siblings helpers or competitors? Long-term fitness effects of sibling interactions in a Finnish population***

**Aida Nitsch**

*University of Sheffield*

Determining the fitness consequences of sibling interactions is pivotal for understanding the evolution of family in species with altricial young including humans. Theory suggests that both competition and cooperation with other siblings could lead to maximization of individual fitness, but the benefits of each strategy may depend on several factors such as family size, age or sex. Although these two types of interactions imply opposite effects on fitness, studies investigating both hypotheses simultaneously over the whole lifespan of individuals are lacking.

We used a large demographic dataset from preindustrial Finland to study both the positive and negative effects of elder siblings on key life-history traits of younger siblings across different ages. We found that the presence of both elder sisters and brothers improved the relative survival to sexual maturity of their younger siblings.

These results suggest that despite a global competition for resources during childhood, elder siblings may cooperate with their younger siblings during this period. However, for both men and women, the presence of same-sexed elder siblings was associated with reduced reproductive success (probability of reproducing, number of siblings and proportion of siblings raised to adulthood). These latter results indicate competition among same-sexed siblings for resources such as mating opportunities once individuals have reached sexual maturity.

This study is one of the first showing opposing effects of sibling interactions depending on the life-history stage, and highlights the need for using long-term measures of fitness to understand the selection pressures on sibling interactions.

***Family and fertility: Kin influence on first and second birth in the British Household Panel Study***

**Paul Mathews**

*London School of Economics*

Particular features of human female life history, such as short birth intervals and the early cessation of female reproduction (menopause), are argued to be evidence that humans are obligate 'cooperative breeders', and require assistance from relatives to successfully reproduce. Evolutionary anthropologists have so far focussed on measuring the effect of relatives on human reproduction in natural fertility populations.

Here we show that in the contemporary UK kin also influence female fertility. We use discrete time event history analysis to analyse the British Household Panel Study (1992-2003). We find that the risk of first and second births is significantly increased when a female is in frequent contact with emotionally close relatives outside her household. Secondly, women whose relatives provide childcare also have faster progression to second birth. Our results, from a non-natural fertility population, are consistent with the pattern predicted by inclusive fitness theory.

***The association between father absence and the timing of male reproductive decisions: Evidence from a cohort of British men***

**Paula Sheppard**

*London School of Economics*

The role of fathers is something of an evolutionary puzzle. In terms of offspring survival, a number of studies have shown that father absence sometimes has negative consequences but more often does not. These findings suggest that fathers are either not beneficial for young offspring or that they confer benefits other than for child health and survival, perhaps in terms of offspring's reproductive success. Father absence in relation to girls' reproductive timing has been fairly well documented in Western populations but little has been done to test the effects of father absence on the timing of boys' life history events in this context. This study aimed to redress that imbalance. Drawing upon data from the National Child Development Study, a cohort of British children born during the first week of March 1958, this study tested whether father absence had an effect on the timing of male reproductive events and puberty. A secondary aim was to determine whether the effects of father absence differed according to the different childhood stages at which the boys lost their father. The results suggest that father absence is related to earlier reproduction compared with young men whose families remained intact and that the loss of the father in early childhood (before age seven) may be important in driving this relationship. In contrast, voice-breaking (used as a proxy for puberty) appears to be delayed for father-absent boys but only when father absence occurs during puberty and not at any younger age. These findings suggest that father absence may be affecting male life history outcomes but that the relationship is complex and in order to disentangle the mechanisms we need to take a more refined approach to these questions.

**Personality effects**

***Personality, fertility and off-***

**spring success: what do we already know?** *University of Helsinki*

**Markus Jokela**

*Institute of Behavioural Science, University of Helsinki  
Department of Epidemiology and Public Health, University College London*

Personality traits – relatively stable individual differences in emotional, cognitive, and behavioral dispositions – have been shown to influence life outcomes in a variety of different domains. Surprisingly, the relationship between personality and fertility behaviour has received very little attention in psychological literature. Using several datasets, we have recently shown that individual differences in personality predict multiple aspects of fertility behaviour, e.g., more sociable and outgoing individuals are more likely to become parents even when taking into account their higher probability of getting married.

In the first part of my talk, I provide a brief review of the emerging research literature on personality and fertility behaviour. In the second part of the talk, I consider potential trade-offs related to different personality profiles. I present preliminary data from the Wisconsin Longitudinal Study (n=5422 participants, and their 17253 adult offspring) examining the hypothesis that associations between parents' personality traits and offspring number may have implications for offspring life outcomes (e.g. educational achievement), which may help to explain why some personality traits are negatively related to offspring number.

**Genetic associations between personality traits and child-bearing: Evidence from a Finnish twin study.**

**Venla Berg and Markus Jokela**  
*Institute of Behavioural Science,*

In the past decade, several studies on both humans and non human animals have shown personality to have fitness consequences. In particular, a tendency to experience (negative) emotions easily, most often called high neuroticism seems to decrease and extraversion, a tendency to be outgoing and sociable, to increase the number of children in contemporary Western societies. Both personality traits and number of children have also been shown to have substantial genetic variation. Thus it seems possible that the associations between personality and number of children could at least partly be genetically mediated, but this has never been studied before.

We used the older cohort of the Finnish Twin Cohort Study (Kaprio & Koskenvuo, 2002; N=8348), with register information on live births, to study the role of nature and nurture in these associations. Neuroticism and extraversion were assessed with a short form of the Eysenck Personality Inventory. We found that extraversion in men increased the number of children, and this association was completely genetically mediated, genetic correlation being .14. In women, neuroticism decreased the number of children, and this association also was entirely of genetic nature, correlation -.10. These results indicate that modern humans do continue to evolve, and that the genetic variation in personality could be maintained by distinctive fitness consequences of personality in women and men.

## Norms and preferences

**The global development of one child norms, with a focus on China and India.**

**Stuart Basten**

*Oxford Centre for Population Studies, University of Oxford*

Since the earliest projections, the UN has supposed that global fertility will converge on something around 2.0. Similarly, surveys of ideal family sizes and fertility intentions in the industrial world almost always show a very heavy concentration around 2, with the tendency being to higher rather than lower fertility. Family tickets, cars and hotel rooms are primarily designed for 2 adults and 2 children.

This presentation examines some parts of the world where the two-child norm is being challenged. The first example of China can be viewed as an exception - at least in policy terms - but other examples using DHS data and, particularly from India, suggests that significantly lower fertility ideals are far from exclusive to China. Indeed, the phenomena of below replacement level fertility can be found in many urban centres across the developing world.

As the world becomes increasingly urban, and as the global demographic influence of 'The West' diminishes, could it be time to challenge this assumption of a global 'two child' future?

**Social transmission and the adoption of modern contraception in rural Ethiopia**

**Alexandra Alvergne**

*University College London*

Socio-economic development has proven to be insufficient to explain the time and pace of the human demographic transition. Shifts to low fertility norms have thus been thought to result from social diffusion, yet to date, micro-level studies are limited and are often unable to disentangle the effect of social transmission (i.e. conformism and social learning) from that of extrinsic factors.

We used data which included the first ever use of modern contraception among a population of over 900

women in four villages in rural Ethiopia, where contraceptive prevalence is still low (< 20%). Information on the time of adoption was combined with friendships and spatial data, ruling out the possibility that social interactions and fertility are jointly determined. Using a model comparison approach, we found that individual characteristics and a religious norm are the most likely predictors of temporal and spatial patterns of contraceptive uptake, while the role of person-to-person contact remains marginal.

We argue that social learning, rather than conformism, explains why some studies have found effects of social networks on contraceptive uptake. The results have implications (1) for models of fertility transition and (2) for evolutionary scenarios for the diffusion of cultural traits that appear a priori maladaptive at the individual level. Some have argued that social influence explains why cultural innovations that are not fitness enhancing might spread, but our data from a population in the early stage of the diffusion process reveal that contraceptive uptake mostly reflects individual decisions.

## Mate choice and union formation

### *What room for choice in mutual mate choice?*

**Alex Courtiol**  
*University of Sheffield*

Despite the distinction between mating preferences and actual pairings to mate, these two concepts are often confused under the label "mate choice". Such a distinction is not a trivial matter and it might challenge interpretations of studies in fields such as evolutionary psychology, demography, or evolutionary biology. Investigations of the link between mating preferences and mating patterns are however cur-

rently lacking, and previous studies on mating preferences have often overlooked the consequences of the fact that both men and women show mating preferences.

To illustrate the distinction between mating preferences and mating patterns, as well as their consequences, I will present two empirical studies: one which examined whether assortative mating patterns documented for height are a consequence of mating preferences, and another which measured mating preferences for height, mass and BMI and compared these preferences to the actual characteristics of the partners.

The two studies exemplify an almost unavoidable consequence of mutual mate choices: mating preferences expressed by males differ from those of females in a way which precludes pair formation of couples for which preferences of both partners would be simultaneously satisfied. Consequently, asymmetries between sexes arise. Here, the tug of war seems to favour males but this situation can counter-intuitively be predicted by models assuming that women and not men control mating decisions.

All is not for the best in not the best of all possible worlds, and predicting the outcome of mutual mate choices is difficult. Yet, I will suggest how building a bridge between the economic and biological views of mate choice could provide significant insights to better understand the complex process of pair formation.

### *Pathways to above-average fertility in Finland.*

**Anna Rotkirch and Anneli Miettinen**  
*Population Research Institute, Väestöliitto, Finland and Oxford Centre for Population Studies*

After a century of almost uninterrupted fertility decline, fertility trends appear to be rising in highly devel-

oped countries. As the proportion of childless people is also growing in most of these societies, the current rise is caused by some parents having many children. Which factors contribute to above-average (3+) fertility? Our talk presents preliminary results from Finland, a country with a long tradition of women working full-time and policies facilitating the combination of wage work and parenthood.

We used an 11% extract from the Palapeli research register, which covers the entire population of Finland 1970–2003 and includes longitudinal data on individuals, their unions, partners, and children. First, we analysed the age cohorts of 1925–1964 by sex and parities in relation to education, socioeconomic status (type of occupation at age 40), and numbers of unions (cohabitation and marriages). We then studied the different pathways to 3+ parities in relation to education and ages at first and last births. Statistical results are discussed together with results from in-depth interviews conducted with fathers and mothers of three or more children.

Results show that socioeconomic status correlates positively with male fertility, although differences are smaller for younger cohorts. Among women, education correlates negatively with parities in the older cohort but this association levels out among younger cohorts, and the effects of occupation vary. Social and occupational differences among 3+ parents affect the timing especially of first births.

**The Galton Institute** offers grants of up to £1,000 to support the organisation of conferences and workshops on topics relevant to its aims and objectives.

**The Institute** has recently approved a grant for a series of seminars to be held under the auspices of the Oxford Fertility and Reproductive Studies Group in October and November this year under the title *Cousin Marriages and the Medicalisation of Spouse Selection*.



## BOOKS

Joan Freeman: ***Gifted Lives***, Routledge, Hove and New York, 2010, PP.313, £9.95

This volume chronicles the passage, with attendant ups and downs, from childhood to adulthood of twenty children termed gifted by the author who, as a psychologist, has worked for many years on the development of talented and gifted individuals. As she points out 'gifted' may be used in differing ways by different people but for the purposes of this book is taken to indicate "outstandingly high mental ability" whereas 'talented' indicates "outstandingly high artistic ability", though recognising that there may be considerable overlap. I suspect that this taxonomic approach will not find favour with all readers and, given that one third of the individuals she describes also displayed exceptional musical ability, may not be easily defended.

The original sample size studied was two hundred and ten drawn from sixty schools and followed over a period of thirty-five years. No indication is given of how the twenty subjects described in this volume were selected from the much larger original pool. This an important criticism because, after reading the account, one is left with the impression that, if the group (of twenty) is typical, many gifted individuals will have early lives replete with social, psychological, sexual and other difficulties.

No information is given as to the tests used to characterise individuals as gifted but the most reasonable inference is that these were, or were largely, I.Q. tests. Males and females are roughly equally represented in the sample but the ethnic composition is, though not stated, probably unrepresentative of the general population.

The individual accounts are stories with considerable human interest. They portray individuals from a wide range of socio-economic backgrounds with exceptional abilities usually recognised quite early in life but met with very variable reactions on the part of families and teachers. Considerable detail attaches to these accounts with extensive quotations from the subjects themselves. The quoted effects of parental influence are particularly interesting as it would appear that problems caused by overly 'pushy' parents may be greater than those caused by parental indifference. The author very sensibly urges considerable caution in arranging the educational progress of gifted individuals which, if inappropriately accelerated, is likely to lead to problems. Noticeable, too, are the difficulties arising from the changes in social class environment which arise, inevitably, in the lives of many subjects. As always with life events those individuals with greater levels of resilience and self-confidence tend to end up living adult lives with which they feel comfortable.

For this reviewer, the lack of quantitative information and of general conclusions as to effects of being a gifted child on life chances make the book somewhat less interesting than might otherwise have been the case. Nevertheless, it is written with authority and can be read with considerable interest and enjoyment as a discursive account of the earlier lives of some (possibly unrepresentative) gifted individuals.

**John A. Beardmore**

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Simon Baron-Cohen: ***Zero Degrees of Empathy: a new theory of human cruelty***, Allen Lane, April, 2010, pp.178, £20

Simon Baron-Cohen's new book *Zero Degrees of Empathy* continues his research into empathy. He is always very good at meshing together

psychology and brain structure and this time he attempts to demystify 'evil'; essentially as a lack of empathy.

This absence has two faces. One is frighteningly life-destroying and the other, acting through high grade autism and Asberger's syndrome, produces an extraordinary creative, testing every step that man takes to advance, by noticing repeating patterns – systematizing.

He believes also that there is really no excuse for terminating a life as a punishment but I think that since the species is the most vicious one on the planet and has achieved dominance by that terrible stance, one must consider evolution and survival for us all.

For him empathy is much more vital as an instrument to be used between people. Conflict between Arab and Jew in the Middle East will only be solved by feeling the enemy's problems.

An interesting chapter on genetics could have been longer. Happily, Baron-Cohen is not a Dawkinist and can bring in religion without cant but neither is he sentimental. He has produced two good books in this field before but this one left me in the air.

I feel it is a stop-gap but nevertheless is thoughtful and well worth reading. Say, seven out of ten!

**Patrick James**

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Duncan, John: ***How Intelligence Happens***, Yale University Press, 2010, pp. 235, £20

When I came across John Duncan at the beginning of the century I was greatly heartened by his belief that Spearman's '**g**' was in fact represented by a definite neurophysical structure in the frontal lobes.

The popular conception at the time was that we were controlled by a number of separate operation systems, a domain, rather like Spearman's 's' or special ability, so that intelligence was simply the average. To me this seemed very weak, and indeed wrong.

This book exposes Duncan's progress over the next decade and it has a number of gems such as pointing out that if the brain was divided into ten thousand tiny pieces, each of these might still contain a hundred million neurones. Better

than saying a total of ten billion which is beyond my comprehension.

His writing is clear if not concise, and I believe directed at the educated layman. In this he is successful but his diagrams are poor, if adequate, in explaining the text.

Finally, with modern equipment he has discovered a system that can work with any sensory or motor input to carry out a small programme that forms the basis of a much larger logical programme and that can

switch in milliseconds to the next step in deduction. The system can be coloured by all the other systems in the body from physical well-being to a clutch of emotions. In other words, human thought, with all its faults.

This work has huge potential in the understanding of how minds work across species and how artificial intelligence is going to develop as a prop to mankind in the far future. I urge you to read it.

**Patrick James**

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## **An Introduction to a Long Haul**

This is a report on the measurement of an extended Pembrokeshire family by one individual, touching people across five generations from the 1840's onwards.

About 800 individuals have been personally measured for up to 140 characteristics and the background pedigrees are well established. The features involved are relatively simple because one has to work within a budget but much can be done over the decades.

One major difficulty encountered is that the characteristics depending upon genetics rely upon a number of genes across the genome and 30% of the phenotype might be controlled by environmental effects in the widest sense.

Firstly then, the background. Megalithic monument builders form the earliest recorded occupation, clearly in contact with the rest of southern Britain and part of a well ordered society that could transport Blue Stones to Salisbury Plain.

Norse invasion and settlement is indicated by the 27.2% non-taster range of P.T.C. About the same as the Isle of Man, a major Norse colony.

Much is made of the 'Lansker Line' across central Pembrokeshire separating the Welsh speakers to the north from the Flemish mercenaries in the south, but blood-group distribution does not recognise this. The young are more interested in romance than ideologies. The Middle Ages brought in the Irish and many villages had only the priest as the English Speaker. Still later, Milford Haven was developed as an American whaling station before it became a deep-water trawler port.

Coastal marine trading and an Irish, French, Tenby triangle of trade in Tudor times must have added to the genetic mixture and the post Civil War pressure on the southwest of England forced migration from that peninsular.

Officially Romans did not get further west than Carmarthen but their coinage has been found at Pembroke Dock. One wonders too about the Barbary pirates who ran a slave trade from the Irish Sea.

Not too far away in the Black

Mountains remnant paeoliths with a high B group blood and long narrow skulls may still survive, smothered somewhat by the high B group post-war Polish farmers that settled there.

Anyway in this family's area the dialect is mostly of Flemish origin with some Norse. Not many Norman families survive, and their daughters have been taken over by the yeoman farmers.

Socially, the classes overlap and blood relationships are recognised across them. The local land-owner and his poacher may be third cousins and this makes for difficulties. A murder trial is rarely heard within the County and the Courts, when they could, they always avoided a hanging. Even blatant evidence was ignored.

As the family enters its modern diaspora the marriage-mates are no longer local and the foreign spouses are increasingly concerned with 'an invasion of privacy'. Recent cant! It one took me thirty years to get a particular person to do an I.Q. test.

**Patrick James**

## LETTERS TO THE EDITOR

Dear Sir

Professor David Galton says the term 'eugenics' has never recovered from its 'association' with 'extermination camps' (June 2009, p.3). Nevertheless, this 'association' (developed some two decades after the second world war) is semantically, ideologically and historically false. Why has neither 'euthanasia' nor 'termination' (of foetal life) undergone a similarly dishonest and prejudicial 'association'?

**David Ashton**  
Sheringham, Norfolk

### Professor Galton replies:

Both the terms 'eugenics' and 'euthanasia' were perverted by the Nazis. German doctors, anthropologists and geneticists of the period between 1933-45 actively invoked eugenic principles to justify the social policies of the Nazis. In 1935 measures were enforced to promote a healthy German stock. A marriage law was instituted to protect the heredity of the German folk and prohibited the union with "alien races" and those affected with hereditary diseases. State Marriage Loans were awarded to persons with official Certificates of Health only obtainable through a Health Sanitary Board. These grants were paid at a rate of 25 percent after each successful live birth, to promote larger German families.

Families with four or more children were classified into the following categories: (1) Antisocial, (2) Bearable, (3) Average, and (4) High quality. Privileges such as educational grants were only awarded to categories (3) and (4). The authority for these laws rested with the "Council of Experts for Population and Race Policies" whose members included Human Geneticists and Anthropologists (Prof. Dr. E. Rüdin, Dr. Med. A. Ploetz, Dr. von Verschuer

and Prof. Dr. F. Lentz); statisticians; lawyers; and top-ranking politicians, the most prominent being Heinrich Himmler, Reichsführer SS. Their ultimate aim was to possess a family file on every individual in the Third Reich. A "Reichs-Committee for Recording Severe Hereditary and Congenital Diseases" was established in 1939 whose role was to register all new births with malformation and to consider euthanasia. The first meeting of a "Euthanasia-Commission" occurred in 1939 to discuss the means of mass euthanasia of hospital in-patients and other "useless feeders".

In practice a system of courts was established with a tribunal composed of a judge, a medical officer and a doctor with specialist training in racial hygiene. The medical officer could initiate proceedings as well as adjudicate cases, and doctors were in the majority. Heinrich Gross was one such medical officer in charge of the children's ward at Spiegelgrund in Austria from 1941 to 1944. This was one of the 30 to 40 child euthanasia clinics set up by the Third Reich to carry out the 'eradication of the pathological genotype'. Witnesses said that children there were exposed on balconies during winter nights and given injections and sedatives to lower their resistance to disease. After the war, all but one of Gross's colleagues were convicted of war crimes and the head of the clinic, Ernst Illing, was hanged.

Other laws were introduced against habitual criminals, homosexuals and antisocial elements in the community. Penalties included compulsory sterilisation, compulsory abortion and detention in work camps.

Thereafter the situation deteriorated rapidly, taking eugenic views to the most perverted and macabre of conclusions. Registration of "anti-social families", cripples, Jews, Gypsies, vagrants, homosexuals, and socially inferior individuals was enforced, with a view to their mass extermination. Following various eugenic laws against women, approxi-

mately 200,000 females were compulsorily sterilised; and finally to protect the German blood and "honour" (Gesetz zum Schutze des Deutschen Blutes), measures were put in place for the total extermination of "inferior races". The term 'eugenics' has never recovered; but as David Ashton pointed out the term 'euthanasia' has fared better despite the Nazis having set up a 'Euthanasia Commission'.

**David Galton**

### Leaving a lasting Legacy to the Institute

There are two main ways of doing this: by a Pecuniary Legacy or a Residual Legacy. The former is a fixed sum of money the value of which is eroded by inflation; the latter is a bequest of the remainder or a proportion of your estate after other legacies, debts and expenses have been paid. Sample wording to take to your solicitor are:

#### Pecuniary Legacies:

I give to the Galton Institute (charity number 209258) the sum of £.... (amount in figures and words) absolutely and for the general purposes of the Institute and I declare that the receipt by the Treasurer or other proper officer shall provide a full and sufficient discharge of such a legacy.

#### Specific Legacies:

I give the residue (or .... percentage of the residue) of my estate to the Galton Institute (charity number 209258) absolutely and for the general purposes of the Institute and I declare that the receipt by the Treasurer or other proper officer of the Institute shall provide a full and sufficient discharge of such a legacy.

Because the Institute is a charity the value of any gift you make to the Institute is at present deducted from the value of your estate before any Inheritance Tax is calculated. Thus money which might otherwise have been paid in tax can instead be used to support the Institute in its work.

## RESTORATION OF THE GALTON TOMB

After his death in 1911, Sir Francis Galton, was interred at Claverdon, Warwickshire the village to which the family had moved from Birmingham. His tomb also contains the remains of several close relatives.



*The restored tomb in Claverdon churchyard, Warwickshire*

With the passage of years both the stonework and the railings of the tomb had deteriorated badly and the Claverdon Parish Council resolved to try to restore it in time for the centenary date of 2011. An approach was made by the Parish Council to the Institute seeking assistance in raising the substantial sum required to fund the necessary work and the

Institute Council agreed to provide £6,000 for this purpose.

On Saturday, June 25<sup>th</sup>, Claverdon church held an Open Day celebrating among other events Galton's centenary and the restoration of the tomb.

The proceedings included a lecture on Galton's life by Dr Debbie Challis (University College London) and a short message from the Institute, delivered by Professor John Beardmore, in which he congratulated the Claverdon community on the excellent result of the restoration.

### THE GALTON INSTITUTE CONFERENCE 2011

To be held at The British Academy on Wednesday 9 November, 2011

#### HUMAN AND PRIMATE EVOLUTION

Professor W. Tecumseh Fitch  
Professor Robert A Foley, FBA.  
Dr Andrea Manica  
Dr Nicholas Mundy  
Dr Rebecca Sear  
Dr Susanne Shultz  
Professor Chris Stringer, FRS.  
Dr Stephen J. Suomi

Language (or culture) Evolution  
Human Evolution and Diversity  
Human Evolutionary Genetics  
Primate Evolutionary Genetics  
Human Behavioural Evolution  
Brain Evolution in Primates  
The Bones and Stones of Human Evolution  
Behaviour, Biology and Genetics

Admission is free but strictly by ticket, available from The General Secretary

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