

The Colour of Our Skins

**Report on public lecture by Professor Wilmot James,
University of Cape Town**

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About the ESRC Genomics Policy and Research Forum

The Economic and Social Research Council's (ESRC) Genomics Policy and Research Forum was established in August 2004 and is based at the University of Edinburgh. It is part of the ESRC's Genomics Network (EGN), a £12 million investment by the Economic and Social Research Council examining the numerous aspects of the social and economic significance of genomics.

The EGN spans 5 universities and involves over a hundred researchers, PhD students and support staff, as well as a rotating cast of visiting research fellows. Other centres in the network are Cesagen (Lancaster and Cardiff Universities), Egenis (Exeter University) and Innogen (Edinburgh and the Open Universities).

The ESRC Genomics Forum itself is working to integrate and connect the diverse strands of social science research in the EGN with policy makers in the UK and abroad, and to build links with business, the media and civil society. We also seek to stimulate exchanges between social scientists and scientists working on genomics in areas as diverse as human genomics and personal identity, plant diseases and the future of crops and food, animal genomics and even stem cell research.

Our work is currently focused on:

- Animals and Genomics
- Philosophy, Social Science and Law in Public Policy-making in Genomics
- The Evaluation of Genetic Health Services
- Disease in Global Health: Risk, Governance and Genomics
- Genomics and Intellectual Property
- Regional Innovation and the Bio-industries
- Plant Genomics and Plant Pathogens

Based on these projects, we run a programme of national and international activities including a visiting research fellows scheme, conferences, specialist short courses, and an artist in residence programme to help widen the reception of social science research beyond existing audiences and to support its contribution to policy discussion and debate.

The Colour of Our Skins

The architects of South Africa's apartheid system worked out that human races don't really exist long before science came to a similar conclusion with its discovery that there is more genetic variation *within* putative racial groups than *between* them.

Apartheid's elaborate racial taxonomy failed to account for fair-skinned individuals of coloured parentage who had gained social acceptance as whites, to whom the regime was forced to grant white status. Nor could it categorise Sandra Laing, born to white Afrikaans parents, but with dark skin, and facial features associated with "coloured" people, who was rejected by her community of birth and died in a black township. Apartheid's partitioning of the South African population became less about trying to segregate races and more an attempt to create them, said Professor Wilmot James during his talk on the biology of skin colour.¹

That biology is of interest to biologists seeking therapies for skin defects such as albinism and cancer, and to a cosmetics industry looking to add to the plethora of products that we use variously to lighten or darken our skin tones. It should also be of interest to social scientists, said Professor James. We no longer have apartheid, but skin colour persists as a social currency in so-called colour-blind democracies. Brazilian Portuguese has 32 words describing variations in skin colour; elsewhere it's just black or white. In 2005, BiDil - the world's first "ethnic medicine" – was approved by the USA Food and Drug Administration for prescription only to African Americans.

"Biological insights allow sociologists to tell a much more credible, coherent story about the role of skin colour," said Professor James. Human skin colour is under the influence of many genes. We even know a little about some of them. There's SLC24A5, for example, variants of which account for a significant part of the difference in skin tones between Africans and Europeans (and between colour-morphs of zebra fish, too). Or there's the recessive allele on chromosome 16, a pair of which is possessed by people with freckly, ginger complexions.

These genes influence various stages in the system that distributes a range of melanin-type pigments in the skin. Which provides a good adaptive explanation for why fair complexions are commoner at higher latitudes and darker ones in the tropics. Melanin screens out UV light. If you have lots of it, you are protected against the damaging effects of high-intensity UV at the equator, but you'd struggle to make enough vitamin D in Norway. A blue-eyed blonde would have no such trouble, but would suffer in the Sahara (or would have done during the millennia before we came up with sun-lotion). Even exceptions seem to prove the rule: perhaps Alaskan Inuits can afford the luxury of the extra protection provided by their relatively dark skins because they have a vitamin D-rich fish diet.

Waves of human migrations and adaptation to local UV exposure throughout human prehistory produced a global patchwork of populations and skin tones, said Professor James. The process would have been reinforced by sexual selection, he said, as such a visible indicator of quality became desirable in a mate. At the same time, skin tones also became badges of difference between populations. Skin colour is caught up biologically with sex and attraction, fear and violence. We cannot explain racism biologically, he said, but neither is it *entirely* a social construct.

Professor James's lecture can be heard or watched in full via www.genomicsforum.ac.uk/, as can the lively Q&A session that followed it, where topics discussed included:

- When one country has names for 32 skin colours but another has only two, does biology have anything to say about human perceptions of race?
- Whether public perceptions of the inheritance of skin colour differ from scientific understanding.
- Could biological biases to our perception of human variation influence public and policy discussions of race?
- The pharmaceuticals and cosmetics industries are profoundly interested in classifying humans according to genetic risks, diseases, and marketing needs. How might that influence how the biological sciences deal with and approach research on the genetic characterisation of individuals and groups?

Stuart Blackman

ⁱ Professor Wilmot James is Executive Director of the Africa Genome Education Institute, and Honorary Professor in the Division of Genetics, Faculty of Health Sciences, University of Cape Town. His lecture, *The Colour of Our Skins*, was hosted by the Institute of Commonwealth Studies and was presented while Professor James was a visiting research fellow at the ESRC Genomics Policy and Research Forum.