

CONFERENCE REVIEW

Urban Paradox: Human Evolution and the 21st Century Town Conference: Friday 21st February 2014

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This one day conference, held at UCL's Institute of Archaeology has had a particular impact on me and after months past and thinking it too late to review the conference, I find the necessity in promoting the research that the conference presented. Perhaps what is also helpful is that the conference was part of larger cross-disciplinary research taking place at UCL which explores evolutionary determinants of health and urban wellbeing, an approach known as the Eden Protocol.¹ The conference was supported by the Ove Arup Foundation and by UCL Grand Challenge (see UCL Grand Challenge of Human Wellbeing; and Sustainable Development).

The conference was divided into two sessions. The first session provided a summary of the *Evolutionary Determinants of Health* project, and explored its relationships with *social* determinants of health. Topics for the first session were G. Milne's 'Brave Old World'; M. Pope's 'Becoming Human: Deep Evolutionary Perspectives on Human Behaviour'; B. Gardner's 'Backwards and Forwards: towards a "palaeolithically-correct" behavioural science'; E. Karoune's 'School dinners: introducing an evolutionary perspective in inner-city schools'; S. Singh's 'Play time: football, crime and urban gangs'; and

B. Allies 'Building for people: architecture from a human perspective.

The second session looked at healthy cities through considering the physiological, psychological, biological and societal impacts brought about by urban planning and architecture. That is, it explored how both buildings and town plans could be designed to encourage 'evolutionary' health behaviours, and how taking human locomotion and evolution into account, we could create cities that are both mentally and physically healthier. Presented in this session were I. Scott's 'Healthy cities: urban design from a human evolutionary perspective'; J. Stockton's 'Greening the city: a physiological and psychological necessity'; G. Rook's 'Greening the city: a biological necessity'; N. Davidson's 'The "all London green grid": a green infrastructure for London'; A. Fisher's 'A life less sedentary: making the office work harder'; N. Christie's 'Access all Areas? Social inequality and urban transport issues'; and finally P. Spivach's 'Streets ahead: community engagement, human locomotion and the DIY street'.

The conference was fascinating due to the various disciplines and specialities of the speakers. Specialised areas included microbiology, urban design, landscape architecture, public health and epidemiology, as well as participation by community builders and health behaviour researchers.

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Session 1

The conference started off at 10am, with the Research Network Co-ordinator, Gustav Milne from the Institute of Archaeology, welcoming the audience and opening with the first talk, *Brave Old World: Evolutionary Determinants of Health in the 21st Century Town*. It was a fitting talk for the opening, as it introduced the main concepts that were to be addressed throughout the day. The main principles suggested that we still retain our palaeolithic genome, and that there is a mismatch between *where* we are culturally versus *who* we are biologically. It went on to propose that such a mismatch is responsible for the development of degenerative and 'lifestyle' diseases now associated with urban living. Because our underlying physical attributes cannot be altered, we must work with them in the creation and development of our material and social environments. There were basic examples introduced, such as the fact that our digestive system is designed to process fresh foods, or that our physiology remains to be for the purpose of active, not sedentary, lifestyles. There is an evolutionary need for urban green space - a need for engagement with nature - or biophilia. These physiological, metabolic, biological, psychological, and societal blueprints are engrained in our psyche, and we see its influence to this day.

Milne's talk then went on to discuss social determinants of health, by looking at the Whitehall studies² which investigate how socio-economic factors might contribute to the social gradient in death and disease. Milne discussed various research and studies which examine how where one lives, what one works in, and quite importantly, the physical activity that one participants in daily (whether that be for work or pleasure) make a difference to mortality rates. The talk then concluded with the suggestion that proxy approaches that simulate or mimic normal paleolithic lifestyles in an urban environment, or reconfiguring the urban landscape to incorporate human evolutionary approaches, may be to some great

benefit. Gustav Milne ended his talk with a brief introduction to the approach of 'The Eden Protocol'.

Matt Pope followed quite suitably with a presentation concerning how evolution is responsive to environmental change, but that there is no linear evolutionary path. He discussed the Earth's environment, fluctuations and fundamental shifts through multi-million year cycles; and how 5 to 6 million years ago, dipedal apes explored and exploited their environments. He spoke about our survival during the Ice Age, which he linked to our diet, physical adaptations and networking and social evolution and he suggested talking is one of our most powerful 'connective glues'. The human brain is designed to adapt to new environments and has gone through rapid change. Connections between populations and the significance of people is an important factor in this change - not brain size. In this sense, Pope introduced the influence of social complexity and societal organisation into the approach.

The first part of session one ended with Gardner from the UCL Health Behaviour Research Centre, who presented what we need to do to persuade policy-makers to take these points seriously. He discussed the Eden Protocol, what it promotes, and the problems faced with evidence which is needed to change policy. Problems such as post-hoc explanations (using an explanation to explain experiences that already exist), unmatched control groups, and researching groups that live in natural environments do not fit the forms of evidence that policy-makers want. He spoke of the need to establish feasible interventions, and provide perspective data that show predictions and how to apply changes in a control-designed environment. It was a great talk which prompted the audience to realise that although these arguments appear sound and obvious, moving 'backwards' and making these changes can, in fact, involve huge infrastructural changes.

After a short break, filled with healthy snacks and fruit, Emma Karoune began

her talk about natural versus processed foods, and how we need to look at conceptions of diet in a multidisciplinary way. Her talk was followed by guest speaker Samir Singh, a Youth Worker for Arsenal Football Club, who provided a fascinating summary of the community development projects currently carried out by football clubs in the inner city. It was interesting to see the themes of the conference addressed by a non-academic, and to see how similar ideas are put into practice. He spoke of the 'tribal' element in a football context, and how the football club use this mind-set and solidarity to get young people to engage in education, training and other positive activities. There are projects involved with social inclusion, anti-racism campaigns, local history walks, health checks, STD checks, cancer awareness programmes and so on. Because football is very territorial – in theme with paleolithic mentalities – youth workers dressed in uniform help decrease crime and in fact take on the role of policing in their own neighbourhoods. They have a non-punitive, bottom-up approach and in a sense develop 'gangs' that have the same level of excitement, status and so on, but focus on harnessing positive activities. Interestingly, following well from the previous presentations, what Singh suggested is to take something like the hunter group mind-set, and work with it to mould it into a positive and socially acceptable activity. Singh discussed the importance of local knowledge, having role models, working as a group instead of in isolation, providing a family or tribe-like environment, and creating pride and empowerment within young people.

The session ended with Bob Allies, from Allies & Morrison Architects, who talked about the importance of design, and how it can encourage movement, and the way we relate to our physical environment. For example, through design, architects can encourage the use of the staircase, or a greater engagement with the outside world through making public spaces attractive, safe, and

easy to use. The idea Allies presented was to get more people to use public spaces, as activity breeds activity. He discussed how buildings relate to the public realm and how they reinforce the public structure. In Copenhagen, for example, a policy has been established where all lower level windows should be open and transparent. Allies spoke about high-density cities, and how new perspectives are changing the physicality of cities, such as the movement of reoccupying roofs, or the move to promoting density for sustainable cities, and turning architecture into a social art.

Session 2

The second session began with Ian Scott from the UCL Office of the Vice Provost (Research), where he kicked off his talk by looking at the UN Habitat 'State of the World Cities' Report.³ He talked about current health-affecting issues, such as heating and cooling, road accidents and crime violence, and how urban governments have the capacity to plan for infrastructure and healthy living. Planning must be recognised as a complicated matter, said Scott, but it has to be pursued through experimentation where planners take chances to create new urban forms. Jemima Stockton, from the Department of Public Health and Epidemiology, then continued with the next presentation, looking at how physical activity promotes mental health using data from the Lincoln Institute of Land Policy.⁴ We then had Professor Graham Rook from the Department of Microbiology who provided an absolutely amazing and entertaining presentation which talked about the human being, not as an individual, but as an entire ecosystem. 'We cannot ignore the microbes!', was the starting message in what turned out to be a very interesting topic. Microbes, Rook said, continuously interact with, and are replenished, by our external environment. He linked how many 'urban' diseases (auto-immune, asthmas, Crohns disease, diabetes, etc.), which have to do with chronic inflammatory disorders and are on the rise, develop

from the immune system not being properly regulated. He introduced us to how the immune system receives its 'education' from the exposure of microbial 'old friends' with which we co-evolved. Rook also spoke about the evolution of the immune system alongside different periods of social groups during the Paleolithic, Neolithic/Bronze Age, Iron Age, and Preindustrial ages. He did so by talking about how microbiota evolves, and how they are disrupted and disturbed by antibiotics, diet, sanitation and other impacts of the modern environment. There is a strong correlation between fungal and bacterial diversity with immunity and less allergic responses. Rook presented a case-study involving piglets (Mulder et al, 2012), whereby a group of piglets were put outside, while another group remained inside, for 56 days. The outdoor piglets had much more friendly bacteria (ie. Firmicutes and lactobacilli), while the indoor piglets had already had the expression of genes that are markers of inflammatory responses taking place in their guts. He added that inflammation is better regulated in poor countries than in rich countries (McDade et al, 2012) precisely because the environment carries necessary bacteria for our systems. It is a symbiotic relationship. Rook further linked how stress impacts the immune system and gut, and in turn stimulates mental illnesses such as depression (Rook, Lowry & Raison, 2013; Rook, Raison & Lowry, 2013). As he reflected on previous presentations of the conference regarding how green space makes people walk more and increases mental and physical health, he suggested it may well be the microbiota that causes the positive results. His conclusions were that the regulatory mechanisms that control our immune responses are educated organisms with which we co-evolved with in palaeolithic times. Many of the organisms came from the natural environment, which calls for the need, through powerful medical support, to create more green spaces everywhere.

The first half of the second session ended with Neil Davidson, a landscape architect from J & L Gibbons. He provided case studies

in North East London from the Olympic park and Victoria park, to areas in Dalston, that benefit from enveloping green infrastructure into development plans. He also looked at ways to encourage people to look after their own parks.

After the break, Abi Fisher from UCL Active Building projects, presented on the statistics of sedentary lifestyle. Seventy percent of our waking time is in sedentary behaviour, and some 287, 206 UK deaths are related to inactivity. He suggested that sedentary behaviour is most likely a normal response to an abnormal environment, and that the environment is a key influence on physical ability. The aims of Active Buildings is to understand how and where movement is accumulated in the internal environment and determine scope for change to inform future interventions. His presentation showed a video, the Piano Stairs: The fun theory,⁵ which shows stairs in a train station that are turned into piano keys. Because of the stairs making musical notes as people stepped on them, 66% more people chose to use the stairs than was previously observed. The suggestion is to create active design.

Following Fisher was Nicola Christie from the UCL Transport Institute who discussed the uneven distributions of urban environment quality. She focused on how this inequality is the greatest burden to the poor. The Black Report (DHSS, 1980) demonstrates the correlation between deprivation and accidents, and how children from the poorest neighbourhood are five times more likely to die as a pedestrian compared to those from more affluent areas. Older people are twice as likely. She attributed this to spatial planning. For example, while affluent areas have windy roads which make it more difficult to speed, deprived areas have straight roads which make speed an issue. Stewardship of open spaces in deprived areas are also not safe, with run down facilities, lack of a police presence and lack of community integration - all key factors in its desolate character. She proposed solutions which include after-school activities, more crossings, more

facilities, behavioural changes through regulation, education and enforcement, and more dialogue between public health and road transport authorities.

The conference ended with a fantastic presentation by Paola Spivach, senior urban designer from SUSTRANS, who followed perfectly with real life examples of community engagement in the London streets. SUSTRANS is a leading charity which enables people to create a healthier, cleaner and friendly environment so that children – or adults – can use their streets safely. She provided case studies across London that showed how SUSTRANS works with the community to create a better neighbourhood, through a process led by the local community themselves. With a bit of paint, artistic ideas, and cost-effective methods, areas were transformed into colourful and interactive environments which all neighbours seemed to benefit from. Their work is worth looking into for any neighbourhood that wants a make-over!

The work and research presented in this short conference is critical. In a world that is increasingly witnessing rapid urbanisation, increased development, changing urban fabric and fragmented communities, we forget that our environment may be developing in a way that is unfit for us as individuals and communities. Pressures are put on towns, cities and nations to establish infrastructures fit for investment, commerce and the global economy, without realising that our health and lifestyles are suffering. I urge any person interested in this area to go to any future event organised by the Eden Protocol, and to keep involved through their relative websites.

Notes

- ¹ <http://www.ucl.ac.uk/edenprotocol>
- ² <http://www.workhealth.org/projects/pwhitew.html>
- ³ <http://mirror.unhabitat.org/pmss/list-ItemDetails.aspx?publicationID=3387>
- ⁴ <http://www.lincolninst.edu/>
- ⁵ <https://www.youtube.com/watch?v=2lXh2n0aPyw&feature=kp>

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