

We can extract four propositions from the informative paper of Madeddu and Zhang. First, that the built environment of any society embodies its prevailing culture. Second, that a desire for harmonious integration of human settlement into the natural environment is a constant in Chinese belief systems. Third, that the codification of this relationship in Feng Shui has exerted a formative influence on design since antiquity. And finally, that in modern China Feng Shui principles remain vital and relevant at the building scale even if they no longer have the power to determine urban form.

All this is true. However a desire for harmony with the spirits of earth, water and air is not peculiar to Chinese culture. Rephrasing the authors' first and second propositions we might say that all traditions of human habitat and habitus have in some way embodied environmental values: certain cultures have codified these values into explicit systems of rules, such as Japanese Fusui or Hindu Vastushastra, others have expressed them through the *praxis* of regional architecture and urbanism, using local materials to best effect in a given topography and microclimate (Egli, 1951). Feng Shui, in its various traditions, is an extreme example of codification extending beyond site-awareness into occult realms of geomancy, especially when combined with the divination practices of the I Ching. Nevertheless it has a nucleus of environmentalism that allows comparison with other strategies for adaptive habitat, ancient and modern. The quest for 'scientific Feng Shui' by Mak and So [2011] can be set alongside an extensive research literature applying modern observation and modelling techniques to test the efficacy of vernacular design techniques, whether in arctic, temperate, tropical-humid or tropical-dry settings: for example Rohinton Emmanuel's studies in Sri Lanka (2005), Erik Johansson's work in Fez, Morocco (2006), or that of Desogus et al (2016) on the courtyard houses of the Sardinian Campidano.

Western European vernacular architecture contains an immense variety of traditional climatic designs, from the long north-facing roof pitches of the Friesland barns to the whitewashed flat roofs of Andalusian hill-towns. Given

the underlying variety of landscape and climate the absence of a European rule-book is unsurprising. Nevertheless codification of (as Madeddu and Zhang put it) 'harmonious spaces' has as ancient a pedigree in the Occident as in the Orient and involves such foundational figures in the history of Western culture as Aristotle (*Politics* 4.xi), Pliny (*Natural Science* XXIV, 104) and Hippocrates (*Airs Waters and Places*). The most celebrated attempt to codify the basis of climatic design was in Book 1, Chapter 6 of *De Architectura* by the Roman architect Vitruvius Pollo (Rykwert 1988). His principles are surprisingly at odds with actual building practice in the Roman Empire, involving diagonal streets aligned in relation to prevailing winds rather than orthogonal grids. Nevertheless the survival of his book in the monastery of St Gall and its rediscovery in the Renaissance ensured that 'Vitruvian' became a synonym for 'climate-aware' in the urban designs of Leon Battista Alberti and Andrea Palladio and their many followers in the early modern era: Vitruvius was still frequently cited in Victorian Britain as the authority for measures to allow free passage for ventilating winds. The leading sanitarian Sir Edwin Chadwick estimated that London's death rate would have been cut by a third if Sir Christopher Wren had been able to implement his Vitruvian plan for the reconstruction of the City of London after the Great Fire of 1666 (Hebbert 1999). In the 1870s York City Council proposed to demolish a stretch of the mediaeval city walls to promote ventilation in the adjacent streets, a notion considered bizarre in the official English Heritage guidebook to the archeology of York - but can't we hear an echo of the ancient Chinese board game of Mah-Jong where the tiles are stacked to form a square wall and the opening move is for the North, East, South or West wind one to break it open ?

So, let's say Madeddu and Zhang bring (indirect) encouragement to recall those varying traditions of environmental design suppressed or ignored during the modern era under capitalism and socialism alike. After the century that spurned sustainability and relied on technology to deal with the consequences, global climate change has given a wake-up call. In my own work I've been interested in the extent to which mitigation and adaptation strategies can draw upon historical precedents (Hebbert and Jankovic 2013; Hebbert 2014). For example,

the sophisticated techniques of environmental management in German cities have deep roots in national traditions of landscape-awareness. There's a growing Chinese interest in German *Klimaatlas* methodology (Ng and Ren 2015). It's a long way from Feng Shui methodology, but the underlying values may be convergent. Besides, picking up the concluding section of their paper, climate mapping on the urban scale translates directly into design recommendations and regulatory consequences - a promising line of enquiry for Madeddu and Zhang in those further investigations.

Desogus G., Cannas L.G.F., Sanna A. 2016. 'Bioclimatic Lessons from Mediterranean Vernacular Architecture : the Sardinian case study' *Energy & Buildings*, 129, 574-588

Egli E. 1951. *Die Neue Stadt in Landschaft und Klima* Erlenbach-Zürich: Verlag für Architektur

Emmanuel R. 2005. *An Urban Approach to Climate-Sensitive Design : strategies for the tropics*. London: Spon

Hebbert M. 1999. 'A City in Good Shape: town planning and public health' *Town Planning Review* 70, 4, 433-53

Hebbert M. & Jankovic V. 2013. 'Cities and Climate Change: the precedents and why they matter' *Urban Studies*, 50, 7, 1332-47

Hebbert M. 2014. 'Climatology for City Planning in Historical Perspective' *Urban Climate* 10, 204-215

Johansson E. 2006. 'Influence of urban geometry on outdoor thermal comfort in a hot, dry climate: a study in Fez, Morocco' *Building and Environment*, 41, 1326-38

Mak M. Y and So A. 2011. *Scientific Feng Shui for the Built Environment*, Hong Kong, City University of Hong Kong Press

Ng E. and Ren C. eds. 2015. *The Urban Climatic Map: a methodology for sustainable urban planning*, London, Routledge

Rykwert J. 1988. *The Idea of a Town: the anthropology of urban form in Rome, Italy and the ancient world*. Cambridge, Mass.: MIT Press