

urban areas at a detailed resolution. Clearly this can be overcome through the use of larger tablet-type PCs although these can be quite expensive, as well as being somewhat unwieldy (and indiscreet) in an urban context. Navigation-grade GPS is only accurate to a few metres, which is acceptable for most uses, but patchy reception when standing close to buildings can reduce this. Maps scanned or downloaded⁶ need to be geo-referenced to the correct spatial co-ordinates to work with the GPS. This can be a fiddly process, as can be setting up the PDAs with the appropriate layers of data. The technology is, however, becoming more accessible year-on-year and a little patience setting up the PDA back in the office means that the experience for the user in the field is quite straightforward. Ultimately this combination of GPS and historical maps has great potential for helping to foster the deeply personal engagement with past urban forms that is such a critical part of urban morphology.

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The potential for Chinese urban morphology

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The article by Whitehand and Gu (2007) on the plan analysis of Chinese urban form prompted me to consider the broader possibilities for the application of urban morphology to Chinese cities. As Whitehand and Gu have so aptly observed (see also Whitehand and Gu, 2006), the shortage of 'true plans' in the Chinese historical record makes a Conzenian approach difficult in the Chinese context. Their admirable effort, and the fact that in their own research, they had to switch from their first-choice city to a second choice that had better ground plans, illustrate these difficulties. Yet there is a particularly rich historical record available for the analysis of Chinese cities within their own context. With both Whitehand and Gu's efforts

Notes

1. Lilley, K., Lloyd, C., Trick, S., and Graham, C. (2005) 'Mapping and analysing medieval built form using GPS and GIS', *Urban Morphology* 9, 5-15.
2. Kingston, D. (2007) 'Integrating flexible e-learning and mobile technologies in geography', unpublished paper presented to The University of Birmingham Annual Learning and Teaching Conference, 28 February.
3. Lilley notes the importance of walking through urban spaces, as well as tracing them on maps, as part of an iterative process, developing the necessary subjective engagement with an area to undertake an effective town-plan analysis. See Lilley, K. (2000) 'Mapping the medieval city: plan analysis and urban history', *Urban History* 27, 5-30.
4. Or, for that matter, an unbuilt development plan.
5. A problem explored by Presson, C., Delange, N. and Hazelrigg, M. (1989) 'Orientation specificity in spatial memory: what makes a path different from a map of the path', *Journal of Experimental Psychology – Learning Memory and Cognition* 15, 887-97.
6. Subscribers in the UK can download historical geo-referenced Ordnance Survey maps from an extensive collection held by the Edina data archive. Unfortunately before these can be used within ArcPad in combination with GPS, additional processing within ArcGIS has to be undertaken to define the geographical projection and resolve issues of colour depth.

and the recent Viewpoint published in this journal on 'Stepping outside the comfortable confines of the West' (Sobti, 2007) in mind, I would like to offer some thoughts on the potential for Chinese urban morphology.

As Whitehand and Gu note, one of the primary challenges presented by the application of the Conzenian approach in cross-cultural contexts is that Conzen's method is most effective in conjunction with certain types of data and historical records – particularly historical ground plans which indicate plot boundaries and the block plans of buildings. The limitations in the source material for Conzenian analyses of Chinese cities have been explicated by Whitehand and Gu (2006, 2007), by

Zhang (2005) and to some extent by Xu (2000). But what of the possibilities for approaches to Chinese urban morphology that take advantage of the extraordinary source material that *is* available on historical Chinese urban development and change?

These materials are summarized, to some extent, in an overview of the state of the field of Chinese urban history published by Liu Haiyan and Kristin Stapleton (2006). As Liu and Stapleton observe, the documentary sources for work on historical urban transformation in China include, in particular, references in general authoritative histories (such as the *Ming Shi* (Ming History)), provincial and city gazetteers (Chinese gazetteers are wide-ranging encyclopedic accounts), and a growing body of specialized gazetteers on either particular topics or particular neighbourhoods. Although much original source material in China is still very difficult to obtain, not only are increasing numbers of localities compiling and printing secondary sources based on such materials, but even the original source material is becoming easier (if not yet easy) to obtain. In addition, there are valuable photographic archives, ranging from the photograph collections of numerous Westerners who passed through China in the nineteenth and early-twentieth centuries, such as Frederic Wulsin or Owen Lattimore, to aerial photographs taken during the Second World War by the American military. The visual record is further increased by the stylized urban maps published in gazetteers (though these must be read with an understanding of contextual hyperbole and/or omissions) and landscape paintings commissioned, for example, by the Qing Kangxi emperor on his journeys. Numerous aspects of urban form can be traced through these variant sources in such a way that a very effective, if not Conzenian, analysis might be achieved.

Continuity without change?

What is important for those not versed in Chinese urban morphology to understand is that any analysis of Chinese urban form needs to engage with the interesting, but at times rather loose, relationship between the official design and portrayal of cities and their actual on-the-ground layout. There is a long-running discourse – extending back, by legendary inference, to the Zhou period (1046 - 256 BC) – which defines the ‘official’ Chinese urban form. This ideal is based on Chinese beliefs in *fengshui* (geomancy), in

astrology and numerology, in Confucian ideals concerning the expression of power within society, and ancient building principles. In this ideologically-defined conceptualization of the Chinese city, Chinese urban form is mythologized as having changed relatively little over centuries of urban construction and reconstruction (see, for example, Steinhardt, 1999). Here is a real challenge for urban morphologists: can urban form in a given area remain unchanged for millennia?

Because of the particular ideological definition of Chinese urban form, form was in fact critical in the construction of Chinese cities over the centuries. As the realities of site and situation often limited the ability of city builders to achieve the ideal, the achievement of this ideal came to have a particularly limited set of practical requirements. That is, if the city wall followed a rectangular, or square, path, the city was perceived as having achieved the ideal shape – regardless of the ‘true’ shape of the settled area within and beyond those walls. What mattered in the Chinese cosmology and world-view was this initial, ceremonial aspect of city founding. In this there are perhaps parallels with the Roman establishment of the *cardo*, *decumanus* and *pomerium* as a ritual establishment of pre-eminent urban form. Once an ideal form was achieved, there seemed to have been a reluctance on the part of subsequent chroniclers of the city to allow the realities of actual urban growth and change to intrude upon the representation of the city in its ideal state. Non-conforming aspects of urban form were often minimized or obscured in cartographic and artistic representations of the cities over the centuries (see Gaubatz, 1996; Steinhardt, 1999). Thus there is both a discursive urban form and an ‘actual’ urban form to be researched for most Chinese cities (although this is true for all cities, it is particularly relevant in the Chinese case).

As for the ‘actual’ transformations of urban form over time, in the absence of both the ‘true plans’ which would lend themselves to a Conzenian approach, and, in many cases, the detailed architectural records which would lend themselves to an analysis of process typology, the most feasible analytical method is probably one that integrates the element-by-element approach favoured by theorists such as Spiro Kostof or Kevin Lynch with the explanatory approach taken by James Vance. That is, one can use the textual information in the encyclopedic gazetteers both to catalogue changes in each major element of Chinese urban form – wall, temples, administrative complexes, markets, canals, etc. – and to correlate

these changes with fundamental shifts in the political, economic, social, cultural and ecological contexts within which they occur. The scale at which such investigations can take place is primarily that of the city as a whole: the question is, how do the changing configurations and reconfigurations of these elements in relation to each other represent changes in urban form? There is an initial attempt to outline such an approach in 'Understanding Chinese urban form: contexts for interpreting continuity and change' (Gaubatz, 1999).

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Ville Recherche Diffusion

A number of publications of interest to urban morphologists are available from Ville Recherche Diffusion, Ecole D'Architecture de Versailles, 2 avenue de Paris, 78000 Versailles, France (internet site: www.versailles.archi.fr/VRD). Among the publications recently advertised are:

- Bowie, K., Texier, S. and Bonnefoy, I. (2003) *Paris et ses chemins de fer*.
- Bruant, C., Blain, C., Genaille, G. and Sellali, A. (2003) *Architecture et formes urbaines en villes nouvelles: enquête bibliographique sur les sources écrites*.
- Doutre, M. (2003) *Modalités de transformation de la ville au début du XIX^e siècle en Auvergne l'édifice public et son espace urbain – pouvoirs et conflits*.
- Ducos, L. (2005) *L'aménagement des terrasses de Saint-Julien et des Carmélites à tours au XIX^e siècle: un projet urbanistique et architectural en décalage*.
- Gauthiez, B. (2003) *Recueil de textes*.
- Gauthiez, B., Zadora-Rio, E. and Galinié, H. (2003) *Village et ville au moyen âge: les dynamiques morphologiques*.
- Jacquand, C. (2003) *Le grand Berlin et l'anticipation américaine: infrastructure, paysage et forme urbaine du 11^e au 111^e Reich*.
- Nasr, J. and Volait, M. (eds) (2003) *Urbanism: imported or exported*.
- Navarina, G. (2003) *Plan et projet: l'urbanisme en France et en Italie*.
- Petiteau, J.-Y. and Chérel, E. (2004) *L'émergence du récit comme révélateur du processus de renouvellement urbain: ou l'urbanisme contemporain se réinvente-t-il à partir de l'art?*
- Robert, S. (2003) *L'analyse morphologique des paysages entre archéologie, urbanisme et aménagement du territoire: exemples d'études de formes urbaines et rurales dans le Val-d'Oise*.
- Soppelsa, C. (2005) *L'action publique en matière de voirie en France au XIX^e siècle: l'exemple de Tours à travers le plan général d'alignement de la section de Saint-Etienne (1865)*.
- Texier-Rideau, G. and Darin, M. (2003) *Places de Paris: XIX^e - XX^e siècle*.