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Book review

STREETS AND PATTERNS

S. Marshall. Spon Press, London & New York, 2004, ISBN 0 415 31750 9, £40, 336 pp.

This book bridges the literatures of urban design and highway engineering. Writing with a disarming mixture of wit and scientific erudition, the author sets out to explore every road configuration between the traditional urban high street and the suburban cul-de-sac. Wit is uppermost in the readable style of the text and its highly effective images and diagrams. Erudition reigns in the analytical sections where the options in highway layout are split into seven elements and subjected to a remorseless dissection and classification by type. The exhaustive taxonomies and the abundant triangular graphs (always difficult) show up the book's academic origins in a doctoral thesis. The formalism of the theory counterbalances the author's lively intention to engage with practitioners and the rulebooks that underpin highway practice. The outcome is a fascinating contribution, beautifully published in square format by Spon Press, and well deserving to be profiled in this special 'Highways' issue of *Municipal Engineer*.

Marshall starts his journey with the Buchanan Report's 1963 vision of London's Tottenham Court Road as a multi-level urban motorway.[1] That was the point of schism when the speed-designed geometries of the modern road hierarchy overturned traditional conceptions of multi-purpose street design. But layouts that optimised vehicle flow proved suboptimal for the many other purposes served by roads in towns. In reaction, late twentieth century urban designers began to explore neo-traditional road patterns which invoked the physical form of the premodern street. These often lacked an engineering rationale and breached highway standards. So the scene is set for the author's ambitious enterprise, to construct a new theoretical concept of hierarchy fit for a postmodern era which prizes urbanism as much as safe and efficient vehicular flow.

He begins with deconstruction, taking the conventional theory of the road hierarchy (based on inverse relation of circulation and access) and showing how poorly it fits most urban streets. Even the property of 'arteriality' appears elusive when applied empirically to the map of British trunk roads. Furthermore, there is no single classification of the hierarchy; definitions abound, making the allocation of roads to types ultimately an administrative rather than technical task. There is a similar arbitrariness in the classification of street patterns. The hypothetical range of options is set out in formidable detail, which the author momentarily simplifies into a taxonomy of A, B, C or D layout types only to dissolve into a still more elaborate ordering scheme of 40 nested varieties based on junction arrangement. A similar approach is applied to the study of urban routes. Conventional network analysis (for vehicle trips) and space syntax (for pedestrian movement) are compared with a geographical approach based upon the topology of network structures. This yields a complex classification of streets into stems, spines, corridors, cantilevers, collectors, connectors and cross-connectors.

Midway through the book Marshall puts his new conceptual tools to use, analysing the degree of connectivity and continuity in 60 street plans, some of them real-world street networks, others hypothetical pattern types. Plotted in a triangular graph the plans show the variety of arrangements between the tributary (cul-de-sac) extreme and the strict grid. The welcome empiricism of this chapter is followed by a severely abtruse deconstruction of the author's own A, B, C and D pattern types broken down by 'composition', 'configuration' and 'constitution'. It might seem one analysis too many, but it leads logically enough back to the central question of the book: the design of an urban street system that functions as effectively for 'solo non-motorised' transport modes as for 'solo motorised' and 'collective motorised'. The modal analysis has its triangular graph but also a useful abundance of photographs, street profiles and diagrams.

So to the home straight. Bringing together the strands of his argument, Marshall shows how the regulatory codes used by urban designers could be extended to provide a constitution, or set of rules, for street design. As a Scotsman based at University College London he offers the example of a 'tartan grid' pattern around UCL's Bloomsbury campus, a layout that serves all modes and combines arterial properties within a permeable street and block structure. The book ends where it began, in Tottenham Court Road, not as it was planned to be rebuilt but as the tolerably successful street it is today. Arguably (though the argument is not all easy to follow) *Streets and Patterns* has explained why.

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REFERENCE

1. Colin Buchanan and Partners. *Traffic in Towns*. Her Majesty's Stationery Office, London, 1963.