

What this means in functional terms is that all interfaces are broken: between building and public space; between localized and less localized movement; and between inhabitant and stranger. Of course life is possible in such a place. But there is now evidence to suggest that we ought to be more pessimistic. Efforts to trace the effects that such designs can have over a long period on the type of life that goes on in them suggest that there is a pattern of long term development in which spatial designs create serious lacunas in natural movement, which then attract anti-social uses and behaviours. In extreme cases, where the lacunas of natural movement are the integration core of the estate itself, then the situation may become pathological.

These 'disurban' places arise from a poorly structured local configuration of space; as a consequence of which the main elements of the movement economy are lost. A similar pattern of loss can also arise through dispersion. If we move from an urban system that is dense and nucleated to one that is dispersed and fragmentary, it is obvious that the mean length of journeys will, other things being equal, increase. It is less obvious, but equally true, that the by-product effect will also be diminished. As dispersion increases, it becomes less and less likely that connected locations will benefit from the by-product of movement. In effect, as dispersion increases, the movement system becomes more like a pure origin-destination system. Instead of one journey accomplishing a number of purposes, more journeys, each one accomplishing fewer purposes, must be made to attain the same goals. These are the basic reasons why people travel farther in the country, and why most of this extra travel is in private cars.

A similar effect can arise even in a comparatively dense urban system through an urban design policy of replacing continuous urban structure with specialized enclaves. This will also tend to eliminate by-product. Enclaves are, almost by definition, destinations which are not available for natural movement. They form discontinuities in the urban grid. Because this is so they are in many ways comparable in their effects to physical dispersion, and similarly disruptive of the movement economy. Any tendency in an urban structure towards 'precinctization' must also be a tendency towards a lessening of the useful by-product, and therefore of the multiplier effect on which urban vibrancy depends.

These arguments suggest that the culturally sanctioned values that are embedded in attitudes towards urban design that until quite recently were taken for granted – lowering densities wherever possible,

breaking up urban continuity into well-defined and specialized enclaves, reducing spatial scale, separating and restricting different forms of movement, even restricting the ability to stop travellers from moving and taking advantage of the by-product effect – are fundamentally inimical to the natural functioning of the city and its movement economy. It is not density that undermines the sense of well-being and safety in urban spaces, but sparseness; not large spatial scale, but its insensitive reduction; not lack of order but its superficial imposition; not the 'unplanned chaos' of the deformed grid, but its planned fragmentation. Without an understanding of the spatial and functional nature of the city as a whole, we are in danger of eliminating all the properties of density, good spatial scale, controlled juxtaposition of uses, continuity, and integration of the urban grid on which the well-ordering and well-functioning city depends.

### **Reflections on the origins of urbanism and the transformation of the city**

These conclusions can only reinforce the thought with which we began: our interventions in the city can only be based on our understanding of the city. Where this understanding is deficient, the effects can be destructive, and this will be more the case according to the degree that this false understanding is held in place by a value system. The value system according to which we have been transforming our cities over much of the past century has always appeared as a kind of urban rationality, but it was never based on the study of the city. Where then did it come from?

Let us first reflect a little on the nature and origins of cities, why we have them and what made them possible. Towns, as physical objects, are clearly specialized forms of spatial engineering which permit large numbers of people to live in dense concentrations without getting on each other's nerves, and minimize the effort and energy needed for face-to-face contact with each other and with the providers for needs. Towns, we suggest, were in fact made functionally possible in the first instance by a transmutation in the way energy flowed through society. It is most easily explained through the geographer Richard Wagner's distinction between two kinds of energy-related artifact: *implements* which transmit or accelerate kinetic energy, and *facilities* which store up potential energy and slow down its transfer.<sup>11</sup>