

ingly discussed in numerous papers. In our opinion, anthropological first principles impose face-to-face contacts in most cases. If we are wrong, the wired city will eliminate the component No. 1 in travel, i.e., travel to work (50 minutes – 35 km – per day for car owners, in the mean).

In **Rodger, ed. (1993)** various authors describe the recent evolution of Europe from a historical point of view, but tainted with economics, social structures, and urbanistics.

The urban development, and its strong dependence on transportation, is stressed. The arguments are qualitative but worth a reflection. Appreciable is the extensive bibliography in urban history.

Hart (1992) gives a good example of the point of view of a historian with a bent in forecasting. He is descriptive but with a lot of factual data. Transport, which is in evidence in the title, is considered an effect more than a cause of city patterns. In his forecasting chapter, Hart quotes various studies to come out of the impasses that sprawl-cities create, with proposals of compact cities and conurbation clustering. As described in our report (Marchetti, 1994a) compact pedestrian islands (500 m diameter) connected with fast and frequent subways could be a solution compatible with the most modern technologies (Maglevs). The islands could be distributed at random with open spaces in between. After all, as urbanists slowly realize, *a city is a time structure* more than a geometrical one.

Jenkins et al. (1992) provide indirectly some information on our problems, as its aim is to assess environmental effects of transportation. One of the observations is that *in California*, people spend around 6% (six percent) only of their time outdoors. Perhaps air quality indoors (radon

and chemical vapors) should be stressed more by environmentalists as the paper suggests.

Holliday et al. (1991) is a good specimen in the state of the art of evaluating the effects of constructing a tunnel, the reshuffling of territories, and urban relations and settlements. The methodology, however, has been superseded by that used by Marchetti “Building Bridges and Tunnels”, to assess the urban effects of tunnels and bridges built in Lisbon, Istanbul, and Hong Kong.

Roehner (1991) is an outsider, a theoretical physicist, and as it sometimes happens, it brings some fresh air into the area of urban theories. However, the paper deals with the next problem of our context, the distribution in size and in space of the cities of a certain country.

Roehner is able to calculate from first principles the case of city size distribution (Pareto distribution) for an archaic situation where the bottleneck was the transport of food from the country to the cities. He also models the spatial distribution (with a logic very different from Christaller). Because the rules of organization are very similar, outside and inside the city, *we signal this paper for its methodological significance*, although it does not deal directly with the problem of transportation and city form.

Daniels, ed. (1991) is a collection of articles devoted to the geographical distribution of services, and the recent changes on this distribution. The book is not centered on urban structure, but provides much contextual information, in the Christaller sense, on the forces that shape the hierarchy of cities. Transport speed as usual is the modulus (the unit) that links structures to space. The book is rich in information and

a recommended reading.

Marchetti (1990) is probably the most explicitly quantitative paper in dealing with the problem of the effects of transport on the internal organization of a city. The traffic of three cities was analyzed, over almost a century, across a natural barrier bottlenecking it: a river for Lisbon and sea channels for Istanbul and Hong Kong.

It is shown that going from a slow connecting mode (the ferry, about one hour) to a fast one (the bridge or tunnel, 10 minutes), the two parts of the city across the impediment become one. *This is manifested by an increase in traffic by two orders of magnitude.* A two order of magnitude is actually the ratio of traffic intensity between intercity mode and intracity mode. The shift in mode occurs when the transit time crosses the value of about 25 minutes. The modeling we used is simple, quantitative, and predictive.

A similar methodology has been used in Marchetti (1993). It shows that the city boundaries are defined in time and consequently existing cities can be aggregated into larger ones by sufficiently fast transportation.

Parr and O'Neill (1989): *A particularly appropriate form of the density function is the lognormal and the broad features of this function are outlined.*

Because a model has to fit actual data, the empirical way of fitting has some interest as it can influence the search for the appropriate model.

Gordon et al. (1989) show that travel patterns are invariants to income, race, and religion, so to speak, supports our tenet that travel patterns are anchored in anthropological traits (Marchetti, 1994a). Which

is a safe conceptual point to start searching for a general model.

Topalov (1989) gives an interesting reconstruction of the interaction between politicians, academy, exploding cities, and builders. The obvious clue could have been *efficient models* that could describe and forecast reality. But in spite of the variegated efforts, under varying political and ideological banners, the phoenix never concretized.

If history teaches something, a large number of pitfalls are described here to be avoided if a program on city modeling will be established by the EC.

Bowyer and Botterill (1988) start off well: *An understanding of the interactions between urban transport systems and spatial and demographic characteristics has long been sought. The need is increasing as urban systems increase in size and complexities.*

The problem is explicitly stated, no solutions are presented here (or elsewhere, by the way). The paper is interesting in terms of fixing procedures to gather data compatible with the testing of models.

Richardson (1988) *reviews models* on regional policy analysis covering various aspects, including transport. The models incorporate econometric thinking and do not work.

The reason for quoting this paper is that it may be useful for a historical search on the evolution of models.

Edmonston et al. (1984) is interesting for statistical data for checking models. Canadian cities have steeper gradients and denser population at the center than US cities. Perhaps climate cools off bucolic dreams. Apart from transport speed, very similar in the USA and Canada, these data show that also cultural traits may be important to define city struc-

ture.

Moslem and Mediterranean cities lean to the compact. Nordic ones are more influenced by the bucolic dream.

Griffith and Lea, eds. (1983): When a system of specialists gets stuck, liberation comes often from outside when the innocent specialist in another discipline finds the appropriate metaphor. In this sense the book on “Evolving Geographical Structures”, proceedings of a NATO conference, is worth reading. To give an example: “The Empirical Evidence of Volterra-Lotka Dynamics in the United States Metropolitan Areas 1949–1977” by D. Dendrinos and H. Mullally (page 170), represents an interesting attempt to transfer biological population modeling, successfully introduced by Volterra and Lotka in the 1920s, to human populations.

Bennet (1981): Chapter 14 of *The Evolution of Urban Spatial Structure* is a fairly comprehensive state of the art of the thinking and modeling. However, as economists often do, influencing geographers, the cost of travel and not the time is given priority in terms of traveler choices (time is given a value, but not a budget).

Thomson (1977) produced a good source of information and of statistical data on the transport systems of 30 large cities around the world. There is some classification in the structure of the cities depending on the intensity of aggregation (weak and strong center). There are no theoretical hints to interpret the variegated structures of the cities described.

Angel and Hyman (1976): In spite of being almost 20 years old, the book still represents the best in the area of space versus speed. The main thrust of the treatment is the introduction of time (of transit) warned

geometrics, which in a sense represent the visualization of space by the traveler. In spite of the quality, complexity, and insights of the book, the basic problem of modeling from first principles (anthropological?), the *density distribution* of population in a city (and its relation to transport speed) is not resolved.

Cripps, ed. (1974) represents well the various attempts made in modeling space-time in urban configurations. Although the basic problems end, unsolved, in mathematical tangle (just as in energy modeling about which we have a long and personal experience), the book is worthwhile because of the numerous examples and seeds of ideas that could be developed. In terms of subject, the conference reported in the book centers on our problem: *spatial organization of cities and regions and the effect of transit time on them*.

Brown (1968) presents a review and amelioration of Hägerstrand results on diffusion processes in social systems. We think that diffusion is at the root of social dynamics, including the structuring of cities.

Conclusions

The mechanism we have described being at work, the planner has finally the choice of creating a set of alternative cities or conurbations by creating appropriate boundary conditions.

In the substance the city can be seen either

- as a compact structure where people move on foot or by elevator (New York); or
- as a loose spatial structure where basically personal transportation ensures mobility (Los Angeles).

The compact city provides a strong simplification in terms of services, organization, and people movement. Before 1800, when most of the moving was on foot, cities were all compact.

Density does not seem in itself to have negative effects, even if very often experiments on crowded rats have been considered decisive in that sense. Actually the important point is to make the limited space available to a person extremely pleasant (as chronically crowded Japanese have learned to do) and provide the hierarchy of personal privacy and group privacy that old cities realized with the internal courts and the small piazzas.

Once density has been matched with human demand, *what medieval cities did to a large extent*, as the flux of tourists suggests, then we can realize human settlements very economically in terms of construction, distributed services – like water, electricity, and sewage, plus, naturally, working and shopping. *If we connect a few such compact “medieval” cities with superfast vehicles, e.g., Maglevs, we can realize a cluster city*

having all the functional characteristics of a very large city.

The other basic alternative is the sprawl city, well epitomized by Los Angeles, where deprived peasants from the Middle West recreated their peasant symbols on a microscale – the hut, a grass corridor around, and a fence. This nostalgic-psychotic choice created the basis of an awful city where, incidentally, all the charm and poetry of living “in the green” is completely lost. Incidentally, as the rules of city travel show, low density makes public transport practically impossible and leads to about 40 km/day/car traveling into the city limits.

If the planner just looks at things as they go, the periphery provides an attraction through lower prices of land and building, which overcompensates for the cost of traveling. If the travel time stays below 30×2 min/day, the periphery is functionally part of the city and its inhabitants feel to be in. However, this creates strong transportation problems partly due to the Circadian structure of social behavior.

To conclude this literature survey of city versus transport, we would say that a compact city, perhaps split into a number of pieces, has much to recommend in view of an increasing urbanization of world population.

The key to a compact city is to make compactness very pleasant and desirable to the inhabitant, a primary task for the anthropologist, with the help of the engineer, and the artist. Venice is very near to the solution in spite of the fact that in recent years its inhabitants had to leave to make a living in an active center nearby. This applies for many medieval walled cities where the solution *had* to be found for the economic survival of its inhabitants.

Inside these cities a system of very frequent, very fast subways may

completely solve the medium distance intracity human movement. In a sense a single city can be decomposed into a set of foot villages connected by the subway. Compact cities can then be connected by fast Maglevs and integrated into larger and larger complexes.

Journal Articles (in alphabetical order)

- Alcaly, R.E., 1976, Transportation and Urban Land Values: A Review of the Theoretical Literature, *Land Economics*, bf 52(1):42. Allen, I., 1980, The Ideology of Dense Neighborhood Redevelopment: Cultural Diversity and Transcendent Community Experience, *Urban Affairs Quarterly*, 15(4):409-428.
- Ashenfelter, O., 1976, On the Interpretation of Urban Density Functions, *Journal of Urban Economics*, 3:82-87.
- Barber, J.B., 1986, *Maglev: The Urban Market*, TRAAC International Consultants, Arlington, VA, USA.
- Barr, J.B., and O'Neill, G.J., 1989, Aspects of the Lognormal Function in the Analysis of Regional Population Distribution, *Environment and Planning A*, 21:961-973.
- Beaujean, J.-M., and Charpentier, J.-P., eds., 1976, *A Review of Energy Models, No. 3 (Special Issue on Soviet Models)*, RR-76-18, International Institute for Applied Systems Analysis, Laxenburg, Austria.
- Beaujean, J.-M., and Charpentier, J.-P., eds., 1977, *A Review of Energy Models, No. 4 - July 1978*, RR-78-12, International Institute for Applied Systems Analysis, Laxenburg, Austria.
- Beckmann, M.J., Golob, T.F., and Zahavi, Y., 1983, Travel Probability Fields and Urban Spatial Structure: 1. Theory, *Environment and Planning A*, 15:593-606.
- Beckmann, M.J., Golob, T.F., and Zahavi, Y., 1983, Travel Probability Fields and Urban Spatial Structure: 2. Empirical Tests, *Environment and Planning A*, 15:727-738.
- Bellacicco, A., Cossetto, S., and Wilson, A.G., 1987, Dynamic Models for Person Transportation and their Relationship to Urban Structure and Change, *European Journal of Operational Research*, 31:209-214, Elsevier Science Publishers B.V. (North-Holland).
- Ben-Akiva, M., and Litinas, N., 1985, Continuous Spatial Choice: The Continuous Logit Model and Distributions of Trips and Urban Densities, *Transportation Research A*, 19A(2):119-154.
- Bonine, M.E., 1977, From Uruk to Casablanca: Perspectives on the Urban Experience of the Middle East, *Journal of Urban History*, 3(2):141.
- Bowyer, D., and Botterill, R., 1988, Monitoring Urban Spatial Dynamics, *Transportation*, 14:345-359, Kluwer Academic Publishers, Dordrecht, Netherlands.
- Burns, L.D., Hall, R.W., and Blumenfeld, D.E., 1985, Distribution Strategies that Minimize Transportation and Inventory Costs, *Operations Research*, 33(3).

- Charpentier, J.-P., 1974, *A Review of Energy Models, No. 1 (Revised September 1976)*, RR-74-10, International Institute for Applied Systems Analysis, Laxenburg, Austria.
- Charpentier, J.-P., 1975a, *A Review of Energy Models, No. 2 - July 1975*, RR-75-35, International Institute for Applied Systems Analysis, Laxenburg, Austria.
- Charpentier, J.-P., 1975b, *Overview on Techniques and Models Used in the Energy Field*, RM-75-8, International Institute for Applied Systems Analysis, Laxenburg, Austria.
- Dendrinis, D.S., 1976, Mode Choice, Transport Pricing, and Urban Form, *Environment and Planning A*, **8**:767-778.
- Dendrinis, D.S., 1979, Energy Costs, the Transport Network, and Urban Form, *Environment and Planning A*, **11**:655-664.
- Edmonston, B., Goldberg, M.A., Mercer, J., 1985, Urban Form in Canada and the United States: An Examination of Urban Density Gradients, *Urban Studies*, **22**:209-217.
- Evans, G.W., Smith, C., and Pezdek, K., 1982, Cognitive Maps and Urban Form, *Journal of the American Planning Association*, Spring, pp. 232-244, American Planning Association, Chicago, IL, USA.
- Friedlander, D., 1974, London's Urban Transition 1851-1951, *Urban Studies*, **11**:127-141.
- Gilbert, A., 1992, Third World Cities: Housing, Infrastructure and Servicing, *Urban Studies*, **29**(3/4):435.
- Glasson, J., 1992, The Fall and Rise of Regional Planning in the Economically Advanced Nations, *Urban Studies*, **29**(3/4):505.
- Golob, T.F., Beckman, M.J., and Zahavi, Y., 1981, A Utility-Theory Travel Demand Model Incorporating Travel Budgets, *Transportation Research B*, **15B**(6):375-389.
- Gordon, P., Kumar, A., and Richardson, H.W., 1989, The Spatial Mismatch Hypothesis: Some New Evidence, *Urban Studies*, **26**:315-326.
- Haring, J.E., Slobko, T., and Chapman, J., 1976, The Impact of Alternative Transportation Systems on Urban Structure, *Journal of Urban Economics*, **3**:14-30.
- Hamer, M., 1995, Report Slams Official Traffic Forecasts, *New Scientist*, January.
- Hebert, B., 1976, Urban Morphology and Transportation, *Traffic Quarterly*, **30**(4):633-649.
- Jenkins, P.L., Phillips, T.J., Mulberg, E.J., and Hui St.P., 1992, Activity Patterns of Californians: Use of and Proximity to Indoor Pollutant Sources, *Atmospheric Environment*, **26A**(12):2141-2148

- Kim, T.J., 1978, Effects of Subways on Urban Form and Structure, *Transportation Research*, 12:231-239.
- Konvitz, J.W., 1994, Global Cities and Economic Growth, *The OECD Observer*, No. 190, October/November.
- Korzybski, S., 1954, Le Profil de Densité de Population dans l'Étude des Zones Urbaines de Londres et de Paris, *La Vie Urbaine - Urbanisme et Habitation*, 2:113-156.
- Levinson, D.M., and Kumar, A., 1994, The Rational Locator: Why Travel Times Have Remained Stable, *Journal of the American Planning Association*, 60(3), American Planning Association, Chicago, IL, USA.
- Malvani, M.P., 1994, *Urban Systems and Global Change: Possible Future Urban Trends and Implications*, International Institute for Applied Systems Analysis, Laxenburg, Austria.
- Marchetti, C., 1993, *Introducing TGV Trains in Europe: Elements of Systems Analysis*, WP-93-29, International Institute for Applied Systems Analysis, Laxenburg, Austria.
- Marchetti, C., 1994a, Anthropological Invariants in Travel Behavior, *Technological Forecasting and Social Change*, 47:75-88.
- Marchetti, C., 1994b, *Mobility: On the Potential and the Effects of Introducing Maglevs in the European Transport System*, Report to the Commission of the European Communities, Contract No. 5374-93-07 ED ESP A, International Institute for Applied Systems Analysis, Laxenburg, Austria.
- Merlin, P., 1969, *Possible Improvements in Urban Transportation and Their Foreseeable Effects on Urbanization*, OECD, Paris, France.
- Mogridge, M.J.H., 1985, Strategic Population Forecasting for a Conurbation Using the Negative Exponential Density Model, *Transportation Research A*, 19A(2):189-206.
- Morris, J.M., Dumble, P.L., Wigan, M.R., 1979, Accessibility Indicators for Transport Planning, *Transportation Research A*, 13A:91-109.
- Newman, P., and Hogan, T., 1981, A Review of Urban Density Models: Toward a Resolution of the Conflict Between Populace and Planner, *Human Ecology*, 9(3).
- Newman, P.W.G., and Kenworthy, J.R., 1988, The Transport Energy Trade-Off: Fuel-Efficient Traffic Versus Fuel-Efficient Cities, *Transportation Research A*, 22A(3):163-174.
- Newman, P.W.G., and Kenworthy, J.R., 1991, Transport and Urban Form in Thirty-Two of the World's Principal Cities, *Transport Reviews*, 11(3):249-272.

- Robson, A.J., and Scheffman, D.T., 1979, Urban Structure, Gas Prices, and the Demand for Transportation, *Journal of Urban Economics*, **6**:148-155.
- Roehner, B.M., 1991, The Long-Term Trend Toward Increased Dispersion in the Distributions of City Sizes, *Environment and Planning A*, **23**:1725-1740.
- Rosenhead, J., 1981, Operational Research in Urban Planning, *OMEGA The International Journal of Management Sciences*, **9**(4):345-364.
- Sargent, C.S., 1972, Toward a Dynamic Model of Urban Morphology, *Economic Geography*, **48**(4).
- Sayer, R.A., 1976, A Critique of Urban Modelling, *Progress in Planning*, **6**(3):187-254.
- Schenk, H., 1977, Some Concepts Behind Urban and Regional Planning in China, *Progress in Planning*, **8**(2):153-161.
- Sharpe, R., 1978, The Effect of Urban Form on Transport Energy Patterns, *Urban Ecology*, **3**:125-135.
- Sheppard, E., 1983, *On Forecasting Urban and Rural Populations: Some Methodological Reflections*, WP-83-32, International Institute for Applied Systems Analysis, Laxenburg, Austria.
- Shukla, V., Parikh, K., 1992, The Environmental Consequences of Urban Growth: Cross-National Perspectives on Economic Development, Air Pollution, and City Size, *Urban Geography*, **13**(5):422-449, V.H. Winston & Son, Inc.
- Stewart, J.Q., 1947, Empirical Mathematical Rules Concerning the Distribution and Equilibrium of Population, *Geographical Review*, July, pp. 461-485.
- Tanner, J.C., 1961, Factors Affecting the Amount of Travel, *Road Research Technical Papers*, No. 51:1-26, Road Research Laboratory Great Britain.
- Topalov, Ch., 1989, A History of Urban Research: The French Experience Since 1965, *International Journal of Urban and Regional Research*, **13**(4):625.
- van den Berg, L., and Klaassen, L.H., 1984, *Economic Cycles, Spatial Cycles and Transportation Structures in Urban Areas*, Netherlands Economic Institute.
- Virirakis, J., 1971, Population Density as the Determinant of Residents' Use of Local Centers, *Ekistics*, **187**, June.
- Virirakis, J., 1972, The Minimization of Energy as Determinant of the Grouping of Community Facilities, *Ekistics*, **199**, June.

- Webster, F.V., and Paulley, N.J., 1990, An International Study on Land-Use and Transport Interaction, *Transport Reviews*, **10**(4):287–308.
- White, R., and Engelen, G., 1993, Cellular Automata and Fractal Urban Form: A Cellular Modelling Approach to the Evolution of Urban Land-Use Patterns, *Environment and Planning A*, **25**:1175–1199.
- Whitehand, J.W.R., 1977, The Basis for an Historico-Geographical Theory of Urban Form, *Transactions*, **2**(3):400–416, Institute of British Geographers.
- Whitehand, J.W.R., 1992, Recent Advances in Urban Morphology, *Urban Studies*, **29**(3/4):619.
- Wigan, M.R., 1988, Changes in the Relationships Between Transport, Communications and Urban Form, *Transportation*, **14**:395–417, Kluwer Academic Publishers, Dordrecht, Netherlands.
- World Bank, 1976, Transport and Urban Form, *Ekistics*, **42**(248):5.

Journal Articles (in chronological order)

- Stewart, J.Q., 1947, Empirical Mathematical Rules Concerning the Distribution and Equilibrium of Population, *Geographical Review*, July, pp. 461-485.
- Korzybski, S., 1954, Le Profil de Densité de Population dans l'Étude des Zones Urbaines de Londres et de Paris, *La Vie Urbaine - Urbanisme et Habitation*, 2:113-156.
- Merlin, P., 1969, *Possible Improvements in Urban Transportation and Their Foreseeable Effects on Urbanization*, OECD, Paris, France.
- Tanner, J.C., 1961, Factors Affecting the Amount of Travel, *Road Research Technical Papers*, No. 51:1-26, Road Research Laboratory Great Britain.
- Virirakis, J., 1971, Population Density as the Determinant of Residents' Use of Local Centers, *Ekistics*, 187, June.
- Sargent, C.S., 1972, Toward a Dynamic Model of Urban Morphology, *Economic Geography*, 48(4).
- Virirakis, J., 1972, The Minimization of Energy as Determinant of the Grouping of Community Facilities, *Ekistics*, 199.
- Charpentier, J.-P., 1974, *A Review of Energy Models, No. 1 (Revised September 1976)*, RR-74-10, International Institute for Applied Systems Analysis, Laxenburg, Austria.
- Friedlander, D., 1974, London's Urban Transition 1851-1951, *Urban Studies*, 11:127-141.
- Charpentier, J.-P., 1975a, *A Review of Energy Models, No. 2 - July 1975*, RR-75-35, International Institute for Applied Systems Analysis, Laxenburg, Austria.
- Charpentier, J.-P., 1975b, *Overview on Techniques and Models Used in the Energy Field*, RM-75-8, International Institute for Applied Systems Analysis, Laxenburg, Austria.
- Alcaly, R.E., 1976, Transportation and Urban Land Values: A Review of the Theoretical Literature, *Land Economics*, bf 52(1):42.
- Ashenfelter, O., 1976, On the Interpretation of Urban Density Functions, *Journal of Urban Economics*, 3:82-87.
- Beaujean, J.-M., and Charpentier, J.-P., eds., 1976, *A Review of Energy Models, No. 3 (Special Issue on Soviet Models)*, RR-76-18, International Institute for Applied Systems Analysis, Laxenburg, Austria.
- Dendrinou, D.S., 1976, Mode Choice, Transport Pricing, and Urban Form, *Environment and Planning A*, 8:767-778

- Haring, J.E., Slobko, T., and Chapman, J., 1976, The Impact of Alternative Transportation Systems on Urban Structure, *Journal of Urban Economics*, **3**:14-30.
- Hebert, B., 1976, Urban Morphology and Transportation, *Traffic Quarterly*, **30**(4):633-649.
- Sayer, R.A., 1976, A Critique of Urban Modelling, *Progress in Planning*, **6**(3):187-254.
- World Bank, 1976, Transport and Urban Form, *Ekistics*, **42**(248):5.
- Beaujean, J.-M., and Charpentier, J.-P., eds., 1977, *A Review of Energy Models, No. 4 - July 1978*, RR-78-12, International Institute for Applied Systems Analysis, Laxenburg, Austria.
- Bonine, M.E., 1977, From Uruk to Casablanca: Perspectives on the Urban Experience of the Middle East, *Journal of Urban History*, **3**(2):141.
- Schenk, H., 1977, Some Concepts Behind Urban and Regional Planning in China, *Progress in Planning*, **8**(2):153-161.
- Whitehand, J.W.R., 1977, The Basis for an Historico-Geographical Theory of Urban Form, *Transactions*, **2**(3):400-416, Institute of British Geographers.
- Kim, T.J., 1978, Effects of Subways on Urban Form and Structure, *Transportation Research*, **12**:231-239.
- Sharpe, R., 1978, The Effect of Urban Form on Transport Energy Patterns, *Urban Ecology*, **3**:125-135.
- Dendrinou, D.S., 1979, Energy Costs, the Transport Network, and Urban Form, *Environment and Planning A*, **11**:655-664.
- Morris, J.M., Dumble, P.L., Wigan, M.R., 1979, Accessibility Indicators for Transport Planning, *Transportation Research A*, **13A**:91-109.
- Robson, A.J., and Scheffman, D.T., 1979, Urban Structure, Gas Prices, and the Demand for Transportation, *Journal of Urban Economics*, **6**:148-155.
- Allen, I., 1980, The Ideology of Dense Neighborhood Redevelopment: Cultural Diversity and Transcendent Community Experience, *Urban Affairs Quarterly*, **15**(4):409-428.
- Newman, P., and Hogan, T., 1981, A Review of Urban Density Models: Toward a Resolution of the Conflict Between Populace and Planner, *Human Ecology*, **9**(3).
- Rosenhead, J., 1981, Operational Research in Urban Planning, *OMEGA The International Journal of Management Sciences*, **9**(4):345-364.
- Golob, T.F., Beckman, M.J., and Zahavi, Y., 1981, A Utility-Theory Travel Demand Model Incorporating Travel Budgets, *Transportation Research B*, **15B**(6):375-389.

- Evans, G.W., Smith, C., and Pezdek, K., 1982, Cognitive Maps and Urban Form, *Journal of the American Planning Association*, Spring, pp. 232–244, American Planning Association, Chicago, IL, USA.
- Beckmann, M.J., Golob, T.F., and Zahavi, Y., 1983, Travel Probability Fields and Urban Spatial Structure: 1. Theory, *Environment and Planning A*, **15**:593–606.
- Beckmann, M.J., Golob, T.F., and Zahavi, Y., 1983, Travel Probability Fields and Urban Spatial Structure: 2. Empirical Tests, *Environment and Planning A*, **15**:727–738.
- Sheppard, E., 1983, *On Forecasting Urban and Rural Populations: Some Methodological Reflections*, WP-83-32, International Institute for Applied Systems Analysis, Laxenburg, Austria.
- van den Berg, L., and Klaassen, L.H., 1984, *Economic Cycles, Spatial Cycles and Transportation Structures in Urban Areas*, Netherlands Economic Institute.
- Ben-Akiva, M., and Litinas, N., 1985, Continuous Spatial Choice: The Continuous Logit Model and Distributions of Trips and Urban Densities, *Transportation Research A*, **19A**(2):119–154.
- Burns, L.D., Hall, R.W., and Blumenfeld, D.E., 1985, Distribution Strategies that Minimize Transportation and Inventory Costs, *Operations Research*, **33**(3).
- Edmonston, B., Goldberg, M.A., Mercer, J., 1985, Urban Form in Canada and the United States: An Examination of Urban Density Gradients, *Urban Studies*, **22**:209–217.
- Mogridge, M.J.H., 1985, Strategic Population Forecasting for a Conurbation Using the Negative Exponential Density Model, *Transportation Research A*, **19A**(2):189–206.
- Barber, J.B., 1986, *Maglev: The Urban Market*, TRAAC International Consultants, Arlington, VA, USA.
- Bellaciccio, A., Cossetto, S., and Wilson, A.G., 1987, Dynamic Models for Person Transportation and their Relationship to Urban Structure and Change, *European Journal of Operational Research*, **31**:209–214, Elsevier Science Publishers B.V. (North-Holland).
- Bowyer, D., and Botterill, R., 1988, Monitoring Urban Spatial Dynamics, *Transportation*, **14**:345–359, Kluwer Academic Publishers, Dordrecht, Netherlands.
- Newman, P.W.G., and Kenworthy, J.R., 1988, The Transport Energy Trade-Off: Fuel-Efficient Traffic Versus Fuel-Efficient Cities, *Transportation Research A*, **22A**(3):163–174.
- Wigan, M.R., 1988, Changes in the Relationships Between Transport, Communications and Urban Form, *Transportation*, **14**:395–417, Kluwer Academic Publishers, Dordrecht, Nether-

- Barr, J.B., and O'Neill, G.J., 1989, Aspects of the Lognormal Function in the Analysis of Regional Population Distribution, *Environment and Planning A*, **21**:961-973.
- Gordon, P., Kumar, A., and Richardson, H.W., 1989, The Spatial Mismatch Hypothesis: Some New Evidence, *Urban Studies*, **26**:315-326.
- Topalov, Ch., 1989, A History of Urban Research: The French Experience Since 1965, *International Journal of Urban and Regional Research*, **13**(4):625.
- Webster, F.V., and Paulley, N.J., 1990, An International Study on Land-Use and Transport Interaction, *Transport Reviews*, **10**(4):287-308.
- Newman, P.W.G., and Kenworthy, J.R., 1991, Transport and Urban Form in Thirty-Two of the World's Principal Cities, *Transport Reviews*, **11**(3):249-272.
- Roehner, B.M., 1991, The Long-Term Trend Toward Increased Dispersion in the Distributions of City Sizes, *Environment and Planning A*, **23**:1725-1740.
- Gilbert, A., 1992, Third World Cities: Housing, Infrastructure and Servicing, *Urban Studies*, **29**(3/4):435.
- Glasson, J., 1992, The Fall and Rise of Regional Planning in the Economically Advanced Nations, *Urban Studies*, **29**(3/4):505.
- Jenkins, P.L., Phillips, T.J., Mulberg, E.J., and Hui St.P., 1992, Activity Patterns of Californians: Use of and Proximity to Indoor Pollutant Sources, *Atmospheric Environment*, **26A**(12):2141-2148.
- Shukla, V., Parikh, K., 1992, The Environmental Consequences of Urban Growth: Cross-National Perspectives on Economic Development, Air Pollution, and City Size, *Urban Geography*, **13**(5):422-449, V.H. Winston & Son, Inc.
- Whitehand, J.W.R., 1992, Recent Advances in Urban Morphology, *Urban Studies*, **29**(3/4):619.
- Marchetti, C., 1993, *Introducing TGV Trains in Europe: Elements of Systems Analysis*, WP-93-29, International Institute for Applied Systems Analysis, Laxenburg, Austria.
- White, R., and Engelen, G., 1993, Cellular Automata and Fractal Urban Form: A Cellular Modelling Approach to the Evolution of Urban Land-Use Patterns, *Environment and Planning A*, **25**:1175-1199.
- Konvitz, J.W., 1994, Global Cities and Economic Growth, *The OECD Observer*, No. 190, October/November.
- Levinson, D.M., and Kumar, A., 1994, The Rational Locator: Why Travel Times Have Remained Stable, *Journal of the American Planning Association*, **60**(3). American Planning

Association, Chicago, IL, USA.

Malvani, M.P., 1994, *Urban Systems and Global Change: Possible Future Urban Trends and Implications*, International Institute for Applied Systems Analysis, Laxenburg, Austria.

Marchetti, C., 1994a, Anthropological Invariants in Travel Behavior, *Technological Forecasting and Social Change*, 47:75–88.

Marchetti, C., 1994b, *Mobility: On the Potential and the Effects of Introducing Maglevs in the European Transport System*, Report to the Commission of the European Communities, Contract No. 5374-93-07 ED ESP A, International Institute for Applied Systems Analysis, Laxenburg, Austria.

Hamer, M., 1995, Report Slams Official Traffic Forecasts, *New Scientist*, January.

Books (in alphabetical order)

- Andersson, Å.E., Batten, D.F., Johansson, B., and Nijkamp, P., eds., 1989, *Advances in Spatial Theory and Dynamics*, North-Holland, Amsterdam, Netherlands.
- Angel, S., and Hyman, G.M., 1976, *Urban Fields: A Geometry of Movement for Regional Sciences*, Pion Limited, London, UK.
- Badcock, B., 1984, *Unfairly Structured Cities*, Basil Blackwell, Oxford, UK.
- Bairoch, P., 1988, *Cities and Economic Development: From the Dawn of History to the Present*, Mansell Publishing Limited, London, UK.
- Bennett, R.J., ed., 1981, *European Progress in Spatial Analysis*, Pion Limited, London, UK.
- Berry, B.J.L., and Gillard, Qu., 1977, *The Changing Shape of Metropolitan America: Commuting Patterns, Urban Fields, and Decentralization Processes, 1960-1970*, Ballinger Publishing Company, Cambridge, MA, USA.
- Brown, L., 1968, *Diffusion Dynamics: A Review and Revision of the Quantitative Theory of the Spatial Diffusion of Innovation*, Department of Geography, The Royal University of Lund. C.W.K. Gleerup, Lund, Sweden.
- Brunet, R., 1989, *Les Villes "Européennes"*, RECLUS-DATAR, Montpellier/Paris, France.
- Carlstein, T., 1982, *Time Resources, Society and Ecology: On the Capacity of Human Interaction in Space and Time, Volume 1: Preindustrial Societies*, George Allen & Unwin, Boston, MA, USA.
- Castells, M., ed., 1985, *High Technology, Space, and Society*, Sage Publications, Beverly Hills, CA, USA.
- Chandler, T., and Fox, G., 1974, *3000 Years of Urban Growth*, Academic Press, New York, NY, USA.
- Chatterji, M., and Kuenne, R.E., 1990, *Dynamics and Conflict in Regional Structural Change: Essays in Honour of Walter Isard, Volume 2*, Macmillan, New York, NY, USA.
- Cliff, A.D., and Ord, J.K., 1981, *Spatial Processes: Models & Applications*, Pion Limited, London, UK.
- Cripps, E.L., ed., 1974, *Space-Time Concepts in Urban and Regional Models*, London Papers in Regional Science 4, Pion Limited, London, UK.
- Daniels, P.W., ed., 1991, *Services and Metropolitan Development: International Perspectives*, Routledge, London, UK.

- de Boer, E., ed., 1986, *Transport Sociology: Social Aspects of Transport Planning*, Pergamon Press, Oxford, UK.
- de Vries, J., 1984, *European Urbanization: 1500-1800*, Harvard University Press, Cambridge, MA, USA.
- Brotchie, J., Newton, P., Hall, P., and Nijkamp, P., eds., 1985, *The Future of Urban Form: The Impact of New Technology*, Croom Helm, London, UK.
- Brotchie, J.F., Hall, P., and Newton, P.W., eds., 1987, *The Spatial Impact of Technological Change*, Croom Helm, London, UK.
- Dogan, M., and Kasarda, J.D., eds., 1988, *The Metropolis Era, Volume 1: A World of Giant Cities*, Sage Publications, Beverly Hills, CA, USA.
- Drakakis-Smith, D., ed., 1986, *Urbanisation in the Developing World*, Croom Helm, London, UK.
- Edmonston, B., 1975, *Population Distribution in American Cities*, Lexington Books, Lexington, MA, USA.
- Gerbner, G., Gross, L.P., and Melody, W.H., eds., 1973, *Communications Technology and Social Policy: Understanding the New "Cultural Revolution"*, John Wiley & Sons, New York, NY, USA.
- Gottlieb, M., 1976, *Long Swings in Urban Development*, National Bureau of Economic Research, Columbia University Press, New York, NY, USA.
- Gregory, D., and Urry, J., eds., 1985, *Social Relations and Spatial Structures*, Macmillan, New York, NY, USA.
- Griffith, D.A., and Lea, A.C., eds., 1983, *Evolving Geographical Structures: Mathematical Models and Theories for Space-Time Processes*, Martinus Nijhoff Publishers, The Hague, Netherlands.
- Griffith, D.A., and Mackinnon, R.D., eds., 1981, *Dynamic Spatial Models*, Sijthoff & Noordhoff, Rockville, MD, USA.
- Hall, P., and Hass-Klau, C., 1985, *Can Rail Save the City? The Impacts of Rail Rapid Transit and Pedestrianisation on British and German Cities*, Gower, Aldershot, UK.
- Hägerstrand, T., 1967, *Innovation Diffusion as a Spatial Process*, The University of Chicago Press, Chicago, IL, USA.
- Hansen, N.M., ed., 1978, *Human Settlement Systems: International Perspectives on Structure, Change and Public Policy*, Ballinger Publishing Company, Cambridge, MA, USA.

- Higgins, B., and Savoie, D.J., eds., 1988, *Regional Economic Development: Essays in Honour of Francois Perroux*, Unwin Hyman, Boston, MA, USA.
- Hohenberg, P.M., and Lees, L.H., 1985, *The Making of Urban Europe: 1000-1950*, Harvard University Press, Cambridge, MA, USA.
- Holliday, I., Marcou, G., and Vickerman, R., 1991, *The Channel Tunnel: Public Policy, Regional Development and European Integration*, Belhaven Press, London, UK.
- Kasaba, R., ed., 1991, *Cities in the World-System*, Contributions in Economics and Economic History, Number 126, Greenwood Press, New York, NY, USA.
- Lampl, P., 1968, *Cities and Planning in The Ancient Near East*, George Braziller, New York, NY, USA.
- Lee, T.R., and Wood, L.J., 1981, *Adjustment in the Urban System: The Tasman Bridge Collapse and its Effects on Metropolitan Hobart*, Pergamon Press Ltd., Oxford, UK.
- Lundqvist, L., Mattsson, L.-G., and Eriksson, E.A., eds., 1989, *Spatial Energy Analysis*, Avebury, Aldershot, UK.
- Marchetti, C., 1990, Building Bridges and Tunnels: The Effects on the Evolution of Traffic, Chapter 4 in A. Montanari, ed., *Under and Over the Water: The Economic and Social Effects of Building Bridges and Tunnels*, Edizioni Scientifiche Italiane, Napoli, Italy.
- Martin, R.L., Thrift, N.J., and Bennett, R.J., eds., 1978, *Towards the Dynamic Analysis of Spatial Systems*, Pion Limited, London, UK.
- Mazie, S.M., ed., 1972, *Population, Distribution, and Policy: The Commission on Population Growth and The American Future*, Research Reports, US Government Printing Office, Washington, DC, USA.
- Morris, A.E.J., 1994, 3rd edition, *History of Urban Form*, Longman Scientific & Technical and John Wiley & Sons, New York, NY, USA.
- Newell, G.F., ed., 1971, Traffic Flow and Transportation, *Proceedings of the Fifth International Symposium on the Theory of Traffic Flow and Transportation*, 16-18 June, Berkeley, CA. American Elsevier Publishing Company, Inc., New York, NY, USA.
- Nijkamp, P., and Reichman, S., eds., 1987, *Transportation Planning in a Changing World*, Gower, Aldershot, UK.
- Norborg, K., ed., 1962, *Proceedings of the IGU Symposium in Urban Geography, Lund 1960*, Department of Geography, The Royal University of Lund. C.W.K. Gleerup Publishers, Lund, Sweden.

- O'Brien, R., 1992, *Global Financial Integration: The End of Geography*, Chatham House Papers, The Royal Institute of International Affairs, Pinter Publishers, London, UK.
- Owens, S., 1986, *Energy, Planning and Urban Form*, Pion Limited, London, UK.
- Paelinck, J.H.P., 1978, *Urban Structure in Western Europe: Facts, Theories, Models*, Saxon House, Farnborough, UK.
- Peterson, P.E., ed., 1985, *The New Urban Reality*, The Brookings Institution, Washington, DC, USA.
- Pred, A., 1977, *City-Systems in Advanced Economies: Past Growth, Present Processes and Future Development Options*, John Wiley & Sons, New York, NY, USA.
- Putnam, S.H., 1983, *Integrated Urban Models: Policy Analysis of Transportation and Land Use*, Pion Limited, London, UK.
- Putnam, S.H., 1991, *Integrated Urban Models 2: New Research and Applications of Optimization and Dynamics*, Pion Limited, London, UK.
- Richardson, H.W., 1973, *The Economics of Urban Size*, Saxon House, Farnborough, UK.
- Rodger, R., ed., 1993, *European Urban History: Prospect and Retrospect*, Leicester University Press, London, UK.
- Rykwert, J., 1988, *The Idea of a Town: The Anthropology of Urban Form in Rome, Italy and the Ancient World*, MIT Press, Cambridge, MA, USA.
- Sharp, C., 1981, *The Economics of Time*, Martin Robertson, Oxford, UK.
- Stren, R.E., and White, R.R., eds., 1989, *African Cities in Crisis: Managing Rapid Urban Growth*, Westview Press, Boulder, CO, USA.
- Sutcliffe, A., ed., 1984, *Metropolis 1890-1940*, Mansell, London, UK.
- Thomson, J.M., 1977, *Great Cities and Their Traffic*, Victor Gollancz Ltd., London, UK.
- Thomson, J.M., 1978, *Great Cities and Their Traffic*, Penguin Books, New York, NY, USA.
- Thrift, N., and Williams, P., eds., 1987, *Class and Space: The Making of Urban Society*, Routledge & Kegan Paul, London, UK.
- van den Berg, L., Burns, L.S., and Klaassen, L.H., 1987, *Spatial Cycles*, Gower, Aldershot, UK.
- Webber, M.J., 1979, *Information Theory and Urban Spatial Structure*, Croom Helm, London, UK.
- Webster, F.V., Bly, P.H., and Paulley, N.J., eds., 1988, *Urban Land-Use and Transport Interaction: Policies and Models*, Avebury, Aldershot, UK.

Wilson, A.G., Rees, P.H., and Leigh, C.M., eds., 1977, *Models of Cities and Regions: Theoretical and Empirical Developments*, John Wiley & Sons, New York, NY, USA.

Wrigley, E.A., 1987, *People, Cities and Wealth: The Transformation of Traditional Society*, Basil Blackwell, Oxford, UK.

Zipf, G.K., 1972, *Human Behavior and the Principle of Least Effort*, Hafner Publishing Company, New York, NY, USA.

Books (in chronological order)

- Norborg, K., ed., 1962, *Proceedings of the IGU Symposium in Urban Geography, Lund 1960*, Department of Geography, The Royal University of Lund, Sweden, C.W.K. Gleerup Publishers, Lund, Sweden.
- Hägerstrand, T., 1967, *Innovation Diffusion as a Spatial Process*, The University of Chicago Press, Chicago, IL, USA.
- Brown, L., 1968, *Diffusion Dynamics: A Review and Revision of the Quantitative Theory of the Spatial Diffusion of Innovation*, Department of Geography, The Royal University of Lund. C.W.K. Gleerup, Lund, Sweden.
- Lampl, P., 1968, *Cities and Planning in The Ancient Near East*, George Braziller, New York, NY, USA.
- Newell, G.F., ed., 1971, *Traffic Flow and Transportation, Proceedings of the Fifth International Symposium on the Theory of Traffic Flow and Transportation, 16–18 June, Berkeley, CA*. American Elsevier Publishing Company, Inc., New York, NY, USA.
- Mazie, S.M., ed., 1972, *Population, Distribution, and Policy: The Commission on Population Growth and The American Future*, Research Reports, US Government Printing Office, Washington, DC, USA.
- Zipf, G.K., 1972, *Human Behavior and the Principle of Least Effort*, Hafner Publishing Company, New York, NY, USA.
- Gerbner, G., Gross, L.P., and Melody, W.H., eds., 1973, *Communications Technology and Social Policy: Understanding the New "Cultural Revolution"*, John Wiley & Sons, New York, NY, USA.
- Richardson, H.W., 1973, *The Economics of Urban Size*, Saxon House, Farnborough, UK.
- Chandler, T., and Fox, G., 1974, *3000 Years of Urban Growth*, Academic Press, New York, NY, USA.
- Cripps, E.L., ed., 1974, *Space-Time Concepts in Urban and Regional Models*, London Papers in Regional Science 4, Pion Limited, London, UK.
- Edmonston, B., 1975, *Population Distribution in American Cities*, Lexington Books, Lexington, MA, USA.
- Angel, S., and Hyman, G.M., 1976, *Urban Fields: A Geometry of Movement for Regional Sciences*, Pion Limited, London, UK.

- Gottlieb, M., 1976, *Long Swings in Urban Development*, National Bureau of Economic Research, Columbia University Press, New York, NY, USA.
- Berry, B.J.L., and Gillard, Qu., 1977, *The Changing Shape of Metropolitan America: Commuting Patterns, Urban Fields, and Decentralization Processes, 1960-1970*, Ballinger Publishing Company, Cambridge, MA, USA.
- Pred, A., 1977, *City-Systems in Advanced Economies: Past Growth, Present Processes and Future Development Options*, John Wiley & Sons, New York, NY, USA.
- Thomson, J.M., 1977, *Great Cities and Their Traffic*, Victor Gollancz Ltd., London, UK.
- Wilson, A.G., Rees, P.H., and Leigh, C.M., eds., 1977, *Models of Cities and Regions: Theoretical and Empirical Developments*, John Wiley & Sons, New York, NY, USA.
- Hansen, N.M., ed., 1978, *Human Settlement Systems: International Perspectives on Structure, Change and Public Policy*, Ballinger Publishing Company, Cambridge, MA, USA.
- Martin, R.L., Thrift, N.J., and Bennett, R.J., eds., 1978, *Towards the Dynamic Analysis of Spatial Systems*, Pion Limited, London, UK.
- Paelinck, J.H.P., 1978, *Urban Structure in Western Europe: Facts, Theories, Models*, Saxon House, Farnborough, UK.
- Thomson, J.M., 1978, *Great Cities and Their Traffic*, Penguin Books, New York, NY, USA.
- Webber, M.J., 1979, *Information Theory and Urban Spatial Structure*, Croom Helm, London, UK.
- Bennett, R.J., ed., 1981, *European Progress in Spatial Analysis*, Pion Limited, London, UK.
- Cliff, A.D., and Ord, J.K., 1981, *Spatial Processes: Models & Applications*, Pion Limited, London, UK.
- Griffith, D.A., and Mackinnon, R.D., eds., 1981, *Dynamic Spatial Models*, Sijthoff & Noordhoff, Rockville, MD, USA.
- Lee, T.R., and Wood, L.J., 1981, *Adjustment in the Urban System: The Tasman Bridge Collapse and its Effects on Metropolitan Hobart*, Pergamon Press Ltd., Oxford, UK.
- Sharp, C., 1981, *The Economics of Time*, Martin Robertson, Oxford, UK.
- Carlstein, T., 1982, *Time Resources, Society and Ecology: On the Capacity of Human Interaction in Space and Time, Volume 1: Preindustrial Societies*, George Allen & Unwin, Boston, MA, USA.
- Griffith, D.A., and Lea, A.C., eds., 1983, *Evolving Geographical Structures: Mathematical Models*

and Theories for Space-Time Processes, Martinus Nijhoff Publishers, The Hague, Netherlands.

Putnam, S.H., 1983, *Integrated Urban Models: Policy Analysis of Transportation and Land Use*, Pion Limited, London, UK.

Badcock, B., 1984, *Unfairly Structured Cities*, Basil Blackwell, Oxford, UK.

de Vries, J., 1984, *European Urbanization: 1500-1800*, Harvard University Press, Cambridge, MA, USA.

Sutcliffe, A., ed., 1984, *Metropolis 1890-1940*, Mansell, London, UK.

Brotchie, J., Newton, P., Hall, P., and Nijkamp, P., eds., 1985, *The Future of Urban Form: The Impact of New Technology*, Croom Helm, London, UK.

Castells, M., ed., 1985, *High Technology, Space, and Society*, Sage Publications, Beverly Hills, CA, USA.

Gregory, D., and Urry, J., eds., 1985, *Social Relations and Spatial Structures*, Macmillan, New York, NY, USA.

Hall, P., and Hass-Klau, C., 1985, *Can Rail Save the City? The Impacts of Rail Rapid Transit and Pedestrianisation on British and German Cities*, Gower, Aldershot, UK.

Hohenberg, P.M., and Lees, L.H., 1985, *The Making of Urban Europe: 1000-1950*, Harvard University Press, Cambridge, MA, USA.

Peterson, P.E., ed., 1985, *The New Urban Reality*, The Brookings Institution, Washington, DC, USA.

de Boer, E., ed., 1986, *Transport Sociology: Social Aspects of Transport Planning*, Pergamon Press, Oxford, UK.

Drakakis-Smith, D., ed., 1986, *Urbanisation in the Developing World*, Croom Helm, London, UK.

Owens, S., 1986, *Energy, Planning and Urban Form*, Pion Limited, London, UK.

Brotchie, J.F., Hall, P., and Newton, P.W., eds., 1987, *The Spatial Impact of Technological Change*, Croom Helm, London, UK.

Nijkamp, P., and Reichman, S., eds., 1987, *Transportation Planning in a Changing World*, Gower, Aldershot, UK.

Thrift, N., and Williams, P., eds., 1987, *Class and Space: The Making of Urban Society*, Routledge & Kegan Paul, London, UK.

van den Berg, L., Burns, L.S., and Klaassen, L.H., 1987, *Spatial Cycles*, Gower, Aldershot, UK.

- Wrigley, E.A., 1987, *People, Cities and Wealth: The Transformation of Traditional Society*, Basil Blackwell, Oxford, UK.
- Bairoch, P., 1988, *Cities and Economic Development: From the Dawn of History to the Present*, Mansell Publishing Limited, London, UK.
- Dogan, M., and Kasarda, J.D., eds., 1988, *The Metropolis Era, Volume 1: A World of Giant Cities*, Sage Publications, Beverly Hills, CA, USA.
- Higgins, B., and Savoie, D.J., eds., 1988, *Regional Economic Development: Essays in Honour of Francois Perroux*, Unwin Hyman, Boston, MA, USA.
- Rykwert, J., 1988, *The Idea of a Town: The Anthropology of Urban Form in Rome, Italy and the Ancient World*, MIT Press, Cambridge, MA, USA.
- Webster, F.V., Bly, P.H., and Paulley, N.J., eds., 1988, *Urban Land-Use and Transport Interaction: Policies and Models*, Avebury, Aldershot, UK.
- Andersson, Å.E., Batten, D.F., Johansson, B., and Nijkamp, P., eds., 1989, *Advances in Spatial Theory and Dynamics*, North-Holland, Amsterdam, Netherlands.
- Brunet, R., 1989, *Les Villes "Européennes"*, RECLUS-DATAR, Montpellier/Paris, France.
- Lundqvist, L., Mattsson, L.-G., and Eriksson, E.A., eds., 1989, *Spatial Energy Analysis*, Avebury, Aldershot, UK.
- Stren, R.E., and White, R.R., eds., 1989, *African Cities in Crisis: Managing Rapid Urban Growth*, Westview Press, Boulder, CO, USA.
- Chatterji, M., and Kuenne, R.E., 1990, *Dynamics and Conflict in Regional Structural Change: Essays in Honour of Walter Isard, Volume 2*, Macmillan, New York, NY, USA.
- Marchetti, C., 1990, Building Bridges and Tunnels: The Effects on the Evolution of Traffic, Chapter 4 in A. Montanari, ed., *Under and Over the Water: The Economic and Social Effects of Building Bridges and Tunnels*, Edizioni Scientifiche Italiane, Napoli, Italy.
- Daniels, P.W., ed., 1991, *Services and Metropolitan Development: International Perspectives*, Routledge, London, UK.
- Holliday, I., Marcou, G., and Vickerman, R., 1991, *The Channel Tunnel: Public Policy, Regional Development and European Integration*, Belhaven Press, London, UK.
- Kasaba, R., ed., 1991, *Cities in the World-System*, Contributions in Economics and Economic History, Number 126, Greenwood Press, New York, NY, USA.
- Putnam, S.H., 1991, *Integrated Urban Models 2: New Research and Applications of Optimization and Dynamics*, Pion Limited, London, UK.

O'Brien, R., 1992, *Global Financial Integration: The End of Geography*, Chatham House Papers, The Royal Institute of International Affairs, Pinter Publishers, London, UK.

Rodger, R., ed., 1993, *European Urban History: Prospect and Retrospect*, Leicester University Press, London, UK.

Morris, A.E.J., 1994, 3rd edition, *History of Urban Form*, Longman Scientific & Technical and John Wiley & Sons, New York, NY, USA.