

"TOWARDS AN EXPLANATION OF TIME GEOGRAPHY"

Marie O'Neill-Maher

This paper sets out to discuss the discipline of Time Geography. To succeed in this aim the issue has to be defined and explained within the context of geography, and its uses illustrated in an attempt at understanding the manifestations in the spatial organisation and man.

Geography is a very broad discipline and embraces many diverse fields of study. It encompasses many different elements of the planet from the atmosphere to the sociosphere. This latter sphere examines man's interaction with the geographical sphere. A two-fold categorization of this geographical sphere can be discerned as V.A. Anuchin illustrated:

"One can divide the landscape complexes into those which originated as the result of spatial variations which existed before man and the latter based upon man's material landscape and additions and changes to the natural landscape".¹

By the end of the nineteenth century the human geography and the earth began to interest geographers. Consequently there were attempts to explain areal variations in human conditions and activities over the earth's surface by reference to social, political and economic principles of behaviour. The emergence of this trend resulted in "the description and explanation of spatial organisation and spatial interaction"² becoming the dominant theme in geography. A spatial perspective such as this has been outlined and promoted by many geographers including Shaefer who asserts that "geography must pay attention to the spatial arrangement of the phenomena in an area and not so much to the phenomena themselves. . . Spatial relations are the ones that matter in geography".³ This viewpoint is reiterated by Berry's perspective which stated that "the geographical point of view is spatial".⁴

The central role of space within geography began to erode with the growth of the quaternary sector and the subsequent revolution in information technology. Consequently relative location becomes less important. The relegation was widely recognised:

"By producing complete time and cost-space convergence and thus annihilating relative location with respect to information, communications technologies will set men free to give aesthetic and emotional criteria primary consideration in making spatial and locational choices...the geography of the future is the geography of human choice for human preference for experience will create the spatial organisation and spatial interaction of the future".⁶

These changes resulted in a new importance in the role of time. This element of geography was previously associated with historical geography, where it is "fundamentally implicit".⁷ Indeed its use in this academic domain has been recognised as "its most ambitious form trying to reconstruct the geography of selected dates in the past"⁸ .

The concept of Time Geography in its most widely accepted sense is associated with the University of Lund and Hagerstrand. This Time Geography differs from the role of time in Historical Geography in that both man and time are seen as contributory to a particular formation, not in itself but in a spatial context.

Within the overall field of geography Time Geography evolved from examinations of the sociosphere where it focused upon the question of mankind's spatial organisation and interaction. It is recognised that relative location was no longer important and that man had an increasing ability and greater power in determining the location of phenomena upon the earth's surface.

The discipline originally was orientated upon the individual and the notation of the time-geographic model where "some of the first contributions towards the conceptualisation of this idea were presented by Hagerstrand in the 1960s".¹⁰ His contribution, the time-space model, has its roots in the population studies he undertook during the 1940s. In such studies Hagerstrand utilised comprehensive Swedish registration records to depict each individual's lifetime as a path from birth to death, a transectory through time and space.

This was strengthened by the 'Time use and Ecological organisation' research project (1966) which synthesised and further evolved Hagerstrand's work with that of other researchers working in this area. The theory of the individual 'life-path' in both space and time continued, but the inability of people to freely pursue this 'life-path' because of constraints was recognised. These constraints were of three types: capability constraints; coupling constraints; and authority constraints. Capability constraints refer to physiological and physical needs, for example, one would buy a home near to the work-place to ensure a short home journey. Coupling constraints introduce the time aspect, activities must be arranged to be mutually acceptable, for instance, hours of work. Authority constraints relate to a 'domain', this is essentially a time-space entity which is under the control of an individual or group of individuals, e.g. the urban planning process.

Hagerstrand also developed the concept of the prism which highlighted the fact that peoples' social organisation and interaction was not solely a reflection of distance, etc. There existed a definite temporal and spatial

boundary beyond which people will not pass in order to work, e.g. commuting 200 miles daily to begin work at 4.a.m. Therefore, in an individual's daily life, he exists spatially on an island. This prism shape changes according to individuals' resources i.e. mode of transport or technology developments, "the difference in range between the walker and the motorist is tremendous".¹¹ The prism is not only defined spatially, it also has "space time walls".¹² An example of this would be the case of a working woman who is more tied to the family home (to look after her children) than her husband would be.

The consequence of the three forms of constraint and the 'time-space prism' means that location on the plane of man's organisation or interaction is not solely a reflection of distance. It forces their assessment in both spatial and temporal contexts. This point is increasingly true with technological advances. Another important and related issue is that time can play a vital role in limiting people's behaviour and determining the location of their activities and organisations in similar ways that raw materials were felt to determine industrial location in early economic geography.

By 1975 Hagerstrand had¹³ firmly outlined the central principles of the concept of time geography. These principles affect human life and society because they construct limits to possible organisational form. The first stated that man is indivisible, has a limited length of life and can only take part in one task at the time. The second principle concluded that every task or activity has a duration. The third one said that movement between points is space consumes time. Lastly, the final principle outlined that space has a limited packing capacity.

Once these principles and the central concepts to the theory were delineated, the second phase in the development of time geography began. This was a more practical dimension because it sought to illustrate Hagerstrand's model at work in social organisation and interaction, extensions of the model were also attempted. This stage in the theory served to illustrate the real-life manifestations of time-geography by applying it to every-day situations. For example, the primary basic need of man is for food. Therefore, people developed the spatial organisation of agriculture. Under the time-geography model the two resources of time and space are valuable; to conserve them and utilise them fully, irrigation systems are constructed in densely populated areas to expand agricultural production. Such innovations "reduce time requirements for various tasks and thus generate slots in the habitual time budget".¹⁴

Urban and commercial agglomerations can also illustrate cases where spatial organisations and interactions have been influenced and shaped by time. The urban area is seen as having the necessity to "facilitate the overall coordination of activities in time and space which allow for the work of society and social intercourse to go on".¹⁵ Examples of this include public-houses opening to coincide with workers' lunch-times and the peak generating hours of transportation systems.

Location upon the plane of human activities has become increasingly complex. There is no longer competition between different activities for space but also for time. This has been recognised by Hagerstrand: "Budget-space of mankind is a battleground between projects. The scene takes in the aggregate is dominated by a Darwinian kind of trial and error process. Mankind is now being threatened by the sheer size and complexity of its own projects".¹⁶

Hence, the future trend in the development of time-geography is likely to be in the prediction of future events and trends and attempting to facilitate planning for them. The model will also be increasingly used to ease the inequality which exists in present human organisation and interaction resulting from time-space constraints: e.g. poor quality housing and lack of proper transportation networks which deplore earlier socio-economic groups of fully participating in their respective societies at all levels. As Hagerstrand noted: "I believe that the criteria for a good socio-technical organisation are not to be found along the spatial cross-section but along the time axis and in the particular sequence of events which make up the life of each individual human-being. Its the biographies of people that count".¹⁷

REFERENCES

- V.A. Anuchin; "Theory of Geography" in Directions in Geography (ed)., R.J. Chorley, p.46, (1973), Methuen.
- Abler Adams and Gould, Spatial Organisation - the Geographer's View of the World, p.118, (1971), Prentice Hall.
3. W. Bunge, Theoretical Geography, p.207, (1966), University of Lund, Geography Department.
 4. Ibid, p.186.
 5. Ibid, p.207.

6. Abler et al, op.cit., p.572.
7. I.G. Cullen, "The Treatment of Time is the Explanation of Spatial Behaviour", p.27 in Timing-space and Spacing-time (Vol.2).
8. T. Hagerstrand, "The Domain of Human Geography", p.73 in Chorley, op.cit., 1973.
9. B. Lentorp, Paths in Space-Time Environments, a Time-Geography Study of Movement Possibilities of Individuals, p.81, (1976), University of Lund, Geography Department.
10. Ibid, p.9.
11. T. Hagerstrand, "What about People in Regional Science", p.40.
12. Ibid., p.46.
13. T. Hagerstrand, Space-time and Human Conditions, (1976), University of Lund, Geography Department.
14. T. Carlstein, "Innovation, Time Allocation and Time-Space Packing", p.152 in Timing-Space and Space Time (Vol.2).
15. M. Shapcott and P. Steadman, "Rhythms of Urban Activity", p.54 in Timing-Space and Spacing-Time, (Vol.2).
16. Hagerstrand, op.cit., in Chorley (1973), p.86.
17. Hagerstrand, "Introduction to Time Geography", p.18 in Timing-Space and Spacing-Time, (Vol.2).