Max Weber and Environmental Determinism

The process of rationalization was seen by Weber as occurring within the occidental world at periodical intervals: in ancient Greece, Renaissance Italy, Puritan Holland and England. It is not therefore in practice conceived by him as a linear cultural development or a series of unique accidental events, but a process which perennially but cumulatively repeats itself in the Occident. And it was this which led him against his own methodological inclinations to refer to the process of rationalization as a 'law of development'.

Weber was also forced by the logic of his own analysis to raise the possibility of a racial determination of occidental culture, but at the same time indicated what the only alternative explanation was an environmental one. In practice he conceived environmental explanations as being historical and these cannot solve "the special peculiarity of Occidental rationalism." Yet in principle the nature of a satisfactory solution to Weber's problem is to be found through the logic of scientific analysis. If social science is viewed as a natural scientific discipline which gives an objective casual account of social reality – as this paper does – then in the last resort this environmental factor must be a geographical one.

The logic is this assertion is as follows: 1. Heredity and environment exhaust the range of possible natural scientific explanations. 2. Subjective voluntaristic theories of social action are logically incapable of explaining systematic societal variations because of randomization of individual action. 3. Heredity also cannot explain societal variations because of this process of randomization – this assumes that biological race does not determine culture. 4. The only remaining factor which is both environmental and objective is geographical environment.

Weber himself did not discuss the nature of sociological explanations in terms of the environment. Talcott Parsons has attempted however to develop Weber's theory of social actions in a more systematic fashion and has dealt with the problem of environmental explanations as a general theoretical level. In the summary of his theoretical position in *Societies: Evolutionary and Comparative Perspectives*, Parsons distinguished two 'environments of action': the 'physical-organic environment' and 'ultimate reality'[1] The former refers essentially to the

[1] T. Parsons, *Societies: Evolutionary and Comparative Perspectives,* 1966, p. 20.

geographical environment but would also include all forms of biological life other than man himself.

"Ultimate Reality" is so ambiguous as to require clarification. At first sight it might appear to refer to ideas that men have about such a reality, but Parsons makes it very clear that his referring to an 'environment of action', i.e. an environment external to all modes of social action inducing religious ideas. That this is not an accidental use of words, but a fundamental part of Parsons' analysis is revealed in his earlier writings. The most telling summary of these is his discussion of Durkheim's ideas on religion in *The Structure of Social Action*:

> Religious ideas, then, may be held to constitute the cognitive bridge between men's active attitudes and the non-empirical aspects of their universe . . . The specific content of religious ideas is no more completely determined, probably not nearly as much, by the intrinsic features of the non-empirical than is scientific knowledge completely determined by the 'external world'.[2]

What Parsons is saying here is that the 'non-empirical world' is in part a determinant of men's religious ideas – not exactly Hegel's 'God in History', but at least an indeterminant supernatural/metaphysical force at work. This explicit supernatural idealism at least has the merit of pointing out the logic of Parsons' 'cultural determinism', and it allows us to decisively reject such idealism as being incompatible with sociology as a natural scientific discipline. However, it must be pointed out that it has been possible for Parsons to present such an argument as a scientific one, because his theory of social action has the authority of research derived from Weber. Parsons erroneously confused a scientific analysis of social action with a particular kind of scientific orientation on the part of the social actor himself. In fact, it is in principle just as valid to give a scientific explanation of 'irrational' non-scientific ideas and orientations as it is of 'rational' scientific ones. If we eliminate Parsons' 'ultimate reality' as a causal variable in sociological analysis – and if we subscribe to the notion of sociology as a natural social science, we must – the only theoretically valid part of his analysis of environments is that part which deals with the objective observable 'physical-organic environment'.

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[2] T. Parson, *The Structure of Social Action*, Volume 1, 1968, p. 424. See the discussion of Durkheim's treatment of religious ideas by Parsons: Ibid, pp, 411-429. For his position on the role of non-empirical reality in explaining cultural facts, see also his article 'The place of ultimate values in sociological theory', *Ethics*, Volume 45, 1934-1935.

Both Marx and Durkheim came near to applying this principle of objective environmental analysis in their sociological work. Marx's 'materialism' and emphasis on the economic determinants of social life is compatible with geographical determinism, although he only occasionally located his analysis in a specific geographical context. Environmental determinism is also compatible with non-economic explanations of social facts, in particular those made in terms of political structures. Durkheim accepted in principle the sociological importance of geographical environment but in practice was much more interested in another objective determinant of social life – changes in population density. However, alterations in population density can account for historical processes of change but not for systematic variations in the development of different societies. For the question must always be raised: as to why population grew in one type of society and not another?

Of course, population does change in a particular society for 'accidental' reasons – perhaps an example of this is the appearance and disappearance of the plague in Europe – but this kind of change cannot account for systematic changes in the social structure in several different contexts that interested Weber. Rationality appears and reappears so systematically in occidental societies that he was forced to search for some 'fixed' factor which was a 'constant' in the historical process – and if we reject the constant factor of biological race, as we must, the only other factor which is both objective and relatively unchanging is geographical environment.

It might be objected that geographical environment cannot be a "determining cause of social development, for that which remains almost unchanged in the course of tens of thousands of years cannot be the chief cause of development."[3] What can be explained by geographical environment is variations in the process of development between different societies – historical development itself is brought about by factors such as technological innovation and the process of intellectual rationalization. Similarly, biological evolutionary theory locates biological changes in the context of geographical environments. The genetic mechanisms of biological change are quite distinct from the process of natural selection: the former is primarily a function of 'random' genetic mutations, the latter a function of adaptations to geographical environments.

[3] A statement made by Stalin quoted in K.A. Wittfogel, *Oriental Despotism*, 1957, p. 408. However, Dartnell has recently argued that a relatively rapid change in the environment led to the physical development of modern man. See L. Dartnell, *Origins: How the Earth Shaped Human History*, 2019, pp. 24, 25.

Although Weber rejected the above kind of argument on account of his methodological idealism, in practice he came near to applying it in his actual attempt to explain cultural variations between one society and another. For example, his explanation of the emergence of the free artisan in northern Europe:

> In antiquity the slaves remained in the power of the lord, while in the Middle Ages they became free. In the latter there is a broad stratum of free craftsmen unknown to antiquity. The reasons are several: the difference in the consumptive requirements of the Occident as compared to all other countries of the world . . . The contrast rests on climatic differences. While in Italy heat is not indispensable, even today, and in antiquity the bed counted as a luxury – for sleeping one simply rolled up one's mantle and lay down on the floor – in Northern Europe stoves and beds were necessities. The oldest guild document which we possess is that of the bed ticking weavers of Cologne . . . again in consequence of climatic relations, the German appetite was greater than that of the southerner.[4]

And in this context, Weber might have added the commonplace observation that the temperate climate of the northern European countries is much more conducive to the protestant ethic of work than that of the hot southern countries. Weber's most comprehensive statement concerning the environmental determinant of cultural variations is to be found in his study of the religion of China:

> In sharp contrast with the Occident, but in harmony with Indian conditions, the [Chinese] city as an imperial fortress had fewer formal guarantees of self-government than the village . . . This can be explained in terms of the different origins of the occidental and oriental city. The polis of antiquity originated as an overseas trading city, however strong its base in landlordism, but China was predominantly an inland area . . . On the other hand, the characteristic inland city of the occidental Middle Ages, like the Chinese and the Middle Eastern city, was usually founded by princes and feudal lords in order to gain money rents and taxes. Yet at an early date the European city turned into a highly privileged association with fixed rights. These could be and were extended in a planned manner because at the time the lord of the city lacked the technical means to administer the city. Moreover, the city represented a military association which could successfully close the city gate, by an army of knights.

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[4] M. Weber, *General Economic History*, 1961, p. 107. For other examples of Weber's analysis of cultural facts in terms of the climate see M. Weber, *The Sociology of Religion*, p. 98.; M. Weber, *The Rational and Social Foundations of Music*, 1958, p. 24.

> In contrast, the great Middle Eastern cities, such as Babylon, at an early time were completely at the mercy of the royal bureaucracy because of canal construction and administration. The same held for the Chinese city despite the paucity of Chinese central administration. The prosperity of the Chinese city did not primarily depend upon the citizen's enterprising spirit in economic and political ventures but rather upon the imperial administration, especially the administration of rivers.[1]

This statement of Weber's could very easily be mistaken for one made by Marx on the theme of 'oriental despotism', with its emphasis on the role of economic factors and its general geographical materialism.[5] Weber was very aware of the possibility of an "explanation of a political structure from its geographical background."[6]

> Royal bureaucracies (in the East) were developed to carry out the regulation of river traffic and execution of irrigation policy with the consequent establishment of a process leading towards the bureaucratization of the entire administration. This permitted the king through his staff and revenues supplied them to incorporate the army into his own bureaucratic management. . . No political community of citizens could arise on such a foundation for there was no basis for military independence of royal power.[7]

This emphasis on irrigation management for explaining 'oriental despotism' has been developed in detail by Wittfogel in his *Oriental Despotism*. The thesis has been subsequently attacked on empirical grounds that the administration of irrigation systems did not always require large-scale bureaucratic structures but in many cases was organized on a small-scale local basis.[8] However, it is possible to restate the hypothesis in a much more acceptable form, whereby the regional management of irrigation is only a stage, although a significant one, in the development of 'oriental despotism'. Julian Steward has come near to restating the hypothesis in this form and has added to it by invoking military

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[5] For Marx's analysis of 'oriental despotism' see Wittfogel, op. cit,.

[6] The example of this in the text refers of course to the geographical determination of political structure via economic forces. Weber was also aware of the direct effect of geographical environment on political structure, e.g. his comments on the peculiar geographical position of Germany and the consequent effects on its political life. J.P. Mayer, *Max Weber and German Politics*, p. 20.

[7] M. Weber, *The City*, 1968, pp. 119, 120.

[8] See for example R. M. Adams, *The Evolution of Urban Society*, 1966, pp. 15, 66-68, 74, 76; *International Encyclopedia of Social Sciences*, 1968, Volume 1, p. 424 and Volume 16, pp. 204, 210.

[1] M. Weber, *The Religion of China*, 1968.

conquest as a further variable in the analysis.[9]

In the context of the present paper's emphasis on geographical determinism, military conquest would have to be analyzed in terms of physical accessibility of one region to another through factors such as navigable seas, lakes, rivers and canals. It is likely however, that other geographical variables are also important in explaining the emergence of 'oriental despotism' in particular societies.

Emerging out of this part of Weber's work which deals with the geographical determinants of culture, is the theme that some geographical environments through economic and political forces create the social conditions which free men for independent action, whereas others force men into personal dependency. The former was seen by Weber in terms of the occidental city where "city air makes man free".[10] The latter was viewed by him mainly in the context of 'oriental despotism' which arose out of the 'iron cage' of bureaucratic control. Freedom was the crucial factor in the development of rationality. This was true according to Weber in three major contexts: 1. "A powerful organization of priests" possessing "the greatest measure of independence from political authorities".[11] 2. Prophets as lay preachers with powers of "sovereign independence".[12] 3. "The peculiar freedom of urbanites" in the occidental city.[13] Weber never spelt out the reasons for this association between freedom and rationality but there are suggested explanations in negative statements such as he made in his study of methodology:

> The points of departure of the cultural sciences remain changeable throughout the limitless future as long as a Chinese ossification of intellectual life does not render mankind incapable setting new questions to the eternally inexhaustible flow of life.[14]

His reference to "a Chinese ossification of intellectual life" is of course employed here as a metaphor for what Weber feared would be the consequence of the spread of bureaucratic control in modern life.

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[9] See J. Steward (ed.), *Irrigation Civilizations: a Comparative Study*, 1995, pp. 1-5, 58-78.

[10] Ibid, p. 94.

[11] Weber, *Sociology of Religion*, p. 73.

[12] Ibid, p. 78.

[13] Gerth and Mills, *From Max Weber*., p. 269.

[14] Weber, *Methodology*, p. 84. Weber recognized of course that there was a significant amount of rationalization in Chinese and other oriental cultures, but it was his view that it had become 'ossified' in the oriental world in a way that it had not in the Occident.

Rationality results from freedom through the critical questions that individuals are naturally predisposed to ask through the "metaphysical needs of the human mind as it is driven . . . understand the world as a meaningful cosmos." The 'iron cage' of bureaucracy inhibits the development of rationality because it stereotypes the questions that men ask through the process of routinization and centralized control.

Recent Research on Environmental Determinism.

Although environmental determinism and cultural evolutionary theory became unfashionable during the first half of the twentieth century, there has been a significant revival of interest in both these approaches, particularly in the writings of American anthropologists.[15]. The most important attempt to revive geographical determinism was Julian Steward's work on cultural ecology.[16] There has not yet however to be successful integration of the evolutionary and ecological approaches comparable to the synthesis achieved by biological theory.

There has been a recent resurgence of interest in environmental determinism which has been conveniently summarized and detailed by Wikipedia as follows:

1. Ibn Khaldun has argued that soil, climate, and food determined whether societies were nomadic or sedentary, shaping their customs and ceremonies.[17]
2. Ellen Churchill Semple's case study focused on the Philippines, where she analyzed patterns of civilization and wildness in relation to the topography of its islands.[18]

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[15] For writings on evolutionary theory see L. White, *The Evolution of Culture*, 1959; MD. Aahlins and E.R. Service (eds.), *Evolution and Culture*, 1960; M.H. Fried, *The Evolution of Political Society*, 1967 and M. Harris, *The Rise of Anthropological Theory*, 1969. For recent publications on environmental determinism see R. Kaplan, *The Revenge of Geography,* 2013*;* T. Marshall*, Prisoners of Geography*, 2015*;* L. Dartnell*, Origins: How the Earth Shaped Human History*, 2019.

[16] J.H. Steward, *Theory of Culture Change*, 1963; M.D. Coe and C.P. Kottak, 'Social typology and tropical forest civilizations', *Comparative Studies in Society and History*, Volume 4, 1961-1962.

[17] See A. Hannoum, *Translation and the Colonial Imaginary: Ibn Khaldun Orientalist*, 2003.

3. Daron Acemoglu, Simon Johnson and James A. Robinson concluded that geography was the most important influence on institutional development during early state formation. However, they argued that geographic factors cannot directly explain differences in economic growth after 1500 A.D., except through their effects on economic and agricultural productivity.[19]
4. Jeffrey Sachs and John Luke Gallup have examined the role of geography on coastal trade and access to markets, as well as its impact on disease environment and agricultural productivity.[20]
5. Jared Diamond has concluded that early states located along the same geographical latitude made it easier for the spread of crops, livestock, and farming techniques. Regions suitable for the cultivation of wheat and barley saw high population densities and the growth of early cities. Resulting writing systems gave people the ability to store and build knowledge. A surplus of food enabled craftsmanship to flourish allowing some groups the freedom to explore and create, which lead to the development of metallurgy and advances in technology. The close proximity in which humans and their animals lived led to the spread of disease across Eurasia. Europeans took advantage of their environment to build large and complex states with advanced technology and weapons. The Incas and other native groups in South America did not have these advantages, and suffered from a north-south orientation that prevented the flow of goods and knowledge across the continent.[21]
6. Dr Marcella Alsan argued that the prevalence of the tsetse fly hampered early state formation in Africa. Because the tsetse virus was lethal to cows and horses, communities afflicted by the insect could not rely of agricultural benefits provided by livestock. The disease environment hindered the formation of farming communities, and as a result, early African societies resembled small hunter-gatherer societies rather than centralized states.[22]
7. Stanley Engerman and Kenneth Sokoloff examined the economic development of the Americas during colonization. Specific factor

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[18] J. Painter, *Political Geography: an Introduction to Space and Power*, 2009, p. 177.

[19] D. Acemoglu and J. Robinson, *Why Nations Fail: The Origins of Power, and Poverty*, 2012.

[20] J.D. Gallup, J.D. Sachs and A.D. Mellinger, 'Geography and economic development', *International Regional Science Review,* Volume 22**,** 1999.

[22] See M. Alsan, 'The effect of the tsetse fly on African development", *American Economic Review*, Volume 105, 2015.]

endowments in each colony affected their growth. The development of economic institutions, such as plantations, was caused by the need for a large amount of land and a labour force capable of harvesting sugar and tobacco, while smallholder farms thrived in areas where large scale economies were not suitable for the environment. They also found smallholder economies to be more equitable since they discouraged an elite class forming and distributed political power democratically to most land-owning males. Colonies with educated and free populations were better suited to take advantage of technological change during the industrial revolution, granting country wide participation into the booming free-market economy.[23]

8. Historians have also noted that population densities seem to concentrate on coastlines and that states with large coasts benefit from higher average incomes compared to landlocked countries. Coastal living has proven advantageous for centuries as civilizations relied on the coastline and waterways for trade, irrigation, and as a food source. However, factors including fertile soil, nearby rivers, and ecological systems suited for rice or wheat cultivation can give way to dense inland populations.[24]
9. Nathan Nunn and Diego Puga note that rugged terrain usually makes farming difficult, prevents travel, and limits societal growth. Harsh terrain hampered the flow of trade goods and decreased crop availability, while isolating communities from developing knowledge and capital growth. However, harsh terrain had positive effects on some African communities by protecting them from the slave trade. Communities that were located in areas with rugged features could successfully hide from slave traders and protect their homes from being destroyed.[25]
10. Locations with hot tropical climates often suffer underdevelopment due to low fertility of soils, excessive plant transpiration, ecological conditions favouring infectious diseases, and unreliable water supply. These factors can cause tropical zones to suffer 30% to 50% decrease in productivity relative to temperate climate zones.[26]

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[23] S. Engerman and K. Sokoloff,, *Economic Developments in the Americas since 1500: Endowments and Institutions*, 2011.

[24] J.D. Gallup, J.D. Sachs and A.D. Mellinger, 'Geography and economic development', *International Regional Science*, 22, 1999.

[25] N. Nunn and D. Puga, 'Ruggedness: The blessing of bad geography in Africa", *The Review of Economics and Statistics*, Volume 94, 2012

[26] Gallup, Sachs and Mellinger, 'Geography'; W. Easterly and R. Levine, 'Tropics, germs, and crops: how endowments influence economic development', *Journal of Monetary Economics,* Volume 50, 2003.]

Conclusion

There are a number of critical questions which can be asked of Weber's argument about the social process of the development of freedom and rationality which are beyond the scope of this paper. In conclusion however, it is necessary to point out that Weber's analysis lacked depth in certain areas because of the neglect of the details of what might be termed the 'materialistic' dimension. Not only did he fail to discuss in detail the effect of geographical environments on social structure and cultures, but he also neglected the analysis of the most important factor in the evolution of culture: the development of technology.[27] His methodological idealism did however allow him to develop an analysis of the process of intellectual rationalization. His great achievement was to establish the cultural conditions necessary for freedom and the development of rationality, and the psychological consequences of the process of rationalization which led to a sublimated ethic of work. However, he only hinted at the links between geographical environment and economic and political structures and their impact on cultural development.

Weber's emphasis on freedom is consistent with the growth of capitalism, which occurred particularly in England, Holland and elsewhere where there was an absence of major political constraints. Weber gave several reasons why England differed from continental powers: 'As a result of its insular position [as an island] England was not dependent on a great standing army.' On the continent it was possible for the state to protect its peasantry through its standing army, but in England this was not possible. As a result, England 'became the classical land of peasant eviction. The labour force this threw on the market made possible the development of the domestic small master system ... Thus, while in England shop industry arose, so to speak, by itself, on the continent it had to be deliberately cultivated by the state ... This is by no means

[27] Weber did however, analyze in some detail the development of economically more rational forms of social organization. He correctly saw the process of bureaucratization as a form of 'social technology'. For Weber's belief in the inevitable evolution of society towards a structure built on 'mechanized foundations' see Mayer, *Max Weber*, pp. 126, 127.

fortuitous, but is the outcome of continuous development over centuries ... the result of its [England's] insular position.'[28]

This was the result of environmental factors which hampered the growth of standing armies, with a reliance on navies and militias for defence. Weber's methodological idealism was probably responsible for his relative neglect of the role of material and geographical conditions. However, he laid the groundwork for the further scientific work necessary for answering the fundamental question as to why the process of rationalization first occurred in the occident than elsewhere.

[28] M. Weber, *General Economic History*, 1961, pp. 129, 130; M. Weber, *Theory of Social and Economic Organization*, 1964, p. 277.