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THE RELATIONSHIP BETWEEN NATURAL CONDITIONS AND LOCATION OF SETTLEMENT

A positive effect of differentiation of natural conditions on intensity of manifestations of human activities in the light of currently prevailing views seems to be indisputable (see, for example, Gocłowski 1986). However, this regularity is not always confirmed in the particular cases. Regardless of the possibility of occurrence of various disturbances caused by other, including supernatural factors, a lack of positive correlation between the two phenomena may result from some mechanisms in the Nature itself which have not been identified so far and which operate contrary to the above-mentioned regularities. One of them is the problem of the occurrence of limitations in differentiation of natural conditions advantageous to man, which has been barely outlined in literature.

In other words, along with the growing diversity of Nature, there increases a probability of appearance of limitations (also natural but unknown exactly) of human activity which gradually reduce a positive influence of differentiation on social development, sometimes leading to predominance of an adverse tendency, that is the "effect of repelling" of man by various natural conditions.

This hypothesis implies that there may be a clearly defined (limited) level of differentiation of the Nature which is optimal for human activity in the particular conditions. This level does not have to (though it may) be identical with the maximum differentiation.

But how to find out such a "level of optimum of differentiation" if it would have to be changeable in time and space by assumption, i.a. dependent on cultural context?

It seems that no clear answer can be found at present. Yet we can try to verify this hypothesis using the models of mechanisms that are active in the Nature and have already been verified by other research disciplines.

This may be the direction suggested by E. Kantowicz (1981) of using an ecological concept of "limiting factors" originating from Liebig's "law of the minimum". It holds that the life of organisms is determined by one of those indispensable environmental factors which is currently "most scarce" (that is the "limiting factor").

However, this mechanism may have a universal range comprising, for example, environmental conditioning of human settlement activity. For example, it allows us to explain the universal phenomenon that in the mountains the areas which are particularly sought and utilized by man are usually the least differentiated areas in respect of natural conditions, such as, for example, plain bottoms of the valleys, lower and less steep parts of mountain slopes and flat surfaces of taluses. Being relatively small, no doubt these areas are exceptionally rare; thus they are scarce in the given mountain area. Thus as regards territory, they are the "limiting factors" for human activity in the Nature. This reminds us of E.Ch. Semple's rightful remark who held that the uniform character of the Nature happens to be advantageous for man in places where small plains are surrounded by vast and highly differentiated areas. But if the vast territories are uniform social development is restrained in them (Semple 1911).

This may be illustrated by a number of various regional examples. Suffice to recall that on the vast monotonous plains any (even slight) disturbances of landscape homogeneity (e.g. slopes of valleys, edges of terraces, dunes, cave-in lakes etc.) are usually a great attraction to settlement.¹

Thus broadened concept of the limiting factors treats any "environmental deficits" as potential barriers to social development, while the "surpluses" — even though they concern the advantageous aspects of the Nature (e.g. large areas of good soil) — do not have to exert such an influence on man's activity as it might be expected due to their size and intensity.

A univocal functioning of the concept of limiting factors is complicated in ecology due to the so-called "law of interrelationship" which often supplements this concept. To put it simply, this law says that the organisms — so far as it is feasible and advantageous for them — use those elements of the system which are in surplus to replace alimentary shortages (T. Umiński 1974, pp.39-40).

An interpretation of this law seems to be — also in geography — not only feasible but also promising. This may be illustrated by the following attempt at an analysis of the effect of natural conditions on density of ancient Greek settlement on the Kertch Peninsula (Crimea).

This peninsula has the greatest density of the ancient Greek settlement over the entire Northern Black Sea area. But quite severe and continental climatic conditions of the Kertch environs are far from being optimum for the Greeks who had been accustomed to Mediterranean climate (Fig.2). A large number of towns in this area is a conspicuous anomaly even in terms of the entire "Great Greece" because Great Colonization had usually occupied areas of Mediterranean climate.

In effect, it was impossible to develop on the Kertch Peninsula a typical Greek economy such as was prevalent, for example, in Crimea in the vicinity of Khersones (impossibility to cultivate many xerophilous plants, poor harvest of

¹ A typical example of such conditions is the situation within the old glacial areas of North-Eastern Poland in the vicinity of Białowieża (Fig.1).

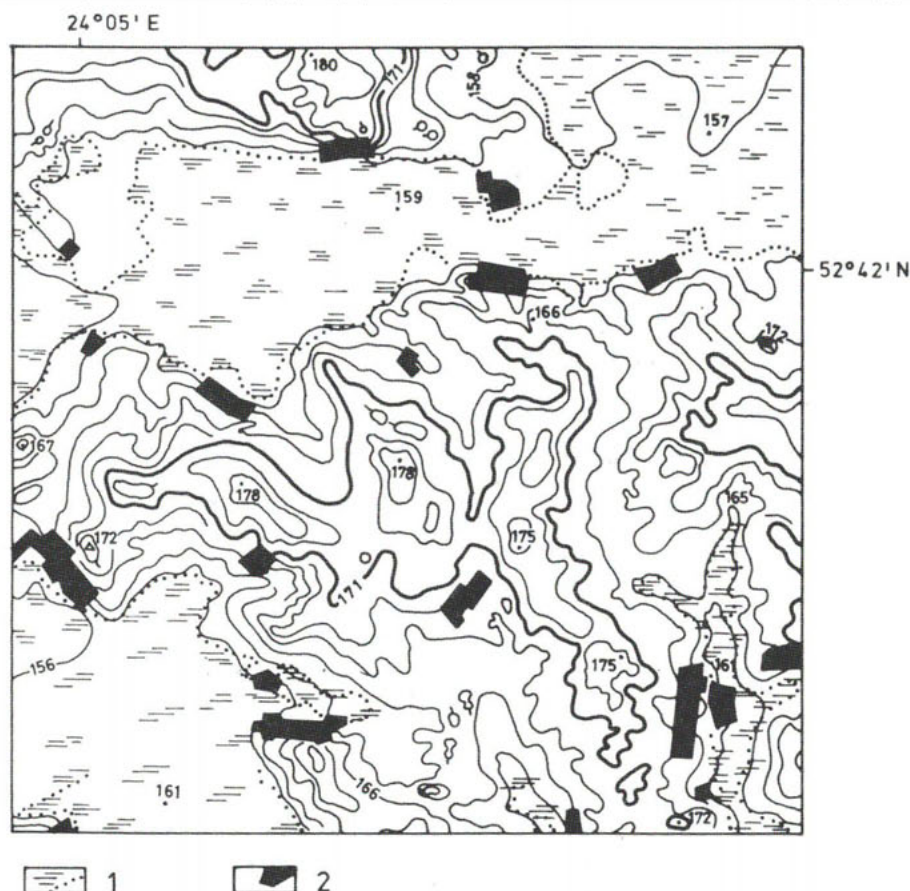


Fig.1. Morphology of lowlands and settlement (NE fragment of the sheet "Białowieża")

1 - Swampy lands; 2 - Compact settlement.

Sources: After Polish Military Geographical Institute topographic map of 1:100,000, Warsaw 1930.

some others, absence of breeding of donkeys and mules, complete changes in construction and attire because of winter colds etc.). Instead, the Greeks could make use in this area of a wide range of other economic possibilities resulting from different natural conditions (including climate) and from their contacts with the neighbouring barbarian tribes. Those were transport location on the strait between the two seas, on the main trade route from Asia to Europe, the vicinity of the vast *chernozem* steppes that supplied wheat and were excellent for cattle grazing, abundance of fish occurring in cool waters and close neighbourhood of the regions where the best slaves of the ancient world could be found (Scythia, Caucasus — Fig.3).

Thus we observe the replacement of the element of the shortage (appropriate climatic conditions) by the "surplus" elements. In this particular case, they were such a powerful development incentive that they led to the rise of the greatest concentration of towns on the Northern coast of the Black Sea.

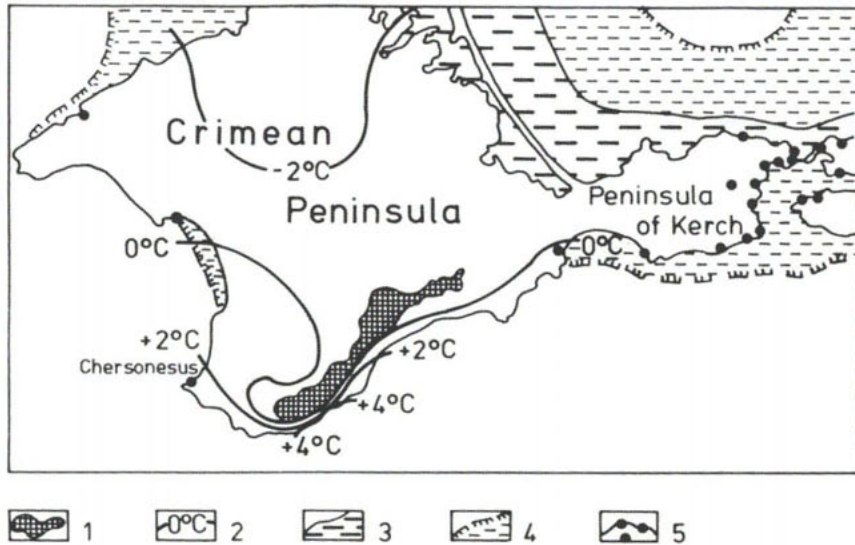


Fig.2. Difference of climates between SW and E Crimea and ancient Greek settlement

1 — Climatic mountains barrier; 2 — Isotherms of January; 3 — Limits of sea freezing in winter; 4 — Limits of the floating ice reach in winter; 5 — Ancient Greek towns (partially after T. Scholl, 1981, 1984).

Source: Author's own study on the basis of: Atlas Ukrainskoi SSR i Moldavskoi SSR, 1962; Krym, Atlas Turista, 1987; Podgorodeckii 1968; Wielowiejski 1975.

All in all, the essence of the advantageous (optimum) differentiation of natural conditions for human activity is not so much its range (or intensity) as its structure, that is mutual proportions of natural elements, as well as their characteristics and relationship within the given geocomplex.

Thus it would be best for man to have such a structure of natural conditions as would create a full, and "harmonious" set of elements from the viewpoint of the needs of the given type of culture.

If our supposition is true (which seems highly probable), this "harmony of the Nature" would be the most important natural foundation for social development.

Unfortunately, the current state of knowledge of the relations under investigation precludes a rapid verification of these suppositions. At any rate, it seems evident that a need for complex approach towards natural conditions to be considered in relation to man will grow and comprise an increasing number of fields of human activity. This tendency is favoured — as it seems — by creating model constructions similar to those presented in this paper. But first of all the growing, concrete, socially disadvantageous effects of neglecting the structures and processes of functioning of natural and social and natural systems will compel people to devote more attention to this neglected field. And when theoretical and detailed research clearly expands the knowledge of the above-mentioned systems, a need for geographical — or synthesizing — approaches of temporal and spatial character should become evident.

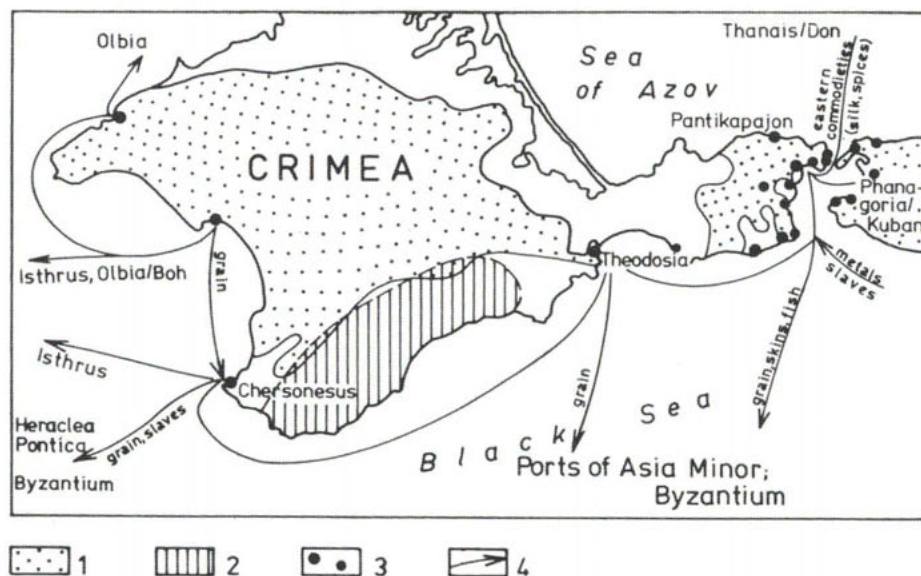


Fig.3. Difference between SW and E Crimea in respect of water and soil conditions and ancient Greek settlement and sea trade

1 — Chernozems (steppe plains); 2 — Surface runoff over 100 mm/year (Crimean Mountains);
3 — Greek ancient towns (partially after T. Scholl 1981, 1984); 4 — Main sea routes and export directions.
Sources the same as in Fig.2.

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