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THEORETICAL MARXIST APPROACHES IN PALAEODEMOGRAPHY
ASPECTS OF THREE GREEK REGIONS

vol. 2

by

FOTINI PAPAIOANNOU-STATHAKI

A THESIS SUBMITTED FOR THE DEGREE
OF DOCTOR OF PHILOSOPHY IN THE
DEPARTMENT OF ANTHROPOLOGY,
UNIVERSITY OF DURHAM.

April
1988



CHAPTER 5

5.1 The Social Structuring of the Cultural Concept

It may seem a paradox perhaps, to bring into "antithesis" the social and the cultural. If society is considered as a coherent but internally divided social "organism", it appears as a system of social phenomena such as relations, institutions, material-spiritual elements etc.. Looking at the structure of this system, the relationships between its elements and the main regularities of its development, the next point to consider is not only the interaction between them, but why they are linked. Is culture something external to society? Evidently it is not. Culture exists in society, so that there has never been any culture outside of society, that is before and without men.¹ As form cannot be separated from content, with respect to actual sets of relationships between components, any approach to culture presupposes the existence of an order which is to be discovered or read into the phenomena. Order, here meaning a system whose properties can be considered in terms of a constant set of related propositions - itself defined when the rules which generate it are stated. Thus, cultures are seen as logical mechanisms for reducing natural randomness. Unexpected events occur which have to be faced, defined, integrated, within each society's characteristic structural elements and every social formation. In effect actual solutions vary from society to society, but because the cultural mechanism is an essential and universal feature of mankind, it remains constant. The assumption that societies exist to perpetuate themselves implies teleology; obviously

it also implies a concept of dynamic permanence. What is the "framework" within which things can change without shattering the society that strives to perpetuate its identity despite natural, political or other events? In order to sort out the diversity of structural elements at least two aspects in the analysis of society should be accentuated. First, there is the approach to society, to social formation as an objective system of diverse social institutions and various interrelated aspects of social life. In analysing the structure of a formation, the elements brought out in addition to production, base and superstructure² as a whole, are conditions of life, family, language, social organization like institutions, rules, norms, customs, beliefs etc.. Second, it is an approach to society as a product of men's interaction, as an aggregation of relations between men as a result of their activity. Among the structural elements brought out here, are historical entities of people, classes, occupations, social groups and their relationships in general. In actual life, these two aspects of social structure intersect with each other and do not exist apart from each other.

We have seen that the structural analysis of systems (i.e. the analysis of the structural, coexistential laws which govern them) forms part of the Marxist conception of historicism as complementary to the analysis of the dynamic aspects of systems (i.e. the analysis of the dynamic laws) with the proviso that, in accordance with the theory of dialectics, the starting point is that of dynamics and laws, and the state of a relative rest of the system to be investigated by the structural laws, is a product of dynamic changes.³

In most description and analysis, culture and society are expressed in an habitual past tense. The strongest barrier to the

recognition of the human cultural activity is this immediate and regular conversion of experience into finished products. What is defensible as a procedure in conscious history, where on certain assumptions many actions can be definitively taken as having ended, is habitually projected, not only into the always moving substance of the past, but into contemporary life, in which relationships, institutions and formations in which people are still actively involved are converted, by this procedural mode, into formed wholes rather than forming and formative processes.⁴ Analysis is then centred on relations between these produced institutions, formations and experiences, in a way that, only the fixed explicit terms (or forms) exist and living presence is always, by definition, receding. If the social is always past, in the sense that it is always formed, we have indeed to find other terms for the undeniable experience of the present, not only the temporal present, the realization of this and this instant, but the specificity of present being, the inalienably physical, within which we may discern and acknowledge institutions, formations, positions, but not always as fixed products, defining products. And then if the social is the fixed and explicit, it is impossible to think of any cultural pattern which can in the literal sense of the word, be referred to society as such. There are no facts of political organization or family life or religious belief or magical procedure or technology or aesthetic endeavour which are conterminous with society or with any mechanically defined segment of society. Conterminous in the sense that although coexisting, their intrinsic connection becomes critical when we contrast stages of technological development with that of "ethical" development in the broadest sense of the word.

Methodologically, since historical societies⁵ occupy a space in time and location, it is unrealistic to imagine that any of their main properties can escape external influence. Events are patterned in space and time and have an impact upon their surroundings. On the other hand, modifications may be effected from within; but it is unlikely that institutions or cultures can be abstracted from their social and physical setting to such an extent that their main transformations can be put down to purely internal processes. It follows that the sources of transformations of societies can never be located wholly within a particular (physical say) unit, because that unit is at the same time the product of other (historical) units and their environments.⁶ Practical consciousness is almost always different from "official" consciousness, and this is not only a matter of relative freedom or control. For practical consciousness is what is actually being lived, and not only what is thought is being lived. Yet the actual alternative to the received and produced fixed forms is not silence; not the absence, the unconscious, which bourgeois culture has mythicized. It is a kind of feeling and thinking and experiencing which is indeed social and material, but in a "proto-phase" before it can become fully articulate and defined. And its relations with the already articulate and defined are then exceptionally complex.⁷ This process can be directly observed in the history of material production and reproduction, social life, cultural activities and needs.

It is no longer possible to accept Pareto's assumptions that communities or societies are systems or institutions seeking stable equilibrium in an unchanging environment. Evolution today refers to the partially integrated and continuously changing configurations

of interacting social, psychological, physiological and environmental variables that join with cultural elements to form the system of a community, group etc.

It is clear that a trend towards spatial concentration of culture - and culture change - is a feature of most statements, descriptions and conceptualizations of culture expressed mostly through the "cultural traits" of an area which persist through time. This trend however is restrictive in the sense that it provides a picture of regional / local "culture" which is static and formulated under certain environmental complexes. But the differences which appear in successive periods during the development of culture in any locality entail not only increasing complexity or quantitatively new patterns but also qualitatively new patterns. With the above Parsonian⁸ non-measurement of cultural activity people within a society are becoming victims of "social engineering", statistical losers with all the implications that flow from this. This is a cultural determinism in a more than purely causal sense. The classification is cultural and so are the units requiring explanation. The scheme is one of cultural categories arranged in a hierarchy, to which concrete examples are selectively fitted according to a "single" cultural criterion. (Tables 9. 10. 11) Another aspect of this approach - although at a different order of problems - is to be found in Diener's (1980) paper, in which he argues that "functional-ecological models featuring stability assumptions may often be useful" at a certain level of community because "local ecosystem generally show stability". Lewontin as well contends that "equilibria annihilate history" by seizing on a few variables that change quantitatively over time to orient a system towards a

<u>Menghin</u>	1	2	3
Strivings	Subsistence	Recognition	Insight
Fulfilled by	Material culture	Social culture	Geistige Kultur
<u>Boas</u>			
Aspects of Culture Relations of:	Man to Nature	Man to Man	Subjective Aspects (intellectual, emotional) including actions volutions etc.
<u>Murdock</u>			
Culture composed of:	Techniques Relating society to nature	(social) relationships	Ideas (patterned verbal and sub-verbal habits. Knowledge (including technology) beliefs etc.
<u>Weber</u>	Civilizational Process, science technology	Social process including economics, government	Cultural movements Religion, Philosophy, Arts
<u>MacIver</u>	Technological order, including economics, government viz., apparatus of living	Social order	Cultural order Religion, philosophy, arts tradition viz., Modes of living
<u>Thurwald</u>	Civilization Technology, knowledge dexterity, skills Accumulative, its sequence in progress	Gessel-lungsleben	Culture Bound to societies perishable. Uses civilizations as means
<u>Kroeber</u>	Reality Culture	(Social culture)	Value culture includes pure science
<u>Kluckhohn</u>	Man's relation to Nature Time dimensions	Inner pre-dispositions Personality	Modality of Relationships (Man's relation to other Men

Table 9: A tabulation of the "principal instances" of the three-fold segmentation of culture, and its employment, illustrating

/continued....

Table 9 (continued)

the substantial uniformity of author's conceptions, despite differences of terms used and minor variations of what is included in each category.

- 1 = relations of man to nature
- 2 = more or less fixed interrelations of men
- 3 = subjective aspects (ideas, attitudes, actions etc.)

We must note that the terms social inheritance or tradition put the emphasis on how culture is acquired rather than on what it consists of.

(' revised from Kroeber-Kluckhohn 1952)

<u>Pre-1920 definition</u>	<u>Emphasis on</u>
Tylor 1871	Enumerative
Ward 1903	Ideas
Small 1905	Adjustment
Ostwald 1907	Residual
" 1915	"
Wissler 1916	Learning and Ideas
<u>First post-1920 definition</u>	<u>Emphasis on</u>
Wissler 1920	Enumeration
Park-Burgess, Sapir 1921	Tradition, Heritage
Sapir 1921	Incomplete (general)
Hart-Pantzer 1925	Learning
Summer-Keller 1927	Adjustment
Willey 1927	Product
Wissler 1929	Rule, Way
Willey 1929	Patterning
Tozzer (pre-1930)	Habit
<u>Beginning after 1930</u>	<u>Emphasis on</u>
Roheim 1934	Purely Psychological
Carver 1935	Ideas and Behaviour
Schmidt, Blumenthal 1937	Ideas
<u>Beginning after 1940</u>	<u>Emphasis on</u>
Blumenthal 1941	Residual
Miller-Dollard	Learning
Bain 1942	Symbols

Table 10: Note that half a dozen of the authors involved in the above continuity evidently in part influenced one another (in part responding to the times). The case of Tylor as a precursor is special, and his influence is traceable to as late as Kroeber. Herskovits and Thurwald.
(revised from Kroeber-Kluckhohn, 1952)

Rank Order of Cultural Elements entering into pre-1940 definitions

Group reference (social etc.)	23
Historical product (heritage, tradition etc.)	18
Totality	16
Behaviour (acts etc.)	12
Non-genetic transmission	11
Patterned (system, organized etc.)	11
Adjustive-adaptive	10
Ideas	8
Carriers of culture (individuals, persons etc.)	7
Group product	5
Values and ideals	4
Learning	3
Way or mode	3

The same elements entering into definitions of 1941-50 period gives:

Group reference	43
Behaviour	35
Non-genetic	32
Way or mode	26
Patterned	24
Adjustive-adaptive	23
Carriers of Culture	22
Learning	22
Totality	20
Historical product	15
Ideas	13
Group product	13
Values and ideals	12

Table 11: .. indicates the rank order of conceptual elements of culture from the point of view of entrance into definitions in any explicit form rather than from the exclusive point of view of emphasis. Note that historical dimension drops to tenths in the 1941-50 period, totality as well. The two most striking shifts are with respect to learning and way of mode (emphasis upon individual psychological learning)

(revised from Kroeber-Kluckhohn 1952)

stationary or moving equilibrium point. Under such circumstances, the historical context becomes of course irrelevant. Even so, and given certain historical circumstances the use of dynamic-stability models "may" be justified - but not if they are arbitrarily assumed applicable out of a priori preference. As O'Laughlin (1975) points out: "Equilibrium models, presuppose inherent atomistic tendencies in all sociocultural systems and are then proposed to solve the Hobbesian problem of social order. But humans become individuated only in society. And she continues, "societies can reproduce themselves continually despite conflict and contradictions. Since one cannot assume that any movement out of equilibrium annihilates the system, explanations of social facts that rest on the maintenance of functional integration provide no explanation at all." Rather it is necessary to orient methods of analysis to the "totality of socio-cultural relations."⁹

Tracing out the relations between people determined by their place concerning control of the means of production and of reproduction in social totality, allows methodologically, the ascertaining of those groups or populations that should be the units of analysis. The suitability of "local systems" of the community level as units of analysis should therefore follow from this more inclusive inquiry rather than be assumed a priori; purported "local systems" stability can only be a matter for "historicist", empirical determination.¹⁰ Diener senses this difficulty when he states that "local systems" are in good adjustment with the local habitat "given the constraints of the social field." Of course social-field factors may be so "restrictive" that such adjustments may not prove to be very good in any absolute sense. This network of relations arises out of the

fact that human beings must adjust to other human beings as well as to impersonal forces and objects. To some extent these adjustments are implemented and limited only by the presence or absence of other human beings. Insofar as the human environment of action does not go beyond "inevitables" of the interaction of human beings with each other, it may be called "the social environment".¹¹ It is imperative however to isolate a fourth dimension (the cultural) before we can adequately deal with the total environment of human action, which can take place in a variety of ways so far as the limitations and facilitations of the biological and impersonal environmental conditions are concerned. The above considerations by Kluckhohn seem to be acceptable at a general level of reference. But he continues: "some human interactions, indeed, do seem to be subject only to the constraints applied by the field of biological and physical forces. Such interactions may be designated as social without further qualification.

We have to deal here with a direct "anti-social" one-sided reflexivity so familiar in the arguments of anthropologists even to-day, of human ecologists like Vayda and Rappaport (1968) or of sociobiologists (Wilson 1975):¹² culture-as-adaptation becomes a passive adjustment to environmental parameters not an active intervention in and changing of the environment. However, observation of human groups makes it certain that their acts are not a consequence simply of physical/biological potentialities. If the latter was the case, these variations and complexity would be random. The variations, differences, similarities etc.. within different human groups which have some historical continuity tend, beyond all possible doubt, to cluster around certain norms. Often then the social and

cultural are intermingled. However, some social acts are not culturally patterned. The point is that if we postulate that all human behaviour must be in some sense adaptive we must posit social collectivities as the reference of some behaviour systems, for these cannot be explained as "meeting needs" biological or psychological of human organisms. Culture like society is an emergent with properties not altogether derivable from a summation of the facts (or parts of their content), because culture itself may be altered by social or the inverse. Communities, groups, individuals continuously interacting together, produce something "new" which is resultant not merely of previously existing cultural patterns and a given impersonal environmental situation but also the "plain" fact of their interaction. As Wissler (1916) argues: " .. when we are dealing with phenomena that belong to original nature, we are quite right in using psychological or biological methods, but the moment we step over into cultural phenomena we must recognize its historical nature..... All the knowledge of the mechanism of association in the world will not tell us why any particular association is made by a particular individual, will not explain the invention of the bow, the origin of exogamy, or of any other trait of culture except in terms that are equally applicable to all."

This is where analysis of traits has to be extended to the analysis of formations. The complex and variable structure of those cultural formations which have not always direct or exclusive or manifest institutional realization is especially important. The insertion of economic determinations into cultural studies is of course the special contribution of Marxism, and there are times when its simple insertion is an evident advance. A Marxist cultural

approach is then recognizable, in its simplest outlines, in studies of different types of institutions and formation in cultural production and distribution and in the linking of these within the whole social material processes. Thus, distribution and consumption for example, are not limited to their technical definition and function but connected specifically, to modes of production and then interpreted as the active formation of social totalities and of the characteristic social relations, including economic relations, within which particular forms of cultural activity are in practice carried out.¹³ In cultural production the true range is from information and description, or naming and indication, to embodiment and performance, "praxis", human action and practice. Now, on an analytical basis it is possible to see emerging out of the study as a whole a division into temporarily isolated, discrete elements.¹⁴ Indeed, in many cases, while the manifest social content is evident in one way in institutions, formations and material production, and in another way in forms which relate to specific selection of issues, and specifically reproduced content, an equally important and sometimes more fundamental content can be found in the basic social means - historically variable and always active social forms of language, religion, art or artifacts for example - on which ultimately, the more manifest social elements can be seen to depend. But the fundamental principle of culture is the complex unity of the "elements" thus listed or separated and the most basic question is the analysis of the interrelationships within this complex unity.

Specific methods of analysis will vary, of course, in different areas of cultural action, since their structure must be identified in terms of their relationships to particular, collective social

practices. Cultural practice thus, involves the way people act. The actions of manufacture, use and nature of material objects constitute the "hard data" of culture, generated through an implicit process of interactive behaviour. The next point is that culture is not inherent in technology. It is the relationship between technological objects and the people who made and used them. It is a pattern of significance which these objects have, not the objects themselves. In fact, at a more specific level of analysis we can speak separately about the cultural factors which produced the objects and the "non-cultural" factors which are inherent in the objects. (that is, special types of material such as metals, stone, wood, bone etc.). This range then of the variable relationships in cultural forms and changes take on a different aspect when we add a historical dimension. It cannot be assumed that, even allowing for the complexities, a more advanced stage of technology would inevitably lead at a "higher" cultural level, and better life conditions, even if it would bring for example larger-scale production at certain sites; or that a growing population, encouraging perhaps such larger scale production would involve positive cultural praxis. For, within a historical approach, we can "learn" to see the relation of any cultural work to what is usually called a "sign-system", itself a specific structure of social relationships: Internally, in that the signs depend on, were formed in, relationships; externally, in that the system depends on, is formed in, the institutions which activate it (and which are then at once cultural and social and economic). in that a "sign-system" properly understood, is at once a specific cultural technology and a specific form of practical consciousness; those apparently diverse elements which are in fact unified in the

material social process.¹⁵ It is in this dimension, from which no aspect of a process is excluded and in which the active and formative relationships, right through to the "products" are specifically and structurally connected; it could be expected to operate by eliminating or restricting some of the already existing cultural trends, assimilating new, transforming others within collectively structured human social instances.

In addition to difficulties in defining culture,¹⁶ social scientists have not consistently distinguished between culture and society. For example, the enduring debate between the priority of cultural or structural variables must be questioned. For if elements of culture, i.e. ideas, can only be understood in terms of non-ideational aspects of social organization, and if social structure cannot be defined apart from culture, they cannot be thought of as discrete phenomena. It is therefore, impossible to establish the causal priority of one over the other, for they are really not two different things. The concept of social praxis shows that culture is not simply a mental phenomenon since what we believe can only be characterized in light of various structural facts, and that structure is not independent of the ideas of social actions. To the question: how can we tell whether an evolutionary-cultural sequence obtained by means of some form of the comparative method actually represents historical reality, the answer must be: by comparing it with historical reality. It is Wolf's (1959) definition which seems most helpful in this respect summarizing the point of view adopted here: "By culture I mean the historically developed forms through which the members of a given society relate to each other. By society I mean the element of action, of human manouvre within the field provided by cultural

forms, human manouvre which aims either at preserving a given balance of life chances and life risks or at changing it." Later Mintz (1970) building up upon this distinction, calls culture a resource or historically available alternatives or forms and he calls society an arena or the societal circumstances or settings within which these forms may be employed. The crux of this distinction is that culture is used, not merely accepted as it is. As Mintz (1973) writes, "blind custom" is neither blind nor customary. A plurality of individuals in more or less continuous interaction produces something "new" which is a product of that interaction (at an inter-intra level) and not merely a perpetuation of pre-existing cultural patterns. To say that the social processes are structured and constitute a whole is not to say that they are fully articulated and systemic - in the sense that they are irreducible and eternal. A sociocultural system is an adaptive steady state and should not undergo systemic change, unless its extra systemic environment changes. To say this, is not to say that a steady state is a thing of consensus and conformity, either within the sociocultural system we are concerned with, or between it and its environment. The "adaptive" stability may consist of many things which emically viewed are in conflict, deviant and so forth. To say this is to say that because the parts of a system are interrelated in various and complex ways, no one part can be altered without effecting changes in other parts of the system. Thus the cumulative effect of many deviation-counteracting devices being triggered tends to offset and countermand the change. Marx's thought gives an important advantage over other advocates of the inter-penetration of such features with social context, for he describes society in terms of features of social organization that cannot be

found in the cultural beliefs of social participants only. Indeed, he shows that it is impossible to properly understand "culture" in society, apart from an understanding of the system of collective practices to which they are tied. Hence, explanation cannot be confined to a hermeneutic approach. For we must identify elements of social organization independently of common-sense beliefs, and these must be interpreted in terms of factors that transcend cultural elements.

In survey research, these essential aspects of the background are typically assumed rather than analysed in their own right, and often little or no information is gathered on how the subjects conduct their lives. Despite the appearance of hard science, survey research often relies on common-sense intuitions as a substitute for essential information at crucial junctures.

This last point about survey research, namely its lack of theoretical grasp of a social context, bears equally well on many expressions of subjectivism. Major advocates of this perspective, most notably symbolic interactionists and ethnomethodologists, confine analysis to microsystems and, like many objectivists, make no effort to reach a theoretical grasp of the larger context. The aim of subjectivism is to understand the actions and beliefs of social members, but this program is executed in a theoretical vacuum. For both objectivism and subjectivism the source of this a-theoretical tendency is the same: neither perspective recognizes the need to develop a theory of social order, because both consider meaning to be a property of individual consciousness. We will discuss in a subsequent section how Marx shows that a theoretical grasp of the larger social context is indispensable to understanding cultural

behaviour. The key to this, again, is the rejection of the dualist premise shared by objectivism and subjectivism. This inability to root culture in social organization stems from dualism, for in this view ideas (and praxis) are portrayed as elements of "individual" consciousness, and are disconnected from their relations with collective practices.¹⁷ Marx acknowledges that an individual can produce privately, i.e., for his own consumption. But only a socialized person who has internalized, one might say, the responses of others, and who can thus be both a producer and a consumer can produce in a truly human fashion. Thus, even when done privately, human production has a social aspect. It is important to remember that Marx's use of the term production, is extremely broad. As indicated in chapter 1, he conceives of social process and history as particular modes of production. For Marx the term production means action. Thus, when he emphasizes the social nature of production, he is effectively approaching a conception of the social nature of action in general. The implication of this is that given forms of production are only possible in the context of the appropriate sociocultural relationships. It would be difficult then to disentangle the economic substructure from the various elements of superstructure, to speak of any of these variables independently of norms, values and tradition. These aspects of structure are inseparable from the "structures" that Blau¹⁸ seeks to define "objectively". Status and kinship systems for example are inseparable from culturally prescribed ways of treating others. For social structure does not exist apart from the beliefs and actions of social members. Even technology, must be used by conscious social actors and thus mediated through a set of social definitions in order to be socially effective. It was, incidentally,

fully apparent to Marx, that the human use of machines (tools, artifacts etc.) and not the machines themselves, is the proper focus of social scientific understanding.¹⁹ Blau and Durkheim's²⁰ concept of social structure conceived as separated from culture and aggregates of data, conceived externally and quantitatively, raises³ the question X of whether the "mere association" of these "variables" truly provides a satisfactory explanation of a "phenomenon" in a sociocultural system. Important questions can be raised as well as to the nature of the relationships between ideas in society and the idea of society. Marx, on the other hand, did not mean the distinction between sub-structures and superstructures to mark a dichotomy of material and ideal factors with the former exercising causal control over the latter. For example in discussing the relationship between a form of production and legal relations, forms of government etc., Marx castigates bourgeois thought for the tendency to see only an accidental reflective connection in what constitutes an organic union.²¹ Thus, concerning Pleistocene we know that sociocultural systems had to make numerous adaptations in response to changing climates. To explain the cultural "adaptations", however, one can take the climatic variations as "given" just as a palaeoclimatologist concerned to explain the Pleistocene climatic system can take the geological mantle system as a given. Relating these factors then, the point is to explain the complex interrelations within and between the sociocultural system and its relevant environment. Since man makes a world that in turn makes him, in the study of human products we encounter both the expression and the substructure of human nature. Thus a concept of culture emerge from a dialectical interaction between the social subject and the object.

5.2 The Duality of Culture

The "inability" to grasp the relationship between dialectical and historical materialism, to understand the way in which culture expresses itself in social terms, has created great confusion over the question of basis and superstructure, and nowhere is this confusion more clearly seen than over those letters which Engels wrote towards the end of his life in which he sought to clarify the materialist conception of history.²² Just as the adversaries of Marxism have construed Marxism as a mechanical rather than dialectical, so too, unfortunately, have some of its "friends", and in a letter to Schmidt²³ Engels warned against those for whom historical materialism serves "as an excuse for not studying history", in the arid, one-sided belief that because the economy is ultimately decisive in determining the course of history, then the superstructure can have no causal role to play. (The "fatuous notion" as Engels describes it, that "because we deny an independent historical development to the various ideological spheres which play a part in history, we also deny them any effect upon history."²⁴) Engels conceded both in his letter to Schmidt²⁵ and his letter to Mehring²⁶ that he and Marx, in their general exposition of historical materialism, had been chiefly concerned in stressing against those who denied it, the overriding importance of economic forces. This emphasis had resulted in a certain neglect of form for content; the principle had been stressed rather than the difficulties and complexities which are inevitably involved in the "concrete analysis of concrete conditions." In other words, to really understand historical materialism and the place of culture²⁷ we must look not merely to the general theory, but how it works out in practice.

Inasmuch as production is only possible because the world has a material reality independent of human production, this objective independence is an essential precondition for all human activity. When men produce, they do in fact practically abstract objects, sticks and stones, plants and animals, from their natural surroundings, and it is only this practical abstraction in material reality which enables theoretical images of the abstract objects to develop in the mind-ideal abstraction which reflect in one way or another this activity in the real world.

The problem emerges clearly in Petrovic's²⁸ critique of historical materialism where he argues - somewhat more broadly than Schmidt or Lukacs - that man's essence as tool-maker relates only to the period of civilization. After all, he says, Marx in his exposition of historical materialism, in the Preface, refers to legal and political superstructures in his analysis and he obviously cannot mean that these, for example, existed in primitive societies or will continue to exist in the classless society of the future. The state and its laws are limited to those historical epochs in which private property, the division of labour and the production of commodities predominate, and if the phenomenal forms of the superstructure which Marx mentions are transient, why shouldn't the entire analysis on basis and superstructure be similarly transient, and exclude from its point of reference man's earliest societies, along with those (primitive) existing or those which are to come? In fact, claims Petrovic, these limitations on the scope of historical materialism were accepted not merely by Marx, but even, on occasions, by Engels himself: and he proceeds to argue that in the "Origin of the Family, Private Property and the State", Engels actually endorses the view that under

primitive conditions biological factors predominated over material ones. In fact, Engels' words could be taken to imply that there is a dualism of the socio-cultural and the sexual, and that sexual relations have a social significance independent of the mode of production. Petrovic argues (along with others as we have seen in previous sections) that Engels allows for a biological determinism in primitive communism, so that only under civilization the historical materialism proper fully apply (It is perhaps worth noting that Engels "inexactitude" is not specifically, 'limited to primitive society and it is itself intended universally'). After the passage shown in Note 29, Engels remarks: "the less the development of labour, and the more limited the volume of production and, therefore, the wealth of society, the more preponderatingly does the social order appear to be dominated by ties of sex." In other words, the importance of sex (and kinship) ties in primitive society is the product not of biology, but of material production, and the domination of sexual considerations is an appearance occasioned by the limited volume of production and the low development of human labour. Indeed even if primitive peoples imagine that it is the sacred ties of the gens which ultimately matter, there is no reason why we should accept these historically inevitable but not necessarily adequate reflection of certain realities, as the truth of the matter. That is why when Engels describes, for example, the transition from mother right to father right, which occurred in the "early period of barbarism", he makes it perfectly clear that this transformation in family structure was brought about by an accumulation of property which gave men a more important status in the family than women. It has nothing to do with sexual reproduction as such, but only with woman's role as

child-bearer as it is affected on the changing relations of material production. As long as the extremely primitive economy of hunting and food-gathering societies continued, the household production of women remained crucial and enabled women to retain equal social relations that disappeared under a "new" productive system (agriculture-domestication) and new economic relations and conceptions created within it.

According to Korsch,³⁰ any attempt to distinguish between objective reality and the world of ideas must lead to a metaphysical dualism which can only undermine the dialectical unity which exists between theory and practice, consciousness and being. A similar stance is taken by Lefebvre, Petrovic, and Lukacs.³¹ The latter says: "in the theory of reflection we find the theoretical embodiment of the duality of thought and existence, consciousness and reality, that is so intractable to the reified consciousness. And from this point of view it is immaterial whether things are to be regarded as reflections of concept or whether concepts are reflections of things. In both cases the duality is finally established." What is the validity of the criticism? It is not positivistic to imply that consciousness on the one hand and reality on the other inhabit separate worlds? It is, if it is not also pointed out that the difference between consciousness and being in no way excludes their unity, that the same world of matter exists of necessity in an infinity of qualitatively different forms.

We have then something which is linked with the rest of the material world and at the same time, as a specific form of matter, has components of its own. Each of these forms is related in the sense that they are all ultimately material; but if they are united,

they are also qualitatively distinct, for each constitutes matter at a different stage in its process of evolution. Each sort of activity, in other words, is material, but it is a "matter which things", and hence has quite distinct properties all of its own. For ideas are more intricately bound to practical life than the notion of ideology implies. Ideas do not simply justify existing state of affairs. Insofar as there exists an "organic union" between substructures and superstructures, it is impossible to describe social order independently of the ideas than men have of them; ideas are not just reflections of material reality but, rather a constituent element of social reality. A proper understanding of ideas, even those that are not ideological, and hence culture, therefore requires an appreciation of their involvement in social life. Each form of matter is quite specific, but each form of matter is also related to every other form, and it is in this relationship that we find its content. The fact that thinking is a specific form of activity does not make it any the less material on that account. For ideas are not only the products of minds; they also are the products of practical social actions. Marx insists³² that the proper interpretation of ideas requires an understanding of the total social system in which they are implicated. Any "partial" approach which fails to see the array of interconnections between ideas and the entire system that surrounds them, is incomplete. Men are beings who distinguish themselves from other animals through producing their means of subsistence, but they cannot produce the material means of life without at the same time producing their conceptions about this life. Culture, that is to say, is an activity, a practical process, for it is the conscious dimension of the production itself.³²

Now, this may seem to lead to a deterministic approach. One of the major difficulties that Marxism presents, is whether indeed the mode of production is, in all cases, decisive, and how much independence ought to be granted other features of social organization. Marx and Engels, denied on many occasions a dogmatic economic interpretation of society, but the following remark, taken from Capital, is illustrative, we believe, of the flexibility of Marx's orientation: "my view.. that the economic structure of society, is the real basis on which the juridical and political superstructure is raised, and to which definite forms of thought correspond..all this is very true for our own times, in which material interests preponderate, but not for the middle ages, in which Catholicism, nor for Athens and Rome, where politics, reigned supreme... This much, however, is clear, that the middle ages, could not live in Catholicism, nor the ancient world in politics. On the contrary, it is the mode in which they gained a livelihood that explains why here politics, and there Catholicism, played the chief part." This is, admittedly, an ambiguous statement. But it does open the possibility that in different social systems economic factors, while never irrelevant, may not play the central role they do in a capitalist society. Marx's use of the term production in a very broad sense, allows us to accept his assertion that the mode of production is decisive without being committed to a strictly economic interpretation of social order and cultural form of life. One might hypothesize that under special circumstances a "non-economic" (apparently) mode of production might be decisive such as religion, or kinship, or any other cultural practice. For example, one might suppose the possibility of a society of vast material abundance in which economic considerations

might drop to the background. There is textual support (German Ideology) for the claim that Marx, in seeing communism as "the realm of freedom" anticipated that the economy would be less decisive in controlling human life. There are, again, several points in the "Grundrisse" in which Marx expresses a similar perspective. In "Pre-Capitalist Socio-Economic Formations" he states that among the ancients "wealth does not appear as the aim of production." In the same volume, he suggests that the tribal affiliations are prior to and controlling of the ownership of property. This would imply that kinship takes precedence over, and in fact defines ownership. This is a reversal of the absolute precedence of the economic over other institutions, characteristics of capitalist society, and fully compatible with Marx's frequent insistence that the laws of capitalist society do not apply to all social formations.

Just as consciousness plays an active role in society, so does the world of politics and culture. Any attempt to ascribe ideas or politics and culture to an ideological superstructure in contrast to some sort of "material basis" - the latter ultimately determining the former - can only lead to a strict dogmatism which shies away from the facts of social reality. Why should there be a "fixed" relation between say economics and culture? Surely such a relation must vary from time to time. Human beings are not mere economic animals, and economic life did not play this crucial determining role in pre-capitalist societies. Ownership is a cultural artifice, and as such it is intertwined with the conceptions of property established in a given society. The dependence of an economic system on cultural conventions extends to the very forces of production. For example a waterfall is a purely natural object

with no intrinsic economic significance, unless it is defined as a force of production. In a primitive society, oil and uranium are not forces of production because they are not seen and used as such. Similarly, when an instrument of western technology is moved to a primitive culture it may lose its character as a productive force. A tool may thus become a decorative artifact. As of course, the tools of a primitive economy may become objects of art or toys to a technological society.

Metaphysical dualism which empiricism creates between the general and the particular, between reason and experience, object and subject, manifests itself likewise in the sphere of culture, where this dichotomy can be seen, in its most obvious form, in the initial thesis that it is logically impossible to deduce "ought" from "is"; facts and values must be kept strictly apart.³³ Moreover, as pointed out earlier, subjectivists and objectivists both tend to redefine essentially societal phenomena as properties of individuals. These traits are most evident in their treatment of action. Subjectivists treat action as a sign of an underlying mental process wherein its meaning lies. This dualist concept of action confounds their program in several respects, among these an inability to understand properties of social systems that transcend the acts of individuals. For Marxism the meaning of action is not a feature of individual consciousness but of the context of collective praxis. This is in sharp contrast to subjectivism, which is at best confined to a micro-level of analysis. and at worst equates the study of society with the study of individual cases. Objectivism also reflects its dualist starting point with the inclination to develop knowledge of society independently of the ideas of social actors; this leads

easily into behaviourism, which is associated with a dualist view of mind in which mental attributes are considered to be features of subjective experience that are never truly observable. This is why positivists dismiss interpretation as a necessary intuitive process. When dualism is combined with brute-data positivism, the result is behaviourism. Thus, objectivism and subjectivism both err in this conception of action, and the resolution of the debate between them in terms of interpretation by context, which is incompatible with both of these approaches.³⁴ Perhaps the greatest advantage of ~~the~~ Marxist concept of explanation in this respect is that it allows for a truly intersubjective notion of meaning. By showing that the meaning of an act is not a property of individuals, but of social process, Marx directly implicates aspects of social organization.³⁵

Marx took precautionary measures with regard to the above problems: he persistently refers to all reality, whether natural or man-made, as material, for it is material reality which is distinct from consciousness, which determines consciousness, and which is therefore the realm which the latter reflects. "If man is shaped by his surroundings, his surroundings must be made human."³⁶ Within this context, Marx opposes the possibility of a subjective and voluntaristic interpretation of an individual's role in society not by a theoretical abstraction of the individual from his society, but by analysing the individual's involvement in society. This is why "all production is appropriation of nature on the part of individuals within and through a specific form of society."³⁷ In this respect, the forces of production cannot be separated from patterns of intentional use; they involve cultural conventions, forms of consciousness and objective economic phenomena (and even when the

last ones are sometimes transformed into simple symbols. their real substance is hidden behind that conversion). That is what distinguishes dialectical materialism from mechanistic materialism that know~~ng~~ and recognizes only one variety of "necessity" namely that which is described in the language of mechanistically interpreted notions. X

In order to understand this "mode of action" it is necessary to consider the way of its actual interaction with other modes or substances (both thinking and non-thinking) and not only its inner structure. The structure of course must be such in order to carry out the appropriate function. But the fullest description of the structure of an organ or event~~y~~ i.e. description of it in an inactive state, has no right to present itself as a description. however approximate, of the function that the organ or event performs, as a description of the "real" thing that it does. Thought (and its resulting acts) as a specially expressed activity therefore, cannot also be secreted from the body performing it as a special substance, distinct from the body. Thinking is not the product of an action, but the action itself, considered at the moment of its performance. X

Production is nothing else than a concatenation of the general forms of human activity realized by individuals which posit the capacity to correlate the "ideal" image consciously with real not yet idealized actuality. In that case, production (and productivity) function as a special object for the individuals, an object that can later purposively in accordance with the needs (requirements) of his activity. That constitutes the basis of the identification of the thing with the idea. There is no distinction between "objective" existence and "subjective" consciousness. Here is once more an

important position set out by the materialist conception, where culture is not counterposed to the individual as something given to him from outside, something independent and alien, but forms, better, it is the form, of his own real activities. Thought and action therefore are accordingly understood not as simple dualistic abstractions, but primarily as universal forms of social man's sensuously objective activity reflected in consciousness. Their "specificity" consists precisely in the fact that they are not only "laws" of subjective activity, and not only of objective reality, but also laws "governing" the movement both of objective reality and of subjective human life activity.

In fact, society's real foundation, and its transformations, can be determined, because we are not talking about categories and principles but about material reality. It is in connection with this reality, that Marx takes up the issue of man, his personality, his freedom etc.. The meaning of ideas, actions and products is established by their role in society. It is human beings and not alleged connections (structures) who form social relations. Because the meaning of an act is established by collective social praxis, Marx contends that mind is an essentially social phenomenon "Activity and mind are social in their content, as well as in their origin; they are social activity and social mind."³⁸ Now, once the necessity of this reality is established, there is only one way in which people can act upon it: by reproducing in their minds the objects which they need to transform in the outside world.

".. the most primitive kind of work, such as the quarrying of stones by primeval man, implies a correct reflection of the reality he is concerned with. For no purposive activity can be carried out in the

absence of an image, however crude, of the practical reality involved. Practice can only be a fulfilment and a criterion of theory when it is based on what is held to be a correct reflection of reality."³⁹

5.3 What is a Palaeolithic Culture. Society without History or Society in History?

Cultural systems (unlike organisms) are subject to a relatively rapid qualitative change. This raises the question - at what point does a culture cease to be one kind of system and become transformed into some other kind? The creation and the functioning of culture is a necessary condition for any action by men, whether on the scale of small groups or bands or of entire society. Since the nature of culture is determined by social requirements it may be said to be determined by social conditions. Quantitative changes usually occur continuously and take place over a long period.

Qualitative changes on the other hand, always mean a break in the continuity as they express a transition to a new measure, a new phenomenon. Thus qualitative change in any form of society, should always be regarded as a kind of leap in development and the whole process of development and motion appears as the unity of continuity and discontinuity, gradualness and leaps. This concept of leap, is very important in dialectical materialist⁴⁰ thought. It is used to express that: a) qualitative change in anything results from preliminary quantitative changes, indispensable for a new quality to emerge, b) that these changes, preparatory to a leap are based on contradictions appearing in the development of a new situation, and c) that a qualitative change does not mean a quantitative addition to or subtraction from what already exists, but radical transformation

on the existing situation resulting in the disappearance of the old and the appearance of a new phenomenon with its own measure of both properties where forms depend on the features of the objects and on the conditions in which they exist.⁴⁰

All theoretical schemes of cultural classification are usually constructed on the assumption of an "ideal" situation. It is accepted as self-evident that all the material undergoing classification reaches the "present" in an absolutely intermixed form, as a chaotic accumulation, in which there is no order, apart from that hidden in the similarities and dissimilarities of forms. It is true that the level of cultural organization of a given society does not in itself always characterize the culture of its individuals which may be both "above" and "below" the general standard. In addition to the cultural similarities that may be attributed to the psycho-biological unity of man, there are other factors which cannot be explained by this unity; those resemblances in cultural form and pattern which arise from convergent processes of growth and development. The central problems thus are the explanation of cultural affinities and differences, of cultural maintenance as well as cultural change over time. As change may be seen only against a background of cultural stability of maintenance, so stability may be understood only against a background of change. Thus, when we say, for example, that economic or technological factors are developed to a lesser or greater extent, we assess that in quantitative terms and compare their levels of development. The qualitative evaluation however, depends on how the instruments of work are set in motion and used.

The critical distinction between humans and all other organisms is, of course, culture which is distinctively human because of two

salient processes: the creation of meaning in a limiting social and biological context i.e. the transcendence of the merely social, the merely biological, and the symbolic sharing and interchanging of such meaning. The basis, for this ability to give meaning to experience, it is that attribute of the human "system" that permits symbols to be generated. It is clear that as identifiers of the human emergence from pre-hominid background, stone tools of evolving complexity represent the peculiarly human nature of symboling as contrasted with the more reflexive thought of primates. Tool-making represents the earliest "symbolic" behavioural system, qualitatively different from the behaviour of primates, whose tool using system is closed, un inventive, without the displacement of labour and production.⁴¹ Tool-making implies a dialogue between man and nature, man and other men, man and himself. It is an activity that reveals the maker's intention; it is referential, and permits the introduction of change, variation, adjustment; it is the physical evidence of human praxis-action and reflection. It is emblematic of an intentional feedback into the evolutionary process and is qualitatively different from mere cybernetic behaviour. Tool-making is contextual: it happens in a social setting which includes the desires, intentions and relationships of the tool maker.

Human labour makes history. The theoretical axis around which revolves the subject-matter of historical appreciation is the conception of the social and the cultural, as a special quality of a given society, each time, that is far wider and richer in content than the "presence of another" more "developed" society. The historical quality resides in the inner qualities of a society i.e. a system of a higher level that has its own structure and is

definable through the characteristics of its members: the structure is determined by the processes of production, consumption, rituals, symbols, values etc.; it is an organization that has its own history and its own laws, which although connected, cannot be "derived" from the laws of other systems. The central and exclusive object of history should be the study of all that pertains to history and to the socio-cultural and economic formations from the point of view of their structure, their genesis, and their function. The proper domain is the study of cultural processes which are responsible for the organization of knowledge in a society, in a given environment, for the codification of inter-individual and inter-group conduct which creates a common social reality with its norms, values and manufacture, the origin of which is to be sought against the social context.

Socio-technological behaviour should be seen as a problem in its own right, and therefore palaeolithic societies have their "own" right in history - regardless of the subjective intentions of the scholars. Scholars rarely experience any difficulty in talking about style or in describing formal elements when considering objects, that is the physical products of certain types of human behaviour. The large majority of studies in palaeolithic history are predicated upon the scholar's ability to group stone artifacts by their formal stylistic properties. What usually they do not seem to recognize or at least pay much attention to, is that the activities themselves which produce the artifacts are "cultural". Material culture is the name given to the man-made physical products of human behaviour patterns; and it is precisely those human behaviour patterns that constitute the style, the assemblages and the categories of technology. Technological behaviour is characterized by the many elements that make up

technological activities - for example by technical modes of operation, attitudes towards materials, some specific organization of labour ritual observances - elements which are unified non-randomly in a complex of social relationships. It is the format of "package" defined by these relationships that is historical in nature, and it is the "style" of such historical behaviour, not only the "rules" by which any of its constituent activities is governed, that is learned and transmitted through time. Technology is expressed "emic" behaviour based upon primarily "etic" phenomena of nature. If the elements of any given technological level are described and the relationships among them determined, what can then be said about the intrinsic cultural pattern or patterns of which it is an expression? The issue is vital to palaeolithic / prehistoric research for the "single" sub-system of a once-living culture that archaeologists can reconstruct is the technological subsystem. Binford (1962) has observed: "It has often been suggested that we cannot dig up a social system or ideology. Granted we cannot excavate a kinship terminology or a philosophy, but we can and do excavate the material items which functioned together with these more behavioural elements within the appropriate subsystems." It is within one's theoretical position to determine the technological events that went into the manufacture of the kinds of items to which Binford refers, from the gathering of natural resources through the various stages of processing, alteration and final rendering of the artifact. And it is these features that are the most important in the cultural relationship, quite often the decisive ones.

The technological performance is supported by a set of underlying values. Behind any technological "event" were attitudes of

artisans towards the materials they used, attitudes of cultural communities towards the nature of the technological events themselves, and the objects resulting from them. "... the essence of the object, that which appears superficially to be true of it, must also be inside it. The object is not that object unless it contains within it the essential quality, even if the essence is only minimally present. For without the incorporation of the essence, its visual manifestation is impossible. Although ideological considerations may have had little to do with the initial working out of (the technical) procedures. .. the way in which .. peoples perceived such processes or at least the objects that resulted from their use had a great deal to do with the way in which the technology emerged and matured. Belief systems and attitudes towards materials supported the technology and gave rise to further developments ..."

(Lechtman 1977). We can recognize a technological style. But what does it express? On the one hand we have a part of the "performance" which is purely technical and can more easily be detected; on the other hand we have the events of production which remain part of the physical structure of the object and cannot be determined directly - yet whose imprint should be accessible through the study of behaviour as it is observed in the material record. Culture is intellectual, rational and abstract; it cannot be material, but material can be cultural and "material culture" embraces those segments of human learning which provide a society with plans, methods and reasons for producing things which can be seen and used.

The view of culture as cognitive code which is separate and distinct from material and behaviour has been most forcefully represented by Goodenough (1964). He states, "that the phenomenal

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order of events, of behaviour, of artifacts within a human community
" .. exhibits the statistical patterns, characteristic of internally
stable systems, as with homeostasis in the living organism. Similar,
but never identical, events occur over and over again and are
therefore isolable as types of event and patterned arrangement.
Certain types of arrangement tend to persist and others to appear
and reappear in fixed sequences. An observer can perceive this kind
of statistical patterning in a community without any knowledge
whatever of the ideas, beliefs, values and principles of action of
the community's members, the ideational order... The ideational
order, unlike the statistical order, is non material, being composed
of ideal forms as they exist in people's minds, propositions about
their interrelationships, preference rates regarding them, and recipes
for their mutual ordering as means to desired ends." But of course
this is not so. Organic typology defines a tool type as the
externalization of a tool idea which satisfies a specific task
within a specific need. Tool ideas and any other ideas behind related
"externalizations" are "extrapolated" within a particular situation,
forming certain characteristics within a particular culture or
cultural group and under particular socio-economic formations as
they develop in space and time, and thus their historical realization.
It may be extremely difficult to arrive at the underlying structure
in culture below the level at which one perceives technological style
or "type", but these attributes relate to a formal arrangement of
operations and that arrangement, in itself, carries a heavy load
of meaning and communication. Implicit in the "equation" of socially
interpretable acts and artifacts with messages, is the understanding
that a shared cultural code is expressed along a variety of

communication channels (verbal or non-verbal, written or not written) amongst which are acts of behaviour and artifacts. In this case, palaeolithic archaeology can address itself to at least some of the behavioural and all of the material elements which make up the total domain of messages or historical evidence of a community. In this sense, stone tools are the products of appropriate cultural performance, and technological activities constitute one mode of such performance. Technology (stone tools) is only one (often not even distinctly ethnospecific) part of this history. But because the analysis of typological series in prehistoric archaeology had been most commonly restricted to mere technical, morphological distinctions, without any further purpose, questions regarding aspects of the assemblages, other than these "affinities" that is questions covering historical socio-economic aspects have not been answered. The aim is of describing the relational order between the symbolic, technological events and that which they symbolize - of trying to decode the technological system of communication, production, exchange etc.. These are immutable conditions in and around which people elaborate technological behaviour along lines that are socially meaningful, economically and ideologically. Such aspects of association, properties and features are what should be considered. It does not imply, of course, that any given cultural community is characterized only by its technology. In fact, technologies may operate in different ways in similar environments or vice versa, each having developed as a result of a multitude of factors including the nature of the technological "task" itself, the social group performing the technological activity, the cultural subsystem in which the technological events primarily operate, the properties of the environment being manipulated by the

technology and so on. Technological behaviour is manifest in all activities in which the natural or social environment is directly manipulated, but the type of that behaviour may be different according to the particular integration of the technological complex within any given subsystem of the total "cultural boundaries". However, most of the cultural matter that at any time is associated with a human population is not constrained by those boundaries which far from being barriers are the points of contact for the continuous productive and reproductive existence of any given society.

Thus in practice we have two different but related dimensions of archaeological information which have adequately to be considered and mutually exploited. Marx discusses the social definition of the individual at several points. If we misunderstand the social relations through which culture is organized, then we misinterpret culture as well, for meaning is in its referents. One should therefore begin cultural interpretation with an historically formed social system and not with subjects. People ultimately define themselves through their social relations. Thus when the question of palaeolithic culture is considered, attention should be first drawn towards "assemblages" of a wider context and within a diachronic perspective, that offers the best promise of defining "historical possibility" with greater accuracy. The fact is that the solutions are often polysemantic with a great deal of vagueness. Various cultural meanings can be concealed behind an identical tool form, and a tool type can have various observable archaeological expressions. The archaeological fact is polysemous, by its nature. "the very reasonable proposition has been voiced that in cultural material more often than anything else we find the greatest interest in just these condensations of

features which have a dense monothetic nucleus, and only have a polythetic periphery (Kamenetsui 1971). Moreover, it is this nucleus in particular which basically interests us and not really the periphery. But this is not enough. In order to compare and make a numerical analysis of the sets we need a very narrow definition of types, and with such a limitation, the type will almost be reduced to a monothetic nucleus. Borde's types are like this. In clarifying the definition for his types, Doran and Hodson (1975) arrived at a simple formulae: "a group of highly standardized artifacts".⁴²

Many investigators limit the applicability of the "cultural" concept of prehistoric archaeology, though not all of it, the palaeolithic and mesolithic periods are excluded. Indeed it was for long the accepted thing to isolate eras in the palaeolithic period rather than cultures. Later, however, "local differences" in the palaeolithic period were revealed and then archaeological cultures. Since historical materialism is concerned with the evolution of people as a social species and not as individual organisms, the method of working must involve the "construction of models" which are articulated in such a way as to their ramification in terms of archaeological data indicators. These should "reveal" both their internal developmental logic and the degree of consistency inherent in their dynamic operation with a set of techno-environmental possibilities or constraints that are also, in principle at any rate, definable archaeologically.⁴³ That such observable "aggregates" are recoverable from the material remains of extinct cultures cannot be doubted. Through the analysis of these "aggregates", it is possible to delimit "elements" or to detect "events" concerning the socio-economic, ritual and political or ideological orientations of a

particular population. Archaeologists from Montelius to Bordes have not, for the most part, likened artifacts or flint tools to living things at all.⁴⁴ This has created a defenceless situation whereby lithic industries in general have no reason for "existence" other than through different versions of types and classifications. It is true that artefacts in the "archaeological" sense are really "dead" and ideally "invariable". The classes of artefacts record this invariability. Changes are verified as is every individual thing: from their origin to their destruction and decomposition. Contemporary things also behave likewise. And there are types of things and cultures that in a number of respects change like species and populations of living organisms. There are "things" that substantiate ideas and it is natural that they should be transmitted, borrowed, moved, merged, ramified. Flints do not contain "genetic matter" but intercorrelated features and "cultures" which contain cultural information. This contemplates an information approach to palaeolithic cultures. Since the purpose of theory is to develop those "abstractions" through which the concrete (always historically specific) can be understood, a set of universal concepts cannot define any particular social or economic formation. Analysis of a mode production for example, must be movement from abstract general determinations to observation and conception at the level of the concrete and then back to the theoretical articulation of general and specific categories. Klejn's definition of culture seems to be more appropriate in this respect. "... I see a culture as a system of means for the social programming of human activity and behaviour which is received by every individual from the society."⁴⁵

History of course operates at two levels of reality, the one

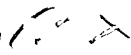
concerned with real events in a "real" chronology, the other with deeper structures "below" the conscious level. The socio-economic structure itself is hidden in the material record. As social production of the means of subsistence is the basis of human existence, all epochs of production have certain common elements: labour and its means of production - the object and the instruments of labour. A particular arrangement of these traits as a technical process, means to analyze and describe the forces of production: the same arrangement of traits in terms of relations of appropriation between persons, means analysis and description of the relations of production.⁴⁶ In each instance, the relations analyzed are both social and material, but they reveal different aspects of social reality. Thus, in a certain way, the palaeolithic culture (as every archaeological culture) belongs to the objects which Uemov calls "secondary systems": its most important system-forming relationship is realised in its substrata even before its arising and is transformed in it (deformed or even destroyed by the action of its own relationships) and does not appear without correlation with the corresponding primary system.

The archaeological culture is linked up to system analysis by this aspect but not directly or immediately. It is in itself static and not organic. Inasmuch as the archaeological culture, however, appears in different chronological sections representing different conditions of the sociocultural organism, it can be characterized as a conditionally dynamic system. Some aspects of the organic system of a past living culture are indirectly reflected in its order, but the real dynamics have come into the conditional dynamics of the archaeological culture as a component vector. The inter-

pretation itself of historic realities as the contents of an archaeological culture is not so unconditional. The logicians who distinguish the scope of the concept and the content of the concept mean by content the aggregate of important attributes and relationships united into one whole though about the aggregate of objects which has been exactly represented in our consciousness. Definition is a logical method which may reveal this content of the concept.⁴⁷ However, if one traces the history of a population through time one is not simultaneously in the same sense tracing the history of its culture.

It is not only individuals and their creativity which are reflected in culture. Society is reflected, but society is not simply the sum of the individuals in it. The very existence of society presupposes organization. In a society and its culture there is always, besides variety and freedom of choice, orderliness, unification, repetition and similarity and moreover they are not limited by paired relationships. Without this, non-mutual understanding within "collectives" and consequently no social activity would be possible and there would be no culture.⁴⁸ Contexts as well as artefacts lend themselves to grouping. Like artefacts contexts can be grouped in various ways: on the basis of chronological proximity, or by territorial clustering, by belonging to the same population or by similar material surroundings. It is quite evident that the archaeological culture is the basic unit of an archaeological grouping - or classification at a level corresponding to the delineation of isolated groups, separate societies, social organisms, religion etc.. It is nevertheless "empirically" incorrect to assume historical development (or to deny it) from contemporary

arranged types into conditional correlations, contexts etc.. The reason for this is that for the archaeologist, these represent only a mental ideal.⁴⁹ For the ethnologist or anthropologist it is not quite the same. They are in a position to observe action and its results, and on this basis evaluate their importance for the culture as a whole and/or make a judgement about the people's motives, ideas, subconscious drives and then be in a position to establish logical chains leading from these motives through to actions and materialized results. The problem of course is different here and we have already discussed how this "living", (present-day), material is distorted and de-valuated.⁵⁰ At any rate, there is a link in the archaeologist's mental ideals, which is accessible to observation even within the bounds of sequential types already established: this link is "captured" in the material results of cultural activities. It is visible and accessible maybe in a deformed state, hidden away among other information, or behind types and clusters of types.

The archaeological site is an aggregate of differential material remains in which everything is bound into a whole by immediate contiguity, mutual imposition and cross-cutting. This could have formed "during the life" of the objects or after they had passed out of cultural function, as a result of which the objects would have reposed in the same place, and the heterogeneous material remains would have come into contact with each other, and even have partially intermixed. People from different areas and eras might be buried in a place. A cave could turn out to be a dwelling place, a refuge,  a sanctuary, or in turn all three.⁵¹ Archaeologists are not in a position to excavate some components of a site separately from other components. Should they not investigate the remaining objects, they

risk not understanding much about the parts of the site, and/or significant exemplifications of the cultural effects of a certain process.

The entity must realize the full potential of its kind. If a palaeolithic "entity" is no more than a typological category, it is logical to suppose that one has to carry out delineation of cultural entities by formal-typological analysis of the material; to turn for criteria for delineation to the basic formal parameters of palaeolithic archaeology and to descriptive typological concepts and to construct definitions as formal-typological characteristics. Of course it is easier to distinguish types or complexes on the basis of some characteristics, but the associations being distinguished are necessarily one-sided and generally the complexes of one type prove to be not especially "rich" in information to allow a varied characterization and a theoretical measure of the life-style of an ancient population to be made.

Thus, these general definitions have little explanatory value; it is "incorrect" to assume historical development (just) from types, because types, at any level, are "mechanical" constructs per se; material remains are not. Stone tools regardless of the parameters given by comparison and percentage correlations of types, in different complexes have a social and economic significance for the given population which penetrates and "dissolves" their imposed type; stone tools (together with other information) are cultural markers, parts of a system possessing certain "qualities", exhibiting systemic behaviour that is, function and structure. Certainly the dynamics of that system are not derivable by classifications and distributions of its elements; it is the organization of the elements (facts) as

a whole that gives them the properties they do not possess in isolation.⁵²

"Facts" of course never speak for themselves: they must be interpreted. Even the determination of what is a fact may be problematic. Every thing or event, every occurrence, has an infinite number of attributes or facts. They may be described physically, chemically, technologically, socially. But what are the "real" facts? In Kristiansen's (1981) opinion: "one crucial problem is concerned with the relationships between observed regularities in the archaeological record and their underlying structural properties. Most explanations fail to transcend a purely empirical level, which reflects a widely held positivistic belief that there exists a testable one-to-one relationship between empirical observations and the structural properties of prehistoric societies. However, a mode of production, or an economic system is not constituted by the structure of the empirical evidence alone, it has to be reconstructed through an intellectual process using the formal system of theory as helping tool."

In that sense, prehistory needs some meaning which is accessible of those who have not been initiated into macrowear analysis or taphonomy. This is certainly right, but it would be unwise to go to the opposite extreme and deny altogether the "visibility" of certain categories of analysis (which anyway are superimposed on the material at random). The problem of mixing levels of analysis is very common and poses the question whether they are only instruments of demonstrating specific kind of tool-kits, or also reflections of certain realities, if not always fully adequate "reflections"? Organization might remain relatively stable, but specific artifacts can change in style without there being a true change in the society manufacturing

the artifacts. While changes in both style and uses of artifacts provide hints that organizational change is occurring, they are insufficient in themselves to demonstrate systemic change. One has to be careful to distinguish what is commonly called societal or cultural change from change in specific analytical systems of interest.

In fact abstractions are subjective depending rather on the orientation of the researcher and its selected sequences of investigation; but are they completely arbitrary and conditional or they also have an objective basis? This brings back to the "old" question of the correlation of relative truth and absolute truth, a question being resolved by dialectical materialism in the sense that the process of the amassing, comparing and correcting of relative truths brings us closer by asymptote to the "absolute" truth about the cognisable aspects of reality, and thus absolute truth with its parts is contained in relative truth.⁵³ The method of ascent from the abstract to the concrete does not correspond to the order in which certain aspects of the object under study for some reason or other came into the field of vision of individual theoreticians. It is oriented exclusively at the order which corresponds to the objective interrelations of various moments within the concreteness under study. This is not realized at once. Any method of inquiry into facts cannot therefore be justified by references to the order in which the study of data proceeded. It expresses the sequence in which the objectively correct conception corresponding to the object takes shape in somebody's mind rather than the order in which certain aspects of reality came at the "surface".

Here again a logical problem is transformed into the problem of law-governed correlation between historical development and its own results. As it is pointed out above, the really necessary moments characterizing the object as a concrete historical whole are preserved in it throughout its existence and development. The problem then is to find out in what shape and form the historical conditions of the object's emergence and development are preserved. Here implicitly is the fact of dialectical relations between the historically preceding conditions of the object and their later "consequences", which have developed on this basis. In dialectics, the criteria for a good explanation centre upon relating the tendencies of a thing to its essential nature or structure, rather than deriving statements of tendencies from generalizations; and although such generalizations cover the descriptive level of a situation, they lack the explanatory force associated with a historical "law" which is about the development and change of individuals in society.

These relations consist in a kind of inversion of the historically preceding, the transformation of the condition into the conditioned, of the effect into a cause etc.; thus a situation arises which appears to be paradoxical at first sight: a logical presentation of the laws of the historical process (a conception of facts that is logical in form and concrete historical in essence) is a reversal of the picture that appears to be natural and corresponding to the empirically stated order of the existence, development and loss of the object.⁵⁴

To understand this, the fact should be taken into account that any real process of development (in nature, society or consciousness) never begins from "nothing" but on the basis of conditions created by

different processes, subject to different laws. This is the further development of a historical "result" arising from the entire preceding development (a sequence which is not unilinear), does not remain a "passive" result, or consequence. Each new form of interaction, becomes "dominant" transforming into secondary external forms of its specific development "all" historically preceding forms, which begin to move according to laws characteristic of the new system of interaction in which they function. Within these conditions, the necessary "traits" of the emergence and development of the object are preserved in its structure. others are reproduced and the "less" important elements disappear. On this assumption. a logical consideration of the "upper" stage of development ⁵⁵ of an object, of a "preserved" or "reproduced" system of interaction. reveals all the really necessary conditions of its existence, which are retained (historically) in the form in which it is observed.

Theoretical analysis of such conditions, results in concrete historical abstractions, which imposes the requirement of establishing, in an objective manner, the real history of the object under consideration: the problem is the same whether one is dealing with the emergence and evolution of the capitalist system or the emergence and evolution of the palaeolithic system.

Because Marx is concerned with the evolution of people as a social species, not as individual organisms. because the conception of a social system is that of a dynamic totality composed of relations between people and between people and nature. because these relations are of different degree and quality. and since production and reproduction of human subsistence constitute the basis of society. then we would expect that the determinant aspects or moments are

the technical forces of production and social relations of production. Marx² never claimed that history merely expresses productive relations; such economism is antithetical to his understanding of dialectical relationships in society. A historical process is itself "objective": it carries out the abstraction which retains only the concrete forms of its development that is recognizable conditions and effects under or with which components coming from "outside" are intermixed with the "original" products of a society, are accepted, absorbed, transformed or rejected or become dominant.⁵⁶

Very often the primary objective cause of a phenomenon (on the level of its structure, relationship, technology etc.) appears on the surface of the historical process later than its own consequences. Preconditions and phenomena which emerged earlier at a stage of human history, become forms of manifestations of processes that start much later.

Because production of the means of subsistence is the basis of human existence all stages of production have a common element and thus a common history: labour and its means of production. All systems of production then may have invariant elements (which can be traced through their material remains) but these provide only the general framework of analysis, which does not clarify the historically specific social forms of introduction. It is possible to define a mode of production through each of the common traits of all production - but that remains a mechanistic specification. The material culture record in archaeology has been interpreted as an hierarchical set of entities to be ordered taxonomically, and many of the developments in the last years have been concerned with elucidating the range and content of this record and with establish-

ing techniques that might improve the basic quality of archaeological data.

Many archaeologists see the problem in terms of contrast between "subjectivity" and "objectivity". But the search for methods of "automatic classification" as an analytic procedure has pursued an "objectivity" which has seemed increasingly illusive. And this is clearly because the ordering of the record - as we have seen - is a cognitive process in which dimensions are selected consistent with perceptions of the aims of archaeological interpretation. The more rigorous the method of classification, the more articulate must these dimensions become, and the more imperative becomes the question of "meaning". Thus even the development of ways of making truly "objective" statements about the intrinsic properties of artefacts, through for instance the use of geophysical techniques, has simply underlined the need for systematic social interpretation. The more patterns archaeologists discern in their data, the more questions will be forced upon their attention.

Again, although preoccupation with Man the Tool-Maker might seem to be an understandable consequence of Marx's emphasis on human production of the means of subsistence, search for a chimpanzee who will break straws to fish out termites is, in terms of human evolution, a meaningless exercise. It is not the intentionality of production that defines human activity, but rather its necessarily social character.⁵⁷

Testing the effectiveness of historical dialectical analysis in establishing the analytical range of particular concepts for the palaeolithic societies is maybe a "hard process": but there is no other way to ensure historical objectivity either.

"It is possible to type automobiles on the basis of the length of the scratches in their paint, to classify sand-tempered potsherds on the number of sand grains in each, or to group together all chipped stone points which have side notches. It would be possible, but the pertinent question is "so what?"⁵⁸

5.4 The Cultural Context of Demography

With respect to the interaction between demography and culture it seems perhaps superficial to observe that traditionally they have been considered as two unrelated parts of a "whole", as two non-corresponding aspects of human activity in a society, disclosing a "natural" contradiction between "body" and "mind". As such, they have been "carefully" kept apart, examined as separate units which needed differential and sometimes opposing sets of explanation. That situation conditioned the subject-matter of demography in a "self-reproducing" reality, presupposing a particular existence within and only under environmental requirements and ecological "disharmonies" impelling change.⁵⁹ Nevertheless, although distinct ⁱⁿ ~~is~~ their determinants, paradoxically they do share, in their interpretation, a common pattern of characterizations, which - it appears unconsciously - penetrates most of the cultural and demographic models; in the non-marxist literature they are both considered as something "external" to society and consequently as a "measurable accumulation" of events or even as a conglomeration of "atomic facts", the proper determination of each of which is bound to be independent of the determination of any other factor, that is, unmediated of social etiology or historical dimension. As such, they can both be determined from a simple summation of "things" or numerically

expressed categorical schemes, and from previously (or recent) existing population structures based on different kinds of "adaptation compromises" in the midst of a special set of given principles.

The reasoning for this is the affirmation that any part of the society (at any level of aggregation) is not only "capable" of existing independently of all other parts, but must do so. The definition remains "correct", even given the condition that other facts are involved in general. In other words, the only degree of freedom arising from the consideration of the above descriptions consists in providing them with an a-priori category of "behaviour", often enough to generate a histogram with the rate and frequencies of alternative expressions, and to provide a plot with means, modes and medians, regardless of whether or not those indicators have any adaptive significance at all for the particular population under study.

Considered in this context, the whole question of demographic/cultural analogies and interrelations, dissolves instantly at a methodological level, based as it is on the empiricist "trap" that material facts can only be compared to material facts without ascending to a more "abstract" theoretical consideration to cover both the material situations and the "non-material" realities and from this perspective, culture has nothing or little to do with demographic balances, fluctuations, stability or change.

Environmental determinism, in its broadest sense, is again the particular characteristic of such studies, firmly embedded and justified even at the level when crucial aspects of a society's functioning can and must be analysed at the level of their socio-cultural structure and proper socio-economic relations having an effect to (or being interconnected with) the demographic "package"

of a population.⁶⁰ Many of these studies are concerned with the omnipresent and inevitable condition of increased population growth. The domestication of plants and animals occurred because it provided more food for the increased number of people that existed at the end of the Pleistocene. A few proponents of this demographic model recognize that it is unappealing, or at least, fatalistic, but are not deterred, since the processes of history are "inexorable".⁶⁰ Whether one adopts a Boserupian or Malthusian view, the basic fact remains that man must "eat" or "starve". The incredible methodological difficulties of estimating prehistoric populations and the near insuperable problem of distinguishing cause from effect when population changes can be detected, are expressed with a series of assumptions that can obscure the circularity of the arguments and the tautological explanation of the approach; it is clear that environmental constraints do not determine a unique social form (and demography is part of that form) which alone is compatible with them; to "explain" demographical "organization" teleologically in terms of putative ecological functions alone is thus a metaphysical kind of argument. It can of course be argued that some forms may be incompatible in functional terms with certain constraints, and thus allow for a negative kind of determination.⁶¹ But even within these "limits" it is not possible to disregard culture history, internal social development, the relations of social systems and their contradiction expressed in their organization (economic, political or ideological), that is historical explanation.

Beyond this general trend however, there is a diversity of opinions on the implementation of the methodological framework of

the "ecological-dependence" theory. Various critiques of population as the independent variable in cultural evolution have appeared which make the obvious point that cultures within population systems (depending in a geometrical way from their resource-niche) can curtail their numbers by instituting a variety of techniques (birth-control, marriage patterns, distinctive exchange transactions etc.) and are more likely to do so when they perceive it to be in their best interest. Appeals over the cumulative effect of population growth over evolutionary time should not disguise the fact that population growth in the past as today was marked by frequent and sometimes violent reversals and oscillations that had profound significance for the history of specific areas. The important point is that under any situation of "stress" populations persisted,

regulating their sociocultural dynamics "independently" of the other partial environmental "pressures", developing a rational "autonomous" reorganization of their structure in accordance with their own special "ad momentum" needs and circumstances. At the conceptual level the structure of the world of man stands revealed as a system of dynamically changing relations in which the relations between man and nature, man and man are "fought" out. At the empirical level again, there is a considerable number of examples proving the flexibility of local groups, bands etc., flexibility over food resources, territorial boundaries, technological access and equipment, kinship structures, processes of production, and regional exchange, in sum a cultural-behavioural variability relaxing and even preventing eventual "natural" stress.

It would appear then, that demographic balances involved are quite "difficult" to explain, since a group's adaptation to a certain

area is affected by quite complex processes other than absolute/relative size, fertility-mortality indices etc.. Both archaeological and ethnographic counterexamples exist that document, i.e. dense non-nucleated concentrations of people living at relatively "simple" or at least pre-State level of development, that is sedentary hunter-gatherers, with no problems resulting from population-growth, and no significant increases in population pressure. It would appear that many hunter-gatherers have maintained stable populations over long periods and have used both cultural and biological population "control" mechanisms to this end.⁶² It has been pointed out, that it is much more difficult and complex to maintain a constant "low" rate of growth than it is to maintain either zero or rapid population growth. On the other hand, assuming an occasional heavy exploitation of limited resources, any increase in the level of that exploitation would have been more likely to destroy the resource than to benefit the group in the long term. Under conditions of fluctuating resources, resource reliability can be best increased by increasing the range and diversity of the exploitative area. From the point of view of any one territory there are the factors of individual and group movements; the camp units in which people live are not fixed entities: there is a constant movement in and out while a camp remains at one site and when the site is changed, people may move together to one or more new sites or may choose to move to an existing camp elsewhere.

There are no "continuities" in the composition of these local groupings and none which seriously would limit individual freedom of movement and access to food-resources. Examples of stable and persisting "boundaries" that are crossed by a flow of personnel are clearly far more common than the ethnographic literature would let

us believe. Moreover there are situations where two tribes inhabit similar environments, and had approximately the same technological equipment to cope with, but where the population of the one was relatively small and stable, while the population of the other was at least twice as large and probably expanding .. the difference in population level relating thus to differential policies held by the two groups; differences therefore in their social structure and cultural values.⁶³

However, most of the cultural matter that at any time is associated with a human population is not considered as having any effect on the structuring of the demographic formation of a society; it is not difficult to understand the reasons. The "complexity" of development in the contemporary world and the real problem not of absolute numbers of people but of the unequal distribution of socially determined wealth, are obscured by references to an innate human tendency eternally fixed by a "law" of demographic "evolution" having its roots to an "unconscious" past. Thus, under a crude environmentalism (before the "hard" appearance of Wilson's sociobiologism), Higgs and Jarman⁶⁴ argue that "... it is revealing to observe how similar many of the concerns, concepts and even the language of much of animal ecology and ethology is to that of simple economics. The ethological concepts of territory and home range can usefully be applied to man. Nor should we be concerned myopically only with studies of primate behaviour.. (for) .. in many ways the large carnivores offer more relevant comparative data."⁶⁵ For such a contribution to the objective understanding of human nature and historical evolution of society, there is nothing more to add. Suffice it to say, that, unquestionably from this standpoint alone

of both logic and method, the systematic location of an "absolute" irreversible situation is to be found just where the apparent "movement" stops: that absolute is nothing else but the "fixation" of thought, it is the projection into a metaphysical explanation of the intellectual failure to understand reality concretely as a historical process. Every biological subjectivism, that turns its limits into "eternal" limits thereby reintroduces a frozen, fixed status which transforms history into an illusion, and dissolves the human condition into fragments of unconnected "movements". It is not possible to reach an understanding of particular forms of culture and demography (or society in general) and their interconnections, by studying their successive appearances in an empirical, isolated, pre-conditioned manner. This petrified factuality in which everything is enclosed into a fixed "magnitude" in which the reality that just happens to exist persists in a totally senseless, unchanging way, precludes any theory that could throw light not only on the past but even on immediate, recent reality. At its extreme, it no longer points to anything beyond itself, and thus the "mind" of scientific investigation remains fixed on these forms which it believes to be immediate and "original", and from there it creates its own explanatory categories appearing under a false "objectivity"; it creates its own "fundamentals" which determine all the other categorical structures and serves as a "paradigm" for them.

Under these principles, most anthropologists accept a general concept, concerning population: that a combination of increase in size and increase per capita efficiency are the two major processes stimulating changes in social structure. Where the debate developed is not to what extent and if population increase implied cultural

change but over the question of the direct relationship between changes in levels of population density and the direct or indirect effect on the size of the society. The essential question is why do larger societies form: one explanation is that increase in population density produce pressures on basic resources, resulting in competition and conflict. The ultimate results of these stimuli are overall political integration, more authoritarian power system and economic specialization. Often added to this model are the influences of local environmental variation, which lead to uneven population distribution. The argument here is that areas of greater population potential will be more densely settled than areas of less potential and the former will - naturally - emerge as the centres of large emergent societies. In looking over the model it is clear that it is not population density per se that is producing the changes but competition over resources, and density is only a crude measure of that stresses. The problem is the measurement of "ecological pressures" with more definite criteria than population figures, since amongst other things, population numbers and resource pressure will vary from environment to environment anyway. The question arises as to the efficient or non-efficient exploitation of resources, their equal distribution among all the members of a society, their decision-making practices and the structure of their political and economic organization which can lead to inequalities of wealth and heterogeneous (economically) sectors. The problem is not only to "locate" and identify the resource base, but to try and comprehend the social relations. "locate" the particular underlying cultural instances, and link together production and reproduction of the population, coexisting in a state of dialectical interaction of the objective necessities on the one

part, and the conscious activities on the other, of its members.

At the same time, demography and culture are interconnected within a historical approach: historical demography is no longer a thing to be explained by the intervention of "external" powers or made meaningful by reference to "external" values. It is, on the one hand the product of man's own activity, on the other hand it is the succession of those processes in which the forms taken by this activity and the cultural relations of men are preserved. So that if - as mentioned earlier on - the categories describing the structure of a social system are not immediately historical i.e. if the empirical succession of historical events does not suffice to explain the origins of a particular form of thought or existence, then it can be said that despite this, or better, because of it such a conceptual system will describe in its totality a definite stage in the society as a whole.

This is what Marx implies when he deals with population problems in the "Grundrisse": "Thus, what may be overpopulation in one stage of social production may not be so in another and their effects may be different. The amount of overpopulation posited on the basis of a specific production is thus just as determinate as the adequate population. Overpopulation and population, taken together, are the population which a specific production basis can create... The extent to which it goes beyond its barrier is given by the barrier itself, or rather by the same base which posits the barrier.." The nature of the history is precisely that every definition "degenerates" into an "illusion": history is the history of the unceasing "overthrow" of the objective forms that shape the life of man. It is therefore not possible to reach an understanding of particular forms in society

by studying their successive appearances in an empirical manner. thinking about isolated facts in isolated mental categories. The "truth" is rather that these particular forms are not immediately connected with each other either by their simultaneity or by their consecutiveness. What connects them is their place and function in the totality of the historical process; when the problem of connecting isolated phenomena becomes a problem of categories, by the same dialectical process every problem of categories becomes transformed into a historical problem. It is transformed into a problem of universal history appearing simultaneously as the method and the knowledge of the past and present.⁶⁶

And it is in this respect that the methodological, particularistic interests of anthropology and archaeology caused man to become frozen in fixed entities and thus pushed both dialectics and history to one side. And precisely this is the great danger in every social research; at best dogmatic metaphysics is superseded by an equally dogmatic Popperian positivism. This dogmatism arises because the failure to make man dialectical is complemented by an equal failure to make reality dialectical.

Hence, "comprehension" of any social form moves within an essentially static world, inevitably reverting, because of the rigidity of that standpoint, to the dogmatic position of reconstructing and understanding the organization of the societies, on its own terms. For it is one thing to relativise and examine the truth about individuals or species in an ultimately "static" condition, and it is quite another matter when the concrete, historical function and meaning of the various "truths" is revealed within a unique concretised historical process. What a non-historical analysis does.

is to take the "human conditions" with its social and historical limits and to allow those to "ossify" into an eternal limit of biological or pragmatic "reality".

As in the present, so in the period of the pre-history of human society, man must be seen in his historical and dialectical existence: all these forms of existence that constitute the counterpart of the "real" are dissolved into processes and viewed as concrete manifestations of history so that the "real" or "special case" is not so much denied as endowed with its concrete historical shape and treated as an aspect of the process itself.

The point is then, that different "meanings" of demography or culture and differential techniques employed (obviously) for their study, does not necessarily imply that demography is not connected in some respect to culture and to socio-economic structures and that their importance for the demographic consistency of a population should not be considered. Moreover it seems much more realistic to speak about a "cultural demography"

than to speak about a "biological demography". But this does no more than present the problem in a descriptive form and certainly does not point the way to a solution. The solution can only be discovered by seeing these two aspects - demography and culture - as they appear in the concrete and real process of population's development, it remains true that a more sophisticated awareness is required also of the material culture record. It is important to establish that the abstract separation of demography from culture and the rigid division between man as a "thing" on the one hand, and man as a "man" on the other, is not without consequences; it is responsible for the genesis of ethnocentrism, exploitation.

inequality, which cannot escape from immediate empirical facticity and it is responsible for the idea of a population divorced from the total development in society and credited with a function alien to its concrete character. What this means, is that every path leading to a change in this reality, is systematically blocked. Already the mechanical separation between demography, culture, economics precludes any really effective action encompassing society in its totality, for this itself is based on the mutual interaction of all these factors. X

The disintegration of a dialectical practical unity into an inorganic aggregate of empirical situations or facts (in their untranscended immediacy) and an insistence in notions and modes as alien to the past as to the present is characteristic in increasing measure of the demographic understanding directed generally towards statistical divisions and conditional/empirical types. It is not hard to see that all series of research are coming up against the need to reveal and identify cultural coexistence. In a sense all this endeavour results to the artificial separation of individual spheres of society from one another and correspondingly to the fragmentation of the human material into separate - if not opposed - sectors. Above all, it is a systematic justification of different terms (essential to that sort of "social" thinking), this very "dualism" of economic and demographic/cultural "fatalism" as applied to the human functions of that methodological continuum, which means inevitably that the population submits to the "laws" of nature either in a spirit of accepted notions (e.g. towards the natural laws of production and reproduction) or else in spirit of "moral" affirmation (e.g. the acceptance of an "ideal measure") and a demo-

graphic logic pointing out to questionable definitions, and results.

5.5 Summary

If we consider social values and population dynamics, the notion of culture presupposes that values can be attached to individual populations' organization, function, relationships, properties and command over resources. The measurement of their internal structure precludes the existence of some value system against which we can measure (and thereby compare) the impact of a change upon social groups.

In terms of the activity patterns of a total population what must be considered is the formation of "attitudes" dependent upon stimuli existing in a particular context, populations exhibit different elasticities with respect to their use of socio-economic "space" and resources provide different "services" to different people, according not only to their environmental setting or technological equipment but to their cultural concepts. This is one of the most "urgent" population/demography problems that should be considered. Since these procedures interact in a way that may not be readily apparent the problem which arises is how to isolate each for explicit consideration without damaging their general "evolution" and the proper determinants of their existence. The whole question takes on a new dimension in the case, for example, when different populations express different orders of preference over a given set of outcomes or when groups do not perceive the "same" alternative choices of potential outcome. In this case each group has its own perceived action space and important distinctions and transformations can arise. Because culture contains the economic - that is command

over resources - cultural conditions and values automatically affect the measurement of "real" demographical measurements. Thus populations may live under exactly the same environmental conditions and rely upon the same resources, but if they perceive "things" from another viewpoint they will have different "income" and their demographic disposition will not be the same.

The initial view of evaluation concerning demography and culture stems from an artificial separation of methodology with an historical consideration. Out of this separation flows a tendency to regard facts as unconnected to values, objects as independent of subjects, "things" as possessing an identity independent of human perception and action. If verification is fundamental, from the position in which verification is viewed as a matter of establishing (by some general accepted means) the empirical relevance and applicability of abstract propositions, then it cannot be separated from meaning: meaning in other words which is regarded as "moveable" not in some random or arbitrary way, but as part of the process through which society embraces certain lines of thought in order to rationalize certain lines of action in preference to others. That is, it cannot be separated from social practice in general. Underlying this view is a shift away from empiricism or idealism towards a materialist interpretation of ideas as they arise in particular historical contexts.

The distinction between "fact" and "value" is one of the innumerable dualisms which, as we have seen, pervades post-renaissance western philosophy. These dualisms can either be accepted as a fact of life or they can be reconciled in some way. Kant constructed an elaborate system of thought designed to link dualisms into a coherent philosophy, but in the process was forced to resort to the doctrine

of the "a priori". With Marx, the distinctions "collapse" as he deals with how concepts and facts relate to and stem from human practice rather than to eternal truths attached to them. The act of "observing" is the act of evaluation and to separate them is to force a distinction of human practice that does not in reality exist.

Marxist categories and concepts are formulated through the application of the dialectical method to history as it unfolds, through events and actions. A positivist method involves, for example, the application of traditional bi-valued logic to test hypotheses: hypotheses are either true or false and once categorized remain ever so. Insofar as it is relevant to discuss of truth and falsity, truth lies in the dialectical process rather than in the statements derived from the process. These statements can be designated as "true" only at a given point in time and, in any case can be contradicted by other "true" statements. In this way, dialectical method allows us to invert analyses if necessary, to regard solutions as problems, to regard questions as solutions. Thus resources become important only when they are invested with the social and technical apparatus of the population concerned.

Demographic patterns can vary immensely, depending upon the technological arrangements for production, the division of labour, the local needs of societies in different environments and so on. The social basis for coordinating groups' activity in production, consists of the social relationships, which can vary according to the conditions of production. The social relationships form a social structure which is maintained through "legal" forces as for example kinship, religion ideology etc., the survival of a society means the perpetuation not only of human beings but of a given mode of production. Hence Marx argues (in Pre-capitalist economic

formations) that a mode of production must create the conditions
 for its own perpetuation, he draws attention to the main aspects
 in which a mode of production produces the conditions of its own
 existence within populations, relations and mechanisms. A particular
 conjunction of circumstances may make it possible to forge a new
 combination of social and economic forms to define a new mode of
 production. This requires that certain social and economic forms
 carry over from one mode of production to another; indeed without
 a certain persistence of these forms the transition from one mode of
 production to another would be impossible. Thus different forms of
 production can be found in the same mode and similar forms can like-
 wise be identical within the different modes. It is generally held
 that fixed categories and definitions prejudice the interpretation
 of the past, present and future and that "floating" relational
 definitions of the sort used by Marx are inadmissible and confusing.
 Marx, however, tried to relate his definitions and categories to the
 society under consideration. The concept of scarcity, for example,
 does not arise naturally, but becomes relevant only in terms of social
 action and social objectives within a mode of production. Scarcity
 is then, socially defined and not naturally determined. While on a
 population level analysis proceeds as if it does not matter how
 scarcity arises, a marxist analysis lies in the way that a seemingly
 homogeneous "thing" is dissected into its components parts and
 relates those parts to all other aspects of the social structure of
 a population. Part of the seeming ambiguity of the concept of a mode
 of production, demographic considerations and cultural events, stems
 from the interpretation put upon the concepts. Therefore, while it
 is difficult to determine the meaning of a term or fact in abstract,

it can be said that a mode of production, for example, refers to those elements, activities and social relationships which are necessary to produce and reproduce real, material life, with three basic elements, which remain constant from society to society: the objects of labour, the means of labour and the labour power. The various, different each time, coordinating mechanisms are an integral part of the populations basic characteristics, for it is through them that the various elements in production are brought together and the diverse socially productive activities are welded in something coherent.

The definition of an "absolute" population level requires that we identify which social and cultural functions are necessary for the survival of society and which are excess and supported by the production of "surplus" in the broadest sense. This is clearly a difficult "task" for surplus, need, scarcity and so on, can be defined only in terms of a particular social, cultural, technical and institutional setting; hunger, for example, cannot be measured independently of some social situation, within a population. The consciousness of "need" is a social product: it is but a part of the ideological superstructure which rests upon a functioning economic base, and it varies from society to society and from time to time. It is, contingent ^{on} the mode of production itself.

In the "Contribution to the Critique of Political Economy" Marx examines the intricate relationships between production, consumption, distribution, need, exchange and circulation. As society changes, so may the quantity of material product set aside as well as the purposes of doing so. It is consequently possible to "increase" or "decrease" the quantity of surplus population by instituting social changes which alter the social definition of surplus population, without

actually increasing the total quantity of material product.

The point is that fundamental changes in the economic basis of society "lead" to a redesignation of the total population apparatus and to new social relationships. These changes are not and can never be simply generated out of the ideological superstructure (only) of a society; the economic conditions have to be right for the emergence of the new forms of integration and redistribution. An increase in population may generate a larger aggregate surplus but is related with other population factors and determined by definite stages of production. " .. There was no barrier to the reproduction of the Athenian slave other than producible necessities. And we never hear that there were surplus slaves^s in antiquity. The call for them increased, rather. There was however, a surplus population of non-workers (in the immediate sense) who were not too many in relation to the necessities available, but who had lost the conditions under which they could appropriate them. The invention of surplus labourers, i.e. of propertyless people who work, belongs to the period of capital, the beggars who fastened themselves to the monasteries and helped them eat up their surplus product are in the same class as the feudal retainers, and this shows that the surplus produce could not be eaten by the small number of its owners." (Marx. Grundrisse) A social surplus product of some sort is produced in all societies and it is always possible to create more of it. The concept of surplus is itself subject of re-definition as conditions of production, consumption and distribution change, this is connected in an immediate way with populations' demographic patterns.

"..The overpopulation e.g. among hunting peoples...proves not that the earth could not support their small numbers but rather that

the condition of their reproduction required a great amount of territory for few people. Never a relation to a non-existent absolute mass of subsistence, but rather relation to the conditions of reproduction, of the production of these means, including likewise the conditions of reproduction of human beings, of the total population, of relative surplus population. This surplus is purely relative: in no way related to the means of subsistence as such, but rather to the mode of producing them. Hence also only a surplus at this state of development" (Marx, Grundrisse) Of course, when Marx says "overpopulation" in hunting-gathering communities he means overpopulation in certain areas, that is population densities and aggregation in certain environmental settings. On the other hand, in asserting the primacy of the economic basis Marx was proposing two things: first that the relationships between structures are themselves structured in some way within a totality. We said that the conditions concerning the production and reproduction of material life were fundamental and this led him to the second point: attempting to view society as a totality, then ultimately everything has to be related to the structures in the economic basis of society. The evolution of society as a totality must therefore be interpreted as the result of the contradictions established both within and between structures; it is through these formulations that demographical relations are changing (or retained) in a population. The concepts and ideas established can then become a material force in production and reproduction. To do so, however, requires that concepts which exist as mere abstractions be translated into human practice. Concepts, categories and facts cannot be viewed as having an independent existence. The structure of population can be transformed

by its own internal laws of transformation but the results of this process have to be interpreted in terms of the relationships they express within the totality of which they are a part. Populations are thus produced under certain conditions (including a pre-existing set of..) while they also have to be seen as producing agents in social situation. In that sense, it is "irrelevant" to ask whether concepts are true or false. We have to ask rather what it is that produces them and what is it that they serve to produce.

Hence there arises the distinction between materialist theories which are productive of change and status quo theories which are derived out of a certain kind of thought, and help to preserve an existing situation. Population is nothing outside of a particular set of relationships and it can arise in a variety of ways depending on how these relationships are structured. From this position it is possible to forge a critique of contemporary population theories. What kind of object or entity are we dealing when we seek to investigate population patterns? We cannot answer that population is a "thing" evolving merely out of biological logic. It is an existing unity, attached to distinctive cultural as well as economic derivatives and therefore has a function affected by them. To define elements relationally means to interpret them in a way "external" to direct observation: the meaning of an observable "action" is established by discovering its relation to the wider structure of which it is a part. Thus the inability to identify a transformation i.e. in a palaeolithic society does not mean that it does not exist. The evolution of populations must be interpreted as the result of objective forms and instances reproduced (by virtue of their specifically transcendental structures) as a purpose in the form of

a goal and not as "solitary" stereotypes.

This method of interpreting demographic phenomena permits more than a mere description of the aspect in which they emerge before direct contemplation of the surface of the developed stage on their existence - it permits to reproduce, in the full sense of the term, their origination, to trace their emergence and development and the "real" circumstances that, the actually necessary conditions of their origin and structure . . . retained, at each given moment, as forms of existence, without a "dereglement" of their hidden, inner substances.

Notes and References

1. Papaioannou-Stathaki F 1985.
2. See Chapter 1
3. Several recent works concerned with the concept of structure and structural analysis are listed in the bibliography. Not all structural theorists use the concept in the same way. Parsons for example speaks of normative structures. A major implicit expression of positivism and objectivist social science, not sufficiently dealt with in the literature, is the use of structural explanation. Because of their doubts as to the accessibility of mind to scientific method, objectivists are generally inclined to separate the social scientific idea of society from ideas in society. This inclination often takes the form of an affinity for structural explanations. It is not easy to say just what the concept of social structure means, and it has sharply different meanings for different theorists, but generally social structure is meant to describe those features of social living that are independent of and exert controlling influence on the beliefs and actions of social members. But if structural variables are "objective" i.e. if they can be known independently of the subjective experience of social actors, a convincing argument can be made that social explanation is (for them) ultimately not unlike the explanation of physical nature. It is interesting to note that in Levi-Strauss (although he belongs to a different structural tradition) the process of successive narrowing oppositions shown in his work, are somewhat reminiscent of the dialectical process (thesis, antithesis,

synthesis); however there are striking differences: the opposed elements seem coevally present, there is no evidence that the one develops as a reaction to (or outgrowth of) the other. In Levi-Strauss the movement in the process is illusory; no synthesis is ever reached and nothing intrinsic is ever changed; there is only an increasingly restatement of the problem. In short he provides us with a way of thinking about cultural problems; he does not (in his myth analysis) provide any model for how cultural forms change, not for how the ideas that shape our comprehension of the physical world might change. His concern is with the sign systems by which thought is expressed and with the ways in which these are used; as such his work belongs more in Saussure's thinking than in Marx's.

See also . . . for a thoughtful, critical analysis
Schaff A 1978, and Jakubowski's (1976) interesting work.

4. Korsch K 1970, Meszaros 1971. Philosophy in the USSR 1977, Williams R 1977.
5. We use "historical" as already pointed out in Chapter 1, for all societies with written or no written records.
6. The originality of a given system is not refuted by the demonstration that certain elements of that system used to occur in some form earlier in the history of human thought. The concepts and ideas (and technology) did not (and could not) occur in the past in the same form, and "a fortiori" could not play the same role in the structure of the whole system.
7. Danilova L.V 1971, Klejn L.S 1972, Kohn I.S 1980, Petrova-Averkieve Yu 1980, Williams R 1977, Wessman J.W 1981.

8. Smith A.D 1973
9. Bonte P 1973, 1974, Engels F Anti-Dühring, Maguire J 1972 (Marx's Paris writings), Marx K (Grundrisse), O'Laughlin 1975, Sarah A.K 1963, Schaff A 1978.
10. "Historicist" used here not in the materialistic sense where every phenomenon of social life is studied in terms of the process of its origin and development and its causal determinations. We are referring to the way empiricists and evolutionists use it. Whatever the differences among them, all the evolutionists conceived of human societies as isolated natural systems and the aim of anthropology was to establish clearly demarcated "stages". This Victorian obsession with stages was an ideological reflex of the social system in which these scholars lived. That is they lived in a society divided into clearly demarcated strata: lower, middle and upper classes. The historical reconstruction of the Victorian evolutionists suffered not only from the imposition of ethnocentric social categories upon the data, but also from a faulty use of comprehending and compare cultural variation on a worldwide basis. It now seems clear that they were more interested in re-constructing their own "prehistory" than real historical formation.
11. Kluckhohn C 1960
12. On this matter see also Chapter I and especially II
13. Bonte P 1973, 1974, Krader L 1976.
14. Hoffman J 1975.
15. The subject is widely discussed in the literature and highly controversial. See, amongst others, especially: Belasco B

1975. Blau P 1975. Benton T 1977. Lenski H 1975. Schutz A 1967. Williams R 1977. Vulov T 1973. Znaniecki F 1952.
16. There are more than 160 definitions of culture included in Kroeber-Kluckhohn "Culture: a critical review of concepts and definitions" (1952), which had become a commonplace and led to theoretical and conceptual variations; we are not of course attempting to sort out these variations here, but generally "cultures" are appearing as exogeneous, self-sufficient "systems" of "behaviour" due "more" to individual growth processes, and social reality according to this view, really only existing in consciousness, and since the consciousness of others is studied introspectively, the study of society and culture becomes the study of oneself.
 17. Hoffman J 1975
 18. Blau P 1974
 19. Marx K: The Poverty of Philosophy. Theses on Feuerbach (3rd)
The German Ideology, (Marx-Engels). Grundrisse.
 20. Blau P 1975, Durkheim E 1965.
 21. Marx K, Grundrisse.
 22. Marx-Engels, Selected Works.
 23. Letter to Schmidt: 5.8.1890
 24. Among the more recent proponents of this "fatuous notion" have been Frankfurt theorists (like E. Fromm) who see in Engels comments "a recognition on his part of the failure to pay enough attention to the power of ideas...." etc. But this is a version of what in fact Engels said. (see Slater P 1977)
 25. Letter to Schmidt 27.10.1890
 26. Letter to Mehring: 14.7.1893

27. There is a broader discussion on this point in Papaioannou-Stathaki (1985) article.
28. Petrovic G 1967
29. "According to the materialistic conception, the determining factor in history is, in the final instance, the production and reproduction of immediate life. This again, is of a two-fold character: on the one side, the production of the means of existence, of food, clothing and shelter and the tools necessary for that production; on the other side, the production of human beings themselves, the propagation of the species. The social organization under which the people of a particular historical epoch and a particular country lives is determined by both kinds of production.."
30. Korsch K 1972 (a,b)
31. Lefebvre H 1968, Lukacs G 1971, Petrovic G 1967.
32. Cohen G.A 1982, Murphy R 1972, Rubinstein D 1981, Rader M 1979, Swingewood A 1975.
33. Ilyenkov E.V 1977, Rubinstein D 1981.
34. A quantity of literature has accumulated on this issue in recent years. It is difficult to say anything about this matter without saying a great deal. But because of course it is not possible to disregard it, the attempt here is made giving a general account, clarifying to some extent the main difficulties, tendencies and issues; and moreover to define it versus a historical, materialistic approach.
35. Rubinstein D 1981.
36. Marx K Grundrisse.
37. Marx-Engels. The Holy Family

38. Adams H.P 1965, Maguire J 1972, Marx Early Writings (transl. and ed. T.B Bottomore)
39. ^kLyKacs G 1966 X
40. Papaioannou-Stathaki F 1985
41. Tool-making is of course connected with speech; they both represent the earliest symbolic human behaviour. There is no doubt that human language can only realise its most important function, that of being a means of communication between individuals, because it operates with meaningful entities. The system is a complicated one, but implies at any level of communication that element of information which transforms the "immaterial" into "material" Napier (1972) describes the "complex signaling system which conveys information about mood" of monkeys and apes. But this is the organic symbolism without social convention to which Holloway (1969) refers. Lenneberg (1960) says "language's purposiveness is closely related to inventiveness and the ability to introduce changes into a given behaviour pattern." He decisively notes the discontinuity between human symbolic speech and animal signal behaviour. Language and tool-making are the first cultural "inventions". The living primates do not make inventions. If we accept this definition of the critical evolutionary situation, then it becomes apparent that the human capacity for speech should not be confused with its "inevitability". Even on the level there is a contingency built into the cultural process, a contingency that is itself related to the dialectic, and dialectics can never be defined as mere determinism. Marx (in the Contribution to the Critique of Political Economy) said that speech is a

social phenomenon, that to consider "the development of speech without individuals who live together and talk to one another" would be "preposterous". The mind which penetrates tool manufacture and accompanying speech is human, and clearly we are engaged here with more than methodological nuances in the manipulation of data. Working within the limits of a single-line evolutionism seems inadequate. The main issues are the historical, philosophical and epistemological implications for a biocultural approach that admits contradiction, unevenness and similarities as the motive force of evolution.

42. Klejn L.S 1982
43. Klejn op.cit.
44. Attanovskii S.N 1963, Boccara P 1983, Bonte P 1974, Kabo V.R 1974, Klejn op.cit.. Klejn L.S. 1972.
45. Klejn L.S 1982
46. Bonte P 1973, Eichhorn-Bauer-Koch 1974. O'Laughlin B 1975.
47. Kohl P.L 1981, Klejn L.S 1982.
48. Marcus G 1978, Markarian E.S. 1969 (quoted from Klejn op.cit.).
49. Behind that "mental" excuse. of particular pertinence to British archaeology, a concern with the strict presentation of "facts" becomes rigidified into dogma with the exception of ^{V.}~~V.G.~~ Childe X
with his notion of archaeology contributing to a science of history; he is, at the same time, as far as we know the only archaeologist that many anthropologists in this country ever admit to having read.
50. See mainly chapters I and II.
51. That multi-purpose function has already been discussed in chapter III of this thesis and for Greece. especially, see

unpublished Msc F. Papaioannou-Stathaki 1981: Environment and Population in Palaeolithic Greece.

52. This central tendency (of isolation) automatically creates constructs of bounded social units (cultures). Cluster of sites are excavated which are separated from other site's cluster by intervening, sterile space. If the archaeological record in these clusters is described in terms of central tendencies applicable to them entirely - a simple task even if hunter-gatherers in the real world should not behave in this way - an internally homogeneous spatial unit is generated; at its margins the unit clashes sharply with similar constructs (even if they are due to nothing but distance). It is easy to "mistake" these constructs as evidence of bounded social units. However, the existence of such units is unlikely before the neolithic. Socio-cultural boundaries of this kind are associated with severe locational penalties and under low population densities they should be expected only in very unusual ecological circumstances (Wobst 1976). Nevertheless palaeolithic populations already are shown to have participated in regional exchange: at low population densities even such a basic process as hunting, forces local populations to interact within a regional population matrix.
53. Klejn L.S *ibid.*
54. Ilyenkov E.V 1982. Ilyenkov E.V 1977.
55. "upper" for later stage, not higher.
Ilyenkov *ibid.* Marx K. Grundrisse.
56. Ilyenkov *ibid.* (1982)

57. O'Laughlin B op.cit.
58. Taylor W 1948.
59. This point is specifically illustrated in P. Hammond's Introduction to Cultural and Social Anthropology where the author having defined anthropology in vague and general terms as the 'study of man' and having divided, as is usual in American methods, physical, archaeological anthropology from social and cultural anthropology, dedicates his book to the customary study of hunting, agricultural, pastoral etc. societies without any further orientation.
60. The components of the social structure are human beings, the social structure itself being an arrangement of persons in relationships institutionally defined and regulated.

In the process of production human beings use tools, skills and knowledge. Labour is performed in the framework of an economic organization. From the beginning the organization of society has probably been mostly a question of securing the lives of the members and their access to the resources of a territory. Knowledge of social organization and behaviour turns subsequently into "rules" affecting in the first place the mode of subsistence, and eventually population structure and demographic patterns; cooperation, sharing, and differentiation of tasks are among such rules, and once they are established the economy of human society consists of both the relations between society and its environment and the socio-economic relations between its members.
61. E. Leach (1964) for example states clearly; "the generation of British anthropologists of which I am one has proudly

proclaimed its belief in the irrelevance of history for the understanding of social organization... we functionalist anthropologists are not really 'antihistorical' by principle; it is simply that we do not know how to fit historical material into a framework of concepts.

62. Hassan F 1978, 1981, Hayden B 1972, 1981, Weiss V.M 1978

See also chapter II on this matter.

63. Papaioannov-Stathaki 1985 (note 22 to the article: the problem of Culture and the place of dialectical interpretations).

64. Higgs and Jarman 1975.

65. Engels remarks (still of topical interest) when writing to Lavrov on 12th November 1878 of the Darwinian doctrine: "I accept the theory of evolution, but Darwin's method of proof (struggle for life, natural selection) I consider only a first, provisional imperfect expression of a newly discovered fact. Until Darwin's time the very people who now see everywhere only struggle for existence (Vogt, Büchner, Moleschott etc.) emphasized precisely cooperation in organic nature Both conceptions are justified within certain limits, but the one is as one-sided as well as animate - includes both harmony and collision, struggle and cooperation. When therefore a self-styled natural scientist takes the liberty of reducing the whole of historical development with all its wealth and variety to the one-sided and meagre phrase "struggle for existence" a phrase which even in the sphere of nature can be accepted only cum grano salis such a procedure really contains its own condemnation...."
- "The essential difference between human and animal society consists in the fact that animals at most collect while men

produce. This sole but conditional difference alone makes it impossible to transfer laws of animal societies to human societies.

66. Lukacs G, History and Class Consciousness.

Gramsci A, Selections from Prison Notebooks.

CHAPTER 6

The Essence of the Evidence

Le besoin a été le maître de l'homme, il lui révéla
l'usage de ses capacités, de ses mains, de son
intelligence (Diodore I,8)

6.1 "Real" objects: appearance and displacement

Placing hunter-gatherer peoples in history means tracing long periods of contact between groups and incorporating their relationships into a larger regional and temporal pattern.

A tool-complex forms only a minimal part of human manifestations, which is not the most important one when it refers only to technology. Without inferences and assumptions of different kinds, during which strict certainty is sometimes lost, there is no possibility of reaching deeper historical reality. Prehistory involves reconstruction, and reconstruction can never attain infallibility. However, loss in certainty does not justify the attitude of object-bound analysts, who stop at the object level or its nearest derivative ecology. The process seen in history cannot be separated from the method of inquiring into this process. What comes through at the end is the contextual and relativistic - indeed dialectical - manner in which "behaviour" at any level of the process can be probed and justified.

These arguments, in addition to those put forward in the previous sections, further support the case for some kind of differential control over the lithic tool-industry. In fact, the adoption of a different starting point, means reconsidering a set

of issues in which dynamics - and not static issues - are the centre of things and endeavour to show that it is possible to connect, theoretically, the general processes of economy with an explicit understanding of an emergent structure of spatial relationships. Essentially the problem arising here is the realistic evaluation of a specific prehistoric situation falling within the field of what is referred to as hunting-gathering societies, their subsistence strategies and their economic system, with the limits that are set on this sort of inquiry, which applies primarily to societies with a medium or unsatisfactory archaeological visibility. X

In general, therefore, it appears that the macro, meso and micro factors must constitute a consistent and continuing dimension of lithic tool analyses; the range of criteria available from this evidence is considerable but can only provide a frame of reference for particular decisions based on specific subsistence needs and the development of certain forms of labour and labour organization. X

There is originally a unity between a specific form of communal or tribal organization and the corresponding ownership of nature, or attitude to the objective conditions of production as naturally existing, and the objective being of the individual by means of the community. This unity, which in a sense appears as the particular form of property, has its living reality in a specific mode of production itself, and this mode appears equally as the behaviour of the individuals to one another and as their specific active behaviour towards inorganic nature, their specific mode of labour.¹

The general theoretical ramifications of the above are evident. Prehistory, despite its well-known limitations, is history. It is concerned with people, with ideas, with purpose, with change. Its principal instrument of research is archaeology, but it cannot rest content with simply recording differences in technology in a stratified sequence. Technology on the other hand, as part of a concrete socio-economic formation cannot exist independently of distinct social organisms; it is not an abstraction or conceptual convenience; it does exist as the "expression" (or the inner essence) of concrete societies and it is not independent of the consciousness and the will of men. When faced with change, one must ask what is the nature and cause of this change - and whether causes and effects detected extend to the people as a whole. In this respect, apart from what a prehistoric group uses for its technology, it is important to take into consideration and try to reconstruct the behaviour responsible for the artefactual (or other) evidence of a region. It is unrealistic to suppose that archaeological data is such that interdependent items can always be segregated from the independent (and dependent ones), for behind the said association of the material, cultural and other data may relate to each other in complex ways. Tool form is partly determined by the qualities of the available raw material and it is not free to vary infinitely, while the qualities of the raw material may be a function of climate and geographic location. Likewise, there is a variety of "economic responses" which may reflect the processes of the social and technological development internal to a society.

Technological change is not seen as something external to society, an unknown that cannot be accounted for, but as a product of human creativity, both internal to and inevitable within society.

Subject and object are not regarded as independent entities but as relationships to each other. The thinking subject can create ideas in the imagination. But these ideas have at some stage to leave the realms of abstract knowledge and to enter into human practice if they are to be validated. Once incorporated into human practice, concepts and ideas can become (via technology) a material force in production and can alter the social relations of production through the creation of new modes of social organization. Although many ideas remain barren some do not: "at the end of every labour process we get a result that largely existed in the imagination of the labourer at its commencement."² Ideas are therefore regarded as relations through which society can be structured and reconstructed. Concepts and categories are also produced under specific historical conditions which are in part internal to knowledge and in part a reflection of the world in which knowledge is produced.

Quite independently of whether Marx was right or wrong in his characterization of the future course of technological change and its social and economic ramifications, his formulation of the problem still deserves to be a starting point for our investigation of technology and society. In a passage which is sometimes cited as evidence of his technological determinism Marx³ is, in fact, pointing to what can be inferred about the nature of earlier societies from their remaining artefacts. "Relics of by-gone

instruments of labour possess the same importance for the investigation of extinct economical forms of society, as do fossil bones for the determination of extinct species of animals. It is not the articles^S₂ made, but how they are made, and by what instruments, that enables to distinguish different economical epochs. Instruments of labour not only supply a standard of the degree to which human labour has attained, but they are also indicators of the social conditions under which that labour is carried on."⁴ X

The conception is very different indeed from that of traditional empiricism in which the subject is presumed to be "instructed by what is outside of him" or from that of a priorism in which the subject "possesses from the start endogenous structures which it imposes on objects." Man can structure himself by constructing structures, and those structures are his own, for they are not entirely predestined either from within or without. The subject is thus seen as both structuring and being structured by the object.

6.2 Technology matters

On a general level it is supposed that lithic craftsmen make decisions on at least four independent levels which are reflected by four distinct kinds of morphological attributes which are subject to empirical investigation. The four levels which require decision-making on the part of the tool-maker are decisions regarding: the kind of material, the input variables to induce a desired kind of structure, microstructure of the spacing between constructional units and macrostructuring or outline form perimeters.⁵ A fifth level could be added to these which would consider decision as

reflected by morphology regarding the use of implements. The organization of a level cannot be considered within "itself" or treated as a closed system. To understand and explain a level we must examine the mechanisms and processes responsible for the creation of that level. From these hypotheses can be formed, as follows: presence or absence of certain tool "types" into a specific area, can discern a certain process of environmental explanation resources or certain solutions given to some kind of "breakdown" of the productive process or difficulties in the manufacturing system etc.. It is known that all contemporary hunters and gatherers are highly skilled and selective users of their environments: choices are constantly made about which animals to kill and which vegetation to gather.⁶ These choices have an effect and may involve more substantial planned "capital investment"⁷ and differential (or not) technological strategies and solutions. Decisions employed by lithic tool-makers are reflected in structured patterns of attributes which mirror the underlying rules in a particular level or set of levels which led to their creation. Within a class of generally similar artifacts a single "attribute" can appear in a number of different combinations. Thus certain "attributes" can be isolated and help to distinguish between groups/bands etc., and to cope with questions concerning socio-economic change and perhaps relate assemblages which reflect different aspects of activity.

In that sense the traditional approaches currently in use seem inadequate. They are not defined in terms of the system which led to their creation and since there is no underlying body of theory

to unify types or attributes into a socio-cultural framework, many types cross-cut similar systems in a given ecological area and have little utility in explaining processes responsible for changes observed in time and space. To view the artifact assemblages against environment without considering the subsistence economy does not advance the argument beyond the question of tool types, units and the creation of areas of isolation or ease of contact. Theses by themselves seem insufficient to explain the observed variation in the assemblages.⁸

No one denies the reality proper of things, their discreteness and the possibility of adequately distinguishing them by recognition from the surrounding reality. Finished flints are a reality and not merely an impression. No one denies either that there are cultural types, which reflect the social units in any living culture. The problem is indeed that tool form is not necessarily a good indicator of function or adaptation to the environment. In other words, tools with similar forms but produced by employing distinctively different technological systems cannot be separated by focusing one's observation only on the outline. A problem of this nature becomes particularly acute in attempting to establish the major lines of social, economic and demographic factors on a regional basis; for example, the population that this specific area could sustain - if the population used all the possible available means of food casual and not casual; the conceptual content of this is to see the population not as an unmovable unity within space/time and food procurements, but as in a continuous process of interaction, development, use of the local available means of production, new possibilities

of using their environment without necessarily changing "home sites" etc.. The distinction which should be made is between narrowly extractive hunting and gathering - which in its extreme form may involve what amounts to a repudiation of all measures of conservation, of all investments in fixed assets, and of all attempts at planned development of resources - and hunting and gathering with an emphasis on, at least, short-term conservation and resource development. The extractive approach to hunting and gathering is a strategy developed over time, usually as an alternative to a conservation approach.⁹

It is logical to assume that independent or distinct "cultures" living in proximity may adapt to the same environment in much the same way or the inverse and that interactional exchange existed at all levels of the groups. We have here an apparently unpropitious combination: knowledge which is not clearly formulated and where mechanisms for transmitting it from one generation to the next seem to be "deficient". Yet, "cultural continuity" seems to be maintained in these societies without "special" problems.

A survey of archaeological site reports quickly reveals that common tool forms such as knives, scrapers, projectile points etc., appear to have an almost continuous distribution through long periods of time and across extensive spatial areas. Apparently different artifact styles and types among different assemblages may often be "genetically" linked by a common origin in the past; apparently similar styles and types from different contexts may sometimes represent analogs rather than homologs. Also, seemingly independent traits in the same association may in fact have a strong mechanical

or functional relationship to one another which is difficult to see.

Until quite recently almost all approaches concerning typology emphasise that artifact types should be constructed in view of the technique used in manufacture. Nowhere is it clearly defined what is meant by the term "technique". Technological attributes are viewed as morphological features which have resulted from the application of a specific set of input variables.¹⁰ The function thus determined does not always coincide with the function expressed in a traditional name - as points turned up to be knives, scrapers did not scrape etc.; in most archaeological research, chance has determined the form of the typological structure to a great extent. The fact that site X was in a certain locality and represented a certain span of "cultural" history has determined the nature of the "cultural" types defined there.

The premise that each distinct combination of input variables will result in a unique combination of output variables is not a sound inferential framework for determining input conditions or decision on the part of the tool-makers, as distinctly different decision can result in similar combinations. A dynamic interaction occurs between cognition, behaviour and material; the rationale for this idea is that although certain new procedures may enter (expand or diffuse) the majority of procedural rules in a system will be restructured within the recipient culture to fulfill the objective of a new goal. Thus one would expect intra-assemblage homogeneity, or inter-assemblage variability at both levels. Only after seeing the correlations in a single system, one can move to a more general definition, taking into consideration all the aspects of the

available information and their relationships.

In the field of prehistory, it is from differences between assemblages that the image begins to emerge. It is therefore crucial that stone artifacts be so "described" and "classified" that differences through time and space can be specified, and the nature of change can be judged. In real life any sort of material does not constitute a continuum. Variability is every time bounded by a whole chain of factors and not only at one point. To be more precise: the fact that half to three-quarters of a palaeolithic assemblage can be written off as "scrapers" or "points" suggest the need for further evaluation, as this procedure unduly highlights one tool as if it were the most important in the tool-kit (which is not known) and says nothing about similarities and differences between assemblages and within the assemblage. As Arseniev notes: .."The logic with which I reasoned does not generally suggest starting with a definition or classification."¹¹ What this means is that historical information in a ready form will not be contained in the archaeological source; one cannot immediately distinguish historical communities in the material - one can only "superimpose" them on the material from outside. So, we come up against questions, on reality, objectivity etc., and the basic philosophical problematic underlying classification, typology and the rest arises - the correlation of its objects with reality. The associations of types with such a system, may be characterized by a weak or strong conjugation, by a spatial or a-spatial concentration. The relationship, in fact, is not a relationship between "types" but is a relationship between people at different stages, and hence containing diverse

typical concrete elements having in space an absolute quality, i.e. reflecting the link between several of the most important aspects of the vital activities of the prehistoric population or the inverse revealing the weaker characteristics or indicate specific separate manifestations.

The distinction between the strong and weak manifestations of a whole number of indicators is of importance as any sort of evaluation is unthinkable without qualitative and quantitative criteria. Quite evidently, the solution of the problem depends first of all on the epistemological adoption of the very concept of the palaeolithic culture; does this concept reflect in a way past reality, or is it purely conditional, purely serviceable, i.e., an instrument of research and nothing else. The fact that discussions and certain criticism ^{we} have not greatly increased palaeolithic archaeology theory's ability to understand, or deal with the real world situation it faces is not because these criticisms are incorrect but because they are the wrong ones: the critique was made within too narrow a perspective. G. Clark, for example, noted: "the criteria for defining prehistoric cultures vary in particular cases but the most reliable ones are those expressive of choice or style, rather than those controlled by ecological or even by economic factors"¹² Clark, an environmentalist by persuasion, needed this variation of culture, separated as it was from ecology and economy, in order to contrast the culture with the environment and to trace through economics the influence of nature on all manifestations of human activity. The notion of the subjectivity of a concept is evidently difficult to disprove with

just one debate. However, it is clear what the general question would be: not to construct a priori general concepts but to work out general methodological principles and establish a general picture of "real" facts, covering a wide range of materials.¹³

We may admit that "before people began to reason they acted" and human activity solved this difficulty long before human philosophising thought it up.¹⁴ And in that sense he who takes up particular questions without first solving general questions will inevitably and unconsciously, come up against these general questions at every step. The question therefore immediately arises as to how we would comprehend cultures, and socio-economic formations if not through preliminary defined types? Evidently the transition to a higher level of integration is inevitable here. With respect to culture there can be the sociocultural sphere as a whole (culture and society in their inter-conditionality and interaction), the ecosystem (the culture, society and nature etc.). In fact, the material reaches the present usually in a highly structured state, with a dense network of spatial-temporal associations and breaks, and the associations and discreteness of one living cultural system are reflected in this network. For the material there is a tension between past-in-itself and past-as-known - not isolated artifact forms but constructions; in these the artifacts occur in situations which can tell us about processual relationships and maybe site's "specific" economic activities. Reasons for particular geographic and morphological restrictions of range might lie in factors particular to the society in which the artifacts are made. Moreover, questions can be raised, as to what effects cross-cutting distributions

have upon the acceptance of populations as representing manufacturing traditions established and maintained through inter-communication between groups. Indeed the point to consider is that pure technique can remain invariant under cultural transformations but not under any kind of economic transformation. This does not imply anything mathematically definable but an invariance upon which we can rely in a sense. There is only a finite number of ways to make some particular implement out of a piece of stone. It goes further than that, for there is ample evidence that a user of stone tools would pick up some piece of stone which would serve his immediate purpose and not modify it unless he had to. The work to be done is the primary problem. The shape to be formed, or the style is a secondary matter. Of course the possibility always exists that although for some reason it might be necessary to change the outline form of the artifact or use another kind of artifact for the same purpose, other levels of organization may remain constant or other levels of organization may change and the tools used may not. As during its lifetime a durable element such as a stone tool is seen as reflecting processes like procurement, manufacture, use, maintenance and discard. it would be possible to sort out which of the processes was involved in such an operation from level to level or within the same level. Whatever the interpretation, it is almost impossible to try and describe, economic, social, technical or other systems as separate entities. Their interrelationships within a productive operation is so complete that one is forced to consider and reconsider the kinds of operations carried out at different areas and evaluate, in the long run, the main factors contributing to the spatial con-

centration of activities.

6.3 Evidence and Evaluation: on three Greek regions

In its technological aspects the Palaeolithic in Greece lacks uniformity; its variability requires detailed study of both qualitative and quantitative criteria. Typologically, one can discern the existence of "distinct" entities, characterized by a particular uniformity of certain elements, and this dichotomy exists, in some cases, between assemblages within a site or area. The two-fold character of the above material is not totally ignored by people involved in their studies, but is substantially undermined by the power of pure typological analyses.

The scope of this section is not to discuss the typological or technological elements of the sequences of the regions concerned, that is Epirus, Elis and Thessaly, as these have been presented elsewhere.¹⁵ The emphasis is placed on the "behaviour" responsible for the artefactual evidence and the rate of change or nonvariance through time. A number of sites had produced sets of assemblages that vary significantly, but for which the spectrum of variation may not be clearly associated with geography or with time - within the limits of resolution for the latter.

In order to estimate this variability, analysis of 3000 stone artefacts has been carried out, 1000 from each region. This was imposed to a certain extent by the availability and nature of the material in general and for statistical reasons in the second instance. With the lack of more reliable determinatives such as absolute dating, fine stratigraphic distinctions, environmental

evidence etc., an attempt was made to assess the relative structure of sites from artefact quantities and the diversity of artefacts, (tables 12-24) material with no clear cut boundaries, with indistinct "empirical" types, naturally superimposed clusters and atypical formal elements, even where a continuum of forms existed. (figs 1-4)

Such being the case, the analysis put forward extends to the plane of spatio-temporal parameters where all sorts of forms in respect of dating and localisation were poorly distinguishable, as for example in Elis, and on the plane of functional and social distribution, when in the same microregion many elements were present with certain "wider" ranges of forms and variations of ranges of different "functions" are joined - as for example in Thessaly and Epirus. Inasmuch as such a continuum only existed in certain zones, the option was to expand the area under investigation by moving the "boundaries" in different directions (figs. 5-7), in search of a zone in which the different ranges of socio-economic activities still seemed concentrated or stratified. After establishing the structure of these zones, the next step was to project this structure on the poorly represented zones. Of course projection of boundaries on to real material gives only conditional boundaries, but one may consider the "meanings" within them, with some approximation to the real. We may suspect that the ranges of the differences (variability) of forms which were "narrow" during the life of the culture have "expanded" as a result of two factors: a) the displacement of the ranges temporarily had led to their expansion; it is supposed that during the life of the culture this did not have real significance, but later the narrow adjacent ranges of different

periods have become superimposed and joined into a total unit, (one total group, band etc.), and b) small and slow territorial shifts in population have led to the accumulation in one place of artefacts with a wider range of differences (variability) than really existed in the area. As a result a continuum of forms takes shape in the material obtained from the same (approximately) place. The boundaries in it are not visible, but hidden by the shifts and had to be distinguished by the contexts. In fact, sometimes such differences do exist also in samples which are small or which were drawn from limited areas.

Thus in this respect, sites where even a small number of items was found were included, using the whole sample from where 10-20 items were present and choosing from the whole where more than that was existing. The important point to consider here is that artefacts have a differential but continuous distribution throughout the sites. To test the above, the sample in each region has been aggregated under five total units, and this revealed again the existence of the same pattern of variation.

What seemed appropriate at this stage to test the above was to use a multivariate analysis which has been carried out by combining 14 different variables and a set of 16 different groups of sites of the three regions. Because the variables were categorical it was necessary to use a measure of relationships appropriate for the situation and the proper one was the Esq measure. Matrix of Esq distances were then subjected to maximum cluster and non-metric multidimensional scaling. The results show that Epirus-Elis grade in a certain way into one another while Thessaly does not. For

example in the non-metric analysis number 12 is closer to 14, 15, 13 and 16, while at the cluster 7 and 12 are together. There is a certain amount of "noise" here, some discrepancy, with Thessaly being the "peculiar" situation where 6, 7, 8, 9, 11 give distances apart in the non-metric but are linked at the cluster (Fig. 8, 9. Table 25). This is a good example of the considerations discussed earlier, and raises the problem of association with the simultaneous expansion and/or contraction of settlements and industries, implying that differences between regions or areas could not have arisen because one region "benefited" particularly from ecological or other factors - such as hunting opportunities or raw material sources - but because of slightly different demands, institutions and activities of the population, implicit in the fixed structures of the means of production and the labour processes.

Another point of discussion under the present evidence is that sites represent the operation of a single subsistence system and that this system is "unaffected" by long-term changes in style or technology or by ecological shifts which might either alter the regional pattern of man-land relationships or the place of the particular site in terms of the seasonal round or, in relation to local resources. While these generalizations might not be wholly true, there is obviously no question of denying the existence of external causes in the transformation and evolution of economic and social systems nor of denying that any system as a whole, in its functioning, necessitates the reproduction of the social relations which are its constituents. but it must be emphasized that whether the causes are external or internal they only have an effect because

they bring into play the properties of the systems; to say that two relationships are opposed to each other, is not to deny their complementary nature, but simply to affirm that the form - any form - exists within certain limits and that beyond these limits there exists another level of development. What is called non-development does not mean stagnation of course, in any sense; it means the re-working within a society of certain forms of "economics, of certain forms of technology, of certain social forms to satisfy on the one hand, the special needs of a population and to preserve, on the other hand, the same population and its culture from destruction.

Having no intention, as we have said, to treat in detail the variations, or interpret at length the differences and similarities observed in the assemblages, nevertheless we can identify certain patterns which are clearly complex and need to be discussed. For example, concerning the relative importance of the variables by region (fig 10, 11) for Teccat, Thessaly had lower values from Epirus/Elis for 1 and 2 but for 3 and 7 the relationship was reversed. For Patin, the distribution of objects show that Elis had much lower values from Epirus/Thessaly for 1, 2 and 3 but for 4, 5, 6 the relationship was reversed and 6, 7, once again shows a reversal with Thessaly having greater values from Epirus/Elis; for 7, 8, and 9 values are reversed again. Or, for the Form Elis showed lower values in 1 but not in 3, 5; Thessaly showed a consistency in 1, 2, but much lower values in 5 and 9; Epirus had high values in 1 and 9, reversing the situation in 3, 5 and 8. In some cases, a particular variable shows a consistency over the total number of artefacts and this itself may be a trait; in yet other cases a variable is rare

and in that case assemblages may be separated or defined by the absence of this. However, assemblages include examples of variables/traits specific to another assemblage and this situation might represent contact between peoples in the form of exchanging, borrowing, copying etc.; at all events this "contamination" and variability is normal and can be expected at all levels (cultural or functional) yet it has to be tested as there is ethnographic evidence of some "primitive" peoples, among whom there are cases of unrelated bands adopting technologies with detailed similarities probably because of the presence of essential requirements of the same mode of production and productive activities. It may help to clarify what has been said so far if we go through some quantitative criteria of our sample; it is more than evident that length, width, thickness vary in the three regions (see tables 26-28) Figs 12, 13 show the inter-site variation within the regions where there seem to be a relative consistency between Epirus/Elis for width, thickness, but for Thessaly the situation is different altogether.

In fact, such differences do exist for the morphology and shape of flakes. In Epirus the shape is mainly irregular, in contrast to that of Thessaly. Elongated flakes are rare and numerous flakes still bearing a portion of the cortex are present. Retouching seems to be comparatively rare in Elis and when it is frequent it is discontinuous and partial. Conversely in Thessaly retouching is rather extensive and only rarely flat. In a few cases the flint pebbles have not been exploited to the full and have only 2-3 flakes removed with a large portion of the cortex still intact. Generally although few in comparison with the total number of flakes, retouched tools never-

theless display quite a variety of "types" and this holds for the three regions.¹⁶ Very few typical tools have been found in each typological class. It would be expected that retouched artefacts involve a greater amount of input and energy and that the great percentage of atypical tools implies the requirements for an all purpose equipment, designed to meet difficulties at all levels of the labour process. Assuming that the samples collected adequately represent the range of assemblages variation at the sites from which they were drawn and that to an extent they are unaffected by inter/intra site differences in artifact distribution as a function of spatial segregation of certain activities (in fact much differences do exist also in samples which are small or which were drawn from limited areas) it is tempting to suggest that these differences are a function of the kind of activities carried out; or alternatively, a matter of the context in which these tools were used. On the other hand, differences in site location in relation to biotic community appear to account for variation in the ratio of stone tools and in the relative frequency of particular types. But this argument seems less than completely satisfactory in that it fails to account for differences in the relative importance of these categories at sites which have similar biotic or stone resources.

Although the analysis presented here is quite preliminary, taking into consideration that more data is needed to test the above from a quantitative point of view - it raises two questions about inter/intra assemblage variability; one involves the apparent lack of evidence in the lithic material for the seasonal difference in settlement or subsistence. Most of the artefacts seem to be connected

with maintenance rather than subsistence activities, so far not a very strong evidence for seasonal variation.

The argument seems to retain a certain validity in the case where, a) the same resource is available and exploited at both wet and dry seasons, where it should not lead to marked differences in the tool-kit, or in the case b) where hunters gathered food whenever available rather than continuously; again such differences have no great possibilities of being reflected in the stone assemblages. The obvious implications of all this is that seasonal systems are unlikely to be reconstructed or verified on the basis of lithic material only, and that direct evidence in the kind of plant and animal remains will be essential for such an evaluation. The second point raised by this discussion pertains to tables 29 and 30

interpretations of interassemblage variation in the three regions at large. When such variation is recognized, it is generally seen as either stylistic, that is reflecting certain traditional standards applied to the manufacture of stone tools and/or being the result of differences in access to the raw material used and of the particular characteristics of these materials as they affect the form of implements; and certainly environmental factors as they affect the range of activities of the populations are involved. Now, there is no need to deny such factors; the problem with these interpretations is not with the external analysis of "facts". If we consider lithic, or bone or other finds as facts, which in our opinion they are, there is a great need to break away from the purely apparent aspects of their mechanical characteristics and define the conditions or the inner logic of their production and reproduction:

not only one labour activity - man's relationship to man on the material-level in a determined environment on the basis of a determined technology - but man's relationship to man, producers and non-producers, in the appropriation and control of the means of production (tools, land, raw material etc.) and the products of labour (hunting, gathering etc.). An analysis like this should never be considered as a "real" body of facts, or as a consolidated statistical system, but rather as an approximation to the reality which is arrived at through a complex set of estimates.

6.4 The approach to population; not one-dimensional patterns but underlying relationships

In simple terms, the above may suggest that with a highly dispersed (at the time) population the integration of the cultural economic system and sub-systems could still be a major requirement, or objective, but that it would have to take modified forms and that mechanisms to ensure that integration between small scattered population would have to be developed.

Thus, concerning Epirus and Thessaly, we do not see why we should exclude the interaction - even intense interaction - between the groups or bands within these areas; there is every reason to suspect that there was at least as great a need for interaction with these dispersed bands, as for recent hunter-gatherers. We can trace a concentration of population and continuous occupation in certain areas from at least Upper Palaeolithic right through Neolithic and later on. The population relationships were thus not determined by the adjustment of population to static, given resources; but by

dynamic interactions and mutual adjustments within a total (changing) ecosystem in which human populations were just one, though a dominant and active rather than merely reactive component. Where human populations formed part of such an ongoing nexus of interactions not only did their activities make a particularly strong impact on the system, but their potentiality for rapid cultural rather than slow genetic change enabled them to react in turn to changes in total equilibrium, changing their behaviour to maintain a place within the system. It may be assumed, on the other hand, that population responded to similar changes in different demographic fashions to ensure a cohesive socio-economic network.¹⁷ In some cases, we can discern - even with great caution - in certain areas secondary settlements splitting off from the "primary" ones, forming clusters of what we term to-day centre-periphery groups. It would be logical to assume that interaction continued to exist between different "primary" sites or primary-secondary sites. Considering the continuous occupation of sites and the material - together with other sorts of evidence - it seems a plausible assumption to say that we had a permanent occupation with an internal "growth" of population even at a very slow rate. Thessaly is one of the cases where we can evaluate that assumption. Sites did not increase in number - as far as we know - but the utilization of the region formerly exploited just for its hunting potential¹⁸ was "later" used for hunting-gathering and fishing. In this respect it is not necessary to be able to measure with exactness the point(s) at which the population increased (or reached a certain degree of stability) necessitating a utilization of new ecological zones, it is only sufficient to point out that

population "changed" at a rate which demanded a shift in adaptive economic strategies. It is obviously important to see that the requirements of a socio-economic network existed in these early periods and necessitated certain processes which were different for the three regions; the alternatives in a changing situation were dissimilar not only because of the slightly different physiographic and climatic conditions, but also because of differential solutions given to the same problems. It is necessary to view the technological and demographic factors as part of an explanation for that situation and a possible tension between concentration and geographical expansion. There existed in almost all cases an evidence of substantial shift - or synchronous utilization for both animal and plant resources - from hunting of large animals to smaller and plant utilization. Still unknown are the size of the groups, the degree of dependence on animal products versus plant material and the stability of change through the Upper Palaeolithic or the relative dependence on these food sources and its subsequent effect on the social group.

It is possible that changes in the subsistence activities unrelated to the changes in the subsistence base had in fact taken place during this period and/or these changes have been unrelated to the kinds of food procurement, but rather were changes in the means of procuring or preparing the same kind of food. Or it is possible that different foods were being collected, but that there was not a change in the meat/vegetable proportions in the diet. The composition of the fauna recovered from the three regions, however, does not suggest that there have been changes in the kind of fauna being

exploited other than changes from one genus of herbivores to another. For Epirus we can discern the utilization of a wider territorial range, and a more intensive food production (in the sense of food procurement). The distribution of known sites and the location of find assemblages turned out to reflect the expected (and observed ethnographically) relationships between groups, related to distance and the probability of vicinity of a site at a given distance from fixed points of individual mobility within a certain locality. This applies for instance to the case where sites existed within a 25 km radius (or less); we may suppose more frequent communication and flow of information; this was not accomplished without a sort of adjustment in social organization. These sites cannot be viewed as seasonal ones, nor can they be understood as limited use sites, as a variety of resources (sub-environmental zones) were sufficiently close, within easy walking distance. The relatively small size and their layout suggests that they were structured for a social system that emphasized social interaction. It is significant that in Epirus, only in one or two instances are special use sites documented (Asprochaliko and maybe Klithi recently).¹⁹ We may suppose that in Epirus the answer to an "increasing population" was simply to permit the expanding population to start new communities where other types of land were available and could be utilized. What this means is that "fissioning" under increasing population demanded certain constraints that were dealt with in a manner that was determined by the existing social organization and the physiographic factors. The population-settlement "tradition" seems different in Thessaly both in terms of micro-environmental shifts and in the social adaptations.

Here regional groups form a more stereotyped community pattern which did not evolve in Epirus or Elis, for some of the sites certainly indicate a higher degree of permanence. The Elis situation seems different altogether from that of both areas in terms of environment and the social adaptations. Settlement pattern was never "linear" in character but from the earliest occupations was unevenly dispersed. Certainly due to the absence of excavated sites no discernable pattern is observed, the entire situation nevertheless from the documentation we possess, could be described as littoral-inland with a greater emphasis on fishing and collecting; probably as a result of this a stereotyped community pattern did not evolve in the area. In spite of that, we would suppose again that these communities were not completely autonomous, as the different food resources would encourage economic interactions.

From the data presently available then, it appears that in Thessaly the most favoured parts of the regions were water-oriented, placed near streams, rivers or the sea. In Epirus sites existed mostly on plateau and sheltered caves or gentle slopes characterized by "several" kinds of environment, and in Elis sites are found near the coast and fewer inland. These, together with the growth and seasonal patterns of the areas, lead to the conclusion that the sites were occupied both summer and winter, which makes any seasonal migration of the people unlikely but does not exclude the possibilities of migration for other reasons.²⁰

Concerning the relative population numbers of the areas in question that can be made from estimates of utilized space is quite limited. Although a number of different observations can be used in

operationalizing the variable of utilized space as number of sites, aggregate sites' area, number of dwelling units etc., these have differential utility as data bases for demographic inference:

a) the use of the number of sites for inferring populations is problematical for two reasons; first not all sites were places where people lived - some were limited-activity or special-use sites. It can be shown that the amount of limited-activity space utilized by a population can and does vary independently.²¹ Secondly, counting sites ignores the typical variation in site sizes b) of measures based on the number of sites, aggregate site area is the most adequate although it suffers from the same problem - not all sites were habitation sites. By far the most common practice is to sum the number of sites or dwelling units occupied at a given phase. But first the technique assumes that the probabilities of sites having been occupied at all points in the "phase" are equal. Secondly, the technique assumes (again implicitly) that sites do not "grow" but come into existence when a "phase" begins and go out of existence when the phase ends. We know that this is not so. We can argue about alternative modes of sites growth but this model is not a reasonable alternative. Moreover - as we have already said - phases are typically arbitrary temporal units and are synchronic concepts which obscure the diachronic variability inherent in the archaeological record. One learns about socio-demographic and economic change by comparing expected patterns to observed patterns and attempting to evaluate differences between them. Probably the answer lies in a spatial approach or set of approaches in artifact studies incorporating much that has been labelled settlement archaeology, ecology,

demography, ethnoarchaeology, regional and system studies. Although some of the details of the above discussion are open to different interpretation, we cannot ignore the fact that certain features tend to repeat themselves in space and time and as more information accumulates from intervening localities, a very suggestive pattern is beginning to emerge showing that indeed some consistent trends do exist.²² The theoretical distribution of settlements could be characterized as "regular" with a maximum spacing in between, given their density over the total area. This is based on the assumption that the space over which the settlements occur is uniform and homogeneous with regard to available resources. Insofar as the physiography and resources vary, the pattern may correspondingly vary. Cognitive patterning subsumes ecological and socio-economic usage, through the strong links between knowledge of and impact on terrain. It is important to view, if not individual sites, certainly the totality of sites for a time-span, in relation to the ecological zones in which they occur, or do not occur, or occur in lesser or greater concentrations than might be expected on the basis of the overall density of sites for the total area. It is just that type of study of the occurrence, variety, and distribution of sites and the quantities and characteristics of artifact assemblages concentrated or scattered upon them as indicators of intensity or frequenting and variety of activities, which constitutes the raw data for the flow of transformations of prehistoric societies which can be cross-sectioned at any point, including the relevant densities of population within these regional zones.

Among the sites discussed for areas 1 and 2 the dietary remains

suggest an economy which exploits a wide range of resources, some perhaps seasonal, but all available within a restricted geographical range in an environment offering diverse opportunities. There is no substantial evidence for seasonal occupation of the sites; the seasonal indicators till now suggest year-round use. Where the sites offer evidence for assemblage variation over time it can be explained in terms of changes in the subsistence economy related to economic factors. The ultimate cause of the economic difference may be environmental or a matter of cultural preference.

The fact of assemblage variation in the three regions of our sample is "clear", in the distribution patterns of some artifact types and in the variation of the relative frequency with which certain components are represented in the assemblages as a whole. So far, the assemblages within each region are not too dissimilar to be seen as two aspects of a different industrial tradition, as for example, in situations where marked seasonal differences necessitated different technologies and exploitative strategies within the same group.²³ Examining today's evidence in areas with hot dry summers and mild moist winters, no difference in seasonal activity large enough to produce entirely different technologies was observed among recent hunter-gatherers. In any case, assemblages-in spite of their differences - consist of cutting, scraping and chopping implements, that is, mainly maintenance tools, and not likely therefore to be highly sensitive to environmental differences. Of course if such great dissimilarity in size, style, technique of manufacture of implements, and in choice of raw material existed, the suggestion would be that two or three different groups of people were involved

which does not seem to be the case of the areas under investigation. It would appear, however, that there are differences in detail that justify the delineating of some sort of boundaries. Although the precise scale of group involved is still unclear, for that part of the regions for which we have both distribution patterns and - relative - time depth, there appears to be a widespread sharing of traits. Although most of these are the "basic" tools made on flakes and fragments (the maintenance tools of Binford and Binford 1969) which occur in many stone age cultures, their apparently similar and possibly coextensive range of size, form and technique between earlier later "phases" suggests a certain degree of continuity. What is suggested by the continuity of not only subsistence, but also by continued occupation of the same sites is that transition which occurred between earlier and later stone industries may not have been accompanied by any great changes in adaptation. Whether this again suggests diffusion²⁴ resulted from an influx of new ideas or from movement of people is an open question. However, there is ample ethnographic evidence showing that diffusion of goods and ideas over wide areas occurred not through movements of large tribal groups but through elaborate trading systems made possible by the bridged mechanisms of local groups, family and individual movement. There is no reason to think that similar processes did not take place in the Upper Palaeolithic and earlier. If so they would account for the spread of some tool forms and techniques over wider distances as for example "similarities" observed between Elis and Epirus or Epirus and Thessaly sequences. The constitutive elements in each case are the same, but the combinations vary. It is these combinations which

define the different typical or atypical forms and these in their turn characterize regions and their moments of evolution. They do not necessarily account for "phases" since the same typical or atypical form or style can be maintained during several "phases" and that several forms can coexist into the same "phase".

The general impression deriving from these observations is that of uniformity concerning the mode of production with the necessary transformations, diversifications and differences in the means of productive activity.

6.5 Summary

Nature may require a biological alliance between man and nature but socio-economic interactions and culture decide how and in what specific ways. That the transition from animal to human is made possible by the emergence of a "function" adds a certain explanatory point but does not change the basic issue. What the study of the evidence of these functions shows is how people's "intellectual" efforts are aimed at mediating and understanding the transition and links between nature and culture. A related question to this is: what human activity most closely approximates this integration? There is not a clear answer, but certainly technology (the way Marx put it) hypermediates the transition from nature to socialization, by integrating two facets, the one historical the other organic.

Reintroducing the situated human being into anthropological praxis will be the turn to recognising human properties and the key to understanding this continuous "silence" over historically situated and critically motivated human praxis.

In order to analyse societies and explain their functioning in history, we must then give priority to relationships between economy and society. And this means that we must first reconstruct and reconsider theoretically the real economic processes which characterize a given society. In fact to view Palaeolithic reality through the testimony of those who have always used and controlled science means that reality is inferior to history, which is not the case, as reality is not a fetishized domain but rests beyond "traditionally" given boundaries. A materialism^m which takes a dialectical approach as its point of departure cannot be solely a search for networks of typological causalities, without at the same time seeking to understand and evaluate the relative importance of the various and different causes^{of} the functioning, that is primarily on the conditions of production and reproduction of a palaeolithic society. This task involves something other than creating a typology, or studying a "technique", limiting the whole action to one possibility. "Individuality" is not a predefined category of different attributes within a system but a consciously determined expression of cause and effect, the final step - each time - between domains in a society.

To reiterate: primitive societies do not limit themselves to producing goods destined for subsistence. The fact that such goods are common property, eliminates the market in the modern sense. If primitive economies do produce surplus, this is destined for the support of social structures other than the market, which function by forces of numerous forms of nonmercantile exchange. The productive forces remain what they are, sufficient for the subsistence of all the members of the group. Man is inseparably a part of

society, society is a part of the human individual; there is no abstract individual free of all social relations, and there is a crucial balance between the production of the immediate essentials of life, the production of articles of food, clothing, dwellings, and the tools necessary to that production and the production of the human beings themselves. Thus, human hunting and gathering (or fishing) economies are clearly organized for social production and can be seen to produce in ways that may approximate - in organization and returns - agricultural societies.

In evolutionary processes there are inherent contradictions giving rise to potentialities in each living system; qualitative change is a potential of each system. External factors and conditions, of course, play necessary roles, but they can never be sufficient forces. The real conflict and the crux of the issue is that we must show not only how specific external conditions affect change, but how the internal potentialities of the system under consideration (and its contradictions) 'process' the effect of these conditions. A system that only adapts cannot change, and unless the causality can be specified, the change can hardly be regarded as processual, and any climatic, environmental, population or technological situation as such can hardly be the measure of its occurrence. What must be sought is a theory of process that will generate the facts of history from elements present in the beginning. not just look back over "facts" to demonstrate that survival and adaptation have occurred in response to external influences.

NOTES AND REFERENCES

- 1 Marx K: Economic and philosophical manuscripts of 1857-1859. (from Pre-capitalist Socioeconomic formations)
- 2 Marx K: Grundrisse.
- 3 Marx K: Capital vol I, III
- 4 Marx K: Capital Vol I. The paleontological mode of reasoning is continued after the passage quoted in a footnote of the same page "... However little our written histories up to this time notice the development of material production, which is the basis of all social life, and therefore of all real history, yet prehistoric times have been classified in accordance with the results, not of so-called historical, but of materialistic investigations. These periods have been divided, to correspond with the materials from which their implements and weapons were made, viz. into the stone, the bronze and the iron ages."
- 5 Bonnischeen R. 1977
- 6 Papaioannou-Stathaki 1985, especially page 37 and notes 21,22.
- 7 "Capital investment" of course with the sense of the aggregate of expenditures allocated for the creation of new fixed assets and for the development and expansion of existing fixed assets which function both in the production and non-productive spheres. Capital investment formed through internal sources of accumulation and channelled in a planned way into creating the material and technological base of a society. This can serve as an indicator of total returns of "capital" (or the absolute efficiency of capital investment) for the society's (nations, groups) economy

as a whole and for its sectors and geographical regions.

Marx, refuted bourgeois economists' interpretation of capital as an aggregate of things (means of production) and was the first to discover that capital is not a thing, but rather a definite social production relation, belonging to a definite historical formation of society, which is manifested in a thing and lends the thing a specific social character. (Capital Vol I)

- 8 The physical description of the external forms of artifacts is based in Euclidean geometry. Terms such as triangular, rectangular, concave or convex frequently do not fit the artifacts forms under consideration; the analyst is forced to modify his description by saying the outline is triangular-like or semi-ovoid etc.; in the science of geometry a form is either ovoid or triangular or it is not; often archaeologists have modified these spatial categories with qualifications often forcing this description system beyond its logically useful limits. On the other hand, metric scales do provide a standardized measure by which specimens can be compared, but before such measures can acquire meaning the analyst must by some means decide what kind of information is being measured. Most artifact measurements are taken on the artifact's external formal perimeters such as length, width, thickness; these kinds of measurement alone will yield no information of the processes behind tool formation.

Gardin J.C. 1980, Klejn L.S. 1982

- 9 Amongst others: Bordes F. 1961, 1969, Collins D. 1971, Krieger 1960, Rouse I. 1960, 1972, Spaulding A.C. 1953, 1954, 1960.

10 Woolburn J. 1980 in Gellner E. (eds) Soviet and Western Anthropology. Accepting such an approach - much more when the function of the finds is yet unknown - means to borrow information from ethnographers and the organization of tasks from historians. Naturally, this depends in large measure on the theoretical opinions (real types observable and artificial types invented, convenient etc.). But, in any case, in order to take a whole view of an assemblage, one needs to be aware of the relationships between the components; therefore a system of classification should not divide the material into individual tool types but also group them into a system according to various lines of relatedness (positive or negative).

11 Arseniev A.S. 1969 (quoted from Klejn L. 1972)

In anthropology another line of development arose from the realization of the need to relax the assumption of "primitive" man. Once again the transfer from "types" to peoples involves a reinforcement of the inadequacies of the current classificatory system; these contradictions are not totally ignored in the literature. There are discussions about the character and degree of this kind of order and whether it is possible to measure up the reality by increasing objectivity at the expense of subjective admixture.

12 Economics taken here in a "narrow" sense, not as the theoretical expression, the abstraction of the social relations of production. Every economic category is a logical concept, which in an abstract way characterizes the essence of a certain economic phenomenon. Economic laws appear along with the

appearance of human society as people begin to produce. As the material conditions of society change and one type of the relations of production is replaced by another, certain economic laws cease operating and others emerge. Inherent in every social system is its own set of specific economic laws.

- 13 "Every object possesses various properties, and is thus capable of being applied to different uses. One and the same product may therefore serve as raw material in very different processes" "... Again a particular product may be used in one and the same process, both as an instrument of labour and as a raw material."

..."If we examine the whole process from the point of view of its result, the product, it is plain that both the instruments and the subject of labour, are means of production and that the labour itself is productive labour." It is more than obvious what Marx meant by these. In a footnote of the same page (Capital Vol. I) he adds: "It appears paradoxical to assert, that uncaught fish, for instance, are a means of production in the fishing industry. But hitherto no one has discovered the art of catching fish in waters that contain none."

- 14 Engels F.: Anti-Dühring. Lenin V.I.: Materialism and Empirio-criticism.

- 15 See MSc. F. Papaioannou-Stathaki 1981; which contains an extensive bibliography of the subject and where the geology, environment and lithic material of the regions have been discussed. For Epirus see especially G.M. Bailey 1982, 1985, 1986, 1987.

- 16 Flakes struck from chert are often shorter from those struck from quartzite. With the longer quartzite flakes the situation



might be the opposite. Alternatively, it may simply be that chert cores available along the river channels are smaller than the quartzite cores produced and worked out crops and that this factor (which involves a decision-making factor from the part of the knappers) rather than differences in the properties of the material themselves is responsible for variation in flakes type and size. Again, more efficient retouch mechanics may be critical for that variation. Certainly the data on which these observations are based is limited but it is sufficient to support the contention that both access to and the mechanical character of the artefacts need further consideration.

- 17 Admittedly these procedures are on "difficult" ground, but their applicability could be tested in many ways. By searching for decision-models used in production, we are forced to consider all "variables" and the kinds of technological operations carried out at different sites, for different or sometimes similar purposes. And when evaluating change in diachronic sequences it would be possible to explain such diverse processes as movement, exchange, trade or in situ development etc.. Although the data presented here cannot be claimed as wholly representative of the three regions, a strong point is the relatively large size and the relatively wide geographical distribution of the sample which makes it probable that any sort of results would not be overturned (at least totally) by using "more" data or new data, and that qualitative results concerning the whole matter could remain intact. A reinforcement of the above is

that although data as such seems not sufficient for such an endeavour the location of the sites in and around the areas (together with their technological tradition) demonstrates a trend towards "regular" spacing through time-spacing in the sense of settlements remaining within the same - broadly defined - boundaries in spite of changes in the landscape in terms of local climatic factors. Interpretation of this patterning is vital for an understanding of prehistory in these areas; sites were preferred on a continuous basis not only for their resource potential but for socio-economic reasons as well.

18 Milogicic V. 1958, 1960, 1965, Theocharis D.R. 1958, 1967, 1974.

19 See Higgs , Bailey G.N. .

20 Certainly human behaviour is not random; the expectation of visiting a particular place is based upon a purpose - hunting or gathering, exchange of trade, visiting families, meeting friends etc..

21 Settlement implies settled habitation and while that is appropriate for agricultural populations, the term and the concept become increasingly strained when applied to "primitive" groups. Habitation and occupancy^y sites cover all the space   aspects of the usage of an area: habitation, subsistence, other exploitative activities, movement, dispersal and aggregation, within the limits of the "same" broadest area.

22 Hudson (1969) by including a temporal dimension in locational analysis provides for a process oriented approach in contrast to the static view of spatial occupation at a single point of time. Blouet (1972) has adapted Hudson's model to include the

phenomena of community distribution, and Wood (1972) has recommended the application of this model in archaeological analysis and discussed many of the methods.

23 See Wright R.V.S. (eds) 1977

24 A general methodological problem is that of diffusion - that has not been controlled for. The problem means that if a sample is composed of too many neighbouring societies there is the possibility that test results, simply reflect borrowing or historical connection rather than independent functional relationships. (Galton's problem)

SITE	CODE	NO
AG. Georgios	101	100
Asprochaliko	103	108
Goritsa	105	28
Thesprotiko	108	4
Ioannina (airport)	109	16
Ioannina (town)	110	20
Ioannina (Eleousa)	111	32
Ioannina (island)	113	8
Ioannina (Perama)	114	4
Karvounari	115	112
Kastritsa	116	60
Katsika	117	8
Kokkinopilos	118	104
Louros	120	48
Mazarakia	121	16
Margarition	122	17
Morfi	124	52
Pantanassa	126	80
Preveza	127	12
Pardalitsa	128	8
Kokkytos valley	130	28
Sideri	136	8
Stefani	137	20
Oropos	138	88
N. Sapsous	139	8
Panayia (Prev)	140	12

Table 12: Raw Frequencies - Epirus

The following sites are aggregated together into 5 major groups

101 including	108,137,118,126
103	" 140
115	" 122,121,130,136,124,128
117	" 116,105,109,113,110,111,114
138	" 139,127,120

SITE	CODE	No
Glifa	201	248
Mikro	202	252
Kokkinokastro		
AG. Petros	203	116
Pinios	204	324
Theopetra	205	12
Kedros	207	32
Argissa	209	16

Table 12: Raw Frequencies -
Thessaly

Except for 204 including 209
sites non-aggregated

SITE	CODE	No
Loutra	301	176
Vasilaki	302	136
Katakolo	303	24
Retouni	304	8
Lapa	305	8
Lakkopetra	306	48
Kastro	308	300
Anallas	309	300

Table 12: Raw Frequencies - Elis

The following sites are aggregated together into 5 major groups:

301 including	303
305	" 306,304
302	
308	
309	

<u>1</u> <u>SITE</u>	1 Epirus	<u>2</u> <u>RAW MATERIAL</u>	1 Flint	<u>3</u> <u>TECHNOLOGICAL CATEGORY</u>	1 Flakes
	2 Thessaly		2 Chert		2 Blades
	3 Elis		3 Quartz		3 Cores
			4 Quartzite		4 Trimming Pieces
			5 Volcanics		5 Core Rejuvenation Flakes
			6 Obsidian		6 Plunging Flakes-Blades
			7 Other		7 Other
<u>4</u> <u>COMPLETENESS</u>	1 Whole	<u>5</u> <u>PRESERVATION</u>	1 Rolled	<u>6</u> <u>PATINATION</u>	1 White-ish
	2 Broken		2 Abraded		2 Grey-ish
			3 Fresh		3 Yellow-ish
					4 Black
					5 Reddish
					6 Green-ish
					7 Brown-ish
					8 Mixed
					9 Beige
<u>7</u> <u>CORTEX</u>	1 Present	<u>8</u> <u>BULB</u>	1 Present	<u>9</u> <u>BUTT</u>	1 Cortical
	2 Absent		2 Partial		2 Flat
			3 Absent		3 Dihedral
					4 Faceted
					5 Linear
					6 Other
					9 Missing
<u>11</u> <u>RETOUCH LOCATION</u>	<u>DORSAL</u>	<u>12</u> <u>VENTRAL</u>		<u>13</u> <u>RELATION BETWEEN RETOUCH LOCATION</u>	1 Continuous
	1 Proximal End		5 Proximal End		2 Discontinuous
	2 Distal End		6 Distal End		3 Inverse
	3 Right Side		7 Right Side		4 Direct
	4 Left Side		8 Left Side		

Table 13 /continued

<u>14</u>	<u>TYPE OF RETOUCH</u>	1 "Courte"	<u>15</u>	<u>FORM</u>	1 Irregular	<u>16</u>	<u>SIZE</u>	1 Length
		2 "Longue"			2 Triangular			2 Width
		3 "Couvrante"			3 Quadrangular			3 Thickness
		4 Invasive			4 Polygonal			
		5 Nibbled-fine			5 Rounded			
					6 Oval			
					7 Pointed Oval			
					8 Conocal Tetrahedric			
					9 Elongated			

Abbreviations for code recoded as :

3 = RAWX	10 = BUTT
4 = TECCAT	11 = RETOUCH
5 = COMP	14 = REL
6 = PRES	15 = RET TYPE
7 = PATI	16 = FORM
8 = CORTEX	17 = LENGTH / WIDTH / THICKNESS
9 = BULB	

Table 13: Variable Code.

<u>RAWM</u>								
CODE	1	2	3	4	5	6	7	Total
101	39	15	8	3	-	-	35	100
103	62	21	1	24	-	-	-	108
105	27	-	-	-	-	1	-	28
108	1	3	-	-	-	-	-	4
109	6	-	-	4	-	-	6	16
110	11	6	-	1	-	-	2	20
111	12	14	-	4	-	-	2	32
113	-	2	-	1	-	-	5	8
114	3	-	-	-	-	-	1	4
115	60	34	1	13	-	-	4	112
116	27	17	1	9	-	-	6	60
117	2	2	1	3	-	-	-	8
118	57	22	-	7	-	-	18	104
120	21	7	-	5	-	-	15	48
121	8	8	-	-	-	-	-	16
122	7	8	-	-	-	-	2	17
124	23	18	-	11	-	-	-	52
126	17	31	7	5	-	-	20	80
127	-	3	3	-	-	-	6	12
128	2	5	-	-	-	-	1	8
130	12	9	-	4	-	-	3	28
136	5	3	-	-	-	-	-	8
137	7	4	5	4	-	-	-	20
138	41	28	1	13	-	1	4	88
139	2	2	3	-	-	-	1	8
140	5	2	-	-	-	-	5	12
201	89	33	34	11	-	-	81	248
202	35	187	19	-	-	8	3	252
203	86	11	11	4	-	-	4	116
204	289	5	7	15	-	-	8	324
205	12	-	-	-	-	-	-	12
207	30	-	-	2	-	-	-	32
209	16	-	-	-	-	-	-	16
301	57	68	33	2	-	2	14	176
302	56	75	3	-	-	-	2	136
303	8	14	-	-	-	-	2	24
304	6	2	-	-	-	-	-	8
305	4	3	-	-	-	-	1	8
306	25	20	-	-	-	-	3	48
308	97	184	13	-	-	-	6	300
309	113	187	-	-	-	-	1	300

Table 14: Distribution counts of RAWM by site.

TECCAT

CODE	1	2	3	4	5	6	7	Total
101	54	-	3	-	-	-	43	100
103	52	14	15	-	3	2	22	108
105	18	4	2	2	-	1	1	28
108	2	2	-	-	-	-	-	4
109	6	1	-	-	-	-	9	16
110	7	-	-	-	-	-	1	20
111	17	-	1	-	-	1	13	32
113	3	-	-	-	-	-	5	8
114	2	-	-	-	-	-	2	4
115	68	10	10	-	3	4	17	112
116	25	1	6	-	-	1	27	60
117	4	2	-	-	-	1	1	8
118	65	3	8	-	1	1	26	104
120	18	2	7	-	-	1	20	48
121	8	2	1	-	2	-	3	16
122	12	-	-	-	-	-	5	17
124	35	4	6	1	-	2	4	52
126	42	1	6	1	-	1	29	80
127	6	-	-	-	-	2	4	12
128	5	1	-	-	-	-	2	8
130	8	8	3	-	-	-	9	28
136	4	-	-	-	-	-	4	8
137	12	1	2	-	1	1	3	20
138	46	-	1	-	1	2	38	88
139	3	-	1	-	-	-	4	8
140	5	-	-	-	-	-	7	12
201	74	1	57	-	3	2	111	248
202	122	7	36	-	-	3	84	252
203	41	1	20	-	-	5	49	116
204	143	9	21	-	2	10	139	324
205	9	1	-	-	-	-	2	12
207	19	-	-	-	-	-	13	32
209	6	-	-	-	-	-	10	16
301	96	5	14	-	-	1	60	176
302	85	1	27	-	2	2	19	136
303	9	-	4	-	-	-	11	24
304	-	-	4	-	-	1	3	8
305	4	-	2	-	-	-	2	8
306	33	-	4	-	1	2	8	48
308	179	2	33	-	-	-	86	300
309	159	14	20	-	4	-	103	300

Table 15: Distribution counts of TECCAT by site.

<u>COMP</u>			
CODE	1	2	Total
101	19	81	100
103	26	82	108
105	5	23	28
108	1	3	4
109	2	14	16
110	6	14	20
111	19	13	32
113	3	5	8
114	1	3	4
115	31	81	112
116	15	45	60
117	4	4	8
118	23	81	104
120	7	41	48
121	6	10	16
122	7	10	17
124	10	42	52
126	24	56	80
127	5	7	12
128	-	8	8
130	10	18	28
136	-	8	8
137	5	15	20
138	23	65	88
139	2	6	8
140	3	9	12
201	133	115	248
202	141	111	252
203	35	81	116
204	164	160	324
205	6	6	12
207	21	11	32
209	1	15	16
301	95	81	176
302	41	95	136
303	13	11	24
304	1	7	8
305	1	7	8
306	8	40	48
308	117	183	300

Table 16: Distribution counts of COMP by site.

PATI

CODE	1	2	3	4	5	6	7	8	9	Total
101	30	8	5	1	16	-	12	28	-	100
103	36	24	13	3	3	-	6	23	-	108
105	7	6	5	-	5	-	1	4	-	28
108	2	1	-	-	-	-	1	-	-	4
109	2	3	2	4	1	-	2	2	-	16
110	3	8	-	5	1	-	3	-	-	20
111	11	5	2	4	3	-	3	4	-	32
113	1	4	-	-	1	-	1	1	-	8
114	-	1	-	-	-	-	-	3	-	4
115	45	11	11	-	9	-	8	28	-	112
116	2	13	10	4	18	-	5	8	-	60
117	1	1	-	-	3	-	2	1	-	8
118	36	17	15	-	9	-	8	19	-	104
120	13	9	5	-	4	-	5	12	-	48
121	5	5	3	-	1	-	-	2	-	16
122	5	3	2	2	2	-	2	1	-	17
124	13	14	4	-	1	-	7	13	-	52
126	25	13	8	-	3	-	12	19	-	80
127	5	3	3	-	-	-	-	1	-	12
128	-	4	-	-	-	-	1	3	-	8
130	11	4	1	1	2	-	5	4	-	28
136	4	1	-	-	-	-	-	3	-	8
137	8	7	-	-	1	-	3	1	-	20
135	12	25	6	3	12	-	16	4	-	88
139	-	1	2	2	-	-	-	3	-	8
140	2	4	-	-	2	-	-	4	-	2
201	93	18	32	-	27	-	-	78	-	248
202	105	13	35	8	20	-	4	67	-	252
203	39	24	15	-	7	-	2	29	-	116
204	2	12	16	13	25	-	222	34	-	324
205	-	-	1	-	-	-	10	1	-	12
207	-	2	2	1	6	-	18	3	-	32
209	-	-	-	-	2	-	9	5	-	16
301	13	20	26	4	40	1	16	48	8	176
302	8	10	1	8	43	12	14	24	16	136
303	6	2	1	-	3	-	6	6	-	24
304	-	-	-	-	3	-	2	3	-	8
305	1	-	1	-	-	-	5	1	-	8
306	2	7	1	6	11	-	10	8	3	48
308	24	28	6	18	53	29	36	31	75	300
309	26	33	20	6	64	47	45	19	40	300

Table 17: Distribution count of PATI by site.

CORTEX

CODE	1	2	Total
101	12	88	100
103	8	100	108
105	1	27	28
108	-	4	4
109	4	12	16
110	-	20	20
111	1	31	32
113	-	8	8
114	-	4	4
115	9	103	112
116	10	50	60
117	5	3	8
118	22	82	104
120	6	42	48
121	4	12	16
122	3	14	17
124	7	45	52
126	15	65	80
127	-	12	12
128	-	8	8
130	1	27	28
136	-	8	8
137	5	15	20
138	16	72	88
139	2	6	8
140	1	11	12
201	44	204	243
202	23	229	252
203	1	115	116
204	30	294	324
205	-	12	12
207	2	30	32
209	3	13	16
301	41	135	176
302	32	104	136
303	7	17	24
304	3	5	8
305	3	5	8
306	11	37	48
308	38	262	300
309	61	239	300

Table 18: Distribution counts of Cortex by Site.

BULB

CODE	1	2	3	Total
101	15	41	44	100
103	16	56	36	108
105	4	16	8	28
108	2	1	1	4
109	3	7	6	16
110	4	12	4	20
111	5	11	16	32
113	-	4	4	8
114	1	1	2	4
115	30	35	47	112
116	6	27	27	60
117	3	3	2	8
118	25	43	36	104
120	3	23	22	48
121	9	5	2	16
122	6	5	6	17
124	18	18	16	52
126	9	28	43	80
127	3	6	3	12
128	1	6	1	8
130	5	16	7	28
136	1	4	3	8
137	2	7	11	20
138	17	37	34	88
139	-	4	4	8
140	3	5	4	12
201	67	61	120	248
202	59	123	70	252
203	25	47	44	116
204	72	103	149	324
205	3	1	8	12
207	8	18	6	32
209	-	8	8	16
301	58	77	41	176
302	25	42	69	136
303	1	10	13	24
304	2	1	5	8
305	-	4	4	8
306	10	15	23	48
308	78	79	143	300
309	78	100	122	300

Table 19: Distribution counts of Bulb by Site.

BUTT

CODE	1	2	3	4	5	6	9	Total
101	-	6	13	2	5	50	24	100
103	-	5	13	-	3	42	45	108
105	1	4	2	-	1	8	12	28
108	1	1	-	-	1	1	-	4
109	-	2	1	-	-	5	8	16
110	-	3	2	-	-	9	6	20
111	-	4	3	-	3	9	13	32
113	-	-	-	-	-	4	4	8
114	-	-	2	-	-	1	1	4
115	4	7	13	9	4	47	28	112
116	-	5	5	-	6	29	15	60
117	3	2	-	1	-	2	-	8
118	1	8	14	3	9	36	33	104
120	1	4	4	-	3	15	21	48
121	3	1	3	-	1	6	2	16
122	1	1	5	-	1	6	3	17
124	-	5	9	4	1	16	17	52
126	-	7	7	2	3	32	29	80
127	-	2	1	-	2	3	4	12
128	-	1	-	-	1	3	3	8
130	-	1	4	1	2	8	12	28
136	-	-	1	-	-	4	3	8
137	-	1	3	1	2	5	8	20
138	-	6	9	1	5	41	26	88
139	-	-	1	-	-	2	5	8
140	-	-	2	1	1	2	6	12
201	-	7	6	-	5	52	178	248
202	2	6	22	6	9	107	100	252
203	-	2	4	5	6	47	52	116
204	3	10	29	9	16	141	116	324
205	-	-	3	-	-	8	1	12
207	-	1	3	1	2	14	11	32
209	1	1	-	-	-	4	10	16
301	4	7	20	8	2	65	70	176
302	5	4	17	4	9	46	51	136
303	1	1	-	-	2	4	16	24
304	-	-	-	-	-	3	5	8
305	1	-	-	-	-	2	5	8
306	1	2	10	2	-	15	18	48
308	5	33	33	11	20	133	65	300
309	6	16	48	22	16	123	69	300

Table 20: Distribution counts of Butt by Site.

RETOUCH

CODE	1	2	Total
101	57	43	100
103	64	44	108
105	11	17	28
108	1	3	4
109	6	10	16
110	12	8	20
111	16	16	32
113	3	5	8
114	1	3	4
115	61	51	112
116	28	33	60
117	2	6	8
118	61	43	104
120	23	25	48
121	4	12	16
122	7	10	17
124	32	20	52
126	40	40	80
127	4	8	12
128	3	5	8
130	12	16	28
136	4	4	8
137	9	11	20
138	40	48	88
139	2	6	8
140	2	10	12
201	167	81	248
202	136	116	252
203	67	49	116
204	96	228	324
205	-	12	12
207	13	19	32
209	8	8	16
301	72	104	176
302	55	81	136
303	13	11	24
304	6	2	8
305	6	2	8
306	24	24	48
308	123	177	300
309	134	166	300

Table 21: Distribution counts of Retouch by Site.

<u>REL</u>						
CODE	-	1	2	3	4	Total
101	57	22	17	3	1	100
103	64	26	13	4	1	108
105	11	7	4	4	2	28
108	1	1	2	-	-	4
109	6	6	4	-	-	16
110	12	4	3	1	-	20
111	16	9	6	1	-	32
113	3	4	1	-	-	8
114	1	-	3	-	-	4
115	61	18	19	8	6	112
116	28	13	18	1	-	60
117	2	2	2	2	-	8
118	61	17	20	5	1	104
120	23	10	13	2	-	48
121	4	5	4	2	1	16
122	7	4	4	2	-	17
124	32	6	3	8	3	52
126	40	16	20	3	1	80
127	4	5	3	-	-	12
128	3	4	1	-	-	8
130	12	10	4	2	-	28
136	4	1	3	-	-	8
137	9	7	-	3	1	20
138	40	20	23	4	1	88
139	2	1	5	-	-	8
140	2	5	5	-	-	12
201	167	34	43	3	1	248
202	136	65	42	4	5	252
203	67	22	23	3	1	116
204	96	80	105	38	5	324
205	-	6	2	4	-	12
207	13	11	7	1	-	32
209	8	3	3	2	-	16
301	72	54	39	11	-	176
302	55	35	37	6	3	136
303	13	5	5	1	-	24
304	6	2	-	-	-	8
305	6	1	-	1	-	8
306	24	12	9	2	1	48
308	123	96	66	13	2	300
309	134	66	57	42	1	300

Table 22: Distribution counts of Rel by Site.

RETTYE

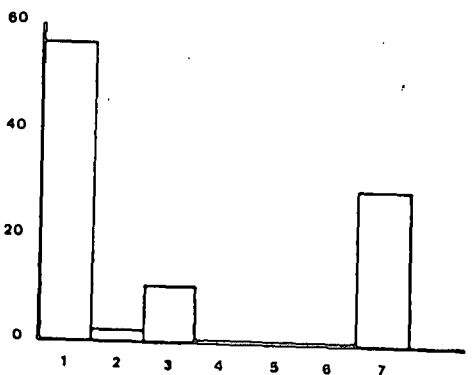
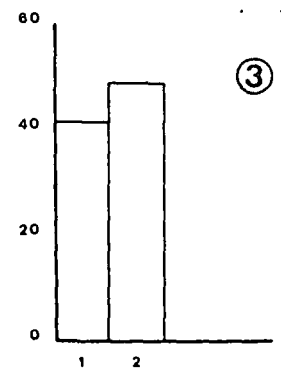
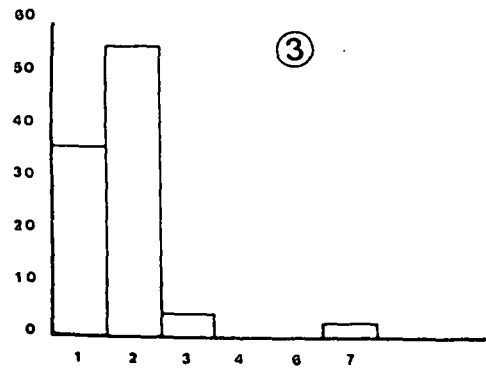
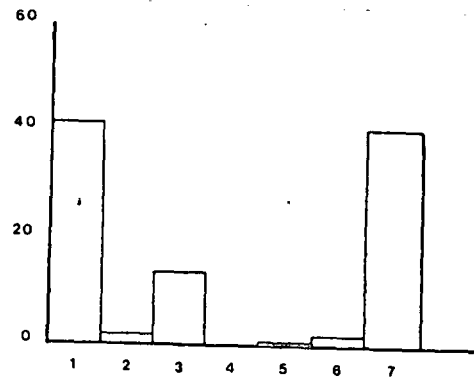
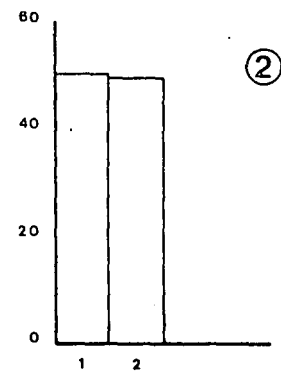
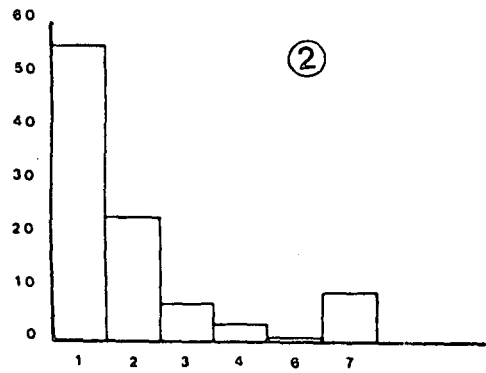
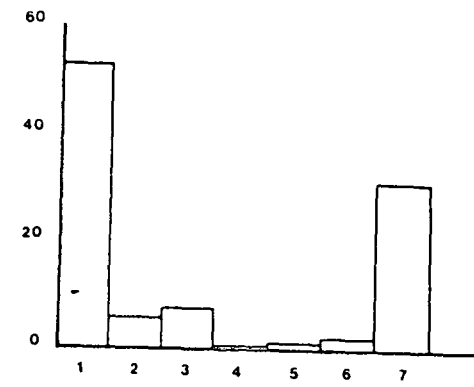
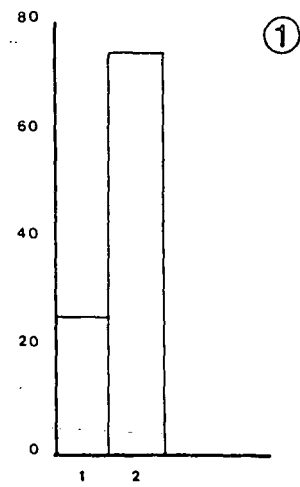
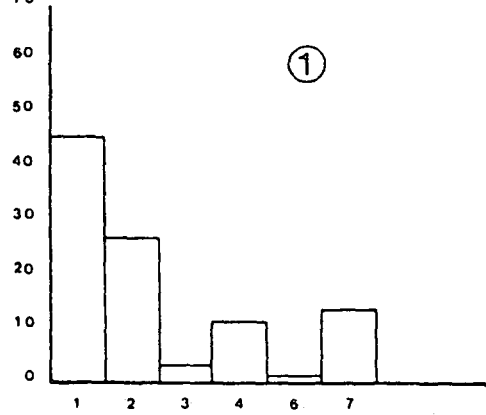
CODE	-	1	2	3	4	5	Total
101	57	32	10	1	-	-	100
103	64	23	10	2	1	8	108
105	11	11	5	1	-	-	28
108	1	1	1	-	-	-	4
109	6	5	1	-	-	4	16
110	12	6	2	-	-	-	20
111	16	5	1	3	-	7	32
113	3	3	-	2	-	-	8
114	1	3	-	-	-	-	4
115	61	29	10	1	2	9	112
116	28	22	5	3	-	2	60
117	2	-	3	-	-	3	8
118	61	28	2	3	-	10	104
120	23	15	4	-	1	5	48
121	4	8	1	-	-	3	16
122	7	5	2	-	1	2	17
124	32	8	5	-	-	7	52
126	40	23	10	3	2	2	80
127	4	5	-	-	1	2	12
128	3	3	1	-	-	1	8
130	12	5	4	1	1	5	28
136	4	3	1	-	-	-	8
137	9	5	2	1	-	3	20
138	40	35	8	1	-	4	88
139	2	4	-	-	-	2	8
140	2	7	1	-	-	2	12
201	167	66	8	3	1	3	248
202	136	70	21	-	1	24	252
203	67	35	10	1	-	3	116
204	96	121	43	8	2	54	324
205	-	8	2	1	1	-	12
207	13	7	5	-	-	7	32
209	8	3	1	-	-	4	16
301	72	65	21	4	-	14	176
302	55	43	24	2	-	12	136
303	13	5	2	-	-	4	24
304	6	1	1	-	-	-	8
305	6	-	1	-	-	1	8
306	24	12	5	-	-	7	48
308	123	111	53	-	-	13	300
309	134	82	60	10	-	14	300

Table 23: Distribution counts of RETTYPE by Site

FORM

CODE	1	2	3	4	5	6	7	8	9	Total
101	45	17	9	5	3	8	7	3	3	100
103	29	18	6	8	15	16	7	4	5	108
105	8	6	2	3	1	3	2	1	2	28
108	-	1	-	1	-	-	1	-	1	4
109	3	6	2	-	-	4	1	-	-	16
110	4	3	2	5	1	2	2	-	1	20
111	3	8	6	-	1	8	2	1	3	32
113	3	-	3	-	-	2	-	-	-	8
114	1	1	1	-	-	1	-	-	-	4
115	29	23	15	10	13	10	5	1	6	112
116	11	7	9	8	-	4	-	3	18	60
117	3	-	1	1	-	2	1	-	-	8
118	20	22	15	14	6	11	6	1	9	104
120	8	3	4	6	3	7	9	3	5	48
121	6	4	1	1	1	1	1	-	1	16
122	3	3	6	2	-	3	-	-	-	17
124	16	15	3	4	4	3	4	2	1	52
126	22	16	7	10	5	14	3	1	2	80
127	2	4	1	2	-	1	1	-	1	12
128	5	-	1	1	-	-	-	-	1	8
130	6	3	4	1	-	4	-	3	7	28
136	3	-	2	-	-	2	-	1	-	8
137	7	2	2	-	2	4	2	1	-	20
138	15	20	13	12	5	11	9	2	1	88
139	-	3	2	-	1	1	1	-	-	8
140	2	3	1	1	-	1	-	-	4	12
201	65	41	29	27	19	31	15	19	2	248
202	65	62	32	13	11	27	19	17	14	252
203	33	15	21	8	5	10	7	12	5	116
204	49	86	46	21	18	41	25	12	26	324
205	2	1	3	-	2	2	1	-	1	12
207	8	3	6	1	4	7	3	-	-	32
209	4	4	3	-	-	3	1	-	1	16
301	40	36	29	17	22	24	2	3	3	176
302	22	30	28	8	14	20	5	7	2	136
303	2	5	4	2	2	5	-	4	-	24
304	1	2	-	1	1	-	-	2	1	8
305	3	2	-	2	-	-	-	1	-	8
306	7	10	6	3	4	7	2	2	7	48
308	48	77	65	22	16	37	8	14	13	300
309	39	51	42	24	42	37	30	11	24	300

Table 24: Distribution counts of FORM by Site.

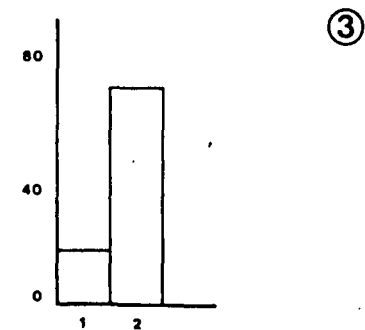
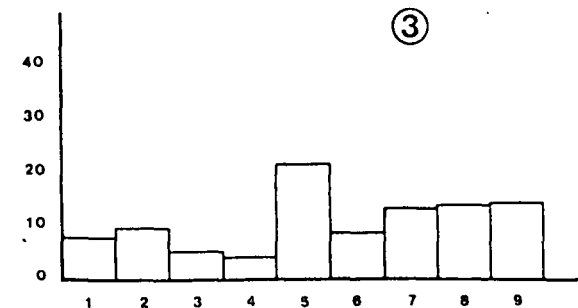
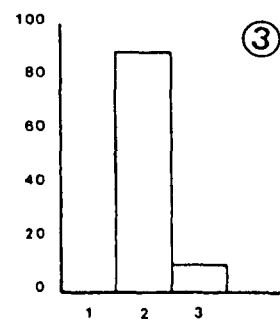
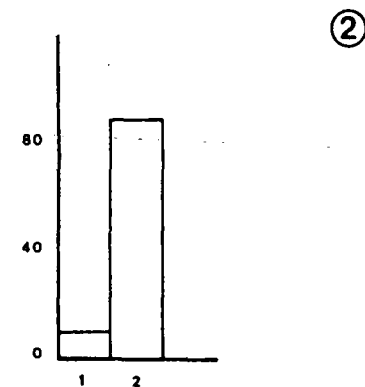
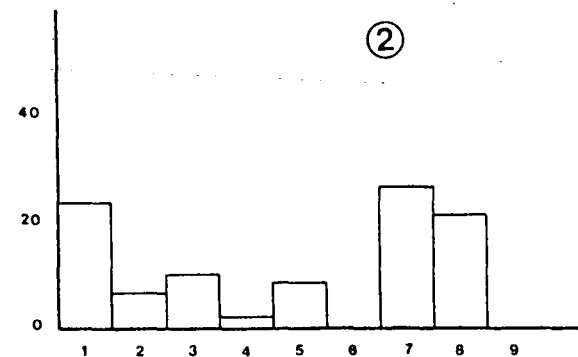
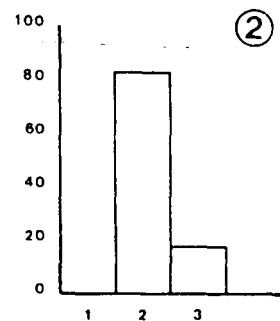
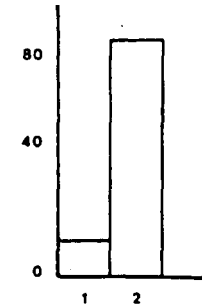
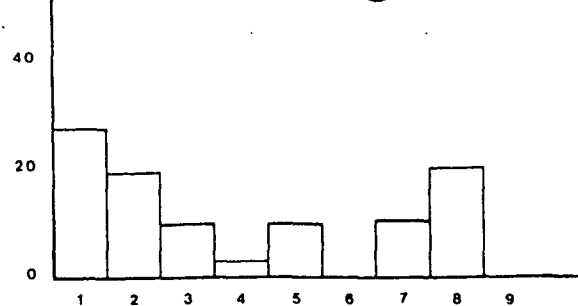
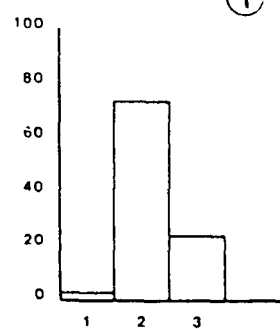


RAWM

COMP

TECCAT

Fig. 1: A Graphical representation of the frequencies of the individual areas.

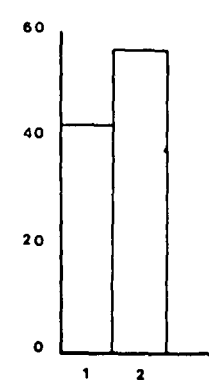
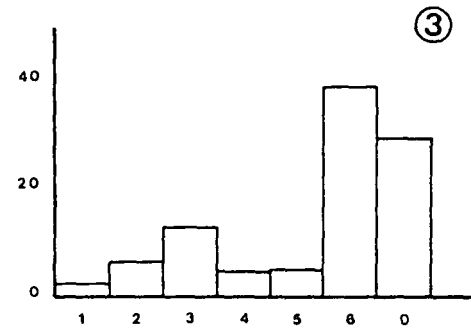
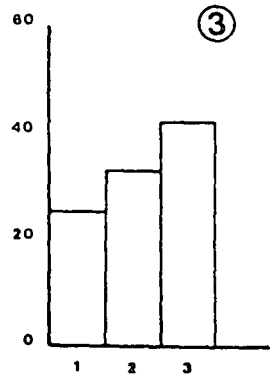
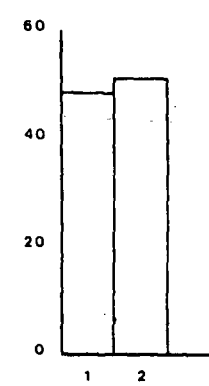
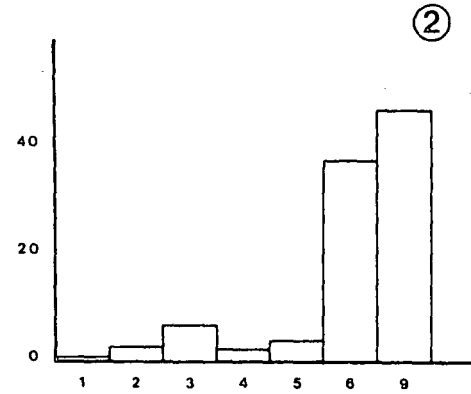
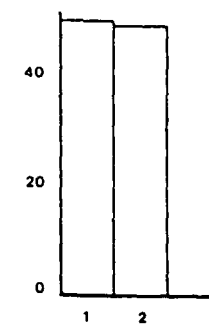
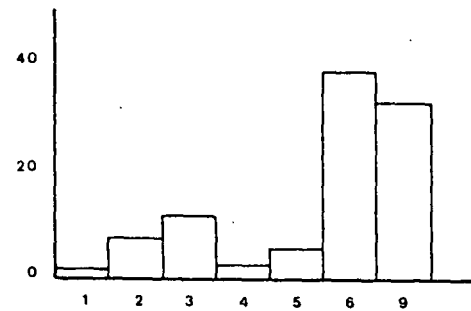
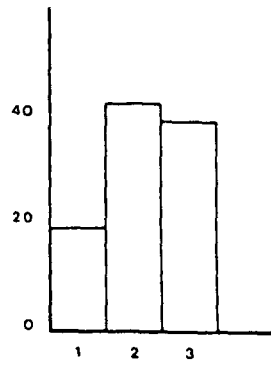


PRES

PAT I

CORTEX

Fig. 2: A graphical representation of the frequencies of the individual areas

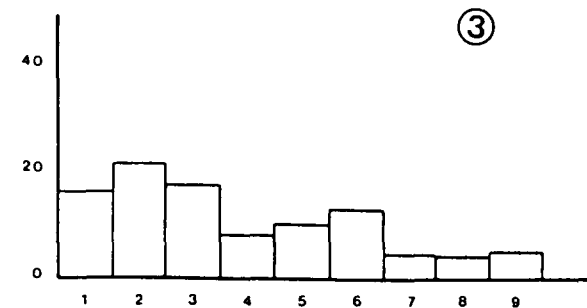
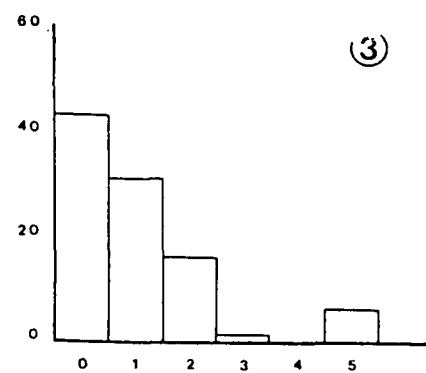
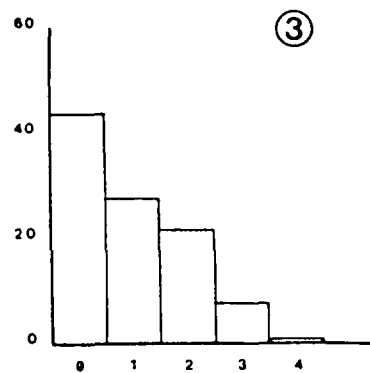
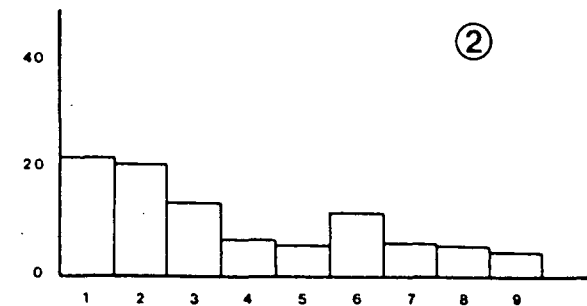
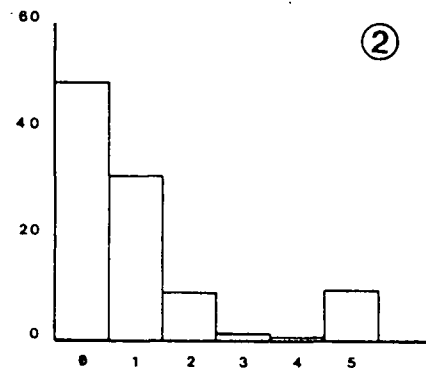
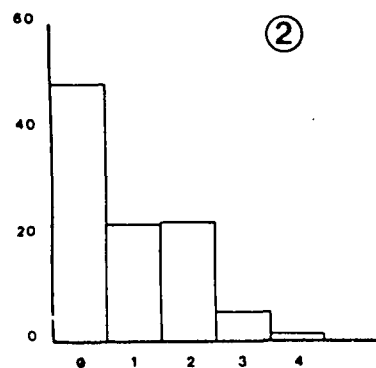
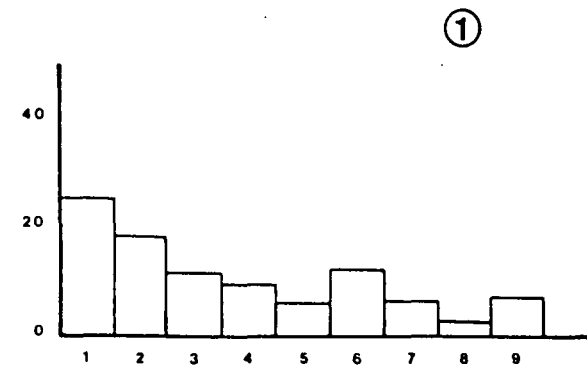
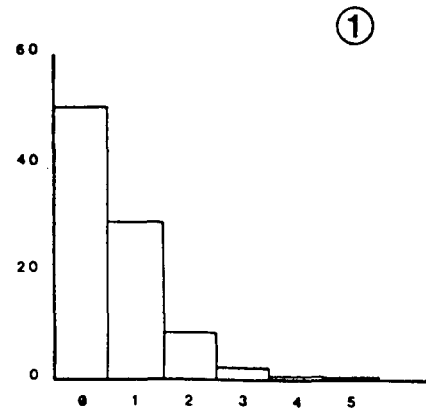
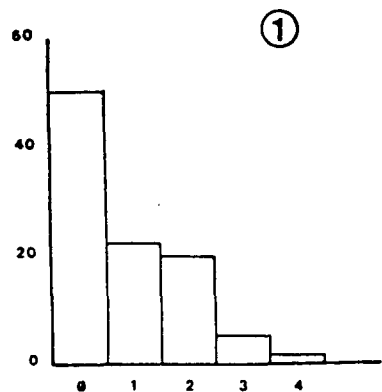


BULB

BUTT

RETOUCH

Fig. 3: A graphical representation of the frequencies of the individual areas.



REL

RET. TUPE

FORM

Fig. 4: A graphical representation of the frequencies of the individual areas.

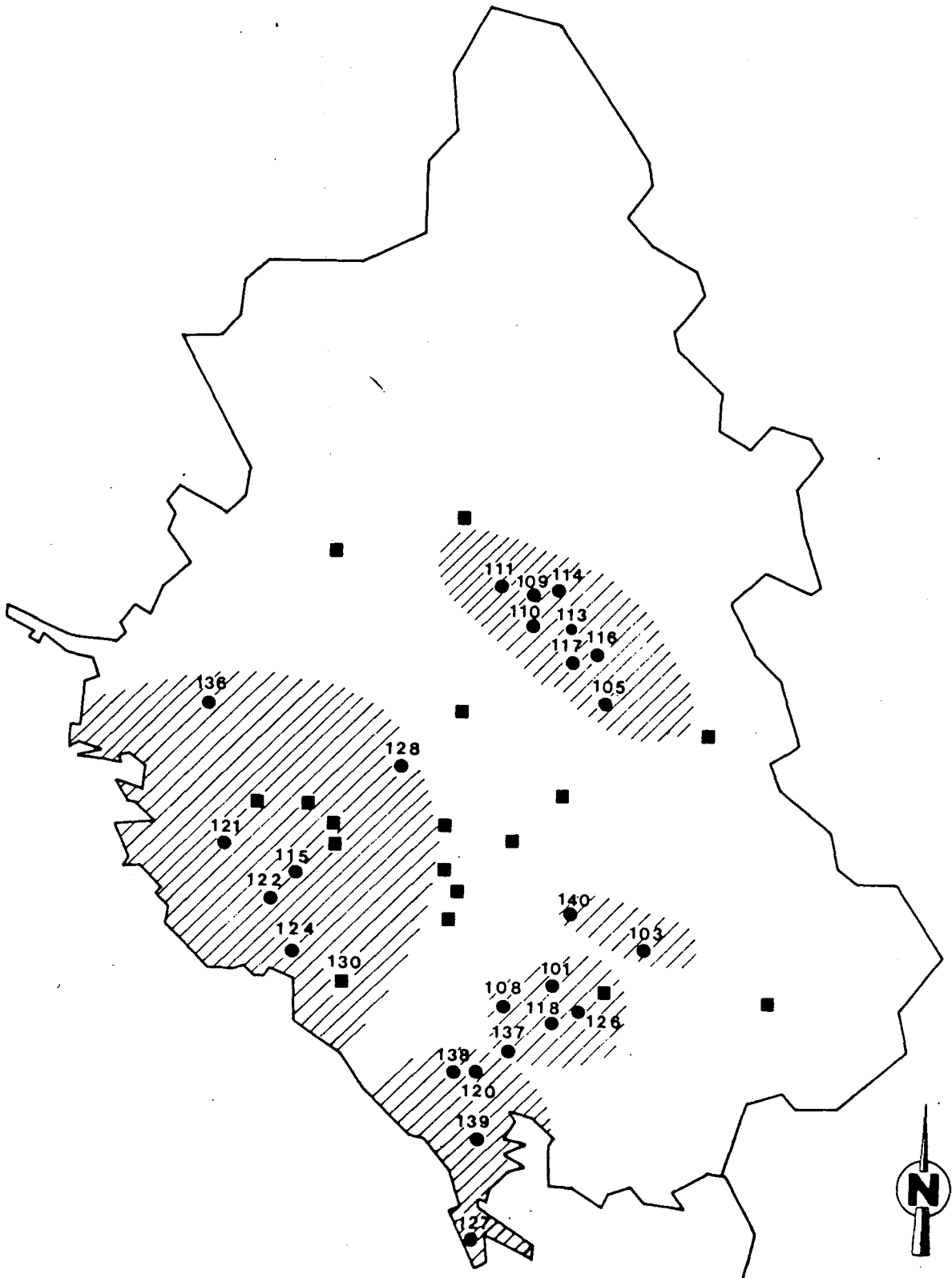


Fig. 5: Map of the study area (Epirus) showing locations of the sites. Broken lines connection are drawn only to indicate the boundaries of the aggregated sites (unnumbered sites were not studied)

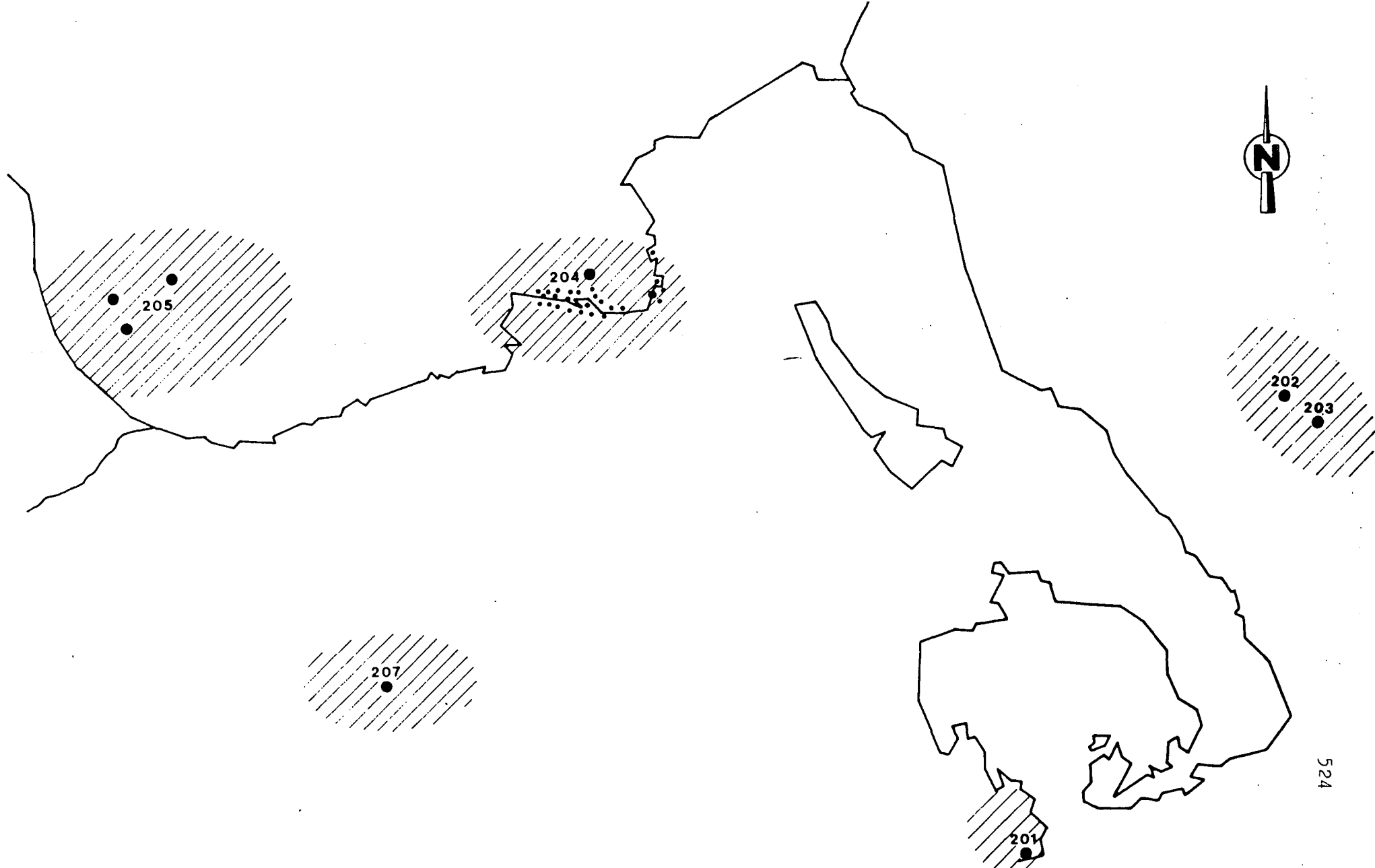


Fig. 6: Map of the study area (Thessaly) showing locations of the sites. Broken lines connection are drawn only to indicate the boundaries of the aggregated sites.

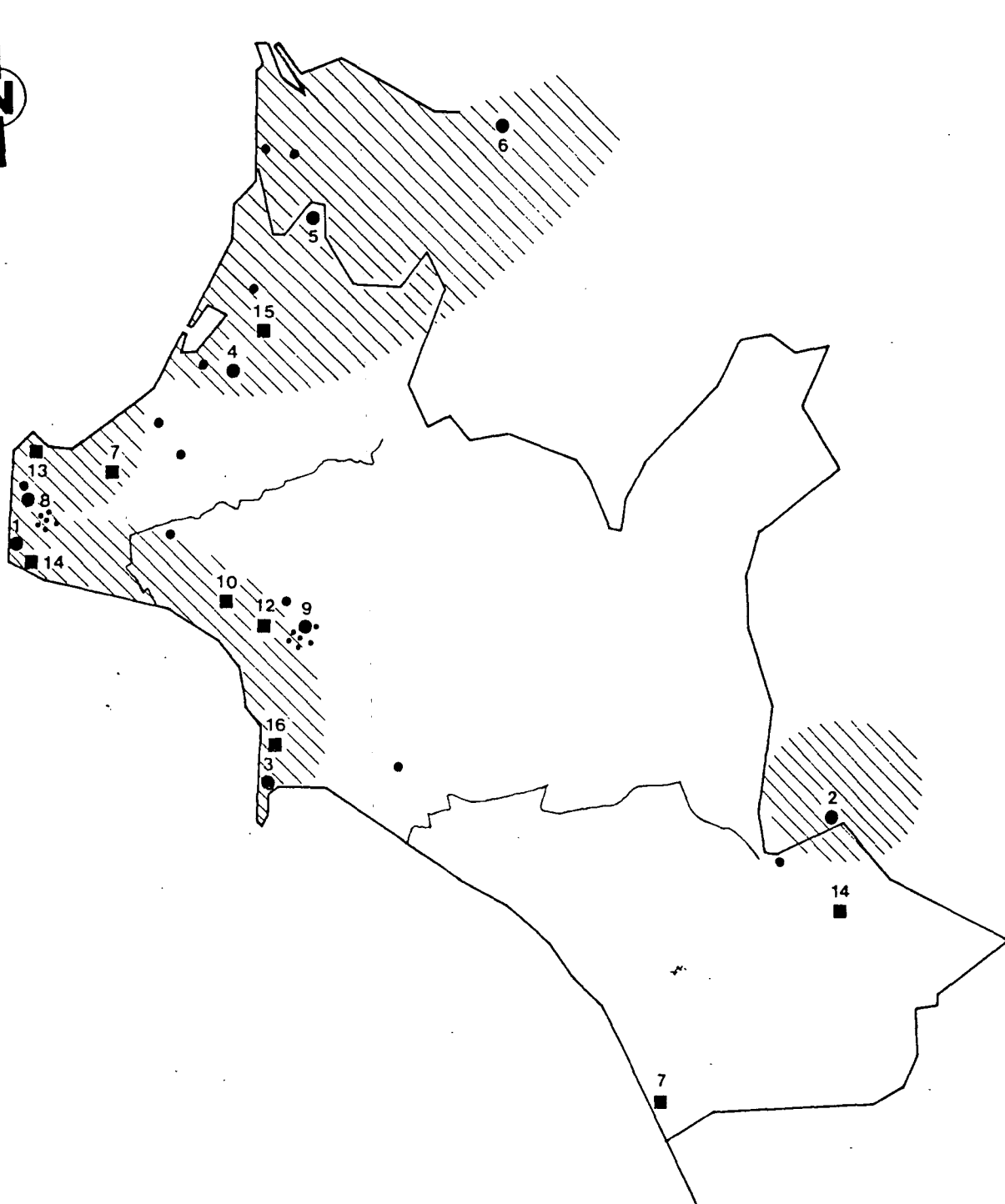


Fig. 7: Map of the study area (Elis) showing locations of the sites. Broken lines connection are drawn only to indicate the boundaries of the aggregated sites (unnumbered sites were not studied).

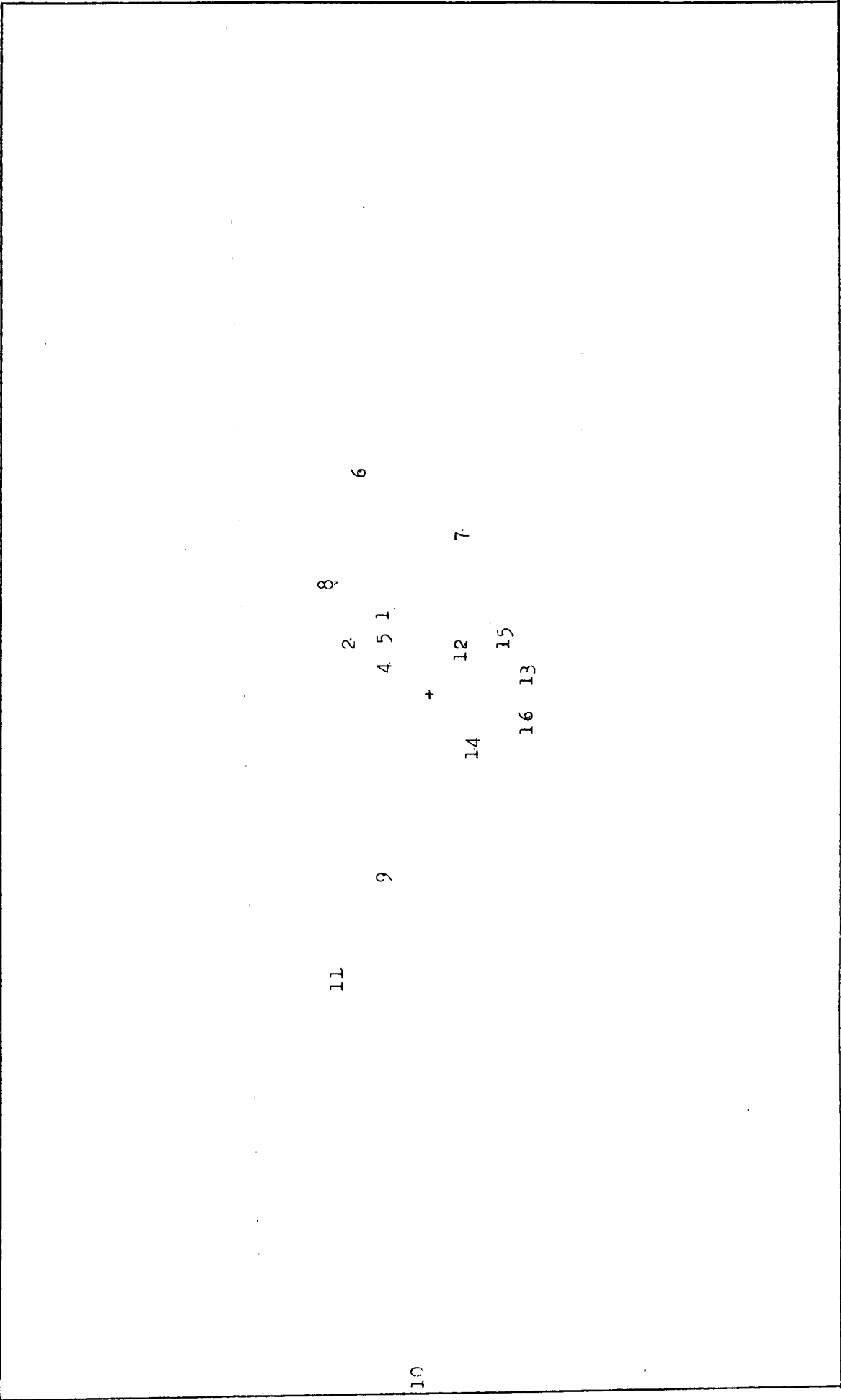


Fig. 8

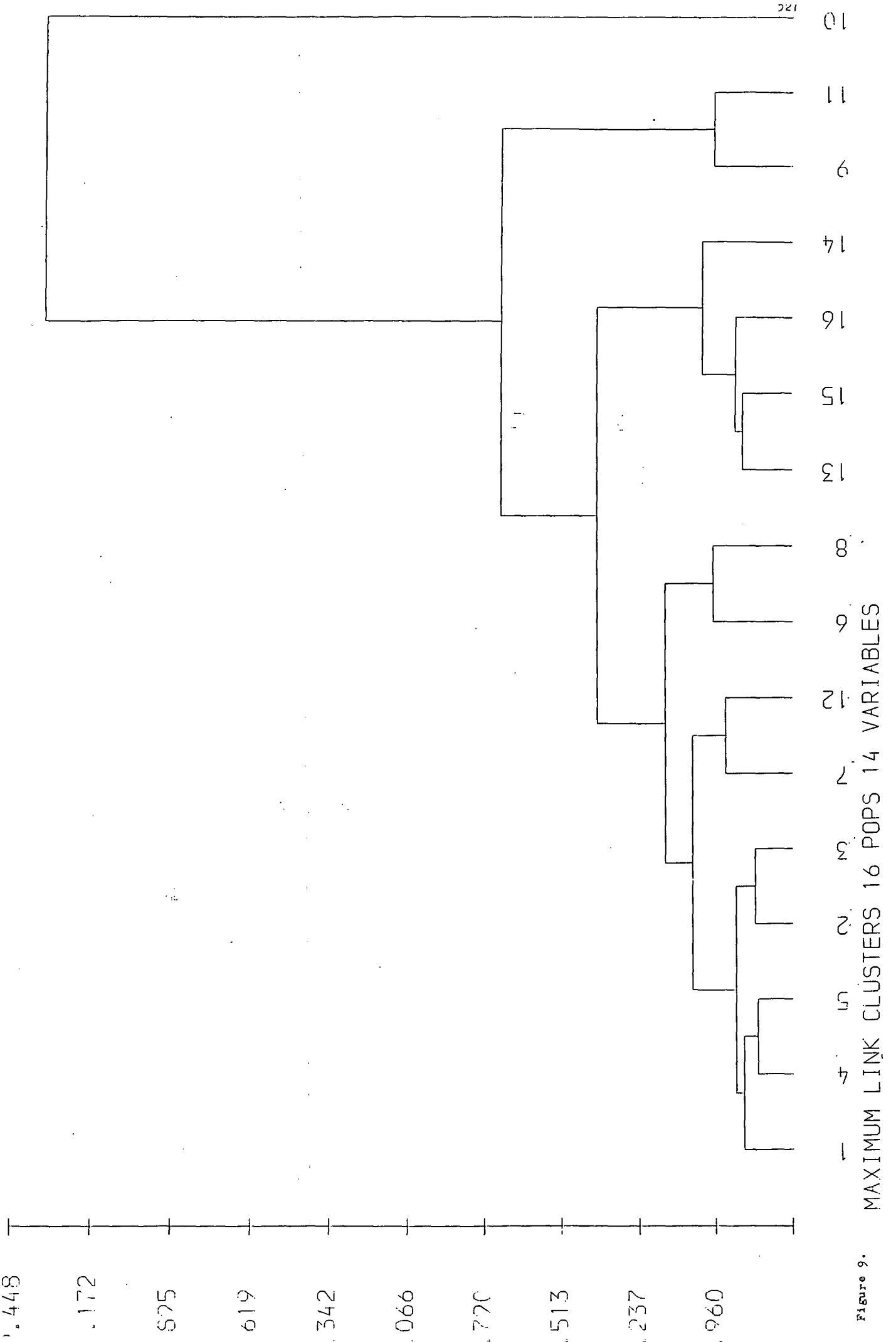
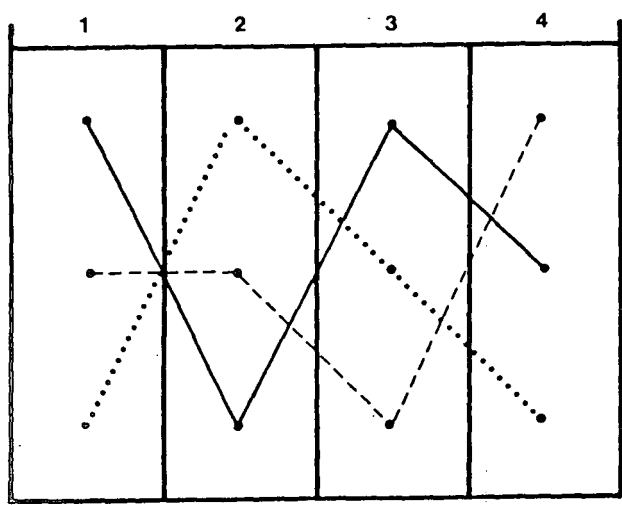


Figure 9.

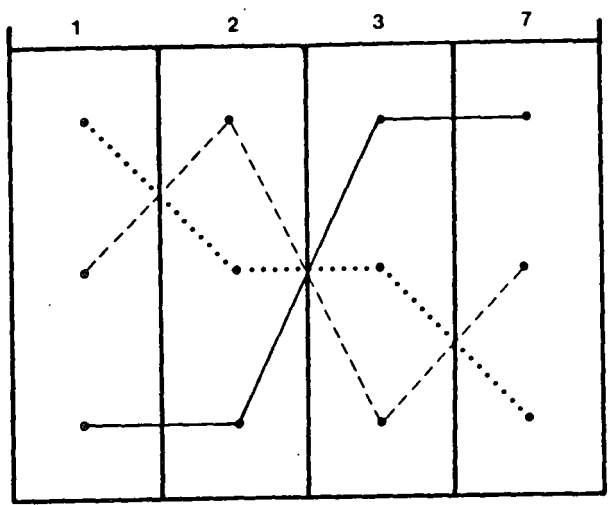
ATRIX OF E SQ.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	0.4993														
	0.4098	0.3072													
	0.4940	0.6271	0.6143												
	0.2869	0.5730	0.6087	0.2636											
	1.0227	1.3984	1.7241	1.8097	1.4173										
	1.0702	1.3009	1.0835	1.2861	1.1334	1.5471									
	0.8206	0.7872	1.0187	1.0402	0.8729	1.0025	1.2601								
	1.9131	2.0966	1.9905	1.3504	1.3777	3.5710	3.0455	2.1259							
	8.4496	8.4725	7.9993	7.4503	7.5700	11.8683	9.8556	8.8308	4.1827						
	2.8018	2.7399	2.8993	2.2110	2.3087	4.5090	3.9501	2.8897	0.9875	5.5139					
	0.8567	1.3541	1.1400	0.8423	0.7242	1.6049	0.8007	1.2810	1.6274	7.5960	2.4406				
	1.5454	1.9783	1.5850	1.4417	1.3912	2.7533	1.5165	2.1151	2.0295	7.8162	3.0640	0.8575			
	1.3083	1.5784	1.3260	1.1564	1.1571	2.5283	1.6573	1.7914	1.7622	8.3748	2.8358	1.1117	0.8233		
	1.4642	1.9701	1.5168	1.2885	1.2749	2.7961	1.2712	1.9493	2.1084	7.4383	3.0882	0.7318	0.5046	1.0776	
	1.4639	1.8404	1.3809	1.3656	1.3847	2.9313	1.4904	2.1316	2.1080	7.6218	3.0037	0.8242	0.6271	1.1817	0.5106

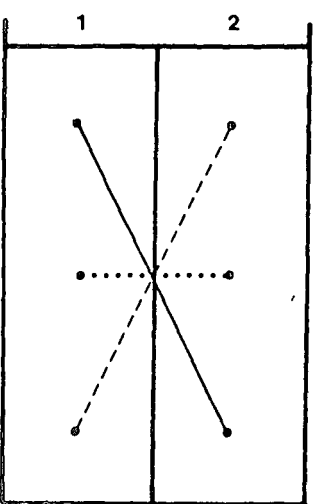
Table 25



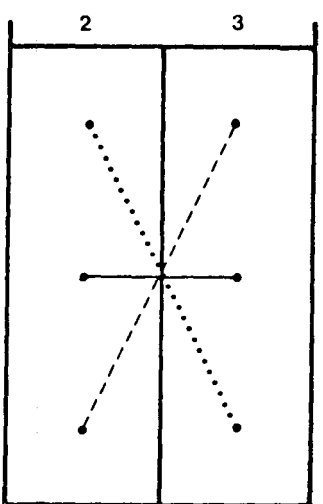
RAWM



TECCAT

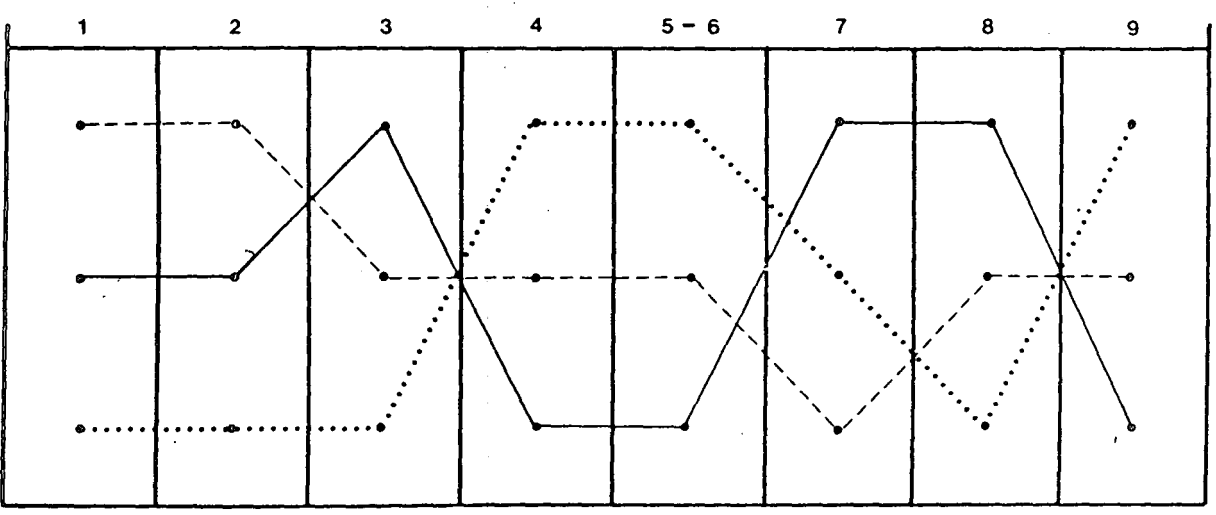


COMP



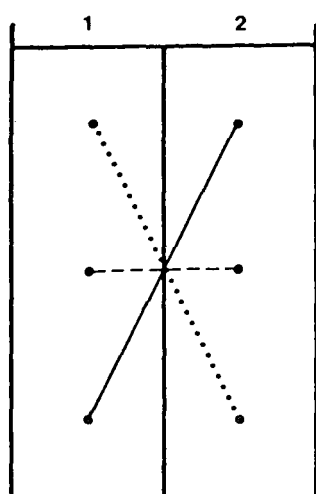
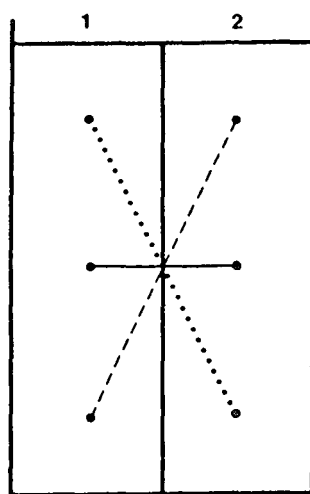
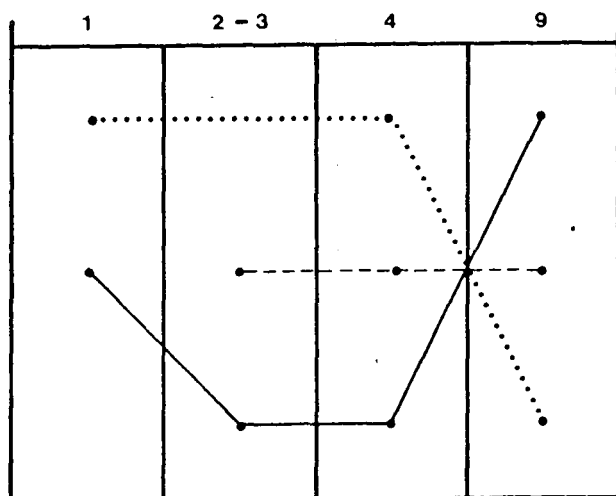
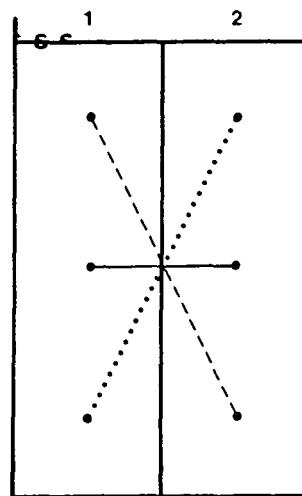
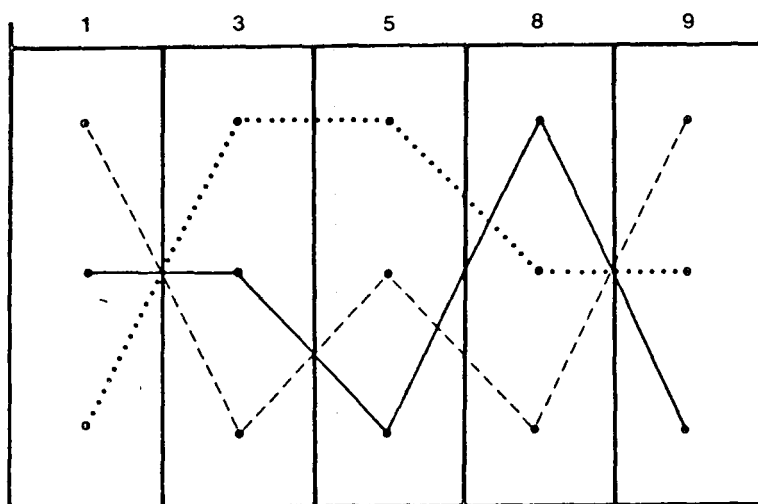
PRES

Epirus -----
Thessaly -----
Elis



PATI

Fig. 10: Index of relative importance of variables by area.

**CORTEX****BULB****BUTT****RETOUCH****FORM**

Epirus -----
 Thessaly —————
 Elis

Fig. 11: Index of relative importance of variable by area.

LENGTH

Region	MEAN	ST. ERROR $\pm$
1	38.60	0.84
2	34.91	0.69
3	33.81	0.64

WIDTH

Region	MEAN	ST. ERROR $\pm$
1	27.04	0.69
2	23.32	0.50
3	24.84	0.51

THICKNESS

Region	MEAN	ST. ERROR $\pm$
1	9.14	0.57
2	10.90	0.40
3	10.68	0.39

BREAKDOWN

Table 26: Criterion variable length, width, thickness broken down by region.

EPIRUS

LENGTH				WIDTH				THICKNESS			
SITE	MEAN	ST.ERROR $\pm$	NO	SITE	MEAN	ST.ERROR $\pm$	NO	SITE	MEAN	ST.ERROR $\pm$	NO
101	39.86	1.4	308	101	27.88	1.02	308	101	9.72	0.59	308
103	38.75	2.55	120	103	27.33	1.77	120	103	9.51	1.07	120
115	40.91	2.05	241	115	29.58	1.99	241	115	9.53	0.78	241
117	37.30	1.80	176	117	23.67	1.31	176	117	8.18	0.75	176
138	33.92	1.78	156	138	24.98	0.13	156	138	8.21	0.56	156

THESSALY

201	36.62	1.18	248	201	26.11	0.92	248	201	15.30	0.95	248
202	34.20	1.05	252	202	23.57	0.79	252	202	10.87	0.69	252
203	32.38	1.80	116	203	22.58	1.47	116	203	10.97	1.26	116
204	34.71	1.51	324	204	21.21	0.95	324	204	8.16	0.46	324
205	45.58	3.46	12	205	31.16	5.50	12	205	9.16	1.51	12
207	34.65	4.05	32	207	23.06	2.99	32	207	7.09	1.47	32
209	34.06	6.94	16	209	18.50	3.17	16	209	7.12	1.65	16

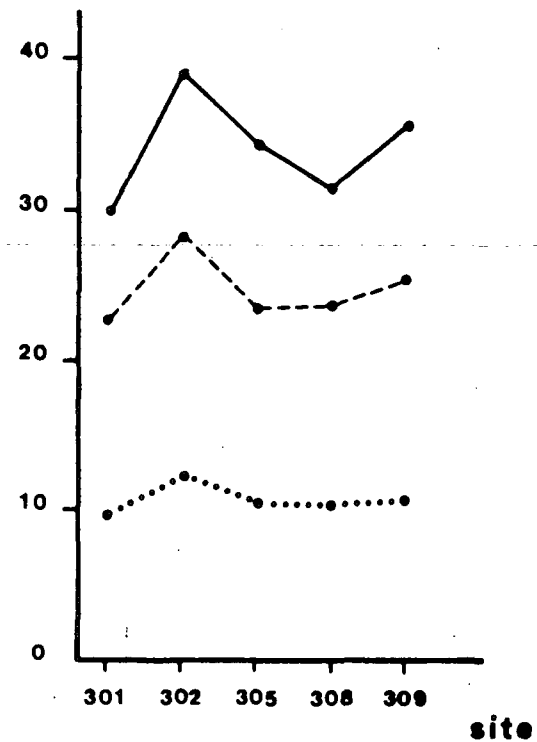
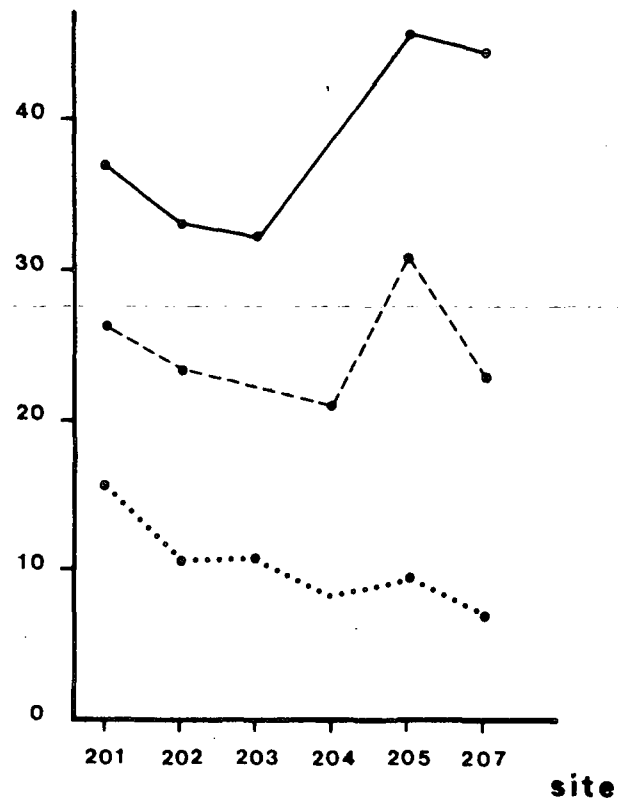
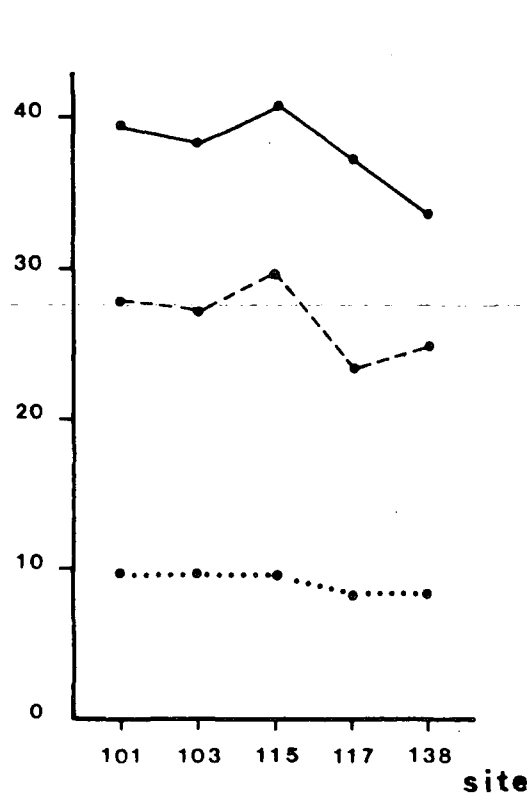
ELIS

301	30.02	1.36	200	301	22.86	1.07	200	301	9.96	0.81	200
302	39.37	2.16	136	302	28.60	1.71	136	302	12.13	1.37	136
305	34.51	2.50	64	305	23.82	1.98	64	305	10.62	1.37	64
308	31.87	1.00	300	308	23.96	0.73	300	308	10.30	0.63	300
309	35.62	1.03	300	309	25.56	0.83	300	309	10.88	0.71	300

Table 27: Criterion variable Length, Width, Thickness broken down by site.

	LENGTH			WIDTH		
	1	2	3	1	2	3
WIDTH	.54	.63	.66			
THICKNESS	.42	.40	.48	.49	.53	.59
	115	101	117	115	101	117
WIDTH	.48	.61	.39			
THICKNESS	.52	.34	.31	.47	.48	.58
	201	202	204	201	202	204
WIDTH	.57	.56	.46			
THICKNESS	.46	.43	.42	.45	.43	.59
	309	308	301	309	308	301
WIDTH	.42	.70	.75			
THICKNESS	.38	.50	.53	.55	.53	.57

Table 28: All the above are significant correlations.



length ———
width - - - - -
thickness

Fig. 12: Inter-site variation within areas.

VARIABLES		Region 1	Region 2	Region 3	VARIABLES		Region 1	Region 2	Region 3
RAWM	- TECCAT	*	*	*	TECCAT	- COMP	*	*	*
	- COMP	NS	*	*		- PRES	*	*	*
	- PRES	NS	*	*		- PATI	*	*	*
	- PATI	*	*	*		- CORTEX	*	*	*
	- CORTEX	NS	*	*		- BULB	*	*	*
	- BULB	*	*	*		- RETOUCH	*	*	*
	- RETOUCH	NS	*	*		- FORM	*	*	*
	- FORM	NS	NS	NS					
COMP	- PRES	*	*	*	PRES	- PATI	*	*	*
	- PATI	NS	NS	*		- CORTEX	*	*	*
	- CORTEX	NS	*	NS		- BULB	*	*	*
	- BULB	*	*	*		- RETOUCH	*	*	*
	- RETOUCH	NS	*	*		- FORM	*	*	*
	- FORM	*	*	*					
PATI	- CORTEX	*	*	*	CORTEX	- BULB	*	*	*
	- BULB	NS	NS	*		- RETOUCH	*	*	*
	- RETOUCH	NS	*	*		- FORM	*	*	*
	- FORM	NS	NS	NS					
BULB	- RETOUCH	*	*	*	RETOUCH	- FORM	*	*	*
	- FORM	*	*	*					

Table 29: The relationships (Chi sq.) between variables over regions.

NS = not significant

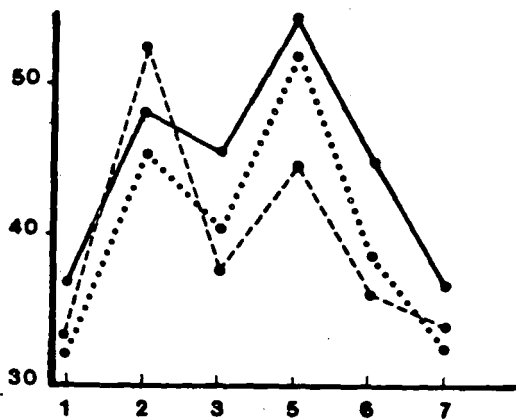
* = significant.

VARIABLES	1 - 3	2 - 3	1 - 2
RAVM	X	X	X
TECCAT	X	X	X
COMP	X	X	X
PRES	X	X	X
PATIN	X	X	X
CORTEX	X	X	X
BULB	X	-	X
RETOUCH	X	X	-
FORM	X	X	X

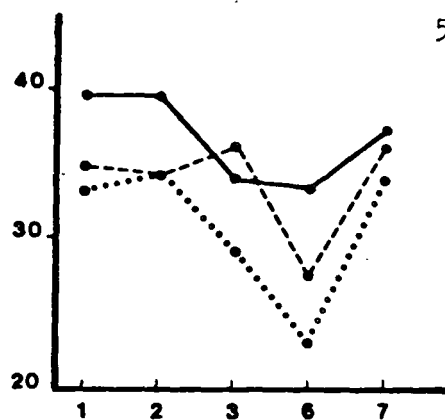
Table 30: Relationship of the variables (Chi sq.) between regions.

X = Significant

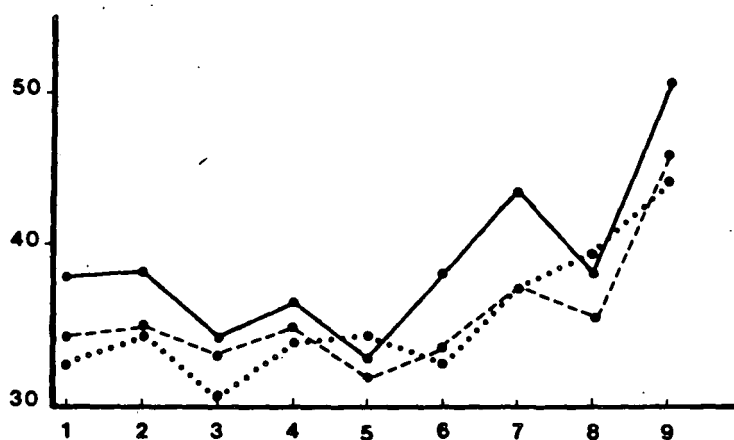
- = Not Significant



Teccat by length

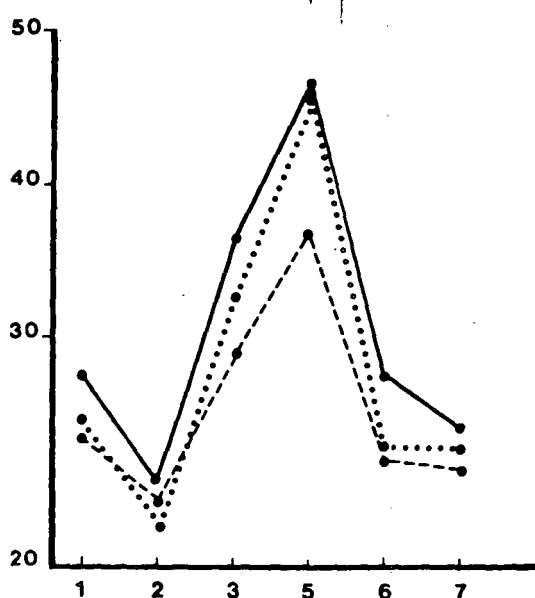


Rawm by length

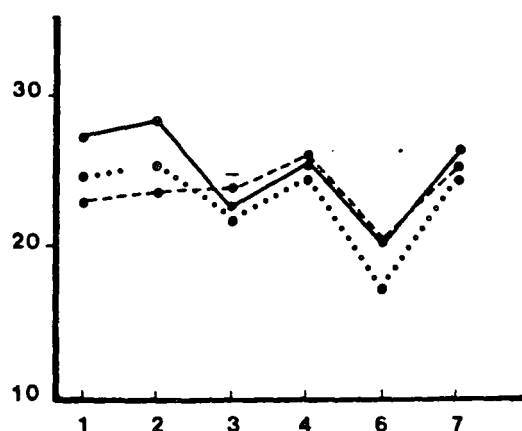


Form by length

Epirus ———
 Thessaly - - - -
 Elis



Teccat by width



Rawm by width

Fig. 13: Length, width, thickness by area by Teccat, Rawn, Form.

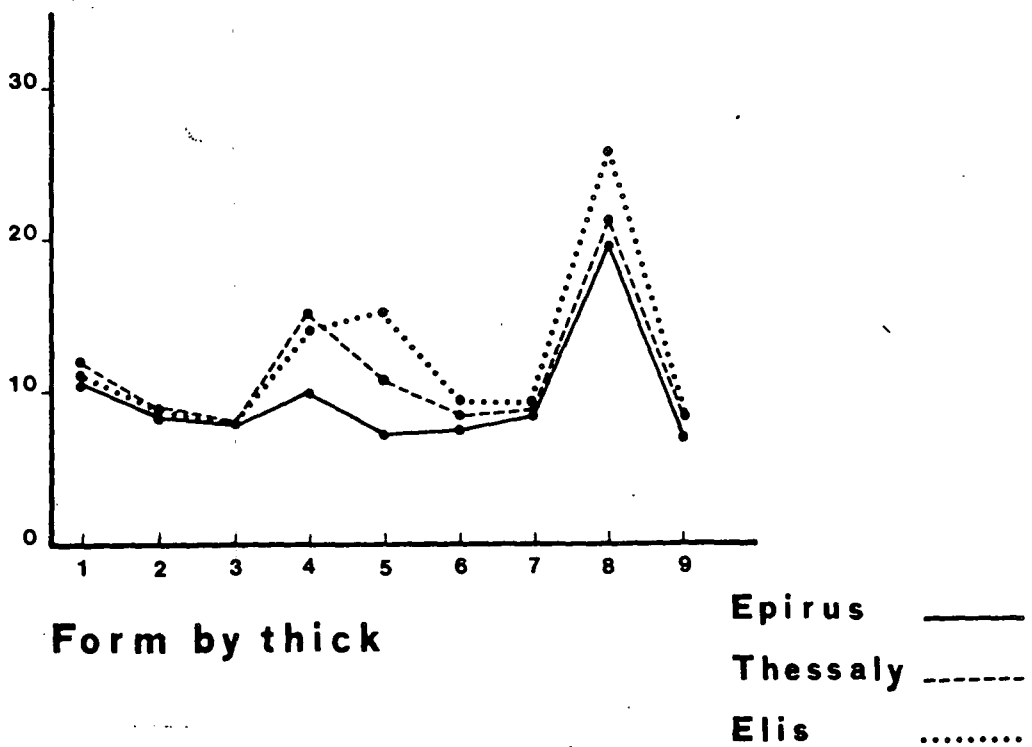
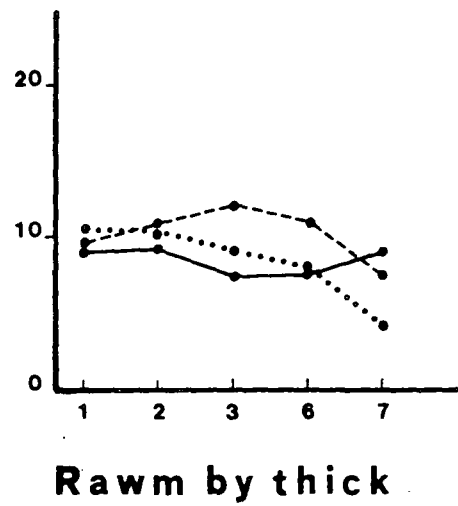
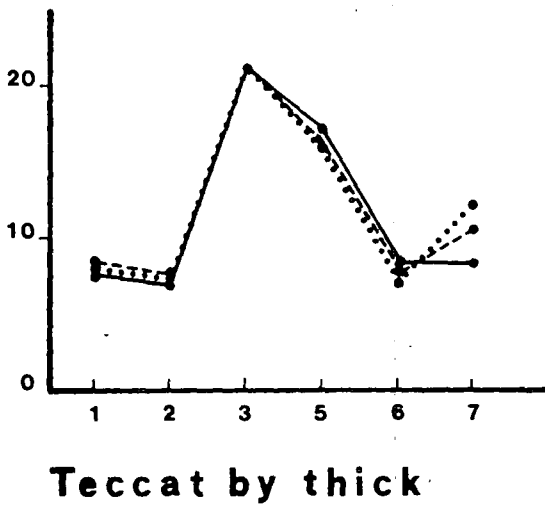
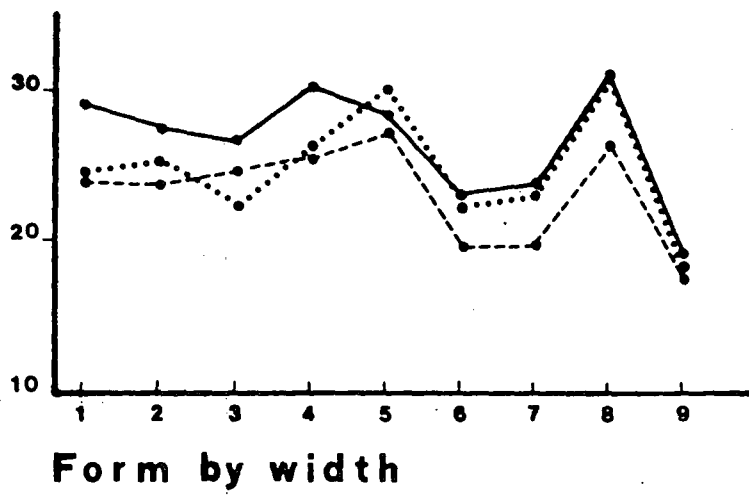


Fig. 14: Length, width, thickness by area by Teccat, Rawm, Form.

CONCLUSIONS

It has been an underlying assumption of much of the work on societies labelled "prehistoric" or "primitive", that is societies with no written records, that a pre-existing order of natural equilibrium was the necessary condition for their formation and function.

The adoption of such a specificity, with the overestimation of the organic external factors, created a scientific-cultural "industry" with particular units of measurement, and particular units of output; this was expressed not only with respect to the methods for the collecting and processing of empirical data, but also with regard to the questions of general interpretation. The result was an anti-historical overall "paradigm" where these societies appeared to be determined and controlled by natural laws of organization and their real modes of existence taken at a "distance" as absent causalities. Thus, the significance attributed to these populations has been a mechanistic equalization (if not petrification) of the particular elements of their systems.

Man does not enter into relations with the natural world just by being part of the natural world, but as a social being, consciously and actively, by means of his labour, technique and production. Relations, forces and means of production are not indivisible, stabilized or equal concepts. That a human society presupposes a specific set of "things", that is material products, to cover its needs is a trivial reality. That man cannot be conceived otherwise than in his social context is also trite. But not all the necessary

distinctive consequences have been drawn from this fact, at any level of association, except for the a priori reduction of population dynamics and organization to a hierarchy of eternal laws and "typological" ends. The problem with this type of explanation is simply that the structure of the social world is not the structure of a conceptual order. In all forms of society the determining factor is the process of production and reproduction of material life. Social relations correspond to differential stages of the development of the methods of labour and thereby social productivity, which reveal the hidden basis of a concrete socio-economic structure or part of its specific elements. An inquiry into a series of "facts" to discover these relationships or differences presupposes a concept that permits one to distinguish between the processes responsible for their formation and assess patterns of their variability.

Initially, any concept requires a theory with definitions and meanings that would be used for "discussion" about phenomena and facts, not only in their logical consistency but in relation to meanings and ideas through which people operate in order to rationalize certain actions and reject others. The specific content of this process is not the result of a simple configuration of certain "facts" but represents the conclusion to a long history - and a properly historical memory. Underlying this view, and indeed underlying the whole conception of the intended approach in this thesis, is a shift away from a deterministic/empirical position towards a dialectical materialistic interpretation of prehistoric communities as they arose in particular historical contexts. To indicate this, of course, is not to accomplish it and it remains for others to judge. In this theory

of reality, which gives a higher place to the prevailing trends of the total development than to the facts of the empirical world only. the concept of the "fact" acquires an authentic, concrete shape in the social context in which it has its origin and its existence. This is not an abstraction; human requirements and adjustments move within a "given" each timeset of spatial and demographic arrangements, interrelated with their economic and cultural activities. These are realities that can be traced down from the totality of their material production, at any level of technological development. Of course "totality" is never accessible, not only for the past but for present-day societies (although the difficulties which pertain to this sort of inquiry are of an entirely different character).

Truthfulness, however, is not to be identified with naturalism's attempt to reflect the world "photographically"; it transcends such particular conventions as a product of the dialectical relation between social life and its essence. Typification on the other hand does not mean typological classification, that is the dissolution of typical characteristics into abstract rules. It is a shift of focus from the general to the particular, but it does not stay at that reduced scale. Typical characteristics (or variables etc..) stand for something "larger" and more meaningful than themselves, than their isolated individual destinies: they are concrete individualities at the same time maintain their relationships with a collective human substance. Accordingly, an important consideration at this level is how people act at any moment in time within a society, and depends on what they believe about their society; if they come to believe differently they will also come to behave differently.

When anthropologists and archaeologists tried to move away from the mapping of static situations to consider aspects of change, they inevitably become involved with values which brought out questions of how and what is examined and for what purpose: but analyses were controlled by what kind of exactness, centred around technological attributes and typological constructions, which could not pervade the proper problems. A scientifically respectable analysis permits only what becomes obvious through empirical investigation. The fascination with typological relationships had one of the most harmful effects in the study of prehistoric societies. This occurred because the desired explanations were attributed to technology itself, based on the assumption that social events were simply a product of technological change even when this latter was usually only a new "interface", incorporated into the social practice and economic structure of the same mode of production.

Material products are a part of labour processes formed within certain relations of production in a society; they constitute definite forms of human existence, even if there is no adjustment to empirical truthfulness.

It is precisely at this conjecture that a dialectical approach implies a back and forth process, whereby particular populations are analysed in terms of their available characteristics, in which hypotheses generated theoretically are used to "restructure" the data, and where the theoretical position itself is further elaborated in such a way that its explanatory power is used to express the hidden structures and connections of the society under investigation. Natural forces become productive forces, because they are harnessed

to human labour. They become social forces by being incorporated and applied to human needs; and only become productive when they serve the production and reproduction of human life.

The study of the exploitation of nature by pre-neolithic populations brings together problems of not only their productive activities but of their reproductive patterns which are related essentially to the means of subsistence. Although estimates in terms of absolute or even relative numbers are dangerous, the practical judgements used by the original Malthusian or neo-Malthusian scenario have to be broken. "What may be overpopulation in one stage of social production may not be so in another and their effects may be different" .." The number may appear very small compared with the modern conditions of production" (K. Marx, Grundrisse). The formulation of different scenarios combined with specialized knowledge (and informal preliminary judgements) make it possible in many instances to assess with some confidence the direction, if not the magnitude, of the influence exercised by a particular factor - be it population growth or crude birth/death rates - if one is prepared to disregard the role played by all the rest. The advantage of the complex historical approach is its ability to assess the influence of a great variety of factors that can be expected to account for the course of events, not only in quantitative terms but in qualitative terms as well.

An attempt to develop a less traditional conception of the reality of prehistoric societies must be understood in the social context, otherwise its significance is completely lost. In examining social reality one may develop an expanded conception of

historical realism. History is a continuum. No event is independent. A study of the "palaeolithic" as a whole has the task of depicting social determinations, of suggesting the basis of transitions and of pointing to tendencies towards change. The problem of any "form" is the problem of the relation between socio-economic modes and historical theory, based on the materiality of production, in the broadest sense. Applying the above to the interpretation of hunter-gatherer societies does not mean that every element in a local system is unique to a given mode, but only that the whole structure and "initial conditions" are historically unique, specific to the given mode and the social dimensions within it. What is required is to re-establish the connections between the different elements of significance in order to explain the extent to which properties (or variables) "retain" their explanatory value and are not accompanied by a repeated sequence of some second property (or variable). This again involves a set of problems. It is not only that there has been little concern to articulate empirical facts (stone tools, for example) into a "sensitive" historical reality. A range of tools performs a range of functions and the functions are a product of the socio-economic environment. Thus an interpretation of the role of technology in these societies can be attempted to evaluate the basic properties of productive activities and alternatives to that production and the several subsystems which determine or define their internal development. Technology, in a Marxist sense, has a human weight, a social impact and a power structure as it "discloses man's mode of dealing with nature, the process of production by which he sustains his life, and thereby also lays

bare the mode of formation of his social relations, and of the mental conceptions that flow from them" (K. Marx, Capital Vol. I).

In fact, the basic by which a society may be defined is not technology as such, but its inherent social structure. Were the technological factors to play a determining and really crucial role in historical development, the first relevant consequence would necessarily amount to the dropping of the dialectical approach, since to follow such a course would be to neglect any relation to the totality of the social body, to confine research to a technocratic "deployment" and to absorb social intervention into the functioning of a technological idealization. The only way to stop this is to take the risk of basing the social consensus on the recognition and effects of multiple interrelationships. So far as Marxism is concerned there is no metaphysical construction of practice. Practice is not an absolute point of departure, a pre-categorical postulate. It is simply the specific life-situation, the immediate social process with its interacting aspects. When each aspect is studied as if it bears within itself its meaning and justification, a social reality is reduced, as a result, and is broken down into series of isolated discrete units with no response to formative patterns. With few exceptions, this is the general configuration embodied in the research on prehistoric societies. These studies are entirely preoccupied with stages of technical development and/or the typologies of technical evolution by the decomposition and the fragmentation of the data available, which more or less act as a mechanism of "censorship" whenever the research touches on the systemic character-
- ~~istic of the~~ productive-reproductive situation. Another reservation

concerns the lack of a diachronic perspective, especially as regards the transition from a natural to a technical environment. When speaking about scientific laws the feeling is that they hold irrespective of historical development. Insofar as it concerns nature and society they are both governed by laws. But while the laws of nature, for all we know, do not change, the laws of society are historical and as such they do change in the most diverse spheres of the life of collectivities and individuals. Another point of identification is that laws are often confused with trends. A law is by definition "universal" and entails that it is possible to distinguish between events or facts and relate them to the law that "governs" them. This has nothing to do with uniform principles. Primitive populations have their myths, and contemporary societies their generally accepted accounts of their history which are often as mythical. There is not a great leap from believing that what has happened in the past, should provide evidence about what is happening to-day or what can be expected to happen in the future. Of course, there has usually been a great deal of ambiguity about whether the general determination is about what happened or about what ought to happen; but this is grounded on individuals' doubts about how much of the present, future, and past is under "control". Thus human societies confront objective reality as a complex of ready-made and unalterable objects which allow only answers of recognition or rejection, and this is as common in anthropological/ archaeological accounts today as in earlier theological and mythological accounts of the historical processes. Yet trends concern part of a fact which can be realized or cannot. In the course of history one

may indeed discover a trend, but this does not permit one to make predictions in the sense of theoretical essentialism - although it permits one to make evaluations on the basis of the relative "strength" of certain trends within a concrete economic space. In different ways, the process of inquiry can be shown to be socially and historically constituted, not only with respect to its appearance, but also with respect to its procedures. Thus the notion of "truth" and "progress" is at least subject to interrogation, not only on the basis of the assumed a priori validity of the results, but also on the basis of the conditions of scientific inquiry itself. Material production occurring with the economic conditions of a hunter-gatherer society can in this way be abstracted and formalized as a "law" converting quality into quantity and vice versa. In the historical period preceding the emergence of private property, the products of labour do not become forces independent of men, but form their real, communal property. Equally important is that the individual is not limited to his own individuality; he is a clan person, a link in the community, and his socio-economic relations are the self-evident frame of his own existence. Individuality, in later historical periods, takes place through the formation of the abstract individual, i.e. through alienation; it is apparent that work, in its proper sense, from being subject to collective relationships became an economic commodity, and labour-power something to be exchanged; this led to a dissociation of working population from its social context, in other words its alienation. Without the concept of relations as internal to the processes we call matter, change at any level is by implication external to any given fact.

By transposition, people following rules and choosing what to do for the appropriate reasons only make their choices as they do because they hold certain beliefs already about the point or purpose of what they are doing; and this, as said earlier, means that they already hold a social reality. Demographic "instances" fall within this perspective. To look more closely at the dynamics of human reproduction, to relate them to prehistoric societies and distinguish the possible effects on the demographic patterns (to the extent to which they are discernible) means to take into account the type of contradictory relations which certain causalities and their organizational mechanisms have with the basic means of production and their connection with the rest of the structure. Historically, population was the first object of statistical evaluation; but the possibility of measuring connections and variations within a population tells nothing about the character of the cause and effect relationships. All causes are linked to their effects, for causes are never more than antecedent conditions linked to their consequences. Yet, recognition of this causality in demographic concerns does not seem to operate. It has been the argument throughout this work that capitalist colonization brought disruption and devastation to peoples and cultures and this is a side-effect of a "fact"; external factors are a 'sufficient' condition to bring out an event - but not a necessary condition, since there are many alternatives that will not lead to that event, or will not have the same catastrophic results.

Palaeodemography especially has often been considered in relation to biological sequences rather than conditions of

production. This is a field of "economic" investigation to be thought over, taking into account the continuous conversion of subsistence into labour power, of labour power into productive agents and producers of subsistence. In the first place to build a palaeodemography is to connect it with a palaeoeconomics capable of extending the analysis of the appropriation of nature to phenomena too often considered as natural or accidental or aberrant; and this means to put back people at the "core" of their development, that is in their historical specificity. The aggregate population resulting at any level operates within the relations of production and in this way determines the type of information we may have about a society and the nature of their system. What is important is not whether an appropriation is either "heavy" or "moderate", whether compensation exists or not, but whether it relates to a totality of socio-economic possibilities within a given region in such a way that production and reproduction cannot be continued without it. The question arises at this point: how is the situation in which different systems of demography compete to be understood socially within a given space? To speak of spatial demography seems perforce to speak of two distinct elements - distinct as regards their origin and context; yet these elements are closely linked by the dialectic of their historical continuity. On the one hand are people, on the other hand is the given region within which people move. The crucial element to be defined is how and according to what strategy that given region has been produced, and to delimit its contents; the strategy of the people using that space, people who perhaps are "opposed" to the physical form of purpose of that space. At the

outset, it is necessary to move through regional (environmental or other) description into an analysis of the social processes which produced this spatial appearance; the development and partial change of a certain area under a sequence of material events. Such events are perceived, experienced and eventually become part of the indigenous spatio-demographic reality. What Marxism asks of social processes are two particularly related questions; one concerns the relations between processes and their natural conditions of existence; the other, the relations across space between processes. Hence, while regions provide a determining context for the development of population, the determining relationship between the two is a dialectical one. This allows populations (communities, groups) to achieve a dynamic of their own in which change may take both quantitative and qualitative forms, which beyond their differences have a common underlying factor: they are all results of human collective behaviour and their spatial relationship is the result of their productive norms. The dialectic operating between the central apparatus and its margins needs further exploration, not only at the level of the adaptability of the system but also at the organizational level; the intereffectivity of these processes presupposes the existence of social forms and cultural values which are both supportive and reflective of conditions in the economic base of a society. The retranslation of economic objects from things back into processes, into the changing relations between people, rests on just this idea. It is in this respect that the superstructural elements of a society are really effective in connecting and controlling transformations in both the economic base and the

specific social articulations retained in it. In these communal social formations it is not possible to regard any fact, however apparently unrelated to the economy, such as kinship, religious rites or art, as a given fact, without identifying the region of their economic practice. Prehistoric communities exhibit different elasticities with respect to their use of socio-economic space, and resources provided different services to different people; the structural elements included in that system of internal relations are not "things" to be defined. Moreover they are included in the different kinds of transformations and contradiction within a population. The inability to identify a transformation does not prove that it did not exist. The meaning of an observable action such as making a knife or cutting a log, is established by discovering its relation to the wider structure of which it is a part. The economic/cultural production and reproduction of agents who played a key part in the emergence, enunciation, transmission, extension and transformation of these procedures are at the same time the conditions of existence for these processes. Since these procedures interact in a way that may not be readily apparent, the problem which arises is how to isolate the different variables without damaging the proper determinants of their existence. This acquires a new dimension, in the case where populations may have differential orders of preference over a certain objective or when groups do not perceive the same alternative choices of potential realization of an objective. In this case, each group has its own activity space and important differences or transformations can arise. These, in turn, affect the demographic pattern of a population. Thus, populations may live

under exactly the same environmental conditions and rely upon the same resources within a region, but if they perceive things in a different way their derivative forms at any level will vary and their demographic disposition will not be the same. On the other hand their technological equipment will not be the same or will not serve the same activities; any sort of discrete elements or "traits" in the technological apparatus of a palaeolithic economy (such as stone tools or other) accordingly do not determine different modes of production, but mean only that subsistence activities within the same mode of production involved modifications to serve the needs and the ways in which a specific society (band or group) was organized. These are the internal necessary requirements, choices and diversifications coexisting in a mode of production; they do not again remain constant, but their coordinating mechanisms form an integral part of a population's basic elements. For it is through them that the various characteristics in production can be brought together and the diverse socially productive activities can be explained as something coherent.

A task which can only be carried out gradually, by posing new questions, is to discover in terms of the principle of organization that unit of the component parts of a "palaeolithic" productive system and the relative importance of the various causes of the functioning. A mode of production "creates" not only the conditions of its own perpetuation but the conditions of existence of its own population through time and must be interpreted as the result of objective historical circumstances "reproduced" as a purpose in the form of a goal and not as a solitary stereotype. It seems that the power of this system consists precisely in its continuation through

time.

It is not perhaps a mere coincidence that a Marxist theoretical approach to the study of palaeolithic societies not only was scarcely considered among "western" researchers but has been regarded with a sullen hostility even in the exceptional cases where there was discussion. But Marxism has its particular interest in this connection; in it many of the problems and much of the promise associated with a number of important lines of inquiry come to light and are brought into clearer focus. One need not choose among them since they are one and all available to Marxist theorists and to others as well. But each has its theoretical presuppositions and ideological morality and one is entitled to any of them if one is willing to supply them with the theoretical considerations and critical imperatives appropriate to them. Doing so may or may not prove to be possible; the exploration of this possibility is one of the main tasks falling alike to Marxist theory, and to history more generally at the present time. The outcome of this exploration will have a great deal to do not only with the future course of "scientific alienation" but also with future approaches to the entire matter of the way in which human conduct, practices and institutional arrangements are to be reckoned with in this aspect.

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