



Marxism, Structuralism and Vulgar Materialism

Author(s): Jonathan Friedman

Source: *Man*, New Series, Vol. 9, No. 3 (Sep., 1974), pp. 444-469

Published by: Royal Anthropological Institute of Great Britain and Ireland

Stable URL: <http://www.jstor.org/stable/2800695>

Accessed: 12/06/2009 12:36

Your use of the JSTOR archive indicates your acceptance of JSTOR's Terms and Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>. JSTOR's Terms and Conditions of Use provides, in part, that unless you have obtained prior permission, you may not download an entire issue of a journal or multiple copies of articles, and you may use content in the JSTOR archive only for your personal, non-commercial use.

Please contact the publisher regarding any further use of this work. Publisher contact information may be obtained at <http://www.jstor.org/action/showPublisher?publisherCode=rai>.

Each copy of any part of a JSTOR transmission must contain the same copyright notice that appears on the screen or printed page of such transmission.

JSTOR is a not-for-profit organization founded in 1995 to build trusted digital archives for scholarship. We work with the scholarly community to preserve their work and the materials they rely upon, and to build a common research platform that promotes the discovery and use of these resources. For more information about JSTOR, please contact support@jstor.org.



Royal Anthropological Institute of Great Britain and Ireland is collaborating with JSTOR to digitize, preserve and extend access to *Man*.

<http://www.jstor.org>

MARXISM, STRUCTURALISM AND VULGAR MATERIALISM

JONATHAN FRIEDMAN

University College London

The main arguments of this article were first conceived in a polemical context¹ which I have chosen to leave largely intact, primarily as a necessary response to the already existing polemic on the other side (Harris 1968). The rather schematic presentation and reduction of a great many issues to a few themes has been undertaken to emphasise a number of problems which I feel are crucial to the future of anthropology.

I

The recent dialogue in Paris between structuralism and marxism has led to the incorporation of important elements of structuralist analysis into a more sophisticated marxist approach based on the 'model' developed in the *Grundrisse* (1907) and *Capital*. Diametrically opposed to this is what I have chosen to call vulgar materialism in light of its intellectual affiliation with older forms of mechanical materialism. This includes the ecological anthropology of Vayda, Rappaport and others, and, in a more obvious way, the cultural materialism most recently espoused by Marvin Harris. Although Harris claims Marx as an ancestor, it should soon be clear that this is a purely fictitious kinship based on a serious misunderstanding of what Marx was trying to accomplish. The new mechanical materialism developed out of a quite understandable reaction to the almost exclusive concern for ideology and semantics which has come to dominate much of anthropology. But, as the reaction was more visceral than reflective, it produced the simple mirror image of cultural idealism. Those who would find a striking historical parallel here should beware. Properly speaking, Hegel turned 'right side up' yields Feuerbach (1957) and not Marx. Harris seems to recognise this, but in terms of his dualist world view which divides all theories into materialism and idealism, Marx becomes an eclectic whose error was to 'shackle cultural materialism to the spooks of Hegel's dialectic' (Harris 1968: 3). Harris cannot be entirely blamed for this misguided view since it is rooted in an old tradition which has as its complement the equally false Hegelian view. Just as the latter never accepted the difficulties of late Marx, the former, while totally ignoring *Capital*, would simply remove the dialectic from early Marx. Vulgar materialism turns Hegel right side up but preserves the relationships between mind and matter, idea and activity, 'superstructure' and 'base'. What was a material manifestation of the Spirit becomes the epiphenomenon of the material object. Thus, the attempt 'to decontaminate, so to speak, the materialist approach to history' (Harris 1968: 3) remains the willing prisoner of the 'bourgeois cultural idealism' (Harris 1968: 3) from which it seeks to escape. The *Man* (N.S.) 9, 444-469.

new functional ecology, through its *a priori* assumptions, is similarly entrenched in the ideological matrix of vulgar materialism even though its ultimate source and possible salvation is the far more productive framework of systems theory.

In order to transform these accusations into arguments, I will explore, briefly, what I feel are crucial areas of marxism and structuralism in the hope of shedding some much-needed light on the issues as well as demonstrating the extent to which the new materialism is an idealist materialism.

The Marxist model

The theoretical framework which has been emerging in the past few years has involved an elucidation of Marx's work, especially the post-1848 writings, in terms of recent contributions of structuralist thinking. It has also led to an expanded view of the social field which could render possible hypotheses about social formations as wholes. In structuralist terms this would be a framework for handling the as yet unapproachable problem of 'l'ordre des ordres' (Lévi-Strauss 1958: 347) or vertical structures which account for societies as entities. Further, it is the only way that one can get at a real theoretical history. For unless we assume that history takes place outside the object of study and according to some meta-social laws of its own, then the problem of diachrony and synchrony must dissolve in the understanding of the dynamic properties of social systems. It is the knowledge of the fundamental structural properties of social reproduction which enables us to predict the way a society will behave over time.²

We begin with the object of analysis which is, for Marx, the social formation whose analytical categories can be stated in terms of the following hierarchy (fig. 1):

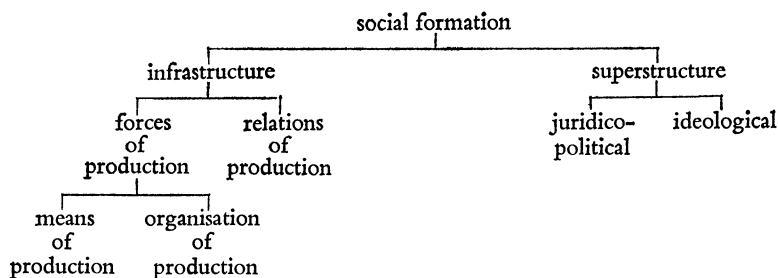


FIGURE 1.

There is nothing implied in this hierarchy other than a set of *functional distinctions*. No restrictions are made regarding the kinds of cultural elements which take on the functions nor the number of functions which can be embodied in a single element (Marx 1967 vol. I: 81-2, fn.). We must distinguish between the structure of an institution and its place (i.e. function) in the material structure of social reproduction. Kinship structures may function as both relations of production and ideologies on which mythologies are constructed, and juridical relations may merge with certain aspects of relations of production as in capitalist property forms. A particular social formation is no more than the global structure which

unifies the elements of infra- and super-structure in a historically specific way. Similarly, a 'mode of production', for Marx, is a historically specific infrastructure.

Relations of production

It is necessary to be absolutely clear about the nature of 'relations of production'. These are not simply the organisation of the work process. The latter is, properly speaking, a technological phenomenon, a part of the production possibility function of the society. We must always distinguish the technological from the social process of reproduction. It is only to the latter that the notion 'relations of production' can be applied if we are to avoid the confusion of certain marxists who see a 'mode of production' in every technological activity (Terray 1969; Meillassoux 1967; 1972).

Relations of production are those *social relations* which dominate (i.e. determine the economic rationality of) the material process of production in given technological conditions—at a given stage of development of the forces of production. More specifically, they determine:

- a. The use to be made of the environment within the limits established by the available technological possibilities;
- b. the division of productive labour—who shall and shall not work, and the intensity of labour input within the limits set by the production function;
- c. the forms of appropriation and distribution of the social product and the utilisation of surplus;
- d. the 'socially reckoned' value of the rate of surplus (s/v) and the rate of profit ($s/c+v$).³ As real values, the above ratios represent the potential productivity of a given level of development of the forces of production. The social relations of production, however, impose a less than objective evaluation of the reproductive potential of the society. The classic example from capitalism is the overvaluation (overproduction) of capital.⁴ Because of the tendency to maximise the price-value of means of production, the overall rate of depreciation of capital tends to be much slower than the real rate of increase in productivity. In terms of energy costs, means of production should become cheaper at the same rate as the increase of social productivity of labour (equivalent to the rate of decrease in the energy cost of reproduction of means of production). But means of production in the form of marketable private property titles must be valued in terms of their historic price. Devaluation due to increased productivity is the equivalent of an absolute loss to the owner and his creditors. To avoid this predicament the capitalist must overvalue his old capital at a rate equal to or greater than the rate of increase in real productivity. Since property titles need not correspond to items having productive potential, we must add to the basic overvaluation of real capital the purely fictitious capital markets (land, stocks, bonds etc.). The net effect of the parasitic growth of fictitious values is that capital in its fetishised form becomes a 'fetter' on the development of the forces of production. Since capitalists' value of 'c' rises faster than the rate of increase in real output, the apparent rate of profit, $s/c+v$, will tend to fall. This is expressed in falling liquidity ratios, credit squeezes, monetary crises and, eventually, recession or depression when devaluation finally occurs. To say that the debt service of an economy grows faster than the growth of real output is to say that the costs of social reproduction are being overvalued at an increasing rate.

It is not, of course, necessary that the society have categories corresponding to s , v and c . The 'social reckoning' which occurs directly (if incorrectly) in capitalism may only appear as an indirect result of the functioning of other social relations in pre-capitalist forms. What is crucial is that every social system has objective energy costs of reproduction as well as a technologically determined rate of potential surplus, and that the society must, in one way

or another, relate to these objective conditions of its functioning. It is precisely the way in which this occurs (a property of the relations of production) which determines the long term behaviour and limit conditions of existence of a mode of production.

We might add, however, that contradictions similar to that described above for capitalism do occur in other formations whenever the relations of production and the corresponding exchange system are such that debt can be generated at a faster rate than increasing output (Friedman 1972).

The social relations of production define the specific 'rationality' of the economic system. They are not, nor can they be, technical relations, a part of the organisation of labour. It is, then, incorrect to proceed on the assumption that the mode of production is a technological phenomenon. This would appear to be the greatest error into which marxists have fallen in recent years.

Dialectic

The establishing of the preceding categories is only the beginning; for Marx's central contribution was to formulate the nature of the relationships between the elements of a social formation, and it is here that structural marxists have concentrated their attention.

The elements of a mode of production are not linked by simple cause and effect, but, on the contrary, by complex structures which, if we are content to remain superficial, can only be characterised by reciprocal causality. To assume, however, that this is a sufficient description, as many have done, is entirely to miss the point. I shall begin, instead, following Godelier's analysis (1966) by distinguishing inter-systemic and intra-systemic contradictions. The latter are contradictions within a structure; for example, between classes, or more generally, between systematically self-contradictory aspects of a social relation (e.g. in asymmetrical connubia, between the accumulation of prestige and the egalitarian political structure implied by the closure of marriage circles). Inter-systemic contradictions are those that exist *between* structures.⁵ This notion is not found in dialectical sociologies, but it is crucial for understanding the dynamics of any social formation. The fact that, although central to Marx's later works, it has been overlooked, is due to the Hegelian tradition which enveloped much of the interpretation of early Marx. Hegelian contradictions are always produced within a unity. As such, the Hegelian metaphor can be extended to cover intra-systemic contradictions with the only result that they appear simpler and neater than they really are. However, the extension of the metaphor to intersystemic contradictions entirely obscures the nature of a relationship which is better expressed in the framework of systems analysis. This relationship is one of mutual constraint. Expressed mathematically, it is analogous to mutually limiting functions in systems of equations which impose inequality side-conditions on one another. Here the functions are autonomous; but the range of values which they can take is limited by the other functions. Structurally, it is a case of constraints on the possible combinations of given elements or on variations in their relations. This is what characterises the marxist notion of 'law of correspondence.'

This correspondence, which determines the causality of each structure, has limits which reveal their objective properties. With the onset of these limits, contradictions appear between the structures (Godelier 1966: 93).

Within this framework, a contradiction is defined as the *limit of functional compatibility* between structures. In Marx's analysis of capitalism, the intra-systemic contradictions (class struggle) are insufficient by themselves to cause a breakdown of the system. Their effectiveness depends on the development of the inter-systemic contradiction between forces and relations of production, for it is the latter which sets the limits on the development and stability of the system as a whole.

As we can see, intra- and inter-systemic contradictions are not of the same order. The former is a property of a structure itself. The latter is the result or effect of the coexistence of several structures in a larger system.⁶ Thus, in order to give a complete rendering of a social formation we must include the inter-systemic relations themselves. This brings us to the notion of *structural dominance*. The different levels of organisation are linked by functional relations which are imposed by the dominant relations of production; hence the characterisation of modes of production by the titles 'capitalism', 'feudalism', 'slavery', and not by technologies. The existence of inter-systemic relations does imply that causal or functional statements can be made about them. In capitalist forms, profit, investment, wages, output and consumption are all linked in such a way that a change in one will cause changes in the others. But such relations exist between systems or elements themselves and *not between their structural properties*. Thus, increased investment can raise productivity directly within the bounds of a given production function, e.g. by moving from A to B on the function T₁ (see fig. 2).

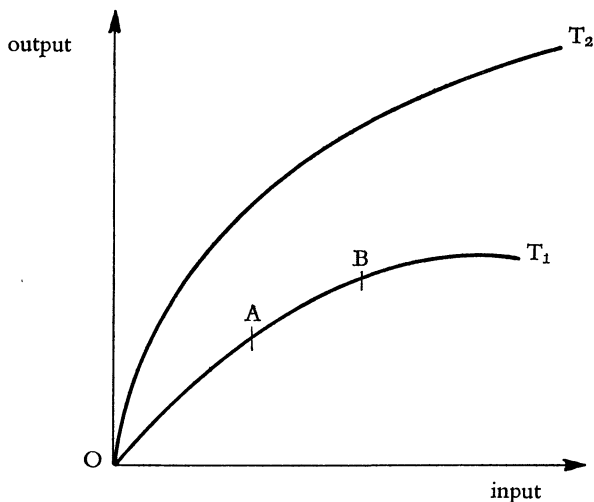


FIGURE 2.

However, the same kind of relation does not exist between increasing investment and a shift from T₁ to T₂. Technological change can only be *directly* determined by its own internal possibilities of development (including here the state of technical knowledge and science). New investment can only change the conditions in which the technology functions and evolves by influencing the social selective environment in which it operates.

The key to the whole affair is what has been referred to as the *relative autonomy* of structures, that is, *the autonomy of their internal properties*. A contradiction between subsystems occurs as the result of a dominant structure causing inter-systemic relations to strain to the limits of functional compatibility, but these limits are defined by the subsystems themselves. It is the relative autonomy of structures which entails the necessary existence of two distinct kinds of relationship, those within and those between. And it is the substructures themselves which doubly determine the larger whole: first, by delimiting the kinds of functions which can serve to unite them, and second, by fixing the breakdown limits of those functions.

All this is far removed from Hegelian dialectic. The only places where Marx makes use of Hegel are in his analyses of the process of commodity fetishism; the transformation which represents exchange value as use value and the inversion of the whole process of formation of market value.⁷ If his exposition relies on elements of Hegel's vocabulary, it remains impossible to confuse his analysis with that of the metaphysician. Marx is concerned with the metamorphosis of underlying relations into immediately perceived appearances, i.e. social representations. If anything, the approach is closer to structuralism in its refusal to confuse levels of reality and its attempt to reveal the transformations which link them. It is never a matter of categories of Being in a universe where the rational is real.

The dialectic of Marx's later works makes an absolute distinction between social contradictions and semantic oppositions whereas the confusion of the two is the cornerstone of Hegel's philosophy. The latter reduces society to a manifestation of the World Spirit whose movement is the product of conceptual opposition of the form black/white, Being/Nothing, or, in history, social rules/freedom; i.e. 'contradictions' between semantic features and not between incompatible properties of actual processes. As a result, we have what has been referred to by Godelier as Marx's rejection of the principle of 'the identity of contraries' (Godelier 1966: 84–9). Hegel demonstrates this 'identity' simply by pointing out that concepts can share certain features while being opposed for others (Hegel 1892: ch. 7). But unlike Marx and Lévi-Strauss for whom this is applicable to semantic processes involved in social relations, Hegel succeeds in generalising it by reducing heterogeneous reality to homogeneous Being, a project which is carried to its extreme in his *Philosophy of history* (1956) where the dialectic of Freedom governs the world's destiny.

In Marx, the contradictions (infra-structural) between structures are not part of their identity but are generated by their combination within a larger system of social reproduction. Thus, properly speaking, it is nonsense to talk of applying Hegel's dialectic to the material world. Conceptual oppositions cannot be turned upside down and applied to social structural incompatibilities without first accepting Hegel's entire ontology, by reducing material reality to that curious but convenient substance, Being, whose only properties are semantic.

Marx and cultural materialism

Certain things should now be clear. First, assuming that our subject is Marx in his most advanced theoretical works, the vulgar interpretation of his theory as

'cultural materialism' plus 'Hegelian Monkey' (Harris 1968: 230) must be rejected. Harris's view of dialectical materialism (Harris 1968: 217-49) is to a large degree the product of his own theoretical categories, and it leads him to caricature Marx as trapped in the conflict between 'scientific' causal materialism and the nonsense of dialectics.

Despite the Hegelian Monkey on their back, Marx and Engels must be credited with an important 'breakthrough' (Harris 1968: 230)

which is, according to Harris, that

Marx and Engels then boldly proclaimed that it was in the economic base that the explanation for both parts of the superstructure—social organization and ideology were to be found (Harris 1968: 231).

Harris makes every attempt to transform Marx's notion of 'correspondence' between relations of production (which he falsely characterises as superstructure) and the level of development of the forces of production into a simple cause-effect relationship.

It is this cause-effect relationship between base and superstructure which provides the strain toward consistency (Harris 1968: 235).

By assuming that Marx and Engels were basically cultural materialists he is able to dismiss as confusion on their part any notions which do not conform to his own views. With regard to the nature of 'mode of production' and the totally misconceived issue of the relative importance of forces versus relations of production, we are told that,

One of the principal sources of this confusion resides in the fact that Marx and Engels did not relate the transformation of feudalism into capitalism to changes in the technology of production (Harris 1968: 233).

On closer examination of Marx's writings we find that there is no such confusion, that Marx is not some intellectual cripple reaching out for the salvation of techno-demo-eco . . . causality but finally collapsing under the weight of the by now fully evolved Hegelian Gorilla. On the contrary, the source of the confusion lies in Harris's own attempt to make Marx say what he had no intention of saying. Forces of production do not cause relations of production. If Marx had wanted to say that he certainly could have done it. Instead we find the linked concepts of correspondence and contradiction which I have already discussed at length. Relations of production are not generated by the technology. The process of historical development depends on the relation *between* technology and relations of production. Feudalism develops itself and its forces of production in such a way that a conjunction of internal and external contradictions cause its breakdown, thus freeing formerly subordinate elements (labour, liquid capital) which now begin to dominate the process of social reproduction (Dobb 1963; Kula 1970; Vilar 1971; Titow 1961). In *Capital*, Marx devotes some of his most interesting chapters to the manner in which capitalist relations of production become established in the *previously evolved* technology and their part in transforming that technology. A social formation can only be understood in terms of the total combination of its inter-systemic constraints. The level of development of the forces of production is

determinant 'in the last instance' because it sets the outer limits on the possible variation of the relations of production. If this can be called causality, it must be a *negative causality* since it determines what cannot happen rather than what must happen. Nor is this an argument for 'limited possibilities' (Harris & Morren 1966). The possible relations of production may be much more diverse than those which actually occur in conjunction with a given technology. Positive causality exists, for Marx, within structures which have their own laws of development, not between structures.

II

Structuralism

The work of Lévi-Strauss represents one of the most important theoretical developments in anthropology, and, while not being in itself marxist, it is essential for any future models of social reproduction. It is not my intention here to defend mentalist, rule-behaviour, interpretations, often based on misleading statements by Lévi-Strauss. It is not necessary to assume that kinship or mythology can be reduced to mental structures—this is purely gratuitous with respect to the object of study. The same argument, of course, must be made for Marx whose perhaps 25 lines of introductory remarks culled from various writings serve as the basis for mechanical materialism, lines which, if taken seriously, would render the entire project of *Capital* quite absurd, replacing it with a theory of industrialism. In the following, I will outline the way in which structuralism might be incorporated into marxism as well as indicating how certain ideological misinterpretations would oppose the two.

The notion which is most useful from a marxist standpoint is that of a 'system of transformations.' This concept has had two principal usages. First, it is a way to analyse variant representations of social relations, a generalised and more sophisticated form of Marx's analyses of relations of inversion between levels. More important here is the idea of structural variation on one level of organisation in time or space. The *Structures élémentaires de la parenté* (Lévi-Strauss 1967) is an attempt to show how a great number of kinship systems can be reduced to a few underlying exchange structures. Recent works by Dumont (1966) and Yalman (1967) have made use of this notion to relate groups of transformations to on-the-ground variables. In this sense we might well see an analogy between structuralism and genetics with respect to evolutionary theory. Both attempt to provide the variation upon which other factors operate to determine a particular social structure or bioform. As such, a system of transformations is a set of structures which are all of the same family, that is, they are generated by the same fundamental properties. However, the occurrence of a specific variant cannot be determined by such analysis. On the contrary, the occurrence or possible occurrence of a particular structure depends on its functional compatibility with the constraints of the local techno-ecology. While Lévi-Strauss does discuss what he thinks are psychological principles which relate to dualistic structuring, it is interesting to note that he also stresses the crucial man/environment features which are its basis.

The situation is completely different in groups where the satisfaction of economic needs rests entirely on a conjugal society and on the division of labour between the sexes. Not only

do men and women have different technical specialisations making them dependent on one another for the production of objects necessary for daily life, but they are engaged in the production of different types of food. Thus a complete and above all regular diet depends on the veritable 'production cooperative' constituted by the household . . . Especially at the most primitive levels where the rigour of the geographical milieu and the rudimentary state of the technology make hunting, gathering and gardening all risky occupations, existence would be almost impossible for the lone individual (Lévi-Strauss 1967: 45-6—my translation).

Thus, the ultimate determinant of restricted exchange is the social reciprocity demanded by the technical conditions of life. *However, the form which this reciprocity takes is not in any sense 'caused' by those conditions.* While Lévi-Strauss is not concerned with relations between forces and relations of production, it cannot be said that he is unaware of them or that he simply deduces social structures from properties of the mind. *Les structures élémentaires* is the analysis of a particular level of a kind of social formation, and it is in this respect a major breakthrough in the social sciences.

Many anthropologists who have not fully grasped the significance of the explanation of kinship in terms of exchange still interpret it solely as an analysis of the implications of certain forms of marriage. This kinship fetishism reduces restricted and generalised exchange to types of bilateral and unilateral cross-cousin marriage whereas, in fact, the structuralist formulation goes the other way around. Exchange systems generate specific distributions of kin categories and not vice versa. Bilateral second cross-cousin marriage is not the cause but the result of alternating reciprocal exchange between two pairs of local groups. All the elaborate rules and categories are lower order mechanisms which enable individuals to work the system. This is a long way from older functional explanations which sought to 'explain' kinship in terms of itself, ending up with such rationalisations as Radcliffe-Brown's reduction of the Arunta system to MMBDD or Murdock's cross-cutting make-believe moieties (Dumont 1966).

Harris's treatment of Lévi-Strauss, like his treatment of Marx, is more revealing about the limitations of his own theoretical framework than about structuralism. He is immediately classified as emic, Hegelian, and above all, mentalist. This, in turn, is a mere reflection of Harris's total refusal to admit the existence of statements which are, properly speaking, explanatory, i.e. which recapitulate neither mental categories nor statistical distributions of behaviour. For Harris, statements which do not *re-present* actual behaviour must be mentalistic. Thus, Needham and Maybury-Lewis⁸ who *are* mentalists turn out to be the main targets of Harris's critique of structuralism even though Lévi-Strauss has rejected their equally empiricist rule-behaviour approach to the analysis of exchange systems.⁹ To insist that the latter does no more than present 'idealized marriages from which beautifully idealized exchange cycles result' (Harris 1968: 505) can only be the effect of ignoring the main sections of *Structures élémentaires* which deal with anything but ideal types. Lévi-Strauss's use of models is similar in many ways to Marx's analysis of capitalism. The latter is a complex structural model, and a discussion of its properties makes up the main parts of *Capital*. In neither case are models simply abstract descriptions of actual behaviour. They are hypotheses about the way behaviour and ideas tend to emerge as the result of dominant underlying structures.

Marx shows how capitalist relations of production distribute surplus value into categories of rent, interest, industrial profit etc., and how these categories are extended into and reorganise pre-capitalist systems. Lévi-Strauss shows how asymmetrical exchange determines matrilineal cross-cousin categories and how these extend themselves to new groups, incorporating them into the original exchange network. It is never a question of describing an actual society. The model of capitalism does not change from society to society even though there might be great variation in the number and kind of non-capitalist features which co-exist with the dominant structure. Similarly, the matrilineal exchange model is not meant to be a description of any particular society, but rather, a hypothesis about the way certain elements are related. The empiricist misunderstanding of the model is epitomised in Ackerman's critique which is emphatically accepted by Harris (Ackerman 1964; Harris 1968: 508). His analysis of Purum statistics, using a simple chi-square test makes the completely false assumption that all groups should be in the wife-giver/wife-taker relation when, in fact, the properties of the model entails that each group will be unrelated to the majority of the others. Ackerman's discovery of this 'fact' is not a falsification of the model but the result of his uninformed use of statistical data. The existence of reciprocal alliances (which would be 15 per cent. instead of 30 per cent. if the author had counted correctly)¹⁰ is related to the normal process of group fission in which a new segment will reverse an alliance made by the original lineage as an assertion of its independence.¹¹ This, of course, is very different from bilateral exchange over time, but it is a commonplace that statistical distributions can tell us nothing about the relations which generate them.

While the aims of *Structures élémentaires* and *Capital* are very different, they both attempt to explain a certain reality in terms of what are conceived of as fundamental underlying relations. To argue that this is an old idea overlooks the fact that it is indeed a rare phenomenon in the social sciences. The older functionalist explanations were little more than abstract descriptions, and more recent neo-functionalists and cultural materialist explanations have not really extricated themselves from the round-about tautology so characteristic of statements like 'the function of the MB-ZS relationship is to maintain the population's techno-economic adaptation' (Harris 1968: 530).

A structural-marxist model

The work of Lévi-Strauss is not marxist as it stands. While he is primarily concerned with the analysis of specific levels of social formations, he is not interested in inter-systemic relations and the structures of reproduction of the society as a whole. While, as we have seen, one can easily interpret the transformations of elementary kinship as elaborations on a principle of reciprocity which is 'necessary' at a particular level of development of the forces of production, Lévi-Strauss does not make that kind of argument central to his work. The structuralist can generate a system of transformations, but he cannot explain how they are to be distributed, which forms can or cannot occur and the limiting conditions of their existence. Great progress has been made in the explanation of kinship as exchange, but there has been no attempt to show how exchange and production are united

in a larger whole. It is, however, this progress which enables us to build the necessary larger models.

In *Structures élémentaires* Lévi-Strauss hypothesised about the evolution of Kachin-type structures towards a kind of stratification. The hypothesis was derived from certain properties of the model of generalised exchange, whose distinctive feature is that women and men marry into different groups, thus precluding the possibility of direct reciprocity. In the patrilocal, patrilineal case, women move in one direction while brideprice and/or service moves in the opposite direction. Lévi-Strauss has shown that in the simplest case the system tends to be circular and therefore egalitarian, but that with a large number of groups this becomes difficult to maintain, resulting in a number of interlocking open cycles. The other essential feature of the structure has to do with the differentiation of status. The act of giving creates a creditor and a debtor, and in this particular case, wife-givers, as creditors, rank higher than wife-takers. Even in a system of small circles of local lines the MB-ZS relation is of this type. But the differentiation is minimal and non-transitive since the closure of the circle implies that there can be no real rank differences ($A > B > C > A$).

The structure I have described is linked with production and distribution in a way which can explain its development. Increased production of some local lines can be turned into prestige by feasting, that is, by distributing lineage surplus. When differential production and the resultant differentiation of prestige are linked to the wife-giver/wife-taker relationship, a formerly transient and symbolic status difference can become very real. The system tends to expand over time, incorporating new groups, and status differentiation is increased in a positive the structure of feedback sort shown in fig. 3.

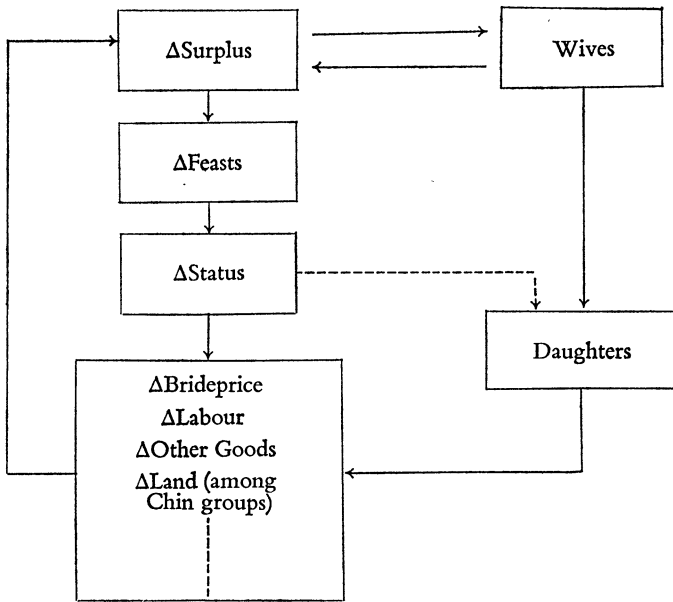


FIGURE 3.

Historically, it is possible that the kinds of items negotiable for women have a determinate effect on the evolution of the system, especially with regard to land and labour. It can be seen, contrary to Leach (1961: 88–9) that the system is not in equilibrium, for while cattle, the main item of brideprice, is returned to wife-takers in the form of feasts, prestige is always moving in a single direction and, as we have tried to show, tends to accumulate increasingly. Secondly, Leach's earlier association of matrilineal cross-cousin marriage with ranking does not hold, even in terms of his own later analysis in *Political systems of highland Burma*¹² where he assumes a historical connexion between egalitarian (*gumlao*) and ranked (*gumsa*) societies.¹³ Lévi-Strauss seems to have been closer to the truth in hypothesising that it is the asymmetrical nature of the exchange which provides the basis for speculatively high brideprice and the resultant transformation of egalitarian circles into extensively ranked hierarchies.

Generalised exchange presupposes equality and it is the source of inequality. It presupposes equality because the theoretical condition for the application of the elementary rule is that the operation C marries a which closes the cycle is equivalent to the operation A marries b which opened it. In order for the system to function harmoniously an A woman must be worth a B woman, a B woman worth a C woman and a C woman worth an A woman; in other words the lineages A, B and C must have the same status. By contrast, the speculative character of the system, the expansion of the cycle and the establishment of secondary cycles among enterprising lineages for their own advantage, and finally, the inevitable preference for certain alliances resulting in the accumulation of women at certain points in the circuit; these are all factors of inequality which can cause a rupture at any one time. We arrive, then, at the conclusion that generalised exchange leads inevitably to anisogamy, that is, to marriage between people of different rank; that this must appear all the more clearly when the cycles of exchange are multiplied or expanded; but that at the same time it is at variance with the system and must therefore lead to its downfall (Lévi-Strauss 1967: 306—my translation).

Something is lacking in this argument. While the structural conditions for the transition from *gumlao* to *gumsa* are well established, the substantive conditions for the 'speculative character of the system' are not given. Although criticised by Leach for arguing evolution on a purely formal basis (Leach 1961: 77–80), Lévi-Strauss is well aware of the problem.

But the dangers which threaten it come from outside, from concrete factors and not from the formal structure of the group (Lévi-Strauss 1967: 308).

The 'concrete factors' which are exterior to the structuralist analysis are an essential component of the marxist analysis. Lévi-Strauss has identified the basic intra-systemic contradiction of asymmetrical exchange; *the simultaneous implication by a single structure of status equality and status inequality*. The way in which this contradiction can develop depends, however, on the intersystemic relation between the social structure and the forces of production; on the way surplus of local lines can be realised, and on the limit conditions of that realisation which are ultimately determined by the production function of the economy. More specifically, by combining the exchange structure with the production-distribution structure we are able to explain the transition from *gumlao* to *gumsa* and back in a systematic way. This transition is an evolution towards class structure, but, as Leach's data indicate, there is a breakdown in *gumsa* society, a *gumlao* rebellion which not only halts the development but reinstates an egalitarian form. Leach's interpretation of

this phenomenon as an equilibrium about a point cannot be taken seriously since it no more than recapitulates, in different language, the apparent oscillation between the two extremes without helping us understand the reasons for it. To explain the phenomenon we can again make use of our model. The positive feedback mechanism which I described depends on increasing real output which is, in fact, limited by the level of productivity of the technology.¹⁴ Historical documentation indicates that *gumlao* rebellion occurs when Kachin chiefs try to increase the socio-economic distance between themselves and their people by refusing to fulfil kinship obligations, by attempting to turn the wife-giver/wife-taker relation into a 'lord/peasant' relation. In fact, as I have tried to show elsewhere (Friedman 1972), it is probably not chiefly initiative pure and simple but the increasing indebtedness of non-chiefly lineages (at the same rate at which prestige is accumulated by the former) which lays the foundation for the development of an exploitative relationship. The production system, however, does not put out enough surplus to enable the kind of elaboration towards stratification generated by the exchange structure. This explanation of the *gumsa/gumlao* cycle is a specific case of Marx's general hypothesis concerning the contradiction between forces and relations of production. It is the development of this contradiction which is expressed in the aggravated contradiction on the level of relations of production (the only 'lived' level) between wife-givers and wife-takers, or specifically, between the chiefly lineage and its dependents. Thus, what appears as a cycle is the result of a development which is self-limiting. With this in mind, it is interesting to note that in those areas of the Kachin Hills where there are jade mines, where direct control could be exercised over trade routes, or simply when Kachin moved into the fertile plains of Assam, we find the development of 'asiatic'¹⁵ type states which seem to have been relatively stable. This can be explained by the presence of revenue sources beyond those of slash-and-burn agriculture. A neighbouring hill group, the Palaung, who cultivate swiddens, might be expected to conform to the normal Kachin pattern. Some of these groups, however, have a political structure like that of the Shan, a stratified valley population. This appears to be tied to the fact that the Palaung grow tea, an extremely remunerative trade crop, which is the foundation of their elaborate political organisation. One might venture to argue that, in a different techno-environment, a Kachin type system will tend to become transformed into something like a Shan state. The Kachin exchange system tends to increase output to the limits defined by the production function of the social technology, but it can go no further, not because of the concrete nature of the agricultural activity (as cultural materialism might have it), but because the potential productivity of the technology is being realised, setting a limit on a political elaboration which would demand a further increase in surplus.

By determining the real relationship between forces and relations of production as well as understanding the internal structure of the latter, we can hope to go a long way towards explaining the distribution and development of social formations.

III

Vulgar materialism

Vulgar materialism, mechanical materialism, and economism are terms which refer to a simplistic kind of materialism, rejected by Marx, which envisages social

forms as mere epiphenomena of technologies and environments, either by direct causation or by some economic rationality which makes institutions the product of social optimisation. This approach has made its appearance in the form of what Sahlins has called the 'new materialism' (1969: 30); neo-functional ecology and cultural materialism, both of which are embedded in the functionalist-empiricist ideology which has characterised most of American social science.

*The new functionalism*¹⁶

The new functionalism is fundamentally the same as the old functionalism except that the field of application has changed, the interest now being to show the rationality of institutions with respect to their environments rather than to other elements in the society. But the concept of function, borrowed from physiology, remains unchanged, and it leads the 'new ecology' (Murphy 1970: 164) into a double impotency:

a. In its more modest form, it dissolves into pure description. The function of the stomach is to digest food; the function of ritual pig slaughter is to regulate pig populations—i.e. the function of x is to do what it does. The word here is totally superfluous and adds no information unless we assume some metaphysical notion of purpose implied in the following.

b. By extension to the teleological meaning, 'function' becomes 'adaptive function'. Here we are still dealing with our first definition, 'the function of x is to do what it does,' but now the 'what it does' is not an observed datum, and we are left with what is basically a description of imaginary relations, where the 'function' is assumed rather than demonstrated. This should be evident in the following cases.

Potlatch

The consensus among cultural ecologists is that the function of the potlatch is to distribute necessary goods (food) among groups with variable productivity over time (Suttles 1960; Vayda 1961; Piddocke 1965). The basis of this assertion is that:

- a. the potlatch is a large distributive feast involving several groups;
- b. reports and myths indicate real variation in productivity and periodic starvation.

But we are *never* told if the potlatch operates to transfer food from rich to poor groups. The structure of the circulation system is the key to any assertion about its adaptive function. Now, in fact, as demonstrated by Rosman and Rubel (1971), wealth is converted into food along channels established by affinal links, and potlatches are given at marriages, funerals and other ceremonial points in the life cycle. If the potlatch functioned to equalise distribution, it would be required that food be *automatically* transferred from areas of high to low productivity. If A and B are respectively rich and poor but not linked affinally, the system does not prevent B from starving. Therefore, the potlatch does not necessarily do what it is meant to do, and we are quite justified in reinterpreting evidence of periodic starvation as a demonstration of the degree to which the system does not work. This is not to say that the potlatch is necessarily maladaptive since any distribution increases the

probability of survival in the conditions described. But we have not even begun to explain the nature of the institution, since, if it were non-adaptive, the society as such would not even be there. Adaptation is defined negatively, in terms of compatibility with environmental conditions, and to insist that the potlatch is adaptive is a 'weak kind of functionalism, accounting not for its existence but merely for its feasibility' (Sahlins 1969: 30).

The sacred cow

A further example is Harris's analysis of the 'sacred cow' in India (1966). Here again we find the argument of rationality.

Insofar as the beef-eating taboo helps to discourage growth of beef-producing it is part of an ecological adjustment which maximises rather than minimises on the calorie and protein output of the productive process (Harris 1966: 57).

Insofar as such a statement is directed against those who are totally unaware of the function (in the descriptive sense) of cattle in the Indian economy, it is a point which must be made. But it is dangerous, politically and theoretically, to stop there, holding everything constant and then asking what cattle do in the system. The all too quick answer is that the Indian peasant would be at a total loss without cattle and thus that any institution which prevents cattle consumption will necessarily increase the probability of having enough animal power of all kinds for the numerous needs of the population. It is dangerous to take as given the entire system within which the element 'cattle' operates. Once one has described the actual state of affairs it is tautological to say that a particular variable is adaptive simply because it has a necessary function in the total system. It is the system which defines the necessary function of its elements, and to treat the element independently is to avoid the real problem. It is more probable that the man/cattle relation is part of an economy which may very well function far below its capacity output. This is a system involving social and especially property relations, to say nothing of international relations, which determine the way land is used or, more important, not used, the kinds of crops that are grown, and the way technological resources are allocated for production. By reorganising the system of production to raise productivity, which would certainly imply a radical reorganisation of the social structure, there is every good reason to believe that there are ways of increasing the population growth rate in such a way as to make beef consumption possible while further increasing agricultural yields due to the improved physical condition of animals, and all within the same basic fund of technology.¹⁷ In sum, although one might want to argue that the man/cattle relation in India is adaptive given the constraints of the socio-economic system (not discussed by Harris who makes it all sound like a problem of ecology) of which it is a part, it is potentially disastrous not to talk about the system as a whole. It is practically apologetic to assume that an institution is adaptive because it functions to keep a variable above a certain lower limit when, in fact, by treating that society as a whole we find that the present organisation establishes an *upper limit* which, if the society were reorganised, would itself appear in the lower range of adaptiveness. In terms of the potential of the system, we must revise the earlier assertion, saying instead that the taboo on beef-eating maximises total calorie and protein output within a set of constraints which

holds that output far below capacity. It is a deadly weakness of functionalism that it identifies the rationality of the element while ignoring the rationality of the system.

Negative feedback

Recently it has been pointed out that, formally, what is going on in these functional analyses is the description of negative feedback systems, that is, systems in which certain variables are kept within certain crucial limits by the operation of other variables which are *dependent functions of those limits*. Rappaport's analysis of the Maring ritual cycle (1967; 1971) is certainly the most important work to come out of neo-functionalism, and it makes ample use of this concept. According to his analysis, the ritual pig feasts operate as a negative feedback mechanism which keeps local pig herds below the level at which they would cause environmental degradation, destroying the energy base of the society if not the larger ecosystem. But his own data do not necessarily support the model which he imposes on them. A formal representation of the relations between the relevant variables should help clarify the argument (see fig. 4).

$$\begin{array}{l}
 1) \quad (dY - dY_p) \longrightarrow \text{Lim } N > 0 \\
 2) \quad \left. \begin{array}{l}
 \text{a) } \frac{dY}{dt} < \frac{dL}{dt} \\
 \text{b) } \frac{dL}{dt} \approx \frac{dY_p}{dt}
 \end{array} \right\} \Longrightarrow \text{c) } \frac{dY}{dt} < \frac{dY_p}{dt}
 \end{array}$$

Y = total consumable output
 Y_p = output consumed by pigs
 L = labour input
 t = time

FIGURE 4.

The system is pictured in terms of a production and consumption function. Condition (1) states that the limit of the growth of the pig population depends on the difference between the rate of increase in output and the rate of increase in the part consumed by pigs. (2) enumerates the conditions in which (1) operates: (a) corresponds to the onset of diminishing returns on the increased labour (energy cost), i.e. decreasing productivity. This does not operate immediately but usually, depending on the shape of the production function (partly determined by the organisation of labour), after some time. (b) simply indicates that the growth of pig consumption is more rapid than the increase in labour input which would certainly be the case unless new labour were recruited. The two conditions imply (c) that the growth of pig consumption is faster than the growth of total output, or, in other words, that the pigs consume an increasing proportion of the increasing output. This sets the first condition in motion.

The principal limit of the system as it is described by Rappaport is the point at which physical strain on women builds up.¹⁸ Since it is they who are burdened with the task of feeding and managing the pigs, they are the first to feel the diminishing returns on increased labour. All the evidence he presents indicates that it is this strain in the system which triggers the cycle. Yet his own 'explanation' appears to turn the whole thing upside down since he assumes that it is the ritual

cycle which regulates labour and not the converse. Secondly, if we treat labour as a variable (and perhaps environmental productivity as well) instead of as a constant, we cannot fail to see that it is the social structure which determines the nature and limits of labour input. While women do put in a great deal of work, the total household input, as shown by Sahlins (1971) is much closer to the minimum. If we compare the Maring to groups like the Enga (Meggitt 1965) or Chimbu (Brookfield & Brown 1963) we find that the size of pig herds is controlled by the exchange system of the groups involved. Strathern (1969) has shown that the man/pig relation is determined by the system linking feast exchanges to prestige ranking and the consequent ability to control labour input. The size of pig herds is the result of political decisions (within limits), and it is probable that in less egalitarian societies the labour input is higher since the number of pigs raised per household is often double that of the Maring. I fail to see that the environmental limit is involved at all, since among the Maring the cycle is triggered way below carrying capacity,¹⁹ and other groups probably come closer to that limit. The emergent picture is very different from Rappaport's negative feedback. Instead, we find that social relations determine the composition and quantity of labour with the consequent exploitation of the pig population somewhere within the limits of environmental adaptability. But these limits do not in any sense regulate the manner or degree of exploitation.

If a thermostat is set for 75 degrees, but the furnace which it regulates breaks down at 65 degrees every time, then we cannot speak of negative feedback. If we can approach the 75 degree limit with other furnaces it should be clear that the temperature limit is determined by the properties of the furnace and not by the thermostat. While it is valid to *describe* the ritual cycle as operating to keep the pig population below a certain level, it is incorrect to claim that it is a homeostat when no relation has been shown to exist between the limit and the triggering of the cycle.

IV

Cultural materialist causality

While superficially distinguished from functional ecology, this approach is really very close to the one we have just described. Harris defines his position as follows:

I believe that the analogue of the Darwinian strategy in the realm of socio-cultural phenomenon is the principle of techno-economic determinism. This principle holds that similar environments tend to produce similar arrangements of labour in production and distribution and that these in turn call forth similar kinds of social groupings which justify and co-ordinate their activities by means of similar systems of values and beliefs (Harris 1968: 4).

This 'research strategy' is clearly much closer to Lamarck than to Darwin. For the latter, variations in form are independent of the environment whose role is essentially negative (selective). It is Lamarck who believed that environmental change tended to generate immediate variation in bioforms. Secondly, as we have pointed out, Harris has truly inverted the Hegelian notion of determination by the Spirit, leading to Feuerbach rather than Marx, and it is very significant that this

important forerunner of mechanical materialism is not even mentioned in the *Rise of anthropological theory* (1968). Marx did not accept Feuerbach's simple inversion which 'arrives at dividing society into two parts one of which is superior to society' (Marx & Engels 1968: 660).

Some interesting implications can be drawn from Harris's 'strategy'. For example, if the technology gives rise to the social structure, we are obviously going to have trouble explaining the presence of different social structures in the same techno-environment. Nor are we going to be able to deal with social change within the same technology and vice versa. How do we explain the fact that capitalist society has been able to absorb two of the greatest technological revolutions in the history of *Homo sapiens*? How do we explain the possible advent of socialism on the same technological base that serves capitalism? The marxist approach is different.

We should not confuse the two systems on the pretext that they are two forms of industrial society having the same material and technological base (Godelier 1966: 164).

The theory of history which emerges from the cultural materialist paradigm is simply the lining up of causal arrows over time giving us a picture like that shown in fig. 5.

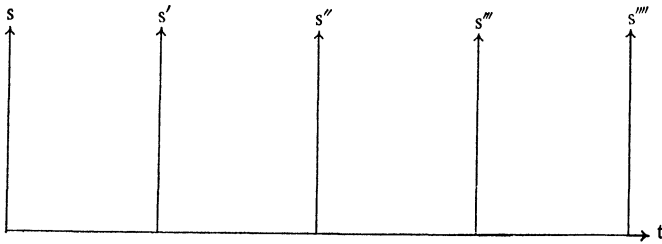


FIGURE 5.

't' represents the independent development of technology over time and the 'S's' are the various societies which emanate from their respective 'bases'. The inadequacy of this model with respect to the very important historical transformations above should be clear.

The whole endeavour runs into serious trouble when we try to discover to what the word 'cause' is referring. Nowhere is there any attempt to elucidate the actual relations between technology, environment and social structure. This, of course, is not necessary if we stick to statistical correlations where no such questions are ever asked. It is all too easy to think that one is verifying causal statements when one finds sequences of parallel technological and social items. This is not the case, however, since what is tested in the data is *only* co-occurrence and not the relation between the co-occurring items. 'A causes B' does imply 'A associated with B,' but the converse is simply not true. Thus, strictly speaking, a correlation can only be used to falsify a causal statement.

Where cultural materialism does deal with concrete cases of causation it regresses into the functionalism which we have already discussed except for the addition

of the word 'cause' which ascribes a dangerously Hegelian necessity to any particular social formation. Statements of this type take the form 'x happens in the presence of y because it is necessary for the functioning of y.' The classic example of this is Wittfogel's hydraulic hypothesis:

Thus a number of farmers eager to conquer arid lowlands and plains are forced to invoke the organizational devices which on the basis of primitive technology—offer the one chance of success: they must work in coordination with their fellows and subordinate themselves to a directing authority (Wittfogel 1957: 18).

The theory is that the functional management needs of large scale irrigation are such that a bureaucratically centralised state must emerge. Now, notwithstanding the existence of cases of intensive hydro-agriculture without state forms, there is ample evidence that where the two are linked, stratification precedes large scale irrigation. In this light I find Harris's critique of Adams incomprehensible.

Thus even if Adams is correct in maintaining that the first consolidation of political power was achieved independently of the organizational requisities of the hydraulic system, the achievement of Wittfogel's oriental despotic type remains closely associated with maximum hydraulic dependency (Harris 1968: 687).

But Harris has missed the point here. Of course the full scale state is associated with large scale irrigation, but the 'causality' goes the other way around. Expansion of power (in the already formed state) entails expansion of social surplus which entails expansion of the agricultural system and the development of maximally intensive farming. As for organisational requisites, it is economically impossible for the personnel supposedly needed for management to exist before the surplus necessary to feed them from the great irrigation works is available. This point cannot be stressed enough. If the bureaucracy is necessary for the functioning of the irrigation works, how do we explain the fact that the irrigation works must precede this bureaucracy? Finally, one must determine the extent to which the class living off the surplus product is necessary to management or, on the contrary, a non-productive and largely parasitic group. In this respect it is interesting that the Mauryan Empire, for example, which was not based on necessary hydraulic works, being situated in a monsoon area, developed a large 'bureaucracy' first and irrigation works afterwards.²⁰ The bureaucracy seems to have dealt more in tax-collecting and inter-court relations than in managing the hydraulic works which were largely controlled at the local level.

While we all agree on the large number of parallels in the evolutionary sequences discussed by Steward (1955: 178–222), these are not in themselves a proof of techno-economic determinism, for there are other kinds of historical determinism which can account for the same developments. This is related to the major drawback of the Wittfogel–Harris argument; reliance on the most concrete aspect of the data, i.e. irrigation itself, rather than on more abstract properties of the technology. Here we must stress the fundamental importance of the notion of the production function. There is no need to argue the functional necessity of the bureaucratic state and then to cover up with the blanket of diffusionism the fact that these states seem to occur in areas using rainfall or flood irrigation. An alternative kind of explanation is one which maintains the relative autonomy of forces and relations of production. Certain social relations of production and their corresponding exchange

systems have structural properties which tend to foster the development of centralisation and hierarchy to the extent permitted by the productivity of the technology. In this sense, hydraulic agriculture allows for an unprecedented development of stratification and control to the extent to which surplus, absolute and relative can be increased and appropriated by non-producers. Formerly ranked or minimally stratified societies can increase the degree of stratification by enlarging the productive base of the economy. While an analysis of the structural properties involved in such an evolution is much too complex and requires more space than we have here (Friedman 1972: 332-71), this kind of argument can explain the development of 'bureaucratic' or other forms of the state in any geographical milieu provided that we can show that the same or comparable amounts of surplus can be produced to support such a development. Wittfogel's diffusionist argument to account for the appearance of states in other ecological zones is economically inadequate by itself since the level of development of the productive forces must be such as to be able to support the imported social form.

The characteristics of the production function are crucial in determining the way in which a social system *can* develop as well as setting the limits of that development. To give a simplified example, irrigation agriculture has the specific property that population density can be increased many times while still maintaining the input/output ratio. This form of technology may not be more efficient than slash-and-burn cultivation, and the rate of surplus, s/v ,²¹ may be the same and in some cases smaller. However, the population density made possible by this technology is such that *absolute surplus* can be multiplied many times. If some of this surplus is transformed into improved use of fertiliser etc. there can even be an increase in relative surplus. This great volume of absolute surplus labour and product is the basis for the construction of large public works as well as the support for other classes. The production function also sets the limits on internal social development. The cyclical nature of Chinese empires, explained by Wittfogel (1957) in terms of 'diminishing administrative returns' is more probably a case of real diminishing returns. The 'bureaucratic state' tends, due to internal structural properties, to expand in such a way that the combination of increasing population and the extension of cultivation to less productive lands (the increased energy cost of extended irrigation works) cannot support the same or increasing demand for surplus. The result of this contradiction between forces and relations of production is the breakdown of the state. The production function determines the range within which the society can develop, but it does not tell us anything about the nature of the social structure except in so far as it places certain constraints on possible forms of organisation. This is a far cry from arguments about specific forms of agricultural activity. Various kinds of agricultural systems can and have given rise to bureaucratic states. In that the specific production functions involved may have varied, different kinds of limitations will have been placed on the separate developments (population density, limits of expansion, size of supported classes etc.). Still, the general character of these functions enables similar kinds of social structural evolution to take place.

The technological determinism of Wittfogel's hydraulic theory as accepted by Harris is inadequate if not false. More generally, we must stress that the demotechno-environmental givens are necessary but not sufficient to explain the

existence of a social formation. On the contrary, the properties of the social system itself are crucial in determining its development as well as its present behaviour within the bounds of a given technology.

A clearer example of Harris's own functional causalism can be found in his 'Classification of stratified groups' where class stratified societies are thought to have evolved 'because they were more efficient than their predecessors in meeting the metabolic needs of larger populations' (Harris 1963: 304).²² The essence of this kind of assertion is that 'state one goes to state two because of the characteristics of state two.' This is wholly inadmissible, having nothing whatsoever to do with explanation despite the use of the word 'because.' Similar statements would 'explain' the development of Kwakiutl hierarchies in terms of the need for centralised redistribution, and capitalist economy in terms of the need to manage large scale industrial organisation. Aside from the obvious emptiness of this functionalism, the added attraction of 'causality' would be rejected even by present-day functional ecologists.

I have discussed two forms of causalist explanation. The first is meaningless in the sense that no relation other than the word 'cause' is presumed to exist between any two co-occurring items. The second is a substitution of 'functional causality' for the word 'cause' but where, again, no substantive relationships are revealed in the analysis: so-and-so exists because of what it does; large-scale irrigation causes the social apparatus necessary to work it. In both cases we are faced with the same crucial error which consists in going directly from correlation to causality, by explaining similarities and differences in terms of themselves. When both the 'cause' and the 'effect' are included in the data, one is never forced to look further as long as there is some regularity in the statistical distribution. Such explanations, if they are truly 'empirical', verge on the impossibility of being falsified to the extent that they approach pure description. They are no more than a restatement of co-occurring facts coloured with a vocabulary which makes it look as if the co-occurrences are necessary.

Probability and causality

As we saw earlier, the problem of structural variability cannot even be approached within the technological determinist framework of strict causality. In order to circumvent this, Harris introduces the notion of probability. In doing so, he claims to be following in the footsteps of modern physics.

If probabilities had replaced mechanistic certainties in physics why should anthropologists demand that their laws admit no exceptions? (Harris 1969: 282).

The above statement involves a gross misunderstanding of physical laws. No laws admit exceptions except to the extent that they are incomplete and therefore incorrect. Although there has been a good deal of debate regarding the interpretation of quantum physics and statistical mechanics, no one would assume with Harris that the probabilistic nature of such laws is related to the existence of exceptions. On the contrary, it is assumed, even in relatively subjective interpretations like that of Heisenberg, that a specified degree of randomness is built into the object of the theory. The probabilistic structure of statistical mechanics is

generated by the theory itself and not simply accepted at the experimental level. This is radically different from the notion of probability proposed by Harris.

Dependent as we are on the unfolding of the natural continuum of events, our generalizations must be couched in probabilistic terms derived from the observation of the frequencies with which predicted or retrodicted events occur (Harris 1968: 614).

For Harris, the probabilities are none other than the actual statistical distributions of events. As such, the quasi-descriptive statements which he claims are 'generalizations' are no more than a repetition of what we already know. A generalisation is a statement of the form 'all x are y.' If such a statement is tempered by probability derived from actual distributions, we have 'there is a probability n that x is y' which is simple translation of 'n% of x are y' which is no more than a descriptive fact. That Harris can assume that through the use of this kind of probability 'many problems which plagued generations of determinists and anti-determinists will dissolve themselves into a more profitable level of discussion' (1968: 614) is a tribute to the empiricist propensity for self-mystification. Answers to the determinist/anti-determinist dilemma can be given only at the level of the generation of statistical distribution, not in terms of their mere existence. It is absolutely impossible in Harris's framework to do anything other than restate in a deceptive form that which we already know as fact. Once again, explanation dissolves into redescription and variability is accounted for in terms of itself. Once the distribution has been converted into a probability statement, one can, of course, make predictions, but the original distribution remains forever unexplained. Cultural materialist methodology, instead of being revolutionary, takes us down the well-worn path into the desert of statistical sociology.

It should be clear by now that causal statements must follow relational statements if the word 'explanation' is to have any meaning at all. If probabilistic statements are to be included at the explanatory level, they must be generated by theoretical structures and not used to fill out incomplete or incorrect hypotheses.

V

Conclusion

The two forms of vulgar materialism, functional ecology and cultural materialism, although based on different theoretical frameworks, are both embedded in a tradition of empiricist-functionalist ideology. Although the systems analysis of ecology is a step in the right direction, the need to 'organicise' things seems to have led it into the false assumptions of negative feedback. The systems approach has provided ecologists with an awareness of the limits imposed on variables by other variables and, hopefully, the possibility of contradictions between elements or subsystems. But they have assumed that if the system *exists* it must be because the limiting variables maintain it at a viable operational level. The whole thing is thus tied up in a single equation model in which there is not even a theoretical possibility that things will not work, since, if a society manages to survive in situations where its non-existence is conceivable, then it must be because it is maintained by the limiting factors which determine its boundary conditions. There is no possibility, with this assumption, of explaining the variation within those boun-

daries and the fact that the variable to be maintained might be controlled by something other than its exterior limits. This requires, as we have seen, more than one equation, more than one functional relation.

The central feature in this empiricist ideology is the *a priori* reduction of relatively autonomous phenomena (and again I stress that what is referred to is the autonomy of their internal properties) to a single phenomenon. To go one step further would be to argue that since everything can be reduced to matter, the same physical laws should be equally applicable to atomic, molecular, physiological, and social structures, i.e. that they are all of the same nature. In the weaker form of functional ecology, we assume that self-regulating systems exist before the actual relations are established among their elements. Nature and culture become a homogeneous whole in which it is assumed, *as a matter of principle*, that specific social institutions function primarily to maintain the stability of the larger environment. In this sense the relative autonomy of the sub-systems, their inherent structural properties, is destroyed. Homeostatic eco-systems seem to precede the sub-systems which make them up. If this were true, evolution would not be a product of selection but of moving equilibrium. The extreme variant, cultural materialist causality entirely eliminates relative autonomy and almost succeeds in doing away with the reality of things like social structure which neither have weight nor occupy space. If heaven and earth are linked in a causal chain how can there be anything but harmony in their relationship.

The 'new materialism' seems analytically innocent of any concern for contradiction—although it sometimes figures itself a client of marxism (minus the dialectical materialism). So it is unmindful to the barriers opposed to the productive forces by established cultural organizations, each congealed by its adaptive advantages in some state of fractional effectiveness (Sahlins 1969: 30).

There is evolution because societies, species (as populations), etc. come into contradiction with their 'environments', a situation which is only conceivable in the framework of relative autonomy. An eco-system is not organised as such. It is the result of the mutual and usually partial adaptation of populations each of which has laws of functioning that are internally determined. It is the fact that the world is made up of relatively independent structures which must necessarily relate to one another in larger systems of reproduction (where the reproduction of one depends, in the last analysis, on the reproduction of all) which is the root of variability, mutual limitation, and ultimately history. History is built on the failure of social forms as much as on their success. If social forms fail, it is because they have laws of their own whose purpose is other than making optimal use of their techno-environments. The apparent unity if not harmony of systems is not the result of their ordering by a larger structure. It is the temporary effect of a functional compatibility which allows the interrelationships to continue until the internal dynamics generated by a dominant structure cause the larger system to come into contradiction with its own conditions of reproduction. Structural marxism, unlike vulgar materialism, begins with the assumption of disjunction between structures in order to establish the true relationships that unite them as well as the internal laws of the separate structures which cause the contradictions of the larger whole. Vulgar materialism, like Hegelianism, is, in the last analysis, the prisoner of the assumption of the 'identity of contraries'.

NOTES

¹ A longer version of the present article (unpublished) deals in some detail with the *Capital*, volume III model as well as exploring certain aspects of Hegelian logic. The present article was prepared in a longer version for the winter, 1971, meeting of American Anthropology Association. I cannot claim to agree with everything I wrote at that time. This applies most emphatically to some of my arguments which refer to Althusser et. al. For a discussion of some of the problems in the marxist model, see Friedman (1974).

² Much interesting work has appeared in studies by Althusser (1965) and his co-workers (Althusser *et al.*, 1965) (although I feel that there are serious problems with this interpretation—especially with regard to the notion of ‘instances’ and the lack of distinction between form and content of social relations). Bettelheim’s recent theoretical analyses (1970) are of great importance. Most important for us here, however, are the works of Godelier (1966; 1969; 1970; 1971a; 1971b) and Sahlins (1969; 1971) as they have a direct bearing on problems of economics and anthropology.

³ s/v is the ratio of surplus (labour or product) to the cost of reproduction of the producers at the current level of productivity. $s/c+v$ is the more complete ratio of surplus to the cost of reproduction of producers plus means of production at the same level of productivity.

⁴ For a full development of the volume 3 model of *Capital*, see Marcus, in press, also Bettelheim 1959.

⁵ ‘Structure’ refers to formal properties of systems, the latter merely emphasising the aspect of functioning. For example, incompatibility can only be systemic since it is manifested with respect to functioning although it is entirely predictable in terms of the structural properties of the system or systems involved.

⁶ See note 5.

⁷ Discussed in several places in Marx (1967; vol. I, ch. I, vol. III).

⁸ Empiricism and mentalism are not mutually exclusive. Maybury-Lewis (1960) criticises Lévi-Strauss’s model for not being reducible to actually observed rules and ideas.

⁹ See Lévi-Strauss (1965) for a discussion of preference and prescription. The degree of conformity to the rules has nothing to do with the model that generates them.

¹⁰ Ackerman (1964: 59–60). The author counts all reciprocal alliances as two alliances mistaken by his own matrix table.

¹¹ See Lehman’s treatment of the problem (1963).

¹² Compare Leach (1954) with the earlier article in Leach (1961).

¹³ The assimilation of *gumsa/gumlao* to ranked/egalitarian is inadequate. The former opposition refers, instead, to the way in which prestige is transformed into rank, resulting in hereditary segmentary lineage structure (*gumchying gumsa*) in one case and a big-man (*gumlao*) society or ‘landed aristocracy’ (among Chin, where land is negotiable) in the other (see Friedman 1972).

¹⁴ A similar notion has been suggested by White and his students, but has never been incorporated into a larger theoretical context. For example, Meggers—‘The level to which a culture can develop is dependent upon the agricultural potentiality of the environment it occupies’ in Meggers (1954: 815).

¹⁵ It is incorrect to assume, with Leach, that Kachin *gumsa* structure is feudal. The hierarchy of lineages is based on control over the supernatural and not over land titles. The question of ‘asiatic’ structure is explored in Friedman (1972).

¹⁶ See references for works by Vayda, Collins (1965), Rappaport, etc.

¹⁷ Of course, if the physical condition of cattle were improved, and they were freely (in the economic sense) mobile among individual plots, then there would not be a need for the great numbers implied by holding such factors constant. Bettelheim has examined the problem within the larger social context, and both he and Thorner provide excellent analyses of the extent to which the Indian economy operates non-optimally (Bettelheim 1962: 39–42, 234–65; Thorner 1962: ch. 6 & 7).

¹⁸ The same kind of argument holds for the build-up of density-dependent conflict. In effect, the increasing number of pigs in a fixed area increases the total labour time expended on their care and on preventing their attacks on garden land. The fact that they multiply the chances of conflict is the same kind of phenomenon as diminishing returns on labour—that is, pigs can be said to be accumulated until a certain amount of strain builds up, making the normal functioning of social relations impossible. Further, since internal conflicts are generated in the nuclear phase of a pulsating settlement pattern, and since population concentrates just before pig festivals we might still argue that the strain on women’s labour triggers the nuclear phase and therefore the ritual cycle.

¹⁹ This is, again, a question of the dominance of relations of production.

²⁰ This, according to Rappaport's figures—it in no way contradicts the appearance of diminishing returns to labour on currently exploited land. I would argue that it is the shape of the production function which is crucial here and that the ability to approach carrying capacity depends largely on the way in which returns to labor vary over time. It is quite possible that Maring social structure is a variant of the highland big-man system whose growth is blocked, due to steep slopes and the lack of relatively flat land for intensification, by the rapid onset of diminishing returns.

²¹ Kosambi (1957; 1969); Dambuyant (1970). Two points: 1) local level irrigation works, tanks, ditches etc. existed before the state. 2) larger-scale state works, many of which, like the great canals, were for communication and transport, are the result of an already unified state and not preconditions for its existence.

²² See note 3.

²³ In *Culture, man and nature* (1971), Harris seems more interested in relating the development of stratification to the development of distribution systems. It should be pointed out, however, that this new interest, echoing the work of Sahlins, is in direct contradiction to the cultural materialist strategy to the extent to which distributive and redistributive (i.e. social) structures are seen as dominant in evolution.

REFERENCES

- Ackerman, C. 1964. Structure and statistics: the Purum case. *Am. Anthropol.* 66, 53–65.
- Althusser, L. 1965. *Pour Marx*. Paris: Maspéro.
- , E. Balibar & R. Estabiet 1965. *Lire Le Capital*. Paris: Maspéro.
- Bettelheim, C. 1959. Variations du taux de profit et accroissement de la productivité du travail. *Econ. appl.* 1.
- , 1970. *Calcul économique et formes de propriété*. Paris: Maspéro.
- Brookfield, H. & P. Brown 1963. *Struggle for land*. Melbourne: Oxford Univ. Press.
- Collins, P. 1965. Functional analyses in the symposium 'Man, culture and animals'. In *Man, culture and animals* (eds) A. Leeds & A. Vayda. Washington: American Association for the Advancement of Science.
- Dambuyant, M. 1970. Un état de 'haut commandement économique': l'Inde de Kautilya. *La Pensée* 151.
- Dobb, M. 1963. *Studies in the development of capitalism*. New York: International.
- Dumont, L. 1966. Descent or intermarriage: a relational view of Australian section systems. *SWest. J. Anthropol.* 22, 231–50.
- Feuerbach, L. 1957. *The essence of Christianity*. New York: Harper.
- Friedman, J. 1972. System, structure and contradiction in the evolution of Asiatic social formations. Thesis, Columbia University. To be published 1975 London: Croom Helm.
- 1974. The place of fetishism and the problem of material interpretations. *Grit Anthrop.* 1.
- Godelier, M. 1966. *Rationalité et irrationalité en économie*. Paris: Maspéro.
- 1969. La pensée de Marx et Engels aujourd'hui et les recherches de demain. *La Pensée* 143, 92–120.
- 1970. Économie marchande, fétichisme, magie et science selon Marx dans *Le Capital* *Nouv. Rev. Psychanal.* 2, 197–212.
- 1971a. Myth et histoire. *Annales*, May–June, 541–58.
- 1971b. Qu'est-ce que définir une formation économique et sociale? L'exemple des Incas. *La Pensée* 159, 99–106.
- Harris, M. 1963. *The classification of stratified groups*. Washington: Pan American Union.
- 1964. *The nature of cultural things*. New York: Random House.
- 1968. *The rise of anthropological theory*. New York: Crowell.
- 1969. Monistic determinism: anti-Service. *SWest. J. Anthropol.* 25, 198–206.
- 1971. *Culture, man and nature*. New York: Crowell.
- & G. Morren 1966. The limitation of the principle of limited possibilities. *Am. Anthropol.* 68, 122–7.
- Hegel, G. W. F. 1892. *The logic of Hegel*. Oxford: Clarendon Press.
- 1956. *The philosophy of history*. New York: Dover.
- Kosambi, D. 1957. Review of *Oriental despotism*. *Econ. Wkly* 2.
- 1969. *Ancient India*. New York: World Publishers.
- Kula, W. 1970. *Théorie économique du système féodale*. Paris: Mouton.
- Leach, E. R. 1954 (1964). *Political systems of highland Burma*. Boston: Beacon.
- 1961. *Rethinking anthropology*. London: Athlone.

- Lefèbvre, H. 1971. *Au delà du structuralisme*. Paris: Anthropos.
- Lehman, F. K. 1963. *The structure of Chin society*. Urbana: Uni. of Illinois Press.
- Lévi-Strauss, C. 1958. *Anthropologie structurale*. Paris: Plon.
- 1966. The future of kinship studies. *Proc. R. anthrop. Inst.* 1965, 13–22.
- 1967. *Les structures élémentaires de la parenté*. Paris: Mouton.
- Marcus, L. in press. *Dialectical economics*.
- Marx, K. 1967. *Capital*. Moscow: Progress.
- & F. Engels 1968. *The German ideology*. Moscow: Progress.
- Maybury-Lewis, D. 1960. The analyses of dual organization. *Bijdr. Taal-, Land-, Volkenk.* 116.
- Meggers, B. 1954. Environmental limitations on the development of culture. *Am. Anthropol.* 56, 801–24.
- Meggitt, M. 1965. *The lineage system of the Mae-Enga of New Guinea*. Edinburgh: Oliver & Boyd.
- Meillassoux, C. 1967. Recherche d'un niveau de détermination dans la société cynégétique. *L'Homme et la Société* 6, 95–106.
- 1972. From reproduction to production. *Econ. Soc.* 1, 93–105.
- Murphy, R. 1970. Basin ethnography and ecological theory. In *Languages and cultures of western North America* (ed.) E. Swanson. Idaho State Univ.
- Piddocke, S. 1965. The potlatch system of the Southern Kwakiutl: a new perspective. *SWest. J. Anthropol.* 21, 244–64.
- Rappaport, R. 1967. *Pigs for the ancestors*. New Haven: Yale Univ. Press.
- 1971. Ritual, sanctity and cybernetics. *Am. Anthropol.* 73, 59–76.
- Rosman, A. & R. Rubel 1971. *Feasting with mine enemy*. New York: Columbia Univ. Press.
- Sahlins, M. 1969. Economic anthropology and anthropological economics. *Social Sci. Info.* 8, 13–33.
- 1971. The intensity of domestic production in primitive societies: social inflections on the Chayanov slope. In *Studies in economic anthropology* (ed.) G. Dalton. Washington: American Anthropological Association.
- Steward, J. 1955. *Theory of culture change*. Urbana: Univ. of Illinois Press.
- Suttles, W. 1960. Afinal ties, subsistence and prestige among the Coast Salish. *Am. Anthropol.* 62, 296–305.
- Strathern, A. 1969. Finance and production: two strategies in New Guinea highlands exchange systems. *Oceania* 40, 42–67.
- Terray, E. 1969. *Le marxisme devant les sociétés primitives*. Paris: Maspéro.
- Thorner, D. 1962. *Land and labour in India*. Bombay: Asia Publishing House.
- Titow, J. Z. 1961. Some evidence of 13th century population increase. *Econ. Hist. Rev.* 14, 218–23.
- Vayda, A. P. 1961. A re-examination of Northwest Coast economic systems. *Trans. N.Y. Acad. Sci.* ser. 2, 23, 7, 618–24.