# INTRODUCTION

Humans have probably had an interest in the past as long as we have been *homo sapiens*. Depending upon which authorities one reads and the set of criteria used, our interest has been expressed as archaeology in Western societies variously – since the emergence of the Western intellectual tradition in the Near East, since the time of classical Greece and Rome in the Mediterranean, or since the European Renaissance. Over this period of time – be it five thousand or five hundred years – there naturally have been radical changes in the approach and nature of archaeology.

Today, judging by the meager perspective that can be gained contemporarily, we seem to be entering such a period of change. Often this change is phrased in terms of different approaches or competing schools called the “new archaeology” and the “old archaeology.” The “new archaeology” has a different view of the relevance of the human past to the present; its goals appear to be aimed at explanation of our past, not just at its recitation. With new aims have come, at least to some degree, new means for accomplishing them. The newly envisioned goals provide a clarity of purpose, and the people practicing the “new archaeology” are more systematic and articulate about what they are doing, how they are doing it, and, most importantly, why they are doing it. In looking back, or rather across, to the “old archaeology,” the complaints of the new are not so much that the old is wrong-indeed, the old has produced nearly all that we now have of the human past but that its goals are too narrow, when it has goals at all. An interest in the past is no longer deemed a justification for a discipline in terms of “current relevance.”

In particular, the new has criticized the old as being “an art.” This criticism has been drawn for nearly twenty years, usually by pointing out that there is no means within archaeology to rationally evaluate its conclusions. One has to be content with “believing” or with assessing the merits of a set of conclusions by a knowledge of the professional status of the individual who did the work.

There is no denying that this was true and continues to be true of much that is done in archaeology and that this is not a healthy state of affairs. Because of these rather obvious faults, there is a strong tendency to reject the “old archaeology” and to replace it, or attempt to, with the “new archaeology.” This, however, it to deny the results of the old and, indeed, the “new archaeology” itself which is born of the old and covertly contains much of it.

The practitioners of the old are not without criticism of the new. While their goals may often be appreciated, the “new archaeologists” are brought to task for ignoring priorities of operation, for moving ahead too fast without the proper foundations to bear their conclusions. A good case can be made that much of the laudable effort on the part of the “new archaeology” has been wasted, for it has been based in enthusiasm rather than reason. The tendency to reject *in toto,* or nearly so, the old, has denied the new the experience gained by the old. In the rush to become a science and to produce explanation, the route to science has often been forgotten. Science is not built of novelty. New systems do not appear with each new Ph.D., but, rather, progress is the process of building upon what has already been learned.

Two important products seem to be emerging from the “new archaeology.” The first is a very important distinction between field work, the collection and excavation of rocks, and what is done with the rocks after they have been recovered. In short, an academic discipline is growing out of what was once a technical field dealing solely with things. This division has been incipient in archaeology for a long time, but it is the “new archaeology” which appears to be bringing this into fruition. The distinction between field work and inquiry into the past will play a major role in the development of what is now called archaeology and will give direction to this development. Indeed, the distinction is a necessary one if explanation is to be achieved. Relegation to a secondary role of that aspect considered by many as the real “meat” of archaeology has undoubtedly contributed measurably to the gap between the old and the new. Because the distinction is important, the technical recovery aspects of the field will herein be called archaeology, and the academic discipline, which is our concern, referred to as prehistory.

The second important and emergent contribution of the new has been its overt search for models with which the discipline may be structured. It is unfortunate that this search has been only partially successful and that the models used have been borrowed from other sources rather uncritically. When science has been employed as the model, the borrowers have looked not to the practice and structure of science, but rather to the philosophy of science, which itself is not a product of science or in many respects an accurate reflection of what science does or how it does it.

Even more detrimental has been the borrowing of models from sociocultural anthropology. This tendency is probably a latent function of the old archaeology, which viewed itself as doing ethnographies of dead peoples and thus as in a dependent relationship to sociocultural anthropology. Looking to sociocultural anthropology for a model to structure prehistory is detrimental because it can only deny prehistory its one virtue, time and change, neither of which is a part of (or can presently be incorporated in a rational way into) sociocultural anthropology. Choosing a model from this source will limit prehistory to untestable “functional studies” executed in terms of differences and similarities rather than change.

The inappropriateness of these and other models to the goals of prehistory has not gone unrecognized by the practitioners of the “old archaeology,” and this too has contributed to the division between old and new. While the particular products of this search by the new archaeology can hardly be termed fruitful, the search itself is important and will ultimately shape the discipline in a profitable direction.

The gap between the “new archaeology” and the “old archaeology,” insofar as one exists in practice, is in large measure a result of the old, but one which is not being rectified by the new. The problem this book focuses upon chiefly is the failure of the old to produce a comprehensive and overt statement of how and why prehistory works or an explanation of the nature and reliability of its conclusions. There is no general statement of theory in prehistory as an academic discipline. The new, while much more explicit in what it does and how it does it, makes covert use of the old and in doing so suffers from many of the same liabilities.

It is profitable to look at some of the conditions, or causes, that accompany the lack of overarching theory guiding the academic discipline of archaeology, if only to provide some instruction in an attempt to remedy it. As we will see in the discussion throughout this book, the problem is certainly not a lack of theory, but rather the lack of its explicit expression in the literature of the discipline. The “cause” most responsible for this omission is the undefined and contradictory usage of the immense terminology employed in prehistory. [example] Like practitioners in their sister discipline, sociocultural anthropology, archaeologists have a tendency to invent a term for its own sake and then argue about what it means for twenty years rather than defining the term in the first place. [example] Some terms are used differently by different authors; other different terms have roughly the same meaning.

Much of the confusion and contradiction in prehistory's terminology comes from this source. A given concept has meaning only when it is defined, and once it has been defined, it is an easy matter to evaluate its utility in a given case. The meaning of a term is its definition, not its application, and without a definition a term means nothing and cannot serve as an effective means of communication. Ignoring this has led to the confusing state of the discipline's terms and literature.

Following from this, though certainly meriting some special attention, is a general lack of distinction between the terminology and the referents of the terminology. There is a strong tendency to reify concepts, to regard an idea or a word as the same thing as its referent. Analogously, ideas are not distinguished from observable phenomena. The notion culture, for example, is employed in some literature as if it were a real thing, a huge animal crawling across the planet pulling strings making people do what they do, rather than a concept which enables us to organize the observable phenomena of acts and artifacts.

Closely related to these first two conditions is a general lack of concern with what theory is, again largely as a result of the discipline's preoccupation with the substantive. This does not seem to be a matter so much of theory's being terribly complicated, but rather of its being taken for granted. Methods, for example, are frequently treated as techniques and with little concern for why they work. This has created an enormous problem in prehistory of differentiating between bad methods and the misapplication of good ones. Without understanding why a method works, it is impossible to judge under what circumstances it can be valid employed. This lack of concern with theory has made itself evident in the discipline's terminology. Definitions of concepts quite frequently are formulated for specific problems, but no general concepts are available to consider methods and theory. The many uses of the term “artifact” provide numerous cases in point. Many special definitions are in the literature, yet no general concept of artifact from which these special cases can be derived is in evidence. Thus, not only does the number of terms and meanings for terms approach the number of kinds of problems attended by archaeologists, but means for talking about methods in general, apart from particular problems, are lacking.

The last “cause” which seems to contribute substantially to the malaise of the “old archaeology” is the lack of a clear-cut notion of what prehistory is. More often than not, when prehistory is defined or described it is delineated in terms of its subject matter. Again, the overriding concern for things is evident. When definitions are attempted in terms of goals, these are usually special cases, egocentric definitions of the entire discipline solely m terms of what happens to interest a given individual. They have contributed much to the lack of direction and coherence exhibited by prehistory, something which is frequently hidden from view by the nebulous term “culture history.” It in this respect that the “new archaeology” has not yet made a significant advance, for individual goals are frequently employed to define the field as a whole.

These four “causes” are not really causes, but, rather, are further specifications of the practical problems created by the lack of an explicitly stated theory of prehistory. Historically, these problems relate to the derivation and growth of prehistoric archaeology from a thing-oriented, natural-history stage. Prehistory as an academic discipline, and more particularly as a kind of anthropology, is not very old. Only recently has it appeared m the curricula of universities generally. In the United States, where it is conceived of as a kind of anthropology, it has been forced by its appearance in the academic world further away from things alone, to include ideas as well. In many respects, the “new archaeology” is an attempt to create an academic discipline out of what was largely non-academic endeavor, m the belief that things, so heavily emphasized by the “old archaeology,” do not justify the discipline's position in the academic world as a branch of knowledge worth knowing.

The problem which has been outlined is much larger than any one person can seriously attempt to deal with. It is thus not the intent of this examination to cover theory in prehistory exhaustively. Coverage is restricted to the lowest order of theory in any discipline, that of the definition and conception of data, the creation of meaningful units for the purposes of a particular field of inquiry. This is a consideration of the formal aspects of prehistory, the units employed, and the operations performed in arriving at them. It does not attempt to cover the rules by which interpretation and explanation are attempted in the field; indeed, interpretation and explanation lie beyond the scope of the book entirely, save insofar as they have conditioned the construction of units.

The field singled out for treatment here, it must be reiterated, is but a small portion of the kinds of operations and constructions that might be properly called theory. The choice of this particular coverage is predicated on two simple considerations. First, formal operations *must* be performed, covertly or overtly, before any other kinds of operations. One cannot count apples until one knows what apples are, what numbers are, what relations exist between various numbers, and what the point to count g apples is. In the past these formal operations creating the units for the field have been treated, when they have been treated at all, almost entirely covertly, and thus the student has little means to understand this crucial area. And for the professional these simple operations are probably the least well understood of all theoretical matters and consequently are prime contributors to the confusion and misplaced arguments that abound in the archaeological literature. It should be clear from this that the discussion in the ensuing chapters is centered on ideas, “concepts” as they are called, and the operations which create them for prehistory.

The second factor which conditions the choice of subject matter is the current state of affairs within the field. The “new archaeology” is making tremendous, articulate strides in the realm of interpretation and explanation, and it is in these respects that the differences between old and new are most striking. This aspect of prehistoric theory is rapidly becoming accessible to the student through many sources, even in a manner useful at the most elementary level. Most of the units used by the new explanations are, however, still drawn from the old, and often most uncritically. New procedures for unit construction have been proposed, but these have neither made an important contribution nor proved more useful. It is at the level of units that the old and new archaeology are most closely connected, that the old makes its greatest contribution, at least potentially, to the new. The biases in this treatment clearly favor the “new archaeology” in terms of goals and explanation, but are strongly committed to using the units of the “old archaeology” for these purposes. Thus an underlying proposition is that the discomfort created by the formal theory of the old archaeology lies in its implicitness (and thus the possibility of inconsistency and confusion) and its misapplication resulting from lack of problem. The new archaeology promises to eliminate the latter difficulty. This examination hopes to clarify the problem of explicitness.

To the field of concern herein will be applied the term systematics, *which for the purposes of this discussion is defined as the set of propositions, concepts, and operations used to create units for any scientific discipline*. A dictionary definition of systematics is not much different except that the word is usually defined in terms of classification and assumes that classification is the way in which the units are created. The definition as phrased here is obviously applicable to all kinds of scientific endeavor; however, our concern will be with those elements which have direct relevance to what has already been done in prehistory.

Within this field of interest the primary goal is to develop a conceptual framework which can be used to understand how and why prehistory works in a formal sense. One thing must be clear: the aim is a conceptual framework, not an operational model. Many different operational models, some of radically different design, are possible within the framework herein developed. This exposition is not concerned directly with how the formal operations of prehistory ought to be done or even how they are done (this is painfully elusive in much archaeological writing), but is focused on how the formal operations ought to be explicated for evaluation, testing, and comparison. In this respect it is intended to function as a guide to reading what has already been written, by providing a means of correlating and evaluating the divergent literature.

To accomplish this, it is necessary to provide an outline of those criteria that must be met in the formulation of meaningful units for prehistory. In part such criteria are logical operations, but in large measure they depend upon a definition of prehistory. Without this kind of consideration there is no means of identifying nonsense when it is encountered, as it is in all writing from time to time. It has also been necessary to develop a unified set of terms which can be employed as a metalanguage for the discussion of theory in prehistory. It is unfortunate that the subject matter and interests of prehistory are sufficiently complicated or that we understand our subjects so poorly that the metalanguage of mathematics cannot be made to bear the major weight of communication. Whatever the reasons may be, a language which consists of words having only denotations and no connotations must be employed so that we can be certain that ideas are communicated in the form in which they were intended to be understood. The language of theory is *the* crucial item. We can know nothing but words, and in the case of theory it is essential that the words be precise and that this precision can be communicated.

Given the point of view expressed here and the current interests of the discipline, one result, only partially intentional, is the evaluation of some concepts in the role of *expository* devices as more productive than others. Some major gaps in the formal theory of prehistory, presently obscured by vague and conflicting terminology, are exposed as deficiencies. These kinds of evaluations are the natural outcome of systematically examining what prehistory has done and should be regarded as some of the profit that can be gained from this sort of examination. It is important to recognize that such evaluations are bound to the particular point of view and restricted to the particular coverage. The general utility of these evaluations must be established independently.

There is little or nothing new contained in the content of this treatment. It is simply a more rigorous explication of already current notions. All of what is contained herein has found expression many times in the literature of the discipline, though most frequently in a covert manner. However, this is *not* intended to be a literature review. Such is impractical, if not impossible, given the covert expression that systematics has received. Furthermore, a literature review would not be useful since our purpose is not to summarize what has been done, but to analyze it and find out why it works, regardless of why it is said to work. A polling of majority opinion has no place in this kind of approach.

The organization follows logical lines, starting with the most elemental propositions and then deriving those at higher levels. This, of course, is precisely the reverse of the actual derivation of the exposition which began with analysis of the literature and moved from there to the elemental propositions. It might be noted by many readers that symbolic logic, sign theory, and set theory (in specific cases) could have been effectively employed to the ends herein ascribed. The use of general theories of knowledge, however, has been avoided in the exposition where at all possible. This is designed as an introduction to prehistory's theory for students interested in prehistory and not for students of symbolic logic.

To accomplish these general aims the treatment has been divided into two parts. Part I considers systematics in general to provide necessary background for the examination of prehistory in Part II. While Part I treats systematics in this general sense, the considerations are focused on those aspects which are directly relevant to what has been done in prehistory. The initial chapters of Part I set forth the terms and their definitions, and then the later chapters relate the inquiry to the ways in which units can be created. Part II begins by defining the field of prehistory and its relation to the general discussion of systematics. Succeeding chapters consider the ways in which systematics have been employed in prehistory, as well as some of the specific concepts that are the products of these applications. The final chapter in Part II summarizes systematics in prehistory by evaluating the utility of the various kinds of systematics that have been used and the schemes produced, with a stock-taking of where we are and where we can and should go.

In an attempt to provide easy access to the terminology employed, a glossary is appended at the end of the book presenting, by chapter, the terms *introduced* in each associated chapter.

While a bibliography in the ordinary sense of the term is impractical for an exposition of this sort, it is nonetheless advantageous to indicate important sources of directly related materials. Because the subject matter of the first half of the book and that of the second half ordinarily are treated in different bodies of literature, two bibliographies have been provided, one for each part. In these an attempt has been made to include major source materials upon which the exposition has been based, important expressions of divergent views, and examples of the particular subjects treated. Such a listing could quite obviously be extended almost indefinitely, so the brief compilations here are selected works which in the writer's view bear directly on the exposition.