Many today view the New Archaeology as a rather scientific discipline. More specifically, a large number of contemporary archaeologists look to the latter part of the Classificatory-Historical Period (1950s) as the point at which their field underwent a metamorphosis resulting in the discipline's present emphasis upon scientific approaches and techniques. In fact some go as far as to call this "burgeoning of intellectual and scientific research" a "revolution" in the field of archaeology. But how accurate is this assumption and how complete was this metamorphosis?

To obtain a more lucid understanding of this period, as to its being revolutionary or not, we will need to compare the fundamental approaches and methodology utilized by American archaeologists prior and subsequent to the 1950s. Fortunately we can develop this comparison by analyzing a debate in archaeology that has remained in the limelight throughout this century: the polemic concerning the issue of corn and its progenitor. By studying two articles, "The Mystery of Corn," by Paul Mangelsdorf in 1950, and a 1980 article, "The Ancestry of Corn," by George W. Beadle, we can perhaps come to a better understanding of this controversial period in American archaeology. Hopefully, this new understanding will enable us to accurately determine whether the 1950s did indeed experience a revolution in this discipline, or perhaps a
more "gradual increase in the attention paid to the development in other disciplines that could offer aids to archaeological re­search." But before we proceed in making this comparison we will need to place the Mangelsdorf article in its proper context.

The late 1940s brought innovative ideas to American archae­ology. An example of this is the fact that one new line of thought, "Cultural Ecology," gained increasing support as a re­search approach in this field. This growing interest in man and his environment did indeed lead to an expansion of archaeology's focus concerning other fields, such as botany, biology, along with a rather significant reliance upon scientific techniques and equipment. With this expansion into new research areas, archaeolo­gists were enabled to tackle such issues as "the history of domestica­tion,"--issues that had previously been left to speculation alone. This, therefore, is the activity taking place during the writing of Paul Mangelsdorf's article. So with this in mind let us now look at his study as representative of the archaeological investi­gation during this period.

The "Mystery of Corn," published in the 1950 July issue of Scientific American, attempts to settle the lengthy dispute concerning the ancestry of corn: when, how, and where it was first domesticated. It is Mangelsdorf's contention that the progenitor of modern corn was actually a "wild corn, (that) was swamped out of existence by later, man bred strains." The other opposing hypothesis in this debate holds that corn originated from a wild
grass known as "teosinte" and not from the original or wild corn that Mangelsdorf's theory supports. We could in fact go into great detail concerning the step by step argument Mangelsdorf uses in supporting his thesis, but this is not of tremendous interest to us. Yet what is of great importance to our analysis pertains to the extent his research is reflective of the so-called "revolution" in American archaeology. But before proceeding in this respect, we will need to have an idea as to our connotation of the word "revolution." So, for the sake of further discussion, we will limit the meaning of "revolution" to Random House's definition, "A complete change in something, often one made relatively quickly."

Mangelsdorf does indeed seem to have utilized a new and progressive methodology in this article. In answering the first question, as to when corn originated, he relied on a completely innovative approach to chronology: Carbon 14 Dating. What Mangelsdorf calls an "ingenious method" allows him to no longer rely upon guess work in this area. Through Libby's method, the date of the oldest archaeologically recovered corn tested out at 1000 B.C. in South American specimens and 2000 B.C. for those found in North America. Perhaps the more provocative aspect of Mangelsdorf's utilization of this dating technique is the fact that the Radiocarbon process was discovered in 1948, and the results of Libby's tests (2nd ed. Radiocarbon Dating 1955) were not published until after Mangelsdorf's study. The important point here is that
Mangelsdorf was more than likely in direct communication with Libby concerning these findings. Yet this should not be surprising, because it is simply reflective of the second major development that came about during the late classificatory-Historical period. In short, archaeologists began to collaborate with other professions; archaeology was becoming an interdisciplinary field.

Indicative of this trend is the fact that the most salient aspect of Mangelsdorf's work is his reliance on botany and genetic experimentation in supporting his hypothesis. Indeed, unless you were a geneticist, much of the article's information would mean little to the unenlightened reader. Such experimentation concerning the hybridizing of corn with teosinte to determine "how the genes that differentiate the two species are inherited and how they are distributed on the chromosomes," is just one example of the various genetic research that Mangelsdorf makes use of in his paper. Yet again this emphasis on botany and other scientific areas is reflective of the growing interdisciplinary character of American archaeology during this period.

We could, therefore, offer the proposition that upon initial examination Mangelsdorf's article does indeed contain elements representative of tremendous change in archaeology. With his use of new technology and his reliance on various other disciplines, it is understandable that someone might perceive this work as an example of the revolutionary character of the 1950s. But when we
remember our basic premise, that revolution refers to a complete change, we are forced to reconsider our initial evaluation of this article. Simply stated, there are elements in this work which reflect certain principle flaws found in the research of earlier American archaeologists--flaws that should not have appeared in Mangelsdorf's work if in fact a revolution had taken place during this period.

Mangelsdorf begins with the assumption that corn, somehow, was a miracle crop that literally built the Western Hemisphere. Along this line of thought, he sees that corn,

gave these ancient peoples leisure time, for weaving beautiful fabrics, for molding exquisite pottery, for building magnificent highways and towering pyramids, for inventing a system of arithmetic and for perfecting a calendar more accurate than the Old World calendar of the same period.

Now there are several questions that should immediately come to mind after reading this statement. First, the author seems to place more emphasis on the corn itself rather than the process of domestication that allowed these "magnificent cultures" to develop. Second, and perhaps more important, is the fact that Mangelsdorf in no way attempts to support his statement with evidence. One might rightfully ask if corn was somehow responsible for less sophisticated potteries, or crooked highway systems? Furthermore, as Lewis R. Binford points out, data presently exists which leads us to believe that hunter-gathers "enjoyed quantities of leisure time, much more in fact than do modern industrial or farm workers."
The question that we must ask, therefore, is whether Mangelsdorf's study is any more revolutionary than that of the "armchair speculators" writing a century or more prior to this work.

There is yet another area in Mangelsdorf's article that is rather troubling. A large part of his archaeological evidence, used in supporting his thesis, is the prehistoric corn found in the Bat Cave, New Mexico. He utilizes this evidence fairly well in attempting to prove his "pod" corn hypothesis. Yet part of the rationale that corn was not "transformed through human selection," is faulty at best. It is his contention that the Bat Cave people were "uninhibited by modern concepts of sanitation," because they allowed six feet of debris to accumulate inside the cave. They were, therefore, not anymore "concerned with plant improvement than they were with sanitation." By making this statement Mangelsdorf commits one of the principle sins in archaeology. It is totally ludicrous to form a comparison between modern sanitary standards and those of ancient peoples in an attempt to prove some other point concerning the Indian's capabilities. In fact this type of logic is no different from that which surrounded the "mound controversy," during the early stages of American archaeology.

We have examined Mangelsdorf's article in an attempt to question its revolutionary character. Moreover, we have done this primarily by comparing this article with the principle approaches and techniques utilized prior to the latter part of the
Classificatory-Historical period. By looking at the past we have seen that reasonable doubt exists as to whether we can accurately call this article revolutionary in nature. But it is only proper that we also look to the present in comparing the so-called revolutionary 1950s with the approaches used today. More specifically, if a revolution did occur during this period, then we should expect to see essentially the same techniques and methodology employed today. However, if this investigation does not yield this observation, then we are left with two possible explanations: either there has been a subsequent revolution vis-a-vis the 1950s, or there was never a revolution in the first place. Since no one seems to have proposed the former, we will, therefore, be left with the latter as the appropriate conclusion. So let us examine a more recent study and compare it to Mangelsdorf's efforts.

"The Ancestry of Corn," found in the January 1980 issue of Scientific American, offers a hypothesis rather different from the 1950 article. It is George W. Beadle's contention that maize did not originate from a "pod" corn (original corn), instead he submits, "the progenitor of modern corn is probably the wild grass known as teosinte." Hence, Beadle takes the traditional opposing position to that of Mangelsdorf's pod theory. However, this theory, that holds teosinte as the probable ancestor of corn is not new. In 1877, A. Vinson stated, "Following the thinking of Darwin, teosinte is the ancestor of corn." Yet this statement was based
solely on observation—the idea that corn resembled teosinte was enough justification for him to draw this conclusion. But there is an important difference between Vinson’s assumption and that of Beadle’s hypothesis. “The ancestry of Corn” emphasizes the participation of "ancient Indian agriculturalists" in the actual process of transforming teosinte into modern maize. Clearly, this aspect of Beadle's study avails itself of an interesting comparison with Mangelsdorf’s "pod" corn theory.

As we have seen, the 1950 article does not give much credit to the agricultural capabilities of prehistoric Americans. I have already pointed out the overall biased nature of Mangelsdorf’s approach to the Bat Cave people of New Mexico. Fortunately Beadle does not fall into this trap. In fact, one might say that this article is the antithesis of our earlier article. The point that Beadle stresses the process of domestication is so very different from earlier research. Beadle has in reality placed this debate back into an anthropological context, whereas it previously was moving toward a purely hard science focus. Yet this is by no means to say that Beadle abandons the interdisciplinary approach to archaeology.

Beadle does indeed utilize botanical and genetic research, and I must admit that in several respects his work in these areas is relatively similar to Mangelsdorf's study. But here again there are differences between the two works. First, the research
in the recent investigation has expanded in an attempt to answer more provocative questions. Second, and more importantly, this genetic research was carried out in hopes of explaining Indian participation in the development of corn, and in this Beadle makes three points as to why there had to have been human intervention in the hybridizing process. Third, unlike the genetic studies done at Harvard in the 1940s-1950s, this recent work took place in Mexico and Central America, where scientists were able to test several native varieties of both teosinte and corn in their natural settings. This brings us to another point concerning Beadle's research.

In "The Ancestry of Corn" there is great emphasis placed upon the environment and its affects on the evaluation of corn—an emphasis that does not appear at all in Mangelsdorf's work. Basically Beadle utilizes this environmental approach in determining the survival capabilities of both teosinte and "wild corn" in their natural habitats. He carried out an array of experiments, one of which determined, "that various rodents, birds, insects, and other animals that feed on seeds much prefer corn kernels to teosinte seeds." Moreover, he was interested in the "color and pattern of different seeds, items that might affect the chances of the plant's seeds remaining camouflaged and, therefore, capable of reproducing themselves. Beadle also observed that the quality of the soil did not determine the amount
of seeds teosinte would produce, whereas the factor of soil fertility directly affected corn's ability to reproduce itself. But this interest in environmental aspects surrounding this polemic should not seem unexpected, but indicative of the new reliance on ecological explanations that have formed out of the Explanatory period.

Beadle also looks at archeological evidence in a different perspective than some of his predecessors. While Mangelsdorf primarily studies prehistoric evidence for its chronological significance, Beadle attempts to understand his artifacts in relation to human involvement. That is to say that he is interested in the "harvesting, transport, and shelling" of corn as very important aspects concerning his hypothesis. It is his contention that, "if the earliest archeological specimens were wild corn and dispersed their seeds by means of a brittle cob, "then humans probably could not have utilized corn without tremendous effort. But since prehistoric cobs do not seem brittle, the question arises as to how the plants could have "disseminated their seeds without human help." Yet the important point of this is not which hypothesis is correct, rather that Beadle is emphasizing quite different approaches and goals in his research. Again, he is interested in human involvement and the process related to the archeological artifacts. Yet Beadle's research differs in still another respect.
Basically there are areas of research that Mangelsdorf left out completely in his study: linguistics and folklore. Perhaps it is evidence from these areas that is more provocative than any of the others. In an area of linguistic analysis he states that, "the word teosinte comes from the Aztec (teocentli) meaning God's ear of corn. He also mentions that in some parts of Mexico today "teosinte is known as madre de maiz (mother of maize)." In the area of folklore, Beadle points to the aboriginal belief that planting teosinte in corn fields helps strengthen the domesticated corn crops. While this evidence is certainly not totally conclusive, the major point for our concern is that Beadle's evidence came from a wide range of disciplines—fields that Mangelsdorf either thought unworthy of utilization, or they simply never came to mind.

Finally, in the last section of "The Ancestry of Corn" Beadle does something unique. He calls for the "establishing of teosinte reserves at appropriate latitudes and altitudes in such protected areas as parks and archeological sites..." Since he believes that present teosinte populations are decreasing significantly, and keeping in mind their probable value to modern corn fields, Beadle sees a need to preserve this species. The bottom line here is that Beadle is attempting to apply his recent archeological research not only to cultural study, but also in helping man with his agricultural interests today. This point is perhaps indicative of the new role archeologists have
seen themselves end. No longer are they restricted to simply providing information for anthropologists, rather they are developing their own hypotheses and applying them to the many aspects of human existence whether prehistoric or present.

In conclusion, we can easily understand why men, such as Mark Leone, question the use of the term "revolution" when applied to this period of American archaeology. But perhaps the question we have tried to answer in this discussion is an academic one. After all, have not we placed semantics in a key role in our argument? Although there may be some validity in this point, one cannot help but think that we have accomplished more than vegetation in our review of this issue. Certainly, by attempting to tackle this question, we have simultaneously observed the transition that American archaeology has gone through during the last forty years. And it is the knowledge gained from this observation that by far outweighs the loss of any time spent on semantics.