THE BURDEN OF AGRICULTURE

By
Mark Leone

Introduction

The comparative nature of anthropology is as old as the oldest definition of the discipline. That the generalizations resulting from comparisons have been in and out of vogue among anthropologists since the foundation of the subject reflects the intellectual vagaries of the field. Usually the generalizers have been too glib or too general and hence have said little of convincing worth. But it is equally true that the particularists have often been too particular and too minute and have ended by talking to audiences consisting chiefly of themselves. Right now we seem to be at mid-swing in the course of the generalizing-particularizing pendulum. There is a large competent body of ethnographers, archaeologists, and even ethnographic archaeologists. There is also a growing group who occasionally make generalizations. These are no longer received with glacial chill, but are greeted with, at least, indifference and even with some warmth. This paper is a contribution to generalizations, and it is one which could not be possible without the sound factual contributions made so consistently and well in two major cultural areas.

The Southwest

At about the time Christ and for a few hundred years thereafter in some sections of the North American Southwest, there are pithouse villages located in positions which can most objectively be described as hard to get to. Sites of this sort first occur at the time when agriculture becomes a

major portion of the economic base. Of course, sites in removed or "defensible" positions are a common phenomenon in the Southwest at almost all temporal horizons and the physical position of those from the early Christian era has little to distinguish them from later varieties of the same sort.

In the Mogollon region Wheat discusses 24 sites from all temporal periods which had been excavated up to 1955. He observes, as does Bluhm at a later date, that most of these sites are located in defensible, or at least removed positions. These include the earliest Mogollon sites, both those with no later occupation and those whose positions were used later in the Mogollon sequence.

The Mogollon area is broken by mountain ranges with small valleys in between. This highly disconnected kind of natural environment probably allowed the existance of more cultural heterogeneity than would be the case in the more open southern desert and northern plateau. Both Bluhm (1960: 544) and Wendorf (1956: 22-3) sense that the archaeological materials from these geographically dissected regions reflect this lack of homogeneity. However, the response of early agriculturalists to the environment seems to have been a uniform one when consideration was given to selecting site locations. Wheat characterizes the situation for the Mogollon generally. "In their choice of village sites, it is clear that, with few exceptions, the Mogollon chose places of some elevation and isolation. Twelve of the 24 villages were located on a mesa, a bluff, or a ridge; 10 others occupied terraces well above valley bottoms; and one was situated on the out-wash fan of nearby mountains. Only one was located in a valley bottom. Many sites lie in secluded valleys on tributary streams. . ."

"Nearly every excavated site which was first occupied during early or intermediate times was continuously occupied through later pithouse horizons which often were succeeded by a stone pueblo phase. Some sites must have been

occupied for nearly a thousand years." (Wheat, 1955: 34-5)

E. B. Danson in his immense archaeological survey of west central New Mexico and east central Arizona found, "In those valleys situated in the higher mountains, back from the main river, the following pattern was found to be true: Pre-Pueblo I sites are scarce, and often are found on the high mesas or bluffs overlooking the high tributary streams. This seems to be true in most of central New Mexico and Arizona. Typical examples of these sites would be the Promontory Site at Pinelawn and the SU village. The latter, though not on a high ridge, lies well away from the main Wet Leggett Valley, which in itself, is no more than a minor tributary stream. Haury's Bear Ruin and Bluff sites are both situated on a small upper tributary, and the latter is high above the valley on top of a bluff, as its name implies."

"Pueblo I sites are more numerous and are found in all the valleys studied. However, it is of interest to note that the largest increase in Pueblo I villages comes in the upper tributary valleys, and that in the lower valleys the increase in the number of Pueblo I sites is small." (Danson, 1952: 103). Danson's Pre-Pueblo and Pueblo I phases are correlated with more or less traditional dates in Southwestern chronology. The total range extends from shortly before the time of Christ to A.D. 700.

On the western periphery of the Mogollon region, in the area between Saint Johns and Snowflake, Arizona the same phenomena of early pithouse villages occupying locations which are approached only with difficulty are found. One of these surveyed by the Southwestern Archaeological Expedition of the Field Museum of Natural History is located on a spur jutting out from a mountain rising 400-500 feet above the surrounding valley floor. The Connie Site is a sizeable pithouse village three sides of which are steep drops into the valley below. The fourth side connecting the village with the flat surface of the rest of the mountain is delimited by a crescentic stone wall, now

about a foot high, which runs across the entire length of the spit cutting off the rest of the mountain top from that part of the surface holding the site. This site, dating from the early centuries of the Christian era, has an unparalled view of the valley and stream which was the undoubted locale of the agricultural activities forming the economic base for the community. On the three sides which drop from the village to the valley, the lip of the mountain has been bolstered and built-up in low and slumping places by piles of boulders. These form low, wide walls at the heads of the gentler slopes leading from the site to the valley floor. Tumbleweed Canyon Site, dating from the same period and also surveyed by the Field Museum, is in the same vacinity and is similarly located.

The Mogollon region correlates with that physiographic unit of the Southwest characterized by the mountainous transition from the Colorado Plateau in the north to the Basin and Range country in the southern extent of the macroarea. The Mogollon unit occupies the northern extension of the Sierra Madre Occidental. This mountain chain permits direct physiographic connection with the highland provinces of the Mesoamerican cultural sphere. Since the region is by nature mountainous, it can be argued that no choice is permitted in the situation of sites; the argument is, however, specious. There are some few sites dating from later periods on valley floors. And on the periphery of the region to the west valley floor sites are common at all periods.

Outside of the Mogollon province summaries of settlement patterns are more poorly synthesized. The pattern of early villages situated in defensive locales is difficult to establish, not because the pattern does not exist, but because it requires lengthy investigations among site reports before a general average condition is available. The general impression is more or less the same as that described for the Mogollon. Pithouse villages of the Basketmaker III, Pueblo I epoch are located in one of three situations: bluffs

flats, and caves or shelters. There seems to be a considerably less clear settlement preference among the Anasazi at a stage homotaxially equal with the one already discussed for the Mogollon: earliest settled agriculture. Certainly the most famous sites of this horizon are caves and shelters, locations which are, among other things, protective and protectable.

Amsden (1949: 112) characterizes Basketmaker sites in the following way. "Most of them are in open country, where space is no limitation. The favorite village-site was a plot of high ground, usually the edge of a mesa or the spine of a ridge, overlooking the valley where the cornfield lay. Many village-sites are strongly defensible, and most are easily guarded against surprise attack." Amsden concludes, "So many Basketmaker villages show signs of conflagration, which in some instances had destroyed an entire cluster (of houses), that one suspects the presence of enemy raiders in the land." (1949: 112).

Kidder (1963: 230) notes three kinds of locations for "Pre-Pueblo" periods: caves, valley bottoms, and mesa tops. In an illustration of this generalization are the data presented by Joyce Herold in her vast study Prehistoric Settlement and Physical Environment in the Mesa Verde Area. She concludes that in Basketmaker II times, in order of highest frequency, "Most sites are (1) in caves, (2) in valley or canyon bottoms. The largest settlement (number of dwelling units) is (1) on mesas, (2) in caves, (3) in valleys." For Basketmaker III sites in the Mesa Verde area in terms of physiographic situation, "Most sites are (1) on mesas, (2) in caves and valleys. Largest settlement is (1) on mesas, (2) in caves, (3) in valleys. Other sites are in canyon bottoms." For Basketmaker III - Pueblo I, "Most sites are on mesas. The largest settlement is on mesas." Taking Pueblo I as the last stage of Anasazi settlement in which agriculture can in any way be considered initial, or less than fully established, the settlement pattern information is the

following, again from Herold. "Most sites for Pueblo I are (1) on mesas, (2) in valleys. The largest settlement is (1) on mesas, (2) in valleys. Other sites are in caves." (Herold, 1959: 193-5)

The Mesa Verde region is the heartland of the Basketmaker - Pueblo cultural zone. The area as defined traditionally and, as used by Herold, includes the large area centering on the so-called Four-Corners region. The region includes a large chunk of southwestern Colorado, and southwestern Utah. Lesser sections of northwestern New Mexico and northeastern Arizona are combined to create this zone which was so heavily populated in prehistoric times. Mesas in this region are high with almost perpendicular sides. Access to them is not easy, and I am assuming that settlement on them at early agricultural levels is out of some necessity for being removed from more easily accessible locales. Land on the mesas has been farmed, but the valleys in the region are large and have better farm land.

Among the Hohokam a different disposition of sites is immediately clear. The Hohokam, at least as presently understood, occupied the alluvial valleys of the major drainages in the southwestern portion of the Southwest. In no sense are the sites inaccessible, protected or removed. The sites seem to be big, well populated and permanently established by the time of Christ. Hohokam agricultural origins are obscure. Agriculture is assumed to have originated ultimately in the south in Mesoamerica, but whether the Hohokam entered the drainages of southern Arizona from the south with it, or received it from the Mogollon, or proto-Mogollon and developed it as an economic base coupled with irrigation in the southern deserts, is, it seems, an open question.

In the mountains surrounding the river valleys the same circumstances evidently do not obtain. Danson found what he inferred were "early" sites in the area along the Santa Cruz which were in positions he had no difficulty in labeling defensive. The relationship between these sites and those of the valley Hohokam is unclear. They may be in mutually exclusive cultural and environmental provinces (Danson, 1946? 36).

In generalizing from what is outlined above it is clear that in the Mogollon and Anasazi areas the sites which are, in effect, representative of the earliest phase of settled village agriculture are located either almost completely in removed locations, as in the Mogollon, or in noteworthy proportion in this kind of location, as among the Anasazi. The Hohokam exhibit no such pattern.

The history of warfare in the prehistoric and aboriginal Southwest is presumed to be as old as the breakdown of the wide ranging and presumably cooperatively well-knit big-game hunters. There is every reason to suspect that palaeolithic social organization was sufficiently all-encompassing so that in an area not densely inhabited, like the Southwest, the kinship net necessitated by wide-ranging cooperative groups, obviated squabbles. With the breakdown of an area-wide social organization at the disappearance of the big-game, the already extant hunter-gatherer economic base supported the aboriginal population. Since, in the Greater Southwest, these hunter-gatherers lived ethnographically, and presumably prehistorically, on a hand-to-mouth basis, we can assume that most of any group's time and all of its efforts are going to be occupied in subsistence activities. These groups were semi-nomadic. Great mobility is characteristic of these groups and since they subsist on an exploitive economic base, all groups are equally well or badly provided for as the seasons vary. There is no cause for one group to prey upon another since territorial and resource sharing is the usual custom.

Agriculture is an old phenomenon in the Southwest, but it is generally agreed that agriculture as an economic base which provides more or most of the subsistence base than hunting and gathering enters the Southwest at about the time of Christ. It is also generally agreed that the introduction has priority among the Mogollon, it having arrived into the mountainous Mogollon region by holding to the favorable environment of the Sierra Madre Occidental. Subsequently efficient agriculture, in the form of a hypothetically improved breed of corn, spread to the Anasazi neighborhoods and to the Hohokam.

Since there is a history of agriculture in the mountainous areas of the Southwest extending possibly two thousand years before Christ, it is reasoned that the hunter-gatherers who farmed on an occasional basis were well prepared to utilize the new introduction to a fuller extent. Also, that some groups of semi-agricultural hunter-gatherers, or those among them more successfully utilizing agriculture, would accept the innovation more readily than those in areas better favored with natural food resources is the undoubted base behind the differential acceptance of an improved and more fully immobilizing type of agriculture.

To suppose that any innovation is accepted differentially is only to make an assumption which had long been considered a truism in anthropology. To assume, then, that some groups among the proto-Mogollon were in a slightly more favorable ecological position, or to assume that, more generally, some hunter-gatherers are better disposed to experiment with an introduction because of the promise of the already limited success of agriculture is to assume what is probably obvious.

Given the differential acceptance of agriculture and its success among those who more fully adopt it, then one must consider the groups who are both tardy and reluctant to accept the innovation. Some hunter-gatherers occupy differing but neighboring ecological nitches and may occupy a zone less naturally favored for agriculture, and yet no better supplied with natural resources than any other in the vicinity.

The hunting-gathering population in the Mogollon area in the centuries immediately after the time of Christ must have been initially large, and gradually dwindled as agriculture was accepted, or as the population was forced out of the region. However, until that happened, two basically different and incompatible economic types were in contact. One, the older, is exploitive, living off the natural environment. The natural environment is

the chief source of subsistance, at least for the period discussed. However, the environment of these hunter-gatherers also includes the surplus producing agriculturalists. These are a potentially exploitable sector of the environment from their initial period of success.

While the hunter-gatherers can consider their environment enlarged, the agriculturalists have not really so limited theirs, and never in Southwestern prehistory would agriculture be so efficient that hunting and gathering ceased to augment the economy. While the exploiters have by their proximity to stored surpluses had the opportunity to strengthen their economic base, their neighbors who have come to rely on a more self-sufficient economy, never reach the point where they could rely so fully on agriculture that exploitation becomes an unutilized subsistence mechanism. The success and, therefore, the strength and potential of the agricultural cultures is limited.

Early agriculturalists are particularly prone to raids by exploiters, especially in an environment as fickle as that of the mountain region of the Southwest. Should any of the natural crops or game resources of an area be reduced below normal standards, the groups depending on them are faced with, at best, a hungry winter and spring, and, at worst, starvation. If the natural food resources were to be insufficient in any given season, it would seem natural that the semi-nomads attempt to harvest the stored supplies of the village dwelling agriculturalists. Since stored supplies are part of the natural means of sedentary peoples to subsist for the winter and spring, protection for them is a primary consideration in the location of living quarters. This is an especially acute consideration if the population dependent on the surpluses has begun to grow in numbers to the point where hunting-gathering techniques will not support it if agriculture fails.

Defensive sites at the earliest sedentary horizon are the response to the predacious habits of groups which have maintained a hunter-gatherer lifeway in an environment where natural resources are neither bountiful nor fully predictable.

Linton (1944: 28-32) is probably correct in reasoning that in later agricultural times hunter-gatherers are too few and too impotent to be the cause of the defensive locales utilized by the later Pueblos. That people who always relied in part on hunting-gathering, people who never fully gave up on exploitive life-way, should prey on their neighbors when their own agricultural surpluses failed is a more plausible explanation for the elaborate measures employed in later Pueblo times. However, at the earliest agricultural horizon the discrepancy in ability and numbers between hunter-gatherers and agriculturalists would undoubtedly not have been marked. The vulnerability of the agriculturalists is all too obvious when the inaccessibility of some of their sites is noticed. More than one winded archaeologist has wondered about the location of the Bluff Site in the Forestdale Valley in east central Arizona after climbing its nearly vertical face. The location of the Connic site excites the imagination about as much as its ascent excites the lungs.

It can be assumed that the reasons for the later warfare in the Southwest, disputes over agricultural lands, crop raids etc., cannot stand as appropriate reasons for the need for defense among the first agriculturalists. Land could not become scarce until the population of agriculturalists became enlarged through the very success of agriculture. Competition among early agriculturalists for each other's surplus does not hold promise as an explanation. People in any given micro-region were undoubtedly related to each other via kin ties since community budding is generally thought to have been the chief means of population movement. There is nothing but kin sentiment to prevent relatives from raiding one another. But since ties of sentiment would probably be the surest economic leveling device in any given area, they probably were rarely violated. More to the point is the likelihood that natural forces debilitating any one micro-environment are likely to effect a sufficiently large region, in the Southwest, to the point that in order for

agriculturalists to raid the surpluses of others they would have had to travel considerable distances, storm a defended position, cart off the stores and bring them home with the original possessors in hot pursuit. This is too artificial an explanation when one considers that semi-nomadic groups living in the vicinity of agriculturalists could, by theft and stealth when the villagers were in the fields, as much as by direct attacks, deprive a community of a portion of its produce, carrying it into the recesses while the former either pursued them into unfamiliar territory or stayed behind to extinguish the flames set in the course of the raid probably more as a delaying and distracting device, than with destructive intent. Since raids would be periodic and would be in a sense a harvest of the harvest rather than an attempt to rid the area of another potentially useful natural resource, they should not be conceived as well mounted maneuvers, but rather employing a few people pilfering, not masses marauding.

That this condition existed on the frontier of settled agriculture in the Southwest is well enough attested by the defensive sites built to protect stored surpluses. If we can take defensive sites at the earliest agricultural horizon in both the Mogollon and Anasazi regions to represent the inevitable clash between exploitive and self-sufficient economies, then perhaps we can hypothesize that that condition, hunter-gatherers exploiting agriculturalists, has really been a relationship long before prefaced to the south where the first agriculturalists must have encountered the already extant hunter-gatherers. Unfortunately, detailed settlement information is not available for MacNeish's Tehuacan Valley investigations. As one proceeds both north and south from what we can tentatively assume is the origin point for agriculture in the New World, one ought to be able to predict that the earliest agricultural horizons are represented by attempts of agriculturalists to protect their surpluses when they enter a region peopled with hunter-gatherers.

Nothing can be said about the area going south from the south central Mexican highlands. Its earliest settled agricultural horizons are sparcely investigated and what there is is not well enough known to me. As one proceeds north along the mountain ranges which lead to northern Mexico and eventually to the Southwest, the same sort of archaeological terra incognita meets the researcher. Perhaps MacNeish's work in Tamulipas would reveal the same sort of relationship that the Southwest shows, it is certainly to be expected. It is unfortunate that Sauer and Brand's survey of Sonora done in the early 1930's was produced before temporal divisions of archaeological sites there had been created. One can never be sure when reading their report whether their defensive sites are early, late, or historic. It is certainly to be hoped that Wasley's current survey of Sonora will yield material at the horizon of early settled agriculture. The relationship between the hunter-gatherers of any of these regions and the first agriculturalists is going to be a predictable one owing to the nature of the economic base of hunting and collecting. It can, therefore, safely be said that wherever the two types of economies come into contact in this region the reaction of one to the other will be consistent. The predator will exploit, the agriculturalist will protect.

Since it is assumed that agriculture gradually diffused northward and so subsequently did settled reliance on it, it ought to be demonstrable that the farther south one retreats from the first serious agricultural levels in the Southwest, the earlier will be the defensive sites which mark the advent of the agricultural horizon. Then, as a rough predictive device, this type of site in any of these regions can be taken to mark the emergence of the sedentary agricultural horizon. Of course, the underlying assumption of hunter-gatherers in the various regions previous to the agriculturalists must dictate the applicability of the generalization. The phase among the Mogollon which is the first agricultural horizon dates from A.D. 1 to A.D. 400. This

is the era of the first defensive sites and of the first real agriculturalists. Among the Anasazi, agriculture as a phenomenon producing sedentary populations arrives during Basketmaker III - Pueblo I times, in other words, several centuries later in an area farther removed from agriculture's homeland, and removed from contact with the Mogollon. The proto-Anasazi were a more specialized group of Desert Culture exploiters than the Mogollon, which would indicate that they were probably better adapted to hunting and gathering, or that they inhabited an area which was more naturally abundant. That they themselves provided the northern raiders for the early Mogollon farmers is not inconceivable. At any rate, when settled village agriculture becomes established among the Anasazi in Basketmaker III - Pueblo I times, settlements in an undetermined portion are placed in caves and on ridges. Some, to be sure, are located in open sites which cannot be considered defensible (unless there are palisades we have yet to discover). It is assumed that cave locations and rock shelters as well as ridges have among other assets that of being defensible. There does seem to be a generalization allowing for Basketmaker III sites to be in caves and overhangs, and Pueblo I sites to be located on ridges of varying degrees of eminance.

There is a general tendency, to be seen more among the Anasazi than among the Mogollon, for sites in horizons past the point of initial sedantism to be placed in more open locations and to frankly favor the river valley floor which had been farmed since the adoption of agriculture. This tendency which was never fully realized among the Mogollon and which is represented by Pueblo II among the Anasazi, is probably an indicator that in any given region the hunter-gatherers have either accepted a sedentary agriculture or have been driven or starved out. This interlude would, however, be but a preface to that period in both areas here discussed, and probably in all others affected by like phenomena, in which population growth and land scarcity would combine to create pressure among the agriculturalists themselves. This internal struggle

would once again necessitate the use, or even reuse, of locations where stored surpluses could be protected and crops and fields guarded. Only in micro-areas like canyons or valleys where all inhabitants were likely integrated via kin and religious ties would such struggles be obviated. But union beyond micro-areas is hardly likely and valley-wide integration never was to be succeeded in the Southwest by cooperation on a larger scale. The causes producing defensive sites among competing agriculturalists must not be confused with those necessitating similar locations at an earlier cultural epoch. The decline, then, of defensive sites, if it occurs, indicates the decline of the hunter-gatherers.

One would suspect that on the agricultural frontier to the north and west of the Anasazi where settled villagers would have been in more or less perpetual contact with the Great Basin hunting-gathering groups, the situation would have necessitated a constant maintainence of defensive positions. An analogous relationship must also have existed to the west where groups of pre-agricultural Yumans probably exploited the early agriculturalists. The archaeological data to support these statements is, however, not now in hand.

Some time should be spent on the Hohokam since their situation is, at least on the surface, anomalous. The Hohokam from the earliest evidences of them in the Southwest were situated in the alluvial plains of the principal river valleys of southern Arizona. No trace of early defenses is evident. However, if, as is now being proposed, the Hohokam entered these valleys with the full equipment of a civilization based on irrigation agriculture and consequently had a well developed and cohesive social structure at the time of their arrival in the Southwest, than any hunting-gathering groups found in those locations would have been quickly exiled to the surrounding hills. These latter would have been too few and too impotent to be more than occasional pests to the Hohokam who consequently had to defend themselves, due to their superior resources and numbers, from no one. On the other hand, if the Hohokam did develop in place or in the foothills and nearby Mogollon region and moved down

to the valleys with a developing irrigation economy, then one is forced to assume that sheer strength would not be sufficient to cow the resident Desert Culture folk. But it seems, in reality, that the alluvium was to all purposes uninhabited. Desert Culture peoples of the south and west preferred the foot hills, not the valley floors; preferred lake shores, not river sides; and at best were few in number and transient in life-way. That the Hohokam entered an empty ecological nitch is a safe postulate, and if the nitch had not always been empty, it was at and shortly before the time of Christ.

A Testable Hypothesis

None of the facts listed and discussed so far are new, neither are most of the ideas which hold them together. However, generalizing from the Southwestern data presented so far, and by way of summarizing the phenomena cited in this point, I would like to present the following generalization which I suggest holds true not only for the Southwest, but for any area where parallel circumstances occur. Therefore, societies, or levels within a society whose economy is exploitative in the sense that it employs hunting, collecting, foraging, or capitalizing techniques on the resources naturally provided by the environment (natural and social), when encountering societies whose economic base is organized on the principle of intra-group self-sufficiency, e.g. agriculture, will attempt to exploit the latter as a part of their environment. When preagricultural and agricultural societies are involved in the exploiter-exploited relationship, the relationship will continue until (a) the hunter-gatherers adopt agriculture, (b) are driven out of the region, (c) or the agriculturalists collapse from exploitation.

In this paper, capitalizing means employing a surplus to expand a production base.

Hypotheses which are untested or are tested on only one set of phenomena are of a certain value because of their provocative nature alone. However, rather than relying on good will, I would like to go on, after one caveat, to

test the hypothesis in another, and independent location, Europe.

The necessary tangent at this point involves hunting-gathering societies so well situated in an abundantly producing area that they have become sedentary with an economy we can call abundant natural harvesting. Societies like the North American Northwest Coast, the Trobriand Islands, some of the better situated northern European Mesolithic groups and some of the more favorably endowed Middle Woodland groups of the eastern United States fall into this category. These societies have in a way entered the neolithic by the back door. The necessities of full time agriculture, as well as its yields, enable sedentary living; all these factors together yielding the various changes in society latent in the neolithic. In no sense can this type of hunter-gatherer be thought of as forced to menace agricultural neighbors due to insufficient natural supplies. Hypothetically one might even suppose the reverse to have occasionally been the case, especially in terms of agricultural expansion.

Europe

In turning to Europe and treating it as an area which received agriculture in a secondary manner like the Southwest, one observes that it has long been demonstrable that agriculture reached Europe originally from the now famous zones in the hilly flanks which extend to Anatolia. It is supposed that the diffusion of agriculture, and perhaps of agriculturalists spread into Eastern Europe via Anatolia. The chief routes for the entry into eastern and central Europe were the Balkans and the Danube. European archaeology of the neolithic era is vastly more complex than that of the American Southwest. However, the area has been among the most fortunate in the caliber of men it has attracted. Excavations have been, of course, carried on for a century, and systheses of European prehistory for the neolithic and for other periods as well have been available for some time. Some of the oldest and undeniably among the finest are those of V. Gordon Childe.

Ecologically Europe is very different from the Southwest of the United States. Temperate Europe, the Europe of the later mesolithic cultures and the neolithic, was a vast region of forests which began west of the heathlands of the northeast and stretched into European Russia where the forest was met to the southeast by the Pontic Steppes. The forests ran south to the Alps penetrating below these in fingers running into Italy, the Balkans, and Greece. The soils of the zones immediately adjacent to the Mediterranean were poorer and less deep than those of Central, Northwestern and Northern Europe where the glacial loess often formed the top soil. The heaviest loesses were in central and east-central Europe with extensions to the north and east.

The mesolithic population of Europe, one which had adapted to the exigencies of the moderated climate and established forest, was spread over Europe in greatly varying densities. Certainly the most successful and best suited of the mesolithic cultures, cultures like Ertebolle and Meglemose, were located along coastal zones, or near the estuaries of major drainages leading to the northern seas. Outside of these northern mesolithic cultures, less well endowed varieties can be seen in Western and Southern Europe. There seems to have been a fair mesolithic population in Switzerland. The population appears to have been thin in the Rhenish provinces, and absent along the Danube for almost all of its length. However, Hungary and its northern neighbors, and Poland and European Russia were populated in varying degrees to the Caucauses and to the Crimea in mesolithic times with a base Childe has called epipalaeolithic. The South Russian population seems to have been large, in mesolithic terms, and this density diminished only slightly as one approached south-central Europe, Romania etc. The mesolithic population of Europe can be seen as a band surrounding the rim of the continent and penetrating into the interior with varying degrees of density. The band was interrupted along the southeast Mediterranean. There was no mesolithic population in Greece, for example.

And the population extending into the interior of Europe was thinner than that along the coasts, and almost non-existent in Central Europe.

The loess flats along the Danube, and it would seem in Central Europe as a whole, remained uninhabited, or at most subject to intermittent mesolithic exploitation. Loess dunes in Hungary were occupied, but the unforested areas which extend along the back from the Danube and its major extensions were not.

The first agriculturalists in Central Europe entered along the Danube. Traditionally this initial neolithic culture is known as Danubian Ia. This sequence of Danubian evolutionary advances from I to V is withering in its complexity and in the myriad cultural branches which are related to it. However at the earliest agricultural horizon the archaeological picture is considerably clearer than is the case once settled village farming becomes well established and the subsequent metal ages begin. Where agriculture first entered Europe and where its immediate Asiatic progenitors were is probably unimportant for this investigation. Origins naturally lie in Anatolia and then farther east, and entry routes involve the northern and eastern Balkans. Danubian I culture, rather than being considered sedentary agriculture, is characterized as being based on a form of slash and burn agriculture adapted to forest exploitation, once forests were entered. Until the Danubians found it necessary to utilize forest land, a process which began in Danubian Ib, farming was limited to the easily worked and partly forest-free loess land bordering the Danube itself. The loess was rich, and easily worked with primitive implements. Settlements were located in the open on river banks or the low bluffs above the banks. They can be considered defensive in no sense and, in fact, Danubian Ia folk are considered to have been peaceful, unwarlike shifting agriculturalists. The extremely inefficient agricultural practices introduced into Europe by these initial farmers involved exhausting a local

region's soil fertility and then moving on to a new area equally easily worked and exploited. Although Danubian I population is not considered extensive, the sites of this period are numerous and extend over all the loess region along the Danube. It is from this evidence of density of sites that the semi-mobile nature of Danubian I's existence is inferred. Shifting agriculture after extending to the limits of the loess empty heretofore of population, was impelled both by increasing population and exhaustion of the forest-free loess lands, to enter the virgin forests which were, generally, occupied by late mesolithic peoples.

Until the early agriculturalists and the exploitative mesolithic peoples came into contact, the hypothesis being investigated here cannot be tested except negatively: there is no evidence for either competition or for defensive measures in Danubian Ia. But beginning with Danubian Ib and Danubian II and the peripheral cultures related to and in part derived from the Danubian, the first contact occurs in Europe between the mesolithic and agricultural peoples. The whole spectrum of contacts cannot be discussed here, but in those cultures discussed and in all of the contact cultures generally, a situation exists which shows the hypothesis outlined earlier to be correct in its essential points.

In the west among the first groups to adopt agriculture and to meet the environmental conditions of both a forest environment and presumably the hunter-gatherers living off the same environment are the Rössen and Cortoilled cultures. These were initial agricultural complexes. The former was located in central Germany and the latter was situated on the shores of some of the Swiss lakes, and has been known under the far more attractive but descriptively misleading title of Swiss Lake Dwellers. The Rössen, like most of the cultures here discussed, lists amont its representative settlements some, like the earliest levels on the Goldberg, which are either in clearly defensible positions or are fortified using palisades.

The Rössen culture was located in western Bohemia and in Saxony and Thuringia, and along the upper reaches of the Elbe. This culture also extended some distance along the Main and subsequently for a distance up the Rhine. The region was inhabited in mesolithic times, and the earliest agriculturalists in the region seem to have been a combination of formerly mesolithic peoples of the same area who received agriculture via Danubian Ib or Danubian II cultures in the east, and some groups who may have filtered across from the Danubian zone proper. Rössen, having adapted agriculture to both the forest environment and to the mesolithic folk, who must have still been present in the initial agricultural period, produced a culture which is noted as being less well developed than the classic Danubian versions to the east. Chronologically and typologically Rössen is related to late Danubian I, and Childe says, "late settlements of Danubian I type and those of the related Rössen culture have been fortified, and weapons are not uncommon in them." (1950: 96) Defensive positions like the Goldberg in Wurtemberg were utilized by the Rössen culture. "The Goldberg was a fortified settlement, and some authorities hold that the fortifications there and at Monsheim near Worms were built by the Rossen folk." (1929: 53) The Rössen folk may have been preceded in the area by earlier agriculturalists; the literature is unclear on this point. However, the culture is early enough in the neolithic horizons to satisfy requirements that (1) mesolithic hunter-gatherers were still in the vicinity, and (2) land had not become so scarce that agriculturalists fought among themselves for it.

The Cortoillod culture, represented by numbers of stratified settlements along Lakes Constance and Neuchatel were originally thought to be built over water and connected to the lake shores via wooden ramp-ways. After more recent excavations and studies involving the levels of the lakes at various times, it was concluded that rather than living over open water the early agricultural settlements were located on swampy ground and marsh which bordered the lake shores and estuaries leading into the lakes (Piggott, 1965: 57).

Since there are walk-ways leading from the dwellings built on piles to the shore, it can be inferred that the ground between was either impossible or too difficult for easy passage. The usual explanations for this location have involved postulating the economizing of land which was needed for agricultural crops. This explanation has been advanced in the American Southwest where it seems an equally unconvincing plea. Few villages at this horizon seem so large and few valleys so small, that habitation sites are consequently removed to agriculturally worthless cliffs and marshes. I suggest the removed locations rather than being so situated to preserve land, or to more readily facilitate fishing were so placed to make it difficult for the mesolithic gatherers still extant at this early agricultural horizon to gather the stored surpluses relied on by these people.

The oldest neolithic culture in Britain is Windmill Hill. As Childe observes, "the culture is best known from a series of hilltop encampments strung out all along the downs and uplands of Southern England.... The hilltops are girt with a system of three or four flat-bottomed ditches, interrupted at frequent intervals by causeways...and supplemented by palisades." (1958: 323) These have been regarded by Piggott as cattle pens, but in some, house remains have been found (Childe, 1958: 323) and while the Windmill Hill folk were primarily cattle breeders, these settlements probably served to protect both the animal and human population. I would suggest that the well documented mesolithic population in Britain must have considered the neolithic herds an exploitable resource to augment their own coast oriented economy. Childe says that, "In Southern England the neolithic farmers kept to the chalk downs while hunters and gatherers occupied the greensands." (1950: 87) This occupation of differing environments did not mean that the groups were isolated from each other. And it is quite likely that sufficient raiding took place to force the neolithic peoples to protect their surplus, both animal and vegetable. Childe also infers that for the whole of Northwestern Europe, North France, Belgium,

Holland, and England, communities at this early agricultural horizon display "bellicose characters," settlements being fortified. (1950: 89)

Childe interprets fortifications and war implements at the early agricultural horizons to the already existant struggle for land among fast spreading and quickly multiplying farmers. The fortifications of Rössen, Windmill Hill, and Northern French incipient neolithic cultures come as a result of the expansion of later Danubian Ia and Ib folk who have outgrown Central Europe, he suggests. This essay takes issue with Childe's reason for the existance of defensive positions at early neolithic horizons. Such a position would be quite untenable for early settled agriculture in the North American Southwest, and seems implausible for the homotaxial period in Europe. Fighting among agriculturalists for land began with Danubian Ib and II in Central Europe, along the Danube, but it seems doubtful that this would effect the neolithic frontier which lay in peripheral regions. (cf. Childe, 1958: 118-9, and Clark, 1966: 97-98)

To the east of the central Danubian region the Erösd and Tripolye cultures serve to illustrate the relationship postualed to exist between earliest agriculturalists and resident mesolithic hunter-gatherers. The Erösd culture, known from over two dozen settlements in the Alt Valley and vicinity, a region which is tributary to the Danube in Romania, is related to Tripolye, which is situated in South Russia and is centered around Kiev. Erösd, however, has affinities to the Danubian II culture and can be considered to have interacted in some way with these later and different agriculturalists. Most, if not all of the Erösd sites, are located on spurs of loess which occur along the drainage and overlook the Alt Valley. The Erösd folk employed ditches to protect the open side approach to the villages. The technique of digging a ditch, or fosse, sometimes even a double one, is one which is common throughout Europe at later and more warlike periods in the prehistoric epoch. The loess here is easily excavated, unlike any of the lands, except possibly the alluvial flats, of the

Southwestern United States. For this reason ditches as defensive mechanisms are frequent in Europe and absent in the North American Southwest.

Childe says of the Erösd culture, "...in the Upper Alt Valley, twenty-six settlements of a distinctly advanced population have come to light. The settlements all lie high on the loess terraces in naturally defensible position. The prehistoric village (of Erösd) is perched upon a loess spur that rises steeply some 180 feet above the plain of the Alt. The site is protected on either side by deep ravines carved in the friable soil. A ditch had been dug across the neck that alone connected the settlement with the plateau." (1929: 98)

It is inferred that the Erösd settlements represent the first settlements of agriculturalists in the area. (Childe, 1929: 98; Gimbutas, 1956: 105). The "distinctly advanced population" Childe speaks of above has cultural connections with earlier Danubian cultural material from the west, but also can be viewed (Gimbutas, 1956: 105) as a westward affiliate of the Tripolye culture. The Erösd culture seems to be the first neolithic manifestation in the Alt region, but it is a manifestation of a neolithic culture already having matured in some other region.

Unlike the Erösd, the Tripolye is not the first agricultural phenomenon in its area, southern European Russia, but it is the first for which there is information. This extensively investigated culture has several phases to its career before it is overwhelmed by peoples moving in from the east. The mesolithic occupation of this region was extensive and we may presume was there to face the initial farming population. (Gimbutas, 1956: 99-105) Sites of the Classic Tripolye culture are generally located on spurs or loess eminences. (Childe, 1958: 137; Gimbutas, 1956: 107) A ditch or fosse usually stretches across the open approach to the settlement. However, Gimbutas indicates that most Early Tripolye sites, those with clearest Danubian and Starcevo affinities, are located independently of the later Classic Tripolye sites (Gimbutas, 1956: 101 map). It is important to note that Tripolye is a gradual development out

of a neolithic base, and that from earliest times some Tripolye sites seem to have been placed in these defensive positions. As inferred, then, from the authors quoted in this section, Childe and Gimbutas, there are indications of at least some occupation of removed locations by the first agriculturalists.

Mongait (1959: 108-112) agrees with Gimbutas who identifies Tripolye as the first developed neolithic culture of the region. Initial neolithic manifestations are akin to Danubian I, and Tripolye is a direct and immediate growth from this. The Tripolye culture rests on a base provided by the first Danubian and Starčevo farmers in the region drained by the Dniester, Bug, and Dnieper Rivers. Tripolye material is found stratigraphically over the Danubian and Starčevo base which would seem to indicate that there was some incipient neolithic occupation in the sites of the Classic Tripolye horizon. The pottery connected with primary agriculture here is the "line and band" pottery, or more familiarly, linearbandkeramik. This is largely unstudied in this area and seems weakly manifested. Then, while no claim for agriculturalprimacy is permissible for Tripolye, it represents an early enough neolithic stratum, I believe, for testing the hypothesis. Earlier Tripolye is the equivalent of an economy which has passed the stage of relying as much on hunting and gathering as on agriculture, but its earliest phases do not represent that agricultural stage in which competition for land dictates fortified settlements. We may suppose therefore, that some other force in the social environment necessitated the occasional defensive locations chosen by the Early Tripolye culture.

The relationships between the early agriculturalists and the well-established and best known of mesolithic groups, those of the northern littoral of the Baltic Sea and areas inland along rivers leading to the northern seas, is a more difficult one to establish since the reporting for the area is unconsolidated. Ideally an investigation of the northern rim of the extention of agriculture in the course of its spreading over Europe ought to close the

geographical gap extending in this investigation from Switzerland and Germany via Northern Europe to Romania and South Russia. It does seem that the earliest of the Battle Axe cultures, peoples whose name adequately describes one of the identifying artifacts of the culture, emerge among the formerly mesolithic folk of the Baltic littoral just at the time when agriculture reaches this area. Childe considers the event related, but just what the relationship was between the two groups is an unclear matter.

One would suspect that as early agriculturalists colonized territories occupied by mesolithic hunters and fishers conflict would arise, especially in the European north and northwest where the mesolithic population was fairly dense. Since many of these mesolithic folk were well enough endowed to have been self-sufficient, they do not fall within the perview of the hypothesis. However, insofar as mesolithic cultures must have varied within themselves as to degree of natural food resources available, then presumably where agriculturalists offered additional resources in an area which was not so abundantly endowed naturally, the hypothetical relationship between the two economic groups would exist. Childe (1950: 85) cites cave occupations as well as fortified settlements, "from the chalk downs of North France and England, from the Jura and the Black Forest," as resulting from the period of initial colonization of this vast region on the rim occupied by peoples with a mesolithic economy. That the fortifications are the result of conflict and competition with other initial farming groups seems, at this early horizon, doubtful.

On a slightly later horizon the emergence of the various Battle Axe cultures is correlated by Childe (1950: 141) with the conversion of the various groups of mesolithic hunter-fishers to food production. The area for this conversion and the emergence of Battle Axe cultures is Northern and Northeastern Europe. "Most of the battle axe cultures to emerge on the fringe of the region colonised by neolithic farmers in territories previously occupied by hunters and fishers descended from the mesolithic Forest Folk." (Childe, 1950: 141)

This last quote indicates that the northern mesolithic folk did adopt agriculture; it also indicates that their environment was naturally well enough adapted to agriculture, perhaps supplemented with natural resources, that these people became agressive with the advent of a population founded on a fruitful economic base. Perhaps we may also infer that the battle axes were developed, along with agricultural practices to answer the challange of intruding land-hungry farmers from the south and west. Because these hunter-gatherers were among the more favorably located in Europe and, we may presume, were not predatory, the relationship between expanding hunter-gatherers was reversed. Threatening agriculturalists anxious for new lands were met with a population which was prodded into agriculture and developed the weaponry necessary for its maintenance and spread. The hypothesis is not tested in this situation because of the self-sufficient nature of the hunter-gatherers. Rather than hunter-gatherers of the usual sort coming into contact with agriculturalists, really two different kinds of self-sufficient economies met.

In southwestern Europe, in Italy, Sicily, and Spain, the mesolithic population was lighter than it was in northwest and northern Europe. In these locations the entrance of the neolithic took the form of an intrusive population which in most cases arrived by boat. At the initial agricultural level in all of these areas, with the exception of Malta, which had no mesolithic population, the earliest settlements are fortified.

"It will be recalled that a substantial mesolithic population has left fairly abundant relics in the Iberian peninsula and at least traces in Italy and Sicily." (Childe, 1950: 67) In Iberia the earliest neolithic levels seem to be settlements which are connected with the Cardial Ware tradition which forms the base for vast portions of the circum-Mediterranean neolithic. Either contemporary with or perhaps even earlier than the Cardial Wares is the Iberian culture known as Almerian. This second, but not later, facies of the neolithic, "is represented in small fortified villages as well as caves...in Almeria."

(Childe, 1950: 68) "The neolithic colonists settled generally on hilltops like the type site, El Garcel." (Childe, 1958: 267)

This early neolithic culture which seems to have incorporated some mesolithic technology has similar manifestations in southeast Sicily and Apulia in southern Italy where small fortified villages and caves are seen. The Stentinello culture in Sicily is a direct development from the Cardial Ware cultures which are identified with the earliest maritime neolithic colonists. This lower neolithic culture is represented by sites, "girt with rock-cut ditches and internal ramparts." (Childe, 1958: 230) The Stentinello culture is contemporary with the middle neolithic Molfetta culture of southern Italy. This culture, "is known from numerous ditched enclosures" which can be classified as villages and homesteads." (Childe, 1958: 231-2) These are fairly large sites and many of the apparently very large number of them may represent settlement later than the initial neolithic. However, Childe explains that the vast number of villages "might suggest the practice of shifting cultivation," as is seen in Europe at the early neolithic levels along the Danube. (Childe, 1950: 68)

Bernabó Brea (1957: 40) connects "the earliest Neolithic in Apulia and Abruzzi (Molfetta Culture), the lowest neolithic levels in the caves of Liguria (Arene Candide) and southern France (Fontibregue, Chateauneufles-Martigues, caves of the Garden Valley)." A use of caves from palaeolithic times on through the neolithic indicates their utility and perhaps in earliest neolithic times their defensive possibilities.

Malta, uninhabited in palaeolithic times and colonized by neolithic farmers from Sicily, has an unclear settlement pattern. (Evans, 1959: 39 passim) This possible test case for the hypothesis: the settlement pattern of initial neolithic folk in an empty environment, will have to wait for clearer information.

Throughout the Balkan peninsula the beginnings of food production are represented by the Starčevo-Koros cultures. These farmers who occupied caves, as well as having had "camp sites along streams and lake shores," seem to have engaged in peaceful commerce, and among them, "war is not attested," (Childe, 1958: 60, 85). There are no mesolithic remains in Greece and existance of the mesolithic in the Balkans is at best unsure. (Childe, 1958: 58, 84)

Discussion

Generalizing from the evidence presented so far, it seems reasonable to conclude that the relationship between hunter-gatherers, exploiters generally speaking, is that described by the hypothesis. The hypothesis does not suggest that all initial agriculturalists will erect fortified sites, nor does it predict that all the sites of the period will be fortified if one or two are. The relation among hunter-gatherers and agriculturalists is a complex one, admittedly. And I have unabashedly attributed purely economic motives as the cause for the resulting relationship between the two groups. It is not fruitful to believe hunter-gatherers attack agriculturalists because they have warlike personalities. Neither is it profitable to assume that they are driven on by the defense of home territory against people who were simply more advanced and better situated groups closely related in all respects to those who still lived by hunting-gathering. It is difficult to consider as invaders groups, many of which probably were indigenous, which occupied a different ecological nitch relying primarily on a different set of natural resources. These groups too, were probably considered kin, at least in legend. Hunter-gatherers usually rely on a large territory for their support and, if the Great Basin groups can be considered any guide, are used to sharing their resources with anyone in need. I would like to minimize the need for territorial protectiveness, and stress the utilization of an expanded set of economic resources: the harvest of the farmers, as the reason for friction between the two differing economic

bases. Even if these are possibilities with which to expand the hypothesis and the relationship it postulates, they are all the less useful because there is no way to test the plausibility of these motives. Economic determinism is, admittedly, an assumption in itself. It is, however, an assumption base which serves better than any other for a rational examination of the social phenomena anthropologists, and all social scientists are concerned with explaining.

The caveats to the hypothesis need, perhaps, to be stated with more clarity to eliminate some of the conflicts and possible flaws and exceptions to the general statement. Most obvious as irrelevant to the groups considered in testing the hypothesis are agricultural groups entering or developing in territories which are for the most part empty at the time of their arrival. This circumstance explains the lack of competitive phenomena among the early Hohokam and among the first Danubians, Danubian Ia. Where there are no competitors there seems to be no indication of protective measures taken.

The relationship between agriculturalists and hunter-gatherers does not imply that every location settled by the agriculturalists will be defensive in nature. Among the Mogollon in west central New Mexico and east central Arizona most of the sites at all horizons were located in defensive, or at least defendable positions. All of the early sites were definitely so placed. But among the Basketmaker II and more especially among the Pueblo I Anasazi, a portion of the sites were in no sense so located. But as is demonstrated above, a good many are defensively located. The same holds true for most of the European cultures discussed. Perhaps the well fortified Erösd of Romania most closely resemble the Mogollon, but the others are in the less definitive position of the early agricultural Anasazi. That some sites on a given horizon are of plural kinds may mean either that one community is using, in the course of its economic cycle, functionally different locales, or it may just as likely mean that groups in a region are in economic reality, exploiting slightly varying ecological zones, and the adaptation to these requires differing settlement patterns. Of communities only a few miles apart, one may, for instance, be

more easily accessible to predatory hunters and gatherers due to location on a natural passage route, while off in some canyon or remoter location another community of the same culture may never feel itself threatened to the point where it is forced to place its village in the defensive spot the more open neighbor is forced to choose. A geographical back-water may serve the same purpose as a difficult-to-get-to bluff, or a cave with difficult access. Too, and none the less likely, a farming community may choose to locate itself for some seasons in the economic cycle near its fields which would mean being stationed in the valley floor where the crops would obviously be grown. The remainder of the economic cycle, which would probably involve hunting and gathering, required absence from a settled base and consequently protection for stored surpluses. The latter condition could most easily be met by placing quarters in a naturally removed position, one which could be defended by a group whose numbers would periodically be depleated with some males gone hunting, or even a major segment of the group gathering wild foods.

The last major reservation in terms of the hypothesis comes concerning the relationship between emerging or initial agriculturalists and hunter-gatherers who are located in so abundant an environment that the exploiter-exploited relationship would have no economic basis for existing. This is an exacting question to which there are two possible answers. The first involves assuming that agriculture's introduction does not involve an invasion, but rather the gradual spread of a subsistance technique which usually produces a superior food supply than does the hunter-gatherer economy. Agriculture, in fact, spreads because it is a more effective means of feeding people. But when agriculture enters a region generously supporting hunter-gatherers, as seems to have been the case occasionally in both the Old and New Worlds, its attraction is diminished; in fact its attraction may not even be conceived. In some regions where natural foods are fairly closely defined by environmental limits, like rich fishing and shell fish zones, rich acorn zones and wild bird flyways, it could be that, due to the preciseness of the ecological relationship, the two

types of economic bases never come into contact. Agriculture as a chief subsistence technique would never enter this zone, although agriculture as a curiosity or as a sometime crop source might be used. In other words, the two opposing economies would never actually be in contact, since no natural force would attract agriculture into the abundant zone as a prime base for the economy. The actual contact between early agriculturalists and well endowed and sedentary hunter-gatherers is really neutral in terms of the hypothesis. Since often the first agriculture in any region is going to enter under circumstances of gradual spread by the adoption of local groups, rather than as a militant spread of an agressive economy, agriculture will be accepted, under these circumstances, only in areas where it offers a firmer and obviously more reliable economic base. It is consequently unlikely ever to enter regions of abundant natural harvesting through sheer force of offering a superior economic base. In other words, the situation does not fall within the perview of the hypothesis, because of the remote likelihood of the two economic bases coming into contact.

The preceding arguments suppose that the two economic bases of hunting-gathering and agriculture never come into contact when pressure is absent from the situation, for instance, on the Northwest Coast of North America. The succeeding argument deals with well-off hunter-gatherers and agriculturalists who meet under circumstances of pressure, for instance when agriculturalists, hungry for land, exert preasure on all hunter-gatherers in the environment. This must have existed in northern and northwestern Europe.

A second approach to this possible exception to the hypothesis involves making the distinction between mobile and sedentary hunter-gatherers. The hypothesis involves mobile hunter-gatherers. Sedentary hunter-gatherers can be considered harvesters of predictably occurring abundant natural resources. The economic bases of the two groups are the same insofar as they produce sedentary stability. There is, then, more similarity between agriculturalists' economic base and the base of sedentary hunter-gatherers than there is between

sedentary and mobile hunter-gatherers. It can be argued, in a tangent to this whole problem, that the evolutionary potential in the two different kinds of hunting-gathering economic bases is different in kind. All forms of sedentism yield that dynamic, differentiated social structure which is characteristic of the neolithic. The pseudo-neolithic produced by a bountiful, but non-expandable economic base retains a kind of hypertrophied "chiefdomship" organization, if I may use Service's term. When the two types of groups come into conflict, it is not a struggle between hunter-gatherers and agriculturalists, it is a conflict between two kinds of self-sufficient economies and the result is not contained within the hypothesis postulated here.

Testable Situations

The testable nature of this hypothesis is by now obvious, and the rest of this paper cannot be spent in scanning the world looking for testable locations. There are, however, several situations which bear mentioning. The hypothesis can be used as one of the explanatory devices for viewing the phenomena of defenses at the earliest neolithic level of Jerico, Tell es Sultan. This so-called aceramic neolithic site has defensive walls of well known proportions, which perhaps have received notoriety beyond their dimensions. It has been postulated that the settlement at Jerico was naturally located in an environment which allowed, for a series of reasons, a neolithic economic base to develop before such a base was at all common in other areas in the Near East. Undoubtedly the peculiar environmental nitch in which Jerico is situated differentiated it from the surrounding country and made it a center of stored surplus in an otherwise meager environment. The suggestion naturally follows that the neighboring hunter-gatherers considered the agricultural surpluses of Jerico as much a part of the harvestable resources as the local game. Preying upon this village resulted in the extensive defenses seen in the archaeological remains.

Two historical situations of agriculturalists coming into contact with hunter-gatherers serve again to demonstrate the utility of the hypothesis. Throughout most of the history of the northern Mexican frontier from the first penetrations of agricultural settlers in the Sixteenth Century until the closing of that frontier in the last century, there had been a continually hostile relationship between the farmers and stock raisers on the one hand, and the nomadic and semi-nomadic groups on the other. The economic base of the latter, especially after obtaining the horse, was in generous part augmented by raiding which they turned into a highly successful and efficient exploitive mechanism. The relationship was seldom so unfavorable that agriculturalists were extinguished in any given region for long, if at all. Rather, the relationship was finally brought to an end when the respective national governments involved effectively put barriers between the two groups. The Navahos and Apaches in the United States were put on reservations, and in Mexico the various groups of predators were either pushed into the recesses of the interior hills, deported, or simply killed off. Many, of course, were enculturated into urban life and various phases of the northern sedentary economy, thus reducing the general hunter-gatherer population.

A superficially similar situation existed with the extension of the United States frontier across the West beginning in the Eighteenth Century. The historical records and accounts of the era offer ample evidence of the relationship which existed between the first farmers and the non-agricultural peoples they encountered in any given region. Wherever there were peoples with a hunting-gathering economic base who met the advance of the agricultural frontier, the inevitable raiding began and continued through the fort building and subduing stage of United States frontier history. This relationship can be seen through its progressive stages to the final extermination or removal of the Indians to reservations. The relationship between the two groups on the western side of the Mississippi increased in intensity and scope as the frontier

moved to the Rockies. Of course the relationship generally occurred later in time as the frontier moved further west. However, in terms of this relationship we must ask if it represents the same relationship as that prevailing on the northern Mexican frontier. Certainly the farmers represent the same phenomenon in both cases. But the horse-riding, buffalo-hunting Plains Indians who met the early American farmers, were well-off hunters whose general settlement pattern involved use of a series of permanent settlements in the course of the seasonal round. In effect, these are sedentary hunter-gatherers meeting farmers. In terms of the hypothesis, they have essentially similar, rather than diverse economies and do not fulfill the requirements for testing the hypothesis. The Plains Indians raided to defend territory, and an economic base. The Indians to the south and southwest, Texas, northern Mexico, etc. were more fully nomadic and had a less dependable economic base and consequently raided to supplement the economy rather than to protect territory.

Extension of the Hypothesis

The hypothesis which forms the core of this essay involves at least one logical corollary. If there is a consistent and predictable relationship between hunter-gatherers who are exploiters and economically self-sufficient groups, then might there not also be a consistent and predictable relationship between self-sufficient groups and exploiters who were not hunter-gatherers? These last we might call capitalizing economies. Included here would be societies whose economic base is founded on trade, on industrial production and even on well-developed, successful agriculture. This is a base that involves accumulating surplus (i.e. capital) which is used to expand the society's production base. These areas of expanded production are usually other than agriculture. Here various sorts of specialization arise as means of extending the production and the capital accumulating base of the society. This kind of phenomenon probably appears late in the total scope of human history, making its first appearance

in Mesopotamia. This first appearance involves at least the rudiments of a money economy, and can be characterized by what Sahlins (1965: 147-8) calls balanced exchange: the equal exchange of goods and services, one party out of necessity, neither giving nor receiving more or less than the other. If capitalizing economies can be considered a legitimate entity for classifying a type of economic base, and if this can be labelled exploitive, then the hypothesis would read, in addition to its above form: When the exploiter-exploited relationship involved capital accumulating and agricultural societies, then the relationship will continue until the agriculturalists, or the agricultural level within a society (a) are absorbed and integrated into the capitalizing economy, or (b) the self-sufficient economy develops an independent capitalizing base.

This relationship hypothesized to exist above can be demonstrated as that existing in some historical situations between agriculturalists and capitalizing economies. Three examples will have to serve as illustrations, rather than actual tests for the hypothesis. This section of the essay is more to carry the hypothesis to its logical conclusions rather than to demonstrate rigorously the conclusiveness of the idea for explaining these phenomena.

Conquest states, like those represented by the Mongols, the Aztecs, Darius' Persian Empire, and the later Roman Empire are illustrations of the nature of the relationship between agriculturalists and groups which have expanded an original self-sufficient, usually agricultural economy into one which utilizes surpluses as a means for expanding the production base. Capitalizing economies of this type exploit agriculturalists, or less evolved neolithic economies, by removing that part of the surplus which otherwise would represent the capitalizing surplus available to any established neolithic group. Archaic states and empires rely for their economic base on the production of the majority of the producing population, i.e. agriculture. The production need not be solely

agriculture but as with the Aztecs hegemony, the economy was sustained by exploitation involving exaction of many locally produced goods as well as food items. The dominent military group which is removed from a self-sufficient economic base must depend on one. This usually takes the form of organized taxation of the sedentary, producing population. An expensive group must control the surplus of its own economic base and it must also rely on the respective base economies of the regions it enters for support of the new level in the hierarchy of authority which it imposes on the new territory. The original economic base of the exploiters does not have to have been agriculture, as with the Mongols it can be a successful pastoral economy. But once an empire is created by conquest, the capital to sustain it and the administrators to run it have to come from local sources which must, in turn, have a surplus producing economy, for the exploiter to draw from. Presumably an area so poor in agricultural resources, or poor in any resource that cannot be readily tapped is not going to attract any predators.

Mercantilism as it appeared, for example, in the economic relationship between England and its possessions in the Seventeenth and Eighteenth Centuries, can be constructed as the capitalizing society (and at home in England, as a level within society) in an exploitive relationship to those basically agricultural societies which were on the reverse side of the economic spectrum. Using the North American colonies both as suppliers of raw materials and as the market for finished products produced in the home country, the home territory never allowed the colony to accumulate sufficient capital, surplus, to found an industrial (capitalizing) base of its own. Held to what was a sophisticated barter system in which the colonies received in return processed raw goods which were payment for more natural resources, the colonial territories were never to participate in the all important capital building base, the supply of hard-money: gold. Mercantilism as an economic philosophy was more wide-spread than just this English-North American example would indicate. Because of the

attitude of the trading and industrial economies to the action of capital accumulation, their posture toward economies whose base was fundamentally agricultural, was one of utilization of native markets and resources, but with the profit flow always to the manufacturing economy. In the case of the United States and Britain this economic relationship continued until the economy of the United States was sufficiently independent via creating its own capital accumulating and incipient industrial base. But for several decades beyond American independence the former relationship with Britain was changed only superficially, since the balance of trade remained in the latter's favor.

Classical Capitalism as exhibited, for example, in the United States and western Europe in the Nineteenth Century, probably cannot be discussed as a clear-cut example of the exploiter-exploited relationship. But the relations between classes within a society and between certain sorts of societies in this period can be commented on. In many ways Marx has already stated the case powerfully, and insofar as his predictions and later affiliations can be ignored, he has stated the hypothesis of this paper and its demonstration in industrial society a century and more before this essay. A bald claim about the exploitive nature of capitalism would be out of place here, but the relationship between farming classes and the "Eastern money interests" in the United States in the Nineteenth Century is typical of the postulated relationship. Throughout the Nineteenth Century the economic base of the North American economy was transferred from reliance on agriculture to reliance on industrial capitalism. The capital formation depended initially on utilizing the agricultural surplus for the expansion of the production base, i.e. on harvesting the harvesters. Nineteenth Century American and western European history has as one of its constant themes the effort of the farmer to free himself from the control of the capitalists, a group inevitably depicted as a great impersonal exploiting force.

The inevitably of this relationship was ameliorated only when a more powerful force, national government, acted to impose another process, the centralization of national power, on the traditional hypothesized relationship. During the Nineteenth Century in the United States the exploitive tendency in the relationship between these two groups had the effect of reducing the number of agriculturalists, and of making this particular portion of the economy an increasingly efficient segment. The essence of the relationship was to put agriculture in a subservient position to facets of national economies which were more efficient capital accumulators than the agriculturalists. National governments in effect guaranteed that that position of agriculture would be a subservient, but not an exploited one.

The particular process which has been examined here is by no means a dead one. To be sure it is controlled within most economically complex societies. However, the relationship between nations having differing economic bases, e.g. self-sufficient agriculture vs. capitalizing industrialism, can still be examined in the relationship between those so-called emerging nations and those which are very clearly industrialized. The haste of agriculturally based nations to assume the rewards of industrialism, and capitalizing obliquely demonstrates more than just a reaching after world prestige; it reflects a far more basic lack in agricultural economics: the inability of the agricultural economy to capitalize at a rate sufficiently rapid to allow successful competition with other types of capitalizing economic bases. More directly, the relationship between the modern industrial nation-state and the state with an essentially agricultural economic base, e.g. the relationship between the nations of the industrial West and those agricultural states of Africa and Asia, illustrate the nature of the agricultural predicament.

REFERENCES CITED

Amsden, Charles Avery

1949 Prehistoric Southwesterners from Basketmaker to Pueblo, Southwest Museum, Los Angeles.

Bluhm, Elaine A.

1960 Mogollon Settlement Patterns in Pine Lawn Valley, New Mexico, American Antiquity, Vol. 25, No. 4.

Brea, L. Bernabo

1957 Sicily, Praeger, New York.

Childe, V. Gordon

1929 The Danube in Prehistory, Clarendon Press, Oxford.

1950 Prehistoric Migrations in Europe, Instituttet for Sammenlignende Kulturforskning, Serie A: Forelesninger 20, Oslo.

1958 The Dawn of European Civilization, Knopf, New York.

Clark, J.G.D.

1966 Prehistoric Europe: the Economic Basis, Stanford University Press, California.

Danson, Edward B.

1946 An Archaeological Survey of the Santa Cruz River Valley from the Headwaters to the Town of Tubac in Arizona, Archives, Arizona State Museum.

1957 An Archaeological Survey of West Central New Mexico and East Central Arizona, Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University, Vol. 44, No. 1, Peabody Museum, Cambridge.

Evans, J. D.

1959 Malta, Praeger, New York.

Gimbutas, Marija

1956 The Prehistory of Eastern Europe, Part I, American School of Prehistoric Research, Bulletin 20, Peabody Museum, Cambridge.

Herold, Joyce L.

1959 Prehistoric Settlement and Physical Environment in the Mesa Verde Area, Mimeographed M.A. thesis from University of Colorado.

Kidder, Alfred V.

1963 An Introduction to the Study of Southwestern Archaeology, Yale University Press, New Haven.

Linton, Ralph

1944 Nomad Raids and Fortified Pueblos, American Antiquity, Vol. 10, No. 1.

Mongait, Alexander

1959 Archaeology in the U.S.S.R., Foreign Languages Publishing House, Moscow.

Piggot, Stuart

1965 Ancient Europe, Aldine Publishing Co., Chicago

Sahlins, Marshall D.

1965 On the Sociology of Primitive Exchange in The Relevance of Models for Social Anthropology, Praeger, New York.

Sauer, Carl and Donald Brand

1931 Prehistoric Settlements of Sonora, with Special Reference to Cerro de Trincheras, University of California Press, Berkeley.

Wendorf, Fred

1956 Some Distributions of Settlement Patterns in the Pueblo Southwest. In Willey, G.R. ed., Prehistoric Settlement Patterns in the New World, V.F.P.A. 23, Wenner-Gren Foundation for Anthropological Research, Inc., New York.