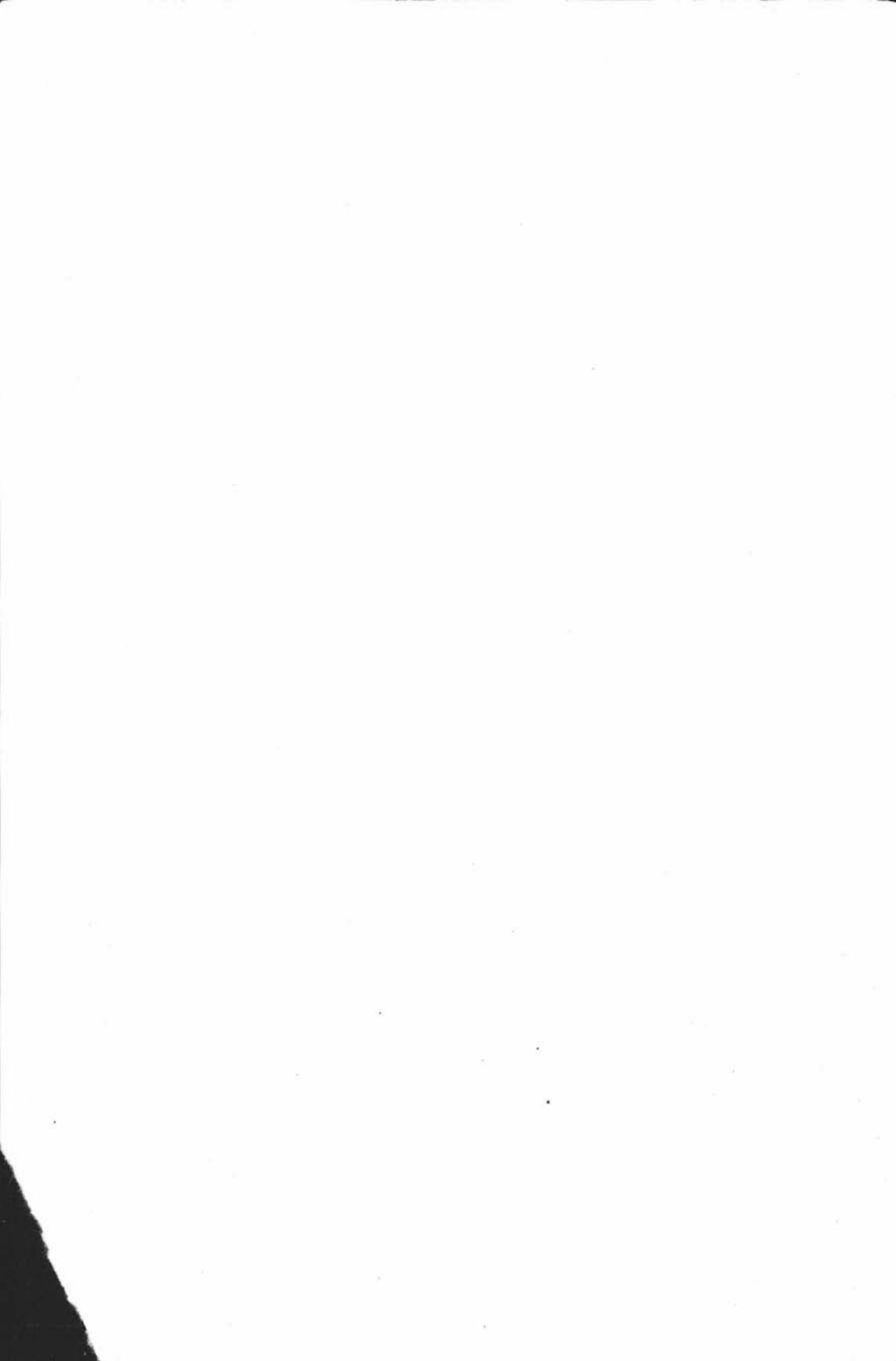




ARCHEOLOGY
in
WASHINGTON

BY

BRUCE STALLARD



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WASHINGTON



FRONTISPIECE. Indian tribes of Washington.

State of Washington
ALBERT D. ROSELLINI, Governor

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By
BRUCE STALLARD



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PREFACE

This booklet came into being as part of a program of archeological research conducted by the State College of Washington for the Washington Division of Mines and Geology, using funds appropriated to the Division by the State Legislature. The research program was under the direction of Dr. Richard Daugherty.

The booklet owes its existence to Mr. Marshall T. Huntting, Supervisor, Division of Mines and Geology, who encouraged its writing. Dr. Richard Daugherty and Dr. Allan Smith of the Department of Sociology and Anthropology, the State College of Washington, read and criticized the manuscript. The drawings were done by Mr. Steve Allured, Printing Department, the State College of Washington.

The author, a research assistant in anthropology at the State College, received his formal training at the University of Washington and at the State College of Washington. As a representative of these two institutions, he has done archeological field work on both sides of the Cascade Mountains, but it is to be understood that the information contained in this booklet does not result from his own field work or, for that matter, the work of any other individual. The reader's attention is called to the bibliography of Washington archeology at the back of this book. It is believed to be the most complete bibliography of its kind available. The contents of this booklet are the result of many hours of reading and abstracting these publications. Although credit has not been given in the body of the text, the author acknowledges his indebtedness to those whose names appear in the bibliography. Others who also deserve credit, but whose names do not appear in the list of publications, are those interested amateur archeologists who have reported findings which have proved to be significant.

BRUCE STALLARD

The State College of Washington
1958

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ARCHEOLOGY IN WASHINGTON

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INTRODUCTION

This account deals in a special manner with the Indians of Washington. It tells what is known about the people who lived here before the first white men came. It tells how such information is obtained, whose job it is to get it, and what some of the problems are in work of this kind. In short, it is the archeology or prehistory of Washington.

The Indians of this region had no form of writing. They did have myths and legends that were passed on by word of mouth, but these give us very little information about the past. When the white men came they brought writing with them and were able to leave written descriptions of the Indians they met. Thus, from the time of first white contact, we have recorded history. Although much of it is not as complete as we would like, what does exist is available in journals and books. The first accounts of the Indians of Washington appear in the records of the fur traders who visited the coast in sailing ships in the late 1700's. The Indians of the interior were described first by Lewis and Clark on their journey down the Columbia River in 1805. Following Lewis and Clark's expedition, a number of trading posts were established in Washington and remained active during the first half of the 19th century and beyond. In light of the progress that has taken place since the day of the explorer and trader, that era seems far in the past. On the other hand, the historic period is short indeed when it is realized that the Indians had been here for thousands of years when the white men first came. No written documents exist from this earlier period, but stone tools and the remains of campfires found buried in the earth provide a basis for some understanding of past events.

When people whose culture no longer exists have left no written records, an attempt to reconstruct their way of life becomes a study in prehistory. This is where the archeologist comes in. An archeologist is generally a prehistorian. He begins, working backward chronologically, where the historian leaves off. When written records have carried the story as far back as it is possible to go, the archeologist is called upon to dig further evidence out of the ground and fit it together as best he can. It sometimes happens that historic documents are available but are not complete. In a situation of this kind, archeology is necessary to provide the missing details. One of the best examples of this occurred in Egypt, where archeological excavations and the deciphering of ancient inscriptions have gone hand in hand.

ALLIED SCIENCES

Geology.—Like so many other scientists, the archeologist often must draw upon the services of those who have had training in other fields. People have often confused the archeologist with the geologist. The archeologist is not an authority on rocks. His interest in rocks is confined to those that man has fashioned into tools. The study of rocks and minerals belongs to the geologist. The geologist does not stop there but goes on to problems of the origin and the age of all the deposits and natural features which make up the earth's crust. Countless times the geologist has been called upon to help date a campsite the archeologist is excavating. It may happen that an ancient campsite is buried beneath many feet of soil and debris that have slowly accumulated through the centuries. Under favorable conditions it is possible for the geologist to arrive at an estimate of the time required for the accumulation of such an overburden. He does this by drawing upon his knowledge of sediments, climatic conditions of the past, glaciation, and other evidence.

Paleontology.—Another misconception is that the archeologist is one who deals with the fossils of extinct animals. The archeologist is interested in the remains of animals, both living and extinct, provided they are found in some association with man, but the real authority on fossil animal life is the paleontologist. It is he who is relied upon to reconstruct the skeletons of former life forms, from the dinosaurs down to the animals of the near present. Indian campsites are, in a way, garbage dumps. Discarded refuse contains the bones of fish, birds, and all the animals that were in the diet. Correct identification of the animal bones is an important service that the paleontologist can provide. The first indisputable evidence that man has been in America for many thousands of years is in the form of paleontological evidence which was uncovered in the 1920's at Folsom, New Mexico. The antiquity of the site was established when spear points were found in contact with the bones of several large bison which paleontologists recognized as a form that had been long extinct. Spear points have been found since in America with elephant bones as well. Although it is not the archeologist's specialty, the identification of the animal remains from a campsite is very important to his reconstruction of man's life at a given time and place. Through thousands of years, climates change and some animals become extinct while others live on. Meanwhile, man has had to make adjustments and change his eating habits to agree with the most abundant source of food.

Paleobotany.—When climates change there are also changes in the vegetation upon which the animal population depends. Here is another clue to the past which the archeologist can put to good use.

In addition to the bones of food animals, seeds that were gathered for food are often preserved in campsites, along with pollen grains that were blown in by the wind to become mixed with the camp refuse. Seeds and pollen are often sufficient to establish climatic conditions of the past. It is known that areas now desert have been grasslands, and that unforested areas were once forested. It is often important to ask the botanist to identify pollen, seeds, or the material in a piece of woven basketry or matting removed from a site that the archeologist is digging. The botanist who has special skill in the identification of plants of the past is known as a paleobotanist.

A better known example of the application of botany to the dating of archeological sites is tree-ring dating, or dendrochronology as it is known by its technical name. It is based on the knowledge that a tree usually will grow one ring for each year of its life and that these rings will be wider or narrower as determined by the amount of rainfall in a given year. In the American southwest the technique has been developed to the point where it is possible to say that a timber was cut by the Indians in, for example, the year A. D. 1000. Unfortunately, the climate of the Pacific Northwest presents additional problems in tree growth, and a method of tree-ring dating has not been worked out for Washington.

Chemistry and Physics.—We have seen how archeology is aided by geology, paleontology, and botany. To this we can add chemistry and physics and still not give recognition to all the specialists that have helped the archeologist with his problems. Among the more important contributions by workers in other fields is the technique of dating buried bones by making an analysis of their fluorine content. The method is based on the knowledge that bones buried at the same time and in the same soil will absorb fluorine from the surrounding soil at an equal rate. This, of course, does not enable one to say how long a bone has been buried, for one soil may contain more fluorine than another, and a bone from one locality therefore can contain more fluorine and still not be as old as a bone from another locality where there is less fluorine. The technique is useful where human bones and the bones of an extinct animal are found together. If the two sets of bones are from the same soil and contain an equal amount of fluorine, there is reason to believe that they have been in the earth an equal length of time. Thus it could be said that man was living at the time of the extinct animal.

Developed in recent years, radiocarbon dating (carbon 14) has been used widely by archeologists and other scientists who wish to know the age of events which took place thousands of years ago. The method is based on the fact that all plants and animals absorb a certain amount of carbon 14 during their lifetimes. When they die, the carbon 14 they contain begins disintegrating at a known rate. What actually happens is that the carbon 14 gives up its en-

ergy through tiny explosions. It behaves like a mass of microscopic firecrackers that are constantly popping. At first the explosions are closely spaced, but as the mass is reduced there are fewer units left and the interval between explosions becomes longer and longer until activity is almost nil. Laboratories have been set up at various places in the United States with delicate instruments for measuring the carbon 14 activity in samples such as wood, bone, or charcoal. The age of the sample is determined by counting the number of explosions it will register over a given period of time. It is assumed that the sample contained a given amount of carbon 14 when it was living, and when the amount it now contains is measured it is possible to arrive at an estimate of the time that has elapsed since the sample was a living plant or animal. The method is limited as to how far back in time it will reach, but samples more than 30,000 years old have been dated.

Carbon 14 and tree-ring dating are at present the only techniques the archeologist can apply to arrive at an absolute date. It is unfortunate that, after holding out high hopes for its usefulness, a number of archeologists have become doubtful of the validity of carbon 14 dating. While some would uphold it, others have been able to point out some disturbing inconsistencies in carbon 14 dates. Geologists are also divided over the validity of the carbon 14 dates for the last continental glaciation. On the other hand, many dates have been consistent and have contributed to a better understanding of past events. The method is still young, and in time its difficulties may be worked out. One of its present problems is that there is some reason to question the assumption that the supply of carbon 14 has been constant throughout the past. It is pointed out that the plants and animals that lived 20,000 years ago could have been exposed to more or less carbon 14 than were the plants and animals of 10,000 years ago, and that carbon 14 dates on samples from these 2 periods may not reflect the true difference in their ages.

Several difficulties are encountered in the use of dating techniques. If the archeologist is to use the carbon 14 method, for example, he must be aware of some of its attendant problems. He must use extreme care in his selection of samples. Wood that has been preserved under dry conditions provides a better sample than wood that has been subjected to moisture. Moisture is conducive to the growth of bacteria which can alter the carbon 14 content of the wood on which they are growing. This causes the sample to appear younger than it really is. The same thing happens if a sample has been in contact with the roots of a living plant. In dealing with bone, care must be taken to determine whether it has become mineralized. If it has been buried over a long period of time, some of its carbon 14 content may have been replaced by minerals from the surrounding soil and the sample will appear older than it actually is. The

archeologist considers himself fortunate when he obtains good samples out of the ground. Many sites have been dug that have produced no suitable samples. All in all, dating the past is a tricky business and evidence cannot always be brought under control.

ANTHROPOLOGY

So far we have talked about other fields of science and have seen how they overlap the field of archeology. Now we will look at the field of anthropology and see how the archeologist fits into it. In America, the archeologist belongs with a group of scientists who all call themselves anthropologists. Anthropology has been called the science of man. Its aim is to learn about man, both present and past, all over the world. The study includes physical characteristics, language, and all aspects of culture and society. Within the field of anthropology there are physical anthropologists, linguists, ethnologists, and archeologists. Up to a certain stage all have about the same general background, and they work closely with one another in their particular lines of research.

PHYSICAL ANTHROPOLOGY

The physical anthropologist knows more about many details of the human body and how people vary from race to race than does the medical doctor. He is interested in how one group of people may differ from another and why it is that they do. He has compiled data which shows that, in general, some groups have relatively long and narrow heads while others have relatively round heads. He has figures to show that the various groups of American Indians, for example, are not of uniform height. Indians of one part of the country are known to be tall, and those of somewhere else are known to be short. These and many other measurements of various parts of the human body often enable the physical anthropologist to give the archeologist valuable information. For example, when the archeologist removes a skeleton from a prehistoric burial, the physical anthropologist can compare its measurements with those of the Indians who still live, or have recently lived, in that area. It has been shown more than once that the burial an archeologist has excavated was that of an individual who was physically different from the Indians who later occupied the same area. Sometimes this is the only way that a prehistoric population movement can be detected. After study of skeletons discovered by the archeologists, the physical anthropologists are able to show that in many sections of the United States people of one physical type have been succeeded by those of another. This is one reason why it is desirable that Indian burials be opened only by scientifically qualified persons. An untold number of burials have been opened by amateur archeologists who were looking for the stone tools that were placed with the body as a religious offering. In such cases the skeleton

itself almost never is delivered to the proper persons for study. As far as the grave offerings are concerned, they may or may not furnish as much information as the human remains. Before ending the discussion of the physical anthropologist, it should be mentioned that measuring people is not his sole interest. He does many other things. Two of his well-known interests are human genetics and the grouping of populations by blood type.

LINGUISTICS

The anthropologist who is a linguist is one who studies unwritten languages. He has techniques for recording both words and sounds, and has preserved many of the fast-dying Indian languages. By special techniques he can determine which languages are related to each other. Further, he has been able to determine that two languages that now may be no more alike than, say, English and German were once a single language spoken by a certain group of people who became separated and lost contact with one another until they eventually came to use different sounds and different words. It has been possible to give an estimate of the length of time two such groups have been separated, often running into hundreds or even thousands of years. Such information is important to the archeologist. Stone tools are mute, and when a campsite is excavated there is no way of knowing what language was spoken by the people who lived there. But when the archeologist knows beforehand what the different languages of a given area are, he has some idea how the different groups were distributed, is better acquainted with the problems of the area, and may be able to find evidence of population movements that will help the linguist in his work. It should be pointed out that linguistic differences do not necessarily imply that there will be equal differences in all the other things that people do. Adjacent Indian tribes that speak different languages have been known to use the same kinds of bows and arrows and many other tools.

There is not as much diversity in the native languages of Washington as there is in other areas, for example, in California, but Washington did contain several tribes of diverse linguistic origin. For instance, tribes living on the Columbia River in the southern part of the state spoke Sahaptin dialects and could not understand the speech of tribes living on the Columbia in the northern part of the state who spoke Salish dialects. Tribes living on the coastline spoke still other languages. One group near Pe Ell, Washington, is known to have spoken a form of Athabaskan. The main body of Athabaskan speakers is in Canada and interior Alaska. It seems that several groups left this Athabaskan homeland a long time ago to migrate hundreds of miles. These are now represented by such groups as the Navaho and the Apache in the American Southwest and the tribe in Washington just mentioned. Such information sug-

gests that the tribes that the early explorers found in Washington were not the only ones who ever lived here. The charting of prehistoric population movements is a problem that the different branches of anthropology jointly try to work out.

ETHNOGRAPHY

The ethnographer is an anthropologist who may take up residence among an Indian tribe for months or even years. During this time he is engaged in studying their present-day culture and in asking questions of older members of the group regarding every aspect of their previous way of life. It is mainly through the ethnographer that we know about the social organization, religion, legends, songs, and dances of so many native groups. Of especial interest to the archeologist is information the ethnographer can provide on aboriginal settlement patterns, economy, and technology. Beginning more than 50 years ago, ethnographic studies have been made of several Washington tribes at a time when aged Indians could still remember many facts about the old way of life. Details have been gathered on house construction, the manufacture and use of tools, weapons, nets, fish weirs, and a host of other items. The ethnographer has provided information on the seasonal round of life, giving data on when and where certain animals were hunted, roots were dug, or fish were taken. He knows where many of the winter villages were last located and where seasonal camps were. When all these facts have been printed in a book, it is called the "ethnography" of this or that tribe.

Such information is vitally important to the archeologist. It has often been asked: What does an archeologist look for when he is trying to locate Indian campsites? Campsites several thousand years old are a special problem, but, for more recent ones, the most direct answer is that he has read the ethnographies and knows how the Indians of the area lived. He knows that villages were most often along stream banks. He knows what type of houses the Indians lived in, and he has a good idea what kind of evidence might be left. He knows that Indians in the interior of the state used stone tools and weapons manufactured by the chipping or flaking process, and he expects to find an abundance of chipping debris at the campsites. Indians on the coast made more extensive use of bone in the manufacture of tools and weapons. Their stone knives and projectile points are more likely to have been ground, rather than chipped, to a sharp edge, and chipping debris would not be expected on the surface of their campsites. The most conspicuous feature of the coastal campsites is linked with the eating habits of the people who lived there. Almost every campsite contains huge quantities of clamshells. The heavier varieties resist decay. In time, the campsites have come to rest upon deposits of clamshells and other camp debris that are several feet deep. The knowledge that the Indians



FIGURE 1.—Vertical profile showing layers of shell and other camp refuse at an old Indian village on the coast of western Washington.

in the interior of the state made some use of river mussels as food provides still another clue to the location of their campsites. Sites in the interior usually have a certain amount of river mussel shells, in addition to chipping debris, scattered over the surface. Depressions in the ground that are of the right shape and size to have been the location of Indian dwellings are always good indications of a campsite.

Another bit of knowledge that is put to use is the information that the Indians of this area had no containers they could hang over a fire to boil their food. The Indians of the interior boiled their food in watertight baskets. Some of the coastal tribes used wooden containers. Water was brought to a boil by heating stones in the fire and then placing them in the container as needed to keep its contents boiling. Stones that were used for this purpose became cracked and discolored from heat. Campsites may be marked by the presence of such stones.

A knowledge of ethnographic data not only helps the archeologist to discover campsites, but it often aids him in his interpretation of the material he excavates. The material he digs out of the ground usually consists of those items or even parts of items that resist weathering and decay. The material he has to work with is always incomplete. In many instances it is only through his knowledge of ethnographic data that he is able to supplement and interpret his own data. A good example of the close relationship of ethnography to archeology is found in a situation on the Columbia River. In the vicinity of The Dalles, Oregon, and for many miles upstream, hundreds of stones have been found that have been chipped in two or more places so that they could be tied to fish nets and used as weights or sinkers. In the northern part of the state, such net sinkers are

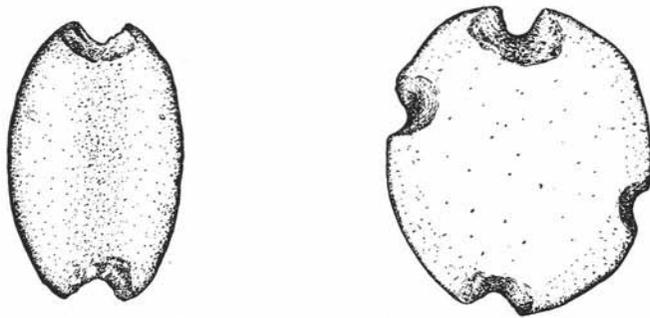


FIGURE 2.—Net weights of chipped stone.

not often found along the river above Grand Coulee Dam. On purely archeological evidence, it would seem that if the Indians of the upper Columbia used fish nets at all, they must have been a different kind. The problem is easily resolved by reference to the ethnographic data that shows that the Indians of that locality did use stone net sinkers, but they were of a type that the archeologist could hardly expect to find in a recognizable state of preservation. They were made by first bending a withe (a slender and flexible twig or branch) into the shape of a small hoop. A stone was held fast at the center of the hoop by passing a number of lashings from the stone to the circumference of the hoop. Enclosed in the hoop, it could be tied securely to the net. As the stone was unworked, it

cannot be distinguished from any other stone after the hoop and lashings have rotted away. There is the possibility that hoop and lashings would be preserved in a dry place, but it becomes less important when the ethnographer can provide the information through contacts with surviving Indians.

Finally, the ethnographer does more than just describe Indian life. He also compares the habits and customs of one group with those of another group somewhere else. He can sometimes show that the things they hold in common are more than chance relationships, indicating that the two groups had either a common origin or were once in close contact. With his own data, the ethnographer can reconstruct contacts and movements of peoples which go back 200 years or so. In many localities the ethnographer has been able to say more about this later period than the archeologist has. This provides a springboard from which the archeologist can begin his own investigations.

A better understanding of the archeology of our area can be had when it is pointed out that the popular picture of Indians on horseback, wearing war bonnets and buckskin, and living in skin-covered tipis arranged in a large camp circle, has nothing at all to do with the Indians west of the Cascade Mountains, and is not even a true picture of the pattern of life that is native to eastern Washington. Some of the eastern Washington tribes were found living this way, but these customs had been borrowed from Plains tribes east of the Rocky Mountains. This borrowing was so recent, archeologically speaking, that there was not time for much evidence of it to become buried in the ground before white settlement forced the Indians onto reservations.

The events leading up to the adoption of northern Plains traits by the Indians of eastern Washington are rather complex and come to us mostly through ethnographic data. In brief, the Indians, after they obtained horses, made long trips across the Rocky Mountains to hunt buffalo in eastern Montana. They would go in large parties and might stay there for months at a time. During these visits they learned many habits and customs of the Plains Indians. In time, the tribes of southeastern Washington, to a greater extent than

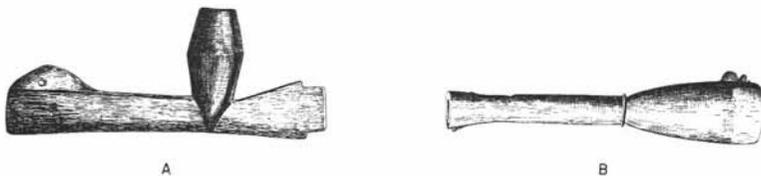


FIGURE 3.—Stone pipes. A. Catlinite, elbow-type peace pipe of the type made by Plains Indians and traded into eastern Washington. B. Tubular stone pipe like those Washington Indians made for themselves before contact with the Plains Indians.

others, came to appear outwardly much like the tribes of the Plains. Some of the things they borrowed were skin-covered tipis, catlinite peace pipes, war bonnets and buckskin dress, tribal unity, war chiefs, and ideas relating to the honor of war deeds. Before adopting these new ideas and customs, they had lived in villages of mat-covered lodges. Much of their clothing seems to have been woven from vegetable fibers. Each village was an independent unit where from 100 to 300 people lived under their own rules. The idea of several villages uniting and electing a chief came from contact with the Plains tribes. It has been estimated that the first horse reached the Columbia River about 1730. The period of greatest contact with Plains Indians was probably between 1800 and 1875, the period in which the Indians of this area had guns. Until then they could not compete on equal terms with the Plains Indians, who had guns earlier.

In this late period no similar disruption occurred in the lives of the Indians west of the Cascade Mountains. Several western Washington tribes admired the habits and customs of the coastal tribes of British Columbia and southern Alaska, and, to no small degree, they succeeded in copying them. However, this was not a late development and had been going on for a long time before the white men came. The more northern tribes were great artists and woodcarvers. The tribes on Puget Sound and the Washington coast were woodcarvers too, but their work was never so elaborate as was that to the north. The well-known totem pole belongs to the more northern tribes. It is sometimes rude to shake popular beliefs, but, for the sake of truth, it should be stated that ethnographic data show that the true totem pole was not present in native Washington.

ARCHEOLOGY

The last man to account for in this complex business of anthropology is the archeologist himself. To a great extent, his background is similar to that of the other anthropologists we have discussed. In his formal training he follows much the same course of studies as all anthropologists do, but before becoming as expert as they are in their particular interests he turns his attention to the methods and problems of archeology.

To an archeologist, an artifact is any object he digs out of the ground which was once used in some way by man. Stated briefly, his job is to excavate artifacts and interpret them. Interpretation is not to be confused with identification. It is not difficult for the experienced archeologist to dig up a piece of chipped flint and identify it as an arrowhead or a scraper. Interpretation is concerned with what it means to find a particular type of arrowhead or scraper. Artifacts change through time and space, and the purpose of digging them up is to learn about changes in peoples and their cultures

through time and space. To the archeologist, excavation is simple whereas interpretation is complex.

When a campsite is excavated, first it is marked off into sections, and stakes are driven into the ground so that reference points will not be lost. If the site has been marked off into, say, 5-foot squares, each square is excavated in its turn. As each artifact is uncovered, its depth and its position within the square are recorded. If a fireplace or some other major feature is uncovered, the details of its construction are documented and it is left undisturbed until more of the surrounding area has been uncovered. For each artifact, information is recorded about the appearance of the soil it was found in and what other objects, if any, were found nearby. By careful observation and recording, the site can be reconstructed later on charts. It may be postulated that because of the way in which artifacts were distributed around a fireplace, there is a probability that that particular part of the site was, for example, the location of a house.

In addition to the artifacts, camp refuse is collected and put into bags. The bags are labeled to show what part of the site the refuse came from and the depth at which it was found. It is of prime importance to know, for example, whether the village's inhabitants lived mostly on fish or depended upon the game animals they hunted. Only by digging up and saving the bones that they discarded after their meals can anything be learned on this point.

It is important to know whether the food bones were taken from the bottom or the top levels of the site. People may have camped on the same spot for centuries, until the refuse became several feet deep. It might be discovered that most of the bones of game animals appear at the bottom and most of the fish bones appear at the top of a site. Even in the absence of stone tools, it could be said that the earlier occupants of the site preferred to hunt and that the later occupants preferred to fish. The next problem would be to try to find out whether the later people were the descendants of the first or whether the first people left and people with different habits replaced them. The latter alternative would be the one to choose if one type of artifact was found at the level of the animal bones and a distinctly different type was found at the top with the fish bones. Unfortunately, ideal situations of this kind seldom occur in archeology.

The differences that can be found between the top and the bottom of a site and the importance of knowing what kind of food bones a given artifact is found with are some of the reasons why the artifact collections of amateur archeologists are not very useful to the professional archeologist. The old saying that a man is judged by the company he keeps applies equally well to an arrowhead or almost any artifact. If an archeologist is given an arrowhead and does not

know what all the other contents of the campsite are, it is unlikely that it will mean much to him. Reputable museums prefer to display artifacts for which there is more information than just the locality they came from. It is partly for this reason that artifacts have no monetary value and that museums do not buy amateur collections. To a museum, an artifact is only worth as much as it can tell about the life of a people who are now dead.

HISTORY OF ARCHEOLOGICAL FIELD WORK IN WASHINGTON

Before going into a discussion of the artifacts that archeologists have found in Washington, it is wise to give a short history of the work that has been done up to this time. The first serious interest in this region developed when scientists in the eastern United States organized the Jessup North Pacific Expedition. Among those sent to the Northwest to study native life was an archeologist who worked in Washington and British Columbia in the 1890's and early 1900's. Investigations in Washington were confined to the Puget Sound region and the Yakima Valley. Little was known at that time about the archeology of this territory, and very little thought was given to an intensive investigation of any given locality. The early practice was to make test excavations and collect specimens over a wide area. Out of this work came a number of sound ideas that modern archeology has not changed. But looking back on it now, the modern archeologist often feels that the early work lacks completeness. Sample collections, relied upon earlier when the archeology of the region was new, are no longer adequate, as the modern emphasis is upon intensive excavations and large samples that will yield true percentages of the types of artifacts that a given locality will produce.

No further work was done in Washington until the 1920's, when a limited amount of exploration and excavation was done along the Columbia River by the Smithsonian Institution. This work was conducted in much the same manner as earlier work elsewhere and, by modern standards, it leaves something to be desired.

The first intensive investigations to be conducted in a specific locality were carried out in the late 1920's by a group of archeologists from the University of California. They excavated on both sides of the Columbia River, concentrating on the area between the mouth of the Deschutes River and The Dalles. This work was of a modern stamp and the conclusions that were drawn from the analysis of a large number of artifacts have provided a basis for subsequent work.

The next work of major importance was done in 1939 and 1940 in the large reservoir area on the upper Columbia that was soon to be flooded by Grand Coulee Dam. To be followed in later years

by an established program for salvage of archeological material in hydroelectric reservoirs, this pioneer salvage operation faced a number of difficulties, not the least of which was the steady rise of the impounded water, which halted excavation at some sites and prevented access to others. In spite of the difficulties, many sites and a large number of burials were examined. This work still stands as the major source of information on that part of the state.

From the time of the Jessup North Pacific Expedition until after the Second World War, archeological investigations in Washington were sporadic and few. Beyond the few major investigations, only an occasional paper appeared which dealt with some restricted topic.

The active period in Washington archeology began when the River Basin Surveys program came to this area in 1946. The River Basin Surveys is an inter-agency program supported by the Smithsonian Institution, the Bureau of Reclamation, and the National Park Service. Its purpose was to salvage archeological and paleontological material in reservoir areas prior to the construction of the many dams that were proposed for this area. A regional office was set up and an archeologist was placed in charge. Many site surveys were made and a number of sites were excavated. After a few years the River Basin Surveys withdrew its personnel from active participation in field work in this locality. Since then, all field work for the River Basin Surveys program in Washington has been done by the University of Washington and the State College of Washington in cooperation with the National Park Service. The program has brought much archeological material to light in eastern Washington, where most of the dams are located. Prior to the construction of each dam, funds have been made available for excavations in the area to be flooded.

Although the River Basin Surveys program has been by far the greatest single source of funds for archeologic studies in recent years, other activity has not been altogether lacking. Funds from various sources have been drawn for several site surveys and excavations on both sides of the Cascades. The only sustained program to be attempted with funds from other sources, however, was that of the University of Washington in the Puget Sound region, where limited excavations were begun in 1946 and continued for the next few years.

Salvage archeology in the hydroelectric reservoirs of eastern Washington has concentrated investigations along the banks of the major streams. The result is that thousands of artifacts are now on hand from the banks of the Columbia, but there has not been enough work done along the reaches of its tributaries to gain an equal understanding of the archeology of the more remote areas. Ideally, archeologists should be free to move about from one locality to another, excavating sites that look as if they might contain spe-

cific answers to specific problems. When a considerable amount of work has been done in one locality and not much has been done in another, it is difficult to compare the two localities with any degree of accuracy.

To summarize, excavations were infrequent in the earlier years, but since 1946 archeologists have been very active in Washington, in fact, field parties have been sent out every year. Frequently, two or three localities have been under investigation in one season. Hundreds of sites have been located and thousands of artifacts have been excavated—Washington is by no means poor in its archeological resources. In spite of the material now at hand, the archeologists have had to content themselves with partial reconstructions of past events and have been forced to leave many questions unanswered. This is partly due to the nature of the material they must work with, but even more important is the fact that, although the reservoir areas have been worked intensively, the archeology of the state is still young. Large sections of the state have never been properly investigated. Until they are, a good many gaps will have to remain unfilled.

EVIDENCE OF EARLY HUNTERS AND THEIR MIGRATIONS

Archeologists are not prepared at present to say how long ago man first came to live in Washington. They do know that man was living here 8,000 to 10,000 years ago. Direct evidence for this period seems fairly conclusive. Although more evidence is needed to prove it, there is a possibility that early hunters were in Washington prior to 10,000 years ago. Projectile points have been found here that are exactly like those found elsewhere in some of the oldest campsites in North America. Projectile points of this kind have figured prominently in the interesting problem of man's migration to America. In archeological circles this is referred to as the Early Man period. Some prefer to call it Paleo-Indian. Regardless of choice, both terms are used to indicate an age of many thousands of years.

Archeologists have found it convenient to use the terms Old World and New World. As America was not known to Europeans until late, it is called the New World. The term Old World is used to refer to Europe, Asia, and Africa—areas known before the 15th century explorations. Although there is abundant evidence that man has been in the Old World for hundreds of thousands of years, it seems that the New World was not occupied until relatively recent times. Reliable data from excavations of Early Man sites in America permit a conservative estimate of around 20,000 years for the length of time that man has been in the New World. Such an estimate is probably a minimal one, as several sites may be proved older than this when it is possible to date them correctly. Several carbon 14

dates on Early Man material go back beyond this even now, but, unfortunately, their validity is in some doubt.

A discussion of this kind brings up the problem of the route of migration into the New World. A suggested migration route is via Bering Strait, where America and Siberia may have been connected in the past by a strip of dry land. The other possible route that has received publicity lies across the expanse of the Pacific. Because the layman is often left in doubt about these alternatives, the archeologists' views on the subject may be of interest. Archeologists believe that man came into the New World via Bering Strait. They are not able to offer actual proof that man came by this route, but they can demonstrate that he could hardly have come in by any other.

Any thought of a crossing of the Atlantic Ocean in such early times is out of the question because of the long stretches of open sea. When Europeans visited the Pacific Ocean for the first time they found native peoples on all the major islands. These natives were capable of journeys of hundreds of miles in their primitive watercraft. Presumably originating somewhere in southeast Asia, they had slowly spread eastward to occupy one island after another until they reached such places as Easter Island and the Hawaiian group. Information from all sources indicates that the peopling of the islands of the Pacific was fairly recent. The legends of the people themselves not only recall the discovery and occupation of one island after another, but provide a count of the number of generations since these events took place. Making use of this information, anthropologists have estimated that the movement began about 2,000 years ago and continued until about 1,000 years ago. The archeology of the islands is in close agreement with these figures. Nothing older than this has ever been found in Polynesia. It should be noted that this includes the spectacular stone figures on Easter Island, which, incidentally, seems to have been one of the last islands to be populated. Therefore, if man has been in the New World 20,000 years or longer, he was here long before Polynesia was occupied and could not have made contact from there.

Furthermore, there is no evidence that mankind was making use of watercraft as long ago as 20,000 years. This long ago, mankind everywhere was still making a living by hunting the land game which was then so plentiful. It was not until later that man turned his attention to foods that could be taken from river and shore. Until he began to exploit water as a source of food it does not seem likely that he would have had any inclination to experiment with any means of water travel. Geologists conclude that during the time man has been on earth the Pacific and Atlantic oceans have looked much the same as now. No evidence has been found of sunken continents or any additional land mass that man could have occupied to bring him closer to the shores of America.

It is believed that the last great ice sheet, which covered the northern latitudes of the earth, melted away about 10,000 years ago. The ice reached into the United States in several places, and its imprint on the land has been studied extensively in the state of Wisconsin. For this reason it is called the Wisconsin glaciation. The ice cap had centers of origin in Canada. In existence for thousands of years, it responded many times to climatic changes. Several times when ice-forming conditions were at their maximum its mass increased and it advanced farther south. At other times the ice front melted and receded northward. These periods of advance and retreat left their mark well beyond the southernmost extent of the ice. Most of the fluctuations have been identified and named. During periods of retreat, rivers, with their loads of glacial meltwater, grew to great size and huge lakes came into existence in many parts of the United States. Throughout the United States, mountain glaciers alternately grew and diminished at the same time and in the same manner as the continental ice sheet to the north. By making a study of the fluctuations of the continental ice sheet and the mountain glaciers, geologists have been able to date a number of Early Man sites in the New World. It has been found that man was here before the end of the Wisconsin glacial epoch.

It is known that at times the ice reached a thickness of thousands of feet in the northern latitudes of the world. With such a vast amount of water locked on land in the form of ice, ocean levels were 200 to 300 feet lower than they are today. This brings us back to Bering Strait, where a lowering of the sea as much as 120 feet would cause dry land to emerge for a dry-passage connection between Asia and North America. During Wisconsin glaciation North America was not always covered with ice from coast to coast. Openings existed which would have allowed people to pass through from north to south. Oddly enough, the Arctic coasts may have been warmer at that time than they are today, and it has been suggested that Early Man entered America in pursuit of game. Bering Strait seems to be the only route the first migrants into the New World could have taken. It is well known that animals used this route to move back and forth between the two continents in prehistoric times. A good example is the horse. It evolved on the American continent and became established in the Old World by migrating across Bering Strait. It later became extinct in America and was reintroduced by Europeans.

In conjunction with the glaciation there was a profound change in the climate everywhere in the United States. Cool and moist conditions prevailed far to the south. Places now arid in Texas, New Mexico, and Arizona had lakes and streams and lush grasslands. Under these conditions large herds of elephants, camels, horses, and an early variety of giant bison found the country much to their liking. All were later to become extinct in America.

Following the glacial epoch, some rapid climatic changes took place. These have been divided into three periods. The first, beginning about 9,000 years ago and lasting until about 7,000 years ago, is called the Anathermal. The Anathermal is characterized by a cool and moist climate which gradually became warm. It was followed by the Altithermal, which lasted from about 7,000 to about 4,000 years ago. The temperatures of this period were much higher than they are today and the country was exceptionally dry. Streams and lakes dried up and forests and grasslands retreated. The next period, the Medithermal, was characterized by a return to cooler temperatures and more moist conditions. It began about 4,000 years ago and continued until about 2,500 years ago, when climates reached their present condition. Evidence that Washington went through this entire climatic cycle was brought out in a study made a few years ago which gave particular emphasis to the Pacific Northwest.

During the latter part of the Wisconsin glaciation and on into the Anathermal period, Early Man was active on the American Plains as a hunter of big game. The campsites of these early hunters are best known in the western United States from Texas to Canada. Excavations indicate that the elephant was once the preferred game animal, and that later an early type of giant bison was the animal most hunted. The bison of these times, a much larger animal than the buffalo of pioneer days, is believed to have become extinct with the onset of the Altithermal period and the subsequent drying out of the grasslands. The time of the extinction of the elephant has not been determined, but it has been suggested that this animal died out first and caused the early hunters to turn their attention to bison. The bison hunters were later in time, and the food bones in their campsites do not include those of the elephant.

It is fortunate that the early hunters of the plains made some of the most distinctive projectile points known to American archeologists. As the bow and arrow were not used until later, the early projectile points were made to tip thrusting spears or shafts that were used with a spear thrower. The spear thrower was a device 2 or 3 feet long which was carved out of wood. It was designed to cradle a spear while one end was gripped in the hand and held in a throwing position. In operation it extended the length of the arm to achieve a greater propulsive force in the same manner that a stone can be cast much farther with a sling than with the unaided arm. The points of this period are usually larger and heavier than the arrow points of later times. Unlike campsites of later times, where a great variety of arrow points can be found at a single site, the campsites of this period contain points that are consistently made on the same pattern. Many of them are so distinctive that the archeologist can recognize immediately the period they represent. Incidentally, some of these oldest points in America are also some of the best examples of flint chipping to be found anywhere.

As each of the different types of Early Man points has been discovered, the practice has been to name it after the nearest town in the locality where it was first found. The early points that have been found in Washington are Clovis Fluted, Folsom Fluted, Plainview, Scottsbluff, and Eden. Their type localities are: Clovis, New Mexico; Folsom, New Mexico; Plainview, Texas; Scottsbluff, Nebraska; and Eden, Wyoming. The Washington specimens are all chance finds by amateur collectors or others who happened upon them. None was found under conditions that would indicate a definite connection with a campsite of the same age.

Two Clovis Fluted points have been found in Washington, one near Olympia and one near Bridgeport. Clovis points tend to be 3 inches or more in length and are characteristically "fluted" by the removal of a large flake which leaves a channel extending from the base to about halfway to the tip. As is true of the other points mentioned, the chipped edges of the basal portion have been ground smooth. It has been suggested that the lower edges were ground smooth in order to prevent their cutting of the lashings used to fix the point on its shaft.



FIGURE 4.—Clovis fluted point. $\frac{1}{2}$ natural size.



FIGURE 5.—Folsom fluted point. $\frac{1}{2}$ natural size.

The dating of Clovis sites has presented something of a problem. Not many years ago Clovis points were called "Folsomoid" or "Folsom-like" because, in being fluted, they resembled the Folsom Fluted points that had been discovered earlier and were better known. Later was found a locality that had been used by a succession of peoples over a long period of time. Clovis points were found at the bottom of the site. At a higher level, and separated from the Clovis layer by a deposit of soil which represented a considerable gap in time, Folsom points were found. It could then be demonstrated that Clovis was older than Folsom.

Geologists have estimated that a maximum date for Clovis might be around 13,000 years ago. The few carbon 14 dates calculated from Clovis material have appeared to be either too young or too old. On the short side of the scale, a carbon 14 date of 8,500 years has been recorded. This is undoubtedly too low, as Folsom is recognized as being 10,000 years old, and it is known that Clovis is the older of the two. The most recent carbon 14 date from a Clovis site comes from Texas, where material was excavated under conditions that promised an accurate date. Surprisingly, the results of 2 tests indicated an age of over 37,000 years. This leaves too great a gap between Clovis and Folsom for a date of this age to be acceptable. It seems evident that some unknown factor in carbon 14 dating has crept in to interfere with a date for Clovis.

The one Folsom Fluted point reported for Washington was found across the Columbia River from The Dalles, Oregon. In Folsom, the flutes are large in relation to the size of the point and extend over most of its length. Folsom points are smaller than Clovis points. Averaging 2 inches in length, they are believed to have been true dart points used with the spear thrower. The Washington example is a little larger and heavier than the average run, and for that reason it has been previously treated as a Clovis point. The present writer feels that it has every characteristic of the true Folsom and that its size, $2\frac{3}{4}$ inches long, is within Folsom limits.

For many years the Folsom point has been the classic example of the fluted point tradition of the western Plains. The people who made this point hunted an extinct form of bison at the close of the Wisconsin and on into the Anathermal period. In the case of Folsom, geologic estimates and carbon 14 dating have been in agreement. Both indicate that Folsom is about 10,000 years old.

One Plainview point comes from the Chehalis River Valley in southwestern Washington. Plainview points average from $1\frac{3}{4}$ to 3 inches in length. They resemble Clovis and Folsom somewhat in outline but lack their characteristic fluting. In this instance the base of the point is thinned by the removal of small vertical flakes.

Plainview points also date to the Anathermal period and are found with the bones of extinct bison. One carbon 14 date indicates that the Plainview people were on the Plains about 9,000 years ago.

Two Scottsbluff points are reported from the Pacific Northwest. One is believed to have come from southeastern British Columbia, and the other may have come from western Washington. An Eden point was found on the Snake River in the southeastern part of the State.

Both Eden and Scottsbluff differ from the points so far discussed. Most Scottsbluff specimens are between 3 and 4 inches long and average about 1 inch in width. Blades may be parallel-sided or triangular. They usually have small shoulders and broad stems that



FIGURE 6.—Plain-view point. $\frac{1}{3}$ natural size.



FIGURE 7.—Scottsbluff point. $\frac{1}{3}$ natural size.



FIGURE 8.—Eden point. $\frac{1}{3}$ natural size.

have been ground smooth along the edges. Eden points resemble Scottsbluff in some respects, but they are usually much narrower in relation to their length. Their shoulders are usually much slighter, leaving their stemmed nature less pronounced. Diamond-shaped in cross section, Eden points are thicker in relation to their width.

Both Scottsbluff and Eden points were used by bison hunters on the Plains. Where identification of the bones has been possible, Scottsbluff seems to be associated always with extinct bison. The fragmentary nature of bison bones found at Eden sites has prevented positive identification of species. There is some evidence that Scottsbluff and Eden are contemporary—points of both types have been found together at the same site, where they may have been made by the same people. Geologic estimates and carbon 14 dates indicate that Scottsbluff and Eden hunters were on the Plains between 7,000 and 9,000 years ago. It is possible that the makers of these points were among the last to hunt the extinct bison of the western Plains before both animals and men were forced from the area with the onset of the Altithermal period.

The question now arises as to the meaning of these early Plains points in Washington. Early material found west of the Rocky Mountains seems to be as old as Folsom, but it is material which usually points to a different people and a different preference in projectile point patterns.

Fluted points have a fairly wide distribution in the eastern United States, where their occurrence seems to have been later than on the Plains. It has been suggested that, as the Plains were drying up following the last glaciation, both animals and men migrated to the east where drought conditions were less severe. Some might just as well have found their way westward into Washington at this time. The remains of elephant and extinct bison have been found in Washington, but they have not been identified in association with weapons as they have been on the Plains.

The early Plains type of projectile points from Washington are chance finds that are not known to have come from campsites of the people who made them. Indians of all periods have had a way of

acquiring things through travel and trade over a wide area. It is not impossible that the points under discussion found their way into Washington through Indian traffic of a later period. Indians early and late probably have always had a sharp eye for a good piece of flint. On the other hand, such early points are not plentiful anywhere. Several have been found in Washington, and they have come from widely separated sections of the state. Until such time as an actual campsite containing points of this type is found, archeologists can only speculate on the meaning of their presence here.

There is at least one site that has produced solid evidence that Washington has Early Man material of its own. Excavated in recent years, the Lind Coulee Site in Grant County in eastern Washington has been given a carbon 14 date of approximately 8,700 years ago. This seems to be in agreement with the geology of the site, which may have been occupied soon after the final retreat of the continental ice sheet. The site consists of a single layer of artifacts and camp debris which was exposed on the eroded wall of the coulee. This layer was buried beneath as much as 14 feet of soil that had accumulated there since the ancient inhabitants had left. The spot had been used as a campsite during the one period only and had not been used thereafter. During two seasons of excavation, 600 cubic



FIGURE 9.—Early stage of work at Lind Coulee, an Early Man site in eastern Washington.

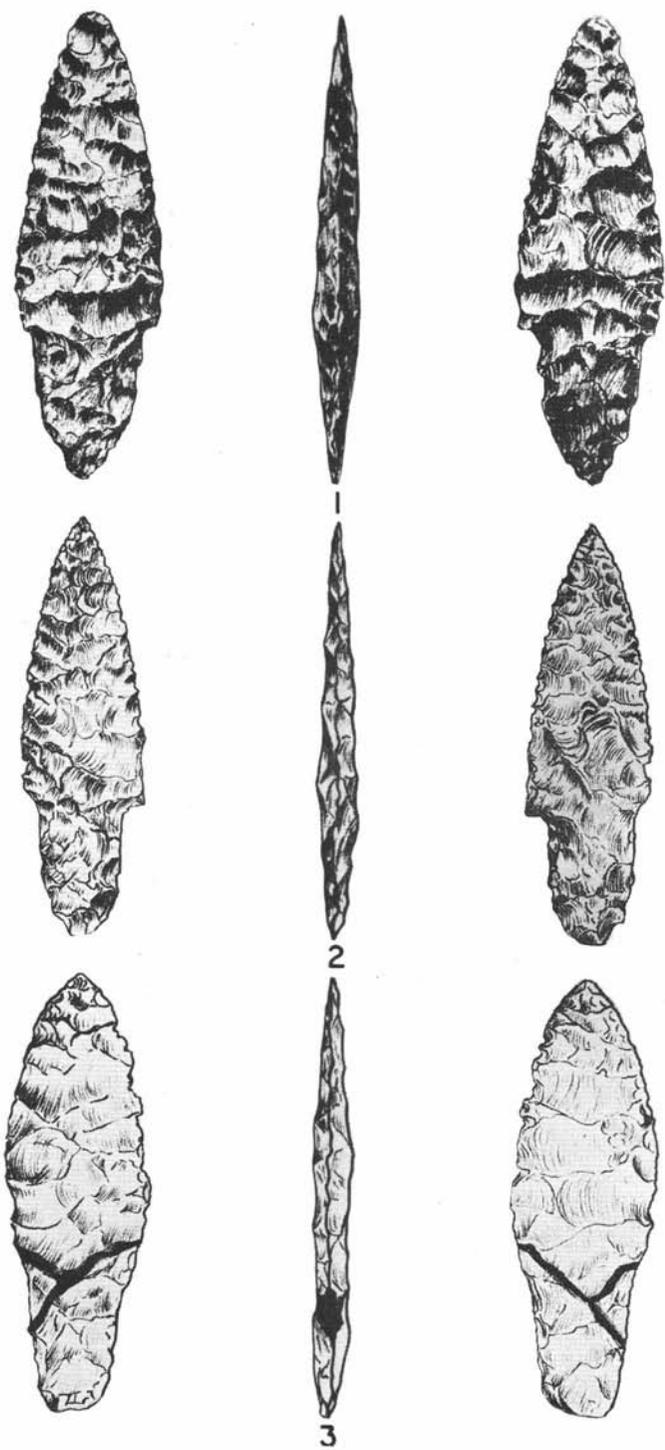


FIGURE 10.—Projectile points from the Lind Coulee Site.

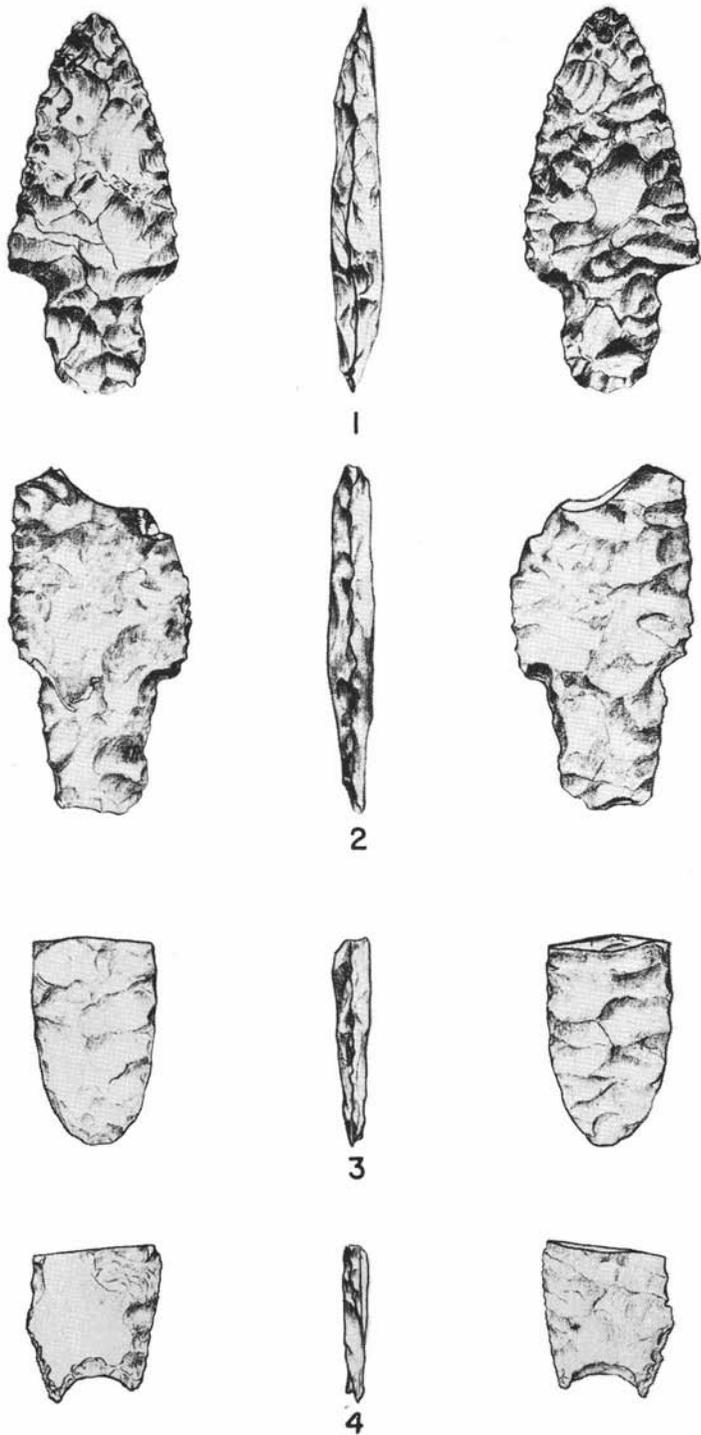


FIGURE 11.—Projectile points from the Lind Coulee Site.

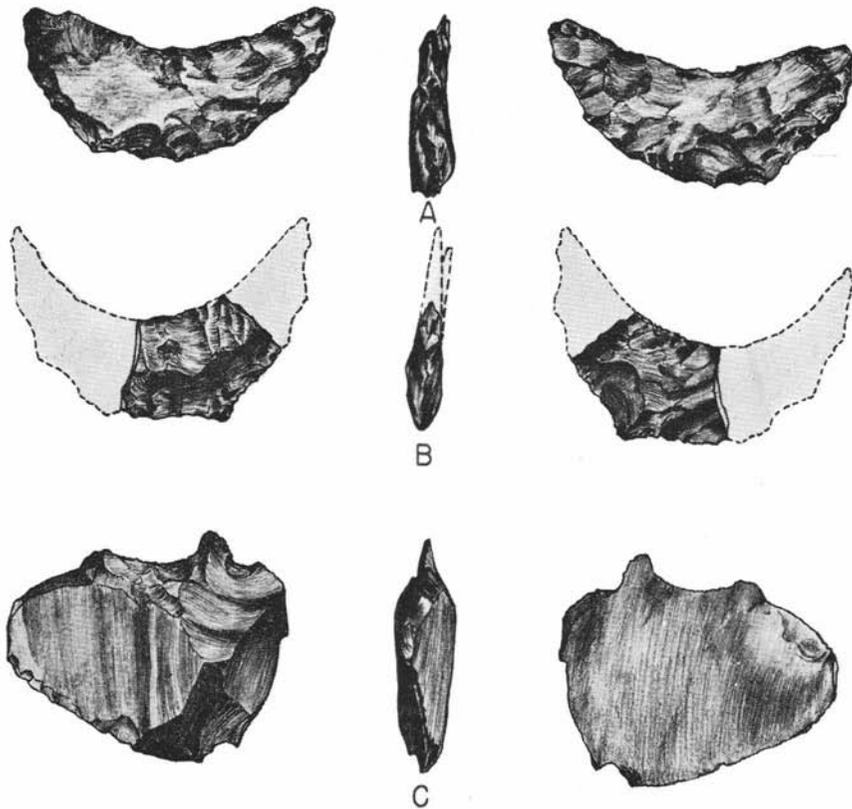


FIGURE 12.—Artifacts of chipped stone from the Lind Coulee Site. A. and B. Crescentic blades. C. Different views of a large flake scraper.

yards of earth was removed and only 186 artifacts were recovered. It is not at all uncommon for sites of this age to produce a low percentage of artifacts for the amount of work that is done.

Most of the Lind Coulee projectile points are stemmed and are between $2\frac{1}{2}$ and 3 inches long. Some chipped artifacts, about $2\frac{1}{4}$ inches in length, were found that are called crescentic blades. These have been found in other early sites west of the Rockies. Although their use is not known, probably they are a type of knife. Of interest are 3 incomplete bone shafts and 1 bone point that has several notches or serrations. When excavated, the latter (fig. 13, C) was believed to be the oldest artifact of its kind to be found in America. The bone shafts (fig. 13, A, B) are very similar to shafts found elsewhere in association with Clovis points. There has been speculation on the possible use of such shafts. Some think they might have been used as foreshafts of spears or possibly were even used as spear points. None has ever been found still attached to a spear shaft or any other object.

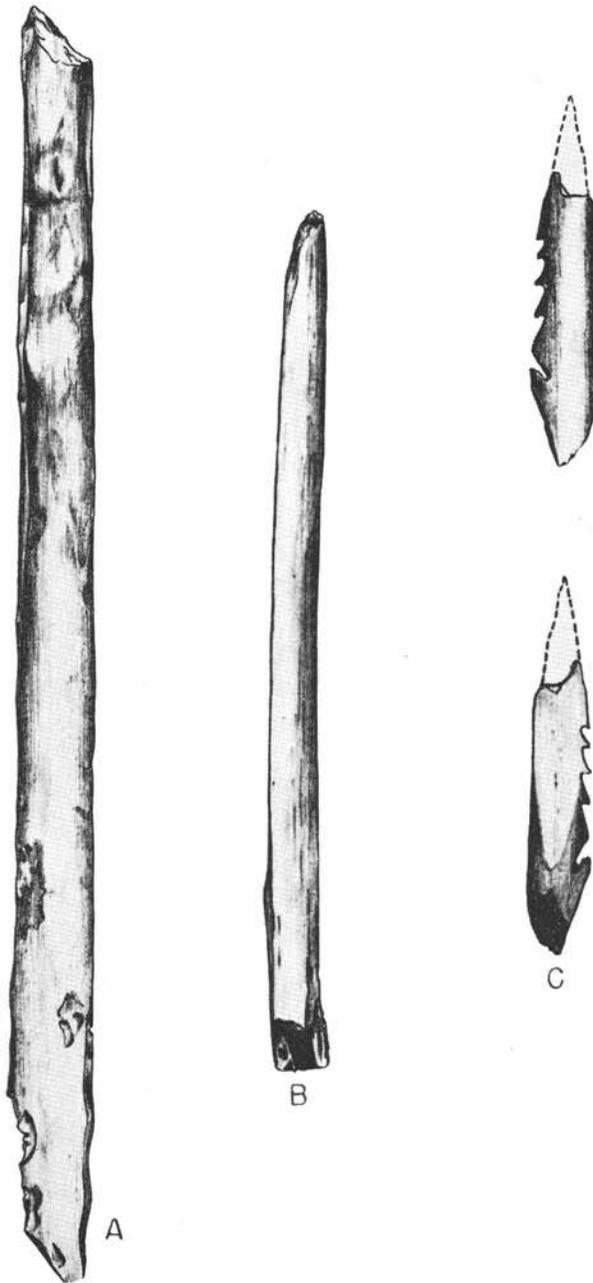


FIGURE 13.—Bone artifacts from the Lind Coulee Site. A. and B. Bone shafts. C. Serrated bone point.

Other artifacts found at Lind Coulee include a variety of hide scrapers, heavy choppers, knives, and other cutting tools of chipped stone. A few flat stones were found that had been used as a surface upon which to grind red and yellow pigment.

Among food bones at the site, bison bones were the most plentiful. Unfortunately these were too fragmentary for identification, thus it is not known whether they are those of an extinct species. Other bones that were present include those of duck, goose, beaver, and muskrat. These definitely suggest a climate much different from that of the Lind Coulee of the present day. It suggests that cool and moist Anathermal conditions prevailed where the same area is now desert.

In comparison with other Early Man sites, Lind Coulee is quite unlike those on the eastern side of the Rockies. In some respects it is similar to early sites west of the Rockies and farther to the south but, most of all, it seems to represent a particular way of life that was going on in this locality some 8,000 to 10,000 years ago. It belongs to the period of big game hunting when weapons were hurled with the spear thrower.

Lind Coulee is the only site in Washington where it has been possible to recover a significant amount of archeological material of this age. At a site on the Columbia River not far from Vantage, a few artifacts were found deep in a cave. They were believed to be about the same age as the Lind Coulee material on the basis of the geology, but only five artifacts came from this depth, and unfortunately they are of the kind that are not representative of a particular period. There are a few other locations in Washington where there is some indication of early material, but there is nothing definite about them at this time. This foregoing discussion accounts for all the really early material that has been reported in Washington to date.

There is very little known about human activities in Washington during the hot and dry Altithermal period, which may have lasted from about 7,000 to 4,000 years ago. In Washington, as elsewhere, it was probably a time when big game animals were dying out or moving to different localities. Some archeologists have wondered if, in eastern Washington at least, there was not a general movement of the early hunters to the banks of the rivers at this time and whether this caused them to learn to substitute fish for the diminishing supply of land game. In any case, fishing did become very important later and salmon runs were supporting large native populations long before the first white men arrived.

Sites in this region which may be some few thousands of years old have been particularly difficult to date. A few that have been excavated may possibly be as old as late Altithermal. One of these may be a site on the Oregon side of the Columbia River in the

McNary Reservoir. The site was believed to possess some age when its excavators found an occupation layer beneath a layer of volcanic ash which owed its origin to some volcanic eruption of the past. It was believed to be the campsite of a hunting people who were on the verge of learning how to fish for a living. Net weights of chipped stone, which were later to become one of the most common artifacts of the area, were absent. Fish bones were present, but in a much smaller proportion than at later sites. It was believed that this site was abandoned at the time of the ash fall. Another site was found not more than a mile away where it was believed the same people went to live after they left the first site. Artifacts were found here just above the layer of volcanic ash. In nearly all respects they were just like those found in the previous site, but some changes began to appear. Net weights appeared for the first time, and slender knives of chipped basalt, which would have been good for preparing fish, were more plentiful. The fact that fewer projectile points were found at the later site was also considered to be an indication that hunting was being given up in preference to fishing.

This is about all the information at hand which has any possible connection with the intermediate period in Washington archeology. However, several sites have been excavated recently on both sides of the Columbia River between The Dalles and Goldendale. Unpublished reports indicate that more information on the period between Early Man and more recent times may come from these excavations. One of these sites, on the Oregon side of the river, is reported to contain substantial evidence of continuous occupation from about 10,000 years ago to the early historic period. Sites of this kind have been needed badly in the archeology of this area. When the results of this and other excavations are made available, a more complete picture of Northwest archeology may be presented.

ARCHEOLOGY OF LATER TIMES

When we study more recent times, we find that archeological material is more plentiful and is more familiar to most people. This is the period of smaller arrow points, pestles, net weights, and all the other stone tools and weapons commonly seen in archeological collections. Contrary to what some people may believe, the archeologist has not been able to date within narrow limits all the campsites that produce these tools. At present only one carbon 14 date is available on material from this period in Washington, and there is reason to believe that it is erroneous. For the reader who feels more sure of his footing when dates are given, it may be pointed out that the previous section brought us down to about 4,000 years ago. This section is intended to cover the period from then to about the time of the arrival of the white man.

WESTERN WASHINGTON

Of importance equal to a date for any given site is the need to learn which events followed other events in the archeological past. In this respect there has been some success in the archeology of the northern Puget Sound region. It has been mentioned that a few Early Man points have been discovered in western Washington, but no actual campsites of that age have been found there. Following this possibility of an Early Man period, there is a gap in the record until there is evidence of a people who hunted land game and made points of chipped stone. Only a few of their tools were made of bone. As shell is lacking in their camp refuse, and as it is known that the campsites of the later Indians of the area became veritable shell heaps, it appears that these people were either newly arrived in the area or had not yet learned to make use of shellfish or other marine foods.

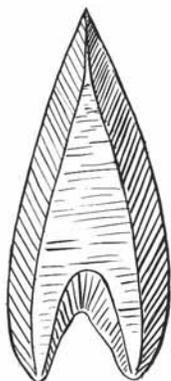


FIGURE 14.—Projectile point of ground slate.

Next in time is a people who either brought with them or had learned to make tools of ground slate. These people were better adapted to the sea and knew how to make use of its food resources. The final development was a culture adapted to both land and sea resources. It lasted until the time of white contact. The people of this period had tools of ground and polished stone, such as pestles and adze blades, but their weapons were made mostly of bone or antler instead of chipped flint.

Elsewhere in western Washington very little work has been done. Bits of information keep emerging to indicate that in localities bordering salt water it is possible to find arrow points of chipped stone which bear a resemblance to those from eastern Washington. In these same localities are campsites that produce artifacts of bone and few, if any at all, artifacts of chipped stone. Future investigations may show that stone chipping generally preceded the later preference for tools and weapons of bone and antler in the salt-water localities of western Washington. Farther inland, on the western slopes of the Cascades, it is possible that stone chipping persisted into late times. A site on the Lewis River shows that the people living there made points of chipped stone that are very similar to those from eastern Washington. The bone tools of the salt-water peoples were lacking, as was also the plank house. On the Lewis River they lived in a circular, semisubterranean house like those the archeologists have found east of the Cascades. No additional sites have been excavated on the western slopes of the Cascades.

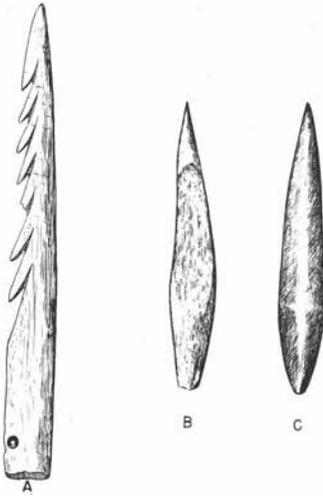


FIGURE 15.—Projectile points made of bone or antler. A. $\frac{1}{4}$ natural size. B. $\frac{1}{2}$ natural size. C. $\frac{1}{2}$ natural size.

Returning to the northern Puget Sound region, several archeological features there are of interest. Although their function is not known, it is possible that a number of semicircular trenches found on Camano and Whidbey Islands were used as defenses. Other depressions are horseshoe-shaped, and some are about 40 feet square and about 5 feet deep. They are found on the edges of steep banks overlooking the beaches.

An excavation on San Juan Island at Cattle Point uncovered a series of peculiar alignments of stone slabs and disclosed them for a distance of nearly 100 feet without reaching the end of the series. Some consisted of two parallel rows of stone slabs several feet long and set a few feet apart. Placed end to end in a more or less straight line, they were floored with a flat clay surface which ran through and connected all the structures. Other structures were about a foot high and were either round and from 2 to 3 feet in diameter or were square and 3 to 4 feet across. Still others were bowl-like structures built up with stone slabs and clay. These were up to $1\frac{1}{2}$ feet in diameter and nearly a foot deep. The presence of charcoal and the fact that the clay on the insides of the bowls had been fired to a reddish color led the excavators to believe that the bowls were used for cooking. All these features were found in the center of an area where people once lived. They are peculiar to the San Juan-Vancouver Island area and are not known elsewhere.

Large burial cairns occur on the islands of northern Puget Sound and extend to Vancouver Island in British Columbia. They are composed of an irregular pile of boulders as much as 20 feet across. In some of the burials a cist was built around the body by placing rocks around it to form an oblong enclosure. Slabs of rock were laid across the top to make a covering. These cairns never contain more than one skeleton, which, after the fashion of most Indian burials, was laid to rest in a flexed position with arms folded and the knees drawn up against or toward the chest. Burned bones, ash, and charcoal indicate that some attempt at cremation was made. The usual location of the cairns is on a slope overlooking the sea. They seldom contain anything but human bones, indicating that it was not thought important to provide the body with tools and weapons. As

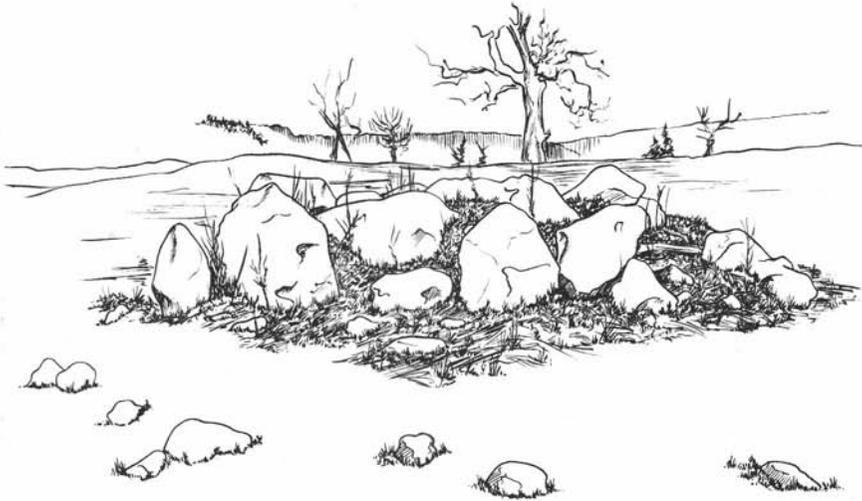


FIGURE 16.—Burial cairn of the northern Puget Sound region.

no consistent association with European trade articles has been noted, and as the Indians of the general area have no recollection of ever having buried their dead in this manner, it is believed that the cairns are old.

The most common kind of burials encountered by archeologists in western Washington are those of individuals that are uncovered during the routine excavation of a village site. These individuals were unceremoniously interred within or at the edge of the village grounds. In many burials there was no attempt to provide the body with any kind of a cover, and only rarely with any kind of grave marker. In a few instances a marker in the form of a small pile of stones was placed over the grave. Such a marker would in time become buried beneath village refuse as succeeding generations continued to occupy the site. Many of these graves lack offerings. In the northern Puget Sound region the practice of placing objects with the body does not seem to have been well developed before the time of white contact.

There is not much archeological data on other burial practices for western Washington. It is known that Indians on the lower part of the Columbia River used burial sheds for the disposal of the dead. Such sheds were of plank construction and were built above ground. Islands in the river formerly contained many of them. The practice lasted well into historic times.

Canoe burials, in which an individual was laid to rest in a canoe placed upon an elevated framework, seem to have been widely used at one time in western Washington, but time and the weather have taken a toll until there is no remaining evidence of this type of burial. The same is now true of the large plank houses in which the

Indians of western Washington lived. It was not a general practice to erect them over an excavated pit, and consequently there is usually nothing left to mark the places where they once stood.

Near the mouth of the Fraser River, in British Columbia, human remains have been excavated which show evidence of a population change that involved a change in physical type. A people who had relatively long and narrow heads were replaced there centuries ago



FIGURE 17.—Remains of a house post at the site of an old Indian village on the coast of the Olympic Peninsula. This was once part of the frame of a typical native dwelling of log frame and split plank construction.

by a roundheaded people who were more similar to the modern Indians. There is some indication that the same thing happened in adjacent Washington, but, in the State as a whole, changes in physical type have been difficult to demonstrate so far.

There has not been enough work in western Washington to obtain a satisfactory picture of that part of the State as a whole. The excavations there have been informative, but they have been confined mostly to the region of northern Puget Sound.

EASTERN WASHINGTON

The opportunity to do salvage archeology in the reservoir areas has resulted in more widespread activity in the eastern part of the state. Most of the activity has been in the Columbia River valley where, except for a few gaps, its archeology has been sampled from The Dalles to the Canadian border. In spite of this extensive sampling, the eastern Washington material has not revealed any spectacular changes in the habits of those who occupied the area during the past two or three thousand years. It appears that since the time that the climate changed to conditions similar to those of the present, the people who have lived in eastern Washington have made no great changes in their tools and weapons. However, many interesting and perplexing things have been brought to light in the archeology of the area.

Most of the sites have had what the archeologist calls a single cultural level. Sites of this kind may have some depth as a result of having been occupied for some time, but they do not produce evidence of cultural change. This is because they were always occupied by a people who did not change their habits much while they lived there. However, one site has been excavated in recent years which does show some evidence of changing living habits. It is a large cave on the Columbia River near Vantage. Some of the material from this cave, which contained deep cultural deposits, has already been mentioned in the discussion on the earlier periods of Washington archeology. For the later material, it was estimated that beginning perhaps 3,500 years ago, the cave was alternately visited by mountain sheep and human beings for more than the next 2,000 years. The layers of human occupation, consisting of bedding straw, fragments of cordage and matting, and other artifacts, alternated with layers of sheep dung which was built up when the cave was not being used by people. The artifacts included large blades and well-made hide-scrapers of chipped stone, such as a hunting people would use. These people, as did those after them in a great many places, used earth ovens for the preparation of food. It was found that the earth oven of these times was larger than those left by later groups. A similar oven is shown in figure 18. This one was uncovered during an excavation in the O'Sullivan Reservoir in Grant County. It was discovered below the surface and ad-

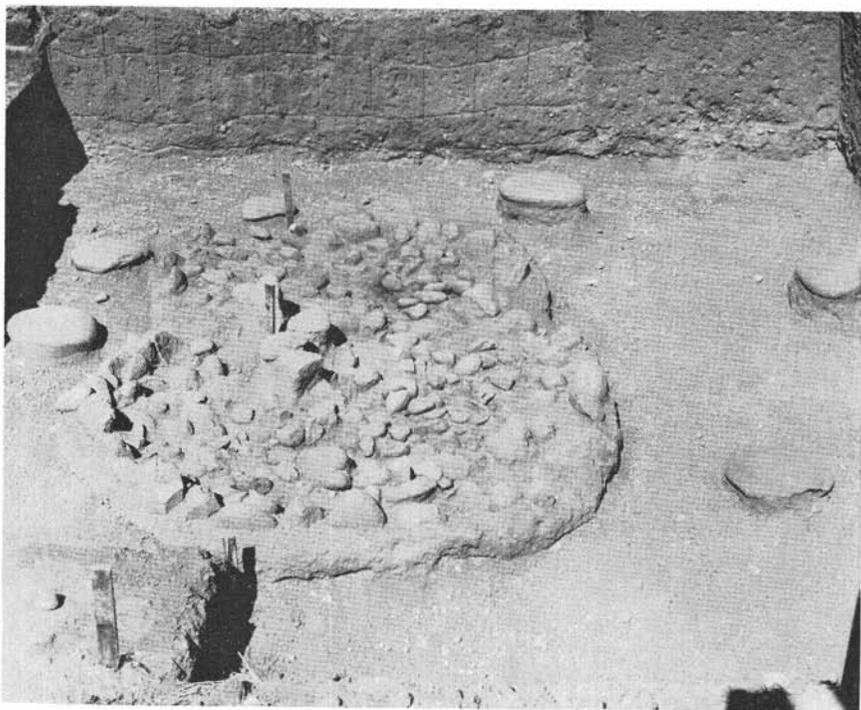


FIGURE 18.—Earth oven exposed in an excavation in the O'Sullivan Reservoir area. Note the large grinding stones still in their original position around the central pile of rocks representing the oven. The stakes were used as reference points during the excavation.

jaacent to some circular house pits. The oven in this instance was found to be older than the house pits, which themselves were entirely prehistoric. It was abandoned and had been covered with earth through natural agencies before those who dug the house pits came to the spot to live. It is of especial interest because several large stones upon which food was ground were left in position around the central pile of rocks which represents the oven. Smaller and less complete versions of this type of oven are frequently found. They result from a primitive method of steaming food. A fire was built in a shallow depression and stones were heaped over it and left to get hot. When properly heated, they were covered with a layer of grass and leaves. The food was placed on this and then covered with another layer of greenery to protect it from the blanket of dirt which was heaped over all. Water was then poured through a hole which was left for that purpose. When it came into contact with the heated rocks the process of steaming began.

In the cave at Vantage there is no further evidence in the upper strata of mountain sheep. After their disappearance there is a change in the artifacts. The large blades and scrapers, of use when there

were mountain sheep to skin and hides to dress, become fewer and there is evidence of more fishing and root gathering. This trend is believed to have culminated in the larger village groupings of the later Indians of the area, who divided most of their time between salmon fishing and root digging.



FIGURE 19.—Bone needle with eye.



FIGURE 20.—Bone awls.

The results of excavations at another rather unusual site should also be reported in some detail. This one is Wakemap Mound on the north bank of the Columbia River at Wishram. This is the locality of the historic Wishram Indians, who, the ethnographers and early explorers tell us, operated one of the most lively trading centers in the Pacific Northwest. Located where the Columbia begins its passage through the Cascade Mountains, they were at the point of contact between peoples of the coast and of the interior. The Mound itself is the result of centuries of occupation on the one spot. In this way a mound of cultural refuse gradually rose to reach a height of some 30 feet and was almost 100 yards long. Lewis and Clark first reported the Mound and noted its artificial nature when they passed down the river in 1805. Because they noted the rotting remains of some Indian dwellings upon it, it is believed to have been abandoned some time before they arrived.

The contents of Wakemap Mound were sampled by a group of archeologists who worked in the general area in the 1920's, but it was not until recent years that extensive excavations were made there. The material from the Mound's lowest levels revealed that the first inhabitants leaned more toward hunting than fishing. This refuse contained a large amount of animal bones. Net weights and net gauges were present but not abundant. Large, stemless points were predominant in these levels and small, stemmed points were few.

The next level produced evidence of a significant increase in fishing. Stone bowls and pestles appeared. Mauls or mallets used to drive wedges for splitting timber were found, giving evidence of increased woodworking.



FIGURE 21.—Unworked river cobble that was used as a pestle. This type of pestle is very plentiful and widespread.

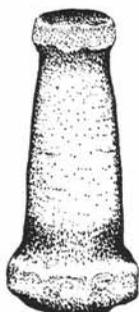


FIGURE 22.—Pestle of ground stone.



FIGURE 23.—Stone maul or mallet used to drive wedges for splitting timbers.

Changes in the artifact content of the next higher level included a large reduction in the relative number of bone and antler artifacts, the appearance of a large number of small, stemmed points, and the first appearance of modeled objects of unfired clay. Pendants were found, and the stone artifacts were decorated and more elaborate.

In the highest and final level, artifacts of bone and antler were no longer present.

In spite of its great depth of material and long use, the Mound did not produce evidence of any invasion by an outside group who might have taken up residence there. The analysis of its contents resulted in the opinion that the changes noted from one level to another were the result of local, progressive growth with little influence from outside sources. A carbon 14 date from what appeared to be a good sample of wood from the bottom level of the site gave the surprising figure of 1,080 years before the present. In comparing the material with that from sites that have been excavated elsewhere, it was estimated that the spot was first occupied between 2,000 and 2,500 years ago. All things considered, it seems that the latter figure comes closer to being correct and that the carbon date is erroneous.

Other sites in eastern Washington have lacked the physical and cultural depth of the two just described. Most of them produce artifacts that are duplicated in the material from these two sites, but it is of interest and significance that some differences in food habits have been noted. A site on the Snake River has furnished evidence that the people who occupied it lived chiefly on antelope. Bones found among the refuse at other sites show that the bison or buffalo was of some significance in the diet. It is known that in early historic times the Indians of eastern Washington were making ex-

tended visits east of the Rockies to hunt buffalo. They dried the meat there and brought it back on pack horses. Only the edible parts of carcasses were transported. As nearly all parts of skeletons have been found in the archeological sites, it is evident that these bones are those of animals that could be hunted not far from camp. Neither buffalo nor antelope were here when the white men arrived. There are a few accounts of an occasional stray buffalo, but there is no evidence that in historic times these animals were here in sufficient quantity to account for the amount of bones that are found in some of the campsites. The sites that have produced a significant quantity of antelope and buffalo bones have not been precisely dated, but the bones are those of modern animals. The tools the people left behind seem to be no different from the general run of artifacts from most of the other sites, implying that there were substantial numbers of bison and antelope in the late prehistoric period.

To summarize the evidence on food habits, it appears that everywhere in Washington the hunting of land game preceded fishing. Mountain sheep hunting was possible along the Columbia at Vantage many centuries ago. In other eastern Washington localities buffalo and antelope were hunted, but the sites that have produced this evidence have not been fitted into the time scale. The sites that were occupied last along the main streams were inhabited by Indians whose chief interests were salmon fishing and root digging.

The Indians on the Columbia River, especially in The Dalles region, had a plentiful supply of such stones as chalcedony, jasper, opal, and chert, to mention a few, which they could chip into what are generally recognized as the most beautiful arrow points to be found anywhere. Sought after by collectors for more than 50 years, they have created a great deal of amateur interest in Columbia River archeology. Beautiful or not, Columbia River arrow points, as well as most of the other artifacts that have been found with them, have not revealed nearly as much as the archeologist would like to know about late prehistoric times along the Columbia. Where there is pottery to work with, it is possible to break down the past into centuries. The arrow points and other stone tools of eastern Washington are not so sensitive to change, and it is difficult to find items which represent a certain amount of elapsed time or a regional variation. It is entirely possible that of two identical arrow points from the Columbia River, one may be 200 years old and the other 2,000. However, controlled excavations have made possible some separation of cultural periods and artifact types. At Wakemap Mound it was found that the early levels produced a high percentage of fairly large stemless points and that the later levels produced mostly small, stemmed points, but both types were present in all levels of the deep site. An analysis of their distribution from top to bottom

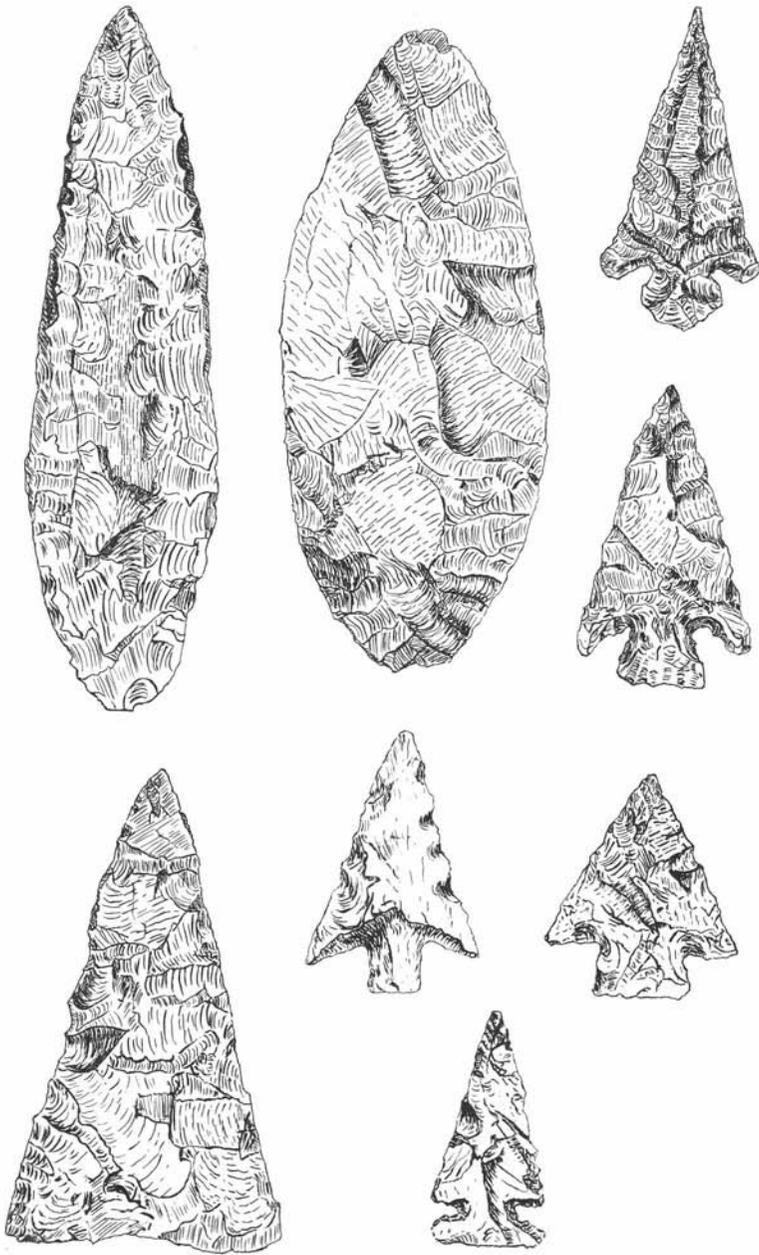


FIGURE 24.—Typical arrow point and blade forms from eastern Washington. Natural size.

shows that although the small, stemmed points were relatively few in the beginning, they eventually became the most common type.

A change in arrow point types such as that just described is called a change in vertical distribution. It simply refers to differences that can be noted in artifacts that come from different depths in the ground. Horizontal distribution implies differences or similarities that can be noted in artifacts from widely separated sites. In this respect there are some differences in arrow point types from The Dalles region and from the Upper Columbia region above Grand Coulee Dam. Excavations in the two localities show that stemless points are predominant on the Upper Columbia, whereas stemmed points are most common to the south. Amateurs who have sampled the contents of sites here and there are sometimes heard to say that they can look at an arrow point and tell what part of the river

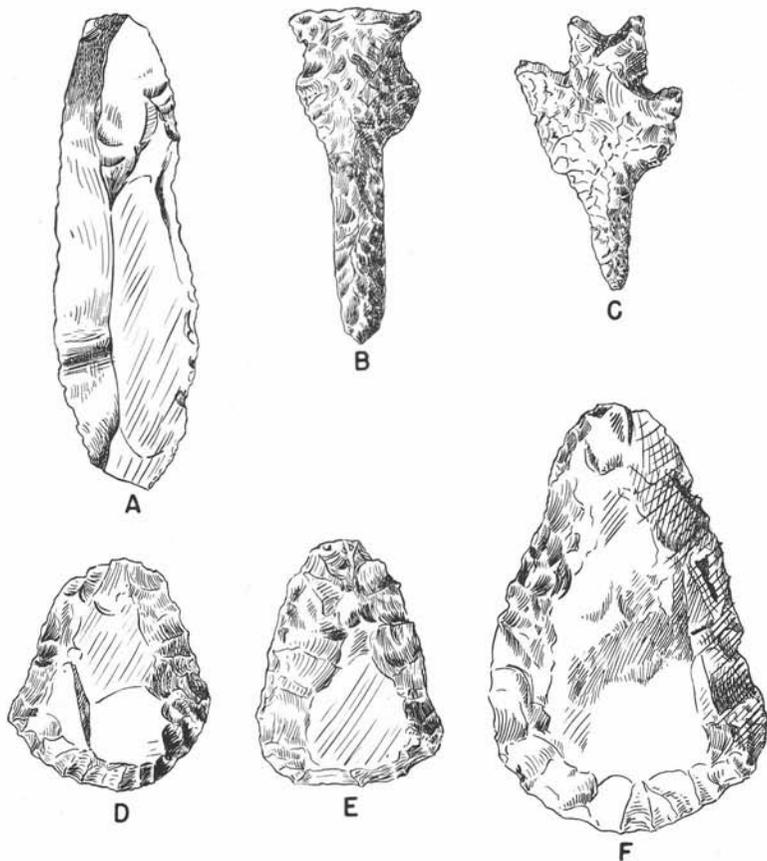
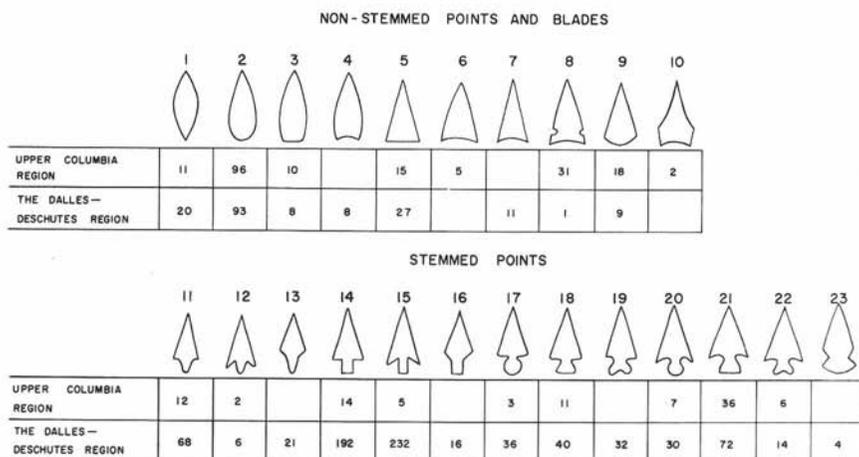


FIGURE 25.—Various stone tools. A. Flake knife. B. and C. Drills of chipped stone. D., E., and F. Scrapers of chipped stone. A handle was attached to the smaller end of such tools.



	NUMBER OF SPECIMENS	PERCENTAGE OF SPECIMENS <u>NON-STEMMED</u>	PERCENTAGE OF SPECIMENS <u>STEMMED</u>
UPPER COLUMBIA REGION	284	66 %	34 %
THE DALLES— DESCHUTES REGION	940	19 %	81 %

FIGURE 26.—Projectile point and blade forms from two widely separated localities in eastern Washington. Note how often the same forms are found in both localities. Only the percentages are meaningful.

it came from. Figure 26 offers a chart based on archeological work in the two localities just mentioned. It may be noted that most of the points found in one locality may also be found in the other. When the archeologist is presented a dozen or so points, it is impossible for him to say whether or not they came from any particular spot on the Columbia or, for that matter, any of various other localities within the State. He is not able to arrive at any conclusions until he can work with a collection of arrow points that is large enough to be broken down mathematically. In general, arrow point types are found far and wide and it is only their relative abundance in a given locality that counts.

It has been mentioned earlier that roughly the southern half of eastern Washington was occupied by those who spoke Sahaptin dialects and that the northern half was occupied by those who spoke Salishan dialects. Knowing that these peoples were divided in this manner, archeologists have sought some evidence of their early movements into or within the area. So far, it has been difficult to separate any such movements on the basis of the archeological material. To complicate the matter even more, those who last occupied The Dalles region, from where much of the available comparative material comes, spoke Chinookan, a language found from there to

the mouth of the Columbia. Because these peoples had speech differences, it does not necessarily follow that they would have different arrow points also. It does, however, provide a starting point from which to work when looking for archeological differences. It is interesting to speculate why stemless points are predominant above Grand Coulee Dam whereas stemmed points are most common to the south. It is to be recalled that stemless points were predominant in the lower levels of Wakemap Mound. It is not known how early they also occurred above Grand Coulee Dam, but it is known that they occurred there late, at the time when stemmed points were most common in the upper levels of Wakemap Mound. It would be nice to be able to say that the stemless points at Wakemap were left there by the same people who were later to be found only above Grand Coulee Dam. They would, of course, have been replaced at Wakemap Mound by a people who preferred to make stemmed points. It is equally possible that when stemless points were preferred at Wakemap, they were preferred everywhere in eastern Washington and that only more investigation is needed to show this. On this basis, we could say that the people north of Grand Coulee Dam never happened to change over to stemmed points as did the people to the south of them and that a migration of peoples never occurred. Archeologists are now working on problems of this kind, but more work needs to be done before they can be solved.

It might happen that things other than stone tools will yet give the needed information for a better understanding of past events in eastern Washington. Two things that have been objects of study for some time are burial patterns and house remains. There is a type of cremation pit that is found in several places between Vantage and The Dalles and in the Yakima River Valley. The Indians themselves have no recollection of this type of burial. It is marked by a large ring of stones which encloses a shallow pit. The stone ring may be as much as 18 or 20 feet in diameter and is as much as 2 feet high. Within this enclosure, cremated human remains are found not far below the surface. There is usually evidence that the pits contain the remains of more than one individual. Not much is known about this type of burial, and it has been difficult to assign it to any particular group of Indians. Some evidence has been interpreted as proof that the human remains were cremated in these pits after they had first been exposed for some time in burial sheds. This opinion resulted from the excavation of cremation pits on Sheep Island near Wallula, where among the human bones some baked mud dauber nests were found which had the imprint of split planks upon them. It was assumed that the nests got there by being on the planks of an exposure shed which was torn down and used for fuel when the human remains were removed for cremation. If this is true, it might establish a connection between the cremation pits and the later Indians of the same area, as it is believed that burial

sheds once extended from the lower part of the Columbia River well into eastern Washington.

A peculiar—and not well understood—feature of the cremation pits is the distinctive type of bone carving that is found with the partially burned grave offerings. It is a more elaborate form of art than is found locally under different circumstances, and there has been difficulty in assigning it to its proper place of origin. The other offerings are the usual things that may be found in other types of burials in the same region. Trade goods of European origin are generally lacking in the cremation pits, but a few pieces of copper suggest that this type of burial may have lasted into earliest historic times. When enough has been learned to place this burial practice in its proper perspective, it may give a better understanding of tribal distributions in prehistoric times.

The type of burial that the archeologist most often deals with in eastern Washington is inhumation in a pit. Such pits are just large enough to receive the body and are dug to a depth of from 1½ to 4 feet. The body is usually flexed to some degree by drawing the knees up toward the chest and folding the arms close to the body. The body may be wrapped in skins or mats and provided with an offering of tools and weapons. Sometimes the grave offerings were "killed" by breaking them when they were placed in the grave. Perhaps the Indians believed that, by doing this, the spirit of the tool or weapon would be released to accompany the spirit of the dead person on its journey into the world of the dead.

Pit burials were often marked by a pile of stones. These have settled into the earth until such graves now appear as low, grass-covered mounds. In the southern part of eastern Washington there was the added refinement of placing cedar planks upright on both sides of the body. The planks were inclined toward each other until they touched at their upper ends to form a tentlike enclosure. They were long enough to project above the fill dirt where they were ceremoniously burned to ground level. A variation of the same practice is found in the Upper Columbia region, but here the planks are short and the tentlike enclosure was not made. These shorter planks were set upright in the fill dirt some distance above the body to make an oval or circular enclosure. Again, the planks projected above ground where they were fired and burned off. This Upper Columbia practice has been regarded as a degenerate form of the tentlike enclosure farther down the river. There is not at present any way of knowing how long burials of this kind were in use, but items of European manufacture among the grave offerings give evidence that the practice lasted into the time of white contact.

Rockslide burials are common east of the Cascades. Burials of this kind now appear as circular depressions at the base of talus slopes. The burials were made by removing enough rocks to prepare a cavity of suitable size. When the body was in place it was covered

with enough rocks to protect it from animals. An upright stake was often planted among the rocks to mark the grave. As European trade goods are found in a high percentage of rockslide burials, there is some reason to believe that they may be later in time than other burial types. However, it must be considered that rockslide burials have less protection from the elements and do not last as long as pit burials. Therefore, it is possible that only the more recent rockslide burials have survived.

To avoid leaving the impression that the summary given here on burial practices is complete, it should be stated that only a few of the more outstanding features have been reviewed and that many of the variations and details have not been mentioned.

The problem of house remains has confronted all archeologists who work with the later material in eastern Washington. At the time of white contact the typical dwelling of the area was the mat lodge. It consisted of a frame of light poles which was erected over a pit that was excavated to a depth of about 18 inches (fig. 27). This

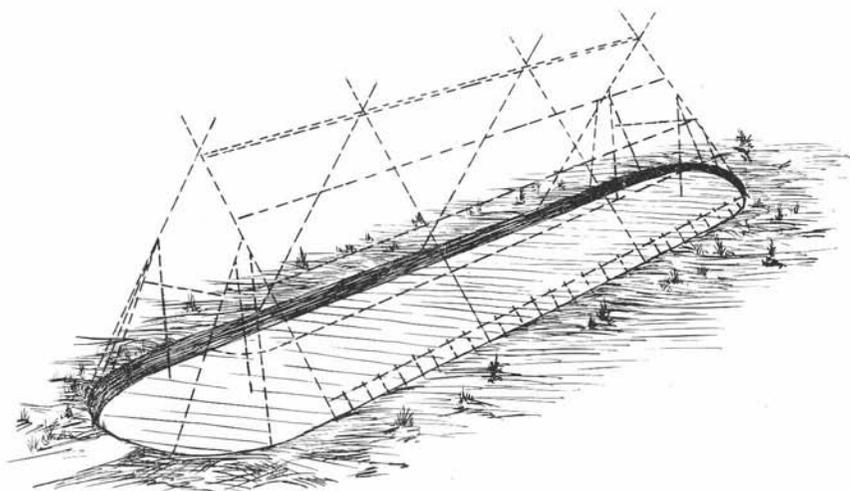


FIGURE 27.—Sketch showing how the frame for a mat-covered lodge was erected over an excavated pit.

was covered with rush mats to the ridgepole, where an opening was left for the smoke to escape. When its lower portion was banked with earth, the structure provided adequate winter quarters.

There is some information that a few Indians in the extreme north and perhaps again in the extreme south of eastern Washington were spending the winter in the semisubterranean earth lodge or pit house at this time. Among those using the mat lodge were some who recalled that their people formerly used the pit house, but had given it up in favor of the mat lodge. The pit house is generally described as a framework of poles and timbers over a deeply

excavated pit. The framework was covered with branches and grass over which was heaped a thick layer of dirt. Such quarters were about half underground, and from the outside they looked like a small hill of dirt. A hatchway was left open as an entrance way, and it also served to carry off the smoke from the fire. When lined with mats and heated, these dwellings remained comfortably warm through nights of severe cold. Figure 28 shows the structure and pit

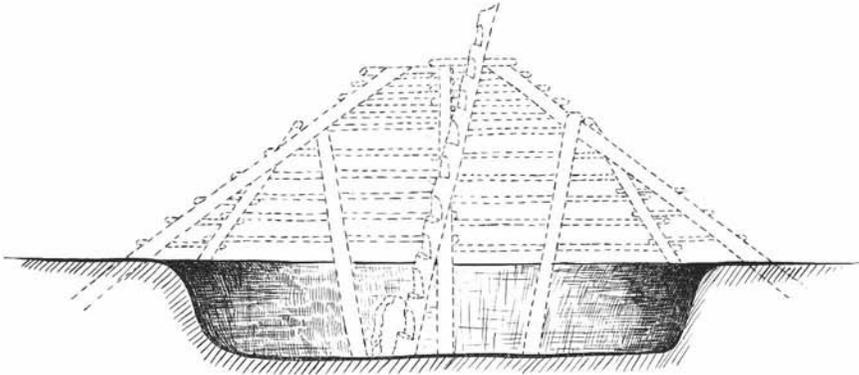


FIGURE 28.—Sketch showing how the frame for a pit house was erected over an excavated pit.

of the type of house used in British Columbia. They were in general use until much later there, and in relatively recent times it was not difficult to find their ruins still standing. The ethnographic data on the pit houses of Washington indicate that they differed from the British Columbia example in several details of their construction, but the example shown illustrates the basic idea involved. The notched timber which extends from the floor to the central hatchway of this example is a crude ladder by means of which the occupants went in and out.

As the superstructures of both types of houses are rotted away and gone, the archeologist can only look for some evidence of the pits they were built over. Being only a foot or 18 inches in depth, most of the pits for the mat lodges have been obliterated by wind and rain. Now and then they still can be recognized, and a few have been excavated. These pits vary greatly in size. They may be as much as 20 feet wide and are sometimes more than 60 feet long. When excavated, little if anything is found in them. As a general rule, trade goods of white manufacture are found among the few artifacts they contain. On the basis of the archeological evidence, it would appear that the mat lodge is always quite late in time, but before jumping to such a conclusion it is necessary to consider a few relevant facts. According to information provided by the ethnographers, the mat lodge was dismantled each spring when the exodus from the winter village began. The lodges were put up again

after the movement back to the winter village in the fall, but they were not erected over the same pits as in the winter before. Each family was always looking for a more favorable spot than the one it had the previous winter, and usually a new pit was dug. With such shifting around, it is unlikely that any one spot was used as the floor of a mat lodge long enough for it to become very rich in artifacts. Moreover, because the pits were always shallow, it is possible that only the later locations have been found and excavated. The older pits no doubt are less distinct and probably escape recognition. Such problems have made it difficult to assign the mat lodge to its proper place in time. So far, archeology has contributed very little to knowledge of the mat lodge. The details of the wooden structure are known only from the ethnographic data.

When we consider the pit house, the ethnographic data are more meager. Here again, the results of archeology have been disappointing in most respects, but archeological surveys have shown at least that the pit house has a wider distribution than was formerly known. Wherever archeologists have worked in eastern Washington since the Second World War, an increasing number of pit-house depressions have been discovered. The archeological distribution of the pit house has been extended across the Cascade Mountains to where it has been found on the Lewis River. There is good reason to believe that at one time in the past it was the typical dwelling of eastern Washington.

As in the case of the mat lodge, the pit is the only thing left to indicate the former site of a pit house. What archeologists look for is a depression in the ground similar to that in figure 29. Very often several of these house pits are found together at the site of an old village. Most of them are nearly round in outline. Some may be 20



FIGURE 29.—Sketch showing how a house-pit depression might look to the archeologist. A depression in the ground is all that is left to mark the former location of such a dwelling.

feet or less in diameter and others may be more than 40 feet across. Some may still be as much as 5 feet deep. Others may not be as deep, either because they are older and have gradually become filled up, or because they were not dug quite as deep in the first place.

As a rule, this type of pit is rich in archeological material of all kinds. Quarters of this kind were not relocated every fall as was the mat lodge but were returned to year after year. Most of them contain abundant evidence of use, but the artifacts from these pits unfortunately are not distinctive of this mode of living, and it has not been possible to determine how long ago they came into use or who in particular used them. However, they rarely contain goods of white manufacture. This knowledge provides good evidence that the pit house had gone out of general use before the time of white contact.

It is generally believed that the pit house was replaced by the rectangular mat lodge, but at the present time there is no way of knowing why or when the mat lodge came to be the preferred dwelling. It has been suggested that use of the mat lodge might have been started in this region at the same time as the introduction of the horse. The Indians became more mobile after they got horses, and as the mat lodge is a less stationary type of dwelling, it would be better adapted to a more mobile way of life. On the other hand, there are those who think that the use of a mat-covered dwelling is not necessarily later than the pit house. This is because excavations of pit-house depressions have always failed to uncover any worthwhile evidence of posts or rafters that might have supported an earth-covered roof. It is reasoned that such timbers would have been heavy enough to withstand the rigors of time and that some evidence should be left of them. The lack of such evidence suggests that only a light framework of poles was used which was covered with mats and not a heavy roof of dirt. Such an interpretation would remove the deep, circular pits from the earth-lodge category and relegate them to a variation of the mat lodge. Faced with a number of problems for which sufficient data are still lacking, Washington archeologists are offering ideas of this kind for their fellow workers to accept or reject as more information comes in. It has not been possible to note many significant differences in the stone artifacts of the later period in eastern Washington, but it is known that house types have changed in this period, and they will therefore continue to be an interesting and important problem.

SOME GENERAL FACTS INDIAN ROCK PAINTINGS

The paintings and outlines sometimes seen on the face of a cliff are often called Indian writings. They are known to anthropologists as pictographs and petroglyphs. Pictographs were done with native paints. Petroglyphs were pecked into the rock by abrading it with another stone. Sometimes these grooved outlines were filled with paint, and at other times they were left plain. Neither has contributed much to any better understanding of past Indian life.

Contrary to much popular and romantic belief, Indian rock writings are not always direction pointers, location markers, or a primitive means of communication. They can be compared with things we see done by people in our own society, such as initials on trees, or slogans, letters, and dates on the sides of buildings and rocks along the highways. We can read these with some meaning because in our society there is general agreement as to what the letters and figures stand for. The Indians could not communicate like this simply because they had no similar agreement upon any set of marks. When an Indian drew something on a rock, it had some meaning only to him or his immediate group. The present-day Indians are not able to find meaning in the figures because the people who drew them died before the present Indians were born.

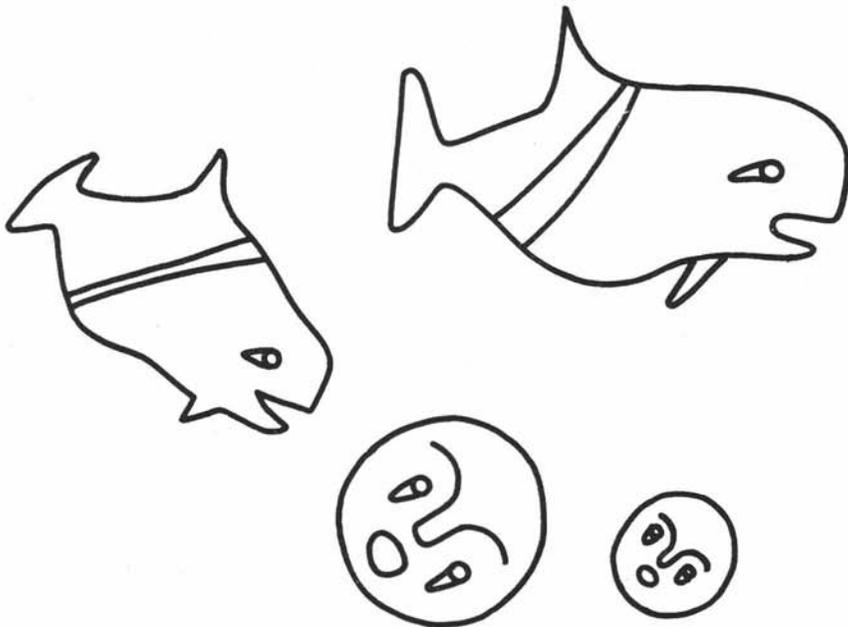


FIGURE 30.—Petroglyphs on the coast of the Olympic Peninsula, Washington.

This is not to suggest that they are the work of a long-forgotten people. There is no reason to believe that most of this work has more than moderate age.

Occasionally the present Indians do recognize some of the figures. A case in point is the shape of a whale in figure 30, which shows petroglyphs from the Washington coast. This creature is recognized by its emphasized dorsal fin as being the killer whale. The killer whale was commonly used as a crest or group symbol along the Northwest coast. It had about the same function in Indian society as a coat of arms has in ours. A common, but less specific, figure found in eastern Washington is the sunburst. It is a circle or oval which is given radiating lines and dots, as seen in figure 31, which shows a group of petroglyphs from near Yakima.

There are some ethnographic data which indicate that other figures were sometimes made to represent the artist's guardian

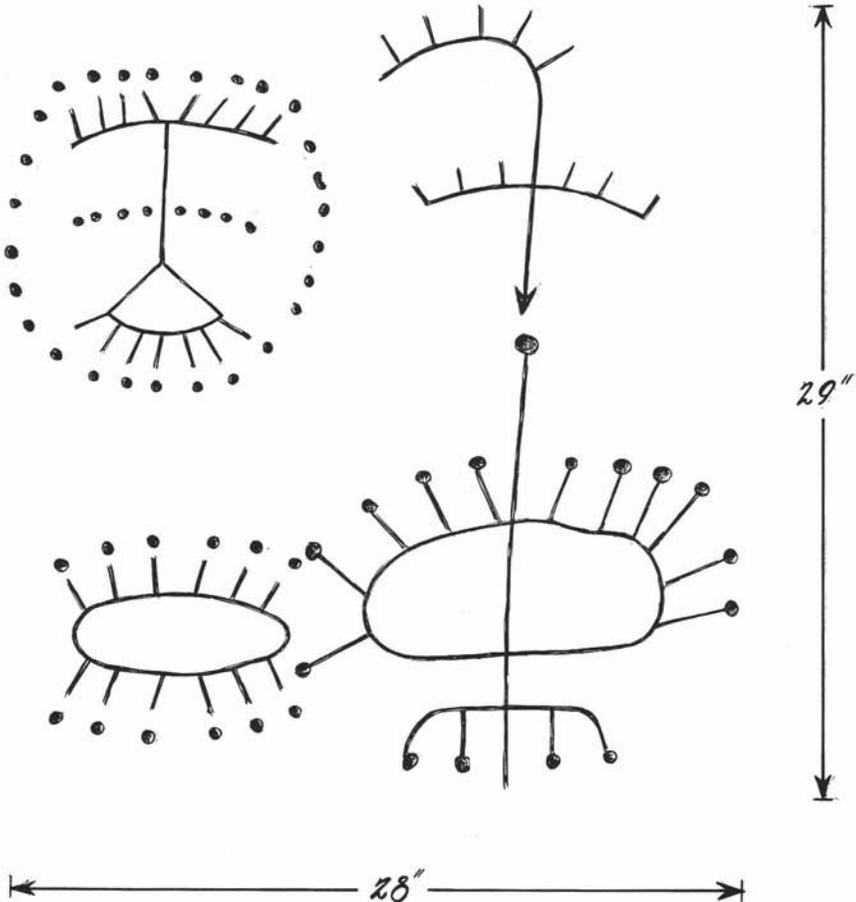


FIGURE 31.—Petroglyphs near Yakima, Washington.

spirit. According to the Indian religion, a guardian spirit was a nonhuman spirit-helper which every man sought to obtain through a vision as a lifelong companion.

All sorts of designs and human and animal figures can be found in pictographs and petroglyphs. Some similarities have been noted between these and the art that the Indians left behind in archeological sites. On the more speculative side, it is possible that native superstition prompted some of the animal figures. A man might draw the figure of a deer in the hope that it might bring one near so he could kill it. All things considered, it is best to minimize the interpretation of all pictographs and petroglyphs.

NATIVE ART

Objects of sculptured stone which represent birds and animals are found to indicate archeologically that a highly developed art in



FIGURE 32.—Prehistoric stone sculpture in the form of a seated human figure bowl.

stone carving once flourished over a wide area. The usual emphasis is on the head and facial features at the expense of the rest of the body. An example might be a round stone bowl which has a good likeness of an owl's head in rather low relief on one side and the tail on the other. The bowl itself would be in place of the bird's body. Such bowls may have seen ceremonial use, but it is not unlikely that they were involved in the daily round of food preparation. Seated human figure bowls (like the one in figure 32) occur in northwestern Washington, where they were apparently in ceremonial use in historic times. More needs to be known about the distribution and antecedents of this art. Its age is unknown. Several groups of the later Indians of the region were in the habit of making wood carv-

ings but did not practice this type of stone sculpture. It is doubtful that the art in wood developed from the stone sculpture. There is a possible, but not verified, relationship of the stone sculpture with the carved whale bone clubs (fig. 33) that were used by the historic Indians of the coastal area.

Most of the other art work from archeological sites follows the historic Indian pattern more closely. Typical west of the Cascade Mountains is the strong tendency toward realistic relief carvings in wood and bone. East of the Cascades the tendency is toward the simple geometric patterns of incised lines which so often decorate a digging stick handle made of antler or a tubular pipe made of stone.

MORE ABOUT STONE ARTIFACTS

Although this outline of Washington Indian life is based on archeology, it has not included much detailed description of artifacts. One reason is that to list and describe them all would take too long. Another reason is that an effort has been made to show how the archeologist regards artifacts as a means to an end rather than as an end in themselves. He digs artifacts out of the ground, not because

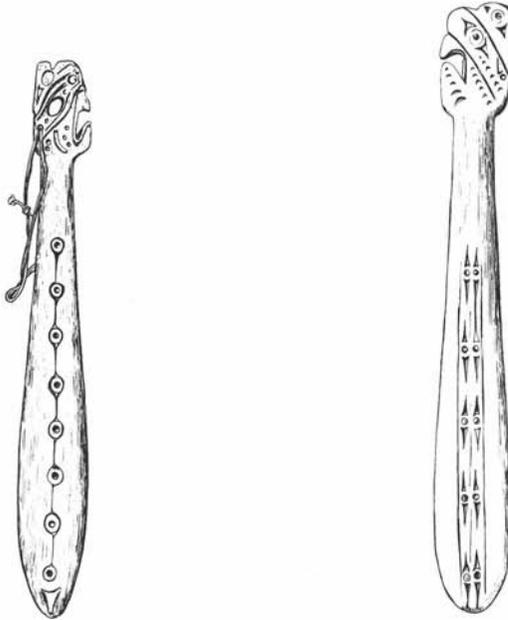


FIGURE 33.—Whale bone clubs. $\frac{1}{8}$ natural size.

they are antiques, but because they help fill out unwritten history. If the opposite were true, archeology would be antiquarianism (which is merely the collecting of old things) and it would not be a science.

It would not be amiss here to make a few comments on stone tools in order to set the record straight on a few popular misconceptions. The technique of flint chipping has been a lost art in this region for a long time. There is a widespread but erroneous belief that flint was chipped with heat and cold water. It is commonly believed that when the rock was heated, drops of cold water were used to remove the flakes. Even some of the older Indians now believe this. The actual method is divided into percussion flaking and pressure flaking. To make an arrow point, a piece of suitable material was struck a sharp blow with another piece of rock to drive off a flake of the approximate size needed. This is called

percussion flaking. If only a rough point was wanted, the flake was given further treatment of the same kind. A heavy blow would drive off a coarse flake and a light blow would remove a finer one. It is the nature of certain kinds of rock to flake in this manner. The kind that was used for chipped tools would give off a clean flake when struck. Rocks such as granite will merely crumble when struck. This is why granite was not used for arrow points. Pressure flaking was used to give tools a fine edge or a more finished appearance. After an arrow point was given its gross outline by the percussion method, it was held in the palm of one hand while a pointed tool of bone or antler was pressed against it to remove finer and better controlled flakes. Some tools and weapons were pressure flaked all over to give a smoother finish.

It takes time to master the technique of flint chipping, but once it is learned, the method is fast. Indians out hunting have been known to carry a pouch containing extra pieces of flint and a flaking tool. They could chip out an arrow point in a very few minutes when it was needed. When their flint knives needed sharpening, they could give them a freshly flaked edge just about as fast as a steel knife can be sharpened on a whetstone.

Knowledge of the technique of flint chipping comes from the reports of early travelers and firsthand observation of the methods used by primitive peoples of recent times in other parts of the world. Any number of white men of the present day can demonstrate the proper method of flint chipping, and many of them are able to make arrow points that are indistinguishable from the best archeological specimens.

There are a number of common errors in the identification of stone tools. Archeologists seldom use the term "spearhead" in

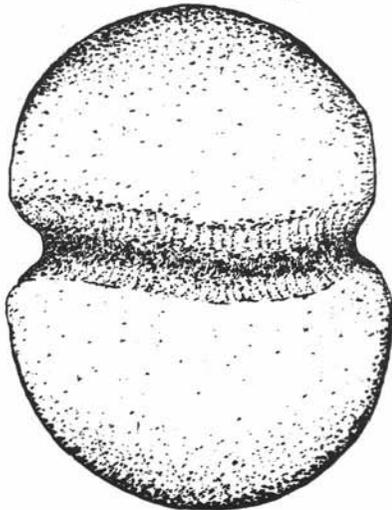


FIGURE 34.—Grooved stone net weight.

describing artifacts from Washington. Some spearheads were used, but artifacts like those shown in the top left in figure 24 are referred to as blades. The Indians needed knives just as we do, and most pieces of this kind were put to such use. Although most long, slender artifacts of chipped stone are popularly called spearheads, in most instances they are merely knife blades. Many plain flakes like the one shown in figure 25, A, were also used as cutting tools.

Hatchets or tomahawks were not used by the Washington Indians. Artifacts which are

mistaken for them are actually stone adze blades that were used in woodworking. Another misconception is that stones with a groove around them were all hafted and used as war clubs. Most of these turn out to be net sinkers. The indentation, which looks like a place for the end of a wooden handle, was made to receive the knot of the rope which attached the sinker to the net.

Still another error which should be mentioned is the notion that stone moccasin lasts were used. Such items have not appeared in the archeological literature, and they are not reported ethnographically.

CONCLUSIONS

It is the nature of archeology that there is no way of knowing what the returns will be for a given amount of time and effort. Archeologic studies in western Washington have been confined mostly to the region of northern Puget Sound, and, despite the fact that investigations there have not been great in number, the results have been favorable to at least a partial reconstruction of past events. When a few of the sites on the coastline have been excavated and work has been done in the southwestern part of the state, it is possible that knowledge of the western side of the Cascades will expand rapidly.

Eastern Washington has been worked more intensively and, although a large number of artifacts have been recovered, there is a peculiar sameness in the material that has made interpretation more difficult. As most of the work has been done along the Columbia River, the situation might become more favorable when work can be done along the reaches of its tributaries. The material now at hand indicates a long period of relative stability in eastern Washington. Even if this should continue to be the case, there is still much to be learned about the former relationships of eastern Washington groups, and also the relationships of these groups with those west of the Cascades.

Archeologists realize that they must do careful and thorough work, recording every detail and fragment of information. Archeology by its very nature is destructive; that is, the process of excavation destroys the site as the workers proceed. It is therefore essential that all artifacts be precisely located horizontally and vertically; that detailed cross-section diagrams of the stratigraphy revealed in the trench walls be drawn; that numerous photographs be taken of artifacts, features, and the progress of the excavations; in other words, nothing of significance should be overlooked. The reason for this is that, when the archeologist returns to his laboratory, he must be able to reconstruct the entire site and excavation on paper so he can see and demonstrate the various relationships of the material within the site. For example, the careful excavations

at the Wakemap Mound near The Dalles enabled the archeologists to present a reconstruction of the way of life of the people who occupied the site during the hundreds of years it took to build up this huge mound of cultural debris. They could demonstrate which tools were earlier in time than others; they could see when the rich art style of this area began to develop; and they could describe changes in economy, how the houses had been built, and even something about the internal arrangement of the houses.

This is why the archeologist tries to discourage digging in archeological sites by persons who are interested only in collecting Indian artifacts for their private collections. The amateur collector is rarely willing to take the care to record the data necessary for a complete understanding of the site and the culture of the people who occupied it. The years of uncontrolled amateur digging at Wakemap Mound have produced nothing that can contribute to our understanding of this important site. The most that can be said about the thousands of artifacts that amateur collectors have removed from the site is that they came from Wakemap Mound.

Those people without professional training who wish to participate in archeological excavations should join a responsible archeological organization such as the Washington Archeological Society. Organizations of this type are to be found in most states. The membership is made up of persons who have a genuine interest in archeology, not just the collecting of artifacts. In such an organization a member learns the proper methods of excavation while participating in one of the Society's excavations.

Archeological sites are not an inexhaustible resource. The building of dams, highways, railroads, factories, and houses, plus the greatly increasing activities of amateur collectors are bringing about the rapid disappearance and destruction of archeological sites in our state. Much of this destruction is unavoidable, but the willful destruction of archeological remains by persons interested only in building up private collections should be discouraged.

The archeological resources of our state belong to the people of our state and nation and should be developed properly for their greatest interest and enjoyment.

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LAWS PERTAINING TO DESTRUCTION
OF ARCHEOLOGICAL SITES

SESSION LAWS, 1941.

CHAPTER 216.

[S. B. 253.]

ARCHAEOLOGY.

AN ACT relating to archaeology; forbidding the destruction of cairns and graves of native Indians and glyptic or painted records of prehistoric tribes or peoples; defining crimes and providing punishment therefor.

Be it enacted by the Legislature of the State of Washington:

Mutilation
prohibited.

SECTION 1. Any person who shall willfully remove, mutilate, deface, injure or destroy any cairn or grave of any native Indian, or any glyptic or painted record of any prehistoric tribes or peoples, shall be guilty of a gross misdemeanor.

Permission to
remove for
scientific
purpose.

SEC. 2. Any archaeologist or interested person may copy and examine such glyptic or painted records or examine the surface of any such cairn or grave, but no such record or archaeological material from any such cairn or grave may be removed unless the same shall be destined for exhibit and perpetual preservation in a duly recognized museum and permission for scientific research and removal of specimens of such records and material has been granted by the President of the University of Washington or the Washington State College or a duly designated member of either president's faculty.

Passed the Senate February 21, 1941.

Passed the House March 12, 1941.

Approved by the Governor March 24, 1941.

Public Law 209

AN ACT

For the preservation of American antiquities.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That any person who shall appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated

on lands owned or controlled by the Government of the United States without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated, shall upon conviction, be fined in a sum of not more than five hundred dollars or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court.

SEC. 2. That the President of the United States is hereby authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected: *Provided*, That when such objects are situated upon a tract covered by a bona fide unperfected claim or held in private ownership, the tract, or so much thereof as may be necessary for the proper care and management of the object, may be relinquished to the Government, and the Secretary of the Interior is hereby authorized to accept the relinquishment of such tracts in behalf of the Government of the United States.

SEC. 3. That permits for the examination of ruins, the excavation of archaeological sites, and the gathering of objects of antiquity upon the lands under their respective jurisdictions may be granted by the Secretaries of the Interior, Agriculture and War to institutions which they may deem properly qualified to conduct such examination, excavation, or gathering, subject to such rules and regulations as they may prescribe: *Provided*, That the examinations, excavations, and gatherings are undertaken for the benefit of reputable museums, universities, colleges, or other recognized scientific or educational institution, with a view to increasing the knowledge of such objects, and the gatherings shall be made for permanent preservation in public museums.

SEC. 4. That the Secretaries of the Departments aforesaid shall make and publish from time to time uniform rules and regulations for the purpose of carrying out the provisions of this Act.

Approved, June 8, 1906 (34 Stat. L., 225).

UNIFORM RULES AND REGULATIONS PRESCRIBED BY
THE SECRETARIES OF THE INTERIOR, AGRICULTURE,
AND WAR TO CARRY OUT THE PROVISIONS OF THE
"ACT FOR THE PRESERVATION OF AMERICAN
ANTIQUITIES," APPROVED JUNE 8, 1906
(34 STAT. L., 225).

1. Jurisdiction over ruins, archeological sites, historic and pre-historic monuments and structures, objects of antiquity, historic landmarks, and other objects of historic or scientific interest, shall be exercised under the act by the respective Departments as follows: By the Secretary of Agriculture over lands within the exterior limits of forest reserves, by the Secretary of War over lands within the exterior limits of military reservations, by the Secretary of the Interior over all other lands owned or controlled by the Government of the United States, provided the Secretaries of War and Agriculture may by agreement cooperate with the Secretary of the Interior in the supervision of such monuments and objects covered by the act of June 8, 1906, as may be located on lands near or adjacent to forest reserves and military reservations, respectively.

2. No permit for the removal of any ancient monument or structure which can be permanently preserved under the control of the United States *in situ*, and remain an object of interest, shall be granted.

3. Permits for the examination of ruins, the excavation of archeological sites, and the gathering of objects of antiquity will be granted by the respective Secretaries having jurisdiction, to reputable museums, institutions, or to their duly authorized agents.

4. No exclusive permits shall be granted for a larger area than the applicant can reasonably be expected to explore fully and systematically within the time limit named in the permit.

5. Each application for a permit should be filed with the Secretary having jurisdiction, and must be accompanied by a definite outline of the proposed work, indicating the name of the institution making the request, the date proposed for beginning the field work, the length of time proposed to be devoted to it, and the person who will have immediate charge of the work. The application must also contain an exact statement of the work, whether examination, excavation, or gathering, and the public museum in which the collections made under the permit are to be permanently preserved. The application must be accompanied by a sketch, plan or description of the particular site or area to be examined, excavated or searched, so definite that it can be located on the map with reasonable accuracy.

6. No permit will be granted for a period of more than three years, but if the work has been diligently prosecuted under the permit, the time may be extended for proper cause upon application.

7. Failure to begin work under a permit within six months after it is granted, or failure to diligently prosecute such work after it has been begun, shall make the permit void without any order or proceeding by the Secretary having jurisdiction.

8. Applications for permits shall be referred to the Smithsonian Institution for recommendation.

9. Every permit shall be in writing and copies shall be transmitted to the Smithsonian Institution and the field officer in charge of the land involved. The permittee will be furnished with a copy of these rules and regulations.

10. At the close of each season's field work the permittee shall report in duplicate to the Smithsonian Institution, in such form as its secretary may prescribe, and shall prepare in duplicate a catalogue of the collections and of the photographs made during the season, indicating therein such material, if any, as may be available for exchange.

11. Institutions and persons receiving permits for excavation shall, after the completion of the work, restore the lands upon which they have worked to their customary condition, to the satisfaction of the field officer in charge.

12. All permits shall be terminable at the discretion of the Secretary having jurisdiction.

13. The field officer in charge of land owned or controlled by the Government of the United States shall, from time to time, inquire and report as to the existence, on or near such lands, of ruins and archeological sites, historic or prehistoric ruins or monuments, objects of antiquity, historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest.

14. The field officer in charge may at all times examine the permit of any person or institution claiming privileges granted in accordance with the Act and these rules and regulations, and may fully examine all work done under such permit.

15. All persons duly authorized by the Secretaries of Agriculture, War, and Interior may apprehend or cause to be arrested, as provided in the act of February 6, 1905 (33 Stat. L., 700), any person or persons who appropriate, excavate, injure or destroy any historic or prehistoric ruin or monument, or any object of antiquity on lands under the supervision of the Secretaries of Agriculture, War, and Interior, respectively.

16. Any object of antiquity taken, or collection made, on lands owned or controlled by the United States, without a permit, as prescribed by the Act and these rules and regulations, or there taken or

made, contrary to the terms of the permit, or contrary to the Act and these rules and regulations, may be seized wherever found and at any time, by the proper field officer or by any person duly authorized by the Secretary having jurisdiction, and disposed of as the Secretary shall determine, by deposit in the proper national depository or otherwise.

17. Every collection made under the authority of the Act and of these rules and regulations shall be preserved in the public museum designated in the permit and shall be accessible to the public. No such collection shall be removed from such public museum without the written authority of the secretary of the Smithsonian Institution, and then only to another public museum, where it shall be accessible to the public; and when any public museum, which is a depository of any collection made under the provisions of the Act and these rules and regulations, shall cease to exist, every such collection in such public museum shall thereupon revert to the national collections and be placed in the proper national depository.

Washington, D. C., December 28, 1906

The foregoing rules and regulations are hereby approved in triplicate and under authority conferred by law on the Secretaries of the Interior, Agriculture, and War, are hereby made and established, to take effect immediately.

E. A. Hitchcock,
SECRETARY OF THE INTERIOR

James Wilson
SECRETARY OF AGRICULTURE

Wm. H. Taft
SECRETARY OF WAR