

PREHISTORIC PEOPLE OF THE NORTHERN SOUTHWEST



GRAND CANYON NATURAL HISTORY ASSOCIATION

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GRAND CANYON NATIONAL PARK
ARIZONA

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This bulletin replaces bulletin No. 7, "Prehistoric Man in the Southwest," published in August 1936. Since then new techniques, new ideas, exploration, and excavation of sites have thrown much additional light on the archeological picture of the Southwest. Bulletin No. 12 is completely rewritten to bring the subject up to date.

To Dr. Joe Ben Wheat we express our appreciation for the preparation of the manuscript. This was a task of large proportions; one involving the gathering of materials from many sources, proper interpretation, and presentation in a clear and simple manner.

The bulletins of the Association are published at irregular intervals, as new subject materials are ready for publication, or when, because of the accumulation of new and pertinent data, previous bulletins require revision.

The Association is a nonprofit organization, established to further interest and understanding of the historical and natural history features of Grand Canyon National Park. Its activities include publication of bulletins, establishment and maintenance of a reference library, and assisting in various ways the Naturalist Division of the National Park Service.

LOUIS SCHELLBACH
Editor and Executive Secretary

COVER ILLUSTRATION

Wupatki Ruin, Wupatki National Monument, Arizona

PREHISTORIC PEOPLE OF THE
NORTHERN SOUTHWEST

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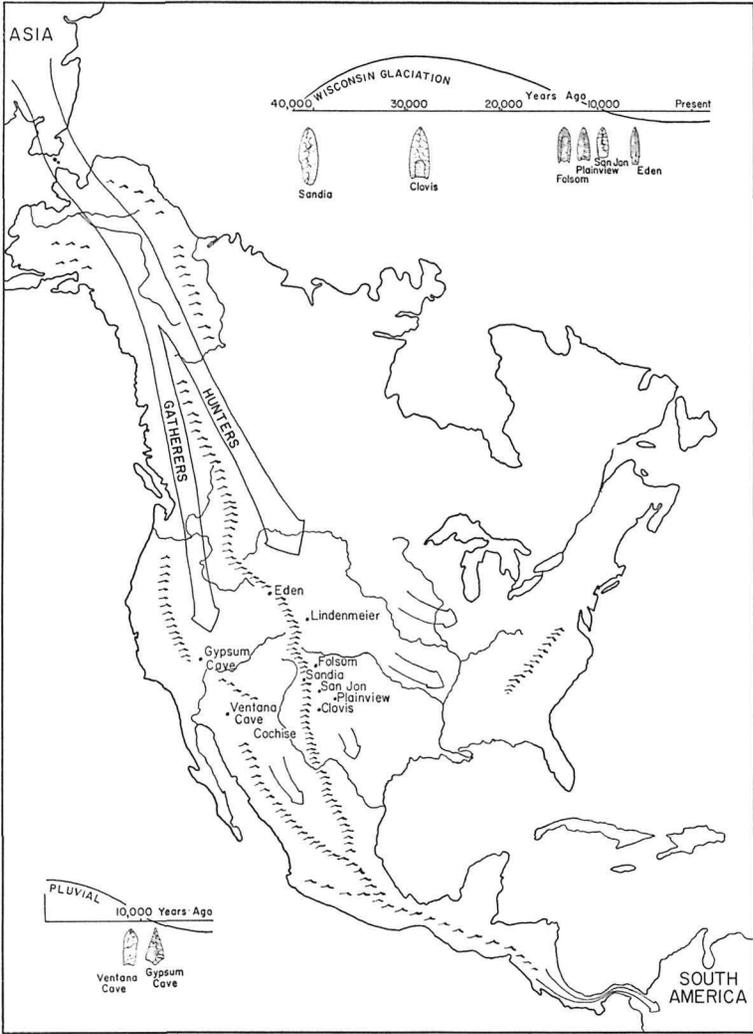
PREFACE

IN THIS BOOKLET I have presented the story of man's rise in time, his proliferation, and the growth of his various life ways in the Southwest as if it were a settled matter. In the main, I have followed standard interpretation, but because the story is more complex than could be clearly told in the few brief pages at my disposal, I have simplified and have attempted to point out the main trends of growth and change, and to present a living picture rather than recount the skeletal facts of archeology. In simplifying, I have committed numerous statements as if they were accepted facts when, in reality, some remain controversial or unsettled. I have not hesitated to insert my own interpretation of data where it appears more logical to me than a more widely accepted interpretation. Because your interest may have been aroused beyond the limited scope of this paper, I have appended a bibliography which will round out the picture, both as to the nature of our knowledge and as to the various interpretations deriving from it. So go to it, and—good reading!

I. ASIANS BECOME AMERICANS

NO FOSSIL MAN is known in the New World, so inevitably one must turn to the Old World to discover the ancestors of the American Indian. Most anthropologists—scientists who study the races, languages, history, and civilizations of man—believe that the pre-Columbian inhabitants of the Americas came from Asia. There are many cogent reasons for this belief. To begin, the term “Red Man” is a misnomer, for although Indians range from light to dark, the skin is never red but some shade of yellow-brown, like that of modern Asiatics. The Indian’s hair is usually straight, coarse, and black, and men normally have little beard—both strong Mongoloid characteristics. Many Indians, especially children, retain more than a trace of the epicanthic fold, the “slant eye” of modern Chinese and Japanese. Other physical traits such as tooth formation and blood types also proclaim the Indian an Asiatic.

However, these Mongoloid physical features are more characteristic of later migrants than of early ones, for there is evidence of much racial admixture in the earliest skeletons from America. Nearly all the earliest invaders appear to have had long, narrow skulls instead of the broad, roundish skulls of the Mongoloids. This does not weaken the evidence of Asiatic migrations, for we know that central and eastern Asia was a melting pot of the world’s peoples. The Caucasian, or White, race originated in southwest Asia, and the Australoid in southeast Asia. Negroid peoples who helped populate the vast network of Pacific islands moved through Asia on their way south and east. The true Mongoloid type is in reality a relatively late specialization, perhaps caused by inbreeding in near isolation. In the early Americans we have evidence of archaic White, Australoid, and Negroid strains, and so it would appear that men out of the melting pot of Asia moved north and east, as well as south and east. They may even have been pushed along by the growing strength and population of the surgent Mongoloids.



Map 1. Migration routes into America, and the succession of the hunting groups

We do not know precisely when the first migrant from Asia set foot in the New World, but the place, Bering Straits, seems definitely established. Here northeastern Siberia is separated from Alaska by only 56 miles of open water. In winter the water freezes over, making it possible to walk from Asia to North America. Summer travel by boat is common. But the earliest migrants walked across on dry land. During the last great interglacial period, which ended some 75,000 years ago, Asia and North America were connected by a land bridge. Animals wandered freely back and forth. Then the last of the great ice sheets began to form and push southward. North Germany, Denmark, and Scandinavia were covered by one glacial cap while a second one spread from the Alps, making an icy waste of much of central Europe. In North America much of the northern part of the continent was covered by several thousand feet of ice which spread as far south as Kansas and Nebraska. Farther south, cold wet periods, called Pluvials, were caused by the glacial advance. The water impounded in these ice sheets came from our ocean basins, lowering the sea level as much as 300 feet.

For 35,000 years the passage from Asia into the New World was blocked by ice. Then a temporary retreat in the glacial front opened a broad corridor to the south, both east and west of the Rocky Mountains. Perhaps 5,000 to 10,000 years passed; then the ice once more began to advance, and again the southward passage of man was blocked.

About 20,000 years ago the ice began its final retreat. As the glaciers thawed and moved northward, so did cold weather belts induced by the mass of ice. Once again a corridor was opened to man and to the animals he hunted. By 10,000 years ago the ice had retreated to about where we find it today. The release of water from the melting glaciers flooded the Asia-Alaska land bridge. Since then the migration of man has been across the ice of winter or by boat during the summer.

There were apparently two main migration routes into North America (Map 1). Most hunters seem to have traveled south along

the High Plains, through western Canada, Wyoming, Nebraska, eastern Colorado, and New Mexico, and the Staked Plains of Texas. At least, most of our evidence has occurred in these areas. At about the same time, or perhaps a little later, other peoples whose main dependence was on the natural harvest of the land—the seeds, nuts, fruits, and berries that abounded—seem to have traveled south through the intermontane plateaus west of the Rocky Mountains. Most of the evidence for these groups is found in eastern Oregon, Utah, southern California, and Arizona, and beyond into the Valley of Mexico. Many hunters and gatherers remained more or less fixed in an area, but others were forced to move on. Eventually some wandered through Central America into South America. Here, as in North America, man began to spread out. Throughout the New World the population increased through the centuries. Natural increase was augmented by later groups of Asiatics who, in ever mounting numbers, became Americans. When Columbus “discovered” America only a few short centuries ago, even the remotest and seemingly inhospitable places had been claimed as homeland by some tribe of a people he called “Indians.”

In the Southwest and the adjacent High Plains we find evidence of many early hunting and gathering groups. It is almost certain that during the temporary glacial retreat about 40,000 years ago men began to push their way south. Later, at Sandia Cave in New Mexico, some of these primitive hunters cooked their prey over stone-lined fireplaces. Here, too, they left some of the spearheads, knives, and scrapers they had used. From the Sandia deposit have come the bones of mastodon and mammoth, and extinct forms of horse, camel, and bison.

We do not know if, when the final ice push came, the Sandia people retreated south before the cold and wet glacio-pluvial weather. It may be that their descendants learned to make new kinds of spearheads, or that other peoples came into the High Plains when the corridor was open. Whatever the case, we find evidence of a new group of hunters whom we call Clovis, after a site

in eastern New Mexico where their remains have been found. Evidence of Clovis people has been found in several other places in the High Plains and in the Southwest; in Nebraska, Colorado, eastern and southern New Mexico, and southeastern Arizona. Usually the Clovis people hunted the mammoth, but animals similar to the musk-ox and other cold-loving forms were also taken. It would seem that these people lived during the coldest part of the glacio-pluvial period.

Following the Clovis hunters we find evidence of several groups who used different kinds of spears in their hunting. The most widespread and best known of these groups is named Folsom, for Folsom, New Mexico. While the last ice cap was melting, Folsom hunters ranged the High Plains from northern Mexico to northernmost Alaska. They may have migrated from Asia after the ice opened the last corridor, or they may be descendants of the Clovis hunters. Other hunters who lived at the same time are called Plainview, first found near Plainview, Texas, and San Jon, named after San Jon, New Mexico. These groups hunted the great bison or buffalo.

In what are now the deserts of California, Nevada, and Arizona, other groups pursued their livelihood. During late glacio-pluvial times there were grassy, well watered valleys, with numerous ponds and tree-bordered streams. Both hunters and gatherers lived in this area. At Gypsum Cave in southeast Nevada were found the tools and weapons of men who hunted the slow, ungainly ground sloth, and perhaps horses and camels as well. Another place where early hunters camped is Ventana Cave in southern Arizona. About the same time these hunters were flourishing, a group of gatherers was living in southeastern Arizona and southwestern New Mexico. We call these people Cochise, the earliest of which are the Sulphur Spring Valley people.

The association of man or his weapons with bones of animals which have become extinct implies a certain degree of antiquity. The mastodon, mammoth, certain species of horse, camel, antelope,

giant ground sloth, tapir, musk-ox, giant bison, dire wolf, and many other animals once lived in North America. Then, within a few thousand years they became extinct. We do not know why, but their extinction seems to be connected in some way with the final retreat of the glaciers. In any case, the presence of these animal bones with man's remains serves the archeologist as a convenient time marker. In general, most of the animals seem to have become extinct by about 10,000 years ago, but there is evidence that a few lingered on in favored or sheltered areas for a while longer. However, the extinction of these animals apparently did not change the lives of the hunters very much, because many other animals either did not die out or migrated into the Americas at this time. Deer, elk, mountain sheep, pronghorn antelope, and such small animals as rabbit and prairie dog became prey to the hunters; and the gatherers soon learned to utilize the new kinds of vegetation. Thus, man continued to live in much the same way as he had before.

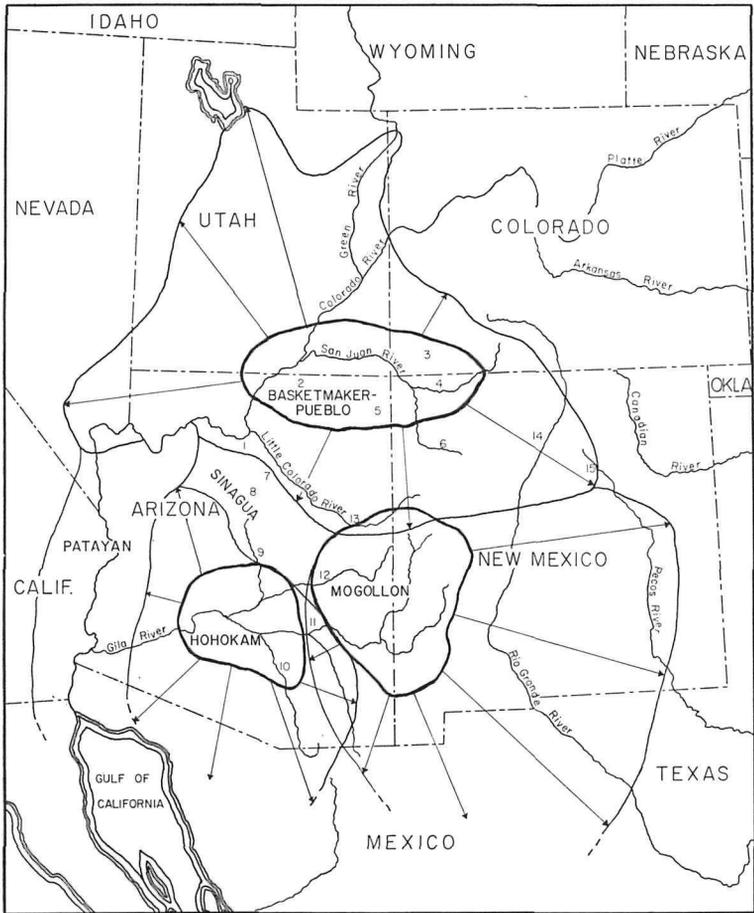
Throughout the Southwest later groups of hunters, such as the Eden people, followed the early ones. Even the people who had been primarily gatherers turned more to hunting to supplement their diet. Perhaps the progressive drying up of the climate following the glacio-pluvial period made gathering less satisfactory. The Sulphur Spring group of the Cochise people apparently had lived mainly by gathering, but the later Chiricahua and San Pedro groups became hunters almost as much as gatherers. The San Pedro people lived in small, shallow pits cut into the earth and crudely roofed to form a house. They made long, slender spear points with deep notches near the base of the blade; they ground the produce of the natural harvest of the land on large, deep, basin-shaped milling stones. It was the San Pedro people who first welcomed the agricultural revolution into the Southwest.

II. EARLY SOUTHWESTERNERS

THE SOUTHWEST, as considered by archeologists, consists of Arizona, New Mexico, and adjacent parts of all states bordering them, including the Mexican states of Chihuahua and Sonora (Map 2). Three main types of land are found in this area. Running diagonally from northwest to southeast is a belt of mountains and narrow valleys, heavily timbered and well watered in the north but less so in the southeast. This portion is called the Mogollon Rim. To the north is the Colorado Plateau, with long stretches of level land broken by mesas, cliffs, and occasional volcanic fields. Except for the highest parts, this area receives insufficient rain which soon evaporates or drains away in deep channels and canyons. Most of the area is covered by sage brush or other low shrubs, with a few juniper and pinyon trees dotting the plains. Pine and fir grow only on the highest parts of the plateau. South of the Mogollon Rim is the Sonoran Desert, where many separate mountain ranges are divided by long valleys which sometimes have an arroyo or a usually dry stream bed running through them. Some of the valleys have no outlet at all and form shallow desert lakes or playas which hold water during the rainy season but are dry most of the year. Many cacti and drought resistant shrubs cover the land. Permanent rivers rising in the mountainous belt cross this desert, their courses bordered by willow and cottonwood trees.

This is the Southwest as we know it today, and as the Indians knew it three or four thousand years ago.

The last Cochise gatherers and hunters, the San Pedro people, lived in the Sonoran Desert and the southern part of the Mogollon Rim country. They were the first Southwesterners to raise corn. Perhaps 5,000 years ago or more, some primitive genius had taken a wild grass that grew in northern South America or in the highlands of Guatemala or Mexico, and domesticated it into the plant we know today as maize or corn. Use of this plant had spread



Map 2. Archeological centers of the Southwest

Heavy inner boundaries denote centers at about A.D. 300, lighter outer boundaries at about A.D. 1000. The numerals indicate archeological sites easily visited today. (1) Tusayan Ruin, Grand Canyon National Park; (2) Kayenta Ruins, Navajo National Monument; (3) Mesa Verde National Park; (4) Aztec National Monument; (5) Canyon de Chelly National Monument; (6) Chaco Canyon National Monument; (7) Wupatki National Monument; (8) Walnut Canyon National Monument; (9) Tuzigoot, and Montezuma's Castle National Monuments; (10) Casa Grande National Monument; (11) Tonto Cliff Dwellings National Monument; (12) Kinishba Arizona State Monument; (13) Petrified Forest National Monument; (14) Rito de los Frijoles, Bandelier National Monument; (15) Pecos Pueblo New Mexico State Monument

north, changing and enriching the civilization of all who accepted it, because it meant a more stable economy and a surplus of food. Finally corn came to the San Pedro people. In Bat Cave in west-central New Mexico a very primitive type of corn was grown about 2,000 years before Christ. The cobs were small, each kernel wrapped in a separate sheath or glume, and it would pop like popcorn. At first the people used this plant only to supplement the wild foods they gathered and the animals they hunted, but gradually it became their main food. Beans and squash were introduced about 1,000 B.C., but hunting continued as a necessary part of the food quest.

In both eastern and western parts of the San Pedro country corn became the main food staple, but because the mountain environment differed from the desert, different ways of life had grown up. The San Pedro people learned to make pottery 300 to 500 years B.C., and from that time on we call the eastern group Mogollon. The earliest pottery was brown or red. Some was rough and poorly made, but from the beginning, much of it was well made, smoothed, and polished. Soon they began to decorate the vessels with broad, chevronlike patterns in red over the brown background, polishing over the paint to fix the design firmly to the surface.

In their narrow mountain valleys the Mogollon had to work hard for their living. There was little land in the valley bottoms to grow their corn, beans, and squash. Often a sudden storm and a swift flood must have swept away their carefully planted fields, forcing them to gather the wild harvest and to hunt for their food. Life was seldom easy, and throughout time they remained a simple people.

The early Mogollon built villages on ridges or terraces above streams, perhaps for defense, but also because farm land was too precious to be encumbered with buildings. Houses were roundish or irregular pits dug into the ground and entered by an inclined passageway to the east. The roof rested on a framework of upright posts covered with brush or matting and plastered with mud. Many

later houses were rectangular. Most villages had one pithouse larger than the others, which apparently served as a ceremonial house. Thus it appears that some sort of community religious life was carried on.

Gradually Mogollon pottery improved. Decoration became more refined and complex; painting techniques improved and finer lines were drawn; but patterns remained essentially geometric until late in Mogollon history. As for stone work, most tools were made just well enough to do the necessary job. Simple pieces of flaked stone served as axes; rough hammers or mauls were made by pecking a groove around a suitably shaped stone. Hoes for tilling the soil were thin slabs of hard rock with one edge sharpened by flaking. For hunting they used the bow and arrow, perhaps the atlatl or spear-thrower, and various kinds of snares and traps. Corn milling stones or metates were rough, unshaped boulders with an open-ended, troughlike depression ground into the top. Deep depressions were pecked into boulders to make mortars for preparing certain kinds of seed; crudely carved stone bowls were perhaps used for pulverizing other things. A few ornaments such as beads and pendants were made of stone and shell. The finest of their stone work was the tubular pipe, probably used for ceremonial smoking. Awls for sewing and basketry, whistles, beads, tubes, and gambling pieces were made of bone. We know little of their textiles except that they used cotton cloth and made fine coiled basketry.

The Mogollon were of medium height and build, their heads broad and short. When they died a circular pit was dug between the houses and the tightly folded body placed in it. Sometimes a pottery vessel or two was set beside the body to serve its needs in the afterworld.

From their southern mountain homeland the Mogollon began to spread out. Some moved northwest along the mountainous belt, others went north through the valleys that cut into the southern edge of the Colorado Plateau. By 200 B.C. they had occupied Pine Lawn Valley in west-central New Mexico. Four hundred years

later they were living along the headwaters of the Little Colorado in the southern Plateau. Here they came into contact with people we know as Basketmakers, and undoubtedly influenced them in many ways. As centuries passed, the Basketmakers became Pueblos and gradually spread their way of life among the Mogollon. Intermingling and mixture of peoples and customs resulted in new groups and a new chapter in Southwestern prehistory.

In the desert lived the Hohokam. The origins of this group are not clear. Some archeologists believe they developed from the western San Pedro people, while others think their forerunners were peoples of the western deserts called Yuman or Amargosa. The key to successful living in a desert environment is water. The Hohokam solved the problem by digging ditches or canals. We have little knowledge of their first use of irrigation. Probably they dug crude, shallow channels to divert runoff water over their corn fields, as the Papago do today. Between A.D. 500 and 700 or 800 they were constructing extensive irrigation systems that carried water from permanent rivers over miles of desert. Water was stored in large reservoirs until needed to flood the fields. Many irrigation systems used today in southern Arizona are merely the deepened and repaired canals made by the Hohokam a thousand years ago.

Agriculture and gathering were the foundation of Hohokam civilization. Many wild desert plants yield abundant food. Among those of the Sonoran Desert were several varieties of beans, called teparies. These were domesticated and added to the beans introduced from Mexico. Squash and cotton were also grown. Human figurines of clay may have been used in a fertility cult, much as were those to the south, to aid nature in the growing of crops. The combination of irrigation and extensive agriculture was reflected in the lives of the people, for it gave them leisure time to perfect the techniques and arts they possessed.

Hohokam houses were lightly constructed. They were houses built in a pit, rather than pithouses. Usually the entire house was built inside a shallow pit, with earth packed between the walls and

the side of the pit. The roof rested on upright posts set inside the room; walls were made of slender poles set close together and sometimes plastered. A short, hooded entry, sometimes with steps, was built on the east side. Early Hohokam houses were squarish, later ones rectangular, and finally somewhat oval. Several houses were grouped in villages. A remarkable thing about these villages is the trash deposits. Century after century people dumped refuse on the same pile until huge mounds were built up, often 15 to 20 feet high, dwarfing the houses by their bulk.

Some of the largest houses probably were ceremonial. One type of structure, the ball court, was almost certainly of this nature. Probably about A.D. 600 a ball game was introduced to the Hohokam from Central America where the Maya had long been playing it. The game was played in a walled court about 100 yards long, oriented east and west. Floor markers were placed at the center and near the ends of the court. In the Maya game, at the time the Spanish arrived, the idea was to knock a rubber ball through one of the vertical goals along either side of the court, feet, elbows, head, or shoulders being used for this purpose. About A.D. 1000 the court was shortened to about 35 yards and oriented north and south instead of east and west. Despite the tremendous labor necessary to build these courts, especially the early form, nearly 50 have been found in Hohokam country and the areas they influenced, as far north as Wupatki.

The Hohokam were the impressionists of Southwestern pre-history. Soon after they began to decorate their pottery they ceased to polish it and developed a characteristic style of design. Geometric, rectilinear designs were common but curvilinear patterns were also used. Scrolls, solid figures opposed to hatched ones, animal and bird figures in both negative and positive outline, and many other elements were used. Texture predominated. Later there was a return to geometric patterning, of panels of light and dark effects, and finally of designs suggesting woven fabrics. Throughout, designs were painted in red on a buff background.

The Hohokam were also master craftsmen in stone and shell. Even utilitarian objects were finished with care and precision, and frequently ornamented. Metates were made like a trough open at both ends, and were well shaped inside and outside. Sometimes manos or hand stones were grooved along the edges to provide a better grip. As with the Mogollon, mortars were used, but most were well shaped, as were the pestles used with them. Small, flat, rectangular stones, called palettes, were made. Beautifully finished and polished bowls and dippers of hard stone were made; sometimes a snake or other animal was carved around the outside. Stone effigies, disks, and rings were made. Even the utilitarian axe was a thing of beauty.

In late Hohokam times stones for polishing arrow shafts and handled stone pounders were made. Several kinds of stone objects seem to have been for ceremonial use. Mirrors or "sun disks" of stone were covered with highly polished mosaic of iron pyrite crystals. Stone flaking of knives and projectile points was often done with consummate control. Ornaments were made in great quantity. Beads and pendants were made of stone and shell, but turquoise was especially favored. Glycymeris shell was cut and ground into bracelets and rings.

Bone was not extensively used by the Hohokam, perhaps because the desert abounds in hardwoods and because hunting was not widely practised. Nevertheless, except for a few utilitarian forms such as awls and flaking tools used on stone, the occasional object of bone is one of artistry. Cut bone tubes and finger rings were carved or incised with geometric designs or life forms. Long daggers, or perhaps hair ornaments, sometimes had carved heads. Bone and antler were sometimes painted. This limited use of bone among the Hohokam stands in sharp contrast to the considerable use made by Mogollon and Basketmaker-Pueblo peoples.

Unfortunately, we do not know what the Hohokam looked like, because they cremated their dead.

The early Hohokam seem to have settled in the Santa Cruz River



Plate 1. *Basketmaker cist*

valley and along the middle Gila and lower Salt rivers. This is where their civilization reached its culmination, but they also spread out into other territories. They moved east and south along the upper Gila, middle Salt, and the valley of the San Pedro. By A.D. 700 a group of people we call Sinagua were living in the Verde Valley and around the San Francisco Peaks. These people appear basically related to the early Hohokam, but because of contact with Mogollon and Pueblo peoples, they differ in some respects from their southern neighbors. Still later, about A.D. 1070, Hohokam people spread north into the Sinagua area.

All of these peoples—Mogollon, Hohokam, Sinagua, Basketmaker-Pueblo—belong to the Southwest. They share many traits of their civilization; but once more we narrow our framework to trace the history of the Basketmaker-Pueblo peoples.

III. THE BASKETMAKERS

ABOUT THE TIME of Christ corn and squash were introduced to a group of gatherers and hunters in the San Juan or Four-corners country, where Arizona, New Mexico, Colorado, and Utah come together. We do not know what these people called themselves; we call them Basketmakers. The Four-corner country is canyon and mesa land; caves and shelters abound. The Basketmakers used these as camping places, and sometimes we find their trash in them. With agriculture came the need to provide storage for the crops. Pits were dug in the shelters and sometimes lined with upright sandstone slabs or plastered (Plate 1). They were roofed or covered with poles, brush, and mud. Archeologists occasionally still find these food caches, after nearly 2,000 years. More important is that storage pits were often used later as burial pits. Many contain three or four bodies; one yielded 19, perhaps victims of an epidemic. Fortunately for archeologists, these caves are extremely dry; instead of decaying, bodies desiccate, become natural mummies. Flesh, skin, tendons, and hair are often preserved, as is everything buried with them. Thus we know much about these people and their handicrafts. It is interesting to note that not all mummies are humans. A cave in northeastern Arizona yielded natural mummies of two dogs. These were taken to Peabody Museum at Harvard University and subsequently entered in a Boston dog show where one took first prize as the oldest dog in the show!

The Basketmakers were small people. Men averaged about 5 feet 4 inches, women somewhat less. Most had long, narrow skulls. Men often dressed their hair in elaborate fashion. Two small bobs of hair hung down beside the temples, the rest was caught in a thick, heavy bob at the back. Sometimes a queue, wrapped with fine cord or braided, hung down the back; occasionally the scalp was shaved back from the forehead to give a bald pate effect. Possibly the latter two styles were marks of distinction

or leadership. By contrast, the woman's hair-do was simple. Her hair was usually lopped off irregularly two or three inches from the scalp, to be used as a fiber in weaving bags, nets, and braiding rope. We have no evidence that this practice made her particularly unhappy.

Clothing was very scanty. Perhaps most of the time both sexes went entirely nude except for sandals and such ornaments as beads and trinkets. Many loin cloths are found in Basketmaker caves; oddly enough, few mummies have been found wearing one. Sandals are found in the caves, in all stages of wear, and nearly every mummy has a new pair buried with it. Basketmaker sandals were plaited of yucca fiber or woven of cords; they were thick and had square toes sometimes embellished with fringe. Cords passing between the toes and around the ankles held them to the feet. Blankets were woven from strips of rabbit fur wrapped around cords. Tanned deerskin robes also were made and probably served as sleeping garments as well as clothing.

Despite scanty attire, the Basketmakers decorated themselves. Beads were made of stone, bone, and seeds; feather ornaments and bone combs adorned the hair. Even at this early date, the Basketmakers acquired olivella and abalone shells, probably through trade with peoples having access to the Pacific coast.

As implied by the name, the Basketmakers made baskets. Skillfully woven, these were of several kinds. Most common were coiled baskets, in which bundles of grass were sewed together using yucca leaf as binding material. Bone awls were used to punch sewing holes. Many coiled baskets were woven so tightly as to be waterproof, and most had black or red decorative designs woven in. Large conical baskets were used for carrying various loads, and a specialized type with a small mouth was lined with pinyon gum and used for carrying water. A tumpline—a short strap that rested around the forehead—was attached to aid in carrying these large baskets. Soft, egg-shaped bags up to two feet in length were woven by intertwining cords rather than coiling. These, too, were deco-

rated with painted or woven designs in black or red. Other containers were made of animal skins, and a few of sun-dried clay, perhaps in imitation of true pottery which they had heard about or seen on trips to the south. Cordage, ranging from fine string to rope, was twisted from yucca and other plants.

The Basketmakers used an atlatl, or spear-thrower, in hunting large game such as deer and mountain sheep. The atlatl is a piece of wood two to three feet long with a handle at one end and a socket or spur at the other. To use it, the hunter grasped the handle and placed the cupped butt of a spear firmly against the spur. The spear shaft was then balanced on the fingers, above the handle, and the spear propelled by throwing, just as one throws a hand spear. The atlatl thus served as an extension of the arm. Various snares and traps, many woven of women's hair, were used for small game. Large nets were used in communal hunting. These were erected across the mouth of a canyon, blocking the exit. Hunters then went to the head of the canyon and started down, shouting and beating the bushes, driving rabbits or other game toward the net, where the hunters killed them.

Plate 2. *Basketmaker III pithouse*

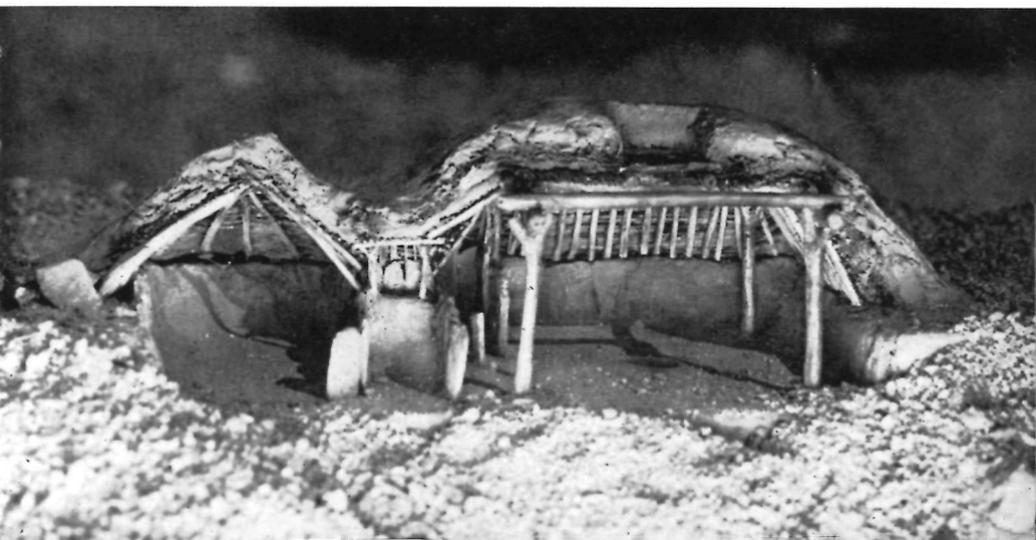




Plate 3. *Basketmaker III pottery*

Basketmaker stone tools are not impressive. Flat slab metates and small manos or hand stones were made for grinding corn. Dart points and large knives were made by flaking, and weights or charm stones were ground out to be attached to atlatls. Tubular stone pipes were made.

About A.D. 400 new and better types of corn and squash were introduced, making possible a greater dependence on agriculture and a more settled life. Villages—groups of pithouses—were formed. In these pithouses (Plate 2) the front part was set off by a low wall, and metates were set here for the woman to grind her corn. Many houses had a small separate room or annex at one side.

It was at this time that the Basketmakers learned to make true pottery (Plate 3). A few pieces were decorated by painting. Most designs were like those woven into the baskets or painted on the walls of caves. In addition to pottery vessels, human figurines and cornucopia-shaped objects were made of clay. However, many fine baskets were still being made.

Some time between A.D. 400 and 700, beans were introduced, providing a good protein to supplement the carbohydrates of squash and corn. This led to still greater dependence on agriculture.

Clothing continued much the same, but in addition to fur robes, feather robes were made. Construction was similar to that of fur robes, but small, downy feathers or strips of bird skin were used instead of fur. The greatest change was in sandals. The squared, fringed-toed type was replaced by very beautiful sandals with cupped heel and scalloped toe. A double weave was used, the upper sole usually bearing woven designs in black, red and tan; the lower sole having a raised pattern made by knotting. Each pair having a different design, it was possible to recognize the footprints of different people along the paths. In addition to the ornaments of earlier Basketmakers, turquoise was used for beads and even for mosaics.

The Basketmakers began to spread out from their homeland, and by A.D. 700 they were in Nevada and the Grand Canyon area, in central Utah, central New Mexico, and along the Little Colorado River, where they encountered the Mogollon and perhaps other peoples.

Plate 4. *Pueblo I house (Early Developmental Period)*



IV. DEVELOPMENTAL PUEBLO

ABOUT A.D. 700 round-headed people occur with the earlier long heads. The cause of this change is not clear. Possibly a new group was moving into the area, intermarrying with the Basketmakers. The change might be due simply to a new fashion. There is evidence that both things were taking place. Whether or not a new population was involved, the change in fashion modified their physical appearance. In Basketmaker days the cradle board was padded with shredded juniper bark. After A.D. 700 this practice was abandoned, and the child's head rested on a hard, flat cradle board. This resulted in deformation and flattening of the bones, imparting a broad-headed look to the skull, but in no way altered brain capacity or intelligence. Despite the physical change, there is a strong thread of continuity in the life ways of the Basketmakers and the later people.

For the next three centuries the civilization of these people underwent constant change and modification, experimentation and development. It was a time of great territorial expansion, of restlessness of the people. Small groups moved here and there, built homes, abandoned them, and moved on to build again. Finally, it was a time of specialization, for between A.D. 700 and 1000 three great centers of Pueblo development sprang up; one in the Chaco Canyon area of northwestern New Mexico, one in the Mesa Verde of southwestern Colorado and southeastern Utah, the third around Kayenta in northeastern Arizona.

Although there was change and development, it was not uniform throughout the area. At A.D. 700 most people still lived in single family groups in pithouses (Plate 4). Many continued to make and use this type of house. However, as early as late Basketmaker times someone had discovered the labor-saving device of building two or more houses together to form a larger unit. This advance became possible when they began to build on the surface of the

ground instead of in or over a pit. Some pithouses had small, near-surface storage rooms associated with them. Perhaps the next logical step was to build living rooms there also. More and more houses were built together; five, ten, fifty, or more rooms were constructed end to end, forming a crescent or L-shaped structure open to the southeast. These marked a new architectural trend, for they were the first apartment houses. Each such structure formed a village, and from this time on we call the people Pueblo, the Spanish word for village or community. Behind the row of dwelling rooms was a row of storage rooms. In the open area in front of the houses a pithouse was constructed for a ceremonial room. Instead of adapting their religion to the new architecture, they continued using the old style house for ceremonies. Today, 1,250 years later, the Pueblos still build and use the underground ceremonial rooms, which we call kivas.

About A.D. 850 the next important advance in architecture was made. Masonry was used, first to reinforce sagging earth walls of

Plate 5. *Pueblo II house (Late Developmental Period)*



pithouses or to cap a row of vertical slabs. Soon it was used to build surface storage rooms. As its advantages in construction became apparent, masonry houses were built (Plate 5). Construction of multistoried houses became possible, and from this beginning sprang the typical pueblo. Probably the most common dwelling in late Developmental times had six to twelve rooms, one or two stories high, arranged in a straight line or like the letters L, E, or a broad U. A kiva was built in front of the house. These are sometimes called clan houses because some believe they were occupied by an extended family—a woman, her married daughters and their children, her unmarried sons and daughters, all belonging to the same clan, plus the spouses, who belonged to different clans.

In addition to general development of houses, regional development occurred in the great Pueblo centers. Building materials available in these areas varied. In the Chaco there was abundant sandstone in both thin and thick layers which broke readily into tabular building blocks. At first, upright slabs capped by random stones set in much mud were used, but near the end of the period well coursed masonry walls were laid up in very little mortar.

In the Mesa Verde area good sandstones were also available. In early Developmental times there was great variation in types of construction, but here, as in the Chaco, slabs capped with selected cobbles gave way to well coursed masonry walls. In late houses stones were shaped to improve the appearance of walls.

In the Kayenta area a wide variety of stone was available, but none so good as those of Mesa Verde and Chaco. Whether for lack of time, or for some other reason, Kayenta masonry was poorly done.

Throughout the Pueblo area most Developmental Pueblo houses were built in the open, although a few were built in convenient caves or shelters.

There was also a growing specialization of kivas. The structural form can be traced, step by step, from the pithouses of Basket-maker and early Developmental times. The bench, central fire pit,

deflector, ventilator, and sipapu became more formalized. Kivas reached their greatest standardization in Mesa Verde where great care was lavished on them. Chaco kivas were as well made but were less formalized. Kayenta kivas frequently lack features usually thought to be necessary, and, as on the houses, workmanship is distinctly inferior to that of the other Pueblo areas. In Chaco Canyon and elsewhere in the Four-corners region, large ceremonial structures called Great Kivas were also made.

This was a period of experimentation in pottery as well as in architecture. Usually the clay was finer and vessels better made. The Pueblos began to use a creamy slip to finish their pottery. Different kinds of pottery were made. The plain gray cooking ware of the Basketmakers was still made, but soon some of the broad, flat coils from which it was built up were left unsmoothed around the neck to give a banded decorative effect (Plate 6). This neck-banded ware later gave rise to a new type called corrugated, in which coils were visible over the entire pot. At first these coils were left plain; later they were pinched to give a textured effect. Today

Plate 6. *Early Developmental Pueblo pottery*





Plate 7. *Late Developmental Pueblo pottery*

one can often see the fingerprints of the woman who made a vessel, preserved in the imperishable broken bits of that pot.

Painted pottery was varied, too. There was an increase in complexity of designs, many of which were boldly conceived. The woman had not yet mastered painting techniques, however, for the brushwork was frequently poor. At first most of the lines were fine and narrow, but overlapped at the corners. Several parallel lines were combined with triangles and little dots or ticks. Later designs became heavier and more elaborate, the painted lines broader (Plate 7). Curved and rectangular spirals were painted; sometimes concentric spirals ended in interlocking frets. Triangular, checkerboard, and hatched panels were worked into elaborate patterns. Most pottery had black designs on a white background, but in the

western part of the Pueblo country a reddish or orange background was produced on which either black or red paint was used. Bowls, jars, pitchers, and ladles were made, but most vessels were small. A few tubular or conical pipes were made of pottery, as well as some of stone. While pottery replaced baskets for many purposes, several kinds of basketry were still made and used.

Stone tools did not differ greatly from those of the Basketmakers, but a few new tools appeared. A new kind of metate—a thin, open-ended, troughed sandstone slab—and grooved stone axes, both were used by the Pueblos for the first time. Bone tools such as awls, needles, scrapers, and chisels, and bone ornaments were made.

The introduction of cotton and the techniques of spinning and loom weaving brought important changes in clothing. Kilts, or short skirts, were made for men and aprons for women. A robe or blanket woven of cotton covered the upper body. Feather robes supplemented these in cold weather. Instead of the scallop-toed sandals of late Basketmaker times, rounded or pointed-toed footgear was made. Many of these were finely double-woven with patterns on both upper and lower soles, but most were coarsely made for common wear. Men's hair was probably worn long, while at least some women twisted their hair into large knots at the side. Ornaments were not much changed from earlier ones, but there was greater variety and abundance.

The dead were usually buried in trash heaps, the bodies folded with the legs pulled tightly to the chest. Often they were accompanied by pottery vessels, ornaments, and bone and stone tools. Clothing, basketry, and other perishable materials were probably buried with them but in most cases these have not survived.

Perhaps more important than the changes occurring in their material things were those taking place in their society. By their very nature, we can know little of the particulars of these changes; but their general trends are evident. Throughout Developmental times the people were learning to live together in villages. Rules and customs had to develop to regulate participation in community

affairs. Marriage had to be regulated; common good had to prevail over individual good; and techniques to these ends had to be found. It is not likely that there was any conscious experimentation to achieve this; but, through the centuries, unwritten laws, frequently augmented by religious custom, developed to maintain the equilibrium of their society. Religion, too, must have undergone changes, for as agriculture became ever more important, the people came to depend more on the forces of nature which made it possible. Religion became directed toward the control of those natural forces; rain became companion god to corn.

All during the period, the Pueblos were expanding to the west, north, southeast, and south. The ideas of the Pueblos traveled slowly through much of this peripheral area. Strange mixtures occur in which early and late forms of pottery and houses are found alongside each other. Old techniques and customs were maintained. These were rural or backwoods people simply because they lived farther away from the centers. A few groups moved into the lands along the Rio Grande. Here pithouses were used until about A.D. 1100, followed by small stone masonry buildings. After about A.D. 1300 most pueblos were built of adobe. The idea of masonry pueblos spread rapidly southward through eastern Arizona and western New Mexico, then eastward through southern New Mexico. People lived side by side in pithouses and stone pueblos. The pueblos were not so well made as those of the north, but this may be due to the poor quality of stone available.

Black-on-white pottery occurs alongside black-on-red, red-on-brown, plain brown ware often with a glossy black interior, and the corrugated cooking pots of crumbly brown clays. Burial customs overlap, and a new kind of square kiva is developed. It is a mixture of Pueblo and Mogollon. In the southern part of this mixed area extensive contact was going on with the Hohokam, as well, and there the mixture resulted in the fantastic Mimbres pottery and in the manufacture of small stone items of fine quality.

V. THE CLASSIC PERIOD

By A.D. 1000 some of the Pueblo peoples had entered what the archeologist has termed the Classic period. Nearly a century passed before all had reached this threshold. Then, for 200 years Pueblo civilization was at its pinnacle. This was the period of great communal houses (Plate 8), both in the open and in huge natural shelters of the Four-corners country. Arts flourished, and there was intensive local specialization. The main reason for this culmination was a surplus of food. During this period stone masonry reached its highest development. Perhaps most people still lived in small houses of 5 to 20 rooms, but many houses had 200 to 300 rooms. We do not know why these large communal centers were built, but most show defensive elements in their design. However, if defense was an object, it was not a primary one, because the houses were not hurriedly, but rather, carefully and painstakingly, built. Furthermore, aside from location, most defensive characteristics are the result of remodeling. Whatever the reason, there was a tendency for the growth of these large population centers.

Plate 8. *Classic Period Pueblo house*



The first Pueblo region to enter the Great Period was the Chaco. Here most large houses are more or less rectangular; but the most spectacular, Pueblo Bonito, is in the shape of a huge D. Over 800 large, well-plastered rooms were arrayed in four stories along the curved rear wall and in a single story across the front. There are two large plazas and many kivas. The masonry of Pueblo Bonito and other Chaco houses marks the highest achievement of the Pueblo masons. Great kivas also reached their full flower here. Southwest of the Chaco, along the Little Colorado River, were large settlements with somewhat inferior architecture.

Many Classic Phase houses of the Mesa Verde area are surface structures, but more spectacular are the great cliff dwellings such as Cliff Palace and Spruce Tree House. Houses grew by the addition of new rooms as they were needed, until the whole cave floor was covered by living and storage rooms, towers and plazas, and highly formalized small kivas. Masonry was regular and well finished with large shaped blocks. Northwest of Mesa Verde and north of Kayenta, in central Utah, were many small villages mostly built of adobe clay.

In the Kayenta area houses were built both in the open and in caves, but until late, most houses were small. Irregular boulders and cobbles were laid up with great quantities of mortar. Coursing was seldom practised, and as a result most houses, except in protected caves, have disintegrated into heaps of stone. Some Kayenta cave ruins are remarkable. Keet Siel and Betatakin perch on narrow ledges; their living space was cramped, and child rearing must have been hazardous. Kayenta kivas, even during the Great Period, are unimpressive and poorly made. In addition to standard round kivas, some houses have rectangular kivas. Usually these have a bench at one end, a sipapu, fire pit, and deflector; but they were entered by regular doorways from other rooms instead of through a roof hatchway.

In the San Francisco Mountain area south of Kayenta were several large pueblos, especially in the Wupatki vicinity, and some



Plate 9. *Classic Period Pueblo pottery*

unusual small cliff dwellings in Walnut Canyon. These were products of mixed Hohokam-Mogollon-Pueblo groups. Farther south and east, in the Mogollon-Pueblo area, great houses were poorly made of inferior stone. Only occasionally was there careful shaping and coursing of masonry so characteristic of Chaco and Mesa Verde. Kivas were rectangular.

Pottery, too, reached a culmination during the Classic Period (Plate 9). As in architecture, regional developments and specializations enable archeologists to recognize the source of a vessel, wherever it is found. The most characteristic type of pottery has

black designs on a white background, but there are many variations. Pipes of both pottery and stone were still made, as they had been during Developmental times.

During the Classic Period minor arts and crafts of the Pueblos also reached a high point. Household tools were much the same but were better finished than during Developmental times. Clothing probably did not change much, although it became more elaborate. Men still wore kilts or breechclouts and women wore fringed aprons; in cold weather both wore robes of feather cloth, woven cotton blankets, or ponchos slit to go over the head. Textiles were beautifully woven, some with a design of colored yarn woven in, others being painted with designs taken from pottery. Multicolored sashes were woven. Rough sandals with squarish toes and heels were used, but other finer ones had round toes with a jog or offset on the little-toe side. Hair styles show little if any change. Fine jewelry was made in the Chaco and Mimbres, and to a lesser extent elsewhere. Beads and pendants of shell, bone, clay, and stone were common, and turquoise was especially favored for these uses. Shells were sometimes carved to resemble birds or animals, many having a mosaic overlay of turquoise, shell, lignite, or jet. Copper bells were imported from Mexico, probably through the Hohokam. Parrots, macaws, and other highly colored tropical birds were imported for their feathers.

In smaller pueblos the dead were buried in refuse heaps, as in earlier days, but cemeteries for the great houses have not been found.

Almost within a quarter-century the Great Period ended. One center after another was abandoned, the people moving away in search of new homes. The decline may have started at Chaco Canyon as early as the late 1100's. We do not know why these people abandoned their great houses. For about a century, then, population was relatively stable except for a restless moving about by small groups. Then people in the Grand Canyon area began to abandon their villages about A.D. 1250, moving into the Kayenta area.

Perhaps the nomadic Navajo and Apache were beginning to make inroads on the Pueblos. Restlessness and shifting increased. Agriculture must always have been difficult in the northern part of the Pueblo country because of sparse rainfall and long, cold winters. Finally, intervillage strife and social difficulties must have played a part. Then, in A.D. 1276 a great drought set in and lasted 23 years; we have a record of it in the tree rings. There were a few good years during this time, and probably some corn was raised, but not enough to support a large population. Probably no single cause led to the abandonment of the area. Short food supply, lack of sufficient water, enemy raids on the fields—all possibly caused or aggravated by the drought—must have led to internal strife and the development of factions. Families and entire villages began to abandon the northland. Mesa Verde and Utah people moved south and east, some into the Rio Grande area, some into the headwaters of the Zuni and Little Colorado rivers, and perhaps some into Hopi and Zuni country. Kayenta people also moved south, some into the Hopi country and others farther on into the southern White Mountains.

The Sinagua people moved south along the Verde River, building towns such as Tuzigoot, sprawling down its hillside, and the cliff pueblos of Montezuma Castle and Well. Then they, too, disappeared, and beyond this point we cannot, at present, trace them.

As the northern Pueblos moved southward, other populations were displaced. Many of the people south of the Little Colorado and along the upper Salt and Gila rivers began to press in upon the Hohokam. The Mimbres people moved out, perhaps into northern Mexico. By A.D. 1300 the whole northern frontier stood empty, or nearly so. The nomads and the few Pueblos who lingered there never again achieved the greatness of the Classic Period.

VI. REGRESSION AND RENAISSANCE

NEW CENTERS began to spring up. The Zuni country, Hopi Mesas, Rio Grande Valley, mountainous areas of central Arizona and western New Mexico, and northern Mexico, took the place of Chaco, Mesa Verde, and Kayenta. These areas offered permanent water, but each already maintained a sedentary population and the influx of new people meant over-crowding. Architecture and many of the arts degenerated. It was a period of disintegration before reintegration and renaissance.

Many towns of this period were very large, some covering 10 to 12 acres. Usually these consisted of several rows of one to three storied houses built along streets or around open plazas. Kivas were again built in open courts. In the Hopi area and the central mountainous belt kivas were rectangular with a bench or deep recess across one end. Ventilator, deflector, fire pit, and sipapu were present, as in earlier days. In contrast were the circular kivas of the Zuni, which seem a queer mixture of features from the small and great kivas of Chaco. In the mountainous belt the last great kivas were being made, but now they conformed to the rectangular style of smaller kivas and lacked some features of earlier ones.

Pottery also underwent considerable change. Excepting an occasional piece, the beautifully patterned black-on-white gave way to polychromes of black and white on red in a wide range of local and highly specialized types. Simple geometric designs were augmented by dynamic combinations of panels or stylized life forms filled with geometric patterns.

Stone work did not change greatly but there was a general decline in quality. Ordinary stones were used for axes instead of the carefully selected stones of earlier times. Arrow shaft straighteners of stone were introduced. There was little change in textile arts, but much of the weaving was coarse. Some very beautiful textiles were made, however, especially in the southern mountainous area. Signi-

ficant change in dress occurred probably in the latter part of this period. Men still wore kilts, but women wore a sleeveless dress leaving the left shoulder bare. A sash was used at the waist. Blankets and robes supplemented these in cold weather. Sandals of yucca fiber were made, primarily for utility, with little attempt to embellish them. Ornaments similar to earlier ones were made but were far less common.

In the Rio Grande the earlier Pueblo peoples had just begun to establish themselves firmly when the great influx of northerners came. Soon large towns grew up. At Rito de los Frijoles the circular, many-roomed pueblo of Tyuonyi was built at the base of towering cliffs of volcanic ash, in which other people dug caves to serve as back rooms to small pueblos built in front. Some towns, such as Pecos Pueblo a few miles east of the Rio Grande, had been built of stone masonry a century and a half before, but most houses were built of adobe or of stones in heavy adobe mortar.

Farther south along the Rio Grande, Mogollon people had lived in pithouses until about A.D. 1200, when the small adobe pueblo was introduced. These people were in contact with the Pueblo people of Chihuahua, and through regular trade routes brought the produce of northern Mexico into Pueblo country.

By A.D. 1500 only three centers remained: Hopi, Zuni, and Rio Grande. At least, that is where the Spanish found them in 1540, when Coronado followed old Indian trails through Sonora and southern Arizona into Pueblo country. He was searching for the Seven Golden Cities of Cibola. At Zuni he thought he had found them, but the gold turned out to be dust—the sun's reflection against the multistoried Zuni houses. There was great disappointment. Men were sent in all directions: Cardenas to the northwest where he discovered the Grand Canyon; others to the Rio Grande. Coronado left Zuni and wintered in the Rio Grande, then went into the plains of central Kansas. Here, too, gold was illusory. Finally, after another winter on the Rio Grande, he returned to Mexico. Pueblo-Spanish contacts were not friendly. Fighting and death

prevailed between uneasy armistices enforced by Spanish superiority of arms.

Forty years passed before the Spanish came again. Then, with increasing frequency, they encroached upon the Indians, subjecting them to Spanish law, forcibly converting them to Catholicism. Great churches were built—by Indian labor—but the Pueblos kept their kivas. Resenting the Spanish yoke, the Indians resisted, tried revolt. Finally, in 1680, they successfully routed the Spanish from Arizona and New Mexico. Twelve years later the Spanish fought their way back. Many Indians fled their homes. About A.D. 1700 the Spanish began to influence the Pueblos along the Rio Grande. Village chiefs became governors, their assistants, alcaldes. The Pueblos became Catholic but did not give up their old religion. They adopted winter wheat and European techniques for harvesting and grinding it; but corn still needed its ceremonial rituals—and it is *still* ground in a metate! Peaches, chili peppers, watermelons, and other plants were adopted. Sheep were raised, providing meat, as well as wool to supplement the native cotton; the burro became their beast of burden.

Today the Pueblos live much as they did 400 years ago. Their homes may have doors and glass windows, and occasionally a modern bedstead; but they are built and used as were those when the Spanish first came. Automobiles supplement burro and the later horse and wagon; but a Hopi may still run 20 miles a day to till his fields. They cook in and eat from European utensils, but still make pottery in the old way—for sale to us! While many Pueblos are Christians, their old religion remains strong and vital; it functions because it meets the needs of their way of life. There is a growing feeling of unity, of common need and aim, among the Indians; but each pueblo is independent, a city-state, as it was 400 years ago. Many changes can be noted in the villages of today, yet the total of those changes is small. The archeologist, and the layman, can still catch his archeology alive.

VII. GRAND CANYON PREHISTORY

ALTHOUGH over 500 ruins are recorded within the Grand Canyon National Park, we know only the outline of this area's prehistory. Most ruins are of small surface pueblos along the north and south rims of the canyon. No large communal centers have been found. Small cliff dwellings and numerous granaries occupy caves and niches in the canyon walls. A few early pithouses, some ruins of late Havasupai houses, and occasional hogans and sweat lodges left by the Navajos complete the roster.

We have no evidence, as yet, of early hunters or gatherers in the Grand Canyon area. The first Indians seem to have entered the region shortly after the time of Christ. From this period there are scattered remains of the Basketmakers, mostly from caves in the canyon walls. By A.D. 600 the potter Basketmakers had settled along the north rim and a few on the south rim, which apparently was occupied largely by another group of Indians. These people, whom the archeologist calls Cohonina, were similar in many ways to the late Basketmakers and early Pueblos. Their pottery was made differently, however, and their houses and general way of life were simpler.

By A.D. 800 Pueblo people from the Kayenta center were building small houses along the north rim; but on the south rim, as far east as the present Wayside Museum, the Cohonina still lived. At this time the canyon evidently was a barrier between the people on the north and south rims. A frontier also existed between Cohoninas and Pueblos along the eastern edge of the canyon.

Grand Canyon 505

The ruin of a Cohonina house, occupied probably about A.D. 800, has been excavated near Wayside Museum. The main room was a circular, saucer-shaped depression about 15 feet in diameter (Plate 10). In the center was a fire pit and near it an ash pit. A

rectangular wooden framework had been built inside the house. Walls were formed by poles leaned against this frame and perhaps plastered. Three storage pits and two small storage rooms were built along the southern side of the main house. All of these units were probably covered by a single roof. A few feet away was a small separate house which had a wooden tripod framework perhaps covered by matting or brush. This may have served as a menstrual hut.

We do not know when this house was abandoned, but by A.D. 900 the Pueblos had moved west along the south rim as far as the present Hermit's Rest. Beyond this, and to the south, the Cohonina continued to hold their ground. During late Developmental times there seems to have been a mass movement into both north and south rim areas. Many people dwelt in small pueblos and carried on agriculture in terraces built wherever runoff water would supply

Plate 10. *Site GC 505*





Plate 11. *Tusayan Ruin (restoration)*

silt and moisture. North rim sites show increasing influence from the Pueblo people of Utah. Perhaps nomads were pressing southward, forcing the Pueblos to move on before them.

The Classic Period probably began late in the Grand Canyon area. It had hardly begun before the north rim was abandoned. By A.D. 1175 the Pueblos had crossed to the south rim, leaving behind their houses, agricultural terraces, ditches, and diversion dams.

Tusayan Ruin

On the south rim the people continued to live, building pueblos containing up to 30 rooms, although most were smaller. Tusayan Ruin, beside which is the Wayside Museum of Archeology, was named for the old Spanish province of Tusayan. The pueblo, built some time between A.D. 1185 and 1200, formed a broad U opening to the southeast (Plate 11). Walls were made of unshaped limestone boulders set in clay mortar. A two-story living section formed the western side, four rooms on the lower floor, three above. At the southwestern corner was a partly subterranean circular room, the kiva. North and south wings consisted of small storage rooms one story high, entered by ladders through hatchways in the roof. In the center, protected by the building, was an open court or

plaza. A second kiva was built beyond the north wing of storage rooms, apparently after the first one burned. A bench of clay extended partly around this room. A ventilator shaft through the east wall brought in fresh air as heated air and smoke from the central, rock-lined fire pit rose through the roof hatch. In a line with the ventilator and fire pit was a small hole, the sipapu, symbolic of the entrance to the underworld, cut in the limestone floor.

Probably 25 or 30 people occupied this pueblo. Judging from the size of the rubbish heap and the fact that no burials were found, they lived there about 25 years. We do not know when they left, but apparently by A.D. 1250 this and all other pueblos of the area were abandoned. These people probably moved first into the Kayenta country some 75 miles to the northeast, and then shared in the general exodus to the south when the great drought struck in A.D. 1276.

From this point on our records are few and fragmentary. Sporadic finds of Hopi pottery show that occasional visits into the Grand Canyon country were made at least until A.D. 1700, perhaps later. The Navajo, too, visited or lived in the area, for remains of their hogans have been found which date in the middle 1800's. Early explorers found the Havasupai living along the western boundary of Grand Canyon National Park, the region previously occupied by the Cohonina. Some archeologists believe that the Havasupai are descendants of these earlier people.

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