

PREHISTORIC  
PEOPLE  
*of the  
Northern Southwest*



TUSAYAN RUIN

*by*  
*Joe Ben Wheat*

*Prehistoric People*  
*Of the Northern Southwest*

*By*

JOE BEN WHEAT

Curator of Anthropology

University of Colorado Museum

BULLETIN No. 12

Grand Canyon Natural History Association

Grand Canyon

## Contents

Preface . . . . .	iii
Introduction . . . . .	iv
Chapter I: <i>Asians Become Americans</i> . . . . .	1
Chapter II: <i>Early Southwesterners</i> . . . . .	7
Chapter III: <i>The Basketmakers</i> . . . . .	14
Chapter IV: <i>Developmental Pueblo</i> . . . . .	20
Chapter V: <i>The Classic Period</i> . . . . .	27
Chapter VI: <i>Resettlement, Fusion and Resistance</i> . . . . .	32
Chapter VII: <i>Grand Canyon Prehistory</i> . . . . .	35
Bibliography . . . . .	39

## *Preface*

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. PREHISTORIC PEOPLE OF THE NORTHERN SOUTHWEST has been rewritten to bring the subject up to date.

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

LOUIS SCHELLBACH

*Chief Park Naturalist, 1941 to 1957*

*Grand Canyon National Park*

## *Introduction*

In this booklet I have presented the story of man's rise in time, his proliferation, and the growth of his various 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 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 the various interpretations deriving from it. So go to it, and—good reading!

JOE BEN WHEAT

## CHAPTER I

### *Asians Become Americans*

NO FOSSIL MAN IS KNOWN in the New World. Inevitably, then, 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 or cultures of Man—believe that the earliest migrants into the Americas came from Asia. There is a substantial body of evidence to support this idea. We often term the Indians “Red Men,” but while their skin color ranges from light to dark, it is never red but some shade of yellow brown, like that of the modern Asiatics. The Indians’ 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 of the inner eye, the “slant eye” of the modern Chinese and Japanese. Many other physical traits, such as tooth formation and certain blood group phenomena, also proclaim the Indian an Asiatic.

Nevertheless, the Indians do vary in some ways from the other Mongoloids. Through the thousands of years they have occupied America, they have been isolated from their Old World ancestors. Different groups of Indians have lived under greatly varied conditions of climate and food supply, and, as a result of adaptation in isolation, have come to range widely in physical types. Some are tall, some, short; some are lean and others tend to corpulence; some are broad-headed, but long, narrow-headed Indians are also found. Despite these variations, all the American Indians appear to be one group genetically.

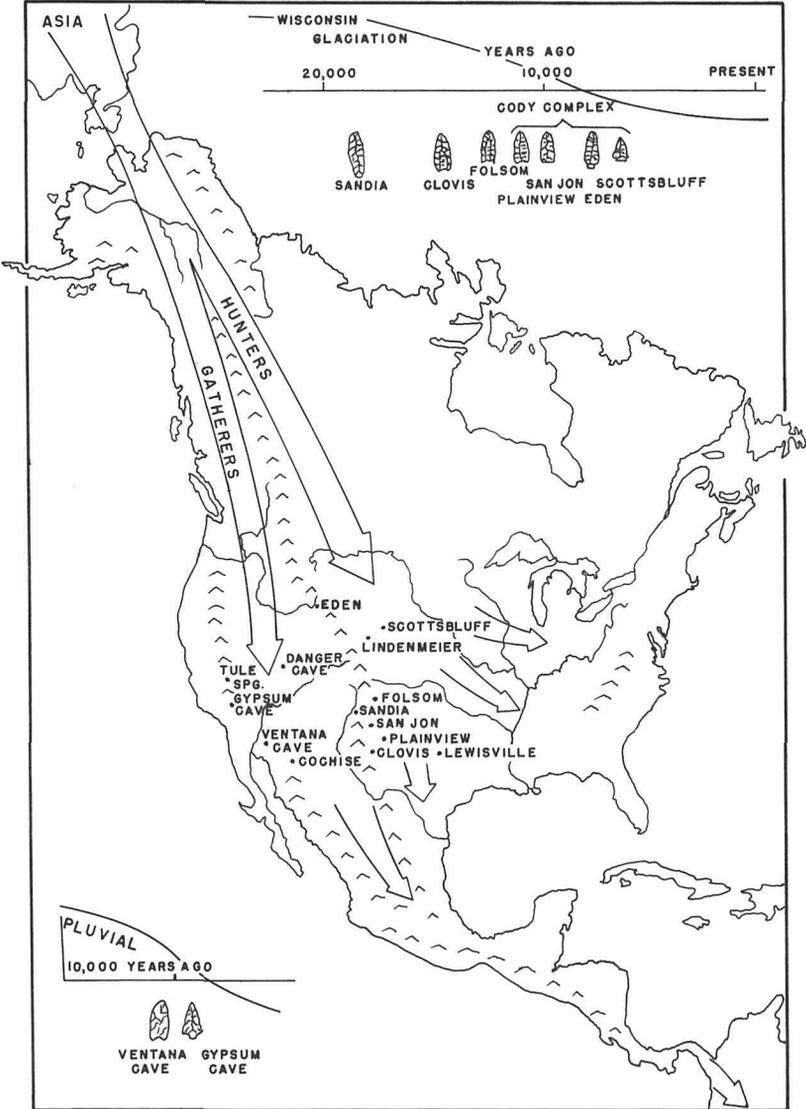
We do not know precisely when the first migrant from Asia set foot in the New World, but the place, Bering Strait, seems definitely established (map 1). For at least the past 50 million years, Siberia and Alaska have been part of a continuous land mass. For various periods during this time, this land con-

nection has been temporarily broken by flooding or submergence of the lower parts of the land. During the Pleistocene "Ice Age," which lasted about a million years, the periods during which a land bridge existed have coincided with the great glacial advances. During the warm interglacial periods (such as the period we are in today), the release of water from the melting glaciers flooded the land bridge.

During the glacial periods, men could wander freely across the land bridge between eastern Siberia and central Alaska, following the game animals upon which they lived, because even during the most intense glaciation these areas were not covered with ice. Farther south, however, the great continental glaciers spread from centers in the western mountains and near Hudson's Bay until they coalesced, blocking the way southward. Thus, while Man could enter Alaska during the cold periods, he probably had to wait for a warm period before he could push his way into the interior of North America. Such a warm period is thought to have occurred from about 40,000 to 25,000 years ago, and the way southward was opened to Man. Then the ice began to advance once more, and the corridor was again closed. About 18,000 years ago the ice began its present retreat. As the glaciers thawed and moved northward, so did the cold-weather belts induced by the mass of ice. Once again the corridor was opened to Man and 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. Today, northeastern Siberia is separated from Alaska by only 56 miles of open water. Summer travel by boat is (or was) common; and since the straits still freeze over in very cold winters, people can cross dry shod on the ice. Thus, the Indian migrations since the submergence have been by ice in winter and boat in summer.

While archeologists do not know when the first men entered North America, they are beginning to recover bits of evidence which push the time ever farther back into the remote past. At a site near Lewisville, Texas, fire hearths containing burnt seeds and the burnt bones of many now-extinct kinds of animals, and a few crudely flaked tools have yielded carbon 14 dates "greater than 37,000 years ago." A spear point once



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

thought to be associated with the hearths is now considered to be intrusive into the site. At Tule Springs, Nevada, other fire hearths dated at 28,000 years ago have produced similar finds, and in addition bone artifacts were found. This glimpse of these early people suggests that, at a time before the development of highly specialized hunting weapons, they wandered a vast wilderness, subsisting on wild seeds and chance kills or finds of already dead animals. Their inventory of tools and weapons was simple in the extreme and their life a hazardous one.

With the passing millennia, the population increased. Natural increase was augmented by later groups of Asiatics who, in ever mounting numbers, became Americans. As the population increased, many groups remained more or less fixed in an area, but others were forced to move on. Eventually some wandered through Central America and into South America. Here, as in North America, Man began to spread out. By 10,000 years ago, hunters were living in the southern tip of South America. When Columbus "discovered" America only a few short centuries ago, even the most remote and seemingly inhospitable places had been claimed as homeland by some tribe of the people he called "Indians."

Archeologists at present can only guess at the steps which led to the development of highly specialized weapons and tools from the meager techniques which they brought from the Old World. There are many thousands of years for which we lack records in the Americas. However that may be, by some 15,000 years ago, perhaps somewhat longer, there were groups of Indians who depended on the hunting of mammoth, mastodon, horse, camel, and bison. At Sandia Cave, in New Mexico, some of these primitive hunters cooked their prey over stone-lined fireplaces. Here, too, they left some of their spearheads, knives, and scrapers. Other hunters also killed the mammoth and the musk ox. These people we call Clovis, after a site in eastern New Mexico. While their spear points differed from those of the Sandia people, it may still be that the Clovis people descended from the Sandia. The Clovis hunters spread widely over many parts of the United States.

Following the Clovis hunters in the High Plains, we find evidence of several groups who used different kinds of spears

in their hunting, but who, without exception, hunted the great bison now extinct, with which the Plains abounded. The most widespread and best known of these groups is named Folsom, after a site near Folsom, N. Mex. Probably the descendants of the Clovis people, the Folsom hunters ranged from northern Mexico to northernmost Alaska about 10,000 to 12,000 years ago.

Still later, another group of bison hunters were those whose cultural remains are now known by the name Cody Complex but were at one time called Yuma, after a county in Colorado where the distinctive spear points were first found.

Most of the early hunters lived east of the Rocky Mountains. To the west, in the desertlike Great Basin, were groups of Indians whose main dependence was on the natural harvest of the land—the seeds, nuts, fruits and berries—supplemented by the trapping or hunting of small animals and even, in places, by fishing. The remains these people have left are generally called the Desert Culture. By about 10,000 years ago these people had developed many special tools to enable them to use the wild vegetal food of the desert. Such tools as domed scrapers, seed beaters, baskets, and grinding stones, were common. But they, too, hunted some kinds of animals that are now extinct. At Gypsum Cave in southeast Nevada were found the tools and weapons of men who hunted the slow, ungainly ground sloth, as well as camels and horses. Other places where early hunters and gatherers lived are Danger Cave in Utah and Ventana Cave in southern Arizona. Traces of the Desert Culture people have been found as far south as the Valley of Mexico. One of the Desert Culture groups who lived in southeastern Arizona and southwestern New Mexico we call Cochise, the earliest of which are the Sulphur Spring Valley people.

These early hunters and gatherers are often found associated with the remains of mastodon, mammoth, horse, camel, antelope, giant ground sloth, tapir, musk ox, giant bison, direwolf, and many other animals that once lived in North America. This association serves the archeologist as a convenient time marker, because within a few thousand years these animals became extinct in America. We do not know why, but their extinction seems to be connected in some way with the last retreat of the glaciers, some 10,000 years ago. 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, bighorn sheep, pronghorn, and such small animals as rabbit and prairie dog, became prey to the hunters; and the gatherers soon learned to utilize new kinds of vegetation. Thus, Man continued to live in much the same way as he had lived before.

In southern Arizona, the Sulphur Spring group of the Cochise people apparently had lived mainly by gathering; but as the climate became progressively drier following the retreat of the last glaciers, their descendants, the 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 houses. They made long, slender spear points with deep notches near the base of the blade. More important, they ground the wild seeds of the area in large, deep, basin-shaped milling stones. Thus, they were prepared to welcome the agricultural revolution into the Southwest.

## CHAPTER II

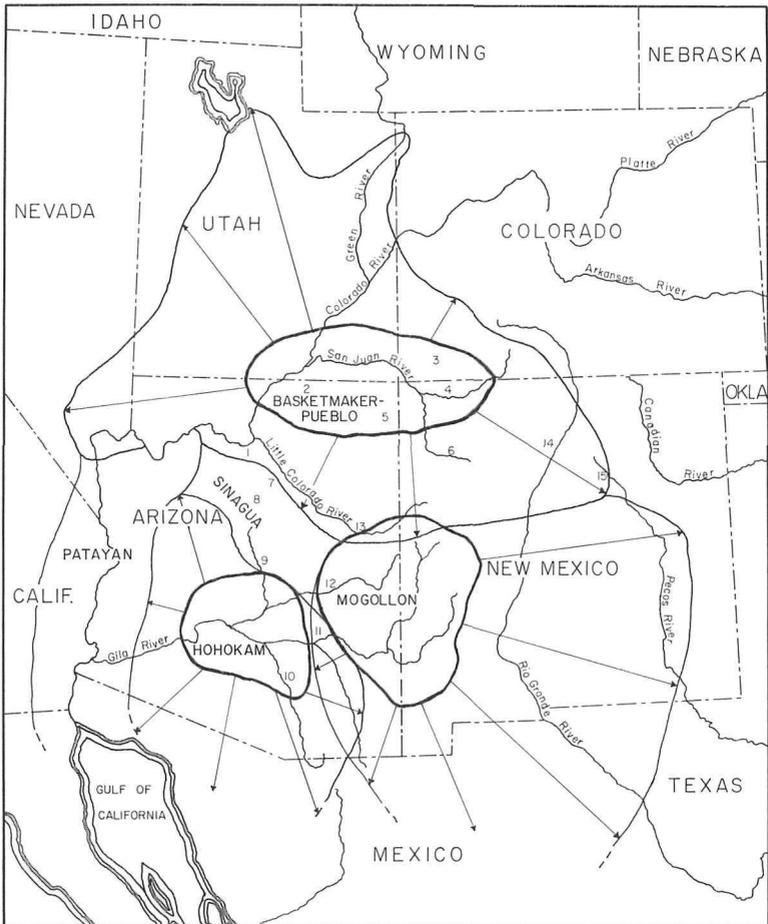
### *Early Southwesterners*

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, canyons, and occasional volcanic fields. Except for the highest parts, this area receives comparatively little rain, which soon evaporates or drains away in deep channels and canyons. Most of the area is covered by sagebrush 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 streambed 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 cactuses 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.

Corn, or maize, appears to have been domesticated from some native grass of northern South America or the highlands



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 Ruins 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 Castle National Monuments; (10) Casa Grande National Monument; (11) Tonto Cliff Dwellings National Monument; (12) Kinishba Ruins; (13) Petrified Forest National Park; (14) Rito de los Frijoles, Bandelier National Monument; (15) Pecos Pueblo New Mexico State Monument.

of Guatemala or Mexico. The use of corn had spread 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. Discoveries in Bat Cave in west central New Mexico indicate that a very primitive type of corn was grown at least 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 1000 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 in the last few centuries 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 the narrow valleys to the north, 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 people with a simple culture.

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 facing 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 used were still mostly straight lines and angles until late in Mogollon history. As for stonework, 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 stonework 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. When one of them 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 after-world.

In the early centuries of the Christian era, the pottery-making Mogollon people were living as far north as the headwaters of the Little Colorado in the southern Colorado Plateau. Here they came in 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.

To the west and south of the Mogollon stretched the Sonoran Desert. The key to successful living in a desert environment is water, and most of the occupation of this arid region was restricted to the water courses that crossed it. The people who

lived here were in many ways similar to the Mogollon. They made brown-on-red pottery and practiced simple agriculture. At least in their later phases, these people are called Hohokam, a Pima Indian word for "the ancient ones." Most archeologists believe that they developed from the western San Pedro people. In any event, some time before A. D. 900 a great many new ideas and techniques from Mexico began to appear in this area. Among those techniques was the widespread use of irrigation. Probably at first the Hohokam dug crude shallow channels to divert runoff water over their cornfields as the Papago do today. Eventually, extensive irrigation systems carried water from the permanent rivers over miles of desert. Some of the 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 well adapted to the hot desert environment. 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 off to one side. Early Hohokam houses were squarish, later ones rectangular, and finally somewhat oval. They were grouped in scattered 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. 700 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, usually 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. Later ball courts were shortened to about 35 yards and often oriented north and south instead of east and west. Despite the tremendous labor necessary to build these courts, especially the early form, over 70 have been found in Hohokam country and the areas they influenced, as far north as Wupatki National Monument.

The Hohokam were the impressionists of Southwestern prehistory. Soon after they began to decorate their pottery, they developed a characteristic style of design. Geometric, straight-line designs were common but curved-line 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. 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, as were handstones 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 a highly polished mosaic of iron pyrite crystals. Stone flaking of knives and projectile points was often done to perfection, with beautiful results. Orna-

ments were made in great quantity. Beads and pendants were made of stone and shell, but turquoise was especially favored. Glycymeris shell traded from coastal tribes 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 practiced. 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 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 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 Flagstaff area 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, and others—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.

## CHAPTER III

### *The Basketmakers*

ABOUT THE TIME OF CHRIST, groups of people who made their living by hunting and gathering of wild plant foods were living in the mesa and canyon country drained by the San Juan River. Caves and rock shelters abound there, and the early inhabitants often used these as camping and storage places as they moved to follow the natural harvest of the land. We do not know what these people called themselves; the Navajo who now live there call them Anasazi—"the ancient ones"; we call them the Basketmakers.

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

Plate 1. *Basketmaker underground storage pit*



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 3 or 4 bodies; one yielded 19, perhaps victims of an epidemic. Fortunately for archeologists, these caves are extremely dry. Instead of decaying, the bodies in them sometimes dry out, becoming natural mummies. Flesh, skin, tendons, and hair are often preserved, as is everything buried with the bodies.

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. A story, probably apocryphal, relates that 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!

As a legacy from their wandering days, many of the Basketmakers must have continued to camp in the caves. Flimsy temporary shelters of poles and brush probably continued to house many families, but in the eastern part of their country, where timber was abundant, they built permanent dome-shaped houses. Many of these houses were quite large, with shallow, saucer-shaped floors. Walls and roofs were made of short sections of logs laid in mud, much as stone masonry was later constructed.

The Basketmakers were small people. Men averaged about 5 feet 4 inches, women somewhat less. 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 baldpate effect. Possibly the later two styles were marks of distinction or leadership. By contrast, the woman's hairdo was simple. Her hair was usually lopped off irregularly 2 or 3 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 Basketmakers caves; oddly enough, few mummies have been found

wearing them. 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 made of braided yucca fiber or woven of cords; they were thick and had square toes sometimes decorated 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 2 feet in length were woven by intertwining cords rather than coiling. These, too, were decorated 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 bighorn sheep. The atlatl is a piece of wood 2 to 3 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 exten-

sion 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.

Basketmaker stone tools are not impressive. They shaped large stone slabs (metates) on which corn, or "maize," so important to them, was ground by rubbing smaller hand stones (manos) forward and backward. Dart points and large knives were ground out to be attached to atlatls. Tubular stone pipes were made.

About A. D. 600, new and better types of corn and squash were introduced, making possible a greater dependence on agriculture and a more settled life. Pithouses now replaced surface dwellings. In these pithouses (plate 2) the front part was set off by a ridge or low wall, and metates were set here for

Plate 2. *Basketmaker III* pithouse

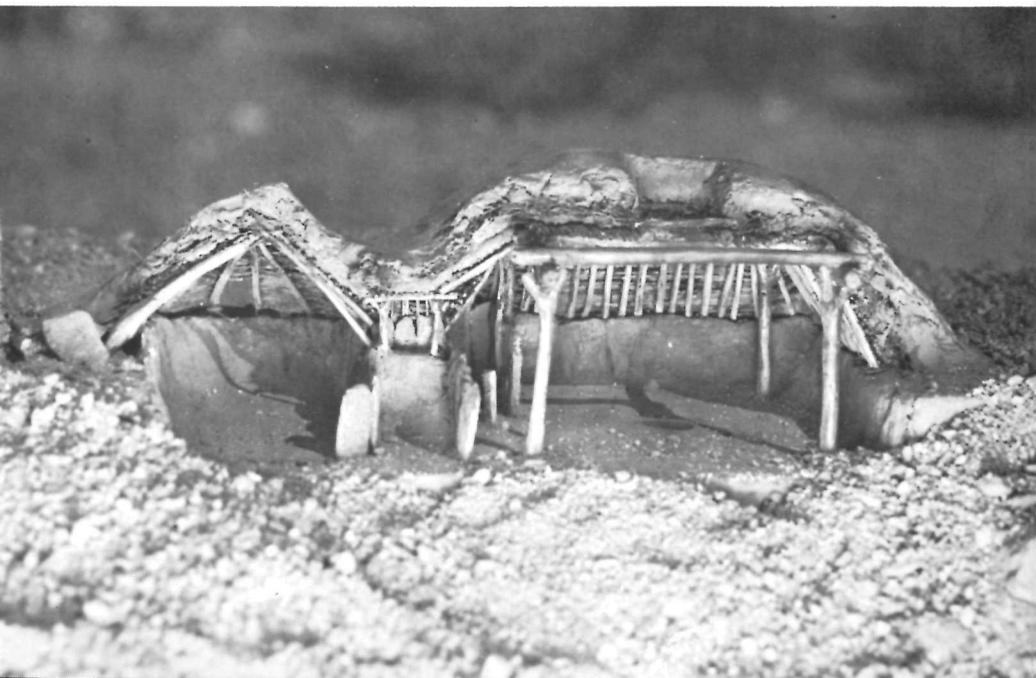




Plate 3. *Basketmaker III pottery*

the woman to grind her corn. Many houses had a small separate room or annex at one side.

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.

By this time the Basketmakers had 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 out of clay. However, many fine baskets were still being made.

Clothing continued much the same, but in addition to fur robes, feather robes began to be 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, fringe-toed type was replaced by very beautiful sandals with cupped heel and scalloped toe. A double weave

was used, the upper surface of the sole usually bearing woven designs in black, red, and tan; the lower surface having a raised pattern made by knotting. Each pair may have had a different design, making it possible to recognize footprints of different people along the paths. In addition to the ornaments of earlier Basketmakers, turquoise was used for beads and even for mosaics.

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



## CHAPTER IV

### *Developmental Pueblo*

IT MAY BE THAT THE CONTACTS of the Basketmakers about A.D. 700 were far wider than we now recognize. At any rate, a great many changes begin to occur at this time. Many of the things made at this time were simply developments and improvements of things they had been making for generations. But alongside these are new concepts in building, in decorating pottery, and many new complex pottery forms appear. One other change should be noted. A change in the fashion of cradling babies resulted in a new head shape. The soft, padded Basketmaker cradle gave way to a hard, flat one, resulting in the deformation and flattening of the back of the head; but this did not alter brain capacity or intelligence.

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, and 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; 5, 10, 50 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, a 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.

Following this, the next important advance in architecture was made. Masonry, simple stone slabs with mud mortar, was used, first to reinforce sagging earth walls of pithouses or to cap a row of vertical slabs. Soon it was used to build sizable stone walls of surface storage rooms. As its advantages in construction

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



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 6 to 12 rooms, 1 or 2 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. Nevertheless, some people in the Kayenta and Mesa Verde areas continued to make and live in pithouses, sometimes lined with masonry.

In addition to general development of houses, regional differences occurred in the great Pueblo centers. Building materials available in these areas varied. In the Chaco Canyon area 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 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 often 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 Basketmaker 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 sometimes lack features usually thought to be necessary, and, as on the houses, workmanship is frequently inferior to that of the other Pueblo areas. In Chaco Canyon and elsewhere in the Four Cor-

ners 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 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,

Plate 6. *Early Developmental Pueblo pottery*





Plate 7. *Late Developmental Pueblo pottery*

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 Basket-makers, but a few new tools appeared. A new kind of metate—a thin, open-ended, troughed sandstone slab—and grooved stone

axes 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 foot-gear 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 burials 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 customs, 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 Pueblo culture was expanding to

the west, north, southeast, and south. 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 through eastern Arizona and western 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 might have been due to the poor quality of stone available.

Black-on-white pottery occurred 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 overlapped, and a new kind of square kiva developed. It was 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.

## CHAPTER V

### *The Classic Period*

BY A. D. 1000 THERE WERE thousands of small Pueblo villages scattered through the San Juan country. Trade flourished and large urban centers began to spring up. This was the period during which the first great apartmentlike, or communal, houses were built (plate 8), both in the open and in huge natural shelters. Arts flourished, and there was intensive local specialization. Probably this great development was based on 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. 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 were the result of remodeling. Whatever the reason,

Plate 8. *Model of a Classic Period Pueblo house*



there was a tendency for the growth of these large population centers.

The first Pueblo region in which the great houses were built was the Chaco. Most of these houses were more or less rectangular; but the most spectacular ruin today, Pueblo Bonito, is in the shape of a huge *D*. Over 800 large, well-plastered rooms were arranged in 5 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. This Chaco culture appears to have spread northward into the Mesa Verde area, where it was the base for some of the later developments there.

Many of the largest houses of the Mesa Verde area were surface structures, but more spectacular were 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.

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 practiced, and as a result most houses, except in protected caves, have disintegrated into heaps of stone. Some Kayenta cave ruins are remarkable. Keet Seel and Betatakin, units of Navajo National Monument, 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 late 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



Plate 9. *Classic Period Pueblo pottery*

some 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 very high development during this 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 Great Pueblo Period, minor arts and crafts 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 from Mexico for their feathers.

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

Almost within a quarter of a 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, on the North Rim, began to abandon their villages about A. D. 1250, moving into the Kayenta area. Perhaps neighboring nomadic groups were beginning to make inroads on the Pueblos. Restlessness and shifting increased. Agriculture may have become more difficult in the northern part of the Pueblo country because of sparse rainfall throughout the 1200's 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 some, perhaps, 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 Montezuma Well.

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; we do not know where they went. By A. D. 1300 the whole northern frontier stood empty, or nearly so.

## CHAPTER VI

### *Resettlement, Fusion and Resistance*

NEW CENTERS BEGAN TO SPRING UP. The Zuni country, Hopi Mesas, Rio Grande valley, mountainous areas of central and eastern Arizona and southwestern New Mexico, and northern Mexico, took the place of Chaco, Mesa Verde, and Kayenta. While these areas offered permanent water, each already maintained a sedentary population based on agriculture, and the influx of new people meant overcrowding. More important, it meant that many groups mingled and fused. Out of the fusion came new ideas and ways of doing things.

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, each with a bench or deep recess across one end. Each kiva had a ventilator hole at floor level for fresh air supply, a deflector slab of stone between this and the fire pit in the center of the floor, and a sipapu, which is a small hole in the kiva floor representing entrance to the underground spirit world, as in earlier days. In contrast were the circular great kivas of the Zuni and Acoma area, 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 beautiful, geometrically patterned black-on-white died out. Polychromes of black and white on red or yellow were made in a wide range of local and highly specialized types. Glaze paints were invented, and their use spread widely. Pottery painting became dynamic: birds, animals, and human

figures often wearing ceremonial masks augmented, or replaced, the earlier geometric patterns.

The dynamic art of the pottery was reflected in the kivas, as well. Here, the walls were covered with vividly painted pictures depicting some of the ceremonies that took place there.

Stonework did not change greatly, but there was a general increase in the kinds of things made. Arrow-shaft straighteners of stone were introduced. There was little change in textile arts. Much of the weaving was coarse, but some very beautiful textiles were made, especially in the southern mountainous area. Significant 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 decorate them. Ornaments similar to earlier ones were made but were far less common.

In the region of 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 Bandelier National Monument, 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 before this, 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 objects from northern Mexico into Pueblo country.

But, for reasons we do not understand, many areas were gradually deserted. By A. D. 1500 only three centers remained: Hopi, Zuni, and the region of the Rio Grande. That is where the Spanish found the Indians living in 1540, when Coronado followed old Indian trails through Sonora and southern Arizona to Pueblo country.

Coronado 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, and east into the plains of central Kansas. Here, too, gold was illusory. Pueblo-Spanish contacts were not friendly. Fighting and death prevailed between uneasy armistices enforced by Spanish superiority of arms. Finally, after another winter on the Rio Grande, Coronado returned to Mexico.

Forty years passed before the Spanish came again. Then, with increasing frequency, they encroached upon the Indians, subjecting them to Spanish law, converting them to Catholicism. Great churches were built—by Indian labor—but the Pueblos kept their kivas. Resenting the Spanish yoke, the Indians resisted, attempted revolt in 1680, and successfully drove the Spanish from New Mexico. Twelve years later the Spanish fought their way back. Many Indians fled their homes.

About A. D. 1700 the Spanish influence among the Pueblos along the Rio Grande began to result in the mixed culture we can still see today. 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 the Indians' beast of burden.

Today, in many ways, 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 the 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.

## CHAPTER 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 small surface pueblos in and 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.

There is little evidence, as yet, of early hunters or gatherers in the Grand Canyon area. However, in 1957 split-twig figurines perhaps representing deer, bighorn sheep, pronghorns, and the like, were found in caves difficult to reach in the walls of Grand Canyon. These may have been hunting shrines, for no sign of living in the caves was present. Radioactive carbon methods date these as 3,000 years old. Scattered remains of Basketmaker Indians, also mostly from caves, date back somewhat less than 2,000 years. Almost 1,400 years ago (A. D. 600 or 700), the pottery-making Basketmakers had occupied the north rim. A few also settled 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 more simple.

By A. D. 800, or nearly 1,200 years ago, 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 Tusayan Ruin and 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 the Cohoninas and Pueblos along the eastern edge of the canyon.

*Grand Canyon Site 505*

The ruin of a Cohonina house, occupied probably about A. D. 800, has been excavated near Tusayan Ruin and Museum, about 4 miles west of Desert View. 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 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 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,

Plate 10. *Grand Canyon Site 505*

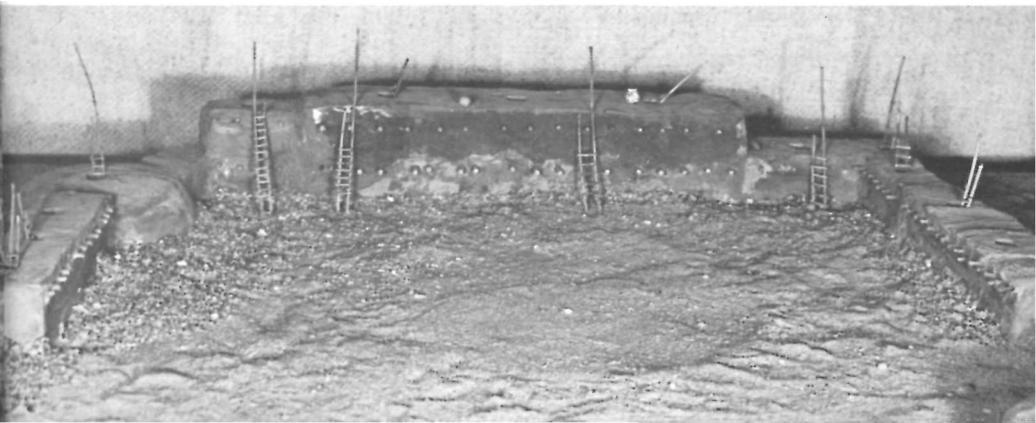
the Cohonina continued to hold their ground. During late Developmental times there seems to have been a mass movement into both north and south rim areas. Many people dwelt in small pueblos and carried on agriculture in terraces built wherever runoff water would supply silt and moisture. North rim sites show increasing influence from the Pueblo people of Utah. Perhaps nomads were pressing southward, forcing the Pueblos to move on before them.

The Great Pueblo 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 departed, leaving behind their houses, agricultural terraces, ditches, and diversion dams.

### *Tusayan Ruin*

On the south rim the people concentrated in a few pueblos containing up to 30 rooms, although most were smaller. One of these, a fine excavated ruin, may be viewed today at a point about 4 miles west of Desert View, just south of the so-called East Rim Drive in Grand Canyon National Park. This is Tusayan Ruin, named for an old Spanish term for the Hopi country. Here, each summer the National Park Service operates a small museum and presents daily talks about the archeology and the development of prehistoric man which led to his settling briefly at this site.

Plate 11. *A model of Tusayan Ruin as it looked when occupied*



Tusayan Pueblo was built between A. D. 1185 and 1200, or roughly 770 years ago. In plan, it formed a broad U-shape, 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 ladder 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 only 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 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.

# Suggested Reading

## GENERAL

- Mirror for Man*, Clyde Kluckhohn. Whittlesey House, 1949.  
*The Tree of Culture*, Ralph Linton. Knopf, 1955.  
*Mankind So Far*, W. W. Howells. Doubleday, 1947.  
*Up From the Ape*, Earnest A. Hooton. Macmillan, 1946.  
*Archeology and Society*, Grahame Clark. Barnes & Noble, New York, 1960.

## OLD WORLD PREHISTORY

- Prehistoric Men*, Robert J. Braidwood. Chicago Natural History Museum, Popular Series, Anthropology, No. 37, 1948.  
*What Happened in History*, Gordon Childe. Penguin Books, 1946.  
*Man the Tool-maker*, Kenneth Oakley, University of Chicago Press, Phoenix Books, 1959.

## EARLY MAN IN THE NEW WORLD

- Early Man in North America*, H. M. Wormington. Denver Museum of Natural History, Popular Series, No. 4, Revised 1957.  
*Early Man in the New World*, Kenneth MacGowan. Macmillan, 1950.

## NORTH AMERICAN ARCHEOLOGY

- Indians Before Columbus*, Paul S. Martin, George I. Quimby, and Donald Collier. University of Chicago Press, 1947.  
*Method and Theory in American Archaeology*, Gordon R. Willey and Philip Phillips. University of Chicago Press, 1955.

## SOUTHWESTERN ARCHEOLOGY

- An Introduction to the Study of Southwestern Archaeology*, A. V. Kidder. Yale University Press, 1924.  
*Prehistoric Indians of the Southwest*, H. M. Wormington. Denver Natural History Museum, Popular Series, No. 7, 1947.  
*Southwestern Archaeology*, J. C. McGregor. Wiley, 1941.  
*Digging in the Southwest*, Ann Axtell Morris. Doubleday-Doran, 1933.  
*Prehistoric Southwesterners*, Charles A. Amsden. Southwest Museum, 1949.

## ARCHEOLOGY TECHNIQUES

- Dating Prehistoric Ruins by Tree-Rings*, W. S. Stallings, Jr. General Series Bulletin 8, Laboratory of Anthropology, Santa Fe, 1939.  
"The Secret of the Southwest Solved by Talkative Tree-Rings,"  
A. E. Douglass, *National Geographic Magazine*, Vol. 54,  
pp. 737-770, 1929.  
*Beginning in Archaeology*, Kathleen M. Kenyon. Praeger, 1961.

Scores of books on Anthropology and Archeology are now available in paperback editions, including some of the above titles.

