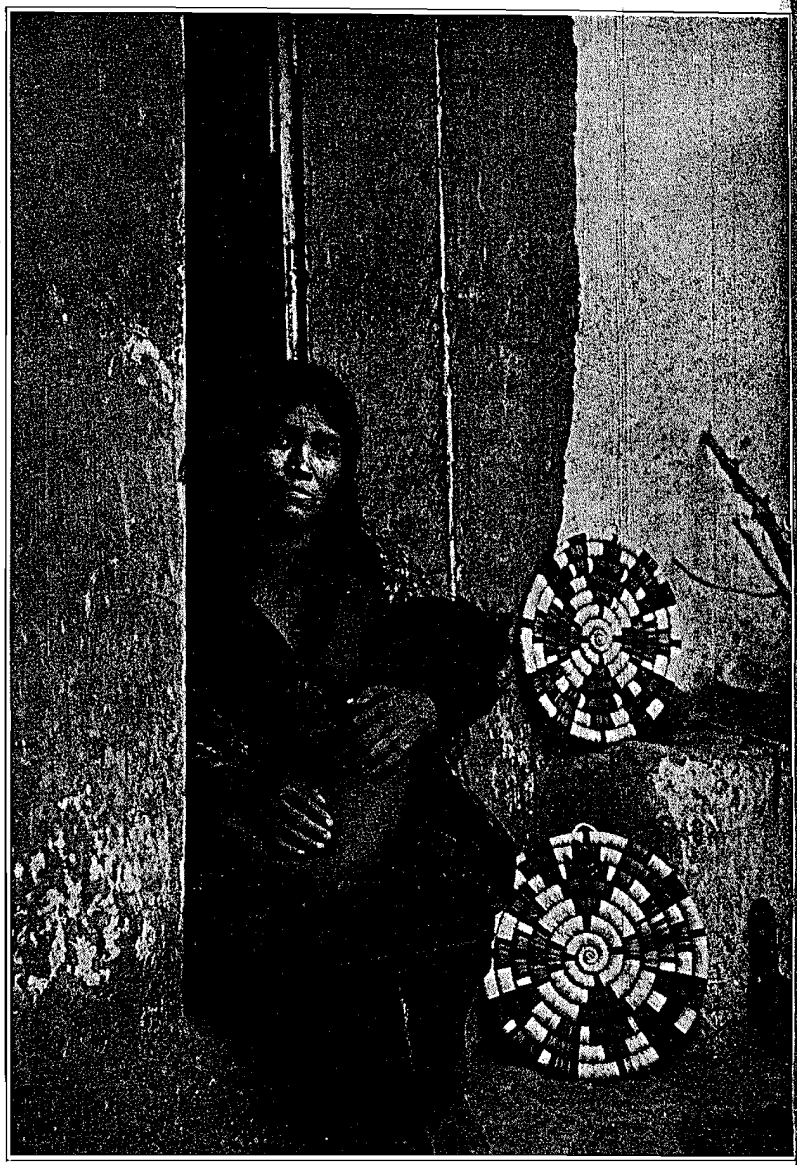

Photo by P. G. Gates

A MADONNA AMONG THE MOKI

THE HOPI INDIANS

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Ethnology of the Smithsonian Institution, a fellow worker in the Pueblo field, grateful acknowledgments are due for his criticism and advice in the preparation of this book. The frontispiece is by that distinguished amateur P. G. Gates of Pasadena. Under the auspices of the explorations carried on by Dr. J. Walter Fewkes, for the Bureau of American Ethnology, the writer had in 1896 his first introduction to the Hopi, a favor and a pleasure that will always be remembered with gratitude on his part. The indebtedness of science to the researches of Dr. Fewkes among the Hopi is very great and this book has profited by his inspiration as well as by his counsel.

I

THE COUNTRY, TOWNS, AND PEOPLES

The Hopi, or Peaceful People, as their name expresses, live in six rock-built towns perched on three mesas in northeastern Arizona. They number about 1,600 and speak a dialect of the language called the Shoshonean, the tongue of the Ute, Comanche, and other tribes in the United States. There is another town, called Hano, making up seven on these mesas, but its people are Tewas who came from the Rio Grande valley in New Mexico more than two centuries ago.

There are a number of ways of reaching the Hopi pueblos. If one would go in by the east, he may choose to start from Holbrook on the Santa Fé Pacific Railroad, or Winslow (two days each), or by the west from Canyon Diablo (two days), or Flagstaff (three days). The estimates of time are based on "traveling light" and with few interruptions. A longer journey may be made from Gallup, during which the Canyon de Chelly, with its wonderful cliff dwellings, may be visited if one has a sufficient outfit and plenty of time.

The home-land of the Hopi, known as Tusayan from old times, is a semi-desert, lying a mile and a quarter

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above sea-level. It is deeply scarred by canyons and plentifully studded with buttes and mesas, though there are vast stretches which seem level till one gets closer acquaintance. From the pueblos the view is open from the northwest to the southeast, and uninterrupted over the great basin of the Colorado Chiquito, or Little Colorado River, rimmed on the far horizon by the peaks of the San Francisco, Mogollon, and White Mountains, while in the other quarters broken mesas shut out the view.

The rainfall almost immediately sinking into the sandy wastes, determines that there shall be no perennially-flowing rivers in Tusayan, and that springs must be few and far between and the most valued of all possessions. Were it not for winter snows and summer thunder-storms, Tusayan would be a desert indeed.

The hardy grasses and desert plants do their best to cover the nakedness of the country; along the washes are a few cottonwoods; on the mesas are junipers and pinyons; and in the higher lands to the north small oaks strive for an existence. At times, when the rains are favoring, plants spring up and the desert is painted with great masses of color; here and there are stretches green with grass or yellow with the flowering bunches of the "rabbit brush" or gray with the ice plant. In sheltered spots many rare and beautiful flowers may be found.

The Hopi enjoy a summer climate the temperature

of which is that of Maine and a winter climate that is far less severe than the latter, since most days are bright and the sun has power. Even in the warmest season the nights are cool, and an enjoyable coolness is found by day in the shade. The dryness of the region renders it ideal for healthful sleeping in the open air. A pure atmosphere like that of the sea bathes Tusayan; no microbes pollute it with their presence and it fills the body with good blood and an exhilaration like wine.

Perforce the Hopi are agricultural, and since there is little game to be hunted, they are also largely vegetarians, their chief food being corn. When the corn crop fails the desert plants are relied on to prevent starvation. The Hopi thus form a good example of a people whose very existence depends on the plants of the earth, and it speaks well for their skill as farmers, in so unfavorable an environment, that there are any of them living in Tusayan at this day.

Out of this environment the Hopi has shaped his religious beliefs, whose strenuous appeal is for food and life from the grasping destroyers of nature that whelm him. And in like manner he has drawn from this niggard stretch his house, his pottery, baskets, clothing and all the arts that show how man can rise above his environment. But let us have a closer view of this Indian who is so worthy of the respect of his superiors in culture.

The Hopi man is moderate of stature, well-framed,

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hard-muscled, and agile, since he depended on his own feet for going anywhere and on his arms for work before the day of the burro and the horse. Black, straight hair worn long, brownish skin, the smooth and expressive face in the young men, intensifying as they grow older, bringing out the high cheek-bones, the nose, the large mouth and accenting them with wrinkles, but never developing a sullen, ferocious cast of countenance, always preserving the lines of worth and dignity and the pleasing curves of humor and good-fellowship to the end of life, — these are the salient characters of the Hopi.

The same remarks apply to the other sex, who from childhood to old age run the course in milder degree. Many of the maidens are pretty and the matrons are comely and wholesome to behold. The old, wrinkled and bowed go their way with quiet mien and busy themselves with the light duties in which their experience counts for much.

In spite of the luxuriant hair that adorns the heads of this people, one may notice the difference of head shape which distinguishes them from the tribes of the plains. The cradle-board is partly responsible for this, since, from infancy, the children are bound to the cradle and obliged to lie on the back for longer or shorter intervals, and thus begins the flattening of the back of the skull. But the heads of the women are rarely flattened, probably because the girls are not so well cared for as the boys.

There are among the Hopi a greater number of albinos in proportion to the population than may be found almost anywhere else. They go about their avocations like the rest and are in no way regarded as different from their kin. The impulse is to address them in English, and one feels surprised when they do not comprehend. One albino maiden of Mishongnovi has a marvelous growth of golden hair which shows to great advantage in her ample hair whorls. Many students believe that albinism has its origin in the nervous system, and perhaps the timidity of the Hopi explains the number of these remarkable people in their midst; but this is a theory, based on a theory. It has been observed that some of the albinos are below the average in intelligence, and it has been ascertained that the larger proportion of them are second in order of birth in a family.

From the number of old people in the pueblos one would gain the impression that the Hopi are long-lived. All things considered, this is doubtless the truth, but there are no statistics to settle the matter; besides, the question of age is a doubtful one among the Hopi themselves. If "sans everything" is any criterion of a centenarian, there are such among the Peaceful People. One must conclude that, on passing childhood, the average Hopi is due for a second term of the helpless period.

"Welcome" is not written over every Hopi door, but the spirit of hospitality pervades the entire popu-

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lation. This is one of the pleasant features of the Pueblos and is the chief reason why the Hopi are held in friendly remembrance by visitors. An acquaintance with the Indians in the different pueblos of the Southwest will convince one that there is a considerable range of disposition among them. Perhaps the extremes are the untractable Santo Domingans and the impressionable Hopi. It seems to be a matter of the elements of which the tribes have been made up and of their past experiences and associations.

High up on the gray rocks the Hopi towns look as though they were part of the native cliff. The seven towns, — though twenty miles and three distinct mesas separate the extremes, — Hano and Oraibi, — are built on the same stratum of sandstone. The rock shows tints of light red, yellow, and brown, and cleaves into great cubical pillars and blocks, leaving the face of the cliff always vertical. Trails at different points lead up over the low masses of talus and reach the flat top through crevices and breaks in this rock-wall, often over surfaces where pockets have been cut in the stone for hand and foot. A very little powder, properly applied, would render these mesas as difficult of ascent as the Enchanted Mesa near Acoma.

Once on top and breathing normally after the four hundred feet or so of precipitous climbing, one sees why the outer walls of the towns seem to be a continuation of the living rock. The houses are built of slabs of stone of various sizes, quarried from the mesa

and laid up in mud. They are of terrace style, rarely more than of two stories, flat-roofed, and grouped in masses so as to form streets and plazas and conforming to the irregularities of the surface and outline of the mesas. For this reason not much order can be found in a Hopi pueblo. The uneven surface of the mesas gives a varying height to the houses and increases the picturesqueness of the skyline.

These Hopi towns are the most primitive of the inhabited pueblos. Before us is a picture of the ancient life as true as may be found in this day of inquisitive travelers and of rapid transportation to the ends of the earth. But this state of things is changing with increasing rapidity; the Hopi is becoming progressive and yearns for the things of the white man with increasing desire, therefore it is evident that, before many years, much that is charming in Tusayan by reason of the ancient touch about it will have vanished from the lives of its brown inhabitants.

This change is most marked at Walpi, because the East Mesa people have longest been in contact with the civilizing influences of schools, missions, and trading posts; besides, they were always apparently the most tractable of the Hopi. Many families have abandoned the villages on the cliffs, and their modern, red-roofed houses dotting the lower ground near the fields show the tendency to forsake the crowded hill-towns. But the old towns exist in all their primitiveness and furnish bits of surpassing interest to lovers of the pic-

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turesque. To these the bulk of the conservative Hopi still cling with all the force of their inherited instinct.

Two centuries ago visitors arrived at Walpi from the Rio Grande. These were a tribe of Tewa, invited to come to Tusayan to aid in fighting off the Apache and Ute, those wily nomad adversaries with whom the Peaceful People for so long had to contend. Here they have lived ever since in their village of Hano, at the head of the most readily accessible trail up the mesa, preserving their language and customs, and besides their own tongue, speaking well the language of their friends and neighbors. The Tewa brought with them their potter's art and now have the honor to be practically the only makers of earthenware in Tusayan. Nampeo is the best potter at Hano and her work shows her to be a worthy descendant of the ancient artists, whose graceful vessels lie with the bones of the dead beneath the sands of the great Southwest.

Beyond Hano, and midway between it and Walpi, is Sichomovi, which signifies "flower mound." Sichomovi, if we may judge from the good preservation of its houses and the regularity with which the town is laid out, seems to be comparatively new, and indeed, there is traditionary testimony to this effect. The dusky historians of Walpi relate the circumstances of its foundation, when the yellow flowers grew in the crevices of the rock at the place where several stranger clans were allowed to settle.

Passing out of Sichomovi and crossing a narrow neck of the mesa traversed by a well-worn trail, Walpi is reached. This village from different points of view presents the appearance of a confused jumble of dilapidated houses, and a walk through its alleys and passages confirms the impression. Walpi was a town of necessity and was erected in 1590, having been moved up from a lower point after troubles with the Spanish conquistadores.

Looking down from the town one may trace the site of Old Walpi and descry the pottery-strewn mounds of still older settlements, since around this mesa the first comers to Tusayan probably located. At the foot of the mesa are also springs and shrines, one of the latter being the true "center of the world" to the Hopi mind, a point which gave the ancients much trouble to determine. Along the ledges are corrals for the motley flocks of black and white sheep and goats, adepts in subsisting on all sorts of unpalatable brush. Farther down in the level are the fields, at the proper season green with the prospect of corn, melons, and beans.

Walpi streets are the living rock of the mesa worn smooth by human feet and swept by the officious wind-god, whose dry air, with the aid of the sun, form the board of health of the Hopiland. This rocky surface must have been a great trial to the *kiva* builders, as traditional custom requires that such meeting places of the secret societies or brotherhoods should be underground. The *kivas* along the streets thus represent a

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great amount of work in their construction, and it is clear that, when the builders found a cleft in the rock or a niche in the cliff-edge, they appropriated it as the site of a *kiva*, then built an outer wall overhanging the precipice and prepared the deep oblong room with toilsome labor, for they had only the rude tools of the stone age.

The two poles of the ladder project from the *kiva* hatchway, and one may descend if no ceremony is on hand. There is not much to see except an empty, smoke-blackened room with stone-paved floor, plastered walls, and ceiling crossed by heavy beams. Just in front of the ladder is a fireplace, consisting of a stone box sunk in the floor, and the portion of the room back of the ladder is elevated. These subterranean chambers are now found in use only in Tusayan, where this manner of building them, along with many other ancient customs, has been preserved by the Hopi through many generations.

Hopi houses are small, and as in the other pueblos of the Southwest, the first families live in the second story, which is reached by a ladder. In recent times, though, the ground floor, which formerly was used chiefly for storage, has been cleaned out, furnished with doors, and occupied as habitations. Steps on the dividing walls lead to the upper story and the roof forms a general loitering-place. The living room is kept in good order, and a goodly array of blankets, harness, and clothes hanging from a swinging pole are

looked on with pride and complacency. In the granary, which is generally a back room, the ears of corn are often sorted by color and laid up in neat walls and one year's crop is always kept in reserve for a bad season. Red corn, yellow corn, white corn, blue corn, black corn, and mottled corn make a Hopi grain room a study in color. Three oblong hollowed stones or metates of graded fineness are sunk in the floor of every Hopi house, and on these, with another stone held in the hands, the corn is ground to fine meal, the grinders singing shrill songs at their back-breaking work.

In the corner of the baking-room is a fireplace covered with a smoke hood and containing slabs of stone for the baking of *piki*, or paper bread, while scattered about are many baskets, jars, bowls, cups, and other utensils of pottery well fitted for the purposes of the Hopi culinary art. Outside the house is a sunken pit in which corn-pudding is baked.

These and many other things about the Hopi villages will interest the visitor, who will not have serious difficulty in overlooking the innovations or in obtaining a clear idea of Pueblo life as it was in the times long past.

If one crosses the plain to the three villages of the Middle Mesa, he will find still less of the effect of contact with modern things. Mushongnovi, the second town of Tusayan in point of size, presented as late as 1906 a perfect picture of an unmodified pueblo on its

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giant mesa, the eastern and northern walls of the town blank and high like the face of a cliff. Within this closely-built village the terraced houses face the streets and open plazas, after the ancient fashion. Because of their harmony with their primitive surroundings, one hesitates to believe in the modernness of the chimneys of these pueblos, yet it appears to be true that the idea is of Spanish introduction.

Shipaulovi, on its high vantage point, seems newer than Shumopavi, its neighbor, the latter being the most regular pueblo in Tusayan. Some fifteen miles beyond Shumopavi is Oraibi, the largest of the seven Hopi towns, whose rough walls give it an appearance of great age. Oraibi held out longest against the white intruders, and even now would much prefer to be left alone in the enjoyment of its accustomed ways, but the school-houses and the red roofs brought by the white man increasingly menace its old-world notions.

The nearest neighbors of the Hopi are the Navaho, that large and rapidly growing tribe who are what they call themselves, *Dene*, "men." They crowd upon the Hopi, and when the opportunity offers "raise" some stock or dictate with sublime egotism the conduct of the ceremonies. Several hundred years of contact with the pueblo folk have made the once uncultured Navaho in many respects like them. The timid Hopi do not choose to affiliate with the Navaho, but marriages are not infrequent among members of the two tribes. Generally it is a Navaho brave who seeks a

Hopi maiden to wife, coming to live with her people, but rarely does a Hopi youth lead a "Teshab" girl to his hearth as did Anowita of Walpi.

A few Zuñi have cast their lot at Tusayan and several of the latter live at Zuñi and in some of the Rio Grande pueblos. Not many years ago, a Hopi was chief of an important fraternity at Sia, a pueblo on the Jemez River in New Mexico. The Zuñi are quite neighborly and visit Tusayan to witness the ceremonies or to exchange necklaces of shell and turquoise beads for blankets. Tradition has it that some of the clans from the Rio Grande came by way of Zuñi and that Sichomovi has a strong admixture from that pueblo. In support of this it may be said that the Zuñi visitors are usually domiciled at Sichomovi, where they seem very much at home, and many of the people there speak the Zuñi language.

At the time of the ceremonies, especially those performed in summer, Tewa from the Rio Grande pueblos come to visit and trade and enjoy the merrymaking that attends the dances. Some of the people of Hano have visited their relatives on the Rio Grande, but few of the Hopi are so far-traveled in these days. There has been for centuries, however, more or less communication across the vast stretch of arid country lying between the Great River and Tusayan, and in a number of instances in the distant past, whole tribes have emigrated from the east to the Hopi country where they have founded new towns. Although 100

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miles away, the Havasupai may also be regarded as near neighbors who cross the desert to sell their fine baskets and superior white-tanned deerskins, for which articles there is great demand. The Hopi also traverse the sandy waste to visit the "People of the Ladders," as they call the Havasupai, and bring back sacred red ocher and green copper stone for pigments. The Havasupai and Hopi are likewise linked by traditions of an ancient time.

Long ago, say the Hopi, the Paiute, who are uncultured but strong in the art of warfare, came down from the north and harassed them until the people of Hano vanquished them. The Paiute, although remotely related, were not friendly to the Hopi, and besides, there was much of value to be seized from the mesa-dwellers. For this reason the Hopi did not cultivate the friendship with the Paiute and the only one of that tribe living in Tusayan is "Tom Sawyer," whose portrait is drawn in another place.

Nor were the Apache more desirable neighbors. The Hopi tell of the troublous times when these nomads came from the south and compelled them to draw up their ladders from the cliff at night. Still, Paiute and Apache baskets and other aboriginal manufactures found their way to the pueblos, who were always cosmopolitan in their tastes and did not allow tribal enmity to interfere with trade.

Far to the south another people were friends of the Hopi. Very long ago the Pima were closer neighbors

and allies of some of the Hopi clans, who touched them in their wide migrations, which brought them to the "Palatkwabi." This is the Red Land of the south, lying on the Verde River and its tributaries. The Hopi lay claim to the Tonto Basin in southern Arizona, which has been thought to be their ancient country since far and wide over this southern region is found the yellow pottery so characteristic of the golden age of the Hopi. Sometimes still the Hopi visit the Pima, and it is known that formerly they joined in a fair that was held in the Pima country and brought back various commodities in exchange for their own products. Even today agave sweetmeats and alder bark, the latter used for dyeing leather, are found in Hopi dwellings, having been brought from beyond "Apache House," as they call the region south of the San Francisco Mountains where the Apache formerly lived.

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II

SOCIAL LIFE

When the crops are harvested and Indian summer is gone and the cold winds buffet the mesas, the Hopi find comfort in their substantial houses around their hearth-stones. The change of the season enforces a pleasant reunion and the people who were occupied with the care as well as the delights of outdoor summer life, begin to get acquainted again.

The men have plenty of idle time on their hands, — the masks need repairing and refurbishing with new colors; there are always moccasins to be made; the carvers of dolls construct these odd painted figures from cottonwood procured during the summer, and the weaver works at his loom. Now the basket maker draws on her stock of split yucca leaves, twigs and grass, but the potter's craft is in abeyance till the warm months.

One would think that the winter work falls pretty severely on the women, but their duties are largely the same in all seasons. There is corn to be ground, food to be prepared, and water to be carried up the steep trails. The winter store must be guarded against

mice and vermin and occasionally sunned on the roof. There are, no doubt, many cares and much labor, but the women take their time and everyone, from the little child to the experienced old grandmother, lends a helping hand. A Hopi woman would perhaps not understand our kind commiseration for the lot that her sex has experienced and thriven under from time immemorial.

Winter in Tusayan is more enjoyable than otherwise, as the sun is bright and the sky a clear blue. The snows of winter are nearly as rare as the rainstorms of summer, much to the regret of the Hopi. Often the cold at night is intense, but the day may have the crisp though mild air of a rare day in spring at the East.

Not much change comes over the landscape of Tusayan by the advent of winter. There are few trees to lose their leaves after a gorgeous pageant of farewell. The desert plants scarcely ever alter the appearance of the earth by their leaf tints of spring, summer, or autumn; with their diminutive leaves and sober color they sink into the vast surface and are lost among the vivid aerial tints and the bright hues of the rocks and plains. There are no rivers to be covered by a sheen of ice, and rarely does a mantle of snow reach across the deserts from the snow-clad mountains. The winds rave and whirlwinds swirl the sand along the plain in giant columns, while the sun hangs lower and lower in the southwest until the Hopi fear

that he will finally depart and leave them in the grasp of winter. But the priests have potent charms to draw him back, and after the Soyalana ceremony at the winter solstice anyone can see that the sun no longer wanders.

Those Hopi who have not laid in a supply of fuel must go wood-gathering right speedily when cold weather approaches, for the trees are distant and the day is hardly long enough to get a burro load piled on the house wall. Every morning also the flocks of sheep and goats must be driven out from the corrals on the ledges under the mesas, to browse on the leafless brush.

October is called the Harvest moon. The women who garner the grain hold a ceremony at this time and great is the feasting and rejoicing in the pueblo. The winter tightens in November, called the "Neophyte moon," since the youths of proper age are initiated into the societies in this month. These beginners bear the sportive name of "Pigeon Hawks." In even years comes the great ceremony of the New Fire, full of strange rites of fire worship handed down from the olden time. In odd years occurs the Na-a-ish-nya ceremony, which like the other is performed by the New Fire Society. By December, Tusayan is hard in the grip of winter, and as the spirits are held fast beneath the frozen ground, they cannot do ill to anyone who speaks about them, so that many legends and stories and much sacred lore are freely divulged

around the glowing fires of fat piñon wood in the Hopi houses. Everyone is also on the qui vive for the Soyaluna, in many respects the most important ceremony in the Hopi calendar, when the first kachinas appear. December is called the "Hoe moon" because in this month it is prescribed that the fields shall be cleared for the spring planting. The wind has perhaps done its share toward clearing movable things from the fields, but much remains to be done in leveling the surface for the spring sowing.

No month of winter is too cold for a ceremony. January, called the "Prayer-stick moon," brings the Alosaka, a ceremony of the Horn Society with their grotesque masks. During the vicissitudes of this hard month, more of the beloved kachinas return to their people from the high peaks of the San Francisco Mountains, poetically known as the "snow houses," and to these ancestral beings many petitions are made.

February, the hardest month of all the winter, is called the "Getting-ready moon." It was in this month that the hero of the Kachina people found melons and green corn near the San Francisco Mountains. The Powamu ceremony is held during this moon.

If the Hopi should have nearly reached the starvation point, March is likely to inspire a hope of reaching the end of the disastrous season, for in sheltered places a few shoots of green appear, and if the moisture from melting snow is sufficient, perhaps the little

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wiwa plant springs up, furnishing palatable and nourishing greens. For some reason March is called the "Prickly-pear moon," and it is the only month named from a natural object. Perhaps the designation points to a time when some of the Hopi lived in a clime where the prickly-pear bloomed in March. This might have been in southern Arizona, whence a number of clans, for instance, such as the "Agave People," have derived their names. March ushers in the most disagreeable part of the year, the season of fierce winds charged with dust and sand which drift like snow against the sides of the mesas.

This chronicle of the winter of the Hopi, incomplete as it is, shows that the "Peaceful People" get a great deal of enjoyment out of life at this season. Many important ceremonies belong to the wintertime and there are conventions of the different societies. In the underground meeting-places those entitled to the privileges drop in for gossip, as at a club, being sure of warmth, agreeable company, and perhaps a smoke to while away the time. Around the fireside, also, there is a good company, and plenty of stories, well worth the hearing, are told. The men may go hunting or make a winter journey to the settlements or the mountains.

As for the cold, the Hopi seem to regard it lightly. There is little or no change in the costume, though the blanket or the rabbit-fur robe comes in handy for a wrap. If a man has an errand out of doors he trusts

to running to keep up the circulation. After the ceremonies, the men usually ascend, scantily clothed, from the superheated *kivas* into the bitter air, with utter disregard for the rules of health. The purity of the air is a saving factor; nevertheless, pulmonary diseases are common, due to the close, badly ventilated houses more than to any other causes.

Most visitors to Tusayan see the Hopiland at the best season, when the cornfields are green and the cottonwoods are in full leaf, when the desert smiles to its greatest capability and the people are well fed and happy. The rebirth of Nature begins in April, when the thrifty farmers cut brush and set up long windbreaks to protect prospective crops. The month is named for this circumstance, and like everything else at the pueblos the time for beginning work is prescribed, according to custom, by those in authority over the clans.

Frosts and lashing winds often destroy every green shoot in the spring, save the native plants, which are inured to the weather, and the people frequently have to mourn the loss of their peaches, their only desirable fruit, for which they owe a debt to the Spanish friars of long ago.

In the "Waiting moon," as May is called, all is activity in the fields, for the planting of the sweet corn goes merrily on and the Hopi become, for most of the time, an out-door people. The winds perhaps have abated their power or have ceased entirely, and life is

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more pleasant under the warm sun. Still, with all the work incident to the care of the fields there is time for ceremony and during the period between the arrival of the kachinas in December and their departure in July, there are many minor celebrations by masked dancers in addition to the great monthly ceremonies. Especially interesting in the season of awakening life anl growing crops are these kachina dances with their pleasing songs and pageantry, their unlimited variety and surprises. The "Peaceful People" enjoy this season in the highest degree. June and July see every Hopi happy, unless there is something constitutionally wrong with him or he is afflicted with sickness. It is difficult to realize how thoroughly all Hopi life is linked with growing things, showing out in their every word and action and entering into their ideas of the unseen world.

When the sun pauses in his march along the eastern horizon at the summer solstice, the Hopi spend the day in making feather prayer-plumes as petitions for blessings. These children of the sun know the course of *Dawa*, the sun, and read his positions as we the hands of a clock.

With the departure of the kachinas a new class of ceremonies begins. The dancers who previously appeared in strange masks and headgear now perform unmasked, and the cumbrous paraphernalia is laid away for another year. The great event of the summer, the Snake Dance, is now at hand, and everyone

sets about preparing for a good time. In the latter part of August, after this ceremony, the pueblo resumes its normal state and the people settle down to the feast of good things from their fields, which they attack with primitive zest and enjoyment. It is greatly to the credit of the Hopi that they work well and rest well like the unconscious philosophers they are.

The moon of September watches over a scene of peace and plenty in Tusayan. The cool, clear nights betoken that frosts and the time of harvest are approaching. The heat of summer is gone and the season is ideal.

Since the Hopi are good people one would infer that they need no rulers. One might live among the Hopi for some time and not wittingly come in contact with a chief or a policeman or any evidence of laws, but the rulers and laws are there nevertheless.

The voice of the town crier awakens one to the fact that here is the striking apparatus of some sort of a social clock. It will be found that there is an organization of which the crier is the ultimate utterance. Chiefs are there in abundance, the house chief, the kiva chief, the war chief, the speaker chief who is the crier; chiefs of clans, who are chiefs of the fraternities: all these are members of the council that rules the pueblo. The council meets on occasion and acts for the common weal, and the village chief publishes their mandates by crier.

In this most democratic organization the agents of

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the Government who wish to treat with the Hopi, not finding a responsible head, felt forced to appoint one. Thus each Hopi pueblo received a supreme ruler, who neither deceived himself nor the people as to the power he acquired from Washington, which was nil. The true rulers are the heads of the clans, and by their wise advice and their knowledge of the traditional unwritten laws everything is regulated for the tractable Hopi. Each pueblo acts for itself and knows nothing and cares less for the doings of the other pueblos, so there has never been a league of Hopi tribes. In a few instances there was a temporary unity of action, as when the people of other pueblos destroyed Awatobi, an event related circumstantially in the tradition. (See p. 210.) Traces of this independence of action abound in the Southwest. The ancient ruins show that the clans built each its house cluster apart from the others and moved when it liked. The present villages are made up of clans and fragments of clans, each living in the ward where it settled when it joined the others in the old time.

These clans are larger families of blood relations, who trace their descent from the mother and who have a general family name or totem, as Eagle, Tobacco Plant, Cloud, etc. Although no blood relationship may be traceable between them, no youth and maid of the same clan may marry, and this seems to be the first law of the clan. The working of the strange law of mother-right makes the children of no clan relation to the father. Since the woman owns the house and the children, the father is only a sojourner in the clan of his wife.

Another law of the greater family was that of mutual help, providing for the weak, infirm, and unprotected members. From this grows the hospitality of the Indian, and nowhere does this graceful custom prevail more than among the Hopi.

As if in recognition of the interests of the whole people in the farming lands the messengers sent out to bear plume-prayers to the nature gods while the ceremonies are in progress encircle all the fields of the pueblo, so that all may receive the blessings of rain. While the lands are spoken of as belonging to the village, they are known to have been immemorially divided among the clans, hence at Walpi the oldest and otherwise ranking clans have the best land. The division of the land in severalty by the United States government some years ago had no effect on the ancient boundaries and no one but the surveyor knows where his lines ran.

Every once in a while the Hopi have a "raising," but instead of the kind and willing neighbors of the "bee" in the States, here the workers are clan relations. Coöperation or communal effort goes a long way toward explaining why the days of the Pueblo dweller are long in the land and the Mormon settlers in the Southwest also followed this primitive law which goes into effect wherever men are gathered for the common weal.

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Laws are but expressions of common sense formulated by the wisest and most experienced. The Hopi must have good laws, for though their laws are stronger by far than those written and refined by civilization, the people observe them unconsciously and never feel the burden. There are so few infractions of the law that it is difficult to say what the various punishments are. The taking of life by force or law is unknown; the respect of mine and thine is the rule among the Hopi, and so on through the temptations of life that beset mortals. There is no desire to place the Hopi on a pedestal and declare them perfect, for they are not; but in many ways they set their civilized brothers an example. As to punishment, it is probable that a loss of standing in a fraternity, ostracism from the clan or pueblo, and ridicule are the suasive penalties.

With the increased influence of education and contact with white people the business side of the Hopi is being brought out, and because from time immemorial they have been chief among the traffickers in the primitive commerce of the Southwest, they have rapidly assimilated the devices of modern trade. They have their own native merchants and are gradually becoming independent of the trader. The latter say they would rather deal with six Navaho than one Hopi, because the Navaho does not haggle, while the Hopi, with the thrift that is bringing him to the front, is determined to get the benefit of a bargain.

The Pueblo folk retire early and leave the safety of the village to the patrol. Some one is always on guard about the pueblo, whether it be the children amusing themselves on the rocks, — and these little folks have eyes as sharp as any, — or the grown people looking off into the country for "signs," a custom which has become habitual with them. The night patrol is a survival of the times when the whole village was a committee of safety, for the outside foes were fierce and treacherous.

If running about the town keeping the dogs barking and good folks awake is the principal office of the patrol, then it is eminently successful and the pueblos furnish nocturnal noises on the scale of the cities of civilization. The tradition of the coming of the Flute clan speaks of the watchman of Walpi, who was Alosaka, a horned being alert as a mountain sheep. The Flute migrants also sent out "Mountain Sheep" to ascertain whether human beings lived in the locality. During some of the ceremonies there are vigilant patrols, and on a few ceremonial days no living being is allowed to come into the pueblo from the outside, formerly under pain of death at the hands of the fraternity guards. It is thought that the trouble arising between the Spaniards and the Hopi on that first visit to Tusayan in 1540 was due to a violation of the ceremonial bar, and not to the belligerent habit of the Indians.

The village shepherds have an easy, though very

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monotonous occupation. They have the advantage of other Arizona shepherds because their charges are brought at nightfall into secure corrals among the rocks below the town and do not require care till morning. Frequently one sees a woman and a child driving the herd around, in what seems a vain search for green things that a sheep with a not too fastidious appetite might eat. Formerly, at least, the office of herder was bestowed by the village chief, much as was once the case with the village swineherd or gooseherd of Europe in olden time.

Perhaps a visitor straying about a Hopi village at a time when there are no ceremonies in progress may find a quaint street market, conducted by a few women squatted on the ground, with their wares spread in front of them. Such markets are only a faint reflection of those which have been held in Mexico from time immemorial; but it is interesting to know that the Hopi have such an institution, because it shows a step in political economy that has been rarely noticed among the Indians in the United States. The little barter by exchange that goes on here, accompanied with the jollity of the Hopi women, has in it the germ of commerce with its world-embracing activities. Here it is found also that woman has her place as the beginner and promoter of buying and selling as she has in the inception of many other lines of human progress.

Honi, the speaker-chief, is the living newspaper of

Walpi, or rather he is a vocal bulletin-board. Like the reader for the United States Senate, his voice is of the robust kind, and for this qualification, perhaps, he was selected to make the numerous announcements from the housetops. His news is principally of a religious character, such as the beginning and progress of the many ceremonies at the pueblo, but there is a fair sprinkling of secular notices of interest to the community. Honi, however, is only a voice crying in the wilderness at the bidding of the secret council or of the heads of the brotherhoods who are the true rulers of the pueblos, because they have the destiny of the flock in their hands. He holds, however, the office of speaker-chief, the pay of which is not highly remunerative, but the duties do not interfere with the pursuit of other occupations, since his announcements are made usually when the people have gathered in the town after their day's labor in the fields. No doubt, Honi regards himself and is regarded by others as an important functionary who, with the house chief, has the privilege of frequenting the Mong-kiva or council chamber of the pueblo. The town crier's announcements attracted the notice of the Spanish conquerors in the early days as they have that of modern travelers. In the quaint language of Castañeda, speaking of Zuñi: "They have priests who preach to them whom they call papas. These are the elders. They go up on the highest roof of the village and preach to the village from there, like public criers in

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the morning while the sun is rising, the whole village being silent and sitting in the galleries to listen. They tell them how to live, and I believe that they give certain commandments for them to keep."

It must be admitted that Honi's is an ancient and honorable office, found useful by civilized communities before the time of newspapers and surviving yet, as the *sereno* of Spain.

It is surprising, by the way, how fast news flies in Hopiland. The arrival of a white man is known the whole length and breadth of Tusayan in an incredibly short time. A fondness for small talk, together with the dearth of news, make it incumbent upon every Hopi, when anything happens, to pass the word along.

To a visitor encamped below the Walpi mesa the novelty of hearing the speaker-chief for the first time is a thing long to be remembered. Out of the darkness and indescribable silence of the desert comes a voice, and such a voice! From the heights above it seems to come out of space and to be audible for an infinite distance. It takes the form of a chant, long drawn and full of sonorous quality. Everyone listens breathlessly to the important message, and when the crier finishes after the third repetition, an Indian informs us that the substance of the announcement was that the wire which "Washington" had promised to send had come and that in two days the villages would go out to build fences.

That Honi's messages are worth hearing is witnessed by the following announcement of the New Fire ceremony. Honi, standing on the housetop at sun-up, intones:

All people awake, open your eyes, arise,
Become children of light, vigorous, active, sprightly;
Hasten, Clouds, from the four world-quarters.
Come, Snow, in plenty, that water may abound when summer appears.
Come, Ice, and cover the fields that after planting, they may yield abundantly.
Let all hearts be glad.
The Wuwutchimtu will assemble in four days.
They will encircle the villages, dancing and singing.
Let the women be ready to pour water upon them
That moisture may come in plenty and all shall rejoice.

This is a good example of the poetry of the Hopi which, in the kachina songs, is of no low degree of artistic expression.

The Hopi use the world for a dial and the sun for the clock-hand. The sun-priest from his observatory on a point of the mesa watches the luminary as carefully as any astronomer. He determines the time for the beginning of each ceremony or important event in the life of the pueblo, such as corn planting, by the rising or setting of the sun behind a certain peak or notch in the marvelous mountain profile on the eastern and western horizons. These profiles are known to him as we know the figures on a watch face. Along

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them he notes the march of the seasons, and at the proper time the town-crier chants his announcement from the house-tops.

The clear air of Tusayan renders the task of the sun-priest easy; this primitive astronomer has the best of skies for observation. By day the San Francisco peaks, a hundred miles away, stand clearly silhouetted on the horizon; by night the stars are so brilliant that one can distinguish objects by their light.

The Hopi also know much of astronomy, and not only do they have names for the planets and particular stars, but are familiar with many constellations, the Pleiades especially being venerated, as among many primitive peoples. The rising and position of the Pleiades determine the time of some important ceremonies when the "sweet influences" reign. Any fixed star may be used to mark off a period of time by position and progress in the heavens as the sun is used by day. The moon determines the months, but there is no word for "year" or for the longer periods of time. Days are marked by "sleeps," thus today is *pui* or "now"; the days of the week are two sleeps, three sleeps, etc.; *tabuco* is "yesterday."

While the larger periods of time are kept with accuracy, so that the time of beginning the ceremonies varies but little from year to year, the Hopi have poor memories for dates. No one knows his age, and many of these villages seem to live within the shifting horizons of yesterday and tomorrow. The priests, however, keep a record of the ceremonies by adding to their *tiponi*, or palladium of their society, a feather for each celebration. At Zuñi a record of the death of priests of the war society is kept by making scratches on the face of a large rock near a shrine, and by this method a Hopi woman keeps count of the days from the child's birth to the natal ceremony. Ask a Hopi when some event happened, and he will say, "*Pai he sat o*," meaning "some time ago, when my father was a boy"; stress on the word means a longer time, and if the event was long beyond the memory of man, the Indian will almost shake his head off with emphasis.

The only notched time-stick is that jealously guarded by the sun priest, and no one knows just how he makes his calculations from it.

As for dinner time, the great sun and "the clock inside" attend to that; *dawa yamu, dawa nashab*, and *dawa poki* stand for "sunrise," "noonday," and "sunset." If the Hopi makes an appointment for a special hour, he points to where the sun will be at that time. The seasons are known to him in a general way as the time of the cold or snow, the coming back of the sun (winter solstice), the time of bean or corn planting, the time of green corn, the time of harvest, etc., but there is a calendar marked by the ceremonies held during each month.

Perhaps these children of the sun are happier in not being slaves of the second as we have become. Our

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watches, which they call *dawa*, "the sun," have not bound them to the wheel by whose turning we seem to advance. They are satisfied with the grander procession of the heavenly bodies, and their days fade into happy forgetfulness.

An experience of several years ago may here be related in order to show how the clan name of a Hopi is a veritable part of himself and also links him to his clan and the most intimate religious and secular life of the pueblo.

There was a jolly crowd of Hopi under the dense shade of a cottonwood on the Little Colorado River one hot day in July. The mound of earth, strewn with chips of flint and potsherds like a buried city on the Euphrates, had yielded its secrets, and the house walls of the ancient town of Homolobi resembled a huge honeycomb on the bluff.

The Hopi, who had worked like Trojans in laying bare the habitations of their presumptive ancestors, were now assembled to receive their wages in silver dollars, which they expressively call "little white cakes." Around were scattered the various belongings of an Indian camp, among which tin cans were prominent; a wind-break had been constructed of cottonwood boughs; from the tree hung the shells of turtles caught in the river; a quantity of wild tobacco was spread out to dry in the sun, and several crop-eared burros hobbling about on three legs were enjoying an unusually luxuriant pasture of sagebrush.

"Paying off" is surrounded with attractions for all sorts and conditions of men. The Hopi seemed like a lot of children anticipating a holiday, as they sat in a circle around Dr. Fewkes, who was paymaster. This was their first experience, perhaps, with Government "red tape," of whose intricacies they must have had but the faintest idea. There are times when blissful ignorance is to be envied.

The "sub-vouchers" were filled out with the time of service and the amount to be paid, and as the doctor's clerk called out the names, the boys came forward to sign. An Indian sign his name! Curiously enough, every Hopi from the least to the greatest can sign his name, and he does not have to resort to the "X-mark" of our boasted civilization.

Perhaps it would be better to say "draws his name," for when the first Indian grasped the pen in the most unfamiliar way imaginable, he drew the picture of a rabbit, the next drew a tobacco plant, the third a lizard, and so on, until the strangest collection of signatures that ever graced a Government voucher-book was completed.

It must be explained that each Hopi has an everyday name which his fond relatives devised for him during infancy, and a clan name, which shows his blood relationship or family. Nowhere, even in these days of ancestor hunting, is more importance given to family than in Hopiland. If you ask, "Who is this man?" the answer may be, for instance, "Kopeli,"

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his individual name. "But what is he in Walpi?" "He is a *chua*," that is, he belongs to the important Snake clan and his totem signature is a crawling reptile.

It affords great amusement to the Hopi when a person, not acquainted with their customs, asks a man his name; it is also very embarrassing to the man asked, unless there is a third party at hand to volunteer the service, because no Hopi can be prevailed on to speak his own name for fear of the bad consequences following "giving himself away."

III

FOOD AND REARING

Indian legend tells of a time when all was water; then land was made; for a long time the earth was too wet for human beings and at last the earth was dried out by a mighty fire. All these are pretty stories for those who are looking for deluge legends and the effects of blazing comets, but if the Indian account is true, the drying process was carried entirely too far in the Southwest. Water! water! water! The word gains a new significance in this arid region. There is a rippling, cooling, refreshing note in it, a soothing of parched lips and a guaranty against death from thirst. So, all conversation among the people is replete with references to this mainstay of life, and one comes, like them, to discuss the water question with an earnest regard for its problems.

Wherever there is water, almost always will there be found ancient ruins. In modern times the windmill of the settler often stands by the spring which quenched the thirst of the ancient inhabitants of a now crumbling pueblo. The blessings which were invoked in Biblical times upon the man who "digged a

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well'' apply also in this semi-desert, for Syria and Arizona do not differ greatly in climate. The Bedouin with his horses and camels would not be out of place on the sand wastes of our Sahara; nor were the Spanish conquerors on unfamiliar ground when they exchanged the dusty plains and naked sierras of their native land for those of the New World.

The traveler in Spain, northern Africa, or Asia Minor is impressed with the similarity between these countries and our Southwest, so that the name of New Spain, early applied by the Spaniards to all of Mexico, seems very appropriate. Like these countries, too, our Southwest is a land of thirst; the dry air and fervent sun parch the skin and devour every trace of moisture. (One feels as though he were placed under a bell glass exhausted of air undergoing the shriveling process of the apple in the experiment.)

So, before taking a journey, one inquires not so much of the roads and distances, but whether water may be found, for it is often necessary to submit to that most unpleasant of contingencies, a ''dry camp.'' Many parts of Arizona and New Mexico cannot easily be visited except in favorable seasons, because one is told, ''it's a hundred miles to water.'' The Hopi often provide for the long journeys across waterless country by hiding water at points along the route. This wise precaution, which was noticed by the Spanish explorers of the sixteenth century, consists of burying sealed water-jars in the sand, their situation

being indicated by ''signs.'' Far from the ancient or modern habitation these jars, uncovered by the wind, are often discovered by riders on the cattle ranges.

Not only must the dusty explorer ''haul water,'' for even the railroads across the semi-desert are provided with tank trains for water service, and the water tanks of the huge locomotive tenders of all trains are of unusual capacity.

Far out on the sandy, sage-brush plains are frequently seen small cairns of stones, called by the knowing ones ''Indian water signs,'' pointing out the direction of water, but the more common signs are the trails made by cattle on which a myriad of tracks in the dust point to water, miles away perhaps, and oftentimes, when the tracks are not fresh, leading to a dried-up pool, surrounded by carcasses or bleaching bones.

The Navaho herdsman or herdswoman is a person with great responsibility, for the sheep and ponies must have water at least every three or four days. When a well-defined thunder-storm passes within twenty or thirty miles of his camp he starts for the path of its influence, knowing that there will be pools of water and quick-springing herbs and grass. This chasing a thunder-storm is novel — and much more satisfactory than chasing a rainbow. Even the wild cattle scent the water and make for it, running like race-horses.

As a matter of fact, the animals of the desert have

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of necessity become used to doing without water. So far as one can determine, the rats, mice, squirrels, badgers, coyotes, prairie-dogs, skunks, and other denizens of the sand-wastes so rarely get a good drink of water that they seem to have outgrown the need of it. Cattle and horses have also developed such powers of abstinence as might put a camel to shame. There is a belief in the Western country that at least one of the burrows of a prairie-dog town penetrates to water, but whether this be true or not, judging from some of the locations of these queer animal villages the tribe of gophers must contain adepts in abysmal engineering.

One does not live long in the wilds of Arizona without becoming weatherwise and, perhaps, skilled in signs and trails like a frontiersman. The country is so open that the weather for a hundred miles or more can be taken in at a glance and the march of several storms observed at once, even though the sound of wind and thunder be far out of hearing. At Flagstaff, for instance, it is easy to tell when the Hopi are rejoicing in a rain, although it is more than a hundred miles away.

In a country with so little rainfall as Tusayan and in which the soil consists largely of sand with underlying porous rocks, springs are few and their flow scanty. The rivers, also, during most of the year, flow far beneath their sandy beds, which only once in a while are torn by raging torrents. This is one of

the many novelties of a country that probably offers more attractions than any land on earth.

Around the springs the life of the Hopi comes to a focus, for here, at all hours of the day, women and girls may be seen filling their canteens, getting them well adjusted in the blankets on their backs for the toilsome climb up the trail. A feeling of admiration tinged with pity arises for these sturdy little women who in the blanket tied across the forehead literally by the sweat of their brows carry half a hundredweight of water up a height of nearly half a thousand feet. *Mang i uh*, "tired?" one asks them. *Okiowa mang i uh*, "Yes, alas, very tired!" they answer, these slaves of the spring.

At the edge of the water in the spring, where nothing can disturb them, are green-painted sticks with dangling feathers. These are offerings to the gods who rule the water element. At none of the frequent ceremonies of the Hopi are the springs forgotten, for a messenger carries prayer-sticks to them and places them in the water. In former times offerings of pottery and other objects were thrown into springs by devout worshippers.

Around the springs are gardens in which onions and other "garden sauce" are grown. When it is possible, a little rill is led from the spring into the gardens. The growing greens lend much to the drear surroundings of the springs, but the plants must be enclosed by a stone wall to keep away marauding burros and goats.

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At least one spring at each pueblo is dug out and enlarged, forming a pool at the bottom of an excavation ten feet deep and thirty in diameter, with a graded way leading down to the water. These springs are convenient for watering the thirsty stock, but they are especially used in the ceremonies. During the Flute Dance, for example, they form the theater of an elaborate ceremony in which the priests wade in the spring and blow their flutes in the water.

All the springs have been given descriptive names. At Walpi, there are Dawapa, "sun spring"; Ishba, "wolf spring"; Canelba, "sheep spring"; Kokiungba, "spider spring"; Wipoba, "rush spring"; Kachinapa, "kachina spring," and a number of others, around which cluster many associations dear to the good people of the East Mesa. Like the Hopi, every other human being who fares in the dry Southwest unconsciously becomes a devotee of water worship and eventually finds himself in the grip of the powers of Nature whom the Indians beseech for the fertilizing rain.

Springs are often uncertain quantities in this region. Earthquakes have been known to swallow up springs in one place and to cause them to burst out at another far away. One can readily imagine what a terrible calamity such a phenomenon can be in so dry a country, for the only thing the people can do under such circumstances is to move and to move quickly. It seems probable that some of the many ancient Indian settlements that make the Southwest a ruin-

strewn region have been caused by just such fickleness in the water supply.

When modern engineering comes to the aid of the Hopi in storing the occasional vast rushes of water for use throughout the year, a new era will dawn for the Peaceful People. They may then become prosperous farmers and gradually forget the days when they invoked the powers of nature with strange charms and ceremonies.

If the Hopi know well the springs, they are not less perfect in knowledge of plants that are useful to them. One day Kopeli, the former Snake chief, undertook to teach his pupil, Kuktaimu, the lore of the plants growing near the East Mesa. They set out for a flooded cornfield near the wash, and long before they reached it, they could hear the watchers emitting blood-curdling yells to scare away the hated *angwishey*, crows, that from time to time made a dash for the toothsome ears.

It goes without saying that the day was beautiful, for in August thunder-cloud masses often fill the sky with graceful forms, tinted beneath by a rosy glow reflected from the surface of the red plains. The rain had started the vegetation anew and the deep green cornfields showed its benign influences.

Kopeli was communicative, but Kuktaimu, although having been blessed by Salako with a Hopi name, was weak in the subtleties of Hopi speech and missed many points to which, out of politeness, he responded

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Owi, "yes." Still, the queer-sounding names of the plants and their uses given by Kopeli were duly put down on paper, for which the Hopi have a word which literally means *corn-husk*. On their journey around the cornfields they met various groups of watchers, some reclining beneath the sloping farm shelters of cottonwood boughs, some chatting together or gnawing ears of corn roasted in a little fire. Everyone requested matches and willingly assisted in conferences over plants of which Kopeli might be doubtful. Boys with their bows and arrows tried for shots at crows, and little girls minded the babies. Life in the fields is full of enjoyment to the Hopi, and the children especially delight to spend a day picnicking amidst the rustling corn-leaves.

The plants having been hunted out in the cornfields, Kopeli and Kuktaimu sought higher ground among the rocks below the mesa, where different species of plants grow. At the foot of the gray rocks are found many plants of great medicinal and ceremonial value to the Hopi, according to the Snake priest, who grew enthusiastic over a small silvery specimen with pungent odor. "Very good medicine," he said. At this juncture, when the plant had been carefully placed in the collecting papers, Kopeli made a characteristic gesture by rapidly sliding one of his palms over the other and said *pasha*, "all." The nearness of the evening meal must have been the influence that caused Kopeli to say that the flora of Tusayan had been exhausted in a single day's search, for subsequent journeys about the mesas brought to light many other plants that have place in Hopi botany.

It is surprising to find such a general knowledge of the plants of their country as is met with among the Hopi. No doubt this wonder arises among those who live the artificial life of the cities. The Hopi is a true child of the desert and near to the desert's heart. His surroundings do not furnish clear streams, grassy meadows, and massy trees; there is much that is stern and barren at first glance, and there is a meagerness except in vast outlooks and brilliant coloring. Here Nature is stripped and all her outlines are revealed; the rocks, plains and mountains stand out boldly in the clear air. Still, in all this barrenness there is abundance of animal and vegetal life which has adapted itself to the semi-desert, and if one becomes for the time a Hopi, he may find in odd nooks and corners many things delightful both to the eyes and the understanding.

There are few Hopi who do not know the herbs and simples, and some are familiar with the plants that grow, in the mountains and canyons, hundreds of miles from their villages. Even the children know many of the herbs, and more than once I have successfully asked them for their Indian names. This is not strange, because such things are a part of their education and in this way they are in advance of the majority of their civilized brothers. After a while the idea im-

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presses one that the Hopi depend on the crops of Nature's sowing as much as on the products of their well-tilled fields. Many a time, as the legends tell, the people were kept from famine by the plants of the desert, which, good or bad seasons alike, thrust their gray-green shoots through the dry sands, a reminder of the basis of all flesh.

Perhaps all the Hopi believe that the wild plants are most valuable for healing and religious purposes, for the plants they use in medicine would stock a primitive drug store. Bunches of dried herbs, roots, etc., hang from the ceiling beams of every house, reminding one of the mysterious bundles of "yarbs" in a negro cabin, and, as occasion requires, are made into teas and powders for all sorts of ills.

Hopi doctors have a theory and practice of medicine, just as have their more learned white brethren. Without the remotest acquaintance with the schools dividing the opinions of our medicine-afflicted race, they unconsciously follow a number of the famous teachings. So, if a patient has a prickling sensation in the throat a tea made from the thistle will perform a cure, as "like cures like." The hairy seeds of the clematis will make the hair grow, and the fruit of a prolific creeping plant should be placed in the water-melon hills to insure many melons. The leaves of a plant named for the bat are placed on the head of a restless child to induce it to sleep in the daytime, because that is the time the slothful bat sleeps. It is

not often that Hopi children require an application of bat-plant medicine, but even the best of children get fractious sometimes.

Many are the strange uses of plants by the Hopi, and much curious lore has gathered about them. Some of the plants are named for the animals and insects which live upon them, such as "the caterpillar, his corn," "the mole, his corn"; while some, from fancied resemblances, are called "rat's ear," "bat plant," "rattle plant," etc. Two plants growing in company are believed to be related and one is spoken of as the child of the other. Plants are also known as male and female, and each belongs to its special point of the compass. Many are used in the religious ceremonies; those beloved by the gods appear on the prayer-sticks offered to beseech the kind offices of the nature deities.

Strange as it may seem, the Hopi have medicine women as well as medicine men. The best known of these is Saalako, the mother of the Snake priest. She brews the dark medicine for the Snake dance and guards the secret of the antidote for snake bites. The writer once met at the place called "Broad House" a Navaho medicine man. He was a wrinkled, grizzled specimen of humanity mounted on a burro and was hunting for herbs, as was seen by a glance into the pouch which he wore by his side. A little tobacco induced him to dismount and spread out his store of herbs. When shown the writer's collection of plants, he became much interested, no doubt believing that

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he had found a fellow practitioner. He requested samples of several of the plants, and when they were given him, stored them away in his pouch with every evidence of satisfaction.

The Hopi priests are also very glad to receive any herb coming from far off, especially from the sea-coast, "the land of the far water," as they call it. They treasure such carefully and mix it with sacred smoking tobacco or introduce it into the "charm liquid" which is used in every ceremony to mix the paint for the prayer-sticks and to sprinkle during their strange rites.

An American farmer might be at a loss to recognize a Hopi cornfield when he saw one. In the usually dry stream beds or "washes" he would see low clumps of vegetation, arranged with some regularity over the sand. This is the Hopi cornfield, so planted in order to get the benefit of rains which, falling higher up, may fill the washes, for the summer thunder-storms are very erratic in their favors.

The Hopi farmer sets out to plant, armed only with a dibble which serves as plow, hoe, and cultivator combined. Arriving at the waste of sand which is his unpromising seed-field, he sits down on the ground, digs a hole, and puts in perhaps twenty grains, covering them with the hands. Whether he has any rule like

One for the cutworm,
  One for the crow,
One for luck,
  And three for to grow,

is doubtful, but in the years when cutworms are likely to be plentiful he plants more corn to the hill.

One hill finished, he gets up, moves away about ten feet, sits down, and goes through the same process. He never thins the corn, but leaves the numerous stalks close together for shade and protection from the winds. His care of the field consists merely in hoeing the weeds and keeping a watch on the crows, which he frightens away by demoniac shouts. His scarecrows are also wonders of ingenuity, and many a time one takes them for watchful Indians.

When the corn is fit for roasting ears the Hopi get fat and there is feasting from morn till night. Tall columns of smoke arise from the roasting pits in the fields. These large pits are dug in the sand, heated with burning brush, filled with roasting ears, and closed up tightly for a day. The opening of a pit is usually the occasion of frolicking and feasting, where laughter and song prevail. Some of the corn is consumed at once in making puddings and other dishes of which the Hopi prepare many, and what remains is dried on the cob and hung in bunches in the houses for the winter.

The ears of the Indian corn are close to the ground and are hidden by the blades, which touch the sand. The blades are usually tattered and blown away by the wind, so that by the time the corn is ripe, the fodder is not of much value. The ripe corn is gathered and laboriously carried by back-loads up the steep mesa to

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the houses, where it is stored away in the corn chamber. Here the ears are piled up in symmetrical walls, separate from the last year's crop, which may now be used, as the Hopi, taught by famine, keep one year's harvest in reserve. Once in a while, the women bring out the old corn, spread it on the roof to sun, and carefully brush off each ear before returning it to the granary, for in this dry country, though corn never molds, insect pests are numerous.

Among the superstitions connected with corn the Hopi believe that the cobs of the seed corn must not be burned until rain has fallen on the crop for fear of keeping away or "drying up" the rains.

No cereal in the world is so beautiful as Hopi corn. The grains, though small, are full and highly polished; the ears are white, yellow, red of several shades, a lovely rose madder, blue, a very dark blue or purple which the Hopi call black, and mottled. A tray of shelled corn of various colors looks like a mosaic.

In the division of labor, the planting, care of the corn in the fields and the harvesting belong to the men. When the brilliant ears are garnered, then the women's work begins. No other feature of the Hopi household is so interesting as the row of three or more slabs placed slantwise in stone-lined troughs sunk in the floor; these are their mills. They are of graded fineness, and this is also true of the oblong hand stones, or *manos*, which are rubbed upon them with an up and down motion as in using a washboard. Sometimes three women work at the mills; the first woman grinds the corn into coarse meal on the coarse stone and passes her product over to the second, who grinds it still finer, and the third finishes it on the last stone; sometimes one woman alone carries the meal through the successive stages, but it is a poor household that cannot furnish two grinders. The skill with which the woman spreads the meal over the grinding slab by a flirt of the hand as the *mano* is brought up for the return stroke is truly remarkable, and the rhythmic precision of all the motions suggests a machine. The weird song sung by the grinders and the rumble of the mill are characteristic sounds of the Hopi pueblos, and as the women grinders powder their perspiring faces with meal while they work, they look well the part of millers. Little girls are early taught to grind, and they often may be prevailed upon to display their accomplishment before visitors.

The finely ground meal is piled and patted into conical heaps on the flat basket trays, making quite an exhibition of which the Hopi women are very proud, much meal indicating diligence as well as a bountiful supply of the staff of life. Grinding is back-breaking work, and one humanely wishes that the Hopi women, and especially the immature girls, could be relieved of this too heavy task.

While corn-meal enters into all Hopi cooking as the chief ingredient, most of it is made into "paper-bread," called *piki*, resembling more than anything

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else the material of a hornet's nest. This bread is made from batter, colored gray with wood ashes, dexterously spread very thinly with the hand over a heated slab of stone. Piki bakes quickly, coming free from the slab and is directly folded up into convenient compass and so crisp is it that it crackles like paper. Sometimes it is tinted with attractive colors for festal occasions, such as the Kachina ceremonies.

Before a dance the women busily prepare food and the girls go about speechless, with mouths full of meal, "chewing yeast" for the corn pudding. This and other ins and outs of the kitchen make the knowing traveler rather shy of the otherwise attractive-looking Hopi food.

Surely corn is the "mother" of the Hopi. All the powers of nature are invoked to grant a good crop by giving rain and fertility, and the desire for corn is the central motive of the numerous ceremonies of the villagers of Tusayan. If the prayers of the Hopi could be formulated like the "*Om mane padme hum*" of the Hindus, it would be in the smaller compass of these words, "Grant us corn!" Nor are these simple villagers ungrateful for such blessings. Kopeli used to stand looking over his thriving cornfield and say with fervor, "*Kwa kwi, Kwa kwi,*" "thanks, thanks," and it was evident that the utterance was made with true thankfulness and a spirit of devotion.

It is difficult to imagine the ancient people without corn; but very long ago, as the legends tell, they

did not know this cereal. Certain it is they were not then pueblo dwellers and had not spread far in the Southwest. They lived in the places where there was game, and for the same reason that the important food animals lived in such places, — the presence of vegetation that would sustain life.

Their life was along the foot hills of well-watered and timbered mountains rising from plains, where with the flesh of game and seeds and roots of plants they could supply their semi-savage wants. Long perhaps they roved thus as hunters until they drifted to the land of promise — the semi-desert where agriculture of grain plants was born and there they received "mother corn." Henceforward all the former sources of food wrested from a niggard Nature became as nothing to this food of foods, but even to this day the Hopi have not forgotten their old-time intimate knowledge of the resources in fields not sown by human hands. With corn, which possesses a high food value and is easily raised, stored, and preserved, the Hopi and their Pueblo brethren spread without fear throughout the semi-arid lands.

It has been pointed out that a constant diet of corn produces disagreeable physiological effects, and this is suggested for the use of chile and other condiments, the mixture of corn food with meat and vegetable substances, and, in fact, for the multifarious ways of preparing and cooking corn. This necessity for variety also gives an explanation of the resourcefulness

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of the Hopi housewife and has acted as a spur to her invention of palatable dishes.

The vocabulary of corn in the Hopi language is extensive and contains words descriptive even of the parts of the plant that are lacking to most civilized people. The importance of corn is also reflected in the numerous words describing the kinds of meal, the dishes made from corn or in which corn enters, and of the various ways in which it is prepared by fire for the consumption of the ever-hungry Hopi. To give an incomplete census of corn foods, there are fifteen kinds of *piki* or paper bread, three kinds of mush; five of short-cake; eleven of boiled corn; four kinds baked or roasted in the coals; two cooked by frying; four stewed and eight of cooked shelled corn, making fifty-two varieties.

After the paper-bread, perhaps the most popular food is *pigame*, or sweet corn mush, wrapped in corn-husk and baked in an underground oven. Another standby is shelled corn soaked and boiled till each grain swells to several times the normal size. The Hopi like their food well-cooked and know the art of making each starch grain expand to the limit. A book of Hopi cookery would be bulky, but how interesting to the housewife who would know how to make plain food appetizing without milk or eggs, and who would learn new and strange combinations! There are cakes made from dried fruits, chopped meat, and straw, put on the roof to dry; dumplings formed

around old hammerstones, corn dodgers, pats of corn-meal mush wrapped in corn husk and boiled or baked, and many other styles of food that would seem strange to other than a Hopi epicure.

When it is time to dine, a large bowl of stew is placed on the floor as the *piece de resistance* and beside it a tray of *piki*. Each member of the family breaks off a piece of *piki*, and, holding it between thumb and finger, it is dragged through the stew much like a seine to catch as many particles of meat as possible, then deposited far back in the mouth so that the stew adhering to the fingers may be cleared off with a resounding smack of the lips. A traveler to Hopi in 1869 describes a more formal meal which consisted of mutton, dried peaches, blue *piki*, coffee, and a drink made by steeping the roasted heart of agave in water. This writer says:

> You take a small piece, lay a fragment of mutton and some peaches upon it or a little of the sweet liquid and bolt the mass, spoon and all. This dinner, though prepared and cooked by Indians, tasted better than many a meal eaten by us in border settlements cooked by whites.

Hopi women assiduously gather the seeds of grasses and other plants, which they grind up and add to corn-meal to improve the flavor of the bread, or, perhaps, a prized bread is made entirely of the ground seed of some desert plant. Oily seeds, such as those of the piñon, pumpkin, and melons are ground to form shortening in various cakes and to add richness to

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stews. Often food is colored with harmless vegetable dyes, no doubt with the deep-laid scheme on the part of the mother of the household to cause the familiar fare to be attacked with renewed zest. Our tradition of "spring lamb with mint sauce" is duplicated by stewed rabbit with *nanakopshi* greens, which, with various other herbs, are put to appropriate uses by the master of the Hopi culinary art.

IV

THE WORKERS

The Hopi believe in the gospel of work, which is evenly divided between the men and the women.

When it is said that people work, there is, unconsciously perhaps, a desire to know the reason, which is rarely a subject of curiosity when people amuse themselves. Come to think of it, the answer is an old one, and a Hopi, if asked why he works, might put forward the first great cause, *nusha*, "food."

Not only must the Hopi work to supply his wife and little ones, but he must do his share for his clan, which is the large family of blood-relations, bound together by the strongest ties and customs of mutual helpfulness. This family is an object of the greatest pride, a little world of its own, in which every member from the least to the greatest has duties and responsibilities. So all labor — men, women, and the little ones, who add their tiny share. The general division of work gives the woman the affairs of the household, and the man the cultivation of the fields. Men plant corn and the older women often help hoe it, and the women and children frequently go down to the fields and watch the crops to keep off birds.

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When the harvest is gathered, taken up the mesa, and put into the granary, man's interest in it ceases, except in the matter of eating a large share. Never was a Hopi who was not hungry. Much of the woman's time is taken up in grinding corn and baking bread. The water-carrying falls to her, and this duty might give rise to a suspicion that she has the larger share of the burdens, if the Hopi were not compelled to be frugal in the use of water. Besides the duties mentioned, she may also add that of potter, basket maker, house builder, and sometimes carver of dolls and maker of moccasins. Then the children must be cared for, but everyone takes a hand at that, including the children themselves. If it were not for the numerous ceremonies, woman's work in Hopiland would be much easier. Grinding, baking, water-carrying, and the bother and hurry of preparation for various events continue with painful iteration. The Hopi housewife can give full condolence to her white sister who has borne the burdens of a church festival, and the plaint that "woman's work is never done" would sound familiar to her ears. Still, rarely is she heard to bewail her lot, and it may be depended on that no maidens bloom in idleness about her house.

But the men also follow crafts, and of these, carding, spinning, dyeing, and weaving are exclusively man's work in contrast with the Navaho, among whom such matters are woman's work. His also is the task of wood-gathering, which takes him far afield, since

there is hardly a growing thing in the neighborhood worth collecting for fuel. Coal there is in the ground in plenty, but the Hopi make less use of it than did their ancestors, and the householder sets out from time to time with a burro or two for the distant mesas, where the stunted cedars grow, to lay in wood for cooking. Each year the cedars get farther away, so that at some future time the Hopi may have to make use of the neglected coal.

A Hopi is in a fair way to become a great man among his kin when he owns horses and a wagon. In consequence of such wealth, he usually shows his pride by the airs he assumes over his less fortunate tribesmen, and justly, too, because hauling supplies for the schools and traders brings in the silver dollars that replenish the larder with white man's food. Ponies are cheap, and twenty can exist as well as one on the semi-starvation of the desert, so a Hopi teamster often takes along his whole herd when on a freighting trip, to make sure of arriving at his journey's end, and a look at his horses will prove him a wise man.

Seemingly the men work harder making paraphernalia and costumes for the ceremonies than at anything else, but it should be remembered that in ancient days everything depended, in Hopi belief, on propitiating the deities. Still if we would pick the threads of religion from the warp and woof of Hopi life there apparently would not be much left. It must be recorded, in the interests of truth, that Hopi men will

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work at day's labor and give satisfaction except when a ceremony is about to take place at the pueblo, and duty to their religion interferes with steady employment much as fiestas do in the easy-going countries to the southward.

Really, the Hopi deserve great credit for their industry, frugality, and provident habits, and one must commend them because they do not shun work and because in fairness both men and women share in the labor for the common good.

An account of the arts which are carried on in the Hopi towns may prove interesting to the reader who would like to know something of the methods of the moccasin maker, potter, weaver, carver, basket maker, and house builder, examples of whose handiwork are scattered widely among collectors of artistic and remarkable things.

As though to keep up the dignity of the Peaceful People the wife of "Harry," the new Snake chief of Walpi, frequently wears the cumbrous foot-gear common along the Rio Grande. In spite of the scarcity of deer-skins, every Hopi bride must have as part of her trousseau a pair of these remarkable foot-coverings, which require a large deerskin for their manufacture. When the burdensome ceremony of marriage is over the moccasins are laid away or worn out and never again may the woman expect to have her measure taken for another pair.

But as moccasins are a part of the men's costume

without which they cannot run well over the yielding sand, and as there is no village shoemaker, every man must make his own or go barefoot. Frequently in the villages one meets a moccasin maker, chewing at the rawhide and busily plying his awl and sinew while he goes gadding about. Just before the Snake Dance, when every Snake priest must provide a pair of new moccasins for himself, this art is very much in evidence.

The moccasin maker takes pride in hiding his stitches, and it must be said that his sewing is exceptionally good in spite of the crude tools of his craft. With the same skill he displays in other crafts, the Hopi prepares the leather for the indispensable moccasins. The simplest way of giving color to the leather is to rub red ocher or other clay into the soft-tanned skin, as is seen in the red moccasins of the Snake dancers. A warm brown is given to the leather with an infusion of the bark of the water birch, and a black dye is made by burning piñon resin with crude native alum. Sometimes the esthetic tastes of a young man are gratified by moccasins dyed with aniline red or blue according to his fancy.

If the visitor will give an order for a pair of *totchi*, he may see the whole process at his leisure. A piece of well-curried cowhide, preferably from the back of the animal, is produced, the outline of the foot is marked out on it and a margin is left by the cutter for the turning up of the sole. This is all the moccasin

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maker seems to require, and his formula for the height of the instep has not been divulged, but it must be effective, because moccasins are made to fit with greater art than is displayed by many civilized shoemakers.

The soles are buried in damp sand to make them pliable, and the front section of the top is sewn around the edge reaching to about the ankle bones. The moccasin is then turned inside out and the ankle section sewn on. Tying strings are added, or if especial style is desired, silver buttons made by Navaho from dimes or quarters take their place.

The Hopi live a very long way from the range of the deer, a fact which accounts largely for their use of woven fabrics. But deerskins must always have been in demand, and these were got in exchange with the Navaho, Havasupai, and other neighbors. In this way in old times buffalo skins and pelts of animals came to Tusayan, and Hopi bread and blankets went to remote mountains and plains.

It would be interesting to know whether the Hopi formerly were sandal people or moccasin people, and this knowledge would reveal a great deal that is now mere guesswork as to their history. The sandal people would mean those of the south who were of Mexico, where no moccasins seem ever to have been worn. The moccasin people would be those of the north, the tribes of our mountains and plains, among whom this foot-wear is typical. Perhaps the Hopi belong to both classes. The cliff-dwellers wore sandals, and for winter had boots of network to which turkey feathers were skilfully fastened as covering. The sandals found in the cliff-houses are variously woven from rushes or agave strips, or maybe a plain sole of leather with the toe cord, but those worked of cotton showing ingenious designs are worthy of the highest admiration.

Those clans of the cliff-people and the clans from the south that congregated in Tusayan centuries ago were sandal wearers, while the resident clans and those coming from the north, perhaps bands of the Ute, — were moccasin wearers and impressed their language and moccasins on the Hopi. This was much to the advantage of the Hopi, granting that they had never thought of better protection than sandals from the biting winter.

Everyone who visits Tusayan will bring away as a souvenir some of the work of Nampeo, the potter who lives with her husband Lesu in the house of her parents at Hano, the little Tewa village on the great Walpi mesa near the gap. The house belongs to Nampeo's mother according to Pueblo property right, wherein she and her husband, both aged and ruddy Tewa, with their children and grandchildren live amicably as is usual among the Peaceful People. The house below the mesa, topped with a glowing red iron "Government" roof, is Nampeo's, who thus has two houses, but she spends most of her time in the parental dwelling at Hano.

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Nampeo is a remarkable woman. No feeling of her racial inferiority arises even on the first meeting with this Indian woman, bare-foot, bonnetless, and clad in her quaint costume. For Nampeo is an artist-potter, the sole survivor in Hano of the generations of women artists who have deposited the product of their handicraft in the care of the dead.

In the household her aged father and mother are final authority on the interpretation of ancient symbolic or cult representations in art. Nampeo likewise carefully copies on paper the decorations of all available ancient pottery for future use. Her archeological methods are further shown by her quest for the clays used by those excellent potters of old Sikyatki and by her emulation of their technique.

One noon under the burning August sun, Doctor Fewkes and the writer climbed the East Mesa, the former to attend the Flute Ceremony at Walpi and the latter with an appointment to pry into the secrets of Nampeo, the potter. In the house, pleasantly cool and shaded, sat the old couple and Lesu. The baby was being secured to its board for its afternoon nap, while Lesu spun. It was a pleasure to examine the quaint surroundings and the curious belongings hung on the wall or thrust above the great ceiling beams, — strings of dried *wiwa*, that early spring plant which has before now tided the Peaceful People over famine, gaily painted dolls, blankets, arrows, feathers, and other objects enough to stock a museum. Lesu did the

honors and said among other things that some of the ceiling beams of the room came from ancient Awatobi, destroyed in 1700.

A small niche in the rear wall of the living room, at the back of which stood a short notched log-ladder, caused some speculation. Quite unexpectedly and in a somewhat startling way its purpose was explained, for, when someone called the absent Nampeo, a pair of feet were seen coming down the steps of the ladder, followed finally by Nampeo, who, after a profound bodily contortion, smilingly emerged from the narrow passage into the room.

Nampeo was prepared to instruct. Samples of the various clays were at hand and the novice was initiated into the qualities of the *hisat chuoka*, or ancient clay, white, unctuous and fragrant, to which the ancient Sikyatki potters owed the perfection of their ware; the reddish clay, *siwu chuoka*, also from Sikyatki; the hard, iron-stained clay, *choku chuoka*, a white clay with which vessels are coated for finishing and decoration, coming from about twelve miles southeast of Walpi. In contrast with Nampeo's four clays the Hopi women use only two, a gray body clay, *chakabutska*, and a white slip clay, *kutsatsuka*.

Continuing her instructions Nampeo transferred a handful of well-soaked ancient clay from a bowl on the floor by her side to a smooth, flat stone, like those found in the ruined pueblos. The clay was thrust forward by the base of the right hand and brought

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back by the hooked fingers, the stones, sticks, and hairs being carefully removed. After sufficient working, the clay was daubed on a board, which was carried out, slanted against the house, and submitted to the all-drying Tusayan sun and air. In a short time the clay was transferred from the board to a slab of stone and applied in the same way, the reason being a minor one known to Nampeo, — perhaps because the clay after drying to a certain degree may adhere better to stone than to wood. Sooner than anyone merely acquainted with the desiccating properties of the moisture-laden air of the East might imagine, the clay was ready to work and the plastic mass was ductile under the fingers of the potter.

Nampeo set out first to show the process of coiling a vessel. The even "ropes" of clay were rolled out from her smooth palms in a marvelous way, and efforts to rival excited a smile from the family sitting around as interested spectators. The concave dish called *tabipi*, in which she began the coiled vessel and which turns easily on its curved bottom, seems to be the nearest approach of the Pueblos to the potter's wheel. The seeming traces of unobliterated coiling on the bases of some vessels may be the imprints from the coils of the *tabipi*. As the vessel was a small one, the coiling proceeded to the finish and the interims of drying as observed in the manufacture of large jars were not necessary. Then gourd smoothers, *tuhupbi*, were employed

to close up the coiling grooves, and were always backed from the outside or inside by the fingers. Finally the smooth "green" vessel was set aside to dry.

Then a toy canteen was begun by taking a lump of clay which, by modeling, soon assumed the shape of a low vase. With a small stick, a hole was punched through each side, a roll of clay was doubled for the handles, the ends thrust through the holes and smoothed down inside the vase, through the opening. The neck of the canteen was inserted in a similar way. Now the problem was to close the opening in this soft vessel from the outside. Nampeo threw a coil around the edge of the opening, pressing the layers together, gradually drawing in, making the orifices smaller until it presented a funnel shape. Then the funnel was pressed toward the body of the canteen, the edges closed together, soldered, smoothed, and presto! it was done and all traces of handling hidden. Anyone knowing the difficulties will appreciate this surprisingly dextrous piece of manipulation. Afterward, Nampeo made a small vase-shaped vessel, by modeling alone, without the addition of coiling as in the shaping of the canteen.

The ware when it becomes sufficiently dry must receive a wash of the white clay called *hopi chuoka* or *katsatsuka*, which burns white. Thereupon it is carefully polished with a smooth pebble, shining from long use, and is ready for decoration. The use of the glaring white slip clay as a ground for decoration was

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probably brought from the Rio Grande by the Tewa; ancient Hopi ware is much more artistic, being polished on the body or paste, which usually blends in harmony with the decoration.

Nampeo exhibited samples of her paints, of which she knows only red and dark brown. The red paint is yellow ochre, called *sikyatho*, turning red on firing. It was mixed on a concave stone with water. The dark brown paint is made from *toho*, an iron stone brought from a distant mesa. It was ground on a slab with a medium made from the seed of the tansy mustard (*Sisymbrium canescens*). The brushes were two strips of yucca, *mohu*, one for each color. With these slender means, without measurement, Nampeo rapidly covered the vessels with designs, either geometrical or conventionalized, human or cult, — figures or symbols. The narrow brush, held like a painter's striper, is effective for fine lines. In broad lines or wide portions of the decoration, the outlines are sharply defined and the spaces are filled in. No mistakes are made, for emendations and corrections are impossible.

Quite opportunely the next day, an invitation to see the burning of pottery came from an aged potter who resides at the Sun Spring. When the great Hopi clock reached the appointed place in the heavens, the bowed yet active potter was found getting ready for the important work of firing the ware. In the heap of cinders, ashes, and bits of rock left from former

firings, the little old woman scooped out a concave ring. Nearby was a heap of slabs of dry sheep's droppings, quarried from the floor of a fold perched on a ledge high up the mesa and brought down in the indispensable blanket. In the center of the concave kiln floor a heap of this fuel was ignited by the aid of some frayed cedar bark and a borrowed match from the opportune Pahana, "people of the far water," the name by which white men are known. When the fire was well established, it was gradually spread over the floor to near the margin and the decorated bowls brought from the house were set up around with the concave sides toward the fire, while the potter brought, in her blanket, a back load of friable sandstone from a neighboring hillock.

Under the first heat the ware turned from white to purple gray or lavender, gradually assuming a lead color. They were soon heated enough and were ready for the kiln. Guarding her hand by the interposition of a fold of the blanket, the potter set the vessels, now quite unattractive, aside, proceeded to rake the fire flat and laid thereon fragments of stone at intervals to serve as rests or stilts for the ware. Larger vessels were set over smaller and all were arranged as compactly as possible. Piece by piece, dextrously as a mason, the potter built around the vessels a wall of fuel, narrowing at the top, till a few slabs completed the dome of the structure, itself kiln and fuel.

Care was taken not to allow the fuel to touch the

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vessels, as a discoloration of the ware would result, which might subject the potter to the shafts of ridicule. Gradually the fire from below creeps up the walls till the interior is aglow and the ware becomes red hot. Little attention is now needed except closing burned out apertures with new pieces of fuel; the potter, who before, during the careful and exact dispositions, has been giving little ejaculations as though talking to a small child, visits the kiln intermittently from the nearby house. Here she seeks refuge from the penetrating, unaromatic smoke and the blazing sun.

The Hopi have an odd superstition that if any one speaks above a whisper during the burning of pottery the spirit inhabiting the vessel will cause it to break. No doubt the potter had this in mind while she was whispering and was using all her blandishments to induce the small spirits to be good.

She remarked that when the sun should hang over the brow of the mesa at the height indicated by her laborious fingers, the ware would be baked, the kiln a heap of ashes, the yellow decoration a lively red and the black a dark brown on a rich cream-color ground. Next day, with true foresight, she brought her quaint wares to the camp and made a good bargain for them, incidentally asking, "Matches all gone?"

One woman at least in Tusayan is a weaver of blankets. Anowita's wife enjoys that distinction because she is a Navaho, among whom weaving is woman's

work. The Hopi housewives have enough to do keeping house, a thing not burdensome to the Navaho, and as has been explained, the Hopi men hold a monopoly of the spinning and weaving.

Time out of mind the Hopi have grown cotton in their little fields, and the first white men that made their acquaintance were presented with "towels" of their weaving as a peace offering. In the cliff-houses of the ancient people are found woven fabrics of cotton and rugs made of strips of rabbit fur like those now to be seen in the pueblos. The ancient people also had feather garments made by tying plumage to a network of cords. In the ruins of the pueblos one often finds cotton seeds which have been buried with the dead, and the braided mats of yucca or bark and bits of cloth fortunately preserved show that the people of former times were skilful weavers. There is no reason to doubt that the Hopi stuffs were prized for their excellence throughout the Southwest in the early times as they are now.

When the Spaniards brought sheep among the pueblos, the weavers and fabric makers seem to have appreciated the value of wool at once, and the ancient garments of feathers and skins quickly disappeared. Cotton remained in use only for ceremonial costumes or for cord employed in the religious ceremonies. The rabbit-fur robes which once were made throughout a vast region of the Rockies from Alaska to the Gulf of California were largely displaced by blankets, in later

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years, gorgeously dyed and cunningly woven. Long before the introduction of trade dyes the Hopi were satisfied with sober colors; the dark blue and brown given to the yarn by the women were from the plants. Even now the Hopi weavers stick to their colors and refuse to perpetrate the zigzags of the Navaho. For this reason the women of all the pueblos of the Southwest dress in dark blue and brown, as the Hopi are purveyors of stuffs for wear to all their fellow house-dwellers of Indian lineage. Good cloth it is, too, and worthy of its renown, for it wears exceedingly well. More than one generation often enjoys its service, and when the older folks get through with their blanket dresses, the little ones have garments fashioned from them for their own apparel.

If one will examine the Hopi blankets, he will be surprised at the skilful weaving they show. The blanket dress often has the body of plain weaving in black and the two ends bordered with damask or basket weave in blue. Sometimes a whole blanket is of damask, giving a surface that, on close inspection, has a pleasing effect. The women's ceremonial blanket of cotton with blue and red borders sometimes show three kinds of weaving and several varieties of cording. The belts also have a wonderful range of patterns. On the whole, one is led to believe that the Hopi are more adept at weaving than their rivals, the Navaho.

The carding and spinning are thoroughly done, the

resulting yarn being strong, even, and tightly twisted with the simple spindle. Sometimes the spinner dresses and finishes the yarn by means of a corn cob smoothed by long use. The women, by virtue of their skill in culinary matters, are usually the dyers, and the dye they concoct from sunflower seeds or blue beans is a fast blue. In old times cotton was prepared for spinning by whipping it with slender switches on a bed of sand, and this process is yet required for the cotton used for the sacred sashes. Now nearly every family is provided with wire cards purchased from traders. These cards look quite out of place in the hands of priests in the *kiva*, where they are used in combing the cotton for the sacred cord used in tying the feathers to the *pahos*.

When the kiva is not in use for a ceremony it is common to find there a weaver busy at his rude loom and growing web. To the great beams of the roof is fastened the upper yarn beam of the loom, and secured to pegs in holes in the stone slabs of the floor is the lower yarn beam. Between these is tightly stretched the warp. The weaver squats on the floor before the loom, having ready by him the few simple implements of his craft, consisting of a wooden knife or batten highly polished from use, for beating down the yarn, a wooden comb also for pressing home the woof, and the bobbins which are merely sticks with the yarn wrapped back and forward spirally upon them. He picks out a certain number of warp threads with the

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batten, passes through the bobbin, beats the yarn home with great patience, and so continues, making slow headway.

There are several reasons why the kiva is used by the weavers. These subterranean rooms, usually the property of the men, are cool and quiet, and the light streams down from overhead across the surface of the web, allowing the stitches to be seen to good advantage. The best reason is that the kiva ceiling is high enough to allow the stretching of the warp to the full length of a blanket, which cannot be done in the low living rooms of the dwellings.

Belts, garters, and hair tapes are made on a small loom provided with reed or heddle frame, and usually this is woman's work. Strangely enough the belt loom is a kind of harness, for the warp is stretched out between the woman's feet and a yoke that extends across her back. The yarn used for belts is bought from the trader. The old belts are marvels of design and are among the most pleasing specimens of the art work of the Hopi.

With the introduction of dyed trader's yarns and coal-tar colors has come a deterioration in the work of the Navaho weavers. Among the Hopi this is not noticeable, but, no doubt, for this reason the embroidery on the hems of the ceremonial blankets, sashes, and kilts is gayer than in former times when subdued mineral colors and vegetable dyes only were available.

Every visitor to the Hopi pueblos is attracted by

the carved wooden figures painted in bright colors and decorated with feathers, etc., that hang from the rafters of the houses. "Dolls," they are usually called, but the Hopi know that they are representations of the spiritual beings who live in the unseen world, and a great variety there is of them. Thousands of these figures are made by the Hopi, many to be sold to visitors, a thing no Zuñi would do, because in that pueblo these images have a religious character and are hidden away, while the Hopi decorate the houses with them.

The carvers of these strange figurines must be granted the possession of much skill and ability in their art, which is carried on with a few simple tools. The country far and near is ransacked for cottonwood, this being the wood prescribed for masks, dolls, prayer-sticks, etc. The soft cottonwood, especially the root, is easily worked with the dull knives that the Hopi possess. On every hand is soft, coarse sandstone for rubbing the wood into shape, and much of the work is not only finished, but formed by this means. For this reason the rocks around a Hopi village are covered with grooves and pits left by the workers in wood.

If any parts, such as ears, hair, whorls, etc., are to be added to the figures, they are pegged on quite insecurely. Some of the terraces which surmount the kachina masks are remarkable structures built up of wood pegged together. A little string, a few twigs

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and pieces of cottonwood suffice the Hopi for the construction of flowers and complicated parts of the decoration of dolls and masks or other ceremonial belongings. Corn husks, dyed horsehair, woolen yarn, deerskin, cotton cloth, twigs, basketry, and feathers are worked in and the result, though crude, is effective.

But in the realm of mechanical apparatus the Hopi is even ahead of the toy makers of the Schwartzwald. For the Palulukong ceremony he arranges startling effects, causing the Great Plumed Snake to emerge through screens, out of jars, or from the ceiling of the kiva, to the number of nine appearances, each requiring artful devices. The head of the Snake is a gourd furnished with eyes, having the mouth cut into sharp teeth, a long tongue, a plume, and the whole surface painted. The body is made up of wooden hoops over which cords run and is covered with cloth. Often two of these grotesque monsters are caused, by the pulling of cords, to advance and withdraw through flaps in the screen and to struggle against each other with striking realism. Nothing in Hopiland is more remarkable than this drama, as one may gather from Dr. Fewkes' account of it given at another place.

Little of the Hopi's skill as a carver and decorator goes to the furnishing or building of the house; almost all is taken up with ceremonial matters. Previous to a few years ago chairs were unknown, as was any other domestic joinery, except the Hopi head masks, prayer-sticks and the thousand objects used in his

pagan worship, in the manufacture of which he was master of all expedients. As a worker in stone and shell he still knows the arts of the ancient times, but lacks the skill of his forebears. The turquoise mosaics of old days so regularly and finely set on the backs of sea shells, have given place to the uneven scraps of turquoise set in confusion on bits of wood, as on the woman's earrings. Many devices have gone out entirely, and it is probable that no Hopi could make an axe of hard stone like the old ones or chip a finely proportioned arrow-head. The hand-stones for grinding corn are still made, and a woman pecking away at one with a stone hammer is not infrequently seen and heard.

The Hopi were never metal-workers, because free metals are scarce in the Southwest. Their name for silver, with which they became familiar in the shape of coins, is *shiba*, "a little white cake." Gold they regard with suspicion, since it resembles copper or brass, with which they have been deceived at times by unscrupulous persons. A few workers in silver have produced some crude ornaments, but the Hopi gets his buttons, belt ornaments, etc., from the adept Navaho, silversmiths by trade, through whom also strings of beads come from the pueblos of the Rio Grande.

The rocks all over the Southwest bear witness that the Hopi can draw. In thousands of instances he expressed his meaning in symbols or in compositions representing the chase of the deer or mountain goat.

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One of these groups on the smooth rocks near Holbrook, Arizona, shows a man driving a flock of turkeys, and is exeeedingly graphic. On the cliff faces below Walpi are numerous well-executed pictographs, and occasionally one runs across recent work on the mesa top that excites admiration. With sculpture in the round the Hopi has done nothing remarkable because his tastes and materials have never led in this direction. A few rather large figures rudely carved from soft sandstone may be seen around the pueblos, and numerous fetiches, some of very hard stone, representing wolves, bears, and other animals, are still in the keeping of the societies. Some of these are very well done, but show little progress in sculpture. The visitor must beware of the little fetiches whittled from soft stone and offered for sale as genuine by the guileful Hopi in quest of *shiba.*

The industry which the Hopi woman has all in her own hands is basket-making, and the work is apportioned to such as have the skill and fancy for it, as if there were a division of labor. The women of the three towns on the East Mesa do not make baskets at all, those of the Middle Mesa sew only coiled baskets, while the women of Oraibi weave wicker baskets exclusively. Thus, there is no difficulty in saying just where a Hopi basket comes from, and there is also no excuse for not recognizing these specimens of Hopi woman's work at first glance, as they have a strong individuality that separates them from all other baskets of the Indians.

If one should visit the most skilful basket-maker of the Middle Mesa, Kuchyeampsi, that modest little woman, might be seen busily at work, and from her a great deal about the construction of coiled baskets could be learned. But it would take some time and patience to find that the grass whose stems she gathers for the body of the coil is named *takashu,* which botanists know as *Hilaria jamesii,* and that the strips which she sews over and joins the coil are from the leaves of the useful *mohu* (*Yucca glauca*).

Then when Kuchyeampsi comes home laden with her basket materials one must take further lessons in stripping the yucca leaves, splitting them with the thumb-nail to uniform size, and dyeing some of them various colors, for which anilines are principally used in these degenerate days. One must have an eye for the colors of the natural leaves of the yucca and select the yellow or yellowish green of the old leaves, the vivid green of the young leaves, and the white of the heart leaves, for the basket weaver discriminates all of these and uses them in her work.

Of course Kuchyeampsi has all her material ready, the strips buried in moist sand, the grass moistened, and she may be starting a plaque. The slender coil at the center is too small to be formed with grass stems, so she builds it up of waste bits from the leaf-tripping, wrapping it with yucca strips, and taking only a few stitches with the encircling coil, since the bone awl is too clumsy for continuous stitching at the outset. Af-

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ter the third round the bone awl is plied, continuously piercing through under the coil and taking in the stitches beneath strips. As a hole is made the yucca strip is threaded through and drawn tight on the grass coil, and so the patient work goes on till the basket is complete. The patterns which appear on the baskets are stored up in the maker's brain and unfold as the coil progresses with the same accuracy as is evinced by the pottery decorator. The finish of the end of the coil gives an interesting commentary on Hopi beliefs. It is said that the woman who leaves the coil end unfinished does not complete it because that would close her life and no more children would bless her.

At Oraibi one may see the women making wicker tray-baskets. Three or four slender sumach twigs are wickered together side by side at the middle and another similar bundle laid across the first at right angles. Then dyed branches of a desert plant known as "rabbit brush" are woven in and out between the twigs, and as the basket progresses she adds other radial rods until the basket is large enough. She finishes the edge by bending over the sumach ribs, forming a core, around which she wraps strips of yucca.

One must admire the accuracy with which the designs are kept in mind and woven into the structure of the basket with splints of various colors or strips of tough yucca. The translation of a design into the radiating sewing of the coiled basket or the horizontal

filling of the wicker basket shows the necessity of the different treatments, contrasting with the freedom which it is the potter's privilege to display on the smooth surface of her ware. So far as known the Hopi women never fail in applying their designs, however intricate. Frequently these designs represent mythical birds, butterflies, clouds, etc.

Among the Hopi certain of the villages are noted for their local manufactures. Thus Walpi and Hano are practically the only towns where pottery is made, the Middle Mesa towns are headquarters for coiled baskets, and Oraibi furnishes wicker baskets. Perhaps the meaning of this is that these arts belong to clans, who have preserved them and know the secrets, and with the dying out of the workers or migration of the clans the arts have disappeared or have been transformed. Another cause which will suggest itself is the local abundance and quality of the materials required to be found in the surrounding plains and mountains.

Basketry has at least as many uses as pottery among the Hopi, and a number of kinds besides the familiar plaques with symbolical decoration have been eagerly sought by collectors. The crops from the fields are borne to the houses on the mesas in carrying baskets, resembling a pannier, which are worked of wicker over a frame of two bent sticks crossed at right angles. In the house the coiled and wicker trays heaped high with corn meal, the basket for parched corn and the

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sifting basket near the corn grinding stones, will be found. In the bread-baking room is the coarse, though effective, *piki* tray, and occasionally one may still see a neatly made floor mat. The thin checker mat of ancient days has long since gone out of use, but formerly, the dead were wrapped in such mats before they were placed in the earth.

Over the fireplace is a hood of basketry plastered to prevent burning. The wicker cradle to which the infant hopeful is bound must not be forgotten. Several small globular wicker baskets for various purposes may also be displayed among the household belongings. The mat of grass stems in which the wedding blanket is folded is also a kind of basketry, as are the twined mats for covering the hatchway of the kiva and the twined fence around the fields.

With all their own resources, the Hopi are great collectors of baskets from other tribes. One must not be surprised to see in use in the Hopi houses the water bottles coated with pitch and the well-made basket-bowls from the Havasupai of Cataract Canyon, the Pimas of southern Arizona, and other tribes touched by Hopi commerce.

The vizors of old masks used in the ceremonies were of basketry, generally a section cut from a Ute basket bowl, which shows one of the most interesting employments of baskets among the Hopi. The highly decorated trays may also be said to have a sacred character from their frequent appearance in the ceremonies,

where they are used to contain prayer-sticks, meal, etc. Appropriately the women's ceremonies display many baskets on the altars, and in the public dances each woman carries a bright plaque. One of the episodes of these ceremonies is full of action when women throw baskets to men who struggle energetically for them. On this account these ceremonies have been called Basket Dances.

One of the frequent sights in a Hopi town is a woman carrying a heaped-up plaque of meal of her own grinding as a present to some friend. This usually happens on the eve of a ceremony, like our Christmas gifts, but no one must fail to notice that an equal present is religiously brought in return.

The Hopi value their baskets; they appreciate fully a pretty thing, and this explains why one of the Sichomovi men, who is rich in Havasupai baskets, has had the good taste to decorate the walls of the best room of his house with these trophies of Cataract Canyon.

Judging from the number of ruins in the Southwest, it might be thought that the former inhabitants spent much of their time in laying up walls and considered the work easy. What these ruins do show in an emphatic way is the organization of the builders and what mutual aid will accomplish.

Dismiss the idea of the modern architect, builder, laborers, brick makers, planing mill hands, plumbers, etc., combining to get ready a dwelling for a family, and substitute in their place all the Indian relatives,

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from the infant to the superannuated, lending willing hands for the "raising." The primitive architect is there, builders too, of skill and experience and a full corps of those who furnish builders' supplies, including the tot who carries a little sand in her dress and those who ransack the country round for brush, clay, beams, stones, and water.

Before going farther it must be understood that house-building is women's work among the Hopi, and these likewise are the house-owners. It seems rather startling, then, that all the walls of the uninhabited houses and the fallen walls of the ruins that prevail in the Southwest should be mainly the work of women's hands, whose touch we might expect to find on the decorated pottery, but not on the structures that cause the Pueblo people to be known as house-builders. From this one begins to understand the importance of woman in these little nations of the desert.

Let us suppose that an addition is to be made to a Hopi village of a house containing a single room, built without regard to the future additions which may later form a house cluster. The plan of such a house would be familiar to any Hopi child, since it is merely a rectangular box. When the location has been determined, word is passed around among the kinsfolk and the collection of stones, beams, etc., is begun. Cottonwood trees for many miles around are laid under contribution. Some beams may be supplied from trees growing near-by along the washes and

in the cornfields, and some may require journeys of eighty or a hundred miles, representing immense labor. Beams are precious, and in this dry climate they last indefinitely, so that one may not be surprised to find timber in the present houses from Awatobi or older ruins, or from Spanish mission times. It is also probable that often when pueblos were abandoned, they were revisited later and the timbers torn out and brought to the new location, thus the ruins might appear more ancient than they really are. With the advent of the burro, the horse, and the iron axe, timbering became easier than in the stone age, but it was still no sinecure.

Stones are gathered from the sides of the mesa not far away, those not larger than a moderate burden being selected. The sand-rock of the mesa is soft and with a hammer-stone convenient masses may be broken off. At present there is a quarry on the Wālpi mesa; the blocks gotten out by means of axes are more regular than those in the old houses, which show little or no traces of working. Between the layers of rock are beds of clay which require only moistening with water to become ready for the mason.

The architect has paced off the ground and determined the dimensions of the house, giving the arm measurement of the timbers to the logging party who, with the rest, have got the materials ready. The next step is to find the house-chief and secure from him four eagle-feather prayer-plumes. These are deposited

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under the four corner stones with appropriate ceremony of breath-prayers for the welfare of the house and its occupants. The plumes are dedicated to the god of the underworld, the sun, and other deities concerned with house-life. The builder then determines where the door shall be and places an offering of food on either side of it; he then walks around the site from left to right, sprinkling a mixture of *piki* crumbs and other food with tobacco along the line of the walls, singing to the sun his *kitdauwi*, "house song"; *Si-si, a-hai, si-si, a-hai*, the meaning of which has long been forgotten.

The walls are laid in irregular courses, mortar being sparingly used. The addition of plastering to the outside and inside of the house awaits some future time, though sometimes work on the outside coat is put off to an ever vanishing *mañana*. When the house walls, seven or eight feet in height and of irregular thickness from seventeen to twenty-two inches are completed, the women begin on the roof. The beams are laid across the side walls at intervals of two feet; above these and parallel with the side walls are laid poles; across these is placed a layer of rods or willow brush, and above this is piled grass or small twigs. A layer of mud comes next, and when this is dry, earth is placed on it and tramped down until hard. The roof, which is complicated and ingenious, is nearly level, but provision is made for carrying off the water by means of spouts.

When the roof is finished the women put a thick coating of mud on the floor and plaster the walls. At Zuñi floors are nearly always made of slabs of stone, but in Hopi mud is the rule. The process of plastering a floor is interesting to an onlooker. Clay dug from under the cliffs, crushed and softened in water and tempered with sand is smeared on the floor with the hand, a little area at a time. The floor may be dry and occasionally the mud gets too hard; a dash of water corrects this. When the mud dries to the proper stage, it is rubbed with a smooth stone having a flat face, giving the completed floor a fine finish like pottery. As an extra finish to the room a dado is painted around the wall, in a wash of red ocher by means of a rabbit skin used as a brush. Formerly a small space on the wall was left unplastered; it was believed that a *kachina* came and finished it, and although the space remained bare it was considered covered with invisible mud.

Before the house can be occupied the builder prepares four feathers for its dedication. He ties the *nakwakwoci* or breath feathers to a willow twig, the end of which is inserted over one of the central roof-beams. The builder also appeases Masauah, the God of Death, by an offering in which the house is "fed" by putting fragments of food among the rafters or in a niche in the door lintels, beseeching the god not to hasten the departure of any of the family to the underworld. At the feast of Soyaluna in December, the

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feathers, forming the "soul" of the house, are renewed, and at this season when the sun returns northward, the village house-chief visits the houses which have been built within the year and performs a ceremony over them.

A hole is left in one corner of the roof, under which the women build the mud fireplace, with its knob andirons and the column of pots with the bottoms knocked out which form the chimney. Over the fireplace, a chimney hood, usually supported on posts, is constructed of basket-work, plastered over with mud. A row of mealing stones slanted in sunken stone boxes in the floor must not be forgotten, and no one in Hopiland could set up housekeeping without a smooth stone slab to bake *piki* upon. Some of the houses have a low bench along one or two sides of the room which forms convenient seats. The windows are small, being often mere chinks, through which the curious spy without being seen. Stones are usually at hand, by means of which, and mud, windows and doors may be closed when the family go off on a rather protracted stay.

This one-room house is the nucleus of the village. When the daughters marry and require space for themselves, another house is built in front of and adjoining the first one, and a second story may be added to the original house. Thus the cluster grows, and around the spaces reserved for streets and plazas other clusters grow until they touch one another and rise three or four stories, the inner rooms being dark from

the addition to the later houses and these become storage places.

While the old houses were entered from the trapdoors in the roof, the new houses have doors at the ground level and often windows glazed in the most approved style. Frequently in the march of progress doors are cut into the old houses, and the streets begin to assume the appearance of a Mexican town; but the old nucleus buried under the successive buildings rarely shows and may be traced with difficulty. In winter the people withdraw from the exposed and retire to the old enclosed rooms, huddling together to keep warm, enlivening the confinement with many a song, legend, and story.

So much for the woman builders of Tusayan, to whom all honor.*

* One who desires to pursue this subject in more detail should consult Mendeleff's paper on Pueblo Architecture in the 8th Annual Report Bureau American Ethnology, 1886-1887.

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V

AMUSEMENTS

The enviable title of "Song-Makers" has been earned by the music-loving Indians of Tusayan, and their fame as singers has gone out among all the tribes of the "Land of Little Rain." Many a less inventive Indian has come a long, wearisome journey to learn songs from the Hopi, bringing also his fee, since songs that give the singer magic power over the gods and forces of nature are not to be had for the asking, besides to their learning a man must give the full devotion of his being and sit humbly at the feet of his instructors. The land where the Hopi live may seem to furnish slight incentive to song, especially when one's ideas of the desert are of its dreariness and desolation; but when one sets foot in the sacred precincts of the mysterious desert a new revelation comes to him and he sees with these Indians that the wastes which unfold from the high mesas are full of beauty of form and brilliancy of color. Sunrise and sunset bring wonderful tints into the landscape, — the distant blue mountains, the violet cloud shadows, the tawny, whirl-

ing sand columns, the far-off thunder-storm, the vibration of the midday air, and the sparkling night sky must inspire the most prosaic mind. There comes to one in these surroundings a feeling of freedom, together with a sense of the vastness, transparency, and mystery of the desert which stir the emotions and makes the close pent life of crowded cities left behind seem but an unsubstantial dream. Here the Hopi have been always free; the isolated life on the narrow mesas brings about a close companionship and a true home-life besides. The air of the desert makes a man healthy and hungry, thus cheerfulness cannot but follow, expressed in songs that are from the soul.

It must be confessed that the impression of Indian music one draws from various sources is that it consists of whoops, yells, and odd, guttural noises, but this is far from describing Hopi music. Between the light and airy *Kachina* songs and the stirring though somewhat gruesome chants of the Snake ceremony, there is a variety of compositions to many of which the most enlightened music lovers would listen with pleasure.

The Flute music is especially pleasing. In the summer of 1896, the writer had the good fortune to witness the Flute ceremony at the Hopi pueblo of Walpi. In the course of the ritual, which is an invocation for rain, a series of songs are repeated each day for several days. To one hearing Indian music for the first time

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