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THE

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THE PREHISTORIC CULTURE OF TUSAYAN

J. WALTER FEWKES

The Pueblo Indians offer most interesting problems to the historian, the archeologist, and the ethnologist. Among these people are found the oldest villages of the United States—towns populous a century before the Mayflower set sail for the New World, and continuously inhabited from that time until the present day. One of these ancient pueblos, occupying the same site that it did in very earliest times, is called Oraibi, the largest village of the province of Tusayan, in northeastern Arizona.

The accounts of the early Spanish explorers give us an imperfect picture of Tusayan culture in the latter part of the sixteenth, the seventeenth, and the eighteenth centuries, and there still remains much to be learned from documentary sources concerning Tusayan during that period. The wealth of unworked material which awaits the historian in the archives of the Indies, of the Lonja at Sevilla, and other libraries of Spain is very great, and it is to be hoped that many more years will not elapse before these manuscripts are brought from their hiding places, their quaint old script deciphered and made to reveal the secrets which they have held buried from sight for so many years.

The authentic documentary history of Tusayan began in 1540, when Coronado, the intrepid Spanish conqueror, having established himself in Cibola, sent Don Pedro de Tobar, one of his

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officers, to explore a province to the northwest called Tusayan,[1] which was reported to contain seven cities.

Tobar crossed the arid plains which separate Cibola from Tusayan and suddenly appeared to the astonished natives not far from what is now called Jeditoh or Antelope valley, south of the then populous pueblo of Awatobi. Here probably occurred the first contact of Spaniard and Hopi, and in the episode which transpired the authentic history of Tusayan began. It is interesting to read Castañeda's straightforward account of this first meeting of Spanish soldiers and Hopi warriors, especially as it mentions a Tusayan custom which has survived to the present day. The Indian warriors drew a line (of meal) across the trail which led to their pueblo to symbolize that the way was closed to the intruders. In the same manner they symbolically close the trails today with sacred meal, as I have described in the account of the New Fire ceremonies at Walpi. To cross that line in their warfare meant hostility; but the Spaniards, urged on by the soldier-priest, Juan de Padilla, disregarded it, charged on the Hopi warriors, who were armed with spears, arrows, and leather shields, and opened the historic epoch with bloodshed.

The middle of the sixteenth century thus came to be the date separating the prehistoric from historic times in this province. These notes concern the former period, and while much which might be gathered from early Spanish chronicles in regard to aboriginal culture in the century following Tobar's advent is probably true of the century which preceded it, I have limited my study to other than documentary sources for information.

While several methods of investigating the culture of prehistoric Tusayan are commended to our attention, there is but one which yields trustworthy data. Unwritten history in the form of legends, studies of their present and historical condition are valuable and necessary adjuncts, but archeology is par excellence the science to which we must look for accuracy in the solution

[1] *Tucano*, Coronado's letter to Mendoza; *Tucayan*, Jaramillo, Relacion; *Tusayan*, Castañeda, Relation, Ternaux Compans; *Tusayan* or *Tutaliaco*, Castañeda, teste Winship; *Tuzan*, Relacion del Suceso, 1540. The name of this province shares with those of many ancient Mexican towns the termination *an*, which is foreign to Hopi linguistics as a locative ending. Mr Valentini suggests in a letter that Tusayan is corrupt Nahuatl, from *tochli*, rabbit; *an*, place of, "Rabbit place," an apt name of the country. It is known that Nahuatl-speaking natives accompanied Coronado. Did he use their name of the province? The suggested derivation of Tusayan from the Navaho tongue is weak, and there is no evidence that Coronado knew this Athapascan people. I find no proof that he heard the Hopi called Tusayan by the Zuñi.

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of the problem. Having definitely determined which one of the numerous Tusayan ruins was prehistoric, or was destroyed before the beginning of Spanish influences, I have searched in the soil which covers it for data relating to the condition of the former inhabitants. While there are several ruins which would answer our requirements, there is one which is preëminently suited for this research. This prehistoric ruin, from which my conclusions in regard to ancient Tusayan culture are drawn, is called Sikyatki or Yellow-house, and is situated not far from villages now inhabited by some of its descendants.

With the exception of studies of architecture, our anthropological literature is very weak in information regarding ancient Tusayan life; no archeologist had seriously taken up the study of prehistoric Tusayan culture from any other side; no spade had turned a cubic foot of the soil which for over three centuries and a half had covered one of the most remarkable ruins of Arizona. Superficial excavations, however, had been made at the historic pueblo, Awatobi, a village under Spanish influences from 1629 to 1700, and the rare collection of pottery made by Mr Thomas V. Keam had familiarized us with the excellence of ancient Tusayan ceramics. Many objects in this famous collection are undoubtedly prehistoric, but from the way in which they were collected we could not be sure how many were made by potters who never saw a Spaniard. Accuracy in labels is imperative in archeology as in kindred sciences. Moreover, while ancient pottery is the most showy and commercially most valuable, objects of less intrinsic value, which a trader does not collect, had been overlooked, and although these have greatest scientific importance, none of them were known from Tusayan.

When by invitation of the Secretary of the Smithsonian Institution I was able to inaugurate archeological work in this region of Arizona I naturally turned to Sikyatki as a ruin from which could be gathered material to supply these deficiencies. The collection made at that ruin is now safely placed in the National Museum and shows better than can any words of mine the character of prehistoric industries[1] in Tusayan. From this collection

[1] In addition to excavations at Sikyatki I made studies of the ruin of Awatobi, from which was obtained a considerable collection. The objects from Awatobi afford a fair picture of Tusayan culture in the seventeenth century, but as Catholic priests lived in this pueblo from about 1629 to 1680 many of the objects found betray European influences. A discussion of the character of Tusayan culture of the seventeenth century, as indicated by archeology, must be treated elsewhere.

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as a basis I will point out a few general conclusions to which I am led by my study of it, and indicate their bearing on questions of interest to the student of American antiquities.

Before passing to more special considerations let us be reminded of a few unsolved problems which claim the attention of students of the southwestern aborigines. The culture of the region called Pueblo can be traced as far north as the vicinity of Great Salt lake, as far east as Las Vegas, New Mexico, and west to the meridian of St George, Utah, but is undefined on the south, crossing our boundary line into old Mexico. This whole region is thickly strewn, especially along its valleys, with ruins assuming different character as environment dictates. Throughout the greater part of New Mexico and Arizona there is so close a similarity in these ruins that it may well be styled a cultus area. Its culture was evidently uniform and markedly different from that of any region in North America, finding its nearest affinity in that of the northern states of Mexico, from which it can be distinguished only with the greatest difficulty. The survivors of the former inhabitants of this region are now huddled into pueblos, near which are reservations on which live nomadic intruders, Apaches, Navahos, Utes, and others of wholly different stocks, the former especially having kinship with extreme northern tribes.

The problem whence came that prehistoric pueblo culture is an interesting one. Was it autochthonous or derivative? What is the meaning of its many resemblances to the culture of Chihuahua and Sonora? What explanation shall we give to the existence of Nahuatl words in Hopi linguistics and their wide extension among Shoshonean peoples, pointed out by the acute student Buschmann? Were the ancient people of Tusayan more closely related to the Sonoran[1] or the Oregonian divisions of a Shoshonean group based on similar idioms or word equations? We are emphatically told that they were wild tribes who have

[1] The important discovery by Buschmann of traces of Nahuatl words in Shoshonean idioms has led to many extravagant statements by less careful observers. The similarities of the tongues is not great enough, as sometimes stated, to enable one to converse with tribes from Durango in Mexico to the Oregon rivers. The Hopi language is placed by Charencey in a group which he calls the "Oregonais," and is not considered in his Sonoran idioms. I believe the true affinity of the Hopi language is nearer to those of Sonora than to the Shoshonis and Utes, and that this Sonoran group is closer to the Nahua. Instead of extending to the Shoshonean down to include Opata and Pima, I would enlarge the Sonoran to include the Hopi, for there is a closer likeness

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adopted a sedentary life; but how shall we explain the many likenesses in culture in Tusayan? Has the culture of the northern states of Mexico been derived from this region, or is the Pueblo area the northern frontier of the higher culture to the south into which it grades without break? These are questions which I believe no one can yet satisfactorily answer because of the poverty of accurate data in regard to the character of ancient Pueblo culture. The time is not yet ripe for renewed speculation, but calls for additional observations. My effort therefore was to determine as accurately as possible the nature of the prehistoric culture of the least modified section of this extensive Pueblo cultus area, believing that by so doing more trustworthy answers to these questions were possible. With this thought in mind I chose the Tusayan province as a field of inquiry. This field is not so limited as might at first be supposed. Prehistoric Tusayan pueblos were inhabited by colonists from every section of the Pueblo area, and increments came to them from north, south, east, and west, from nomads and from Pueblos. In properly defining the prehistoric culture of Tusayan we are thus offering a contribution to the probable condition of any and every part of the Pueblo area from which the components of this stock originated.

There is another unsolved problem of the southwest on which a knowledge of prehistoric Tusayan culture may shed much light. It is known that there are many likenesses between Navaho and Pueblo myths and cults which no one has yet carefully considered. In a valuable contribution to the subject Mr Hodge presents adequate evidence to show that the advent of this branch of the Athapascan stock in the Pueblo region was, historically, comparatively recent, although its kin, the Apache, came earlier. Are these relations between Tusayan and Navaho beliefs and rituals derivative, and if so to what extent? While I find our poverty of information in regard to the practices which the Navaho brought to the Pueblo region inadequate to aid me in an intelligent answer, it is possible to gather information in re-

between Opata and Hopi than between the latter and northern peoples. I have not space here to give my vocabularies of Pima, Opata, and Cahita words in Tusayan and contrast them with Shoshonean, but they prove, at least to my satisfaction, that the linguistic elements which the Hopi derived from Shoshonean are much fewer than those from Sonoran sources. Hence I regard their classification as a Shoshonean people misleading, and the inclusion of the Pimas in a Shoshonean stock unnatural.

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gard to Tusayan culture before these two widely different stocks came together and mutually influenced each other.

There are many aspects of ancient Tusayan culture on which archeology as yet throws no light. We know, for instance, from reliable historical sources that the cultivation of cotton and the weaving of fabrics from its fiber was a prehistoric industry in Tusayan, and yet no trace of this was found in my excavations at Sikyatki. These gaps in the record may be supplemented by future studies, but in the present discussion of the prehistoric culture of Tusayan I limit myself to one pueblo and the epoch of its habitation.

There are no means of knowing how old the pueblo under consideration was when destroyed, although the existence on the walls of some of the rooms of many layers of plastering with alternate strata of soot shows considerable age. The crowded cemeteries likewise denote antiquity, but time ratios in prehistoric ruins are at the best only approximations.[1]

The destruction of Sikyatki was one of those feudal tragedies so common in both historic and prehistoric times in our southwest, and the true reason of its overthrow we may never know. There were frequent quarrels, so the modern folktale runs, with the adjacent pueblo of Walpi concerning ownership of the scanty water supply, the boundaries of farms, and other controversies. The Sikyatki people erected in a commanding position on the mesa above them two circular watch-towers, the ruins of which are still visible, to defend themselves from Walpi, and stretched a stone wall, still standing, between there and the hostiles at the western end of East mesa. Sanguinary episodes are hinted at as provocations hastening the tragedy. A disguised Sitkyatki youth is said to have entered Walpi and killed a maiden who was a spectator of some public ceremony, safely escaping to his pueblo and taunting his enemies from his secure position. Whatever may have been the reason why the Walpi warriors fell upon Sikyatki, legends of the details are indistinct, as the date was

[1] There is a legend, which needs critical examination before acceptance, that the early settlers at Sikyatki came from Fire-house, a round ruin far to the east, on the periphery of Tusayan. The circular form and architecture of Fire-house is very different from that of Sikyatki, as of all other Tusayan ruins, and if the two pueblos were inhabited by the same phratry they must have changed their ideas of pueblo building when they founded Sikyatki. From a comparison of its size with that of the ruins of Awatobi, which we know contained 800 people when destroyed, I should judge that Sikyatki had not far from 500 inhabitants when it fell.

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remote in their annals. The warriors of Walpi entered the doomed town, massacred the defenders, and carried off their women to their own pueblo, where they became mothers of existing phratries. Such other survivors as there were fled to Oraibi and Awatobi, no doubt fermenting in the latter village a trouble of long standing, which ultimately culminated in the destruction of that place, at the close of the year 1700.[1]

Nothing could have seemed more unpromising for results when we began our work than the site of the ruins of this ancient village. All that was to be seen of the once populous pueblo of Sikyatki was a series of mounds strewn with fragments of pottery and scantily covered with characteristic desert vegetation.

These mounds are situated between two and three miles east of Walpi, among the foothills at the base of the mesa. No fragment of its former walls stood above the mounds, although the observer could readily trace outlines of rooms over the surface of the ground. From an examination of the site it was apparent that the groundplan of this pueblo was of rectangular form, with rows of rooms about a central court. There was an elevation like an acropolis at one corner, crowned by rooms one or more stories high, from the roof of which a wide view could be obtained over the adjacent plain, which stretched from its base to the entrance to Keam's canyon, in which is now situated the Moki school.

It is universally declared by all the most reliable priests conversant with Hopi lore that Sikyatki fell prior to the coming of the Spaniards, who appear in legends as the long-gowned or metal-shirted men. All the stories which I have gathered bearing on this point coincide, and there is no dissent. Again, we have a list of Tusayan towns, which has come down to us from 1583, and we can locate these with accuracy. They correspond with the names of villages still inhabited, and Sikyatki is not found in that enumeration. While this negative evidence alone may not appear decisive, so far as it goes it supports the traditions that Sikyatki was a prehistoric pueblo, destroyed before Spanish records began. If we add to the evidences given that afforded by archeology, which, as it will appear, is likewise nega-

1 See "Awatobi, An Archeological Verification of a Tusayan Legend," *Amer. Anthrop.*, Oct., 1893.

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tive, we have strong presumption, if not proof, of our thesis; in all our excavating no sign of any object which showed the influence of Spanish presence was found—no glass, no Spanish glazed pottery, no metal implements, nothing which we could be sure came to that ancient pueblo from the followers of the conquistadores. Tradition, reinforced by the ancient appearance of the mounds, absence of any reference to the town in Spanish documents, and failure to find traces of European influence on buried objects indicate that the town was prehistoric, and certify that studies of these objects will show, so far as they go, the nature of prehistoric culture in Tusayan.

While it is claimed by Hopi traditionists that old Sikyatki was destroyed in prehistoric times by Walpi warriors, they likewise insist that the former inhabitants were of the same blood as themselves, and the best-informed members of certain Walpi phratries say that they are direct descendants of survivors of the ill-starred pueblo. This last claim is important, implying that the former culture has been transmitted, and rendering it safe to apply the principle of interpreting archeology by ethnology, just as the paleontologist determines kinship of fossils by anatomy of living genera. However considerable the innovations are which have crept into Tusayan life in historic times through Spanish and American influences since Sikyatki fell, there runs a thread through the generations connecting historic and prehistoric culture of such a nature that we are justified in using a knowledge of the present in the interpretation of ancient objects which were found.[1]

So far as architecture is concerned, we need not dwell on the fact that the character of the ruin shows that the prehistoric Sikyatkians were sedentary and agricultural people, with all those words imply. They chose for the site of their pueblo not an inaccessible mesa, for the reason that they had not yet been harassed by Ute, Apache, or Navaho. They lived on the foothills contiguous to their farms. At that time Walpi was likewise on the lower terrace of the mesa and did not remove to the summit until long after the Spaniards came. The incursions of nomads from the north had not begun, no doubt because they

[1] Fortunately the ruin of Awatobi presents us the link between the prehistoric and the historic Tusayan culture. This pueblo was inhabited when Sikyatki was destroyed and continued a populous community well into the historical epoch.

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were fully employed or effectually resisted by the cliff people of the San Juan.

Sikyatki in its prime was in places four stories high, with a central court, which is an old architectural feature. From an examination of its groundplan I conclude that this pueblo was much closer architecturally to the Rio Grande villages than are the modern Hopi towns, and this differentiation is as a rule more pronounced in historic than in prehistoric villages.

We shall later see that the ancient culture of all Pueblo stocks of the linguistic divisions—Keresan, Tanoan, Zuñian, and Tusayan—was closer than the existing culture of the several members. The ancient cultus stadium was more uniform than the modern, for the latter has been profoundly modified in divergent lines according to the foreign elements with which it has been brought in contact.[1]

None of the objects found at Sikyatki give a better idea of the artistic taste of prehistoric Tusayan than the pottery, which embraces a great variety of vessels of many shapes and degrees of excellence. The collection from Sikyatki numbers more than 800 pieces, of which over 500 were decorated with beautifully colored designs. The majority of these were obtained from the cemeteries, which are situated in the sands outside the pueblo in the cardinal directions. It was customary in prehistoric times to deposit with the dead bowls, vases, and ladles or dippers containing votive offerings of food or such objects as were used before death. An examination of these gives us an instructive insight into the mortuary customs of these people, and as the buried objects show evidences of long use before interment, they reveal interesting glimpses of the utensils and paraphernalia which were used by the living.

A careful examination of the beautiful productions of the prehistoric potters of Tusayan leads me to say that for fineness of ware, symmetry of form, and beauty of artistic decoration the Sikyatki pottery is greatly superior to any which is made by modern Hopi potters. This art has at present, as they confess, become greatly inferior to what it was in prehistoric times. So far as the artistic taste goes as indicative of a culture stage, we have data at hand to prove that before the Spaniards entered

[1] So far as examined, degeneracy of modern ware as compared with ancient seems to be the rule over the whole Pueblo area.

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New Mexico the pottery of Tusayan was far superior to that made today after three centuries of foreign influence.

But this ancient pottery of Tusayan can bear comparison, to its credit, not only with modern Pueblo ware, but also with that of any aboriginal people of America north of Mexico, and I venture the statement that to the extent with which I am familiar with ceramic productions of the aborigines of the United States there are no products of their handiwork which equal that of the potters of this pueblo. While this may seem to be claiming much, it is not more than is deserved, and considering the work of other tribes which adorns our museums it is no mean position to stand near the head of the aboriginal potters of North America; but in saying this I would not necessarily claim that the culture of the Pueblos was for that reason higher than that of some other Indians. The fact that a people build stone houses is no sign they are in a culture stage higher than the nomad. A Kiowa or a Comanche tent is no inferior structure. The Pueblo people made marvels of earthenware, since their environment naturally turned their craft in that direction and their sedentary life made it possible for them to develop along this line. In other forms of development they were inferior to many North American Indians. The hunter tribes far excelled them in implements of the chase, while their carving does not equal that of the peoples of the northwest coast.

It is generally conceded by technologists that a knowledge of the potter's wheel was unknown among prehistoric Pueblos, but the symmetry in form of the pottery would be incomprehensible if the rotary principle in fashioning globular vessels were not recognized by the ancient potters. While there is no evidence of the use of the potter's wheel in ancient Tusayan, I believe that the symmetry of old food bowls was brought about by revolving the unfinished object around the hand, and that the principle of the potter's wheel was recognized and made use of in ancient as in modern fashioning of ceramic ware.

I found no trace of a glaze on ancient Sikyatki pottery, and ascribe the polished surfaces so common on it to the pressure of the rubbing stones. In the Awatobi pottery, however, a well marked glaze of the black pigments, such as is found on some similar Zuñi ware, was detected. This glaze occurs on two fragments, but we have no means of deciding that they are prehistoric.

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The superiority of the texture of ancient over modern Tusayan ceramics leads to the question whether any forgotten means of creating a very intense heat was known to the ancients. A form of coal exists in the neighborhood of Sikyatki; was it used in firing pottery? I am unaware that any satisfactory evidence that the Tusayan potters made use of coal for this purpose has ever been presented. There survive obscure traditions that they did, but the introduction of sheep by the Spaniards led to the adoption of the droppings of this animal for fuel, which was, of course, out of the question in prehistoric times, when sheep were unknown. From an examination of several mounds near Sikyatki, where pottery was evidently fired, I incline to the belief that lignite or some form of coal was extensively used as a fuel by the ancient potters, but the presence of lignite ashes and cinders may be explained by the supposition that they were accidental products. Polished fragments of lignite were, however, prized for ornamental purposes, and a large piece of this material, artificially perforated and polished, was found in one of the graves. In their choice of this substance for decorative, possibly ceremonial, purposes the extinct Sikyatkians were not alone, for lignite ornaments are found in ancient Zuñian graves, and even in association with the dead among the prehistoric peoples of the distant Gila valley.[1]

As the large majority of the ancient objects from Sikyatki were obtained from its cemeteries, one naturally turns to the surviving Hopi for an elucidation of the custom of burying offerings with the dead, especially as this mortuary custom still survives. It is most difficult to elicit information from the modern priests in regard to this custom or to fathom their ideas of a future state. There is no doubt that they believe in a future life, and the similarities of ancient and modern usages afford evidence that this belief was likewise prehistoric.

The modern Hopi recognize in man a double nature, corresponding to body and soul, and to the latter they are said to give the expressive name breath-body. This breath-body man shares with organic and inorganic nature, and it likewise forms an essential part of objects of human manufacture. The figures

[1] There is every probability that polished lignite pendants may, like turquoise or sea shells, have traveled considerable distance and were in some instances not obtained near the locality where they were found.

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which are so constant and prominent on altars have breath-bodies, and it is this essence, not the idol, which is worshipped. The prayer-bearer, or paho, has likewise a breath-body, and this is the essential part of the offering taken from the shrine by the god to whom it is addressed. The material stick remains in the shrine; the supernatural is taken by the god.

It is the breath-body or shade of man which passes at death through the sipapuh, or gateway, to the underworld, the place of its genesis before it was embodied as well as the post-mortem home. In this future abode, in their cultus of the dead, these shades or spirits live, engaged in the same pursuits they followed on earth. Even the different religious sodalities perform there much the same rites as in the upper-world, but with more resplendent paraphernalia, the magnificence of which is correlated with the imagination of the priest who may tell you of them.

This belief that mundane ceremonies are celebrated in the under-world has gone so far that even the time when these subterranean rites occur is, they say, known to living priests, who then hold sympathetic observances. For instance, the Snake drama on earth is celebrated in August, but in the under-world it occurs in January, and in that month the Snake and Antelope chiefs, out of sympathy, erect their lodges or palladia. When, in the celebration in August, the living Antelope and Snake priests gather around their altar and sing the sixteen songs, most efficacious, in their opinion, to bring the needed rains, the same chief, at a prescribed moment, raps on the floor in time with the song to inform their brother priests in the under-world that they are engaged in their devotions. By some occult reasoning it is believed that the breath-body, freed from its material double by death, has a supernatural influence. It has more power to interpose with the Rain gods, and, as in Egyptian mythology the dead became Osiris N, or followers in the suite of Osiris, so the Hopi soul is transmuted into a Rain god. One of the Egyptian formulæ to the dead is strikingly paralleled in Tusayan. The import of one of their mortuary prayers is, "You have become a Rain god; grant us our wishes"—that is, send us the desired rains. This longing for rain, which every visitor to Arizona in certain months will appreciate, has tinged all Pueblo rituals and has made the Tusayan cults what they are. A transformation of the dead into Rain gods, which has thus come to be a widespread

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belief in Hopi mythology and an integral part of mortuary usage, seems likewise to have been current in Sikyatki in prehistoric times. In one of the graves near a skeleton we found a flat stone cut in terraced form, symbolic of a rain cloud, and on this stone was drawn a figure of the same. Evidently the symbol had a meaning, and what better provisional theory can we have than that it indicates the same relationship of the dead to the Rain gods that is current today?

A catalog of objects found in the Sikyatki graves embraces about everything, not perishable, which was used in daily life, and the fact that they occurred there is, I believe, an indication of the belief of the prehistoric Tusayan people in immortality. With the women were buried her tools for making pottery, her polishing stones, pigments, and the like. The remains of the warrior were accompanied by arrowpoints, spearheads, and stone celts, and the priest had his medicine-bowl, sacred stones, quartz-crystal, and fetishes once used by him. The very existence of these burial objects implies that the dead would need these implements and paraphernalia in their future world, else why were they placed in the grave? A knowledge of future life was no new belief that the zealous Spanish fathers brought into Tusayan, but only their method of salvation. This the Hopi failed to appreciate, for it was too closely associated with weary days of labor in building the mission churches, dragging the rafters of the same from distant mountains, attempts to annihilate their ancestral beliefs, and suppression of all they held sacred. It is no wonder that under such provocations the epoch of Spanish rule is held in universal detestation in Tusayan, and, belittle the courage of the Hopi today as we may, justice can but admire a people who from 1680 until they passed under the protection of the United States maintained their independence, aided by their isolation, against expedition after expedition of the Spaniards, blood-thirsty Apache, and relentless Ute and Navaho.[1]

[1] From 1700 to 1750 several Spanish expeditions made raids into Tusayan and induced many families to return to the Rio Grandé, but on the whole the pueblos remained independent. They fought with the Zuñi, who joined the Spaniards against them with some success, as in 1706, when Holguin surrounded the pueblo between Walpi and Oraibi (probably Payüpki) and made them sue for peace, but was set upon by the "Tanos" warriors, who drove him and his Zuñi allies out of the country. The character of the warfare may be judged from the fact that the Spaniards shot the hostages and captives.

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One of the most important lessons drawn from the pottery is to be had from a study of the symbols used in its decoration, as indicative of current beliefs and practices when it was made. The ancient accolents of Sikyatki have left no written records, for, unlike the more cultured people of Central America, they had no codices; but they have left on these old mortuary pottery objects a large body of picture-writings or paleography which reveals many instructive phases of their former culture. The decipherment of these symbols is in part possible by the aid of a knowledge of modern survivals, and when interpreted rightly they open a view into ancient Tusayan myths and in some cases of prehistoric practices.

Students of Pueblo mythology and ritual are accumulating a considerable body of literature bearing on modern beliefs and practices. This is believed to be a right method of determining aboriginal matters, and necessary to be done as a basis of knowledge. It is legitimate to suppose that what is now practiced in Pueblo ritual contains more or less of what has survived from prehistoric times, but from Taos to Tusayan there is no pueblo which does not show modifications in mythology and ritual due to European contact. Modern Pueblo life resembles the ancient, but is not a facsimile of it, and until we have rightly measured the effects of incorporated elements we are more or less inexact in our estimations of the character of prehistoric culture. The vein of similarity of old and new can be used in an interpretation of ancient paleography, but we overstep natural limitations if by so doing we ascribe to prehistoric culture every conception which we find current among the modern survivors. To show how much the paleography of Tusayan has changed since Sikyatki was destroyed I need only say that the majority of characteristic figures of gods which are used to decorate pottery today are not found on Sikyatki ware. Perhaps the most common figures of modern food bowls is the head of a mythologic being, the Corn-maid, Calako-mana, but this picture or any which resembles it was not found on bowls from Sikyatki. A knowledge of the cult of the Corn-maid possibly came into Tusayan after the fall of Sikyatki through foreign influences, and there is no doubt that

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[1] Symbolism rather than realism was the controlling element of archaic decoration. Thus, while objects of beauty, like flowers and leaves, were rarely depicted, and human forms are most absurd caricatures, most careful attention was given to minute details of symbolism, or idealized animals unknown to the naturalist.

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the picture decoration of modern Tusayan pottery made within a league of Sikyatki is so different from the ancient that it indicates a modification of the culture of the Hopi in historic times, and implies how deceptive it may be to present modern beliefs and practices as facsimiles of ancient culture.

The picture-writings of Sikyatki show that the cult of the Kwataka, or Man-eagle of the Sky, existed in prehistoric times in Tusayan. This being is the harpy who in modern tales is said to inhabit a home in the heavens and to have sorely vexed the ancient Hopi until slain by their cultus-hero, the little War God. Although many traditions of this ancient sky monster still survive, I have not yet discovered his cult in the modern ritual. The picture from Sikyatki which I have identified as a representation of this ancient vampire has most of the peculiarities of the modern conception. It delineates a bird-form being with wings, feathered tail, and talons, and is represented holding an animistic being to his mouth as if to devour it. It is stated in ancient tales that Kwataka wore a garment made of flint arrowpoints, and it is a remarkable fact that across the body of this prehistoric picture of the monster we find four rectangles which recall the symbol of the obsidian knife or techpatl of the Nahua. It would be highly interesting to discuss the significance of the existence of this Nahuatl symbol so far from Nahuatl-speaking races did our subject allow, but it is now all-sufficient to conclude that a knowledge of the Man-eagle was a part of prehistoric Tusayan mythology.

I find ample evidence of other Sky gods in Sikyatki paleography. The equal-armed cross in modern pictography is a symbol of the Star god or Heart-of-the-sky. How old this association is in Tusayan mythology is doubtful, but the cross is found on many decorated food bowls. I hesitate to assign to it the same meaning that it has at present, for possibly about prehistoric conceptions there have grouped themselves many ideas due to the teachings of Christian fathers which have been transmitted to living priests, my informants.

There is every reason to suppose that the sun cultus was practiced at Sikyatki, and one naturally looks for a symbolic picture of the sun among the many decorated vessels. The symbolic face of the solar disk, at present used as the conventional sun picture, is not found in Sikyatki paleography, but I have reason

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to suspect that this picture is not the most ancient form of this symbol. There is a picture found on one of the Sikyatki bowls, which leads me to suspect that they also were intended to represent a sky deity; but it is very difficult to decide whether this does not also represent the Heart-of-the-sky god or possibly that both are identical.[1]

There seems to be no serious doubt that the cult of the rain cloud was strong at Sikyatki, as we find the symbolic Rain-god figures represented on several vessels. On a flat bowl, which was apparently a medicine bowl, we find five of these symbols on the sides, as in modern medicine bowls. The hemispheric rain-cloud figures were not detected on ancient ware.

It would seem from the existence of pictures of a plumed snake that the serpent cult had a place among the prehistoric people of Tusayan, and we may conclude that it had much the same significance then as now. Of animistic deities, if we judge from the ancient paleography, the Sikyatkians recognized the giant elk, deer, mountain lion, porcupine,[2] various birds, the frog, tadpole, butterfly, and dragon-fly. As most of these are members of the modern Hopi Olympus, we are justified in concluding that they had a similar status in prehistoric mythology.

Sikyatki paleography reveals the fact that of all parts of the body the human hand[3] was the only organ recognized as an important decorative element, and one of the most beautiful food bowls in the collection is adorned with a picture of the left hand, well brought out by spattering the surrounding space with color. As there are five instances in which the hand is used for decorative purposes, there can be little doubt that this organ was associated in the prehistoric mind with conceptions of deep significance.

That the Sikyatkians had a complicated ritual, with many points of similarity to that which is still practiced at Walpi, is indicated by many identical ceremonial objects which were found in the cemeteries. What the nature of these ceremonials was

1 It is a suggestive fact that none of the ancient pictures from Sikyatki represents any of the numerous Katcina masks, so common in decorations today.

2 In curious relationship with the crescent, as if associated with the moon. Note similarity of words for moon and this animal.

3 On the rafters of kivas impressions of the hand in adobe have still a decorative character. The figure of the hand surrounded by spattered pigment has been noticed in cliff-houses. Compare also the hand figures in Yucatan ruins.

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we can only conjecture, but a ray of light may be obtained by a study of the objects which rewarded our search. Among the prayer emblems made and consecrated in all the great ceremonials at the present day, the prayer-sticks hold a most important place. These prayer-sticks, called pahos, are symbolic prayer offerings of certain religious societies, and are made in prescribed form and adorned with symbolic appendages. The character, form, coloration, and appended objects vary with the societies which make them, and they may be regarded in a way as characteristic. I have elsewhere indicated their peculiarities and described the elaborated rites performed when they are manufactured and consecrated with incantations.

The revelations of the necropolis[1] of Sikyatki show that the use of the prayer-stick is prehistoric in Tusayan, and the many forms of these ceremonial objects which were found indicate that there was no less variation in their character in ancient than in modern rituals. Some are similar to those now manufactured, others are very different, and while the former may be interpreted by a knowledge of the modern ritual, we are at a loss to know the significance of those which have become obsolete.

From the number of these objects which occur in burials we must regard them as prescriptively mortuary in character, while their difference in form may be indicative of the sacerdotal society to which the defunct belonged. The most common shape is a simple stick painted green, with a flat facet at one end and a ferule midway its length. These resemble more closely the pahos of the Flute society than of any other priesthood, which is suggestive when we remember that the Flute people claim to be the oldest in Tusayan. The group of gentes called the Kokop or Firewood peoples, to whom the folklorists of Walpi ascribe the settlement of Sikyatki, still make a prayer-stick very similar in form to several found in the mortuary bowls in this ancient cemetery.

It is likewise interesting that the one priest[2] whose duty it is to make the characteristic votive prayer-stick to the Death god, Masauwûh, in the Snake drama exactly reproduces one of the

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1 I discovered cemeteries on the north, west, and south of the pueblo, but failed to find any, where I most expected, on the east.

2 Nasyuñweve, obiit 1894. Katci, of the same phratry, made the corresponding paho in 1895.

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ancient wooden prayer-sticks from Sikyatki in form, length, and color. As if to give even more significance to the persistency of this survival, he claims ownership of lands near Sikyatki on the ground that he inherited it from a maternal ancestor who was captured at that place when it was destroyed. These many resemblances, taken in connection with the great conservatism of the Hopi ritual, lead us to suspect that the God of Death, Masauwûh, held a similar place in the prehistoric mythology that it does today.

A discussion of the various forms of prayer-sticks from the Sikyatki cemeteries would lead to a too special consideration of the subject, and it is enough here to say that they reveal a complicated ritual as far-reaching in the prehistoric as the modern treatment.

It is customary in the celebration at Walpi of the great September festival or woman's ceremony, called the Lalakonti, to place on the altar a symbolic object representing an ear of maize. This is called the kaütuhkwi or maize-mountain, and is made of clay in the form of a gigantic ear of maize, in the surface of which is embedded a mosaic of different-colored seeds—of maize, melons, and the like. A similar object is likewise used in the great ceremony of November, called the Naacnaiyá. In excavating the necropolis of Sikyatki we found an object of unburned clay, which the Hopi priests declared to be the same which, except that the seeds had long ago decayed, recalled the maize effigy which I have seen several times in modern presentations of the ritual. There can, I believe, be no doubt that the use of this effigy was prehistoric, and that its present survival is not due to foreign influences in historic times.[1] Considerable interest attaches to the finding of this clay effigy at Sikyatki from the facts that similar objects are still made in the New Fire ceremony at Walpi (see my account of Naacnaiyá, p. 213), and that Sikyatki was inhabited by the Kokop, the so-called Firewood or Fire people.

Every visitor to the modern Tusayan towns has noticed one peculiarity in the coiffure of the maidens of those pueblos. Up to the time of marriage the hair is worn in two whorls, one above

[1] Fragments of cobs of maize were found in one or two of the food bowls, but from them the kernels had disappeared. That maize was cultivated in prehistoric Tusayan is, I think, without doubt, but I do not find any figure of its leaf or plant on the Sikyatki pottery.

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each ear, in the fashion so often photographed by visitors to Moki. The Tusayan villages are, I believe, the only ones in the pueblo region where this custom is preserved, although in the more modified pueblos, like Zuñi, the custom is still kept up in certain religious personifications of maidens.

From well drawn pictures on Sikyatki food bowls we learn that this style of coiffure is much over three hundred years old in Tusayan. It was doubtless likewise as old elsewhere—at Zuñi, for example, where the present Hopi mode of hairdressing was in vogue as late as early Spanish times—but these more modified villages of the other provinces have long ago abandoned its use.

Of personal adornment in prehistoric Tusayan we may mention necklaces of cedar berries, and others of turkey bones cut in sections, highly polished, and stained green. These have long been abandoned in the inhabited pueblos, but in his beautiful memoir on the cliff-dwellers of the Mesa Verde the late Dr Nordenskiöld illustrates segments of wild-turkey leg-bones strung on leather strings and apparently used for ornaments.

The turquoise was highly prized, and the well polished, carefully perforated beads made of this stone indicate either barter with eastern Pueblos or visits to or migrations from the (to them) extreme east. Alarcon in 1540, from the neighborhood of the mouth of Gila river, heard of Zuñi, but before him the beautiful shell, *Oliva angulata*, had made its way by barter from the Gulf of California to Sikyatki and been buried in its necropolis. In prehistoric times as in ceremonials today, the spire of one of these shells had been cut into a conical bell and tied with others to the end of a rod to be used as a rattle with which to beat time to sacred songs.

Sikyatki weavers, like those of the cliff-dwellers of Tsegi canyon, made cloth in which they wove the feathers of the bluebird and eagle, and a portion of one of these fabrics, for which, if we may trust folktales, Tusayan was once famous, was buried in an old grave.

Of the problematic objects found with the dead in Sikyatki cemeteries, the most interesting are the disks of kaolin which occur near the head. The significance of these objects is not clear to me, but it is suggestive that similar fragments of kaolin were likewise buried in graves of the cliff people many miles to the north. In Nordenskiöld's able work, by far the best description

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of these interesting people ever written, kaolin is mentioned as a mortuary object of the cliff-dwellers of Mesa Verde. It would appear that the fragments found by the talented Swede show no signs of having been artificially worked, but in some instances were carefully wrapped in husks, as if highly prized.

It is well known from the researches of others that smoking formerly had a deep religious significance among American aborigines, and I have pointed out elsewhere its survival as such in the Tusayan ritual. In prehistoric Sikyatki the same was undoubtedly true, and several peculiar pipes occur in my collection from the graves. In all instances these were straight tubes, like cigar-holders, approximating the form of that ancient pipe which the Antelope chief, Wiki, smokes in the Sixteen-song celebration of the Snake dramatization. The so-called old pipes which are now smoked in kiva ceremonials, but which have the general form of a European pipe, are in my belief old but innovations in historic times.

Of the several geometric figures used in decoration which prehistoric pottery shares with that from the northern states of Mexico, there are two which may be mentioned as highly significant. It was customary for the Sikyatki potters in drawing a band of color around a jar, food bowl, or dipper to leave a break at one point, so that the encircling band or line was not continuous. This break has been variously explained, but it is interesting to know that it is also characteristic of pottery from the ruins of the Gila valley. It would be strange if this exceptional manner of drawing was independently evolved and not derivative.

In the same category may be placed the peculiar ornamentation of ladle handles. Ancient Tusayan ladles are sometimes decorated with alternate parallel longitudinal and transverse colored bands unconnected with one another. Precisely the same form of ornamentation occurs on ancient dippers from the Casas Grandes. These and several other similarities in the ornamentation of pottery may have arisen as independent evolutions, but it seems more probable that there is some connection of derivation. The absence of copper in Sikyatki burial places is in line with what might have been suspected, but does not prove that it was unknown. When taken in connection with the fact that there is no authentic legend of working any metal current

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in the modern Tusayan pueblos, and that neither copper nor silver is worked at the present day, we may justly suspect that it never was. At Zuñi, where there is an expert silversmith, the art was doubtless learned from the Mexicans.[1] Ignorance of working metal is not necessarily an evidence of inferiority in culture, but rather the effect of environment and absence of native copper. Had the knowledge of working copper existed among the ancients to any considerable extent, its absence in a native state would not seriously have prevented its use, for it could readily have been obtained by barter. Deposits of obsidian, a volcanic glass much prized for arrowpoints, are not found in Tusayan near the towns, and yet fragments of it are among the most common substances found in old ruins. Many large pieces of obsidian[2] occurred in Sikyatki graves, showing how much it was prized, and indicating how far this (to them) precious substance had traveled before it came into their hands. Had a people who used shells from the Pacific or turquoise from Rio Grande valley possessed a knowledge of working copper and practiced it to any extent, there was nothing to have prevented them from obtaining it in the same way they did obsidian, but the indications are that they did not have this art.

As the culture of the cliff-dwellers is more clearly brought to light by archeologists the conclusion becomes more prominent that their characteristic pottery belongs to that group called white-and-black, or white ware ornamented with geometric black figures. This prehistoric pottery, characteristic of cliff-dwellers, as pointed out by Holmes, is archaic, or older than any other kind of Pueblo ceramics. A few objects of this kind of ware were exhumed from Sikyatki, but there is evidence that they were not manufactured by the potters of that pueblo. This characteristic pottery came from cliff-houses, and was preserved as ancestral heirlooms probably inherited from people who lived in cliff-dwellings.[3] It is interesting to note that as a rule these ancient vessels were of such a form as to suggest their use in ceremonials.

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[1] I have seen no sufficient evidence that the Zuñi melted and worked copper in prehistoric times during their residence in Cibola.

[2] A very considerable amount of obsidian occurs in the form of flakes on the surface of most of the ancient ruins of Arizona. In more modern ruins, and those which were evidently inhabited only a short time, these are more limited in number.

[3] Hopi legends constantly refer to the life of some of the component clans of Tusayan in the Tsegi canyon remarkable for the cliff-home ruins, and these characteristic vessels probably came from that or similar localities.

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The picture of the prehistoric culture of Tusayan which I have given throws in relief several phases of ancient culture in the Pueblo region which may be aids in a comparison with the culture of other provinces of this area. As research on the present Pueblo culture advances, the fact comes out in more distinct outline that modern Pueblo life is more highly differentiated than ancient. Objects from old Tusayan ruins resemble one another more closely than modern objects resemble the ancient. There has been an unequal differentiation along slightly different lines, which means diversity in influences. Secondly, prehistoric ceramics from ruins in Zuñi, Tusayan, and the Rio Grande region are as a rule much closer in their decoration than modern pottery from the same regions, which likewise shows diversity of modern development. Thirdly, the farther we go back in age, while the pottery maintains its superiority, the number of likenesses with objects from cliff-dwellings increases. Every addition to our knowledge emphasizes the belief that there is no line of separation between ruined pueblos situated in the plains and cave-dwellers and cliff-villagers of the canyons. The idea that the Pueblos are remnants of the ancient villagers who sometimes inhabited cliff-houses is no new thought, for it was pointed out long ago by Holmes,[1] Bessels, and others. From a substratum of culture, which in prehistoric times was more uniform over the Pueblo region than it is today, has evolved in different parts of our southwest specially adaptive and modified survivals, affording all the variations which we see in different modern pueblos. Sikyatki affords us a fair picture of the prehistoric culture in a time contemporary no doubt with inhabited cliff-dwellings.

I have purposely omitted to speak of the probable origin of Tusayan culture or its antecedents before the settlement of Sikyatki, regarding this beyond the province of this communication. When this pueblo was in its prime the character of Tusayan culture was no less distinctive than it is today and was as far removed as modern from that of the wild Shoshonean nomads. Near the close of his memoir Dr Nordenskiöld says of the Pueblos: "They were nomadic Indians, whose culture had been considerably modified and in certain respects elevated by altered conditions of life. The evolution of this culture had

[1] U. S. G. and G. Survey, 1878, p. 408.

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nothing in common with that of the ancient Mexican civilization, but during its decadence it was perhaps influenced in some respects by the latter." Although this view is held in a more or less modified form by several prominent ethnologists, a study of the ancient culture of Tusayan has not led me to accept it.

I presume every one would agree that the Tusayan Indians were formerly nomadic in the sense that most sedentary people were preceded by a nomadic stage of culture, and that passing from that condition they were in certain respects elevated by altered conditions would seem likewise true, but that the evolution of the Pueblo culture had nothing in common with that of ancient Mexico has not been proven by any facts brought to the attention of ethnologists by Nordenskiöld or any one of the school to which his work belongs. While I can heartily subscribe to the statement that the ancient pottery of the cliff-dwellers is superior to that of modern Moki, as Nordenskiöld has shown, it is pertinent in following his argument to ask how it compares with ancient Tusayan ceramics. Certainly it is not superior, and if so the decadence must have occurred since Sikyatki fell. It is very improbable that ancient Mexican civilization has had any influence on that period. On the contrary, the likeness of Sikyatki pottery to that of the northern states of Mexico and southern Arizona is greater than the modern, the products of Tusayan pueblos in their decadence. While we may be justified in these theoretical conclusions or others of kindred vagueness, archeology is piteously weak in information in regard to the prehistoric character of the Pueblos of the southwest. You can almost count on your fingers the number of specimens of ancient pottery from the ruins near Zuñi in our museums, and few of these have any indication from what Zuñi ruin they came or in what association. The same is true of pottery from the great ruins of the Chaco, the Rio Grande valley, and the cliff-houses of Tsegi.[1] We are crippled when we attempt theorizing by want of data regarding that about which we speculate, and I believe there is no field of American archeology which will reward the serious student with more interesting discoveries than scientific exploration of the ruins of our southwest.

[1] From the large collections of modern Pueblo pottery in the National Museum one can readily learn to tell at a glance the locality from which modern pottery came. When collections of ancient ware from the different sections of the Pueblo area become as large, we will have an important aid in tracking prehistoric migrations by determining the geographic limitations of certain kinds of pottery.

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A Partial List of Moki Animal Names.—During a short stay at Keams Cañon, Arizona, in the summer of 1894, the writer was fortunate enough to secure the Moki names of a number of the mammals and birds which he collected in that interesting locality. Although the list is very incomplete, it is thought best to publish it, as it may stimulate others to continue the work.

The following table gives the scientific, popular, and Moki names of the mammals and birds:

Mammals.

Scientific	Popular	Moki
Cynomys ludovicianus	Prairie dog	Dirk′-quar
Lepus arizonæ	Arizona cottontail	Dar′-bō
Lepus texianus	Jack rabbit	Sau′-wī
Neotoma	Woodrat	Kar′-la
Onychomys	Grasshopper mouse	Hŏ-ō-la
Perodipus ordii	Kangaroo rat	Bâr′-hŭ
Perognathus apache	Pocket mouse	Ho-mī′-chĭ
Peromyscus (several species)	White-footed mice	Bĭr′-shŏ
Spermophilus leucurus cinnamomeus	Cinnamon ground squirrel	Iung-yai-ya
Spermophilus grammurus	Rock squirrel	Lar-cō′-na
Tamias gracilis	Chipmunk	Ko-wīn′-na
Thomomys	Pocket gopher	Mö′-yi
Vespertilio and other genera	Bat	Sau-wi′-yah

Birds.

Scientific	Popular	Moki
Geococcyx californianus	Roadrunner	Hŏsh′-bō-ă
Harporhynchus bendirei	Bendire's thrasher	Kōt-tō′-zĭ
Phalænoptilus nuttalli	Poorwill	Hō-witz′-kŏ
Trochilus and other genera	Hummingbird	Dōt′-sĭr

A. K. Fisher, M. D.

Frontier Forts of Pennsylvania.—The "Report of the commission to locate the site of the frontier forts of Pennsylvania," comprising two large, fully illustrated octavo volumes, has recently been published at Harrisburg through the wise foresight of the State's officials. The section devoted to the frontier forts within the Wyoming valley region was prepared by the late Sheldon Reynolds, of Wilkes-Barré, who up to the time of his demise was president of the Wyoming Historical and Geological Society and a corresponding member of the Anthropological Society of Washington. The latter Society is indebted to Mrs Reynolds for a copy of this praiseworthy work.

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