

MEMORANDUM
RM-3266-RC
NOVEMBER 1962

EXCAVATION OF
THE WUPATKI BLOWHOLE SITE, NA7824

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PREFACE

This RAND Memorandum reports the archeological data gathered by a project studying the blowhole area of Wupatki National Monument. Sponsored by The RAND Corporation and the Museum of Northern Arizona, the investigation tried to discover any relationship between the distribution of blowholes and the location of prehistoric Indian dwellings. This Memorandum supplements the non-archeological information contained in RM-3139-RC, Meteorological--Geological Investigations of the Wupatki Blowhole System.

SUMMARY

Excavation of the Wupatki Blowhole site revealed four occupation areas within a 120-m area. Ceramics, petroglyphs, masonry, and other evidence suggest a twelfth-century occupancy. That the nearby blowholes affected the inhabitant's choice of sites seems unquestionable, but further excavations should be undertaken, both to clarify this point, and to gain a variety of ecological and geochronological data.

ACKNOWLEDGMENTS

The author wishes to express his appreciation to Mike Stanislawski for assistance given in supervising the digging of NA7824A; to Mary Sartor who prepared all cultural material for identification and aided in the dig; and to Jim Cook who photographed the site. The following volunteers also worked at the site: Dr. Terry Hallett, Rock Mullens, Tom Pollock, Cathryn Schley, and Barbara Stanislawski. Special thanks are due to Dr. Alan P. Olson of the Museum of Northern Arizona for his patient help and constructive criticisms.

CONTENTS

PREFACE	iii
SUMMARY	v
ACKNOWLEDGMENTS	vii
Section	
I. THE WUPATKI BLOWHOLE SITE	1
II. THE KLETHLA-PHASE PUEBLO AT NA7824A	3
III. DATING THE KLETHLA-PHASE PUEBLO SITE	6
IV. THE ANTHROPOLOGICAL SIGNIFICANCE OF AIR- BREATHING CREVICES	7
APPENDIX	9
REFERENCES	13

I. THE WUPATKI BLOWHOLE SITE

The Wupatki Blowhole site, NA7824 of the Museum of Northern Arizona Archaeological Survey, is named for the nearby earth crevice through which air flows in a diurnal pattern.⁽¹⁾

The site is approximately 0.8 km east of U. S. Highway 89 and 0.2 km south of the Wupatki National Monument road. Built on a thin lens of eroded Moenkopi sandstone, it is protected from strong southwesterly surface winds by a basalt flow about 2 m thick. The solitary grassy terrain that slopes gently to the north and east is predominantly eroded Kaibab limestone. Excavation was undertaken as part of a cooperative archaeological-meteorological-speleological project conducted by The RAND Corporation and the Museum of Northern Arizona, summer 1961.

The author identified four occupation areas along a northeast-southwest axis about 120 m long. All showed definite signs of prehistoric occupation and were considered to be a single site (Fig. 1). At the north end of the site, the rock outlines of 2 three-room masonry surface units separated by a minor water course were visible. These units were identified as NA7824A and NA7824B. The NA7824C area is near the center of the site and borders the Wupatki Blowhole on the south and east. Although the surface features are poorly defined, the area is thought to include a level platform about 3 m south of and 1 m above the blowhole opening. NA7824D, at the south end of the site, is a three-room rock shelter formed by the fracturing and slumping of several large basalt blocks along the north face of the lava flow.

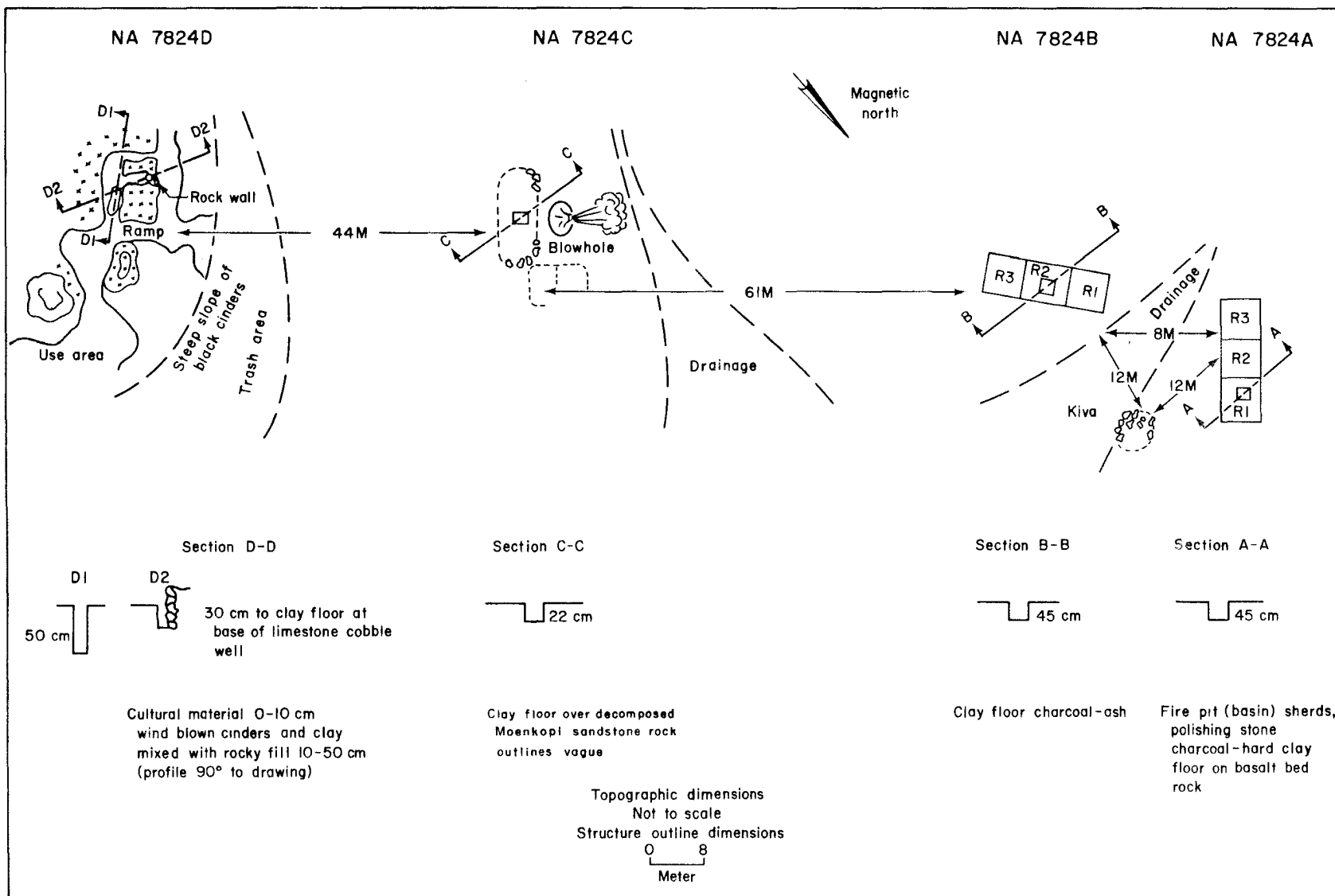


Fig. 1 — Surface survey NA7824A, B, C, D (July 1961)

II. THE KLETHLA-PHASE PUEBLO AT NA7824A

The Klethla-Phase pueblo (Fig. 2) comprises three contiguous rooms oriented in a northeast-southwest direction. Though Room 2 was built first with Rooms 1 and 3 added at each end, the entire pueblo was probably built as a single project. A terrace and ramada (?) adjoin the east side of the pueblo. A circular jumble of rock 12 m east of NA7824A and 12 m south of NA7824B may represent the surface remnants of the kiva. Construction of the pueblo appears to have begun with the removal of a 20- to 30-cm mantle of volcanic cinders and the leveling of the underlying clay soil.

Room 1 is nearly rectangular, and stands at the northeast end of the pueblo. Its interior dimensions are 2.2 m by 1.5 m. An irregular clay floor overlays the basalt bedrock and slopes gently toward the northeast. Near the northeast wall is a shallow basin in the bedrock which had been used as a fire area. No postholes were evident. A broken sandstone mano, one burned bone fragment, an oval smoothing stone, a chipped stone and a few sherds were the only artifacts found on the floor "in situ." The decorated sherds were dominantly Flagstaff Black-on-white and unclassifiable Tusayan white ware. The unpainted type was mostly Moenkopi Corrugated.

The walls of Room 1 had been crudely built of irregular basalt boulders set in a wet soil mortar. Several of these boulders weigh well over a hundred pounds. The walls, built on bedrock or clay soil, vary in thickness from 0.5 to 1 m and in height from 1 to 1.6 m. No evidence of a doorway was found.

The largest, Room 2, is quite unlike the other two. It resembles a rhombus with interior lengths of 2 m. An irregular clay floor overlays decomposed Moenkopi sandstone. Near the middle of the northeast wall, chunks of charcoal were imbedded in the floor adjacent to a hole (posthole?) filled with ash and charcoal. Near the middle of the southwest wall is an unlined pit or posthole (?) about 20 cm in diameter and 15 cm deep.

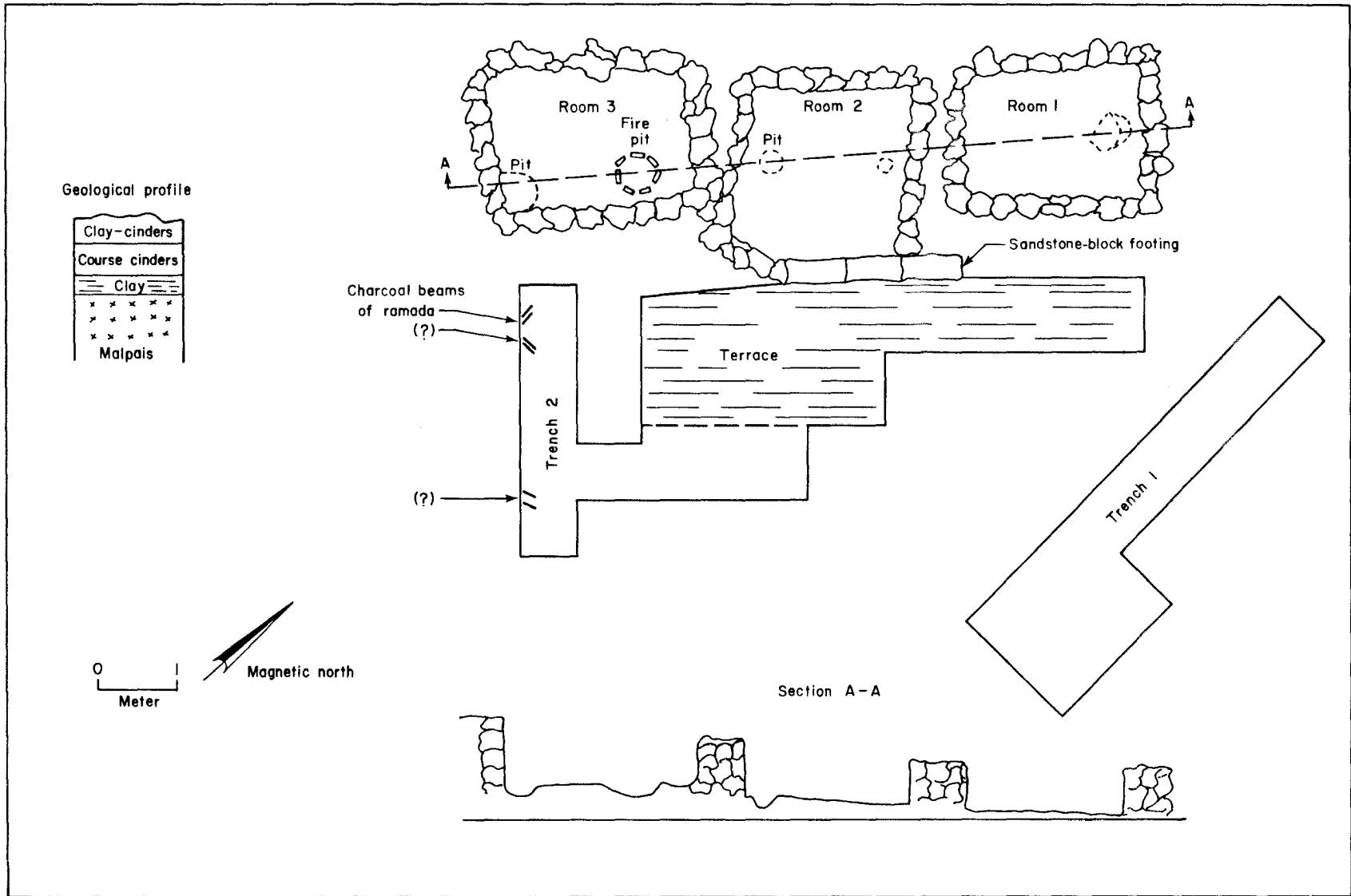


Fig. 2 — Kletihla-phase pueblo NA7824A (July 1961)

The masonry of Room 2 is unusually crude and ill defined, excepting the southeast wall footing which is a single row of rectangular sandstone blocks set in clay mortar. No entrance way was found, but its original location is suggested by a 40-cm-wide floor depression. This depression is just inside the sandstone-block footing that lies 30 cm from the northeast wall.

On the floor of Room 2 was part of a San Francisco Grayware jar. Below the southeast wall footing were ashes and undifferentiated cultural debris. As no floor or well-defined occupational level was found associated with this material, it is assumed that the trash came from an open camp site occupied before Room 2 was built.

Room 3 resembles Room 1 in size, shape, construction, and associated ceramics. Its two most interesting features are: near the northeast corner of the room, a slab-lined, clay-bottomed firepit 50 cm in diameter and 20 cm deep, and in the southeast corner, a basin-shaped pit 40 cm in diameter and 10 cm deep.

A clay-soil terrace or walking surface parallels the three-room pueblo on the southeast side and extends 1.4 m out from the pueblo. At the southwestern end of the terrace three pairs of burned beams, imbedded in the walking surface, lie in such position as to suggest the presence of a brush structure or ramada just east of Room 3. The similarity of the ceramic material recovered from the terrace and from the pueblo rooms indicates that these structures were contemporary.

The same evidence suggests that NA7824B, C, and D were also contemporary with the NA7824A pueblo.

III. DATING THE KLETHLA-PHASE PUEBLO SITE

Dominant among the identifiable pottery types in the three-room pueblo, terrace, and ramada are Flagstaff Black-on-white, indeterminate types of Tusayan white ware, Deadmans Gray and Fugitive Red, and Tusayan and Moenkopi Corrugated. Also present were a few sherds of Black Mesa Black-on-white, Dogoszhi Black-on-white, Sosi Black-on-white, Deadmans Black-on-red, Medicine Black-on-red, and Citadel Polychrome.

Thus, on the basis of ceramic evidence, the NA7824B occupation falls within Colton's Ceramic Group Seven⁽²⁾ and can be assigned to the period 1130 to 1210 A.D. A comparison of the petroglyphs found on the walls of the contemporary NA7824D rock shelter with those described as Style 4 by Turner⁽³⁾ also suggest this time period.* The charcoal recovered from Room 2 (juniper and pinon), Trench 2 (juniper) and the Terrace (juniper) proved to be unsuitable for dating.** The crude pueblo masonry and the indications of a brush structure or ramada, an architectural feature typical of the Cohonino Branch, suggests that NA7824B was probably occupied sometime before the cultural domination by the Kayenta Branch. Thus the occupation probably began after A.D. 1130⁽⁴⁾.

*This consistency is to be expected since Turner's dating of petroglyphs is based in part on ceramic evidence.

**Identification by Dr. Bryant Bannister, Laboratory of Tree-Ring Research, University of Arizona.

IV. THE ANTHROPOLOGICAL SIGNIFICANCE OF AIR-BREATHING CREVICES

The limited excavation at NA7824 does not explain the Wupatki blowhole's significance for the prehistoric inhabitants of this area. What importance it or any of the nearby air-breathing crevices held during the post-eruptive* period can now only be postulated. But that these geological curiosities were of some unique significance seems unquestionable, for their proximity to post-eruptive sites exceeds random chance.

The accepted hypothesis states that people settled in and around the Wupatki National Monument because water was available and because the land had been made arable by volcanic cinders from the eruption of Sunset Crater.⁽⁶⁾ But even if this is true, the people's choice of specific sites within the area may have been due to more subtle influences. In historic pueblo culture (part of which one can assume evolved from the prehistoric culture of the Wupatki area) physical needs appear no more vital to individual and community life than do metaphysical ones. An examination of the metaphysical beliefs of such historic people as the Hopi (Appendix), suggests that the air-breathing crevices may well have played a major role in the locating of some post-eruptive sites. At or near Lomaki, Citadel, and Wupatki, as well as several less pretentious ruins such as NA7824, crevices are known to exist or are reported to have existed. With the possible exception of Citadel** ruin, available water is thought to have been considerably farther from these sites than were the crevices.

Though more geo-archaeological evidence is needed, the association of air-breathing crevices, earth cracks, and sink holes with numerous post-eruptive sites in the Wupatki area is much too interesting to be ignored.

*Sunset Crater eruption, A.D. 1064 or A.D. 1065.⁽⁵⁾

**The adjacent citadel sink may once have served as a water source⁽⁷⁾.

First among any further research should be a detailed surface survey of the sites. Future excavations should give careful attention to evidence suggesting pre-eruptive occupation. Consideration might be also given to taking a core sample from the bottom of Citadel sink. A variety of valuable ecological and geochronological data could be obtained from this project.

APPENDIX

"Yaponcha, the Wind God"⁽⁸⁾

"Many years ago the Hopi were very much troubled by the wind. It blew and blew all the time. The sand drifted away from their fields, and they tried to plant their crops but the wind would sweep the soil away before the seeds would even start to germinate. Sadness and worry were upon everybody and they made prayer offerings of many pahos but there were no results.

"Many councils were held by the old men in the kivas, where they smoked their pipes earnestly and asked one another why it was that their gods should turn such strong wind upon them. And after awhile, they decided that they would ask the 'little fellows' (the two little War Gods Po-okonghoya and Palongahoya, his younger brother) to help them. Now these 'little fellows' were called in. When they came in they wanted to know why they were called. The Hopis said that they needed their help, something must be done to the wind. The 'little fellows' said yes, they would see what they could do to help the people.

"They told the men to stay in the kiva and make many pahos. Then the 'little fellows' went to their wise old grandmother, the Spider Woman, and they asked her to make some sweet corn meal mush for them to take along on a journey. Of course they knew who Yaponcha (the Wind God) was and where he lived—over near the Sunset Mountain in the big cracks in the black rock.

"When the corn meal mush was made they came back to the kiva and found the pahos were ready and also the ball which they always liked to take along to play with wherever they went, and the bows and arrows had been made for them, because it was much like going on the warpath for them. So the arrows were of bluebird feathers which were considered most powerful in those days.

"The two 'little fellows' set out toward the San Francisco Peaks. The old men went with them as far as the Little Colorado River and there they sat down and smoked their pipes.

"The little warriors went on and on, playing with their ball. They reached the home of the Wind God, Yaponcha, on the fourth day. The Wind God lived at the foot of Sunset Crater in a great crack in the black rock, through which he is ever breathing and does so to this day. They threw the pahos into the crack and hurriedly took out their old grandmother's sticky cornmeal mush, and they sealed up Yaponcha's door with it. Now he was awfully angry, and he blew and blew, but he could not get out. The 'little fellows' laughed and they went home, very pleased with themselves, indeed.

"But bye and bye, the people in the villages began to feel that it was very hot. It was getting warmer and warmer every day. Down in the kivas it was so awfully hot that the men came out and the people came from their houses and they stood upon the housetops and looked and looked toward the San Francisco Peaks, to see if there were any clouds coming. But there wasn't even the tiniest bit of a cloud to give a pleasant shadow, and not a breath of air, and the people thought that they would smother.

"They thought they must do something right away, so the men made some more pahos and called the 'little fellows' again and they begged them to go back to Yaponchaki (House of Yaponcha) right away and tell him that there must be peace, and then give him the pahos and let him out, because this heat was much worse even, than the wind. So the 'little fellows' said that they would go and see what could be done to make things better.

"On the fourth day they arrived at the house of Yaponcha and they talked together and decided that the best thing to do would be to let Yaponcha have just a little hole open, just enough to let him breathe through, but not large enough for him to come out through, altogether. So they took out some of the cornmeal mush and right away a nice cool wind came out, and a little white cloud appeared and went over across the desert toward the Hopi towns.

"When the 'little fellows' got home again to the villages, everybody was pleased and they have been very grateful ever since. Ever since that time the winds have been just right, and just enough to keep the people cool without blowing everything away.

"Ever since then prayer offerings of pahos, to this day, are made to the Wind God, Yaponcha, in the windy month of March by the chiefs and high priests of the three villages of the Second Mesa."

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