

ARCHAEOLOGY

# Ancient American Inventions

By EMILY DAVIS

SOME of the first paragraphs of the story of American invention are now being dug up in the course of archaeological investigations into America's buried past. The Eighth Bernheimer Expedition which has returned from a hard summer's digging in the Southwest, has reaped a harvest of ancient Indian belongings that could be lined up to make an impressive display of Indian inventiveness. And the display would include some brand new features of Indian ingenuity—that is, new to our twentieth century knowledge of what went on in B. C. America. The expedition, conducted under the auspices of the American Museum of Natural History, spent its summer digging deep into graves, pits, and refuse piles in seventeen caves of northeastern Arizona. Indians of the Basket Maker Age, who lived in the Southwest two thousand years ago, and even earlier, chose those particular caves and those arid, rocky canyons as convenient storage places and cemeteries. They themselves lived mostly in the open nearby. That part of the Basket Maker territory has remained undisturbed, even by adventurous archaeologists, until now.

Taking inventory of his collection of strange objects, some time-worn and out of shape, some fresh as when used by their owners, the leader of the expedition, Charles L. Bernheimer, selected a ring made of fiber as one of the highlights of this year's discoveries.

## Baby's Fiber Ring

"The fiber ring came from a baby's grave in a cave which we named 'Owl Head Cave,'" he said. "When the Basket Maker mother made this cradle, she did not intend that her baby's head should become flattened by a stiff cradle board. So, she shaped this ring of fiber to form a hollow for the head to rest in, the same sort of thing that a woman of the tropics uses to protect her head when she balances a jar on it.

"With the ring and the cradle was also a ball of the softest fiber with a string attached to it. This adjustable device belonged inside the fiber ring, and was the most ingenious part of the cradle. As the baby's head grew up to



## THIS BASKET MAKER BABY

*Enjoyed comforts produced by the ingenuity of his ancestors. A unique fiber ring kept its head from getting flat in the cradle; the cradle itself was in reality an expertly woven basket; and the mother wore galoshes when she carried her infant during cold, wet weather.*

fill the hollow, the center ring could be altered for its comfort."

The ancient cradle device shows how carefully the Basket Maker women insured their babies against the deformity of a flattened head, the archaeologist pointed out. Babies had a harder time of it in the Pueblo age, after the ancient Basket Makers had their day and disappeared. Pueblo fashion admired deformed heads, and Pueblo cradle boards were left severely hard on purpose, to flatten the skull at the back while it was still in a pliant state.

The Basket Maker baby that lay against the soft cradle some 2,000 years ago, was itself discovered by the expedition. To their surprise, its plump cheeks and baby features and tiny hands had been remarkably preserved in shape in the dry, hot sand. Mr. Bernheimer and his associate archaeologist, Earl Morris, lifted the fragile little brown baby out of the dust and photographed it, returning it to its resting place. It lay comfortably upon a blanket of fur string, a soft material which the Basket Makers produced by twisting strips of rabbit fur around a core of Yucca cords, and then

weaving these furry threads into any size blanket desired.

That any Indians in America—a land abounding in furs—should have gone to so much trouble to weave fur blankets for themselves seems surprising at first thought. But rabbits and small fur bearers were more common in Basket Maker country than blanket-sized animals. So, when some inventive mind realized that rabbit fur could be made use of with a little extra effort, the Basket Maker world saw the practical value of the idea and used it extensively.

## Doctor's Bag Unearthed

The baby Basket Maker that was found wrapped in its fur blanket probably did not die for want of a doctor, even in that remote canyon country. Medicine men were prominent figures among the Basket Makers as among later Indian communities, and evidence of one neighborhood doctor at least was unearthed in the course of digging in a nearby canyon cave. The object found here was the little black case of a medicine man. It contained no drugs or surgical equipment, but a bunch of feathers of several kinds. These, Mr. Bernheimer explains, were probably used with elaborate rites to invoke the aid of their gods in the treatment of the sick.

Out of a cave which the expedition decided to call Obelisk Cave came a new sidelight on American fashion history: The Basket Makers wore winter shoes, different from the summer style. Excavators have frequently brought out of the earth the square-toed sandals made by the Basket Makers for themselves and even for their babies, and the round-toed sandals that the Pueblos introduced as their fashion choice. One cave in Canyon del Muerto seemed like a prehistoric second-hand shoe store, so large was its assortment of used foot gear.

The winter style sandal now discovered is the prehistoric equivalent of the galosh. The inhabitants of the Southwest of long ago went about in cold weather in footgear far too big for them, it now appears, and they looked as conspicuous no doubt, as the modern flapper in her flapping storm shoes. When the first of the big sandals was lifted out of the earth, the excavators wondered and thought of giants. But it soon ap-

peared that the inside of the yucca-fiber sandal was stuffed thickly with cedar fiber, and at the expense of looks the Basket Makers had made their shoes both warm and wind-proof.

The sandals made in the ancient Southwest had a loop for the big toe and generally an eyelet at the heel to hold a shoe string firm for tying it about the ankle.

Another bit of ancient dressmaking which impressed the discoverers shows that American Indians long ago mastered the idea of a casing to hold a draw string. These casings are a feature of several well preserved gee-strings found this summer. The garments, made to be worn at the waist, were beautifully woven of thread, probably from the stalk of the native thistle, and still show clear and fine the patterns in yellow, red, black, and white. Rather than fasten a cord to each side of the garment, the Basket Makers devised a tube and ran the waist string through that. It is a remarkable bit of expert workmanship, Mr. Bernheimer pointed out.

Sewing, spinning, knitting, and weaving were all familiar household arts in the Southwest long before the people began to build houses worthy of the name. For needles, the Basket Makers used pointed bones or the spike ends of the yucca leaves, tying a thread into the desiccated part. For thread there was the fiber of yucca and thistle and probably cotton, and, what seems strange to us today, they drew heavily on the supply of human hair for thread and even for heavy cord.

Mummies of the Basket Makers have proved that the men preferred long hair—for themselves. But the women bobbed their black tresses with stone blades and the strands were twisted into as many threads as desired to make string and cord, even fifty strands sometimes going into a single heavy twist. The quantities of human hair found in Basket Maker belongings show how heavily the people depended on the women's crowning glory.

#### Storage Place For Hair

"In one cist in Last Chance cave, we found twelve large hanks of human hair together with large hanks of yucca fiber," Mr. Bernheimer reported. "Because of the quantity, we concluded that we had come upon the storage place of a spinning or weaving clan. One of the hanks of hair was braided and still retains its natural gloss."

Ways of carrying loads had to be devised by the Indians, since they had no beasts of burden. One way in which

the problem was met was by the use of head bands. Two such very old carrier bands woven of yucca leaves were unearthed in the Arizona caves, and Mr. Bernheimer pointed out the neat, strong loops attached to the end of each band. With the band placed across the forehead and some hair rope run through the loops an Indian could carry a load securely on his—or most likely her—back.

"Some of the ingenious things from the caves do not photograph successfully," Mr. Bernheimer said, in describing a miniature carrier basket which some Indian made out of unbaked clay, probably to be worn as a pendant. "The little basket, pointed at the bottom and broad at the top, had two loops and a cord of red yucca. To decorate it, the maker had thrust pin holes through it in an irregular pattern, with a cactus spine probe."

"The Basket Makers used baskets for all sorts of containers, even for water jars," Mr. Bernheimer said, in leading up to his theory of how the Southwest acquired pottery. "When the baskets that had been so painstakingly and beautifully made became worn or torn in use, the Indians were reluctant to throw them away. You wouldn't think of mending a straw hat with mud, but eventually the Indians tried it for their baskets. It held and was satisfactory. Sooner or later, some mud-covered baskets came into contact with fire. Perhaps one was thrown into the camp fire in disgust because it had become useless. The basket burned up, but the clay hardened into a bowl."

"It is Mr. Morris' idea that they put the mud inside the basket, leaving the first clay bowls corrugated on the out-

side when the coiled basket shell was removed. I think that when the baskets became defective they covered them with mud, so that the inside of the bowl, rather than the outside, was corrugated. Both of us have found fragments that support our theories."

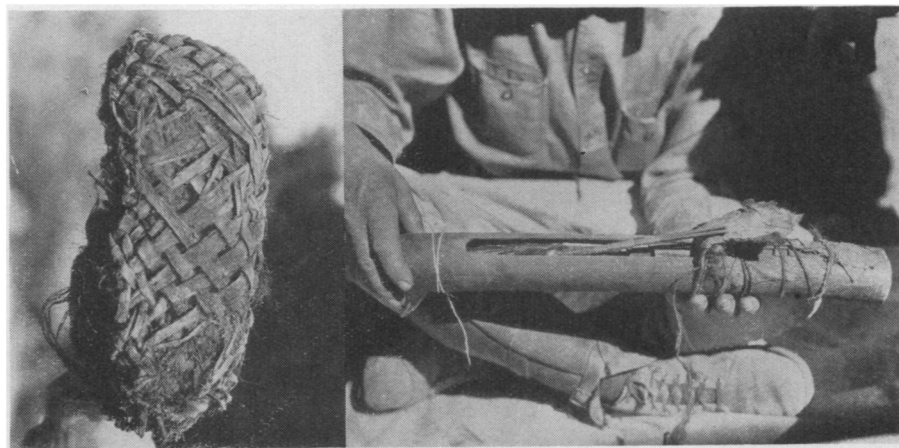
#### Another Introduction

The Basket Makers may have got their first introduction to the usefulness of mud in a different connection from household pots and pans, Mr. Bernheimer continued. When they dug little cists in caves for burial purposes and for storing supplies, they lined the little pits with flat stones to keep them from tumbling in. At first they calked up the underground storage cists or graves with fiber, to prevent rats and vermin from getting in. Later, they began to use mud stoppers, and some archaeologists believe that they went from this step to the use of mud in mending their baskets and eventually to pottery making in which they became such experts during later periods.

The finding of a basket design drawn on a cave wall suggests that Basket Maker weavers knew the value of designing a pattern "on paper" to see how it would look, before trying it with basketry. In a ceremonial chamber in one of the canyons visited, the expedition also found two sandal designs of the most exquisite and intricate pattern scratched on the walls.

Discovery of timbers in the caves may make it possible to say definitely when the early inhabitants of the Southwest lived.

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#### GALOSHES AND THE DOCTOR'S BLACK BAG

*Comfort came first with the Basket Makers, so they packed these loose matted shoes with warm cedar fiber. The prehistoric medicine man's bag is full of feathers with which to invoke the aid of the gods in the treatment of the sick.*