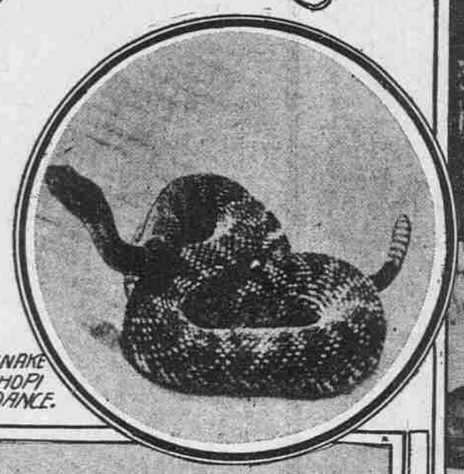
SNAKE DANCE OF THE HOPI INDIANS

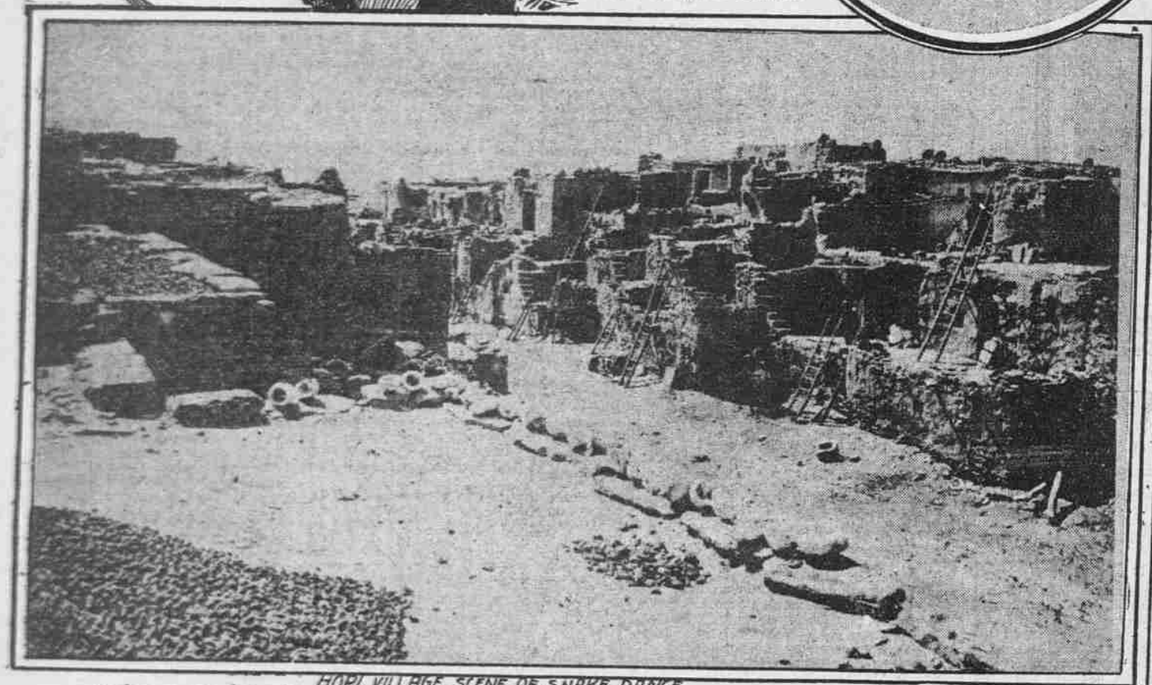
OF NORTHERN ARIZONA.

PRIEST DESCENDING INTO THE SECRET KIVA



RATTLESNAKE USED IN HOPI SNAKE DANCE.

THE SNAKE DANCE AT THE HEIGHT OF ITS WILD HORROR.



HOPI VILLAGE, SCENE OF SNAKE DANCE.

SNAKE-BITTEN INDIANS, AFTER TAKING ANTIDOTE.

THE KIVA WHERE NAKED INDIANS WASH THE SNAKES.

(Copyrigt, 1901, by C. C. Pierce.)

It isn't "Moqui," nor it is "Moki," any more than that all Americans are Yankees or Buckeyes. This aboriginal people ought, at least, to know their own name, and they say it is "Hopituh," meaning "the people of peace." Their long-hated foes, the Navahoes, call them Moki, in derision and scorn of their unsanitary habits.

This is the people that conduct that most marvelous of all religious rites—the snake dance. It is now being celebrated at Walpi and Mashonguavi, two out of the seven pueblos, perched "waye up" on the top of rocky and precipice-approached "mesas," that make the cities of the Province of Tusayan in Northrn Arizona.

Is the rite changing? Will it last long? are two important questions that scientists are now asking.

I have already seen the dance eight times, and four times I have been admitted to the sanctum sanctorum—the secret, underground kiva or cellar—where the preliminary and most important rites are performed, and I am satisfied, from what I have seen, that the rite is rapidly changing its character; that, ere long, it will either be changed out of its original semblance, or will have entirely disappeared.

Take the celebration at Walpi, for instance. Ten years ago it was conducted with the quiet, simple dignity Bourke so well describes. Two years ago it was clearly to be seen that it was being made a dramatic show to attract outsiders. While the more conservative of the participants retained their old-style simplicity, the leaders constantly introduced new and purely meretricious additions, in order to capture the eye of those who then saw the dance for the first time. Just as the "tenderfoot" purchaser of a Navahoe blanket wants all the gorgeous colors of the rainbow in the blanket he buys, so do the observers of the snake dance imagine that they are getting the "real thing," the more wild crudities the priests introduce into their once solemn and sacred ceremony.

At Oraibi—the westernmost village—another element is at work to demoralize the dance. The town is divided into two factions, called the "friendlies" and the "hostiles." The terms are misnomer, except as applied to hostility to the white man's school and religion, and friendliness thereto. Nobody thinks of being "hostile" in the sense of going to war, but the old and conservative party is bitterly opposed to the introduction of the American school and ways, and asks to be let alone.

This the United States Government refuses to pay any attention to, and the consequence has been great friction. Arrests and imprisonments have been made, and the town is divided. The chiefs of the snake and antelope clans are two of the most determined of the so-called "hostiles," and a number of the priests are with them, hence the friendlies are kept out of the ceremonies.

If this continues, the hostiles in a few years will have died off, and the rite fallen into desuetude. The most thrilling ceremonial performed in the name of religion ever witnessed will then be lost, as are all the former rites and dances of the aboriginal population of other parts of the Western country.

Few people, even of those who have witnessed it, except well-informed ethnological students, have any idea of the sacredness and real inwardness of this singular rite. All they see is a band of half-clad savages, coated and striped with paint, which adds extra hideousness to their already wildly barbarous appearance, who march into the dance plaza, singing wierd songs, rattling queer little rattles and making altogether uncivilized movements.

Then, all at once, they introduce deadly rattle and other snakes, which they handle with a freedom perfectly appalling, and actually place in their mouths, with head on one side, and writhing, wriggling body on the other. With these hideous reptiles in their mouths, they prance around, others joining them; then snakes are thrown upon the ground, and some of the priests stoop to pick them up. Now and again a snake tries to escape and makes a wild stampede among those in whose direction he so subtly glides. This only adds to the confusion and wildness.

As a diversion, a snake sometimes refuses to be picked up when he is thrown down, and coils and strikes viciously at his would-be captor. Yonder are priests, mere lads of 5 and 6 years of age, who are holding four or five snakes each, altogether unconcerned about the wriggling reptiles, while they watch some other part of the proceedings, singing the while as earnestly as they know how. Here is a group of women; there a line of maidens, with baskets of sacred meal in their hands, sprinkling snakes and dancers, as the latter came near on their prancing and ambling mission.

And then, what a wind-up to the affair! The priests all rush to a circle; throw in the snakes, pray, sprinkle and spit on them, and then grab into the horrible mass, apparently regardless of what they seize. With hands full, off they fly, dashing down the steepest trails in the world with a reckless abandon that associates them with the mountain goat and the wild chamois. Down in the valley they deposit their burdens, only to return to their kivas, where those who have been bitten drink a heavy dose of a powerful emetic, in the disgusting effect of which the rite has its termination.

Now, it is scarcely strange that the onlooker who sees only on the surface, should come back to civilization from a snake dance and write a wild yarn that makes one's hair stand on end as he reads it. But the scientist sees more than the casual observer can imagine. To the Hopi the snake is his elder brother. He gives him a ceremonial washing down in the secret recesses of the kiva, in order to prepare him for these rites.

And, by the way, this is to me far more interesting and exciting than the open-air dance. In the preliminary rites down below, the history of the clan is recited in dramatic songs and representations, and the snake mother is appealed to that their prayer may be heard.

Then, when the final dance is performed, a prayer, a petition, a long, agonizing pleading for rain and the fertilization of crops and herds, that life may be possible in that barren, sandy desert region, is uttered. The snakes hear all the prayer, and when they are put down in the valley, they are supposed to make their way into the under world and there tell the Snake Mother all that has been asked for.

GEORGE WHARTON JAMES.

AMERICAN RESEARCH PRECEDED KOCH'S EXPERIMENTS.

BOSTON, Aug. 2.—Dr. Robert Koch, the eminent German scientist, has interested the whole civilized world by his statement at the Tuberculosis Congress in London that, in his opinion, there is slight danger of infection of human beings from milk or the flesh of tuberculous cattle, because of the typical difference in human and bovine bacilli. The profound impression which Dr. Koch has produced by his late utterance is due to widely different circumstances, the chief of these being that he is the discoverer of the particular bacillus or germ which causes tuberculosis or consumption; that on this discovery are based the extraordinary efforts of local and general governments to stamp out tuberculosis in cattle, and, finally, that, in recent reports of Dr. Koch's work, there has been nothing to indicate this radical departure from the belief generally entertained by other scientific men.

Most of these emphasizing circumstances were wanting when, in 1886, Dr. Theobald Smith, professor of comparative pathology at Harvard University, published the results of his experiments and suggested conclusions beyond which no advance has yet been made, but which at that time were received without excitement.

Without discussing the priority of Dr. Smith's discovery—which is recorded in the files of the Journal of Experimental Medicine and elsewhere, and has been publicaly recalled within the last few days by Professor Welch, of the Johns Hopkins Hospital, in Baltimore, and a number of other well-known bacteriologists—it is appropriate to state, briefly and as accurately as possible, just what, from the standpoint of this American scientist, has been accomplished in the fight against tuberculosis and what remains to be done.

It is to be understood, in the first place, however, that when Dr. Koch made his basic discovery of the bacillus of tuberculosis, he noted no difference between the germs of the disease, whether obtained from animals or human beings. He assumed that the tuberculosis bacilli were all of one type, and, as Dr. Smith says, he was justified in so doing by reason of the fact that he had more important objects in mind. His discovery showed that consumption is a germ disease, and is infectious, being communicated from one person to another chiefly by means of the sputum. The danger from sputum has been definitely proved and is not disputed, but its comparative importance as a source of disease is, of course, dependent upon the other means of infection which are found to exist.

For example, Dr. Koch claims that the hereditary transmission of tuberculosis is so slight as to be unworthy of serious consideration. Therefore, the elimination of the hereditary danger increases the proportion of cases resulting from infected sputum, and has led to the discovery that many supposedly hereditary consumptives have merely been infected in infancy by sputum of a tuberculosis parent.

The question of the danger of infection from tuberculous cattle is of broader significance, because, while comparatively few people have consumptive parents, nearly every one, whether child or adult, may be using milk, butter or meat from infected animals. The first systematic search for tuberculosis among milch cows and beef cattle showed a startling prevalence of the disease, and when the tuberculis test made an accurate diagnosis possible, public opinion, led by the public health authorities, demanded that infected animals be isolated and killed, however great the cost.

Naturally it is something of a shock to the public to be told that this expensive machinery, comprising as it does in this country, National, state and local boards, is accomplishing practically nothing for the prevention of tuberculosis in human beings, and the claim so emphatically made by Dr. Koch will undoubtedly be bitterly opposed—and indeed already has been.

Meanwhile, the analysis of this special part of the problem has been clearly made by Dr. Smith, whose views are based on experiments in the Harvard laboratories, on his work as director of the pathological laboratory of the Massachusetts State Board of Health, and on his former experience as bacteriologist in the Department of Agriculture at Washington. Without going into the difficult technical details of Dr. Smith's experiments, some of the principal features of his investigations may be briefly sketched.

As shown in his latest report, published in 1898, he secured cultures of bovine bacilli from the sputum of seven consumptive patients, of whom some afterward died and some recovered. He also obtained cultures of bovine bacilli from six cattle, a swine, a cat and a horse. Cultivating these disease germs he was able to study the human bacilli and the bovine or animal bacilli side by side by all the means known to the bacteriologist, and by careful comparisons determine their typical differences. In the course of his experiments he inoculated guinea-pigs, rabbits, gray mice and pigeons, and finally healthy cattle, with each sort of bacilli, and was able to demonstrate successfully that human and bovine bacilli are distinct types.

Among other things Dr. Smith learned that bovine bacilli are shorter and straighter than the human; that they attack guinea-pigs and other animals with greater vigor, are less susceptible to artificial cultivation, and thrive best on living tissues as parasites, while the human bacillus flourishes better on dead tissues, being, therefore, more "saprophytic," to express the same state in the technical term.

Putting together all the facts obtained by experiments on cattle, he maintained that the human bacillus cannot gain lodgement in cattle through the ordinary channels, and that, when artificially introduced, it ordinarily causes only a slight local disease. Whether, on the other hand, the bovine bacillus may be transmitted to the human subject is a question, as Dr. Koch also admitted, which is still undecided. If the transmission was by means of milk or meat, the bacilli might be looked for in the digestive tract, while, in fact, human tuberculosis is almost wholly confined to the lungs. This may not prove anything, however, since the bacilli naturally work toward the lungs in any animal, and often conceal their tracks.

There are various other possibilities involved, but, in spite of them all, Dr. Smith expressed himself three years ago, as Dr. Koch has done more recently, that the danger to human beings from tuberculosis animals is overestimated.

It would appear that this point would be definitely settled, if the human subject were inoculated with the bovine bacillus. This is, of course, out of the question, as it would seriously endanger the life of the patient. Even if subjects were offered for such experiments, it is quite sure that the American school of bacteriologists in general would be unwilling to make the trial, and, in fact, Dr. Smith holds that such limited individual experiments, if they showed negative results, would prove nothing, as the subjects might very well be immune against the disease.

Convinced as he is that the different types of tuberculosis bacilli have been definitely separated, Dr. Smith says it now remains for investigators who have the facilities of hospitals within their reach to determine, by the examination of a great multitude of cases, whether the bovine type of bacilli is to be found in human subjects. Until such a determination is made, he believes, with Dr. Koch, that the efforts to control tuberculosis should be chiefly to diminish the danger of infection from human sputum.

The world's congress of tuberculosis experts, while not definitely indorsing Dr. Koch's position, did adopt resolutions favoring legislation for the suppression of expectoration in public places, recommending the compulsory notification of the proper authorities in cases of phthisis and the use of pocket spittoons, asserting that these santiary provisions are indispensable, in order to diminish tuberculosis.

Compulsory notification of the existence of the disease is considered by Dr. Smith a most important factor in the control of tuberculosis. In many instances the isolation of the patient, in a nospital or sanitarium, may not only prevent the spread of the disease to other members of the household, but may mean the cure of the patient himself. Nearly everyone, except a few favored persons who live wholly in the fresh air, are subjected to the contamination of tuberculosis bacilli from sputum which has been dried and mixed with dust. A surprisingly large number of people have had slight attacks of tuberculosis and recovered without knowing anything about it, although their lungs bear the marks of the tubercles.

There is no known antitoxine of tuberculosis, and Dr. Smith does not anticipate that one will be discovered in the immediate future which shall prove of practical value, but many cases may be cured in their early stages by rest, fresh air and good nursing, whether at a state hospital or at a private sanitarium. Good health is naturally the best protection against the invading bacilli, and the poorly nourished body is naturally less capable of combating the disease. Colds and bronchial troubles are likely to produce conditions favorable for the growth of the bacilli and should therefore be avoided.