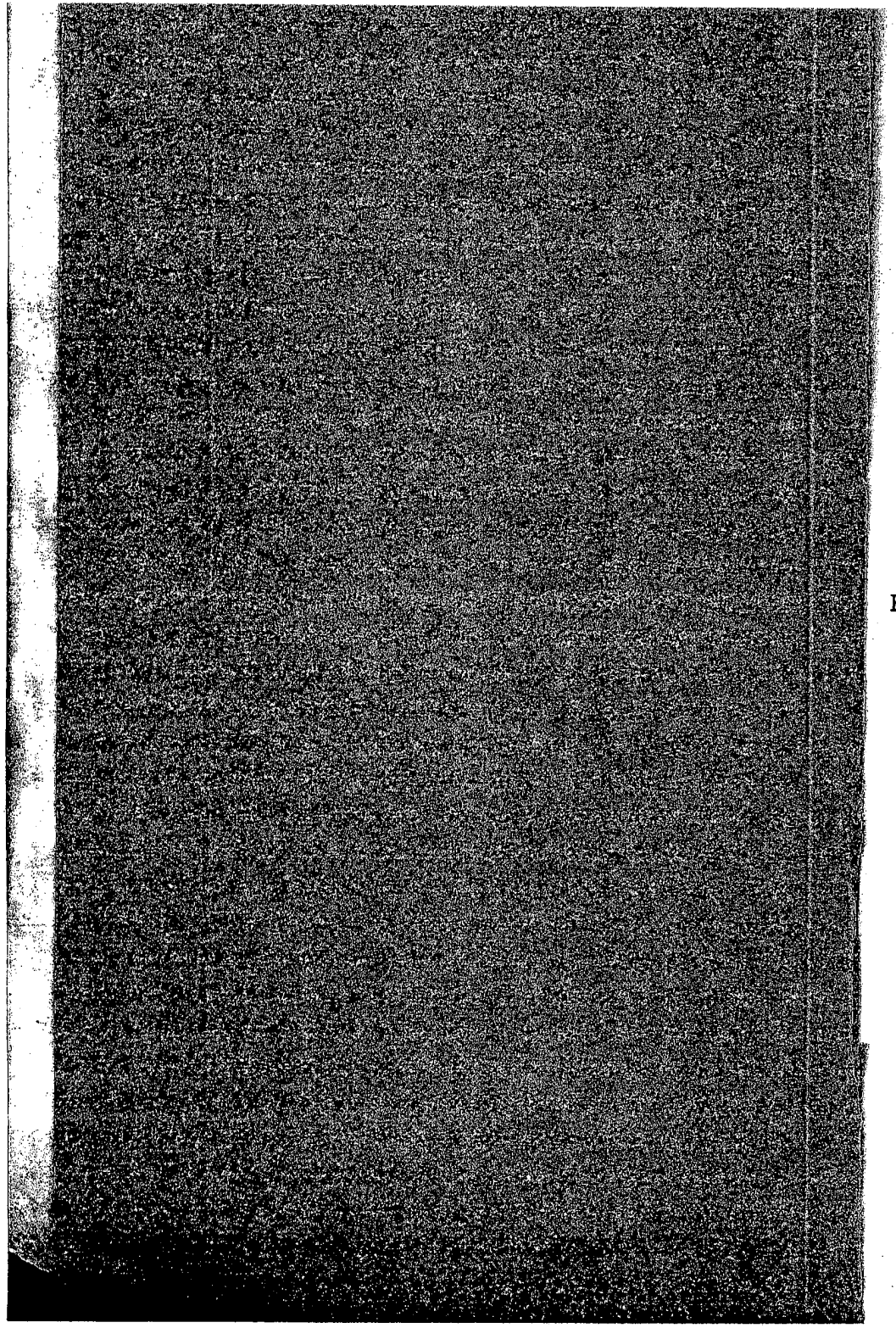

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HOPI INDIAN AGRICULTURE II: SEED SOURCE AND DISTRIBUTION

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In the previous paper in this series, the writer endeavored to show how the Hopi have obtained the seed of their various crop plants from other tribes, from schools, traders, stores and nurseries. We will now attempt to evaluate these different sources and show how these various varieties, once acquired, are distributed throughout the tribe.* See Table I.

Before we begin our discussion it is necessary that the reader understand something of the nature of the Hopi methods of crop breeding and ownership. Although the Hopi have no knowledge of cross pollination, they select their seed with care, refusing to plant any kernels from an ear of corn which they consider to be a mixture of two varieties. They are also keen to note differences in the quality, season or other desirable characters in their own or their neighbors' crops. In a society where the raising of crop plants occupies so much of the time and attention of the people, the desire to acquire these more desirable varieties from their neighbors is strong, and like other strong social forces has to be given definite overt forms of expression.

The ownership of a variety, that is, the right to grow it, is vested in the women of the household. Although the men do the actual cultivating of many of the crops, it is the women who select the seed. This is done either after the harvest or at planting time. The seed corn is shelled off the cob and entrusted to the men, who are then responsible for its planting, cultivation and harvest. After the new crop has been deposited in front of his wife's house the responsibility of the man is ended. From this point on it is the women who control its use for food and its sale or trade for other household necessities.

Thus varieties of crop plants become virtually hereditary within the household. In fact it is considered a dangerous precedent to allow any seed to leave the household, as it might "bring on famine." Seed particularly corn kernels, found lying around on the mesa or on the floor of the house are carefully picked up and placed with the rest of the household's supply, lest "the gods think the Hopi ungrateful."

This attitude results in a strange inconsistency today when two dozen ears of corn can be purchased for little more than the price of a single ear. The two dozen ears are classed as food, but one ear is valued as seed and priced accordingly. A justification is sometimes sought in the similar practice among the white men.

How is it, one may well ask, that these numerous varieties can become distributed throughout a community? As we have just indicated, there is purchase, or trade between individuals. No record was kept of the relationships between people who bought or exchanged seed but doubtless the bonds of kinship, real or sociological, offer opportunties for such transactions.

Two households belonging to the same clan or to associated clans are considered as being closely related and seeds pass from one such household to another without difficulty, usually upon request.

A specific case of local exchange may be of interest. In 1932 an Oraibi cow got into a Shungopovi bean patch and destroyed the crop. The damage was paid for in a relatively small amount of beans of a recently imported variety.

We have told how food lying about on the mesa is taken home and treated with respect. Seed thus acquired may be planted. Similarly our records tell of one woman who found a cache of sweet

*The conclusions presented in this paper are based upon data from over fifty families obtained jointly by Mr. V. H. Jones and the author assisted by Edmund Nequatewa during October, 1935, while on an expedition financed jointly by the Ethnobotanical Laboratory of the University of Michigan and the Museum of Northern Arizona. The author alone is responsible for all of the inferences drawn from this data in this paper and for the table based on the records for forty-six families only, the others being considered unsuitable for this purpose.

TABLE I
SOURCES OF SEED RAISED IN THE HOPI TOWNS, 1935

	No. of cases where seed was acquired on the Reservation					No. of cases where seed was acquired off the Reservation		Totals
	Inherited by man	Inherited by woman	Acquired by exchange	Received from Katcinas	Domesticated from wild plants	Procured at local store	From other sources	
Corn								
White	30	7	3				4	44
Blue	33	11	4				2	50
Sweet	9	3	1			1	2	16
Misc.	25	19	3	2			3	52
Beans	50	41	9			14	6	120
Melons	9	14	6			70	4	103
Squash and Gourds	10	19	5			1	1	36
Peaches	5	18	7			2	24	56
Apricots	4	11	6			3	1	25
Apples	1		9	2		7	16	35
Fruit Trees	1	1	7			1	16	26
Chili	2	12	2					16
Onions	1		1				15	17
Vegetables	1	5			2	1	14	23
TOTALS	181	161	63	4	2	100	108	619
Per Cent	29	26	11	.7	.3	16	17	100

DISTRIBUTION OF PRINCIPAL CROPS
Grown by 46 Families

Corn	26%	Fruit Trees	23%
Beans	20%	Vegetables	9%
Melons	22%		

corn seed in the abandoned house of her father's mother.

Seeds from eaten fruit may also be planted. Thus stones from peaches received as a gift from a neighbor may be saved and planted. It is partly for this reason that ground corn meal is the medium in the numerous gift exchanges which occur in Hopi social life, particularly during the marriage process (one can hardly call it "a ceremony" in Hopi land). Such a gift is valuable as food but does not include the chance to plant the variety of corn from which the meal was ground.

Another important source of seed comes from fruits purchased in stores and trading posts on the reservation. Since most of these products are imported from sources off the reservation this represents an important source of seed for the community at large. Seed from this source accounts for about sixteen percent for all the seed planted in the Hopi Villages today. This figure, it is true, chiefly represents watermelons, of which the Hopi are inordinately fond.

Another sixteen percent of the crops are obtained from sources off the reservation. Of this, seven percent represents nursery stock, chiefly peaches and apples, and includes onion sets imported in wholesale quantities from the towns along the railroad.

Thus approximately one third of the Hopi crops are obtained from off the reservation. Of distinctly local origin are squash, pumpkins and gourds and the ever popular chili peppers. The seeds of other staple crops are obtained locally for the most part. Over eighty percent of the beans are raised from local seed, and less than ten percent of the corn seed comes from "outside". Furthermore over fifty percent of all of crops planted on the Hopi reservation are obtained by inheritance, either from the older women in the household or from the husband's or son-in-law's family.

It happens in this manner. When a man marries he goes to live in the household of his wife. He brings with him at that time seeds from his mother's household. From these he must raise the first year's crop for his wife, and if they so demand, for her immediate relatives. After thus demonstrating his ability as a farmer, the young man is allowed to plant the crops belonging to his wife's household. After the first year the entire crop resources of both man and wife are pooled. The selection of the next season's crops is usually a matter for mutual discussion although the final decision rests with the women. Thus marriage provides an important and efficient means for the distribution of crop varieties throughout the community. The true importance of this method can be realized when we study the accompanying table in which we see that sixty percent of all the corn raised on the reservation today comes from the men's households at the time of marriage, the women contributing slightly less than a quarter as much. Beans come about equally from both sides of the household while the women contribute about twice as many melons, fruits and vegetables as do the men. This reflects at once the division of agricultural labor, men concerning themselves chiefly with corn and beans, while the vegetables are raised by the women in the tiny irrigated gardens. Fruit trees normally are inherited through the female line of descent in this matriarchal society where houses and lands descend from mother to daughter, although a man may give or will his son a fruit tree that he himself has planted.

Religious ceremonies also provide a method whereby crop seeds are distributed throughout the community. During several of the early spring ceremonies various impersonators, particularly the "mudnead" katcinas, distribute handfuls of cultivated seeds of all kinds throughout the audience. These seeds are of course obtained previous to the ceremony from the several households to which the impersonator has access, particularly his wife's, and his mother's or his sister's. They are accepted by the audience as gifts from the gods and treated with considerable respect. Corn from these sources is known as "Katcina corn" and is usually planted as an early crop and eaten green. Crossfertilization, often apparent in the first year's crop, leaves most of the corn unsuitable for seed by Hopi standards. Thus, while this formalized mechanism for the transfer of seed is still active in Hopi society, it rarely founctions as a practical distributing agent for new or old varieties. Out of some fifty families interviewed, only two reported raising crops received from the katcinas prior to the previous spring.

There is one aspect of Hopi agriculture which is of considerable theoretical interest. That is the local domestication of wild plants.

There is reason to believe that the sunflower was domesticated in North America previous to the introduction of corn. Possibly the modern black-seeded Hopi Sunflower is a direct descendent of that early pre-maize agriculture. Certainly the modern Hopi received it as a cultivated plant. (Jones, V. N., 1936*)

In 1935 an old gentleman in Lower Oraibi was raising in his garden a mint he grew from seeds obtained from a wild plant. He was also raising another wild plant called "homi'ma." Both are in demand as food.

The habit of allowing certain weeds to mature in the otherwise carefully weeded corn fields is a similarly interesting process. Not infrequently plants of the Rocky Mountain Bee Weed are allowed to grow to maturity and to disperse their seed in Hopi corn fields, thus insuring a goodly supply of young plants for the cook pot the following spring. The little wild potato *(Solanum jamesii)* is allowed to grow unmolested in many corn fields, often yielding an abundant harvest for such a small potato. The devil's claw, or unicorn plant *(Martynia)* is also left growing in the fields, partially because the long spiny fruits are supposed to attract the lightning and thus the rain, and partially, one suspects, because they are in considerable demand in the construction of ceremonial paraphernalia.

There are a number of wild plants with which the Hopi concern themselves beyond mere exploitation. Strictly speaking this cannot be called agriculture. At various times cottonwood and willows are transplanted into the neighboring washes. Similarly there is a patch of cattail *(Typha angustifolia)* growing in the Oraibi wash which is said to have been introduced from near Tuba City. This plant is in considerable demand for presents for the children at the Niman Katcina ceremony.

Scattered plants of wild tobacco grow throughout the Hopi country and I am told that occasionally a man may scatter seeds on some convenient and favorable spot, thus insuring himself a goodly supply of this plant for ceremonial purposes.

The root of a wild dock used in dyeing is now comparatively hard to obtain in the vicinity of the Hopi towns, though occasionally it is grown in the small unirrigated plots along the foot of the Oraibi mesa.

While this type of embryonic agriculture has probably been going on for a long time it has not contributed significantly to the modern Hopi crops within recent times, and as a factor in the native economy it is relatively unimportant.

*Jones, Volney H. "The vegetal remains of Newt Kash Hollow shelter in Rock Shelter in Menifee County, Kentucky," by W. S. Webb and W. D. Funkhouser. Univ. of Kentucky Reports in Archaeology and Anthropology, Vol. III, No. 4. July 1986. p. 147-165. See page 163.