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THE CHANGING  
PHYSICAL ENVIRONMENT OF THE  
HOPI INDIANS OF ARIZONA

BY  
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INDEXED I

View of the Hopi Buttes from the north side of the Jeddito Valley. In the foreground is an area of stabilized dunes.

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## CHAPTER II

### THE INHABITANTS OF THE HOPI COUNTRY

#### THE HOPI RESERVATION

THE region now referred to as the Hopi Indian Reservation is an area of 780 square miles, surrounded by the Navaho Reservation which is 23,994 square miles in size. Their boundaries are indicated in fig. 1. A few years ago the Hopi Reservation was much larger. It extended northward as far as the northern part of Black Mesa and as far south as the Hopi Buttes. It included the Jeddito Valley and Howell Mesa, (see fig. 2). The Hopi did not occupy this large region, however, and confined their activities to a much smaller area. Accordingly new boundary lines were drawn, and the present Hopi Reservation boundary divides quite closely the spheres of activity of the Navaho and Hopi.

For administrative purposes, the Hopi Reservation as shown in fig. 1 is referred to as Land Management Unit No. 6 by the U. S. Soil Conservation Service. The statistics presented in the following pages refer to the area of this unit and are taken from a land planning report of the U. S. Soil Conservation Service for 1937.

The reservation is easily reached by a well-maintained, graded road from Holbrook, Arizona,

#### POPULATION

The inhabitants of the Hopi Reservation number about 3,000. Probably over 100 of them are Navahos. Government officials and white employees, probably number about 100 also. The rest are Hopis.

The Indian Agency is at Keams Canyon, on the eastern edge of the Reservation. It contains a hospital, administrative offices and a boarding school. Day schools are located at Polacca, Toreva, Shimopovi, Oraibi, and Hotevilla, in or near main Hopi villages, and there is a High School at Oraibi.

There are only four trading posts in the reservation, but there are seven or more small stores operated by Hopis.

#### ECONOMY

The Hopi are primarily an agricultural people. Today they obtain a large income from other sources, which, however, are the result of new industries brought in by the white man or by the influence of the white man's economic world. The U. S. Soil Conservation Service estimates the division of income as follows:

TABLE COMPILED BY THE U. S. SOIL CONSERVATION SERVICE  
INCOME (1937)

ITEM	COMMERCIAL		NON-COMMERCIAL	TOTAL INCOME	PERCENT OF TOTAL	APPROX. PER CAP. ANNUAL INCOME
	Amount	Percent	Amount			
Wages	\$164,301.84	72.18		\$164,301.84	32.47	\$53.10
Livestock*	40,275.78	17.69	\$ 11,250.00	51,525.78	10.18	16.65
Agriculture	5,369.78	2.36	267,177.69	272,547.47	53.86	88.09
Woodland products	7,361.19	3.23		7,361.19	1.45	2.38
Rugs and blankets	6,056.05	2.66		6,056.05	1.20	1.96
Miscellaneous	4,279.66	1.88		4,279.66	.85	1.38
	\$227,644.30	100.00	\$278,427.69	\$506,071.99	100.00	\$163.56

\* The non-commercial income from livestock is a round figure estimate.

about 90 miles to the south. Another road, less well-travelled, runs from Winslow to Polacca and another, farther west from Winslow to Oraibi. The main east-west road of the Navaho Reservation running from Window Rock to Tuba City passes through the Hopi Country.

*Wages:* The wages are primarily of government employees. \$160,609.84 was paid to Hopis or residents of the Hopi country by the government, and \$3,692.00 was paid in wages by traders. The wages were paid for various services, teaching and care of schools being the most im-

portant. Hospital work, road work, coal mining, sheep dipping etc. are other sources of wages: These activities are entirely foreign to the Hopi and introduced by the government. Thus this large source of income, which is paid out in turn for work which greatly benefits the Indians was completely lacking before the arrival of the Anglo-Americans.

*Live stock:* The live stock on the Hopi Reservation is divided as follows (1937):

Present Stocking (1937)	
Sheep	11,202
Goats	317
Cattle	7,695
Burros and horses	5,085

These animals are grazed on the reservation throughout the year. At present they furnish ten percent of the income of the Hopi. About three fourths of this income is commercial, and derived from the sale of wool, meat, live animals, and pelts and hides.

The Hopi have had some live stock income ever since the introduction of domestic animals by the Spaniards in the sixteenth and seventeenth centuries. Before that time the only domestic animals which they had were turkeys and dogs, so that most of this source of income is of recent development.

*Woodland products:* Woodland products consist mostly of piñon nuts, gathered by the Hopis outside the Hopi Reservation. Some wood is used for fence posts, firewood, and building. Wood probably always has been used for firewood, and in building construction. Its value as a resource must have increased greatly, however, when the Spaniards introduced iron axes and beasts of burden making the gathering of wood less laborious. Before the arrival of the Spaniards the Hopi heated their houses with coal.<sup>1</sup>

*Rugs and miscellaneous:* Rugs and blankets and miscellaneous products, which include plaques, jewelry, baskets, and pottery account for about three percent of the income.<sup>2</sup> These items have always been a source of income, both commercial and non-commercial, for the Hopi today manufacture ceremonial garments which are sold to other Pueblo peoples. This relationship is a part of a long standing tradition.

<sup>1</sup> See Hack, 1942.

<sup>2</sup> This figure may include rugs woven by the Navaho Indians living within the Hopi Reservation.

<sup>3</sup> See Jones, 1936.

<sup>4</sup> Gregory, 1915b.

*Agriculture:* The remaining source of income is agriculture, which constitutes fifty-four percent of the total. Of the whole agricultural income of \$272,547.47 only \$5,369.00 or about 1 percent is considered commercial, and most of this amount consists of products sold to traders which are resold to Hopis.

Thus the largest source of income today is from agriculture. The remaining income is derived mostly from wages, paid for activities which are of recent introduction. The third largest source is derived from live stock, and introduced since the seventeenth century.

Manufactured goods such as pottery and rugs have always furnished some income but only an insignificant share of the total, and not enough to affect the real wealth of the Hopi. The introduction of live stock and of government activities and improvements, has certainly greatly increased the standard of living, for the commercial income derived from these sources is spent mostly for food and clothing which cannot be grown or made on the reservation. In the prehistoric Hopi economy the important item of clothing was an agricultural product, for the early Spanish explorers report many cotton fields among the Hopi farms.<sup>3</sup>

## THE HOPI VILLAGES

There are twelve important Hopi villages. Moenkopi would make a thirteenth but lies outside the reservation and about 100 miles west of Hotevilla. It was settled in the 1870's by a group of emigrants at Oraibi who took advantage of the permanent water available in Moenkopi Canyon for irrigation. Gregory<sup>4</sup> has described the history and geography of this outpost village and it is not discussed here. The other Hopi villages are in the Hopi Reservation. One of them, Old Oraibi, has been inhabited at least since 1100 A.D. and thus claims to be the longest continuously occupied village in the United States. In 1906, Old Oraibi and New Oraibi together were the most important towns of the whole Hopi country, having a population of about 1,200. During 1906 a quarrel ended in the emigration of large numbers of the inhabitants who founded Hotevilla in 1906 and Bacobi in 1907. Hotevilla is now the largest of the Hopi villages, having about 420 inhabitants.

Polacca is also a recent development, having grown up at the foot of First Mesa in the latter

part of the nineteenth century. Toreva is really not a Hopi town but contains a school and mission. The remaining six towns are all built on the ends of the projecting spurs of Black Mesa, and have all been founded since 1680.<sup>6</sup> The inhabitants before that time lived in villages below the mesa tops and apparently moved up on top after the Pueblo rebellion, perhaps in fear of the Spaniards. Hano is a village of Tewa Indians, whose ancestors moved over from the Rio Grande region at this same time or shortly thereafter.<sup>6</sup>

The Hopi are village dwellers, who are accustomed to change their ways, or their place of abode more slowly than their neighbors, the Navaho. Their homes are permanent structures, built of sandstone, with wood and mud roofs. The location of their dwellings is largely determined by their agricultural economy and by the water supply. The largest springs of the whole region are located near the mesa ends on the south side of Black Mesa, where the large quantities of sand on the mesa tops make good intake areas for the springs below.

Agriculture and especially flood irrigation leads to central locations for dwellings. The Hopi farms are located in the valleys and on the mesa sides, in every bit of land suitable for farming. Although fields are in many places far apart and some of the largest of them are on the most distant borders of the Hopi Reservation, centrally located permanent dwellings are desirable, for the position of fields change, and several fields are usually cultivated by the same family. Small farmhouses, near fields far from the central towns, are commonly occupied by individual families during small parts of the year.

#### EARLY HISTORY OF THE HOPI AND THE PEOPLE OF THE JEDDITO VALLEY

The history of the Hopi before the arrival of the Spaniards is known only from archaeological research. Other reports of the Peabody Museum Awatovi series will deal with this subject in detail. Agricultural peoples ancestral to the modern Hopi have occupied the region at least since Basketmaker III time (500-700 A.D.) and prob-

<sup>6</sup> Colton and Baxter, 1932.

<sup>6</sup> See Colton and Baxter, 1932, for other details.

<sup>7</sup> Franciscan Fathers, 1910.

ably earlier. Ruins of villages and houses closely resembling those of the Hopi are found all over northeastern Arizona, and it is certain that the Hopi are the cultural descendants of a people who once occupied a much larger area. The cultures of the San Juan and Little Colorado areas are the most closely related.

The excavations of the Peabody Museum Awatovi Expedition were carried on in the Jeddito Valley region which lies on the eastern border of the Hopi Reservation. In addition to many small ruins, ruins of four large and several medium sized villages, which were occupied from about 1100 to 1500 or 1700 A.D., are found on the north side of the valley.

The Jeddito Valley ruins are so similar in construction to the modern towns and their environment is so similar, that although the valley is now occupied by Navahos it should geographically be considered a part of the Hopi country. One Hopi (Sequi) still lives near Jeddito Trading Post. He is a member of the Warrior Clan, and considers himself the guardian of the Hopis' right to the land of the region. His wife is a Navaho.

The history of the Hopi is undoubtedly affected by the relatively recent intrusion of the Navaho. It is not known how important this effect is or when it began to develop. It may be that the Navaho were an unimportant tribe in the Southwest until they obtained horses from the Spaniards. There is no evidence of the time of their arrival or of their importance in prehistoric time. They are first mentioned by Fray Alonzo Benavides, O. F. M., in his Memorial to the King of Spain written in 1630.<sup>7</sup>

#### CONCLUSION

Hopi economy except for recently introduced activities is primarily agricultural. Before the coming of the white man they must have depended entirely on their own resources for food, clothing and shelter.

Because of their dependence on agriculture, which is certainly practiced under great difficulties in this dry region, the Hopi are very much affected by changes in their environment, and the suitability of a region for habitation depends entirely on conditions of climate and physiography.