The Mountain Pima of Maicoba, Sonora:
Their Material Culture

by
Campbell W. Pennington

(notes and drafts)

Converted electronically by
William E. Doolittle
2010

THE MOUNTAIN PIMA OF MAICOBA, SONORA

--

THEIR MATERIAL CULTURE

(8 pp.)

Government

Literacy, knowledge of the Pima language

Chapter II - The physical environment

Land forms

Vegetation

Weather

Chapter III - Agriculture

Introduction

Settlement pattern determined by agricultural potential

Land tenure system; inheritance

Agricultural cycle

(33 p.)

Field Crops (2 pp.)

Location of fields

Preparation of fields

Seed availability and selection

Seed planting

Care and protection of growing crops

Harvesting and storage of field crops

Crop yield; adequacy of foodstuffs

Chapter IV - Horticulture

Introduction

Fiestas

Ceremonies and plants, masks, church decorations, incense

Musical instruments

Flutes and whistles

Rasping sticks

Musical bows

Drums

Violins, guitars, banjos

Rattles, matrakas, etc.

Games and plants

(57pp) Medicinal plants

Diseases

Plants utilized in preparation of medicines

Chapter IX - Leather, fibers, textiles, and personal adornment

Introduction

Leather goods

Processing of hides

Footgear

Ropes and quirts

Quivers

Tumplines

Nets for carrying baskets

Sleeping and sitting mats

Saddle pads and blankets

Aprons worn by arrieros, jackets

Small bags

Slings

Wrist guards

Fiber goods

Processing of plant fibers

Baskets

Carrying baskets, bags

Sleeping and sitting mats

Hats

Weaving huts

Thatch

Sandals

Cordage, tumplines

Textiles

Clothing worn by men and youths

Clothing worn by women and girls

Stone artifacts

- Metates and manos
- Bowls
- Chopping stones, hammerstones, and bowls
- Axes
- Knives
- Miscellaneous articles

Wooden artifacts

- Bowls
- Spoons
- Troughs
- Stools, chairs, tables
- Headrests
- Sleeping boards
- Beds and cots, cane tapestles, cradles
- Fire drills, fire in dwelling

Miscellaneous

- Brooms
- Horn artifacts
- Cooking platforms

Weaving

Implements (whorls, looms, etc.)

Blankets and belts

Dyestuffs

Detergents

Personal adornment

Hair styles

Necklaces, earrings, etc.

Hair nets

Miscellaneous (tattooing, face and body painting, use of feathers, etc.)

Chapter X - Dwellings

Introduction

Gourd utensils

Ceramics

Ollas

Comals

Dye pots

Griddles

Incense jugs

Bowls

Miscellaneous

9 September, 2003

The Mountain Pima of Maicoba, Sonora
Their Material of Culture

Campbell W. Pennington

Unpublished material

Description

Table of contents	9 pages
Government	8 pages
Drawings and pictures	23 pages
Field crops	3 pages
Maize	24 pages
Gramineae	4 pages
Leguminosae	6 pages
Convolvulaceae	1 page
Solanaceae	1 page
Cucurbitaceae	3 pages
Pictures	14 pages
Cards that need to be checked	1 page
Seed planting	2 pages
Drawings and pictures	13 pages
Corn calendar	2 pages
Zea mays (same is above)	20 pages
Maicoba crops I	13 pages
Maicoba crops II	4 pages
Medicinal plant thesis	57 pages
Pictures	9 pages
Acknowledgements	1 page
Informants	pages
Introduction	3 pages
Life cycle (1-27 cards)	14 pages
Population	28 pages
Mission experience	4 pages
The Ejido	16 pages
Life cycle (28-41, then without #)	17 pages
Place names	3 pages
Drinks	7 pages
Fowling	15 pages
Hunting and trapping	19 pages
Fishing	5 pages
Food plants	32 pages
Insects and reptiles	4 pages
Cattle	5 pages
Sheep and goats	3 pages
Horses, burros, and mules	3 pages
Swine	1 page
Dogs and cats	2 pages
Poultry	1 page
Bees	1 page

Fiestas	8 pages
Musical instruments and pictures	7 pages
Games	7 pages
Cattle and crops	3 pages
Language	9 pages
Historical Indian names, location, and population	3 pages
Employment opportunities for Pima	8 pages
Government	7 pages
Literacy	2 pages
Knowledge of the Pima language	2 pages
Landforms	1 page
Pima plant names	2 pages
Flora	31 pages
Weather and introduction to agriculture	2 pages
Introduction to agriculture and inheritance	18 pages
Questionnaires	4 pages
Kípor's people and map	4 pages
Crops	24 pages
Location of fields	2 pages
Preparation of fields	4 pages
Availability of seeds	3 pages
Seed planting	5 pages
Care and protection of growing crops	7 pages
Harvesting and storage of field crops	7 pages
Crop yield	7 pages
Introduction to garden crops	17 pages
Introduction to fruit trees	6 pages
Introduction to food preparation	16 pages
Introduction to beverages	4 pages
Medicinal plants collected by C.W. Pennington	1 page
Diseases	3 pages
Maicoba Ejido, fiestas, and conversation with Pima governor	11 pages
House types –introduction	8 pages
Literature cited	8 pages
Personal adornment	3 pages
Household articles	10 pages
Stone artifacts	4 pages
Wooden artifacts	6 pages
Fire making	1 page
Miscellaneous artifacts and pictures	4 pages
Textiles	2 pages
Clothing	2 pages
Weaving and dyes	5 pages
Detergent	1 page
Personal adornment	1 page
Leather goods	6 pages
Fibers –baskets, petates, and hats	7 pages
Huki	1 page
Fiber –cordage	1 page

Processing of plant and animal fibers	2 pages
Unidentified medicinal plants	1 page
Curing (Nolasco Armas, 1969)	3 pages
Leather goods	8 pages
Medicinal plant uses	74 pages
Letters to specialists and plant I.D.'s	309 pages

Maicoba, Pennington

Preface

1. Gerardo Camargo A.

2. Davis Bolas Isa

3. José Anchondo M.

4. Jesse Aguayo.

5. Ester Aguayo.

6. Plant identifications:

Lincoln Constance	Imre Eifert	Lawrence Kaplan
William L. Turner	Jonathan Sauer	Thomas Whitaker
Hugh C. Cutler	John J. Tucker	J. Roy Quinby
Charles Heiser		

7. Insect identification: [Note the USDA office of these men]

R. D. Gordon	R. C. Froeschner	D. R. Smith
R. White	P. D. Hurd Jr.	A. B. Gurney
A. Stone	A. S. Menke	G. B. Vogt
R. E. Warner	J. L. Herring	

All of the above mentioned people are associated with the United States Department of Agriculture, Agricultural Research Service, Entomology Research Division, Beltsville, Maryland 20705. Dr. Reece I. Sailer, Chief, Insect Identification and Parasite Introduction Research Branch of the above mentioned office, was kind enough to attend to the identification of the insects.

1. Federico Rodríguez Romero, about 76 years of age, son of Pima Mother and Father. An extremely alert and energetic man who knows a great deal about the plant and animal world near Maicoba and Yécora. Was one of the important sources of data concerning present and ancient customs of the mountain Pima Bajo and was the most important source of Pima terms.

2. Dolores Velázques Duarte, about 70 years of age and blind. She was pictured in Hinton's article published in 1959.* She had lived

---

* Hinton (1959), 27.

---

at Yécora and other places in the mountain Pima country. Her account of contemporary and ancient customs tallied almost perfectly with that of Federico Rodríquez Romero. Dolores is the daughter of Pima Mother and Father.

3. Juan Gonzáles, about 53 years of age, the son of a Pima Father and mestiza Mother. An energetic man who spends a few months of each year at the mines or lumber camps in Sonora, thereby being able to provide better clothing and household equipment for his family than most members of the Maicoba ejido.

4. Eugenio Rascón, about 36 years of age. He is acknowledged as the Pima Governor at Maicoba and claimed to be of Pima descent. A very aggresive person with respect to his attitudes towards the blancos at Maicoba, particularly so in efforts to obtain implementation of an ejido program at Maicoba.

5. Gerardo Camargo A., a mestizo of essentially Spanish background, about 32 years of age. A native of Moris, Chihuahua. An intelligent and alert man who has lived in the United States, and in spite of an imperfe command of English was in the U. S. Army in Korea. Camargo knows intimately the sierras of high western central Chihuahua and the high eastern central portion of Sonora. His knowledge of plants was immense, apparently because his Mother, a resident of Moris, knows much of the plant life in the sierras

particularly that used for medicinal purposes, and who is indeed referred to by many as the curandera of Moris.

6. José Montés Velazquez of Yécora.

7. Isidro Montés of Yécora.

Maicoba, Pennington

Chapter 1

Notes &

Draft

Maicoba — Introduction

Nolasco Armas, 1969 — Comment on first Spanish contact with Pima of sierras

page 186

Nolasco Armas notes that the first contact with the Mountain Pima might have occurred during the journey of Cabeza de Vaca, or that of Marcs de Niza, of that of FraNCISCO Vázques Coronado.

She specifically states that the first contact by Spaniards with the Mountain Pima ("pimas bajos de la sierra") was by Baltasar de Obregón in 1584.

In her citation she does not give the page or statement, only noting Obregón, 1924.

However, on page 173 of Obregon, 1924, it is clear that the ohronicle referred not to the Mountain Pima but to the hot-country Pima of Sonora, since the reference was:

page 173: "...que son más de trescientas leguas de caitas y pimahitos..."

Obregón's chronicle clearly referred to the Cahita and the Pima, with the latter reference being to the Pima who lived along the middle course of the Yaqui River.

Maicoba — Introduction

Nolasco Armas, 1969 — Comment on first Spanish contact with Pima of sierras (2

pp. 188-189

Nolasco Armas drew upon Obregon's chronicle and Alegre data which she attributes to the Mountain Pima, and in many respects she is entirely wrong, as for example, when she noted that "mantas de algodón" were worn (page 189). There is not the slightest bit of evidence for this, any more than there is evidence for the Mountain Pima (about whom she was writing) having fought with the Yaqui, much less with the Pima of the Yaqui River Valley ("peleaban contra los yaquis, o tal vez contra los pimas bajos nébome, del valle del Yaqui", page 189).

This is but one example of shabby use of printed material on the part of Nolasco Armas.

The Maicoba Pima do not appear to use the terms indio or indígena in reference to themselves as individuals, nor do they use the term mestizo in reference to people who obviously are of mixed background. Rather, the mestizos and the "Spanish" people are referred to as blancos or dutkam (gente), and members of the tribu are referred to as o'ob, which seems to mean gente when used in reference to the Pima. The term poblano is often used to designate a Pima as distinct from a non-Pima. According to the older people at Maicoba, the term indio is used only in connection with such people as the Apache (apsi) who are frequently mentioned in folk tales at Maicoba, tales which the old people are ready to tell at the slightest hint for such stories.

For example, according to the old people, long ago the Apache would appear in the mountain Pima country and make noises before the houses at night, crying like babies or making noises like small coyotes or little dogs, in order to see if the Pima would open their doors. The Apaches were "all over the sierras" and the bovernment finally got them together and "sent them across the ocean." Sometimes, the Apache fought in great numbers, as many as 150. They wore no footgear, and were clothed in a

taparrabo fashioned from gamuza. They also wore a band about their heads into which were tucked a number of feathers of the wihalo (the wild turkey). The Apache wore tegüas made of skins. Federico Rodríguez Romero noted that his Father had fought against the Apache and often talked of having done so. Federico's Father died in 1910, "about two years before the Revolution," and was born about 1850.

With respect to warfare with other Indian peoples, Federico noted that the old people had told him that the mountain Pima never fought the Ópata, Séri or the Yaqui. Such people were "brothers" of the Pima. He further noted that today the mountain Pima who journey to the Yaqui country, to Obregón, are well received and fed, by the Yaqui folk. It was only the Apache with whom the mountain Pima had battles, largely because the Apache robbed the Pima of their cattle, killing the stock on the spot and eating the meat. The Apache also were noted for killing people who were travelling with carga.

The Maicoba Pima have nothing to say with reference to the origin of the mountain Pima, but it is certain that Pima from other areas have come to Maicoba within recent times; Federico Rodríguez Romero stated that his Mother had been born at Maicoba but that his Father was born at Tónichi, in the "hot country" to the west.

Nolasco Armas, 1969

page 185: Comment on surviving aborigines (1)

Nolasco Armas suggests that there are remnants of Opata, Jova, Ocoroni, Guazapar and Mayo in the sierras of northwestern Mexico.

CWP believes that this is an absurdity, although there are certainly Tarahumar, Pima, Varohío and Tepehuán in the sierras of Chihuahua and Sonora, and Sinaloa.

Nolasco is certainly correct in noting that the surviving Indians have lost much of their culture and language, and that even so they have retained an Indian identity.

CWP does not understand how Nolasco Armas arrived at the figure of 15,000 indigenes in the sierras at the time of arrival of the Spaniards. The figure is much too small (probably) when one considers what we know about the Tarahumar and Tepehuán.

Source: Anonymous (1681)

The author of this document refered to Mohoriachi of the Yécoras. He was referring to Moris, Chihuahua. Mohoriachi was about 1/2 days journey (media journada) from Maicoba, or San Francisco de Borja as the site was known in 1681. [It is, from personal experience, about 1/2 day of travel from Moris to Maicoba by horse].

Entered in manuscript April 9, 1972

Entered in Bib-file

Source: Lafora (1766-1768), in Robles, 1939

page 147: Pima

✓

Moris

Population - 1698

7

Source: Rezawal, Andres de (1698), Auto, 25 de noviembre

There were 83 families

Location of Pima - 1676

7

Source: Guadalajara (1676), pp. 281.

"These[Indians] of Tutuaca are not pure Tarahumaras, but that they are mixed with the Tepehuanes [Pima] and thus they speak in one of the other languages with such pronounciation that it seems that they have compouded from the Tepehuan and Tarahumara another third and new language."

Guadalajara (1676), p. 284

"Before leaving Jesus of Tutuaca we were informed of its boundaries, and they told us that at one journey there was Guazapares and Hios on one side, and on the other they said was Yécora, mission of Sonora, to which coulda be reached in 2 days journey, to the other side is Yepáchic and afterwards Maicoba near the mining town of Ostimuri, close to the mining town of Ostimuri."

Source: Zalunorbelli (1744)-

82 families of Pima

Moris Population, 1765

Source: Tamarón y Romeral (1765), in Robles (1937)

page: 174:

46 families
145 people in all

Source: Anonymous (1765), Noticia de las misiones.....

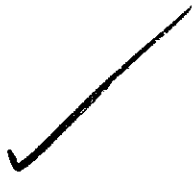
40 families
A total of 112 individuals

Source: Cobarruvias (1784), in Ocaranza, 1939, 336

There were 66 families

Source: Zalunorbelli (1744)

There were 47 people

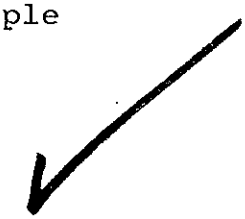


Source: Anonymous (1730), in Doc. (1856), 3rd series, Vol. 1

page 622: 53 families

Source: Bancroft (1884, 1)

page 513: 197 people



Source: Rezawal (1698), Auto, 16 de noviembre
Auto, 2[redacted] de noviembre

There were 88 families

Source: Zapata (1678)

-356 people of all sexes and ages

Source: Anonymous (Carta Anua, 1653)

There were approximately 400 vecinos at Yécora.

Source: Tamarón y Romeral (1765), in Robles (1937)

page 175:

38 families
118 people in all

Source: Anonymous (1765), Noticia de las misiones

37 families
A total of 110 individuals

Source: Lafora in Robles, 1939

page 147:

45 families

Source: Cobarruvias (1784), in Ocaranza, 1939, 336

There were 45 families

Source: Ocaranza, 1933, 181

Indians: 33 men, 43 women, a total of 76

Spaniards: 14 men, 8 women, a total of 22

Alvarez (Circa 1804), in Ocaranza (1939), II

page 292: Yécora was located about 5 or 6 league s from Trindad and contained about 15 families of Indians and 4 families of "gente de razón."

Source: Zapata (1678)

-there were 45 families of Christians
-and in them 153 people of all ages and sexes of administration
-it was stated that there were yet 110 to be baptized.

Maicoba

Population - 1698

Source: Rezawal (1698), Auto, 27 de noviembre

There were 87 families

Source: Zalunorbelli (1744)-

There were 58 people

Maicoba — Population, 1765

Source: Tamarón y Romeral, 1765, in Robles, 1937

page 175:

69 families
251 people in all

Source: Anonymous (1765), Noticia de las misiones....

61 families
A total of 148 individuals

Source: Lafora in Robles (1939)

page 149:

40 Pima families

Source: Cobarruvias (1784), in Ocaranza, 1939, 336

There were 61 families

Alvarez (Circa 1804), in Ocaranza (1939), II

page 292: there were numerous Indians at Maicoba

As of 1970, there were 5 Pima families at Yécora, living beyond the river, away from the town itself.

According to Federico Rodríguez Romero of Maicoba, there were about 60 Pima living at Yécora about 1900, on the townside of the river for the most part.

As of 1962, Eugenio Rascón's census of the thirty-five Pima Bajo familes at Yécora-Pilares was broken down into the following categories with respect to the heads of households:

1.	Households that included hubband and wife	18
2.	Households maintained by widowers	5
3.	Households maintained by widows	2
4.	Households maintained by single males	4
5.	Households maintained by single females	6
	Total	35

The heads of these households included a total of fifty-three persons, the oldest person being an eighty-five year old widower and the youngest being a nineteen year old female. A total of sixty offspring was associated with these households, offspring whose ages ranged from one mont to thirty-eight years of age. Therefore, there was a total of 113 Pima Bajo who were living at Yécora-Pilares in 1962, according to Eugenio Rascón.

With respect to the households and the children or lack of therein, the following breakdown was made in Rascón's cenus of 1962:

1. Households that included husband and wife with no children 1

2. Households that included husband and wife and children 17

With 4 children	6 families	Total children 24
With 3 children	4 families	Total children 12
With 2 children	4 families	Total children 8
With 1 child	3 families	Total children 3
		Total children 47

3. Households maintained by widowers with no children 1

4. Households maintained by widowers with children 4

With 4 children	1 family	Total children 4
With 2 children	2 families	Total children 4
With 1 child	1 family	Total children 1
		Total children 9

5. Households maintained by widows with no children 1

6. Households maintained by widows with children 1

With 2 children	1 family	Total children 2
		Total children 2

7. Households maintained by single women with no children 5

8. Households maintained by single women with children 1

With 2 children	1 family	Total children 2
		Total children 2

9. Households maintained by single males 4

At Yécora-Pilares, according to the Rascón census of 1962, there were twenty-three heads of households with children at home. And like the situation that obtained at Maicoba, the large family was the exception; about three-fourths of the total households with children at Yécora-Pilares had fewer than four children.

There were certain differences between the two locales (Maicoba and Yécora-Pilares) with respect to the average number of children per household and the number of single females with offspring. At Maicoba the average number of children per household was about 2.7, whereas at Yécora-Pilares it was 3.8. This may or may not reflect greater economic opportunities at Yécora-Pilares, where the Pima had, in 1962, access to work at the sawmill. Moreover, there is relatively easier access to the outside world--by way of the gravel road to Obregón--an adequate enough reason to encourage men to go away for temporary work. Only one single female with children was recorded at Yécora-Pilares, whereas four single females with children were recorded at Maicoba.

1. According to Eugenio Rascón.

Sonora:
- Tarachi (near Mulatos)
- Yécora
- Maicoba
- Maicobita
- Agua Fría
- Quipur (near Maicoba)
- Quipurito (near Maicoba)
- Encinal
- La Dura
- Cañoncito
- Santa Rosa (near Maicoba)
- Obregón (6-9 families)
- Hermosillo (9-11 families)
- Ónavas (a "few" families)
- Los Pilares (near Yécora)

Chihuahua: Yepáchic
Talayotes
Basúchil
Moris*

---

* There seems to be no good evidence that there are Pima at Arechuibo located on the north side of the Río Mayo south of Moris, although Charles DiPeso has mentioned hearing of Pima at that place [Mason and Brugge (1958), 282]. Gerardo Camargo of Moris states that there is one Pima family at Moris and that according to his knowledge there are no Pima at Arechuibo.

---

2. According to Gerardo Comargo.

Sonora: El Trigo
Las Tijeras (near Yécora)
Yécora
Maicoba

Chihuahua: La Garrocha (east of Talayotes)
Basúchil (near Matachic)
Talayotes
Las Carboneras (west of Talayotes)

3. According to Federico Rodríguez Romero.

Sonora: Maicoba
Los Pilares
Yécora
Tarachi
Obregón
Cuevitas (lumber camp).
Hermosillo.

Chihuahua: Guerrero
Casas Grandes
Sierra Obscura (lumber camp)

Federico was quite explicit about people who had left Maicoba and moved to other places. For example, he knew the names

of people who had gone to the following places:

Hermosillo (Nicolás, Luis, Amador, Bernardo).
Cuevitas (Andrés, Luis, Jesús, Juan).
Obregón (Felizardo, José María, Trinidad, Rubio, Anita, Mariana, Gregorio, Antonio, Julio).

He also knew whether each of the above mentioned individuals was married or not, and how many children each of the married individuals had.

The Maicoba Pima are certainly aware of the existence of other than mountain Pima of Chihuahua and Sonora. Federico Rodríguez Romero--native of the Maicoba area--had been to Ónavas and could speak to the older people there in the Pima language. He knew that one of his grandfathers had migrated to the mountains from Ónavas.

Knowledge of other Indians

1. Varohío — Federico and Juan knew of the Varohío and stated that they lived from Cienéga to Arechuyivo, and both men used the term puro Varohío in connection with their distribution and status. Mentioned Teowomachui and Vokoguachic as Varohío sites. Both men stated that the Varohío sometimes came to the October 4th festival at Maicoba.

2. Ópata — Both men confused the Ópata with the Tarahumara and in fact noted that they were one and the same.

3. Yaqui — Said to live near Obregón, upon an ejido, and Cocori was mentioned as one of their villages.

4. Seri — Federico and Juan knew of them as a tribu, nothing more.

5. Tepehuán — Knew of them as a tribu, nothing more.

6. Cáhita — When asked about this tribal term Federico noted that the word meant "shut up." Federico is deaf (in part) and confused the term with "cállate!"

More on the Apache

Once, the Apache lived near Maicoba. Grandfather of Federico often spoke of them. The Apache came to rob and kill. When the Apache came the Pima would shut themselves in the church and shoot arrows through small windows at the Apache. There was a famous Pima capitán who wore a skin on his chest as a breastplate, and who won battles against the Apache. The Apache used to say that the Pima had a Saint who appeared dressed in white, upon a horse, and the Apache could not win battles when he appeared. This Saint was St. Francis.

There is no satisfactory way of determining just how many Pima there at Maicoba and Yécora as of the present time. For one thing, there is no precise way of identifying a pure Pima, since most of the pepple considered as members of the tribu at Maicoba and Yécora are certainly mixed in the sense that during the past two generations there has been a certain amount of mingling, licit or otherwise, of mestizo, blanco and Pima. The older members of the tribe state that until a couple of generations ago there was little mixing except on an illicit level, but that since about 1910 many mestizos have married women of essentially Pima background. As well, there have been many illicit associations within the past twenty-five years, particularly after development of sawmill activities at and near Yécora.

Older Pima at Maicoba state that mestizos of high eastern Sonora deny the statements just made, and it is true that when queried about the matter the blancos and mestizos smile and shake their heads. That there has been a mingling is without doubt, since many of the Pima at Maicoba and nearby sites are marked by other than essentially Indian physical features which are so marked among the Tarahumr of Chihuahua and to a degree among the Tepehuán of that state.

Additional evidence of mingling may be quickly noted by an examination of at least one-half of the children by single females who live in and about Maicoba, children who are marked by distinctly Caucasoid features. Some of the prominent mestizo and blanco families who live near Maicoba emphatically any connection with the Pima; however, the physical appearance of many of these families suggest a mingling with the surviving remnants of the ancient Pima of the sierras, or perhaps with remnants of the Ópata and Jova who once were numerous to the northest of the high eastern Sonoran Pima habitat. There seems to be little evidence that the four or five dominant blanco families at Maicoba, those families which have been there for at least two generations, have mixed with the Pima.

Federico Rodríguez Romero was rather explicit in recalling the names of Pima women who had married blancos or mestizos; he mentioned Virginia at Cueva Pelada, Concha at Vallecito, Nacha at Talayotes, Ubilina at Pilar, Consuela at Trigo Corobepe, and María at Talayotes. Federico noted also that there were many Pima living with blancos or mestizos in unions that were legitimized in no way. Such unions generally pesisted because of "respect" of one for the other, and because of the responsibilit: for children.

Federico also knew of two specific instances, those of Tomás Vargas who lived in Obregón in 1970, and Juan Coronado who lived in Sinaloa in 1970, who had married blancas.

Eugenio Rascón, the Pima governor as of the present time (1970) prepared a census in 1962, a census that enumerated all households of people whom he considered as belonging to the tribu in that year, and he included members of the tribe that lived at Pilares and Yécora.*

---

* During the summer of 1968, Eugenio Rascón kindly permitted me to make an exact copy of this census.

It is possible that some of those people considered as members of the tribu were in part included for what may only be termed political reasons, since Rascón at that time, as he was in 1968, attempting to make a case for parcelling the lands of the Maicoba ejido which was in the process of adjudication with respect to boundaries. On the other hand, conversations held in 1968 with members of 16 of the 91 families listed for the tribu at or near Maicoba suggested that the census was relatively accurate in designating all households as belonging to the tribu: all of these 16 families were clearly more Pima

than mestizo, the evidence being based upon knowledge of the Pima language and the general physical appearance of members of the families.

As of 1962, the 91 Pima Bajo households at or near Maicoba were broken down into the following categories with respect to heads of the households:

1.	Households that included husband and wife	45
2.	Households that included husband and two wives	1
3.	Households maintained by widowers	13
4.	Households maintained by widows	14
5.	Households maintained by single males	8
6.	Households maintained by single females	10
		91

The heads of these households included a total of 138 people, and the oldest person was an 85 year old widower. The youngest was an 18 year old single male.

There was a total of 175 offspring associated with these households, offspring whose ages ranged from 1 month to 40 years of age. Therefore, in the vicinity of Maicoba, there were in 1962 a total of 313 Pima, according to this census.

With respect to the households and the children or lack of therein, the following breakdown was made:

1. Households that included husband and wife and no children 4

2. Households that included husband and wife with children 41

With 7 children	1 family	Total children	7
With 6 children	1 family	Total children	6
With 5 children	4 families	Total children	20
With 4 children	3 families	Total children	12
With 3 children	11 families	Total children	33
With 2 children	10 families	Total children	20
With 1 child	11 families	Total children	11
		TOTAL CHILDREN	109

3. Households that included husband and 2 wives 1

Wife Number 1		Total children	6
Wife Number 2		Total children	2
	Total children		8

4. Households maintained by widowers with children 4

With 7 children	1 family	Total children	7
With 5 children	1 family	Total children	5
With 2 children	2 families	Total children	4
With 1 child	4 families	Total children	4
	Total children		20

5. Households maintained by widowers with no children 9

---

6. Households maintained by widows with children 4

With 4 children	1 family	Total children	6
With 3 children	1 family	Total children	3
With 2 children	1 family	Total children	2
With 1 child	6 families	Total children	6
		Total children	15

7. Households maintained by widows with no children 10

8. Households maintained by single males with child 1

With 1 child	1 family	Total children	1
		Total children	1

9. Households maintained by single males with no children 7

10. Households maintained by single females with no children 6

11. Households maintained by single females with children

With 5 children	1 family	Total children	5
With 3 children	2 families	Total children	6
With 2 children	4 families	Total children	8
With 1 child	3 families	Total children	3
		Total children	22

The above data suggest that large families are the exception among the Maicoba Pima. Certainly, something like 3/4ths of the seventy households with children had fewer than four offspring. When asked as to the reason for so few children the response from almost everyone was that many small children do not survive, because of disease or a lack of food. No precise data are available with regard to the matter of disease and death, but it is certain, from field observations, that those heads of families with 4 or more children appear to better equipped than most Pima men to provide for brood, not only with respect to agricultural operations but because in at least three instances the male head of the household is energetic enough to leave Maicoba for several months each

year, to earn money for the purchase of foodstuffs not readily produced or obtained at Maicoba.

Households maintained by widowers and single males are generally entirely supported by farming operations in the vicinity of Maicoba. Those households maintained by widows are usually supported in the same fashion; the widows with children and those without children usually obtain assistance from male relatives in preparing fields for planting, after which time those women and children old enough to care for the fields do the necessary chores, even to the more difficult work associated with the harvesting of corn.

Those households maintained by single females with no children are located at or quite near Maicoba, and the women support themselves by working for mestizos or blancos, by washing clothes, by working as maids or by the sale of produce raised in their gardens or fields. Lacking male relatives who can assist in preparing garden or field, the single female may hire the work done, promising the plower a certain portion of the produce.

The same may generally be said with respect to the support of single females with children, and it should be noted that apparently there is no particular stigma attached to such women or their children, despite the fact that the features of many such children suggest that they have been fathered by non-Pima males. Moreover, at Maicoba in 1968 and 1970 two of these single females maintained what was openly an illicit liason with what may be termed renegade mestizos who were respected by both Pima and non-Pima. That these mestizos contributed to the support of their "families," without concern for the fathers of the several children was very clear.

According to a survey made in 1970, there were approximately 408 Pima living upon the Maicoba Ejido or Comunidad, and of these people only 15 lived in the village of Maicoba, which they shared with approximately 70 blancos (including adults and children). The remaining Pima lived in clusters of from 1 to 7 families at placés throughout the ejido, places suitable for tillage (see Chapter III).

According to data obtained in 1970 and 1971, the following blanco families lived within the Maicoba ejido, IN THE VILLAGE

Jose Ponce	8 in family
Rafael Acuno	6 in family
Alberto Monroy	3 in family
José Ponce	8 in family
Ramón Ponce	12 in family
Carlos Peña	7 in family
José Peña	5 in family
Rayo Coronado	3 in family
Juan Antonio Coronado	6 in family
Miguel Coronado	3 in family
Guadalupe Perez	8 in family
Family Caravillo	6 in family
	77 - total

According to data obtained in 1970 and 1971, the following Pima families lived in the village of Maicoba:

Dolores Velásquez	6 in family
Juan Rodríguez	4 in family
Pascual Carrillo	4 in family
Adelida	3 in family
Antonio Aresmendez	9 in family
	26 - total

Nolasco Armas, 1969

page 205: Population estimate

Nolasco Armas refers to a census made in 1944, in which it was found that there were 589 adults with ejidal rights, which suggests about 1,500 people in all. Nolasco Armas believed that since the women were not included (adult women) the total might be about 1,800 individuals.

Nolasco Armas noted that the school director at Yécora thought that as of 1961 there were no more than 500 Pima.

Yécora (1793)

Source: Guemas y Pacheco de Padilla (1793) in Ugarte (1966), p. 33

With respect to Onapa and Yecora, both inhabited by Pimas, it was noted: "También se administra esta misión por religiosos de la provincia de Jalisco, con el sínodo de 309 ps. 6 rs.; pero los pueblos de visita se han despoblado y perdido, ignorándose el paradero de los indios, a quienes han sustituido algunas familias de mulatos y otras casti

Source: Rezawal (1698), Auto, 16 de noviembre
Auto, 21 de noviembre

Andrés de Rezawal arrived at Yécora in November of 1698, to make a census. He found no one. The people were at Santa Ana and so he sent a Captain Nicholás de la Guerra to fetch them back, with instructions to tie them up and return them if necessary, that is the varones (males).

The Captain found that the Indians were at Teobari, about 3 leagues from Santa Ana. Andres de Rezawal went there on the 18th of November and found that the Governor and his people were building a house for the corn that belonged to the town. The Captain ordered all to Yécora and they arrived on the 21st of November. When asked why the shift from Yécora, the Indians replied that the Father Minister had noted that it would be better to sow corn at Teobari, and that the people from Maicoba would move there also.

The Andres de Rezawal ordered all of them to return to Yécora, where the land was better.

Source: Rezawal (1698), Auto, 30 de noviembre
(1698), Auto, 8 de deciembre
(1698), Auto, 11 de deciembre
(1698), Auto, 16 de deciembre
(1698), Auto, 19 de deciembre
(1698), Auto, 21 de deciembre
(1699), Auto, 4 de enero
(1699), Auto, 5 de enero

Andrés de Rezawal went to Yécora in November of 1698 (Auto, 16 de Noviembre) to make a census and found no one there. He sent a Captain Nicolas de la Guerra to fetch the people from Santa Ana (where he had been told they were), with instructions to tie them men up if necessary. It was found that the Indians were at Teobari, about 3 leagues from Santa Ana. A were forced to return to Yécora, Maicoba, or Moris as the case might be. The difficulties in effecting this move, which the Indians opposed, are indicated in a series of autos made by de Rezawalain November, December, and January of 1698 and 1699 (see above references).

Mention of Yécora folk - 1653

Source: Anonymous (1653)

The Carta Anua of 1653 notes that thirty leagues to the east of Movas and Nuri by a very rough road the gentle Yécoras live, a loyal nation and friend of the Spaniards and of the Christians, desiring to be so and lately disposed to it, their habitation is among the pines, the site is very rugged, and the number is about 400 neighbors, they ask with insistency for fathers and doctrine and in order to this and for the good rejoicing that they find inthe father they often come to Movas and Nuri.

Mission Experience - 1653

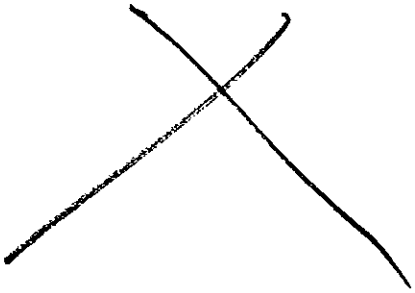
Source: Anonymous (Carta Anua, 1653)

Yecora was mentioned as being some 30 leagues to the east of the middleYaqui Pima settlements.

The Yecoras were a very gentle people, a loyal "nation", and friends of the Spaniards and Christians.

Source: Zapata (1678)

-noted that the Yécora people were not of a bad nature



Yécora Mission Experience - 1723

Source: Januske (1723)

~~The people are capable, but inclined to meanness~~
The people do not like religion
The church was finished in 1707
The church needed no repairs

1673

Carta del Padre Alonso Victoria, 1673 in Zambrano (1969), IX, 688

States that Victoria worked at establishment of a mission among the pimas, yécoras, maicobs, y moris, límites con los tarahumares y chínipas

Maicoba Mission Experience 9

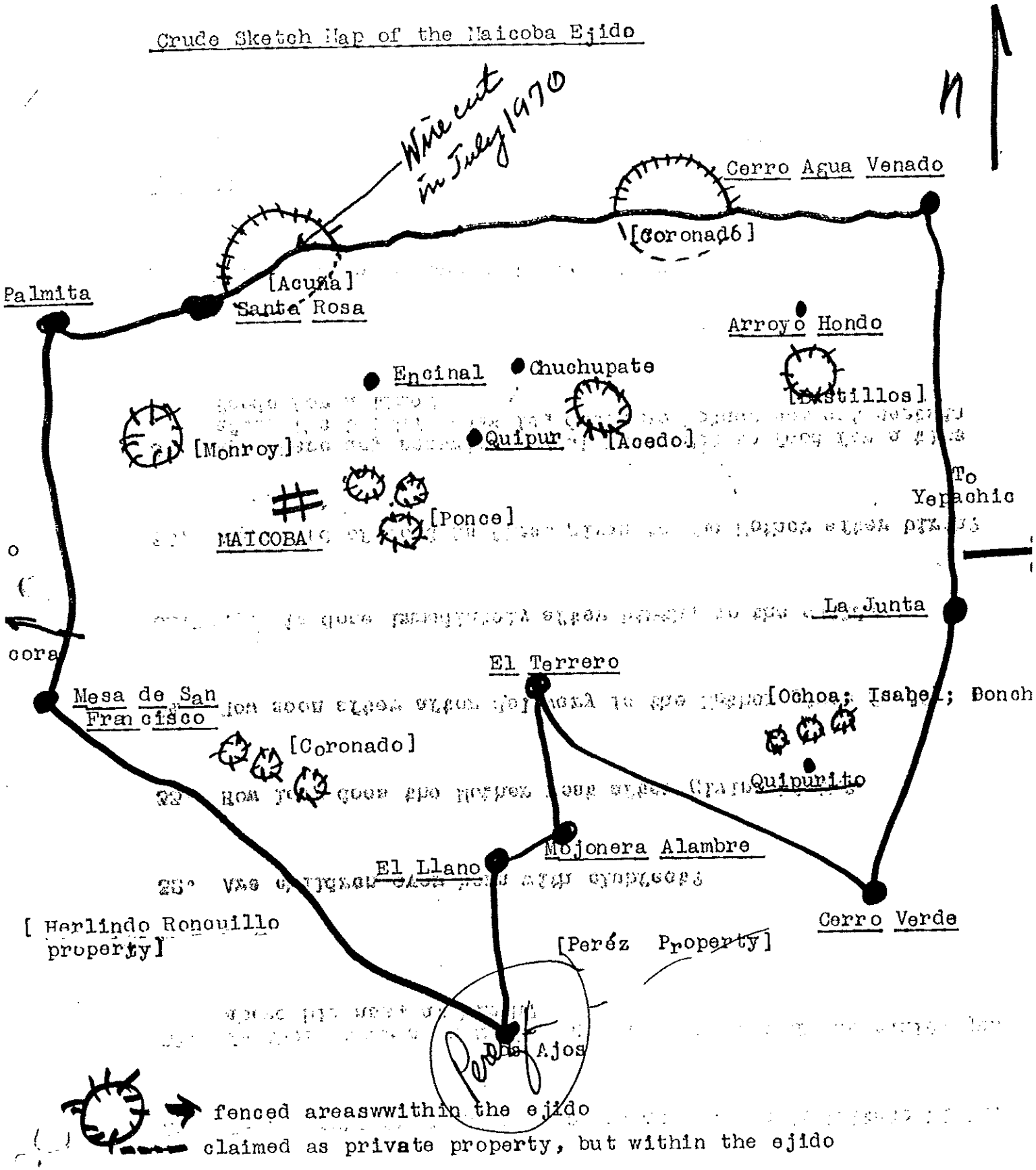
Alvarez (Circa 1804), in Ocaranza (1939), II

page 292

RELIGIÓN AT MAICOBA

The people at Maicoba were said to conserve "cierto recuerdo de Fray Antonio Alvárez 'a causa de correr con las temporalidade temporalidades y tener mucho celo, y cuidado en el Cultivo Divino'".

Crude Sketch Map of the Maicoba Ejido



1. Maicoba — ma'ikšam, or lugar de mezcal, derived from ma'i (mezçal) and kšam, kam or šam (lugar).

   ma'ikič, or "to bite mezcal," derived from ma'i (mezcal) and kič (morder).

   ma'ikiwa, or "to chew mezcal," derived from ma'i (mezcal) and kiwa (mascar).

2. Yécora — yukšam

3. Yepáchic — yupšam, derived from upš or yupši (humming bird, chuparrosa) and kšam, kam or šam (lugar, place).

4. Moris — mó'oram, derived from mo'akt or m'o (cabeza, head) and kšam, kam or šam (lugar, place).

5. Nabosigame — navosa'ikšam, or lugar de nopal, derived from nav (nopal) and kšam, kam or šam (lugar, place). This settlement is about four hours up the river from Moris and there are many nopales at the site.

6. Kuipur — kavakam or lugar de caballo, derived from kav (caballo, horse) and kam (lugar, place).

7. La Ciénega — baväšam, derived from bavä (pantano or ciénega, marsh).

8. Santa Niña — santaninšam.

9. Talayotes — solyikam.

10. Mulatos — mulatam.

11. El Trigo — trillitam.

12. Llano Grande — dohokam.

13. Maicoba — derived from ma'i (maguey, lechuguilla) and kova (popotillo)

14. Navogame — properly called navogram, which is derived from navo (nopal) and kšam (lugar)

15. La Arena — o'ocham

16. Quipurito — ku'iplam

17. Los Hornitos — horontam (an obvious corruption)

18. La Gallina — to'awakram, derived in part from to'a (blanca)

It is hardly possible to obtain detailed data concerning the Maicoba Ejido as it exists as of the present time (1970), and the information available about the history of the ejido is sketchy. Information obtained from the Pima varies somewhat from that obtained from the blancos. An attempt to obtain more than the most basic data from the state authorities failed, doubtless because of hesitancy of the authorities to talk in view of the serious squabbles between blanco and Pima at Maicoba in 1968, 1969 and 1970. However, conversations with Indians and blancos at Maicoba and Yécora yielded the data given below, data which although impossible of verification in some respects, suggests more than a little of the position taken by blanco and Pima, not only with regard to the landholding rights but as well attitudes held by both sides.

There are approximately 17,200 hectares of land within the Maicoba Ejido or Comunidad de Maicoba as it was termed by some Pima and blancos in 1970. In addition, there are an undetermined number of hectares within the Los Pilares portion of the Maicoba Ejido.

Los Pilares is located about three hours by horse from Yécora, and some 8 Pima families live at the site the year round. Some of the ejidatarios at Maicoba hold rights to Los Pilares lands but do not work such lands because they are "too poor," and because the site is located at least ten miles from Maicoba by way of exceedingly rough terrain.

Pima and blanco agree that anciently the Maicoba country was occupied only by the Pima, and both groups state that the blancos appeared as ranching folk about eighty years ago. But whereas the Pima state that holdings of the blancos were obtained illegally and often under duress (compulsión), the latter insist that their holdings were obtained legally, through purchase or barter. Both Pima and blanco are aware that maps of the Maicoba ejido have existed since shortly after 1900, and that after many attempts on the part of the Pima the hectares included within the ejido as of about 1900 were increased to a total of 17,200 hectares, as adjudicated by the government in 1966. The contemporary Pima freely state that they would like the land "officially surveyed," and that the land be parceled. Understandably, the blancos oppose both the survey and

the parcelling of land. Both Pima and blanco agree that the period between 1966 and 1970 was marked by an attempt on the part of the Pima to have the land surveyed and parceled, and by an attempt on the part of the blancos to delay the survey and the parcelling.

The 17,200 hectares of land adjudicated to the Maicoba portion of the ejido includes pasture and agriculture land. Older and more experienced Pima insist that this amount of land cannot possibly support the Indians adequately and state that the blancos should leave. In 1970, there were approximately 408 Pima living upon the Maicoba portion of the ejido. This means that there were about 4.21 hectares per person, including pasture and agricultural land. The Pima maintain that a minimum of 6 hectares of agricultural land is needed to support a family of 6 per year. However, land that can be used for agriculture is very scarce because of the rugged terrain, most of the land that can be permanently tilled being located along the streams. There is no way to accurately determine the exact amount of land that could be used for permanent tillage, but field observations made in 1968 and 1970 suggest that something less than 5% of the total land within the ejido can be tilled permanently. Moreover,

about 4 or 5 thousand hectares of land within the Maicoba portion of the ejido are held by the blancos as pequeños propiedades, according to information supplied by the Presidente Municipal at Yécora in 1970. Such properties include agricultural and pastoral lands. According to the Presidente, most of the titles to such lands are legitimate. A survey made by horseback in 1968 indicated that within these pequeños propiedades are found a major portion of the better agricultural land within the Maicoba portion of the ejido; these private properties include, moreover, a large amount of fenced lands that could be used for tillage, but which are not so used by the blancos since the lands afford fine grazing for blanco stock.

In any case, there is certainly an insufficient amount of land available for tillage by the Pima within the ejido, and according to some of the older Pima it has been this lack of land which has caused a number of Pima to leave the Maicoba area.

The lack of good agricultural land available to the Pima who remain upon the ejido is complicated by the fact that all of the people who have

left the ejido during recent years claim "rights" on the ejido. This point was emphasized by the older Pima who state that the notion held by the Pima governor that such people forfeited their rights if they did not return in two years was nonsense. Tradition may permit the retention of such rights, but according to the Presidente Municipal at Yécora in 1970, such rights are forfeited if the claimants do not return to work their holdings within a certain period. However, as of 1970, most such rights were respected by those Pima who remained on the ejido. Such holdings were "idle" except when worked by close relatives of the holder, such as a father or brother.

It is impossible for an outsider to really untangle the story of the development of difficulties between blanco and Pima on the Maicoba portion of the ejido. It seems clear, however, that until the blancos arrived in Maicoba during the last decades of the 19th century, there was probably ample opportunity for the Pima to support themselves by tillage, and by hunting and collecting, on lands which they had occupied for a very long time. It is also clear that the ability of the Pima to maintain themselves has steadily declined during this century, although the reasons for this decline are not entirely clear.

The points of view expressed by the contemporary Pima, their governor and the blancos, although at variance on many points, make obvious the seriousness of the current situation at Maicoba, a situation which may be described as something of a "standoff," with the Pima and their governor holding the most favorable position.

Those Pima who will discuss the matter believe that the ejido situation is somewhat better than it was about five years ago, at which time there was bitter feeling between blancos and Pima. Roaming blanco stock did vast damage to the unfenced Pima milpas on the one hand, and there was excessive theft and slaughter of blanco stock on the other. Today, much of the slaughter of blanco stock has ceased, simply because the Pima do not have to "steal" so much, a situation attributed by the Pima to the efforts of the Pima governor who has brought many changes to Maicoba, that governor who seems to be a mixture of good and bad, depending upon the ethnic group to which the appraiser belongs.

On the negative side, with respect to the behavior of the Pima governor, some of the Pima and many of the blancos insist that he has

not been quite honest in certain matters, that he sold for personal gain material sent by the American Red Cross some years ago, that he sold materials (tabletas, lamina and bastidores) to blancos, materials which were supplied by the government for improvement of the village school at Maicoba, and that the governor squandered money collected from the Indians to support a trip to Mexico City, where the governor was to plead the cause of the Pima against the blancos, and to plead for an effective parcelling of the ejido lands adjudicated to the Maicoba ejido in 1966.

On the positive side, with respect to activities of the governor, many of the Pima know that he obtained government money as a gift during the past several years, money for the purchase of foodstuffs necessary because of hunger that resulted from several years of excessive drought in high eastern Sonora. It was stated that this money came from the Banco Nacional de Credito Ejidal in Hermosillo. The Pima further state that the governor obtained a loan of $20,000.00 ($1,600.00 US), or credit, from that bank, for the purchase of wire for fencing the ejido, fenching which was scheduled for completion in late 1970. The Pima are aware that

the governor obtained 280 head of stock from the government in 1967, and that he "arranged" for an additional 300 head after completion of the ejido fence. Repayment of the debt established by acquisition of the 300 head of stock would involve each family giving two calves per year until the debt was paid. Further, the Pima credit the governor for making plans to "kick out" those blancos who currently have holdings, legal or otherwise, within the confines of the Maicoba ejido.

Conversations with the Pima governor in 1970 clarified some of the points made by the Pima concerning the governor's efforts and his plans for the ejido. The governor had secured the stock in 1967, for free use by the Maicoba Pima, and it was from such stock that the oxen noted during the field sessions of 1968 and 1970 came. The governor stated that he had obtained a credit of $20,000.00 (pesos) from the Banco Nacional de Credito Ejidal for the construction of a fence about the ejido as its boundaries were adjudicated in 1967, and at the same time he got that credit the Departamento de Asuntos Agrarios Y Colonización (DAAC) agreed to supply an additional 300 head of stock after completion of the fence. The governor stated that the 300 head

of stock would constitute a "gift", to be used in the repayment of the debt to the ejido bank, in that each family would give two calves per year to the government. The debt had to be repaid within five years, but the governor thought it could be repaid earlier, that is, if the Pima took "good care of the stock." According to the governor, the original plan was for the animals to be distributed to the Pima throughout the ejido, but he decided that the animals should be kept together within the fenced ejido, in order to prevent "unexpected happenings," such as the sale or slaughter of the animals. The governor noted that upon completion of the fence he would ask the Hermosillo authorities to do something about the blancos who maintained that they had legal rights to properties within the ejido. The governor stated that he believe that blancos who cared to remain within the ejido lands should pay $36.00 ($2.40 US) per year for each head of stock that ranged the agostadera lands of the ejido. Of importance were the governor's comments about the parcelling of the ejido lands. He was opposed to this, although originally, upon taking office, he had thought that such parcelling was a good idea. He believed that if the lands were parceled some of the Pima would obtain only magueaches (plots upon very steep slopes), there being an indequate amount of land available for tillage along the streamway

The governor thought that a better plan would involve the development of a comunidad but under the name of an ejido. The Pima would take over potential agricultural land, such as that now used as pasture land along the streamways by blancos. The governor also noted that those Pima who had derechos within the ejido and who did not presently live on the ejido should be notified that they have two years to decide what they wish to do. If they did not return to Maicoba then their lands would become a part of the comunidad, within which each ejidatario (head of family) would pay an impuesto predial of about $12.00 to $17.00 (pesos) each year. The governor further noted that he planned to incorporate the Los Pilares lands within the Comunidad de Maicoba, although he admitted that the Los Pilares ejidatarios steadfastly maintained that their lands did not belong to the Maicoba ejido.

Understandably, the blancos at Maicoba oppose the idea of parcelling the 17,200 hectares of land adjudicated to the ejido in 1966, just as they opposed the construction of a fence about the ejido lands. There were about 70 blancos (including adults and children)

at Maicoba in 1970; all of these people lived in the village and are dominated by five prominent families whose ancestors arrived in Maicoba during the period between 1890 and 1930.

Spokesmen for the blancos at Maicoba state that the blancos did not, as the Pima insist they did, obtain oxen and stock from the Indians by getting the Pima drunk and persuading them to dispose of their animals. The spokesmen for the blancos further state that there is no evidence for economic sanctions against the Pima on the part of storekeepers at Maicoba, that it is not true that the storekeepers will not sell salt, sugar and coffee to certain Pima who must make the difficult journey to Yepáchic or Yécora. The blancos state that they purchased their lands and that they have always paid taxes on such lands. According to the blancos, the Pima are lazy and will not work well, even on shares (a medias planting). It is claimed that the Pima continue to steal and slaughter cattle. Maciboa blancos were reluctant to discuss the matter of the ejido fence in 1970, but the Presidente Municipal at Yécora was quite frank in his comments. He admitted that the Pima governor had law on his side when he made arrangements for the $20,000.00 (pesos) credit for construction of a fence

about the ejido. However, the Presidente noted that the Pima governor had assumed an improper attitude about the blanco holdings within the ejido. He stated that some of the titles were legal, and that he had in his possession a copy of a letter sent by government authorities to the governor, a letter which stated that the legitimate titles to land held by blancos within the ejido must be respected, and that such blancos did not have to pay taxes to the ejido or comunidad except when their stock grazed outside of their fenced pequeños propiedades. The Presidente stated that the governor was wrong in insisting that no blancos had legitimate claims to property within the ejido. With respect to the matter of the "gift" of 280 head of stock and the 300 head to be acquired after completion of the ejido fence, the President stated that the governor and the Pima simply did not understand the arrangements correctly; the stock was not a "gift" at all. Rather, the Banco Nacional de Credito Ejidal sent the 280 head to Maicoba for pasturing, with the intent that the bank would share part of the crías with the Pima as "payment for rent of their [pasture] landd." The Pima would use these crías to repay the $20,000.00 (pesos) obtained from the ejido bank.

Although the data concerning the story of the development of the Maicoba ejido or comunidad situation since about 1900 are incomplete certain elements of that development are readily determined. The Pima were more or less upon their own until about 1900, by which date blanco families had established themselves in the area. Just how the land was acquired by these blancos is not known. Dominated by five families, the blancos gradually, in one way or another, obtained control of a major portion of the better agricultural land along the streamways and of much of the better pasture lands within the ejido or comunidad. The accompany map, prepared from field observations and conversations with blancos and Pima, indicate the rather wide distribution of blanco holdings, legitimate or not, within the ejido or comunidad. For one reason, or another, the Pima apparently disposed of much of their stock, particularly oxen, during the second quarter of this century. It is almost certain that blanco cattle has done much damage to Pima milpas during the past, and that whether the damage was great or small, the blancos generally refused to compensate the Pima. It is certain that during the second quarter of this century there was a medias

agricultural operation between Pima and blanco (see Chapter III) and that the arrangements were not satisfactory for either side. It is certain that a medias operations have declined during the last decade. It is certain that the aggressive Indian governor of the last several years has gained at least the partial support of Hermosillo authorities in protecting the interests of the Pima against the blancos. One gets the impression that deliberately or unconscously the Pima governor has failed to make clear to the Pima exactly what he was planning to do, and it is certain that the governor is adamant in refusing to recognize the legality of any blanco holding within the ejido or comunidad.

The two groups, blanco and Pima, were on a collision course in 1970, a collision course that was marked in that year (July) by the cutting of a portion of the ejido or comunidad fence by either a blanco or a Pima not in sympathy with the fencing of the ejido. What the outcome of this conflict between blanco and Pima with respect to the squabble over the land will be no one can say. It is apparent that the Pima governor has popular support among his people for his

methods, although some of the Indians tried to remove him from office several years ago. It is equally apparent that the blancos are unwilling to admit the validity of the governor's contention that none of the blancos have legitmate titles to lands within the fenced area, and that contention that the blancos must go, or that if they remain they must pay an annual tax on each head of stock maintained within the fenced ejido. The Presidente Municipal at Yécora stated (in 1970) that it was likely that harm would come to the Pima governor because of his aggressiveness. When queried about this matter the governor remarked that "I know that someone can kill me at any time, but I am not afraid. Someone had to do this, and if I can do it, I'll do it. On the other hand, the government is with us, the ejido belongs to us, and the blancos must be convinced that they are only intruders." That the governor is aware of the danger to himself is obvious. In 1968 he lived in the village of Maicoba, but in 1970 he had removed to a remote area within the ejido, to Encincal, located to the northwest of Maicoba.

Recognition by the authorities of the serious nature of the conflict between Pima and blanco was apparent in May of 1970, when Federal police appeared at Maicoba and confiscated 10 rifles and 1 pistol from 9 Pima.

Apparently, no weapons were taken from the blancos who were certainly armed during the late summer of 1970. A protest by the Pima authorities over confiscation of their weapons--important elements in hunting deer, for example--led to a statement by the state authorities that "nothing can be done because this is a federal matter."

Traditional points which delimit the Maicoba Ejido

Puerto del Bajio	(south)
Cerro El Saucito	(south)
Cerro de los Alamillos	(south)
Cerro Verde	
Cerro Boludo	
Tierra Vieja (plano)	
El Jarro (arroyo)	
Cerro Agua Venado	
La Cruz	(west of Las Gallinas)
La Blanca (loma)	
Puerto Santa Rosa	
El Ranchita	
La Palmita	
Custa del Gallo	
Mescalito	
Mesa San Francisco	
El Tecolote	
Puerto Duraznito	
Cerro Solidad	
Cerro Piedregosa del Bajio	

Ejido Matters (as of September, 1971)

As of March, 1971, any non-ejidatrio who had cattle within the ejido had to pay $7.50 annually for each head of stock grazed within the ejido. This money went to the Treasurer.

About two years ago, the Banco Ejidal lent $200,000.00 ($1,600.00 US) to the Maicoba Ejido, to build a fence (material and labor).

About two years ago, the "government" at Hermosillo gave the Pima at Maicoba 200 head of stock. The crias were to be used in repayment of the debt incurred as mentioned above. Female crias were to be retained on the ejido, and only male crias not destined to be used as draft animals were used as payment, each male cria being valued at $1,000.00 (pesos)

As of April-May, 1971, 400 cows and 50 bulls were sent to the ejido, but Federico and Juan were uncertain (as of September 1971) about the details of how this was accomplished.

Some traditional boundary marks (according to Dunnigan)

Cebadilla Ranch	to the west of Maicoba
Puerto Colorado	between Yécora and Maicoba
Ranches of Chuchupate, Polvoso, and Frijolar	south and southwest of Maicoba
Cerro Santa Barbara [Talayotes]	east of Maicoba
Rancho Piedra Atravasada	east of Maicoba
Puerto Bonito [near Cerro Voludo]	east of Maicoba
Rancho Pinito	north of Maicoba
Rancho La Aguajito	north of Maicoba

D E C L A R A C I O N:...Presentada por los Señores Juán González y Federico Rodríguez, en relación con el problema agrario en general, en el pueblo de Maicoba, Sonora.

Eugenio Rascon que es actual gobernador, informó a la nación Pima, que las 200 reces habían sido donadas por el Sr. Presidente de la República en el año de 1969. PERO AL PARECER [illegible] HA SIDO EL SR. EUGENIO RASCON.

Nuestra Queja:...le hicimos conocer a este señor los daños que nos ha causado el ganado de referencia al andar enteramente suelto por todo el ejido. El Sr. Rascón dispone de tres "vaqueros" que se encargan de atender el ganado y son Evalio, Cristóbal y Tiqui. El Sr. Rascón administra a su antojo personal en todo.

Este ganado fué regalado a la tribu en 1969, el cual no nos ha sido repartido ni tan sólo una vaca a nadie. Los sueldos de los cabos les son cubiertos con el dinero que prestó el banco para la construcción de un cercado de todo el ejido, y cuidar que el ganado no entrara a destruír las empacadoras, este dinero también era para gastos de compra de alambre y transporte.

Como un ejemplo damos el del Sr. Federico Rodríguez a quién se le adeudan más de $720.00 pesos por 36 días de trabajo a razón de $20.00 pesos diarios, desde el 27 de Abril, y se los pasaron después de un mes, ó sea el 11 de Junio, y desde entonces se le han cubierto nada más $175.00 pesos. Como este hombre es pobrísimo y tiene seis hijos que mantener, desea le sea pagado dicho salario lo más pronto posible.

Lo curioso es que aquellos Pimas que saben leer y escribir, los trae a "vuelta y vuelta" para pagarles, y a quellos que no tienen la suerte de saber leer no les paga ni la mitad del sueldo.

La pobre gente pima es muy "inocente", pués escazamente será el 5% que sabe leer y escribir.

Otra cosa más, Eugenio Rascón, permite que el ganado de los "blancos" siga invadiendo todos los terrenos del ejido, a pesar de que este año de 1971, el Gobierno Federal dió órdenes para entregarlo a la Nación Pima, y se ordenó también que fuera cercado completamente para evitar el problema de invasiones por el ganado en esas tierras. Una vez que intervino la Policía Judicial de Hermosillo. Y se llevó un acuerdo de renta por $7.00 pesos por cabeza de ganado por doce meses ya se venció el plazo, y nada sabes si se pagó o no la renta. Y nuevamente el Gobernador Rascón permitió la invasión de ganado sin dar la más leve información sobre este asunto. Desde entónces no se han podido sembrar las tierras. ¿Cuál [illegible]? Tomando en cuenta que el ejido es bien grande.

Este ganado no se repasta, dizque porque no le [illegible] y se muere. Los que [illegible], [illegible] para beneficio de [illegible].

En el año de 1969, el [illegible] la cantidad de [illegible] pesos con el fin de comprar un torno, [illegible] quedó todo..... [illegible] y no hemos hasta la fecha [illegible] Eugenio Rascón lleva [illegible] el dinero, pero no le paga a nadie lo que le corresponde.

ahora en este año de 1972, durante los meses de [illegible] trajo 400 vaquillas y 50 toros. Aún no sabemos [illegible] de este ganado. Nos atrevemos a creer que es [illegible] lucro personal. [illegible] forma [illegible] ganado es propio, [illegible] o para cuidarlo. Mucho deseamos saber [illegible] que forma se llevó a cabo este arreglo, por lo que nos vemos precisados a pedir atentamente que el Gobierno Federal intervenga e investigue este asunto lo más pronto posible. La mayoría de los ejidatarios [illegible] [illegible] entré [illegible] [illegible] a la [illegible] [illegible] por nuestra [illegible] cuidar el ganado que se nos [illegible] [illegible] de... [illegible]

[illegible] agradecidos por los [illegible] del Gobierno [illegible] [illegible] [illegible] este hombre ocupa trabajadores para vigilar el ganado [illegible] no les paga sus salarios y hasta la fecha [illegible] nueve (9) meses de pago.

con relación a la escuela, ésta no [illegible] podido [illegible], por-
que este señor se la "[illegible]" a los blancos. Por lo que los
niños pimas no pueden disfrutar el placer de aprender [illegible].
[illegible]mente [illegible] nos sea enviado un profesor [illegible]
[illegible] para los indígenas. Pero con el [illegible]
[illegible], que siempre procura los profesores para los niños blancos
dado que [illegible] está vendido a ellos.

[illegible] hombre [illegible] tiene ya de estar ocupando el puesto de Go-
bernador desde hace ya doce años, por lo que hace y deshace a
su antojo. Nos obliga a darle firmas para pedir las provi-
siones y cuando las recibe, las vende en diferentes [illegible] y
a nosotros nos reparte ni siquiera lo que pudiera ser la cuarta
parte de ellas. Como siempre, los familiares de éste y sus
amigotes son los beneficiados.

lo que más deseamos, nosotros [illegible] en lo personal, [illegible]
[illegible] la Nación Pima, es que este Gobernador sea enjuiciado y
bien investigado y consignado a las autoridades correspondientes.
Entre nosotros buscaremos a un hombre competente y que [illegible]
administre con honradéz nuestros negocios. Ya estamos cansados
por favor atiendan nuestra súplica. Esta declaración [illegible]
sentada por el Sr. Juan González quién fuera electo [illegible]
en 1962, pero desgraciadamente este hombre no sabía leer ni es-
cribir por lo que no fué aceptado, a pesar de que había sido
respaldado por el Sr. Federico Rodríguez. Muchas gracias.

STATEMENT made by the Señores Juán González and Federico Rodríguez in regard of the agrarian problem in Maicoba, Sonora:

CATTLE:...Two hundred head of cattle was donated by the President of the Republic in the year 1960. So far, the only beneficiated [illegible] Ramón, [illegible] [illegible] "[illegible]" [illegible] take care of the said cattle, and they are Braulio, Cristóbal and [illegible].

This cattle was donated to the Pima tribe in the above mentioned year of 1960. But this cattle has not been distributed to any [illegible]. The salaries to the vaqueros are being paid by means of the [illegible] that the Bank loaned for the construction of a fence, all [illegible] of expenses and transportation, also to buy the wire for fencing.

This year of 1971, he brought 400 heifers and 30 bulls [illegible] months of May and June. He has not informed the [illegible] cattle, he seems to be the only beneficiary. [illegible] knows whether that cattle is his own, rented or for [illegible]. We are anxious to know what sort of arrangements were [illegible] regard this cattle, for which we want the government's [illegible] as soon as possible.

The majority of the [illegible] want to know on what [illegible] terms this cattle was brought in, as this cattle [illegible] affecting the pima agriculture. We are ready [illegible] of the cattle, not only to "know" the cause and "why".

The government has done plenty of improvements, but they [illegible] for the benefit of the [illegible], also he hires workers [illegible] in the cattle, and never pays their salaries, he is [illegible] about nine months. As an example, we have a [illegible] Rodríguez to whom is owed more than $700.00 pesos, [illegible] for 44 days at a salary of $20.00 daily. [illegible] 27th of April and after a [illegible], the 11 of June, he has [illegible] him $175.00 pesos. This man is very poor and has a [illegible] of six children.

The funny things is that those that know how to read and write no makes them come back and forth like a shuttle to get their salaries, and those that do not read or write does not even get one half of what he owes them. The poor Pima people is very "Innocent", as scarcely one 5% knows how to read and write.

Eugenio Kascon, allows that the white people's cattle invade the sowing lands in the ejido, although the ejido was delivered to the pimas by the Federal Government's order (to the pima people). The fence was constructed, and the whites were ordered to take off their cattle, or to fence in their own lands.

The situation grew so that the Judicial police of Hermosillo had to intervene in the solution of this problem, and there was done an agreement of paying a $7.00 peso per capita, for three months stay. The lease was finished, and some took off their cattle, but a few days later the cattle was spread out in the ejido. The Gov. Eugenio Kascón allows it and gives no explanation whatever. Ever since the lands cannot be sown by the above reason. Where the cattle should be....it is not. The ejido is a very large one though.

The cattle is not distributed, because Kascón says that they the pimas do not take good care of it and it dies. Those who own a few cows know how to take care, and who would wish to take care when the cattle is for the benefit of let us say two or three?

In 1969 the ejido was partly fenced in, and Kascón said that the money did not go any further, being loaned $200.000,00 pesos that the end, this none has not been spent, and no improvement has been benefited by it. Eugenio Kascón carries the salaries returns to the Banco Ejidal, brings the money and does not pay anyone.

SCHOOLS...We have had not a single school, because the whites buy the teachers to D. Kascón, being thus, that the pima children go on without schooling. There is no indigenous children that can learn in such a situation.

We wish that an exclusive teacher be sent for the pima children, as the Governor that should provide it, turns the teachers over to the whites.

He compels the pimas to sign the applications for teachers and then these are turned over to the whites. We have the certainty that E. Kascon is bought by the whites.

E. Kascon has been governor for twelve years, and ever since he compels the pimas for their signatures to ask for groceries and clothing, he gets them and then he sells them in other places, to our knowledge he does not even distributes one forth of the provisions.

We wish to have another governor that be a better administrator as the Kascón only benefits his family and "close friends".

This statement was made by the Sr. Juán González, who was nominated Governor in the year 1962, and he was not admitted because he could not read or write. He has a record of this fact, although he was backed up by Sr. Federico Rodriguez.

[illegible]

What we really want, not only ourselves personally, but al the Pima Nation, that Eugenaio Kascón be ousted of the governor's position, as we will search among our people some man that be honest and knows xx how to administer our business. We are very tired. Please attend our petition. [illegible] Also that he be brought to the proper authorities to be investigated and make him responsible por what he has done to the Nation.

On needles

Federico Rodríquez Romero referred to wooden needles (ovig) fashioned from ocotal, pino, and encino wood--these needles were called alum ovig, and were used in making costales.

Population Distribution of the Maicoba Ejido Pima in 1970
(according to Federico Rodríquez Romero)

Ejido de Maicoba Sonora	236
Los Pilares Sonora	20
Yécora Sonora	30
Taráchi Sonora	15
Guerrero Chi	16
Casas Grandes Chi	15
Hermosillo Sonora	20
Cuevitas (lumber camp) Sonora	20
Ciudad Obregón Sonora	31
Sierra Obscura (lumber camp in Chihuahua) Chihuahua	5
	408

Federico was quite explicit about the people who had left the Maicoba Ejido proper and moved to other places. He knew the names of all of the people (their first names, at least) who had gone to the following places:

Hermosillo (Nicolás, Luis, Amador, Bernardo)
Cuevitas (Andrés, Luis, Jesús, Juan)
Obregón (Felizardo, José María, Trinidad, Rubio, Anita, Mariana, Gregorio, Antonio, Julio)

He also knew whether each of the above individuals was married or not, and how many children each of the married individuals had.

Federico was quite explicit about the fact that the Maicoba Pima consider the Los Pilares site a part of the Maicoba Ejido. He also noted that all of the people who had left the Maicoba Ejido proper still had "rights" on the ejido. He noted that with respect to Guerrero and Casas Grandes that the government had "given" land to the Pimita who had gone there. But he did not believe that taking up such lands negated the "rights" of the Pima who had left for such places to their old holdings on the Maicoba Ejido. He said that very few of the departed Pima returned to work their lands, and that most were "idle" except where very close relatives, such as a father or a brother, worked the land. He specifically denied any a medias planting of such land, on the part of relatives or compadres.

Federico noted that there are approximately 17,200 hectares of land within the Maicoba Ejido, including pasture and agricultural land. He thought that the total number of Pima could not possibly have been supported on the ejido if all had remained there. The obvious inference is that there would have been much hunger.

For example, if one divided the approximately 408 Pimita into the 17,200 hectares of land you would get about 4.21 hectares per person, including pasture and agricultural land. Federico believes that a minimum of 6 hectares of agricultural land is needed to support a family of about 6 people. However, the agricultural land is at a premimum, there being so little of it because of the rugged terrain. Moreover, about 1,000 hectares of land are held by the blancos who apparently control some of the better agricultural sites. Horseback rides through the Maicovita country in 1968 were marked by people pointing out fenced land along the streamways, land that could readily be tilled, but which was used by blancos for pasture, simply because the best pasture is near the streamways. Also, the agricultural land is scarce because of long use of the land without proper care with regard to fallowing.

About 8 Pima families live the year round at Los Pilares and plant there. Some of the Maicoba Ejido proper people hold "rights" to land at Los Pilares but do not work the land because it is too poor, and because it is about 3 leagues (more than 10 miles from Maicoba, over very rough terrain).

With respect to relations between Obregón people and their Maicoba relatives, Federico noted that the Obregón people who have "rights" in the Maicoba Ejido do not send gifts, money, or equipment to their parientes. However, there are close connections between the Obregon Pimita and the Maicoba Pimita because of the fact that as many as possible of the Obregón Pimita return to Maicoba for the Feast of San Francisco held in October. Usually, about 1/2 of the Obregón Pima return for this festival, by truck to Yecora, and if no trucks are available to hitching a ride to Maicoba by the rough road by way of Talayotes and Frijolar (only in operation during recent years) they go by mule or on foot to Maicoba. People from Casas Grandes, Guerrero, Taráchic, etc. also return to Maicoba for this festival. They buy their food in Maicoba or live with relatives.

Federico noted that about 60 Pima lived in Yécora in 1900, on the town side of the river for the most part. Only about 5 families lived in the town in 1970, the others living on the other side of the river.

On the Matter of the Maicoba Ejido (1970 data)

Federico believes that the ejido situation is getting better as of the present time. He noted that about five years ago there was bitter feeling between the blancos and the Pimita, and with some justification, because of damage done to Pima milpas by blanco cattle that roamed at large and because of theft and slaughter--on the spot--of blanco stock by the Pimita.

Today, according to Federico, much of the slaughter of blanco stock has been stopped, simply because the Pima do not have to "steal" so much. This situation is attributed to the efforts of the Indian Governor, Eugenio Rascón, who seems to be a mixture of good and bad, depending upon which side you are on.

On the negative side concerning Eugenio Rascón, Federico stated flatly that many Pima believe that Rascon has not been quite honest about certain matters, that he:

(1) Did sell for personal gain some of the materials sent by the American Red Cross.
(2) Did sell to blancos some of the tabletas, lámina, bastidores [vigas], which the government had provided for the improvement of the school, to certain blancos in the village of Maicoba.
(3) That he did squander money gathered together with great effort to support a trip to Mexico City to plead the cause of the Indians against the blancos and for parceling of the ejido lands.

On the positive side concerning Eugenio Rascón, Federico noted that he

(1) Had got from the "government" money to buy provisions during the past several years, those years during which there has been much want because of much poor weather for agriculture, and because of increasing difficulties between blancos and Indians.
(2) That he had got in November, May and April of each year about $5,000.00 to $8,000.00 pesos ($800.00 at the most), for the purchase of provisions. This money came from the Banco Ejidal in Hermosillo.
(3) That he had got wire for fencing the ejido lands.
(4) That he had got cattle (about 280 cows) in 1967, but none since that time.
(5) That he had made arrangements with the government that when the ejido fence was completed about 300 more cattle will come, cattle which will be distributed amongst the Pimita.
(6) That he had made arrangements for the repayment of the cattle by each family having to give 2 calves to the government each year, after the ejido is fenced and the cattle is distributed--the wire was a "gift" from the Banco Ejidal.

(7) That he had made arrangements for each Pimita family to have about 6 head of stock when the fence was completed.

(8) That he had made arrangements for the "kicking" out of the blancos who currently have holdings, legal or otherwise, within the confines of the Maicoba Ejido.

(9) That the Indians will give the blancos 20 days to remove their fences and stock after the ejido is completely fenced.

(10) That the Indians will ask the government to eject the blancos (from the ejido) by force, if necessary.

(11) That the blanco fences and stock will become property of the ejido if the blancos do not leave

The Position of the Blancos

No one knows exactly when the blancos began to operate cattle activities within the Maicoba Ejido in great numbers, but it must have been about seventy-five or so years ago. Federico could indicate rather precisely the names of, and the location of their holdings, of prominent blanco cattlemen at Maicoba, those who live within the village, but who operate ranchos within the ejido.

Such people are the following:

The more important holders of land

(1) Juan Antonio Coronado (4 small children)
- this man's grandfather lived at Maicoba

(2) José Ponce
- this man arrived about 1920
- several sons operate ranchos in or near the ejido
  - Angel Ponce (born at Maicoba)
  - José Ponce (born at Maicoba)
  - Ramón Aquiles (born at Maicoba)

(3) Alberto Monroy
- soltero
- arrived about 1930

(4) Rafael Acuña
- this man's grandfather lived at Maicoba
- has 2 sons who operate cattle ranchos

(5) Guadalupe Perez
- Grandfather of this man lived at Maicoba

(6) Carlos Peña
- Father lived at Maicoba
- NOTE: This man is considered by the Pimita as an "ejidatario", simply because he has generally taken the side of the Indians in squabbles about land and cattle. Federico was quite explicit about this, noting that Carlos Peña was the ONLY blanco so considered

Data found on tombstones in the Maicoba cemetery corrorabate the above information which was supplied by Federico in Maicoba in 1970.

Before the fence was partially completed the blancos cattle did much damage to Pima milpas. When this damage was done then Eugenio Rascón (Indian governor) was told about it. If the damage was great then the blancos were supposed to pay. But sometimes, according to Federico and Juan Gonzales, they did not. If the damage was not great, then Eugenio Rascón had a "talk" with the blanco or blancos in question and told them to be careful. Generally, the Pima agreed that the blancos did not pay.

Federico believes that Eugenio Rascón is in danger and that this is why he left Maicoba and moved to Encinal, which is in the heartland of the ejido. He (Rascón) lived in the village in 1968.

The fence is supposed to be completed in September of 1970.

Additional friction has been generated between the Pima and the blancos because in May of this year (1970) the federal police came and collected guns from the Pima:

Iginio Alvarez	2 rifles
Martín Galaviz	1 rifle
Eduardo Perés	1 rifle
José Vega	1 rifle
José Jimenez	1 rifle
Francisco Duarte	1 rifle, 1 pistol
Alberto Duarte	1 rifle
Juan Rodríquez	1 rifle
Manuel Galaviz	1 rifle

The Pima were angered because guns were not collected from the blancos and one-half of the above men went to Hermosillo to protest. They protested to the state authorities but were informed that nothing could be done since this was a "federal matter."

The removal of the guns is bad, because the Indians are no longer able to kill deer, which serve nicely as a source of food and of skins.

Names of Ranchos at the Maicoa Ejido (those that Federico could immediately recall, and point out their approximate location, and the number of families at each place, in 1970)

El Tabaco	2 families	Pima
Palestina	3 families	Pima
Los Alamillos	1 family	Pima
Encinal	4 families	Pima
Duraznito	1 family	Pima
El Arbolito	2 families	Pima
Quípur	7 families	Pima
Quipurito	4 families [50 years]	Gente de razón

La Piedra	1 family [30 years]	Gente de razón
Ciénaga de los Aguilares	2 families [60 years]	Gente de razón
La Cueva Pelada	1 family [1 year]	Gente de razón
Chuchupate	1 family [20 years]	Gente de razón
Tierra Panda	3 families	Pima
Cueva Prieta	1 family	Pima
La Dura	3 families	Pima
Cajoncito	2 families	Pima
Santa Rosa	2 families	Pima
El Terrero	1 family	Pima
Llano de Aleja	3 families	Pima
Pichacho Alto	2 families	Pima
El Aguaje	4 families	Pima
La Junta	3 families	Pima
Carrizo	1 family	Pima
Palmita	1 family	Gente de razón
[this family is that of Carlos Peña, who lives in Maicoba but who maintains a "home" at Palmita; Peña is considered and "ejidatario" because he has sided with the Pima in squabbles with blancos]		
Maicobito	1 family	Pima
Magueche	1 family	Pima

NOTE: Federico thus accounted for the locale of about 49 families of Pima within the Maicoba Ejido Proper, but not including those Pima families at Pilares, and elsewhere. This is more than one-half of the 91 families accounted for--in the Maicoba Ejido Census made by Rascón in 1962, a copy of which Pennington has. Federico noted that if he could "think" on the matter he could remember more ranchos and the number of families thereon.

On the Matter of Operation of a Lumber Mill Near Quipurito

According to Federico, there was an attempt by a lumber company to get permission to operate a mill near the settlement of Quipurito, but Eugenio Rascón, Governor of the Pima, was unable to get permission from the Indians for the operation.

The Fiestas Held by the Maicoba Pima

1. Día de San José (March 19)

At every house where there is a lad named José there is a party on the night before, that is, on the evening of March 18th. Much tesgüino is drunk and there is regular arm-in-arm dancing, with the immediate neighbors. Radio music, guitar music, record players (about 15 amongst the Pimita at Maicoba), about 2 violins known to be among the Pimita; those who have guitars really do not know how to play them; is musica ranchera.

12. Goitre (Buche): uncommon, but Federico could recall one such instance in Talayote, a Pimita.

13. Sarampión: not every year
some children have died from the disease
use remedios de las boticas
yerba de manzanilla (como té)
yerba colorada (como té)
manzanilla del río (como té)
manzanilla casera (como té)

14. Viruela loca: not very common; pastillas purchased

15. Latido de corazón: not very common

16. Sarna: not much

17. Estrinimento (locked bowls): use pipichaguä in making a té that serves as a purga

18. Syphilis and gonnorhea: Federico knew of gonnorhea but not syphilis as such

Conversation with Eugenio Rascón (39 years old in 1970)

Rascón was elected governor in 1965, having been a representative of the tribe earlier. According to some people (Rascón's statement) the troubles and problems with blancos began with his election. And the friction between Pima and non-Indians increased with his tenure in office. When asked why the friction increased...Rascón noted that "people's eyes were opened. Those who were in my place before did not move a finger to improve the situation of the Pima at Maicoba."

Rascón was told that before his election the a medias business was very common, but it almost disappared after his election. Is this true. RESPONSE: Some of Pima still follow this custom, with the blancos, but to work a medias does not mean much, that is, the return is too little. The Indians can, and should, work! The production has not increased for the simple reason that the crops of the past two years have been bad--because of lack of rain.

Question: Is it true that the Pimitas have sold their oxen to the blancos] Why do they do it if they know that they will need them.

Response: In most of the cases because of hunger. But sometimes, the blancos "invite" an Indian to have a beer or two or three, with them. When the Indians get drunk the blanco then gives them mezcal. Under these circumstances, the blanco

then persuades the Indians to sell their oxen. The Indians like to drink and this has led to much of the disposal of oxen.

Question: You told me before that you were fencing the ejido. How did this come about and who provided the wire?

Response: We have been working on this during the last three months. When I was elected I went to Hermosillo to the DAAC (Departamento de Asuntos Agrarios y Colonización) to ask for instructions. I was told about the Banco Nacional De Credito Ejidal, and about the possibility of getting a loan from them. I went there and without much trouble they agreed to let us have a credit of $200,000.00 (pesos), about $1600.00. At the same time, the government, through the DAAC offered to "give" us 300 head of stock, in order for us to be able to repay the debt. We are supposed to give the government back 2 out of every 100 cows a year, but we think we can get rid of 50 or more calves every year so that we can pay the debt before the time we were told that it must be repaid, that is 5 years. The original idea was to distribute the animals among the Indians but we decided to keep them together (two vaqueros are always at the place where the stock is kept), in order to prevent unexpected "happenings." Such as the selling of killing of the animals. We have spent about 140,000.00 on the building of the fence, and on "other things." The fence will be finished during the second week of August. Then I will go to Hermosillo to let them know that the fence has been finished, in order for them to start deciding what to do with those blancos who are within the ejido. Those who are out are no problem because the fence will keep their animals away, and "our" animals inside. All we have to do is to remove the blanco animals if they remain in the ejido. Those who have fences inside of the ejido will have twenty days to get out and take the fences with them. The blancos are, of course, reluctant to "fly away" but they will have no other alternative because the government protects us.

If the blancos do not want to remove their cattle, then they must pay $36.00 (pesos) per head of stock per year. The lands of the ejido will be parcelled. [QUESTION: WHY] ....because not all of the land within the ejido is good. Some of the Indians will get only magueaches or arroyos, and this wouldn t be fair. The ejido will remain as as a Comunidad, but under the name of an ejido.

Those Indians who have derechos on the land and do not presently live within the ejido will be notified that they have 2 years to decide what to do. If they do not show up they will lose their derecho to ejido [comunidad] land.

The ejidatarios will pay an impuesto predial which will be about 12 or 17 pesos each year.

The ejido consists of about 17,200 hectáreas and it goes from Cerro Agua Venado to La Junta to Cerro Verde, El Terrero, Mojonera Alambre, El Llano, Los Ajos, Mesa de San Francisco, Palmita, and Santa Rosa.

Los Pilares does not belong to the ejido, but some of the people who live there are ejidatarios, having originally come from Maicoba. Rascón noted that there are only 2 non-indian ejidatarios, Pepe Ponce and Carlos Peña, but he did not know how they "got in." [See Federico's comment on this].

Question: What do you think is going to happen? Aren't you afraid of being killed?

RESPONSE: I know that someone can kill me at any time, but I am not afraid. Someone has to do this, and if I can do it, I'll do it. On the other hand, the government is with us; the ejido belongs to us, and the blancos must be convinced that they are only intruders.

Question: Do some of the blancos have titles to lands within the ejido?

RESPONSE: Not that I know of. No, body has one. "They" just came.

QUESTION: Do all of the Pimitas agree with what you do?

RESPONSE: Almost all of them. There are only 3 or 4 who are always remembering the so-called "good relationships" of earlier times. But I do not pay any attention to them.

QUESTION: Do some of the blancos want to become ejidatarios?

RESPONSE: Yes, but it is "too late" now. If a Pimita from Yepáchic comes to us asking for a piece of land we would discuss the matter. If the answer is yes, he would work the land and would become an ejidatario within two years.

QUESTION: Do you think that the happenings of the future will be difficult?

RESPONSE: No, the hardest part is over. Everything will be easier after we finish the fence.

QUESTION: How long do you think you are going to live?

RESPONSE: Many years!

* * * * * *

According to the Presidente Municipal of Yécora and the Ejido de Maicoba

According to the Presidente Municipal of Yécora, these 300 cows were not given by the government to the Indians. The Banco Ejidal brought them to the ejido to raise them there. He noted that the Indians, including Eugenio, believe that the cows belong to them but it is not true. The Banco Ejidal will share part of the crías with the ejidatarios each year, as "payment of the rent of their land." And the Indians will have to use these crías to pay the debt of the 200,000.00 pesos loaned to the Maicoba Ejido.

The Presidente noted that before the establishment of this ejido there was another one. This is why some of the old ejidatarios claim the same rights as the new one. On the other hand, there are around 20 blancos who claim "respect" for their "pequeños propiedades," which include about 5,000 hectáreas within the ejido, About 1/2 of these blancos have legal titles. He noted that there was a government letter to Eugenio (of which he had a copy) that said that the ejidatarios (Indians) will have to respect these legal titles. The blancos who hold legal title to lands (fenced) within the ejido do not haveto pay taxes to the ejido except when their cattle roam outside of their "pequeños propiedades". This means, of course, that the land of the ejido comes from 17,200 hectáreas to about 12,000 hectareas, that is, if all of the claims of the blancos were respected.

The Presidente noted that some of the Pimita did not care for Eugenio, that he himself thought that Juan Gonzales was a "better man." Further, the Presidente noted that he did think think that someone would really harm Eugenio, that he would not live long."

* * * * * *

On Yécora People Who Have Holdings within the Maicoba Ejido

Federico know of only one, Herlindo Ranquillo (uncle of Lucio Medina M.) who had holding near Mesita Del Gallo. Has a fence of legua y media. Claims "pequeña propiedad" to be respected by Eugenio Ramón.

On last election of Governor

Juan Gonsales was put up by friends against Eugenio, but the final outcome was such that about 70 people supported Eugenio and about 45 supported Juan [check this account with that in Dunnigan, please].

On the a medias business - a hypothetical example

1. Say that Federico has a plot of land
2. Federico is muy pobre, lacks cattle, seeds, and so on.
3. Federico is on fairly good terms with a blanco, a man who has ample stock and seeds, or access to them.
4. Federico and the blanco have a talk.
5. Federico wants to get bueys by renting them.
6. The blanco does not like this arrangement, for it means less to him in the long run.
7. Then he finally persuades Federico to work a medias with him.
8. He will provide food (cigarros, manteca, sal, frijoles, corn) from the moment the arrangement begins, [but often from a store that he has an interest in].
9. This provision is for April, May, June, July and August, but NO for September (the crops begin to come in then)
10. The blanco provides bueys and seeds for planting.
11. The crop is divided.
12. Sometimes, all the food etc. for the above months costs $400.00 (pesos) or 3 hectolitros of corn.
13. If the yield is 50 hectolitros then each gets 25
14. BUT, the costs of the supplies (except seeds) such as food, etc. must be paid for.
15. Sometimes, the Indians do not realize the significance of the food allowance and "take too much"
16. And when it is all over, they may have hardly anything left, for a portion of their yield must be given to the blanco or the store.....
17. If the blanco had rented the bueys - hence no a medias the rent would be about 5 hectolitros per season. And no food.

1. Fence building.

A. Stone fences.

Are rarely built today, but about three decades ago, before barbed wire was common in the mountains, such fences were constructed, usually by mestizos or blancos who wanted stone corrals or stone fences associated with wooden corrals. The Pima were then paid $1.00 (about 8 cents US) per metro and a "strong" Pima could build 7 metros per day. Today, when such fences are built, and they are rarely built, the pay is $4.00 (about 32 cents US) per metro.

B. Log fences.

Today, $1.00 (about 8 cents US) is paid for cutting the posts and an additional $3.00 (about 24 cents US) is paid for removing the bark if it is removed. $15.00 (about $1.20 US) is paid for eight hours of construction of log fences, which may be built in the fashion of zig-zag fences of the American South or in a relatively

straight line; in the case of the latter, the fence is anchored between poles implanted in the ground or placed upon projections of branches that were left upon the posts when they were placed in the ground.

C. Wire fences.

The Pima are paid $1.50 (about 12 cents US) for preparing each post and $0.50 (about 4 cents US) for making the hole. The Pima do not usually string the wire, since the blancos consider the Pima to be careless in not pulling the wire straight.*

---

* There is merit in this observation made by the blancos for the ejido fence being built in 1970 was not tightly stretched.

---

2. Cutting firewood.

When Pima pack in firewood from the hills they are paid $2.50 (abc 20 cents US) per load. If the Indians work from 7 AM to 5 PM at cutting

firewood near the houses of mestizos or blancos the Indians are paid at the rate of $10.00 to $12.00 (about 80 cents to $1.00 US) per day.

3. Plowing.

The work day is from 7 AM to about 5 PM and the pay is $12.00 (about $1.00 US) per day.

4. Driving Cattle to Market.

The Pima sometimes work as vaqueros for the blanco cattlemen, and drive cattle on the 12 day trip to Obregón., They are paid $15.00 to $20.00 per day, there being one vaquero to every ten animals, and there is a cook who gets more money than the vaqueros. When the drivers and the cook reach Obregón they are paid $30.00 ($2.40 US) to "get home on." This work is done in August, September and October. Very few Pima work at this task. According to Federico Rodríguez Romero, on the average there are only from 6 to 10 Pima working at such activities each year.

5. Mining Work.

According to Federico Rodríguez Romero, very few of the Pima work at the mines, where their labor is worth about $35.00 (about $2.80 US) per day. It is claimed that the Pima are not "treated well," and few Indians remain at the mines for more than a few weeks.

Among mines mentioned as a source of work in 1970 were the following: Trinidad, Santa Niña, Pilar, Ocampo (Matulera), Pinos Altos, El Madroño Chihuahua), San José (near Yepáchic), Mulatos, Ciénega (near Pilar), Maguariche (Bocoyna), and El Trigo. None of these mines were in operation all the year round, however. Formerly, at least two Pima went to Cananea for occasional periods of work. Several Pima have been known to go to Nacazori mines for work.

6. Sawmill Work.

As of 1970, the following lumber mills attracted a few Maicoba Pima for short periods of time:

Sonora: Las Cuevitas
Cerro Obscuro

Chihuahua: Guerrero
San Isidro
Santo Tomás
Temósachic
Yepáchic
Tutuaca
Vallecito
Cocomorochic
Tosánachic

The Talayotes mill in Chihuahua and the Yécora mill in Sonora, both of which were once important as a source of income for some Pima, are now closed. The vaerage pay for a day of work at the lumber mills is $25.00 (about $2.00 US). Lumber mill work is seasonal (summer months for the most part), and often uncertain because of difficulties between lumber mill operators, Indians who control the timber lands as those near Yepáchic, and government inspectors.

7. Weeding of fields.

Such work is usually done on contract, the pay being from $60.00 to $100.00 (about $4.80 to $12.50) per field.

8. Domestic Labor.

Pima women sometimes work for the mestizo or blanco families as domestics. The pay is from $8.00 to $10.00 per day (about 64 cents to 80 cents per day US). However, such work is rarely available except in the village of Maicoba.

9. Panning of Gold.

Federico Rodríguez Romero was quite certain that the Pima of Maicoba and surrounding areas yet pan for gold, at Kuipurito and Mulatos, and at higher elevations near Maicoba. The gold is sold for about $12.00 (pesos) for from two to three gramos.

The High Cost of Staples at Maicoba

Since the time of Eugenio Rascón as governor (in the 1960's) relations have worsened between the blancos and the Pima at Maicoba, so much so that there are many instances where a Pima is refused service

and must go to Yécora for staples. The stores at Maicoba are owned by the five prominent blanco families mentioned earlier. Talayote and Pilar contain stores but they are about as far away as Yécora.

Some of the Pima, such as Federico Rodríguez Romero, Juan Gonzales, Rudolfo Gonzales (nephew to Juan Gonzales), Porfirio Coronado, and Iginio Alvarez have had no such troubles, apparently because they have been able to remain aloof from the arguments, or because the blancos know that these people generally have supported the candicacy of Juan Gonzales for the office of Governor in the past.

In any case, there is a great descrepancy between prices of goods and staples at Maicoba and Yécora. Such prices for 1970 are given below.

	Maicoba	Yécora
Coffee	$ 18.00 per kilo	12.00 per kilo
Sugar	2.50 per kilo	1.50 per kilo
Wheat	2.50 per kilo	1.90 per kilo

Corn	2.00 per kilo	1.10 per kilo
Masa	2.75 per kilo	1.90 per kilo
Manteca	20.00 per kilo	15.00 per kilo
Beans	2.50 per kilo	2.00 per kilo
Salt	1.50 per kilo	1.00 per kilo
Petroleo	2.50 per litro	1.50 per litr
Lampara	34.00 (with shade)	20.00 (with shade)
Rice	4.00 per kilo	2.50 per kilo
Argentinos	1.00 per package	.65 per package
Man's hat (good)	15.00	9.00
Man's pants (good)	65.00	42.00
Manta (cheap material for shirts, drawers, etc.)	6.50 per metro	4.50 per meti
Men's shoes (good)	65.00	45.00

Women's dresses (good)	32.00	20.00
Women's shoes (good)	60.00	30.00
Bandana	12.00	8.00
Boy's pants (good)	15.00-20,00	14.00
Child's dress (good)	12.00-13.00	10.00
Child"s dress	16.00-17.00	14.00
Mill for grinding corn	65.00	50.00
Potatoes	3.00 per kilo	2.00 per kilo
Onions	3.00 per kilo	2.00 per kilo
Tomatoes	4.00 per kilo	2.50 per kilo

Federico Rodríguez Romero and Juan Gonzales believed that fewer than 10 per cent of the adult Pima male heads of household earned more than $250.00 (pesos) per year from outside employment. Therefore, the refusal of the blanco storekeepers to give service to the Pima, and the high cost of goods at Maicoba, together cause considerable hardship for the Pima who live near Maicoba. They must either walk or go by horseback to Yécora of Yepáchic. Yepáchic prices are comparable to those at Yécora.

With respect to lumber operations near Maicoba

According to Federico Rodríguez Romero, there was an attempt by a lumber company to obtain permission to operate a lumber mill at Quipurito, but Eugenio Rascón, governor of the Pima, was unable to get permission from the Indians for the operation--this was in 1970.

On the matter of stores at Maicoba

There are four stores maintained by blancos at Maicoba

1. José Ponce
2. Rafael Acuno
3. Alberto Monroy
4. José Ponce

When asked which of the storekeepers were the greatest "robbers," Juan Gonzales and Federico Rodríguez laughed and said that it would be hard to tell, that all four were "robbers." However, in 1971, the situation had eased a bit, in that all stores then sold to Pima, whereas the year before it was difficult for a Pima to buy anything in Maicoba because of the hassle over the ejido.

Data for 1971

1. Wood cutting: may bring in 20 loads per day, at $0.75 per load

2. Road work: 12 hours per day at $15.00 per day. This refers to road work at El Pilar and El Trigo mines

3. Mining: $30.00 per day for 8 hours, but no medical care, no insurance, but if killed, then wife may get $5,000.00 (pesos) or more. But if single person is killed then nothing paid. There is talk of 3 Pima from Maicoba being killed

4. Sawmill, etc. No sawmills within the ejido and those at Yécora are closed, at Talayotes also. Some men go to Madera, to Bermuda, or Cerro Obscuro (both to the southwest and south of Maicoba) where they cut with an axe or use a saw and are paid by footage

5. Fence building: rarely is this done, according to Federico and Juan

6. Women's work: perhaps as many as 4 Pima women work for blancos in Maicoba for $25.00 (pesos) per month, including food and ropa.

7. Vaqueros: perhaps 10 men work the year round, and when they work all day they are paid $15.00 each day

Income from sale of goods made by women

1. Double-twilled hats $ 5.00
2. Baskets 1.50 to 3.[illegible] for the very large baskets
3. Petate 6.00
4. Ollas 1.50 to 2.00

Income from sale of goods made by men

1. Reatas $ 10.00 per metro

Months for seeking work somewhere other than at Maicoba

December
January
February

Vaquero Work

Such work is available only during the months of September, October, and November, when 20 men may work for blancos in driving cattle to Obregón. The pay is little, amounting to about $15.00 per day for 15 days, and including food.

IMPORTANCE OF OUTSIDE WORK

Some work is necessary, for at least 1 to 3 kilos of salt is required for a family of 7 every two weeks. [Is this a rather great amount?]

Trading of woven goods (by women) for staples

It is certainly true that hats or baskets may be traded by the women for salt and soap at the stores.

Nolasco Armas, 1969

page 209: Employment opportunities

Nolasco Armas noted that as of 1961 the Pima males went to work at Yécora and Talayotes where there were saw-mills, or to Mulatos where there was small mining, or to Nuri and Obregón to work as laborers in agriculture.

The men chop wood for sale, or collect palms for their women folk to make baskets and hats and mats

The women rarely loaf when they go to working centers with their men.....they work at washing clothes or helping in domestic labors

page 210

and sometimes they get more money than their husbands!

Nolasco Armas, 1969

page 217: Payment in kind

-sometimes the Pima pay for salt, wheat flour, coffee, sugar, cigarettes, cooking grease, candles, matches, shoes, and clothing by giving eggs, hats, woven waris, corn, beans, etc. at Maicoba, Yécora, Yepáchic, Onavas, Moris, andMulatos

[not so at Onavas, CWP says]

page 218: Mining as an income supplement

-some Pima mine the sand at Mulatos
-or burn fine sand from plains near the river
(she got this from Almada?)
-gold brings $10.00 to $12.00 per gram

Nolasco Armas, 1969

page 219: Domestic labor for womean

-1 dozen pieces washed & ironed for $3.00 (1961)
-$2.00 per day and food for a full day in domestic labour (1961)

-detergent is obtained from the local stores in some cases
-ironing is done upon a rag placed upon a smoothed place on the earthen floor, with a metal iron

The Maicoba Pima Bajo, like other non-mestizo peoples of northwestern Mexico, are subject to the state and national laws. However, it is apparer that state or federal officials pay little attention to the behavior of the mountain Pima except where murder, rape and gross theft (such as the stealing of a number of head of stock) are concerned. The Pima of Maicoba recognize among themselves a hierarchy of officials, all of whom are theoretically under control of the Presidente Municipal at Yécora. These officials and their duties are as follows:

1. Gobernador.

The Pima governor (kovnal) is generally elected for a term of three years, but in some instances, as of 1970, the governor has held office for about ten years, in spite of the fact that many of the Maicoba Pima dislike the incumbent. At the expiration of the three year term, the death of a governor during his term of office, or, if the governor is disliked by a significant number of the tribe, a meeting called by older people in the community is held. If the meeting is called because of people's displeasure at behavior of the governor

the governor is invited to attend the meeting, and he must submit to what is actually a vote of confidence. Generally, those people who are dissatisfied with the governor present their candidate. One of the older men asks for a show of hands and if the candidate presented by the dissidents receives a majority of the votes given then the governor is replaced. Otherwise, the governor retains his office. If the governor dies in office or does not wish to stand for another term a number of the older men discuss suitable candidates and select one who is presented to members of the tribe gathered in the plaza at Maicoba. An older man points to this candidate and says "This is to be our governor." If the number of raised hands is more than one-half of those present then the candidate takes office. If the show of hands is less than one-half of those people present then another meeting must be held, at which another candidate is presented. Twenty-four hours must elapse before the second meeting is held. Meetings continue until a candidate obtains more than one-half of the votes cast at any one meeting.

According to the older Pima at Maicoba, the duties of the governor include the following:

A. To solve problems.
B. To distribute gifts evenly.
C. To act as intermediary between the blancos and the Pima.
D. To represent the Pima before authorities at Yécora and Hermosillo.
E. To act as intermediary when there are squabbles between members of the tribe.
F. To assist young married men to obtain land.

2. Segundo al Gobernador.

According to the older Pima at Maicoba, this office is rarely filled, but when it is, the holder discharges the obligations of the governor when that official is away from Maicoba. The Segundo al Gobernador is selected in the same fashion as the kovnal and is generally a close associate of that official.

3. Presidente or Comisario del Ejido.

Appointed by the head of the Departamento de Asuntos Agrarios y Colonización (DAAC) in Hermosillo, after recommendation by the Pima

governor and the Presidente Municipal at Yécora. The term of office is three years and the duties of the office include the following:

A. "To look after the ejidatarios."
B. To see that there is not wanton destruction of the forests on the part of Pima or blanco.

4. Tesorero.

Appointed by the head of the Departamento de Asuntos Agrarios y Colonización (DAAC) in Hermosillo, after recommendation by the Pima governor and the Presidente Municipal at Yécora. The term of office is three years and the duties of the treasurer are as follows:

A. To control monies belonging to the Ejido de Maicoba.
B. To work with the governor in obtaining money from the Banco Ejidal.
C. To act as a "check" upon expenditures by the governor.

5. Jefe de Vigilancia.

Appointed in the same fashion as the Presidente or Comisario del Ejido and the term of office is three years. The chief duty of this official is "to watch what the ejidatarios are doing."

6. Segundo al Jefe de Vigilancia.

This office is rarely filled, but when it is occupied the holder is appointed in the same fashion as the Presidente or Comisario del Ejido, the Tesorero and the Jefe de Vigilancia.

7. Juez del Campo.

Appointed by the Hermosillo authorities (DAAC) after recommendatic made by the Pima governor. The term of office is for three years and the duties of the office essentially involve the determination of the causes for any major difficulties that arise between Pima or between Pima and the blancos.

It appears that of the above offices only the Juez del Campo office is ever occupied by a non-Pima, and when a non-Pima occupies the office he is usually a poor blanco who is not only a member of the ejido but one who is much respected by the Pima. As of 1970, all of the above mentioned offices were occupied by people who were literate, in the sense that they could at least read and write. It is not necessary for the blancos at Maicoba to approve the names of people submitted by the Pima governor to the DAAC authorities at Hermosillo, although in practice there seems to be some aggreement on the names submitted, an agreement worked out by the Pima governor and prominent blancos in private. Moreover, there are instances where the DAAC authorities in Hermosillo do not act upon the recommendation of the governor, and in fact only the Pima governor appears to have any real influence in the selection of officials.

In spite of all the talk about the Pima officials, the actual government of the area known as the Maicoba Ejido is under control of a blanco appointed as Comisario by the Ayuntamiento de Yécora. This Comisari

together with a Suplente (who acts in the capacity of the Comisario when that official is absent) and a Juez Civil, who hold office for three years and who may only be removed by the Ayuntamiento de Yécora. According to the Presidente Municipal at Yécora in 1970, the duties of the Comisario are as follows:

A. To live permanently in the village of Maicoba.
B. To look after the security and welfare of all people in the vicinity of Maicoba.
C. To control the "police" of the village of Maicoba.
D. To apprehend murderers and to send them to Yécora.
E. To maintain the roads and bridges and other public places.
F. To look after public business that concerns maintenance and operation of the jail, school and cemetery.
G. To make a census when required.
H. To make an imposition for taxes under the law.
I. To report all expenses of the Comisario to the Presidente Municipal at Yécora.

J. To render monthly accounts to the authorities at Yécora of all matters and happenings pertaining to monies.
K. To impose fines for lawbreaking according to rules established by the state and national government.
L. To see that, insofar as possible, all children in the community attend school.

The duties of the Juez Civil involve a registration of births, marriages and deaths, and the rendering of a monthly report of same to the Yécora authorities.

Nolasco Armas, 1969

page 223: In case of murder

-cases of murder involving the Pima must be reported [via Yécora] to the State police in Sahuaripa

Nolasco Armas, 1969 (1)

pp. 219-223:

-according to Nolasco Armas, the Pima lost control of their land about 1857
-and then in the latter part of the 19th century the community was recognized by the government
-the situation being legalized between 1906-1909

-in 1936, Cárdenas made the community an ejido
-but the actual limits were less than the original ejido

-Nolasco Armas noted that the Pima use less than 1/3 of their territory
-be it by "impossibility of technical method of exploiting it, or by its inhospitability," but they like to own it all
-because of the way of life(semi-nomadic), and their magdalachic culture

Maicoba Government 12

Nolasco Armas, 1969 (2)

pp. 219-223

-the Pima government is headed by the governor, the Chief Agrarista (President of the Comissariate Ejidal of the Ejido of Maicoba, Sonora)

Gobernador
Jefe Agrarista (Presidente del Comisariado Ejidal del Ejido de Maicoba, Sonora)

-when the Ejido was organized and restructured legally, in 1936, the "Jefe Agrarista" (the Presidente of the Comisariado Ejidal del Ejido de Maicoba) was established

-but this office has never been effective
-the governor apparently attends to such activities

Nolasco Armas, 1969

pp. 219-223 (3)

-the Pimas form a group apart from the whites & mestizos
-although the three groups live together

-the Pima recognize Maicoba as a ceremonial/civic center
-to which place the governor usually goes when elected

-remain more or less within what they understand to be the Maicoba Ejido

Maicoba Government 12

Nolasco Armas, 1969

page 223: In case of murder,

-cases of murder involving the Pima must be reported [via Yécora] to the State police in Sahuaripa

The Maicoba Pima Bajo, like other non-mestizo peoples of northwestern Mexico, are subject to the state and national laws. However, it is apparent that state or federal officials pay little attention to the behavior of the Maicoba Pima except where murder, rape and gross theft (such as the stealing of a number of head of stock) are concerned. The Maicoba Pima recognize among themselves a hierarchy of officials, all of whom are theoretically under control of the Presidente Municipal at Yécora. These officials and their duties are discussed below.

The Pima governor (kovnal) is generally elected for a term of three years, but in some instances, as of 1970, the governor had held office for about ten years, in spite of the fact that many of the indigenes at Maicoba disliked the incumbent. At the expiration of the three year term, the death of a governor during his term of office, or, if the governor is disliked by a significant number of the tribe, a meeting is called by older people in the community. If the

meeting is called because of people's displeasure at behavior of the governor the governor is invited to attend the meeting, and he must submit to what is actually a vote of confidence. Generally, those people who are dissatisfied with the governor present their candidate. One of the older men asks for a show of hands, and if the candidate presented by the dissendents receives a majority of the votes given, then the governor is replaced. Otherwise, the governor retains his office. If the governor dies in office, or does not wish to stand for another term, a number of the older men discuss suitable candidates and select one who is presented to members of the tribe gathered in the plaza at Maicoba. An older man points to this candidate and says "This is to be our governor." If the number of raised hands is more than one-half of those present, then the candidate takes office. If the show of hands is less than one-half of those people present then another meeting must be held, at which another candidate is

presented. 24 hours must elapse before the second meeting is held. Meetings continue until a candidate obtains more than one-half of the votes cast at any one meeting.

According to the older Pima at Maicoba, the duties of the governor include the following: (1) to solve problems; (2) to distribute gifts in an equitable fashion; (3) to act as intermediary before the authorities at Yécora and Hermosillo; (4) to act as intermediary when there are squabbles between members of the tribe; and (5) to assist young married men in obtaining land.

According to the Maicoba Pima, the office of Segundo al Gobernador is rarely filled, but when it is, the holder discharges the obligations of the governor when that official is away from Maicoba. The Segundo al Gobernador is selected in the same fashion as the kovnal and is generally a close associate of that official.

The Presidente or Comisario del Ejido is

appointed by the head of the Departamento de Asuntos Agrarios y Colonización (DAAC) in Hermosillo, after recommendation by the Pima governor and the Presidente Municipal at Yécora. The term of office is for three years and the important duties include two important matters, that of looking after the welfare of the ejidatarios and of making certain that there is no wanton destruction of the forests on the part of Pima or blanco.

The Tesorero is appointed by the head of the Departamento de Asuntos Agrarios y Colonización in Hermosillo, after recommendation by the Pima governor and the Presidente Municipal at Yécora. The term of office is for three years and the treasurer's duties include the following: (1) the control of monies that belong to the Ejido de Maicoba; (2) working with the indigene governor in obtaining money from the Banco Ejidal located in Hermosillo; and (3) acting as a "check" upon expenditures by the governor.

The Jefe de Vigilancia is appointed in the same fashion as the Presidente or Comisario del Ejido and the term of office is for three years. The chief duty of this official is to "watch what the ejidatarios are doing." The office of Segundo al Jefe de Vigilancia is rarely filled, but when it is occupied the holder is appointed in the same fashion as the Presidente or Comisario del Ejido, the Tesorero, and the Jefe de Vigilancia.

A Juez del Campo is appointed by the DAAC authorities at Hermosillo, after recommendation made by the Pima governor. The term of office is for three years and the duties of the office essentially involve the determination of the causes for any major difficulties that arise between Pima, or between Pima and the blancos.

It appears that of the above offices, only the Juez del Campo office is ever occupied by a non-Pima, and when such a person occupies that office he is usually a poor blanco who is not only a member of the ejido but one who is much respected by the Pima. As of

1970, all of the above mentioned offices were occupied by people who were literate, at least in the sense that they could read and write in an elementary fashion. It is not necessary that the Maicoba *blancos* approve the names of people submitted by the Pima governor to DAAC officials at Hermosillo, although in practice there seems to be some agreement on the names submitted, an agreement worked out between the Pima governor and the prominent *blancos* in private. However, on balance, it appears that only the Pima governor has any real influence in the selection of officials. It should be recalled that there are instances where the DAAC authorities at Hermosillo do not act upon the recommendation of the governor, and offices are not filled.

In spite of all of the talk--among the Pima--about their hierarchy of officials, the actual government of the ejido at Maicoba is under the control of a *blanco* appointed as *Comisario* by the

Ayuntamiento de Yécora. This Comisario, together with a Suplente (who acts in the capacity of the Comisario when that official is absent), and a Juéz Civil, hold office for three years, and may only be removed by authority of the Ayuntamiento de Yécora.

According to data obtained from the Presidente Municipal at Yécora in 1970, the duties of the Comisario include the following: (1) to live permanently in the village of Maicoba; (2) to look after the security and welfare of all people who live in the vicinity of Maicoba; (3) to control the police of the village of Maicoba; (4) to aprehend murderers for transport to Yécora; (5) to maintain the roads and bridges and other public places; (6) to look after public business that concerns maintenance and operation of the jail, school, and cemetery; (7) to make a census when required; (8) to make an imposition for taxes under the law; (9) to report all expenses of the office

of the Comisario to the Presidente Municipal at Yécora; (10) to render monthly accounts of all matters and happenings pertaining to monies--to the authorities at Yécora; (11) to impose fines for lawbreaking, according to rules established by the state and national governments; and (12) to see that, insofar as possible, all children in the community attend school.

Duties of the Juez Civil involve that of registration of births, marriages, and deaths, and the rendering of a monthly report of such to the Yécora authorities.

A census made among the Pima of Yécora and Maicoba by Eugenio Rascón in 1962 indicated that among the children up to fifteen years of age only five could read and write Spanish in even an elementary fashion. Only fifteen adults could read and write. As of 1968, Rascón served as one of the teachers in the public school at Maicoba. However, as of that date, among the twenty-seven Pima children enrolled no more than three could read and write, and then only in a very rudimentary fashion. The school term begins in September and ends in June and except for those Pima children who reside in or quite near Maicoba few attend. Distance and inclement weather prevent attendance for most of the winter months and the children are needed in agricultural activities during the spring.

As of the summer of 1970, the following Pima adult males at Maicoba could read and write: José Rodríguez, Juan Ramón Velázquez, Enrique Velázquez, Iginio Galaviz, Martín Galaviz, Porfirio Coronado, Eulalio Pérez, Eugenio Rascón and Federico Rodríguez Romero.*

---

* Doubtless, the literacy of these people, weak though it may be, accounts for the fact that four of these men (Alvarez, Galavíz, Coronado, and Rascón) served as governor, Comisario, Tesorero, and Jefe de Vigilancia in the Pima hierarchy of officials.

There is no evidence that any of the female Pima adults at Maicoba can read and write Spanish.

As of 1971, the following Pima at Maicoba were said to be able to read and write, albeit in a crude fashion:

Porfirio Coronado	Margarita Rascón	Heriberto Gonzales
Lalo Perez	Isidra Romera	Francisco Velázquez
Eugenio Alvarez	Armando Rascón	Gregorio Velázquez
Martín Galaviz	Francisco Gonzales	Juan Rodríguez
Eugenio Rascón	Bernabe Gonzales	Ramon Rodríguez

Hardly any of the children were reported as being able to read and write (1971). Juan Gonzáles and Federico Rodríguez stated that

the blancos discouraged attendance by the Pima children by way of the teacher. There was a teacher (from Hermosillo) at Maicoba in 1970-1971, but he had not appeared as of September 15, 1971. There were 5 or 6 children in school during 1970-1971. [I suspect that the friction of distance from the rancherías prevents most Pima children from attending school].

On recognition of bills

According to comments made by Juan and Federico, hardly any of the Maicoba Pima can count, and are hardly aware of the actual value of notes from $5.00 to $20.00 and certainly nothing above $50.00, if that much. Juan claims that blancos, in times past would offer $100.00 for an animal, and then give as little as $40.00, in full awareness that the Pima would not know that they were being cheated.

Knowledge of measurements (but few at Maicoba are aware of these point.

1. Metro (most know the length but not the elements that make up the length)
2. Litro (they know that 5 litros equals 1/2 decalitro).
3. Decalitro (10 litros).
4. Hecalitro (100 litros)
5. Kilo.
6. Carga (used in reference to corn only. Refers to carga in mazorca only. They use hecalitros when in grano).

On recognition of numbers

Hardly any Maicoba Pima can count to 100.

On time: know days of week and generally keep up with them. Should they forget them they ask someone. Know months and try to keep up with them. You see calenders in the houses, but they are only for ornament. The numbers mean nothing to most of the Maicoba Pima.

According to Federico Rodríguez Romero, virtually all of the Maicoba Pima can speak Spanish, but he commented that only a few of the Pima families spoke what he termed good Pima, and such families were those which live on one of the nuclear ranches, such as that at Kuipur, where all of the seven families commonly speak Pima and Spanish. Federico noted that he tried to encourage the use of Pima amongst his immediate family, but at the same time he encouraged the development of Spanish for the "protection" of the young people.

It is clear that although there are differences between the dialects of Maicoba and Yepáchic, the groups at both places can converse in Pima. I witnessed conversations between Luz Coronado Vargas of Yepáchic and Federico Rodríguez of Maicoba (in the late summer of 1971) and they clearly understood each other.

Virtually all of the adult Pima at Maicoba speak the Pima language. Juan Gonzales noted that he knew only isolated words since he was raised elsewhere, and returned when an adult. The children all speak Pima but they refuse to admit that they can. When asked why, Juan Gonzales noted that he believed it was because of vergüenza. Federico noted that the children were forced to learn Spanish to protect themselves.

Nolasco Armas, 1969

page 206: Pima language

Nolasco Armas recognized that the language plays an important part in the lives of the Indians, especially as a form of recognition among themselves. But she noted that some of the Indians did not see that their offspring learned the language.

Nolasco Armas, 1969

page 226: Language

-in the bosom of the family they speak their own language
-but if some stranger comes they may speak Spanish
-but if the family must speak together while the Spanish speaking person is near, the conversation is in Pima

Nolasco Armas, 1969

page 229: Schooling

-Nolasco Armas suggests that the family needs the help of young children at home [ie., with the crops]
-and that this acts against schooling
-the Pimas believe that the whites do not want the Pima children to attend school

Source: Tamarón y Romeral (1765), in Robles (1937)

page 175:

Pima

Source: Tamarón y Romeral (1765), in Robles (1937)

page 174:

Pima

Source: Anonymous (1730), in Doc. (1856), 3rd series, Vol. 1

page 622: Pima

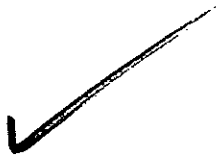
Source: Anonymous (1730), in Doc. (1856), 3rd series, Vol. 1

page 622: Pima

Moris Language (1765) 7

Source: Anonymous (1765), Noticia de las misiones.....

Pima/Tarahumara



Maicoba Language (1765) 7

Source: Anonymous (1765), Noticia de las misiones....

Pima

Source: Anonymous (1765), Noticia de las misiones....

Pima

Source: Anonymous (1778)

The Franciscan Descripción.... of 1778 refers to Moris as a Pima village.

Maicoba Language (Circa 1804)

Alvarez (Circa 1804), in Ocaranza (1939), II

page 292: Pima

Yécora Language (Circa 1804)

Alvarez (Circa 1804), in Ocaranza (1939), II

page 292: The language spoken was Jova!

Source: Revilla Gigedo (1793), in Ugarte, 1966, p. 33

Pima [bajo]

Source: Revilla Gigedo (1793), in Ugarte, 1966, p. 34.

Pima

Source: Anonymous (1681)

There is a reference to the Yécoras of Maicoba.

Yécora seems to have been used generally to designate the Mountain Pima Bajo during this period.

Source: Anonymous (1778)

The Franciscan Descripción of 1778 refers to Maicoba as a Pima village.

Source: Lafora (1766-1768), in Robles, 1939

page 149: Pima

Source: Retana, 1700

Maicoba
Yepáchic
Moris
Tutuaca
Ariseáchic
Río Aros
Atarichic
Atipa

Location of Mountain Pima (1701)

Locale	Source	
Ariseachic	Larrea, 1701 (2) Larrea, 1701 (4) Larrea, 1701 (7)	
Atarichic	Larrea, 1701 (3)	
Terachic	Larrea (1701 (5)	Also Jova
Moris	Larrea, 1701 (6)	
Yoquivo	Larrea, 1701 (6)	
Cumago	Larrea, 1701 (6)	
Yepáchic	Larrea, 1701 (6)	
Onapa	Larrea, 1701 (6)	

Language, 1765

Source: Tamarón y Romeral, 1765, in Robles (1937)

page 175:

Pima

Maicoba, Pennington

Chapter 2

Notes

Some landform terms for Maicoba

cerro	va'ov
monte	u'ušig
loma	saklyi'akug
montaña	to'oko
cordillera	hu'arakug
barranca	hovrakag
arroyo	ak
río	ak
cascada	ho'adagkug
oja de agua	sudag wuhim
plano	doktama

mesa	duprakam
ladera (slope)	ga'iki'akug
cuesta alta	gu'uta'ičuk
valle	gu'udok
colina	bu'isa'a

Rather tall arroyo trees

sauz	sa'uka
sabino	
alamillo	tokop
álamo	
fresno	
capulín grande	humpu'il
iguaciki	humpu'il
aliso	so'ag
nogal	

Rather short trees (or bushes) in arroyos

chaparrones	tu'ul
manzanilla	yo'ri
táscate	ga'a
batomote	vaṣam
tarais	tu'ulyi
madroño	

Rather tall sierra trees

sabino	
pinabete	bi'ivgum hukum

pino blanco	
carnero	toko
mora	

Trees of tierra caliente

palo chino	so'ilyika uš
palo fierro	vusgam uš
palo blanco	to'a uš
copalquín	
palo mulato	
palo dulce	komguši
tepeguaje	wakim
algarroba	
vinorama	
mesquite	
pochote (2 classes)	
torote	
torote blanco	
papache	
papache borracho	
chirowi	
vara blanca	
hecho	

pitaya	
pitaya barbón	
biznaga	
encino roble	
uvalama	
igualama	
tescalama	
sapote	
chuna	
guásima	
brazil	
palo amarillo	
otate	totkam
carrizo	

Maicoba

Pinaceae (4)

15

Pinus ayacahuite

Maicoba

Pinaceae (4)

15

Pinus chihuahuana

Maicoba Pinaceae (4) 15

Pinus Lumholtzii

Maicoba Pinaceae (4) 15

Pinus leiophylla

Juniperus californica.

Maicoba Cupressaceae (5) 15

Juniperus monosperma

-this is the sabino of the Maicoba country

Maicoba Cupressaceae (5) 15

Juniperus osteosperma

-this is the táscate, ga'a or gah of the Maicoba country

Maicoba Gramineae (12) 15

Arundinaria longifolia

Scattered examples of this otate are found along streams near Moris and Trinidad.

Arundo donax

Scattered examples of this Old World carrizo* are found along the streamways near Moris, Trinidad and Santa Ana.

*Uphof (1968), 53.

Sabal uresana

A palma of the Maicoba and Yécora country.

Maicoba Liliaceae (21) 1

Yucca rigida

Maicoba Amaryllidaceae (22) 15

Agave bovicornuta

Known as lechuguilla.

Agave Hartmanii

Known as maguellito among the mestizos and as utkim or utkadi among the Pima Bajo.

Maicoba Amaryllidaceae (22) 15

Agave mayoensis

Maicoba — Amaryllidaceae (22) — 15

Agave Patonii

Maicoba — Amaryllidaceae (22) — 15

Agave Schottii

Hymenocallis sonorensis

The wild cebollín (called sak by the Pima) of the Maicoba country; plentiful near the streamways, in meadows that adjoin the arroyos.

Populus Fremontii

This álamo appears in the warmer canyons between Maicoba and Yécora.

Salix taxifolia

This tarais or sauz (tu'ul) appears on floodplains near Maicoba and Yécora.

Juglans major

The nogal of the mountain Pima country.

Maicoba Betulaceae (27) 15

Alnus firmifolia

This is the alamillo of Maicoba and Yécora.

Maicoba Fagaceae (28) 15

Quercus albocincta

Maicoba — Fagaceae (28) — 15

Quercus arizonica

Maicoba — Fagaceae (28) — 15

Quercus chihuahuensis

Maicoba Fagaceae (28) 15

Quercus durifolia

Maicoba Fagaceae (28) 15

Quercus endlichiana

Maicoba — Fagaceae (28) — 15

Quercus hypoleucoides

Maicoba — Fagaceae (28) — 15

Quercus oblongifolia

Maicoba Fagaceae (28) 15

Quercus Toumeyi

Maicoba Fagaceae (28) 15

Quercus viminea

Morus microphylla

Platanus Wrightii

This is the aliso found near streamways in the mountain Pima country.

Prunus Capuli

Prunus Fremontii

This is the capulín known as mo'oskom among the mountain Pima.

Acacia angustissima

A durasnillo near Maicoba and Yécora.

Maicoba Leguminosae (53) 15

Acacia pennatula

The algarroba of Maicoba and Yécora.

Brongniartia Palmeri

A small tree of the warm canyons near Maicoba, Trinidad, Yécora, and Moris.

Maicoba Leguminosae (53) 15

Caesalpinia pulcherrima

The tavachín, a shrub with handsome red flowers, which appears at low elevations in canyons near Maicoba and Yécora.

Cassia Wislizeni

This is the corcho, a white flowered tree or shrub found in warm canyons near Maicoba.

Maicoba Leguminosae (53) 15

Diphysa sennioides

A palo dulce which is a shrub or small tree near Maicoba and Yécora.

Erythrina flabelliformis

The chilicote of the Maicoba and Yécora country.

Mimosa biuncifera

Known as the vinorama de la sierra near Maicoba and Yécora.

Mimosa cabrera

A gatuña of the Maicoba country.

Mimosa laxiflora

This is the gatuña found along the streamways at Maicoba.

Parkinsonia aculeata

Appears in the nearby canyons, at Maicoba, Yécora, and at Moris.

Maicoba Leguminosae (53) 15

Pithecolobium dulce

This guamúchil appears in warm canyons near Maicoba and Yécora.

Maicoba — Leguminosae (53) — 15

Prosopis juliflora

The mesquite of the lower canyons near Maicoba and Yécora.

Maicoba — Burseraceae (61) — 1

Bursera odorata

A torote found near Maicoba and Yécora.

Karwinskia Humboldtiana

Appears in the canyons southwest and west of Maicoba.

Vitis girdiana

A common uva cimarrona at Maicoba.

Fouquieria sp.

An ocotillo near Maicoba.

Maicoba Cactaceae (91) 15

Cephalocereus alensis

The pitahaya barbón of canyons to the southwest and northwest of Maicoba.

Maicoba Cactaceae (91) 1

Ferocactus Wislizeni

A biznaga of canyons near Maicoba and Yécora.

Maicoba Cactaceae (91) 15

Opuntia leptocaulis

Pachycereus pecten-aboriginum

Appear in warm canyons near Maicoba, Yécora, Trinidad, Moris and Santa Rosa.

Arbutus arizonica

The common madroño of the Maicoba country.

Maicoba — Ericaceae (100)

Arctostaphylus pungens

A manzanilla of the Maicoba and Yécora country.

Maicoba — Apocynaceae (108) 15

Plumeria acutifolia

A cacalosúchil of the Maicoba and Yécora country.

Randia echinocarpa

This papache grows in canyons to the southwest of Maicoba.

Maicoba Rubiaceae (125) 15

Randia sonorensis

This papache borracho appears in warmer canyons near Maicoba and Moris.

Maicoba Caprifoliaceae (126) 15

Sambucus mexicana

This is the sauco of the high country near Maicoba and Yécora.

Maicoba Compositae (130) 15

Baccharis glutinosa

Common along the streams in the high country near Maicoba and Yécora.

January: Very cold (húp), with from two to three days (taš) of snow (kuv), there rarely being more than 6 inches at the most. The snow hardly lasts more than three days. Sleet is rather common, for about one-half of the month.

February: Very cold, there being some snow and sleet, with about six or seven days of rain (equipatas),* which is referred

---

* The term equipata cannot be located in most Spanish dictionaries. Santamaría [(1959), 498] states that the term is a Tarahumar expression and that it is a regional term for winter rains in the Mexican northwest, principally in Chihuahua and Baja California. The term is much used in Sonora.

---

by the Pima as bihigam dukim. A little frost (bu'us so'ilka).

March: The weather begins to warm up a bit, with about six or seven days of rain (equipatas) and some frost.

April: Rain (dukimba) is rare. The weather is usually very dry (gak). There is no frost.

May: First real warmth develops. Commonly there is no precipitation.

June: The rains begin. Quite warm during the middle of the day but cool in the morning and late afternoon.

July: The rains continue, there being much hail (ti'a). It rains almost every day, there being hard and driving rains usually in the afternoon, but sometimes in the morning. Much trouble with overflow in the fields along the main streams and the arroyos.

August: Continuation of the situation that obtained in July. Hail is common and may damage the maturing corn. Rather cool.

September: Las Aguas continues. Coolish.

October: Onset of first really cold weather at the end of the month. There is little rainfall.

November: First frost and ice begins to form.

December: Frost and ice common. Cool. Rarely any snow.

The Maicoba Pima are not village people, and they occupy agricultural plots (öğig) that are located near or along permanent streams (aki or a'aki), arroyos (aki or a'aki) in which water is available throughout most of the ear--either from running water, pools or springs--, and uplands which are locally termed mesas. These mesas are actually fairly level portions of the rolling uplands that distinguish much of high eastern Sonora; such mesas are frequently characterized by exceedingly steep slopes, downslope or upslope from the main portion of the mesa, and it is upon such slopes that the magüeachic tillage plots are located.

The Maicoba Pima are muchly scattered throughout the approximately 17,200 hectares of land adjudicated to the ejido or comunidad in 1966, and the settlement pattern is that of individual family holdings or what may conveniently be termed a nuclear family ranch as exemplified by that at Quipur which will be discussed below. The scattered nature of the Pima settlements at Maicoba and the significance of the residence arrangement is evident from the naming of ranches upon the ejido or comunidad by Federico Rodríguez Romero one afternoon in July of 1970. Federico could recall and point out--in terms of direction from the place

Maicoba, Pennington

Chapter 3

Notes &

Draft

Brugge (1961), 10

"In general, the culture of the Lower Pima of the Mountain System seems to have preserved the simple aspects of the early agricultural ranchería groups."

Source: Zapata (1678), Relación....

Noted that for several leagues along the river the Indians had their plantations.

Settlements

Maicoba

Source: Zapata (1678), Relación....

Noted that at Maicoba, the Indians had for three for four leagues their plantations along a pretty little creek.

Settlements

Yécora

Source: Zapata (1678), Relación...

Noted that at Yécora, for the space of three or four leagues the Yécora were divided on the banks of the river, where they have their plantations.

Yécora — Introduction to Agriculture

Source: Zapata (1678)

-Zapata noted that the inhabitants of Yécora were scattered along the banks of the river for three or four leagues

-Yécora was located along the banks of a river that partly dried up during the dry season, the city being on a plain or in a pleasant valley

17

Yécora — Introduction to Agriculture

Source: Januske (1723)

Januske noted that the sowing lands were of little benefit because of much rain
He noted that the seeds rotted
[This a good observation, for I noted wettish fields, everywhere]

where the conversation took place--the location of the ranches indicated below and as well the number of families at each ranch. Moreover, he made a distinction between families with regard to whether they were considered --by the Pima--to be more or less Pima or gente de razón (Pima or mestizo folk who had become so acculturated that their background as a member of the tribu had become blurred).

El Tabaco	2 families	Pima
Palestina	3 families	Pima
Los Alamillos	1 family	Pima
Encinal	4 families	Pima
El Arbolito	2 families	Pima
Quipur	7 families	Pima
Quipurito	4 families	gente de razón
La Piedra	1 family	gente de razón
Ciénega de los Aguilares	2 families	gente de razón
La Cueva Pelada	1 family	gente de razón
Chuchupate	1 family	gente de razón

Tierra Panda	3 families	Pima
Cueva Prieta	1 family	Pima
La Dura	3 families	Pima
Cajoncito	2 families	Pima
Santa Rosa	2 families	Pima
El Terrero	1 family	Pima
Llano de Aleja	3 families	Pima
Pichado Alto	2 families	Pima
El Aguaje	4 families	Pima
La Junta	3 families	Pima
Carrizo	1 family	Pima
Palmita	1 family	gente de ra
Maicobito	1 family	Pima
Magüeache	1 family	Pima

Therefore, Federico thus accounted for the location of about 46 families of Pima within the Maicoba ejido proper, but not, however, those few families at Los Pilares and elsewhere, as at Talayotes and El Trigo, in Chihuahua and Sonora, respectively. This number represents about one-half of the 91 families accounted for in that Maicoba census made

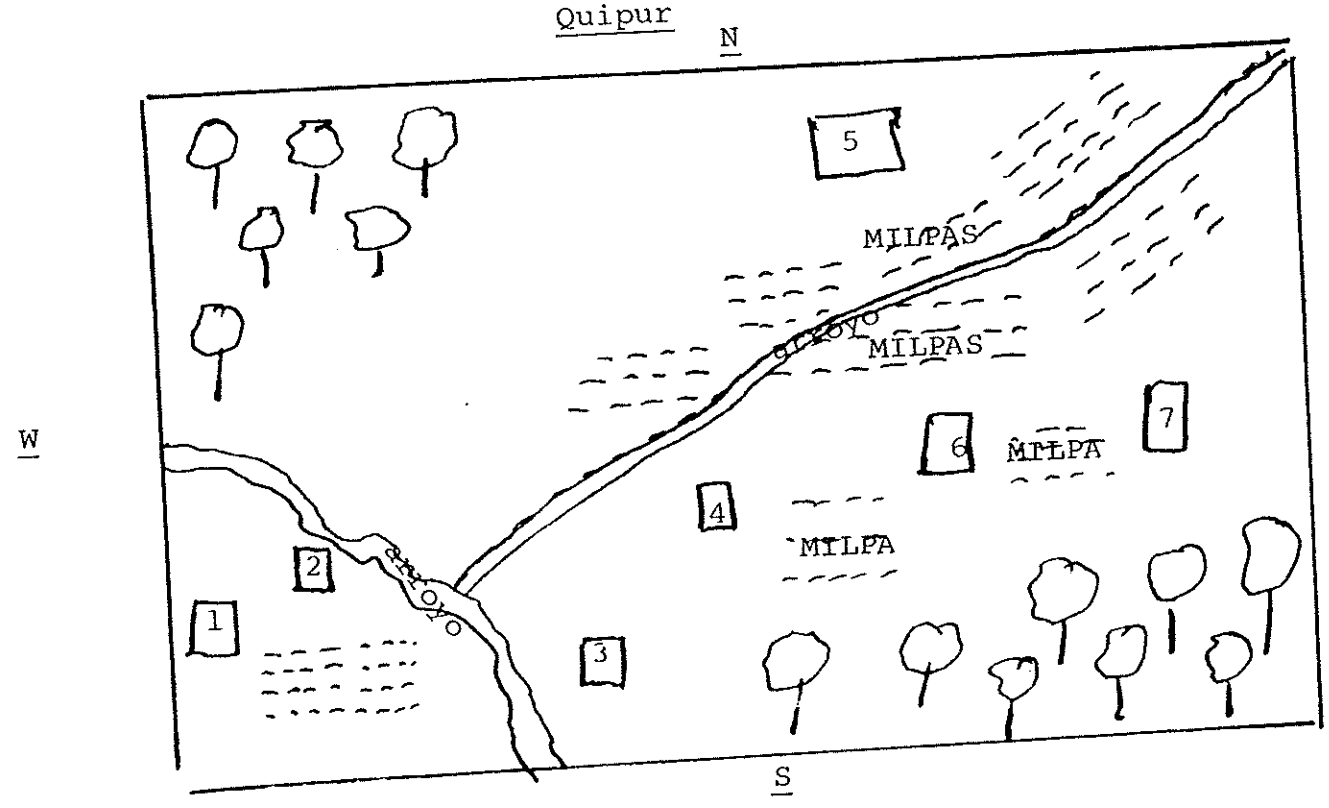
by Eugenio Rascón in 1962. Federico indicated that if he had time to "think" on the matter he could recall more names of ranches and the numbers of families living upon those ranches.*

---

* I am reasonably certain that Federico's rather detailed comment concerning names of ranches and the people thereon is a correct one. Field experience at Quipur, Quipurito, Macobito, El Encinal and El Tabaco in 1968 and 1970 demonstrated that his family numbers were correct.

In any case, the available data sugget that, on the average for the Pima at least, 2.3 families occupy the ranches listed by Federico, there being the greatest number of families at Quipur, a site which is marked by fine soil, a permanent source of water, and arroyo floodplain fields (akugyam uši) characterized by few rocks. The close relationship with respect to kinship among the occupants of the seven houses at Quipur is indicated below.

Quipur



Maicoba — Introduction to Agriculture 6

House Number 1	Former home of Pedro Galavíz.
House Number 2	Fermín Jiménez and his wife, Elena Galavíz, live here.
House Number 3	Francisco Coyote, his wife (Juana Galavíz) and his father-in-law (Pedro Galavíz).
House Number 4	Residence of Miguel Coyote and his wife (Mercedes Galavíz).
House Number 5	Residence of Dolores Castellano and his wife (Rosalia Lau).
House Number 6	Residence of Julio Galavíz and his wife (María Luisa Jiménez). An old woman named Teresa Coyote resi here also.
House Number 7	Residence of Cruz Duarte and his wife (Margarita Lau).

Maicoba — Introduction to Agriculture 7

Juana Galavíz and Elena Galavíz are sisters, daughters of Pedro Galavíz. Julio Galavíz and Mercedes Galavíz are brother and sister, and are first cousins to Juana Galavíz and Elena Galavíz. Miguel Coyote and Francisco Coyote are brothers. Rosalia Lau and Margarita Lau are cousins. María Luisa Jiménez and Fermín Jiménez are cousins. Teresa Coyote is a cousin of Miguel Coyote and Francisco Coyote. All of these people are from the Maicoba ejido except Dolores Castellano who came from Yepáchic.

There were a total of fourteen children living at Quipur, and therefore three generations of people are living at the site. According to the older people, House Number 1--a beautifully constructed log house--is the oldest house at the site, and it belonged to the parents of Pedro Galavíz; the house is distinguished because of its flat roof covered with tabletas and earth, two elements which suggest its relative antiquity. The remaining structures are combinations of stone, shingle and logs, and all have pitche roofs.

The develoment of Quipur as a nuclear family site apparently reflects a fragmented inheritance pattern which is typical of the Maicoba ejido or comunidad. Pedro Galavíz was one of two sons. His brother, father of

Julio and Mercedes Galavíz, married a woman who lived about three kilometers from Quipur, and worked land that came under his control because of his wife's claim to her father's land. The claims of Pedro Galavíz's daughters (Juana and Elena) to land at Quipur are legitimate because of the Pima custom of allowing daughters equal shares in the land held by their parents Claims of Pedro's nephew and niece (Julio and Mercedes Galavíz) to land at Quipur are valid because of their inheritance rights through their father, brother of Pedro Galavíz. Dolores Castellano's and Cruz Duarte's holdings reflect the availability of land, friendship between the two men and the other holders of land--those of the second generation--at the site, and the fact that the wives of the two men are close cousins, and as well distant cousins of Pedro Galavíz.

Thus, the tenure pattern at Quipur suggests that: (1) claims to land (derechos) are equally divided between the sons at the death of the parents, as in the case of Pedro Galavíz and his brother; (2) daughters (Elena andJuana Galavíz) share equally the right to land held by their parents; (3) children of a claimant (Julio and Mercedes Galavíz) may return to their parents' holding and claim their rights if land is available; and (4) that close relatives (cousins), such as Rosalia and Margarita Lau, may take up land on a rancho if that land is available.

The old people at Quipur were rather positive that all children, male and female, shared and shared alike in the holdings of their parents upon the death of the parents. The old people further recognized that this pattern was different from that at Yepáchic, where among the Pima the oldest male child was the chief claimant to his parents' land, even to several generations, and that this claim could not be alienated and could be implemented if that male cared to assert his claim. The old people further noted that in cases where a father had only girl children, or if he had surplus land, then one or more of his sons-in-law might work such land eventually his children would inherit the land, the claim of course being legitimatized through the wife.

There are apparently exceptions to the above general rules, as in the case of Federico Rodríguez Romero, who is about 75 years old (1970) and currently married to this third wife. He was first married to Eloisa Duarte and had three children by her, Juan (age 42), Francisco (age 36) and Josefa (age 38). These children do not recognize Federico as their Father, since he "flew away"* when they were small children.

* Federico used this term to indicate his bandonment of his wife and family. He further noted that he left because his wife was "playing around with another man" while he was away at work at a mine.

Today, Juan lives at Maicoba, Francisco at El Encinal and Josefa in Magüeachic. None of these children, according to Federico, have derechos with respect to his holdings. Eloisa Duarte died in 1970, but she and Federico had earlier been "divorced." About thirty years ago, Federico went to Yepáchic and married Loreta Rascón, and had one child (Francisco) who also has no rights to Federico's lands. The wife died and no one knows where Francisco resides. A few years ago, Federico married a woman named Eloisa Jiménez, a woman whose husband had "flown away" and left her with two children, Constancia (who has six children) and Lupe (who has six children). At Federico's death, and that of his wife, his lands will go to the children of Constancia (who lives upon Federico's lands today) and not to Lupe or her six children who live elsewhere on the ejido.

The above data suggest, like those data from Quipur, that there is no general rule of inheritance where, regardless of where the oldest male and his oldest male descendant may have gone, such offspring has the right to the land at the death of the parents, as is certainly the case among the Pima at Yepáchic. Federico knew of the difference in inheritanc customs at Maicoba and those at Yepáchic, and he remarked that "there are many fights" at Maicoba upon the death of parents who hold much and good land. This statement is consistent with one made by the Presidente Municip at Yécora in 1970, that at Maicoba "when the parents die the fights start, there being no specific rule about inheritance."

Three of the older Pima at Maicoba referred to another pattern of inheritance, and cited as an example a case where there were four sons and three daughters. At the time of the death of both parents the three older sons had already established themselves upon land distant from their parents, either upon land held by their wives or land which they had taken up with permission of the Pima governor and the comisario at Maicoba. The three daughters had married and were established upon lands elsehwere.

Maicoba

Introduction to Agriculture 12

The youngest son (the socoyote) inherited all land held by his parents simply because he was not only the only son at home but because he was the youngest son, not yet established. The Pima insist that this situation is an uncommon one.

It may be that the inheritance pattern described for Quípur may reflect and old Pima mode, that of equal division between children at the death of the parents, and the respect for the claims on the part of children of those who have left their parents' ome prior to the death of the parents.

The Maicoba Pima refer to several types of planting activities, a libre, a juntos and a medias. A libre planting refers to a situation where a man plants and cares for his own crops, with only the assistance of his family. A juntos tillage refers only to an exchange of labor, and does not involve the sharing of proceeds of the crops. A medias planting involves tillage carried on under a share system, with one person supplying the land, animals, implements and seed, and the other supplying the labor, or, one person supplying the land and another person everything else that is needed.

Maicoba

Introduction to Agriculture 13

The older Pima insist that most members of the ejido or comunidad prefer a libre planting. A juntos tillage is not uncommon, as for example that which obtained at Quipur in 1970. In that year, Miguel Coyote, Dolores Castellano, Cruz Duarte, Julio Galavíz, Fermín Jiménez and Francisco Coyote were helping each other. However, all of these men insisted that this was but a friendly gesture, a custom, and that the proceeds of the crop would not be shared. The juntos activity was certainly not because one person had oxen and the others did not; Fermín Jiménez had his own oxen, as did Francisco Coyote. Miguel Coyote, Dolores Castellano, Cruz Duarte and Julio Galavíz had no oxen, but they were using animals rented from Ernesto Águilar (a gente de razón); the rent involved a payment of 5 hectolitros of maize by each man who used the oxen. The older Pima denied that a juntos tillage was practiced on magüeaches, those steep upland plots which may be seen almost everywhere in the Maicoba country.

With regard to a medias tillage, it is almost certain that it was muchly practiced a generation ago. The Pima governor (1970) stated that before his election several years ago a medias tillage was common, but that since his election he had discouraged the practice because the mode of tillage did not mean much, that "the return was too little."

He noted that the "Pima could and should work." When pressed for details of the a medias tillage, the governor remarked that Federico Rodríguez Romero and Juan Gonzales were older men and were more familiar with the details of a medias tillage as it existed a generation ago.*

* Juan Gonzales is actually about the same age as the Pima governor (1970) and Gonzales was a candidate for the office of governor at the last election.

Federico and Juan made the following statements concerning a medias tillage as it existed about twenty-five years ago. They referred to a hypothetical Pima who was muy pobre, one who lacked seeds, cattle and so on, but one who did possess land. This Pima was on fairly good terms with a blanco who had ample stock and seeds, or access to them. The Pima and the blanco had a preliminary talk. The Pima wanted to obtain oxen by renting them, but the blanco declined to make this arrangement, since it would mean less to him in the long run. The blanco finally

persuaded the Pima to work on shares. The blanco agreed to provide stock, seeds and food (lard, salt, beans and salt, for example), often from a store in which the blanco had a major interest. This provision was good for April through August, and always ended just at the time the crops began to be harvested. The proceeds of the crop were divided, but sometimes the food and supplies for the above mentioned months cost as much or more than the value of the yield for the Pima, particularly during years marked by poor crops because of drought or hail. Moreover, the Pima often did not understand the significance of the allowance and "took too much [at the store]." Federico noted that if the blanco would rent the oxen, the rent for the animals would be about 5 hectolitros for a season, there being no food or supply allowance under such an arrangement

Federico agreed with the statement of the governor that until about five years ago, when the real difficulties between blanco and Pima developed at Maicoba, because of the conflict over the status of lands on the ejido or comunidad, there was much a medias tillage, with blancos as the patrones. Federico believed, that on the whole, the gradual abandonment of the practice was a good thing. He noted that the Pima woul be better off if they returned to the old system of libre planting, follow

the old system of juntos activity on the ranches only because this made the work "easier," not with the intent of sharing proceeds. Federico recognized that there would be a difficulty with respect to obtaining oxen if during the next few years sufficient draft stock did not stem from the cattle obtained several years ago by the Pima governor (see Chapter I).

The Maicoba Pima sometimes "lend" land, but they do not really like to do so, since once the land is worked for a time by someone other than the "owner," that person usually does not want to return the land. Sometimes, the Maicoba Pima "rent" their holdings, the rent being about $400.00 ($32.00 US) for a parcel of land that will support a family of two adults and three or four children for a year. Such land is "rented" only to "responsible people," such as relatives or close friends.

As is to be expected, the yearly cycle of work activities at Maicoba is geared to care of the land and of the structures that are a part of that land. There is little to be done in January except to cut logs for fences. If the weather is suitable, fields may be plowed in

February. After the fields are cleared of brush and stubble the houses may be repaired; tabletas for replacement of decayed roofs are prepared during February. Those tabletas which are left in the forest for drying are brought to the houses in March. Sometimes, adobe bricks are fashioned in March. Maiz de temporal is often planted in April, during which month the repair of fences is begun, so that stock will not damage the crops later in the year. Potatoes are planted in May and the repairing of fences is continued. There is nothing special to attend to in June, but at the end of the month maiz de aguas is seeded. Fields destined for beans are burned in July and those magüeaches are got ready for seeding. Beans are seeded in late July or early August.* Excess

* Beans were planted at Quipur during the last week of June, 1970.

stalks from corn are removed in late July. Additional bean plots are seeded in the magüeaches during the early part of August. According to the older Pima, no seeding takes place after the 15th of August. During late August and early September the fields are weeded. If there are sufficient people in the family to guard the fields against predators

Maicoba Introduction to Agriculture 18

the head of the household may go elsewhere in September, to see a short-term job. Maíz de temporal is generally collected in October, and in that month the pastura from maíz de temporal fields is collected and stored. Potatoes are harvested in November and late maíz de temporal is harvested. Maiz de aguas and the beans are gathered in December.

Maicoba Introduction to Agriculture 19

The Agricultural cycle (as of data obtained in 1971)

January:	Plow the fields for May planting Work on the fences Repair corrals Work from 6 to 8 hours per day
February:	same as January
March:	Same as February
April:	Prepare new posts and install, and add wire if available Plant potatoes
May:	Begin planting temporal corn about the 8th of month Plant calabazas
June:	Plow the land once before planting maíz de aguas Plant maíz de aguas

Maicoba

Introduction to Agriculture 20

July: Prepare the bean plots
Begin planting beans
Finish bean planting before end of month

August: Remove weeds from bean plots

September: Temporal corn elote comes in
Not much to do but watch the crops

October: both classes of corn are harvested
cut pastura from corn field and let dry
for several days, then bundle up for storage
in tasolera [como troje]

November: continue to harvest corn
leave the stalks, they are to dry for much
use except browsing by animals
harvest beans
harvest calabazas

December: go elsewhere to work if possible

Maicoba

Introduction to Agriculture 21

A-medias planting with blancos

1. None after 1970, when the Ejido was "given" to Pima.
2. Apparently, it stopped with building of the fence.
3. Apparently:

-blanco supplied seeds and bueys
-the yield might be 20 cargas of corn (2,000 litros or 700 kilos)
-this would be divided equally
-remember that so much credit was extended at stores that the Pima rarely ever got 1/2

Maicoba

Introduction to Agriculture 22

On the subject of Juntos Planting

To Federico and Juan, juntos tillage means that perhaps two very close friends, or two brothers, who live very close to one another might work their lands together. Each furnishes his own seed and equipment, but they work together. There is no division of proceeds, each man getting what his land produces.

Maicoba

Inheritance 1

Data obtained from Juan and Federico (1971)

1. Assume that Mother and Father have the following offspring by sex and age:

   A. Daughter (oldest child)
   B. Son
   C. Son
   D. Daughter
   E. Daughter (socoyote)

2. Upon death of the Mother & Father the socoyote, regardless of whether male or female gets the house and its contents and the land immediately adjacent to the house. The other land is divided equally.

3. With respect to cattle, Juan and Federico noted that families generally understand just who gets the cattle upon death of the parents. This is because the parents designated ownership when they acquire the cattle.

4. Inheritance is from husband to wife, or from wife to husband, and then to the socoycte.

Maicoba

Inheritance 2

5. Sometimes, there is a difficulty, because Father or Mother may give land to children to be used during Father's and Mother's lifetime, and then, upon death of both parents such users are irked at having to divide the land.

6. Some specific cases

A. Assume an hombre who has land and who marries a mujer from 15 kilometers away. The wife may retain rights to land where she was born. Arrangements may be made for a medias tillage on the part of her brother, her Uncle, or brother-in-law.....who work the land. BUT SHE OR HER HUSBAND MUST GO TO HELP GATHER AND DIVIDE THE CROP.

B. Assume an opposite situation, then the husband goes to his wife's land lets his relatives work his rights a medias. But he will return to help harvest and divide the crop, doubtless to see that justice is done, with respect to division of the yield.

Maicoba

Inheritance 3

C. With respect to certain conditions under a medias planting

-with regard to Case A above, the woman might supply a portion of the seeds, but customarily the worker of the land would provide the plow, oxen, and seeds
-and there is equal division of proceeds

7. Under Maicoba custom and "law", land cannot be sold

Maicoba

Inheritance

Nolasco Armas, 1969

page 224: Inheritance

"The house, the land, and cattle, when the father dies, passes to the power of the male children, or in defect of same, to the daughters. The furnishings are of a domestic type, usually for the son or daughter that may remain single that live with their parents."

Maicoba

Introduction to Agriculture

Source: Zapata (1678)

- Zapata noted that the inhabitants had plantations along the creek for a distance of three or four leagues
- the soil was said to be fertile [it still is]

6. What do the parents do when a child throws a temper tantrum?

7. Is there any masturbation among the small boys, and if so, do the parents pay any attention to this, even if the act is done in public?

8. What is done about children whose parents die?

9. At what age do the Pima children begin to attend school?

10. At what age to children begin to be sent on errands?

11. At what age do girls begin to play at adult activities?

12. At what age do the boys begin to participate in [illegible]

13. At what age do the boys begin to gather firewood?

14. At what age do the boys begin to drive animals or care for them?

15. At what age do children begin to do hard work in the field, such as guiding the plow?

4. What do the [illegible] youth do to amuse themselves during the period between [illegible] and [illegible] years of age and the time they go out to work for themselves or to marry?

5. What is the age for the first menses of girls?

6. Are there any cases of menstruation not taking place at all?

7. If there are menstrual disorders, what is done about this? Are mid-wives consulted?

8. Does the mother inform her husband when a daughter first menstruates and is any particular care taken to see that the girl is not alone where she might be stimulated to have sex with a man?

9. Has anyone ever heard of sexual relations between father and daughter?

10. Is there any attempt to keep track of menstrual periods?

11. How many days does the menstrual period last?

12. Are any kind of special garments worn by the women during menstruation?

13. Do women have sex relations with men during the menstrual period?

14. If they do, is this believed to be harmful to the man?

15. Are there any restrictions upon women during menstruation with respect to what they may do in the way of work, or in what they may eat?

Homosexuality

1. How rare is the unmarried state among the Pima?

2. Are there any cases where there are known homosexuals among the Pima, male or female?

3. If so, have any of these people ever been married?

4. What are homosexuals called?

5. Does the community hold homosexuals in contempt, or are they tolerated?

15. Has anyone ever heard of a boy "stealing" a girl for a few weeks, that is, forcing her to go away with him, and then marrying her after they return?

16. Describe in detail a Pima wedding, with respect to place, time of day, those who participate, presents, etc.

17. If the boy has no place of his own, does he and his bride live with her parents or his parents for a time?

18. How soon after marriage do sexual relations begin?

19. If the couple live with either of the parents what is the position of the bride in the household? Good or bad?

20. If the couple live with either of the parents, do the women have separate cooking places?

21. If the couple live with either of the parents for a time how soon does the young couple start out on their own?

22. Is there much quarreling between husband and wife?

W

1

2

Arroyo

3

4

5

N

6

7

E

Rancho at Quipur

House Number 1 - abandoned [but note it was marked by flat roof covered with tablas and earth. The walls had been removed]

- Pedro Galavíz once lived here
He had two daughters
When wife died he went to live with his daughter (Juana Galavíz) who lives at rancho but who in July of 1970 was at Tierra Banda working a milpa.

House Number 2 - Fermín Jimenez and his wife Elena Galavíz (daughter of Pedro Galavíz) live here.

House Number 3 - Permenant residence of Francisco Coyote and his wife Juana Galavíz (daughter of Pedro Galavíz).

House Number 4 - Residence of Miguel Coyote and his wife Mercedes Galavíz.

House Number 5 - Residence of Dolores Castellano and his wife Rosalia Lau.

House Number 6 - Residence of Julio Galavíz and his wife María Luisa Jimenez. An old woman, Teresa Coyote, lives there as well.

House Number 7 - Cruz Duarte and his wife Margarita Lau live here.

With respect to kinship of above people:

Juana Galavíz (House Number 3) and Elena Galavíz (House Number 2) are sisters.

Julio Galavíz (House number 6) and Mercedes Galavíz (House Number 4) are brother and sister.

Miguel Coyote (House Number 4) and Francisco Coyote (House Number 3) are brothers.

Rosalia Lau (House Number 5) and Margarita Lau (House Number 7) are cousins.

María Luz Jimenez (House Number 6) and Fermín Jimenez (House Number 2 are cousins).

Teresa Coyote (House Number 6) is a cousin of Miguel Coyote (House Number 4) and Francisco Coyote (House Number 3).

Julio Galavíz (House Number 6) and Mercedes Galavíz (House Number 4), the brother and sister, are cousins to JuanaGalavíz (House Number 3) and Elena Galavíz (House Number 2), who are sisters.

All of the above people are from the Maicoba Ejido except Dolores Castellano (House Number 5) who came from Yepáchic.

NOTE: In July of 1970, there was 1 pair of oxen being used in the small milpas on this rancho. They were rented from Ernesto Aguilar (gente de razón) for 5 hectolitros of maize.

Francisco Coyote (House Number 3) had bueyes but was using them at his milpa at Tierra Panda.

Fermín Jimenez also had bueyes and was using them in his milpa.

Miguel Coyote (House Number 4), Dolores Castellano (House Number 3) and Julio Galavíz (House Number 6) and Cruz Duarte (House Number 7) were using the rented bueyes.

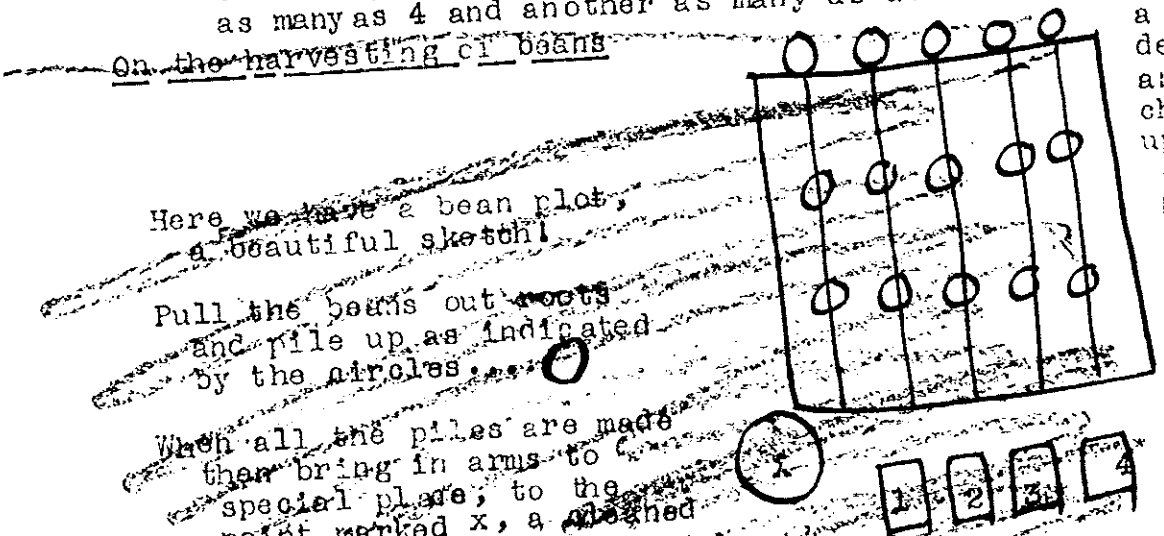
The above people (above paragraph) worked juntos, that is sharing labor, nothing else.

It is very common that such arrangements reflect the elaborate and somewhat complicated compadrazgo system, for Federico was quite explicit that usually people prefer to work solo, and to be on their own, as is his case.

Also, the situation at this particular rancho at Quipur reflects the multiplicity of familial ties at each of the ranchos where there are several families. Federico referred to the mentioned people as hermanos (brother and sister); primas (cousins), and so on.

Obviously, since most of these people have children (one family as many as 4 and another as many as at House Number 5), there is a problem at the death of parents and as the children grow up, the matter of inheritance, need for land, etc.

On the harvesting of beans



Here we have a bean plot, a beautiful sketch!

Pull the beans out roots and pile up as indicated by the circles.

When all the piles are made then bring in arms to a special place, to the point marked x, a cleaned place. Thresh with a stick and place the winnowed beans in the coastales as 1, 2, 3, or 4.

Then take to the house.

Maicoba — Introduction to Agriculture

Nolasco Armas, 1969

page 211: Pima working land on parcels BOUGHT BY blancos

Nolasco Armas noted that some Pima remained on land that had been acquired, in some fashion, by blancos, and were not interfered with.

page 211: Private lands owned by Pima

Nolasco Armas noted that some Pima, not more than 10 o/o owned private property, within the ejidos, or on land that has same characteristics as the ejidos.

[NOTE that Federico did not mention that he had private property but see ejido map sent to me]

Maicoba — Agricultural Cycle

Nolasco Armas, 1969 — Agricultural Cycle 1

page 211: Agricultural cycle

At the end of October, they open the furrows and remove the stalks of corn

Early in January they clean the fields and plough

Planting begins in May

They use wooden plows, with metal points and animal traction

But the maguechic, slopes cannot be used for plow...so machete is used to clean the land

Nolasco-Armas, 1969

page 211: Pressure upon the land

Nolasco Armas notes that few of the whites and mestizos are working at agriculture. These people maintain cattle and therefore increase the pressure upon the land

page 214: Medias Planting

-Nolasco Armas noted that it was yet practiced in 1961
-patron puts on the seed, oxen, and gives food to the indigene until harvest
-worker puts on the land and the work
-harvest is divided 50/50

Nolasco Armas, 1969 Agricultural Cycle 2.

TO SOW: they let fall in each step (from 40 to 50 cm, 3 or 4 grains of corn upon the line made with the plow, or in the hole if a digging stick was used...they cover with the foot

USE ABOUT 7-10 kilos per acre for corn planting

June and July is marked by weeding
Men and women work at this
They use hoe or spade, barreta, coa and handspike

August and first days of September may be marked by elote collection

Final harvest in mid October

To rfmove the ears, cut them with a knife of small awls made of bone, from one line to the opposite, dropping them into a sack of yute that you carry on one shoulder, and once it is filled, empty into a mound located on ond side of the field plot. The whole is taken later to the house

Everyone in the family works at gathering corn.

On the corn business

1. Check to see what has been said about each race with regard to its use at Yepáchic, Maicoba, and Ónavas.
2. Be sure to recheck data on cards against data in Wellhausen (1952).
3. Be sure to recheck the matter of EXACTLY what material was found in the Durango archeological site at Zape (particularly reventador and chapalote).
4. Be sure that there is no disparity in routes for corn mentioned for Yepáchic, Maicoba, and Ónavas Pima.
5. Make a footnote on the following:
   A. How can we be sure the corn is "old"?
   B. I am inclined to believe the Pima, but we cannot be certain.
   C. comment on lack of really large field collections, archeological finds, etc.
   D. Mention "conservatism" of Indian peoples in the footnote.

Moris — Field Crops - 1777 — 18

Source: Rada (1777)

1. maíz
2. calabazas
3. beans
4. watermelons
5. Melones

→ ALL PLANTED IN verano and begin to mature in August

6. trigo

MAICOBA PIMA BAJO FIELD CROPS

(Past and Present)

Gramineae

Zea mays

Ancient Indigenous Race

Chapalote

Pre-Columbian Exotic Races

Harinoso de ocho
Maíz de agua
Maíz de agua

Elotes occidentales
Maíz

Prehistoric Mestizo Races

Reventador
Maíz reventador

Tabloncillo, or derivatives thereof
Maíz blanco
Maíz
Maíz rojo
Maíz kawisori

Tabloncillo perla
Maíz ocho de carrera
Maíz cristalino

Zapalote chico

Tuxpeño
Maíz Obregón
Maíz
Maíz

Poorly Defined Races

Onaveño
Maíz

Dulcillo del noroeste
Maíz viejo or maíz dulce

Maíz cristalino de Chihuahua

Mountain Yellow Varieties

Maíz amarillo
Maíz cristalino

Euchlaena mexicana
Maíz cocono

*
Sorghum vulgare
Malo maíz

*
Triticum aestivum
Trigo

Leguminosae

Arachis hypogaea

*
Glycine max

Phaseolus vulgaris varieties

Frijol ojo de cabra
Frijol vaquito
Frijol pinto negro
Frijol blancito
Frijol garrapato
Frijol Sinaloa
Frijol blanco

Frijol bolito
Frijol canelo
Frijol güirote
Frijol mantequilla
Frijol vayo

*
Vigna sinensis

Frijol yurimun

*
Pisum sativum

Chícharo

Convolvulaceae

Ipomoea batatas	turüv

Solanaceae

Solanum tuberosum

Cucurbitaceae

Cucurbita ficifolia	im
Cucurbita maxima	
Cucurbita mixta	im
Cucurbita moschata	
Lagenaria siceraria	vák, váko

MAICOBA

Pre-Columbian Exotic Race

1. Harinoso de ocho

   maíz de agua
   -planted in July
   -harvested in November

   tesgüino
   pinole
   nixtamal
   atole
   pozole
   esquite
   tortillas
   chacales (cook corn on the cob, remove grains, grind on metate, cook again, with chile

2. Harinoso de ocho plus chapalote

   maíz de agua
   -planted in July
   -harvested in November

   tesgüino
   pinole
   nixtamal
   atole
   pozole
   esquite
   chacales

3. Elotes occidentales [a sub race of Harinoso de ocho]

   maíz prieto

   tesgüino
   pinole
   nixtamal
   atole
   pozole
   esquite
   tortillas
   chacales

Prehistoric Mestizo Races

1. Reventador

   grown infrequently
   some Pima claim only used for pinole

2. Tabloncillo (with pink overtones, with exceedingly irregular rows)

   ALL USES INCLUDING tesgüino

3. Tabloncillo

maíz blanco — all uses

4. Tabloncillo plus harinoso de ocho — all uses

maíz

5. A bn-the-hard side tabloncillo

maíz kawisori — all uses
-may be planted in June
-may be harvested in November
-will mature under "good" conditions in 90 days

6. Tabloncillo perla

maíz ocho de carrera — all uses
-will mature in 90 days
-an old corn

7. Tabloncillo perla

maíz cristolina — all uses
-an old corn
-will mature in 90 days

8. A northwestern Zapalote Chico

-planted in May
-harvested in November
all foods, but not afor tesgüino if there is other corn

9. A northern tuxpeño — gall ueses

planted in May/gathered inNov.

10. Another northern tuxpeño — all uses

does not dowell except in cool years

11. A short aform of tuxpeño . — all uses

maíz Obregón
grown but little
"takes too long"
planted in April - harvested in Nov — al l uses

Poorly Defined Races

1. Dulcillo del noroeste

esquite
pinole
atole
NOT AFOR TESGUINO
too"sticky"for
tortillas

maíz dulce-
maíz viejo
May/June planted
harvested in November

crossed with maíz blando de Sonora
]where known for NW Mexico]
and harinoso de ocho

MISCELLANEOUS CLASSIFICATION (the dominant corn at Maicoba)

maiz amarillo ------
maíz acristalina -----
maíz blanco
-a slight dent with
large amounts of maíz
blando de Sonora

yellow endosperm, 10-12 rows,
thick ~~x~~ø~~y~~~~s~~ kernals, rows
generaly quite regular

Zea mays (1)

In part, corn cultivated by the Maicoba Pima Bajo may be conveniently considered within that frame of reference established for Mexican corns by Wellhausen and his associates in 1952. However, some corns grown by these upland folk should be considered accordingto the classification established by Edgar Anderson in a preliminary survey of Mexican maize in 1946.

Wellhausen and his associates* divided the twenty-five recognized

* Wellhausen et al. (1952).

races of Mexican maize into four major groups: the Ancient Indigenous group, which includes corns that anciently developed within what is today known as Mexico; the Pre-Columbian Exotic group that that includes races believed to have been introduced into Mexico in prehistoric times;

Maicoba Gramineae (12) 18

Zea mays (2)

the Prehistoric Mestizo group which includes corns developed through hybridization of Pre-Columbian Exotic and Ancient Indigenous races and hybridization of both of these with a new element, teosinte (Euchlaena mexicana); and the Modern Incipient races, those developed since the Conquest but which have not yet reached a racial stability. In addition, Wellhausen and his associates identified a group of races which have not yet been collected in sufficient amounts for a precise determination of their status.

The Maicoba Pima Bajo cultivate representatives of all of these groups except the Modern Incipient; but it is likely that examples of this group are grown, since such strains as celaya, chalqueño, and cónico norteño are present among the contemporary Tepehuán* who live to the

* Pennington (1969), 238-39.

Zea mays (3)

southwest of the Pima Bajo of high eastern Sonora, and because cónico norteño is cultivated among the Yepáchic Pima Bajo hardly thirty miles east of Maicoba.* Moreover, celaya is cultivated

* I collected cónico norteño among the Yepáchic Pima in 1969.

by the Tarahumar who live southwest of the upland Sonora Pima.*

* Pennington (1969), 238.

By far the most important corns cultivated by Maicoba Pima are corns which should be assigned to the Mountain Yellow classification developed in a tentative fashion by Edgar Anderson;* such corns do not

Maicoba Gramineae (12) 18

Zea mays (4)

* Anderson (1946).

readily fall within the Wellhausen et al. classification.

Among the Maicoba Pima maize is known by a general term, hu'un, and as with other surviving aboriginal peoples in northwestern Mexico, color and textural differences are used to indicate specific and varietal differences. Therefore, white corn (maíz blanco) may be referred to as to'a hu'un, and hard corn (maíz duro) is referred to as ka'uk hu'un. These Pima terms are literal translations of the Spanish. On the whole, however, contemporary Maicoba Pima refer to corn types in the same fashion as do mestizos and blancos or northwestern Mexico, using such terms as maíz blanco, maíz pinto, maíz amarillo, maíz reventador, and so on.

Zea mays (5)

Ancient Indigenous Race

Maicoba Pima cultivate, albeit to a small degree, a chapalote, a chocolate colored representative of one of the oldest corns in Mexico, a race that has been found in pre-Christian levels in the Tehuacán site in southern Mexico.* Collections of chapalote have been made in the coastal lowlands of Sonora and Sinaloa, being found at Culiacán in Sinaloa, and at Moctezuma, Ures, Sahuaripa, and Suaqui in Sonora.*

* MacNeish (1964), 34.

* Wellhausen et al. (1952), 56.

An example of chapalote is cultivated by surviving Pima Bajo who live

Zea mays (6)

at Ónavas on the middle Yaqui in Sonora.* Chapalote has been documented for the Tepehuán of southern Chihuahua,* and archeological vestiges of the race have been found in northern Durango and southern Chihuahua.*

* I collected chapalote at Ónavas, Sonora in 1968.

* Pennington (1969), 233.

* Brooks et al. (1962), 356-57, 365-67. Cutler (1960), 277-79.

The pre-Columbian archeological evidence for a chapalote in northern

Mexico (Durango and Chihuahua), the contemporary use of the corn by the Tepehuán of southern Chihuahua and by the PimaBajo along the middle Yaqui in Sonora, and the collection of the race in Sonora and Sinaloa prior to 1952, suggest something with respect to the route of dispersal of the corn into the Maicoba country; the race may have spread--in pre-Columbian times--northward through west central Mexico into the northern Tepehuán and Tarahumar country, from which area it spread to the mountain Pima and thence to the low country of Sonora, to the Ónavas Pima Bajo, and from these people it spread northward and southward.

Contemporary Maicoba Pima state that chapalote is rarely grown, and that when it is cultivated it is used solely as a popcorn.

Pre-Columbian Exotic Races

Harinoso de ocho, an all-purpose flour corn known as maíz de agua at Maicoba, resembles South American strains and also certain

Maicoba Gramineae (12) 18

Zea mays (8)

of the flour corns of the northern Great Plains in the United States.*

* Wellhausen et al. (1952), 69.

And it apparently is rather closely related to prehistoric flour corn found in the Cañon del Muerto in the American Southwest,* and is probably related to a Papago white corn.* Thus far, harinoso de ocho

* Ibid., 70.

has been collected in northern Nayarit and in Sonora (the Yaqui Valley and at Ures),* and among the contemporary Tarahumar.* There is archeologica

* Ibid., 69. Pennington (1969), 238.

Zea mays (9)

evidence of the race in a pre-Columbian site in northern Durango.*

* Brooks et al. (1962), 356-57, 365-67.

Therefore, on the basis of Wellhausen's assumption that the corn was once widely distributed in northwestern and western Mexico, the scattered collection of the race in Chihuahua, Sonora, and Nayarit, and the archeological evidence from Durango, we may assume that harinoso de ocho is a very old corn among the Maicoba Pima Bajo. However, there is little that can be said about how the race reached high eastern Sonora.

Another maíz de agua, also an all-purpose corn, is marked by characteristics which demonstrate its derivation from harinoso de ocho and chapalote.

Yet another representative of the Pre-Columbian Exotic races at

Maicoba Gramineae (12) 18

Zea mays (10)

Maicoba is a sub-race of harinoso de ocho, an elotes occidentales, which is known as maíz prieto, an important roasting ear corn. The center of emphasis upon cultivation of elotes occidentalis is, according to Wellhausen and his associates, upon the Jaliscan Plateau.* The strain

* Wellhausen et al. (1952), 71.

has been collected among the Tarahumar.* Whatever the route of the diffusio

* Pennington (1969), 238.

northward to the Tarahumar, the strain must have reached the Maicoba Pima

by way of these Indians.

Somewhat puzzling is the absence of maíz dulce among the Maicoba Pima. This Pre-Columbian Exotic race has been documented for the Tepehuán of southern Chihuahua, and the strain appears among the Pima of Yepáchic, those Indians who live hardly thirty miles east of Maicoba.

* Ibid.

* I collected maíz dulce among the Yepáchic Pima in 1969.

Prehistoric Mestizo Races

Four Prehistoric Mestizo races are well represented among the

Maicoba Pima. There is a true reventador which is somewhat restricted in use for preparing corn dishes, several varieties of tabloncillo which are multi-purpose in use, several examples of a sub-race of tabloncillo, tabloncillo perla, a northwestern zapalote chico which is said to be all-purpose in use, and several forms of tuxpeño that are said to be useful in preparation of all corn foods and tesgüino.

The true reventador is known among the Maicoba Pima as maíz reventador and is said to be grown only infrequently, for use as a popcorn and in the preparation of pinole. Wellhausen and his associates suggest that reventador resulted from the hybridization of chapalote and teosinte (Euchlaena mexicana), and that the race was once more widespread than it is today; these investigators further state that reventador must be Pre-Columbian in origin since it is apparently the ancestor of several well-established races of corn in Mexico.

* Wellhausen et al. (1952), 94.

Zea mays (13)

Reventador has been collected in three principal areas of western Mexico, in the far northwest (Sonora), in central coastal Culiacán, and in the southwestern states of Guerrero, Michoacán, Colima, Jalisco, and Nayarit.* Wherever its precise origin, we may assume that it reached

---

* Ibid., 93.

---

the Sonoran low country Pima from the south--I collected reventador at Ónvas in 1968--and was diffused from them to the Maicoba Pima by way of the Yécora Pima. From the Maicoba Pima reventador spread eastward to the Yepáchic Pima, among whom reventador was grown in 1969.*

---

* I collected reventador among the Yepáchic Pima in 1969.

Maicoba Gramineae (12) 18

Zea mays (14)

On the other hand, there is archeological suggestions of reventador in a northern Durango site, at Zape.* Therefore, the possibility exists

---

* Brooks et al., (1962), 356-57, 365-67.

---

that the race could have spread northward along the eastern portion of the Sierra Madre Occidental to the Tepehuán of southern Chihuahua, and by way of these people who are certainly linguistically connected with the upland Pima of Sonora and Chihuahua, could have reached the high eastern Sonora country. Some negative evidence for such a route rests with the fact that reventador has not been collected among the Tarahumar who live between the southern Chihuahua Tepehuán and the mountain Pima of western Chihuahua and eastern Sonora. Moreover, the race is not known among the northern Tepehuán except in the archeological site in Durango where the northern Tepehuán once lived.

Zea mays (15)

Tabloncillo and closely related strains constitute important corns among the Maicoba Pima. There is a true tabloncillo known as maíz blanco. Another example (maíz) demonstrates characteristics of harinoso de ocho, a Pre-Columbian Exotic race. There is a tabloncillo with pink overtones (maíz rojo) marked by very irregular rows. Maíz kawisori is an on-the-hard-side tabloncillo. Maicoba Pima cultivate two examples of a tabloncillo perla, which are known as maíz ocho de carrera and maíz cristalino.

The precise origin, with respect to time and place, of tabloncillo is not determined, but Wellhausen and his associates suggest that it resulted from influence of teosinte (Euchlaena mexicana) upon a Pre-Columbian Exotic race, harinoso de ocho, or upon reventador, a Prehistoric Mestizo race. Apparently, tabloncillo reached its most significant development in western Mexico, and modern collections of the corn have been made in extreme southern Baja California, northern Sonora (Ures), Nayarit, and Jalisco, at elevations up to 1,500 meters.*

Southern Chihuahua

Maicoba Gramineae (12) 18

Zea mays (16)

* Wellhausen et al. (1952), 98.

Tabloncillo mixed with other corns, and tabloncillo perla have been documented for the Tepehuán of southern Chihuahua.* The hard and

* Pennington (1969), 238.

flinty tabloncillo perla of the Maicoba Pima is an analogue of a tabloncillo perla that has been found at lower elevations in the state of Nayarit, at elevations up to 1,200 meters in the state of Jalisco, and at Ures in Sonora.* It seems likely, therefore, that tabloncillo

* Wellhausen et al. (1952), 99.

reached the Maicoba Pima by way of a route that may be traced northward from Jalisco and Nayarit, perhaps by way of the southern Tepehuán and the Yepáchic Pima, among whom tabloncillo perla was collected in 1969.

A zapalote chico cultivated at Maicoba is a corn used in the preparation of all foodstuffs except tesgüino. The presence of this corn at Maicoba demonstrates the need for additional field collections throughout Mexico, in order to partly solve problems pertaining to distribution of Mexican corns in the greater Southwest. This zapalote chico is an analogue of a zapalote chico that is prevalent in the Chiapas and Oaxaca coastal lowlands at elevations of about 100 meters.* Its

* Ibid., 127.

appearance at an elevation of not quite 3,000 meters should not be considered unusual since Wellhausen and his associates grew the race

experimentally at elevations up to at least 1,000 meters, in southern Mexico.* However, its occurence among the Mountain Pima of high eastern

* Ibid., 128.

Sonora cannot be readily explained; the race is not recorded, to my knowledge, elsewhere in northern Mexico.

Three examples of tuxpeño, one of which is said to be rather recent in terms of use among Maicoba Pima, are cultivated. One example is called maíz Obregón, and its name suggests its recent introduction; this strain is little grown since it "takes too long" to mature. The other examples of tuxpeño are claimed to be old in use, but it is alleged that these strains are slow to mature. That tuxpeño is essentially an eastern Mexican corn seems certain; Wellhausen and his associates found it to be

the most important race along the Gulf Coast, at elevations up to 500 meters elevation.* How it reached the high country of eastern

* Ibid., 151.

Sonora cannot be determined with exactitude. To my knowledge, no examples of tuxpeño have been collected among northwestern Mexican peoples except among the Maicoba Pima. However, corns collected in northern Coahuila, Chihuahua, and northern Sonora, show a strong introgression of tuxpeño,* and therefore the tuxpeño among the Maicoba

* Ibid.

Maicoba Gramineae (12) 18

Zea mays (20)

may reflect a survival of a race that once was widespread in northern Mexico, but which was replaced by other strains. The route of diffusion from the east of Mexico may have been northward along the coast, across northern Coahuila and Chihuahua into northern Sonora and from there southeastward into the Maicoba country.

Poorly Defined Races

Maicoba Pima cultivate an analogue of onaveño, an share this strain with contemporary Pima of Ónavas (Sonora) and Yepáchic (Chihuahua).* Onaveño is also grown by the contemporary Tarahumar,

* I collected onaveño at Ónavas and Yepáchic in 1969.

and it is known archeologically for northern Durango, where the

Zea mays (21)

northern Tepehuán once lived.* Other than noting that the corn has been collected in Sonora and Chihuahua and that the race may be the result of introgression of reventador into maíz blando de Sonora, or in some cases only a maíz blando de Sonora with flinty endosperm genes,* Wellhausen and his associates offer nothing concerning its origin.

Onaveño is an all-purpose corn among the Maicoba Pima.

* Pennington (1969), 239.

* Wellhausen et al. (1952), 198-99.

18

Maicoba Gramineae (12)

Zea mays (22)

Dulcillo del noroeste is known as maíz viejo or maíz dulce at Maicoba and serves in the preparation of all corn dishes except tortillas, for which use the corn is said to be too sticky. This corn is not used in the preparation of tesgüino. Wellhausen and his associates suggest that dulcillo del noroeste, as other northwestern Mexican sweet corns, resulted from hybridization of a maíz dulce (a Pre-Columbian Exotic race) and reventador (a Prehistoric Mestizo race).* A maíz dulce has been collected among the Tepehuán of southern Chihuahua, and reventador has been found in an archeological site in northern Durango.* The dulcillo del noroeste of the Maicoba

* Ibid., 199.

* Pennington (1969), 238. Brooks et al. (1962), 356-57, 365-67.

Zea mays (23)

Pima may reflect a mixture of the maíz dulce of the Tepehuán and the reventador once cultivated in northern Durango, or a diffusion of the dulcillo del noroeste documented for the Tarahumar.* to the

* Pennington (1969), 239.

Maicoba country.

Another Poorly Defined race cultivated by Maicoba Pima is maíz cristalino de Chihuahua, the origin of which is uncertain, but probably resulting from the mixing of an old, hard flint or popcorn with teosinte (Euchlaena mexicana) and harinoso de ocho (a Pre-Columbian Exotic race). Maíz cristalino de Chihuahua is cultivated by the contemporary Tepehuán of southern Chihuahua, and vestiges of the race appear in the Río Zape site in northern Durango, a site dated at about 600 AD.* The race must have reached the Maicoba Pima by way of the

Zea mays (24)

* Ibid., 239. Brooks et al. (1962), 356-57, 365-67.

Tepehuán of southern Chihuahua, or it developed in the Maicoba country because of the mixing of harinoso de ocho and teosinte (Euchlaena mexicana) which certainly appears in the mountain country of western Chihuahua and high eastern Sonora.* It is unlikely that maíz cristalino

* Pennington (1969), 52.

de Chihuahua reached the Maicoba country by way of the Tarahumar, there being no evidence that these Indians have ever cultivated the race.

Zea mays (25)

Mountain Yellow Varieties

The dominant corns at Maicoba should be included within that classification termed Mountain Yellow by Edgar Anderson in 1946.*

* Anderson (1946).

These all-purpose corns are often bright yellow in color (maíz amarillo and maíz cristalino), invariably small eared, often marked by small dents, and slightly enlarged at their bases which are usually marked by irregular rowing of grains. One important variety is called maíz blanco. Many of these varieties show influence of maíz blando de Sonora (a Poorly Defined Race), not cultivated today by Maicoba Pima, but which is well-known for certain areas not far removed from Maicoba, such as Bacanora, Santa Ana, Cocospero, Matape, Moctezuma, Sahuaripa, and

Zea mays (26)

Ures.* Maíz blando de Sonora has been documented among the Tepehuán

* Wellhausen et al. (1952), 196.

of southern Chihuahua.* The presence of elements of maíz blando de

* Pennington (1969), 239.

Sonora in the Mountain Yellow varieties cultivated by Maicoba Pima, and the cultivation of maíz blando de Sonora to the west and northwest of the Maicoba country, may mean that the corn was once cultivated by Maicoba and Yécora Pima and disappeared for some reason, being represented today only as an element in the Mountain Yellow varieties. It is rather

unlikely that the Mountain Yellow varieties could have been introduced into high eastern Sonora with maíz blando de Sonora as an important element in their composition, since they have been identified in purest form north of the Volcán de Colima tableland, and indeed appear to be a southern Mexican Highland group which in many respects resembles Guatemalan corn.* Certainly, the Mountain Yellow varieties of southern

---

* Anderson (1946), 171, 173.

Mexico are far removed from the area of concentration of maíz blando de Sonora.

On the whole, the assemblage of corn cultivated by the Maicoba Pima bespeak races that are ancient and somewhat recent in Mexico, and the

routes of diffusion of the races into the Maicoba country suggest movement along the west coast, northward by way of the western portion of the Central Plateau, and northward by way of the east coast and west through northern Mexico to central Sonora, from which area at least one strain moved eastward into the Sonora country occupied by Mountain Pima Bajo.

Euchlaena mexicana

According to some of the older Pima near Maicoba, a wild maíz known as maíz cocono, and which is undoubtedly Euchlaena mexicana, is occasionally cultivated by Pima who live near the Tarahumar and the Pima are familiar with the fact that it must be cultivated several years in the midst of corn before it bears fruit. The old people say that "long ago the maíz cocono was used in the preparation of a special pinole."

Maicoba Gramineae (12) 18

Sorghum vulgare (1)

Perhaps about five per cent of the Maicoba Pima cultivate small plots of a variety of the introduced Sorghum vulgare,* a variety known locally as malo maíz. Although Quinby* was unable to determine the name of this variety it probably is Hegari which is known among the Tepehuán of southern Chihuahua as malo maíz.* Hegari was apparently

* Uphof (1968), 493.

* Quinby (1969).

* Pennington (1969), 89-90.

introduced into the United States from Khartoum in 1908, and the seeds were first cultivated at Chillicothe, Texas, at the United States Experimental Station, from which point the seeds were widely distributed in west Texas.* Apparently, Hegari is the only sorghum variety that

* Quinby (1960).

has reached peoples of the Sierra Madre Occidental of Chihuahua and Sonora.

Seeds are sowed in June or July and the crop is harvested in October or November. Men or women sow the seeds in shallow furrows which are smoothe out with a branch. The seeds are utilized in the preparation of a tesgüino

and the almost ripened stalks are chewed.

Nothing is known of when this malo maíz reached the Maicoba Pima; the older Indians merely note that it has been cultivated for a long time. However, the variety was no doubt diffused into the high eastern Sonora country from the west or southwest; it is almost certainly the most important sorghum variety currently cultivated in Sinaloa.*

* Quinby (1960).

Data for 1971: Federico & Juan noted that none of the Maicoba Pima grow sorghum. However, I collected seeds in 1968 and am certain that a few people did grow the grain that year. In any case, the incidence of growing of sorghum is certainly small.

Triticum aestivum var.

A variety of the Old World wheat* plays a very important role among

*Uphof (1968), 527.

the Maicoba Pima, particularly when the corn crop fails any year, either because of drought or because of the hail which is so common in the highlands, especially in July when the corn is susceptible to much damage from hail. The corn crop was generally a failure during 1967 and therefore much attention was given to the planting of spring wheat in the first warm months of 1968; this spring wheat supplemented the earlier planted winter wheat. It appears that at least one-third of the Maicoba Pima give at least some attention to cultivation of wheat.

The older Pima state that about two generations ago there was more wheat grown than today. When queried as to the reason for the declin

Triticum aestivum var. (2)

of concern with wheat the Indians noted that about seventy years ago there were more oxen, which were necessary if the ground were to be properly prepared.

Data obtained in 1971

No wheat planted this year because of lack of rain during the early period of las aguas. There were two kinds reported:

Trigo temporal (planted in October-November)
Trigo de aguas (planted in July)

Federico and Juan reported that no more than 12 Pima families grow wheat.

Maicoba Leguminosae (53)

Arachis hypogaea

According to Mason and Brugge,* the peanut was one of the "cash

*Mason and Brugge (1958), 286.

crops" cultivated by the Pima at Maicoba during the 1950's. However, in the late 1960's, all of the Pima questioned about peanuts specifically denied any interest in or concern with peanuts. Some of the older Pima noted that peanuts were cultivated by the Pima who lived at Ónavas on the middle Yaqui.

As of 1971, Juan Gonzáles noted that he was apparently the first Maicoba Pima to cultivate peanuts, that he had obtained seeds in 1970. He planted 4 litros in April of 1971 and of September 1971 the plants were doing well, in spite of damage by squirrels.

18

Maicoba Leguminosae (53)

Glycine max

The Old World soybean* is cultivated to a limited degree by

*Uphof (1968), 246.

the Maicoba Pima Bajo.

Phaseolus vulgaris

At least twelve varieties of Phaseolus vulgaris are cultivated by the Maicoba Pima, in the fields. These varieties are as follows: frijol ojo de cabra, frijol vaquito, frijol pinto negro, frijol blancito, frijol garrapato, frijol Sinaloa, frijol blanco, frijol bolito, frijol canelo, frijol güirote (a stalked bean), frijol mantequilla and a frijol vayo.

The Maicoba Pima seem not to know beans other than as frijol plus a distinguishing term; no one could recall a term for bean other than bav or bavi.

Hardly any of the variety known as frijol yurimun were planted, but Federico and Juan Gonzales knew of the type.

Maicoba Leguminosae (53) 18

Pisum sativum

This Old World chícharo is/cultivated in fields by the Pima * occasionally at Maicoba and the older Indians state that it has been cultivated since long ago.

* Uphof (1968), 414.

Maicoba

Convolvulaceae (110)

Ipomoea batatas

A variety of the sweet potato (turüv) is cultivated by the Maicoba Pima. Federico and Juan noted that perhaps not more than 10 Pima families cultivated any kind of potato.

18

Maicoba

Solanaceae (116)

Solanum tuberosum

Almost all of the Maicoba Pima Bajo cultivate patches of the white potato in their fields, according to some informants, but Juan and Federico insisted that hardly ten families grew any kind of potatoes.

[illegible]

Maicoba

Cucurbitaceae (128)

Cucurbita ficifolia

This Malabar or Fig-leaf gourd, which is known as im or chilacayote is generally cultivated by the Maicoba Pima Bajo in the fields amidst the corn. However, scattered examples of this plant appear in what are unmistakably garden plots, former corral sites, or upon trash heaps near habitations.

18

Maicoba

Cucurbitaceae (128)

Cucurbita maxima

Cultivated by the Pima at Maicoba, and identified by photo and seed by Juan Gonzales in 1971.

Maicoba

Cucurbitaceae (128)

Cucurbita mixta

This winter squash, or pumpkin, known as im or calabaza caliente (calabaza of the hot country) is cultivated in fields amidst the corn at Maicoba, and to a limited extent in garden plots, former corral sites, and upon trash heaps.

Maicoba

Cucurbitaceae (128)

Cucurbita moschata

This winter squash or pumpkin was not recorded among the Maicoba Pima Bajo in 1968 or 1970; however, Mason and Brugge* reported that the Maicoba Pima were cultivating two varieties in the 1950's; one variety was a "cushaw type with a very large peduncle and sometimes having warty ridges on the neck." A second variety had "a small peduncle, ten smooth ridges, and narrow seeds." Presumably, these varieties were planted either amidst the corn, or in the gardens, former corral sites, or upon trash heaps.

* Mason and Brugge (1958), 286.

Cucurbitaceae (128)

Maicoba

Cucurbita pepo

This winter squash, summer squash, marrow, pumpkin, or ornamental gourd, which is known as im (the generic term for calabaza), or bawil (the Pima term for this particular species), or as calabaza serrana (calabaza of the highlands) is cultivated amidst the corn in the fields for the most part. However, some examples of this plant appear in the garden plots, in former corral sites, or upon trash heaps near the habitations.

18

Cucurbitaceae (128)

Maicoba

Lagenaria siceraria

This white-flowered bottle gourd, which is known as vák, váko or guaje, is commonly planted in the fields at Maicoba, but invariably is seeded apart from the corn, usually along the margins of the fields where it may climb upon the fences or upon stakes that are implanted in the ground. The gourd is also planted in garden plots, in former corral sites, or upon trash heaps. It is also seeded in an ant hill inhabited by a species of red ant called močomo.

It is interesting to note that Federico and Juan commented that "hardly any Pima grows" the bottlegourd, but I saw many plants in 1968 and 1970.

According to some of the older Pima who live near Maicoba, a wild maíz known as maíz cocono, and which is surely Euchlaena mexicana, is occasionally cultivated by Pima who live near the Tarahumar and the Pima are familiar with the fact that it must be cultivated several years in the midst of corn before it bears fruit. The old people maintain that "long ago maíz cocono was used in the preparation of a special pinole."

Gramineae (12)

Zea mays

In part, corn cultivated by the Maicoba Pima Bajo may be conveniently considered within that frame of reference established for Mexican corns by Wellhausen and his associates in 1952. However, some corns cultivated by these mountain folk should be considered according to the classification established by Anderson in a preliminary survey of Mexican maize in 1946.

Wellhausen and his associates* divided the twenty-five recognized races of Mexican maize into four major groups: the Ancient Indigenous group, which includes corns that anciently developed within what is today known as Mexico; the Pre-Columbian Exotic group which includes races believed to have been introduced into Mexico in prehistoric times; the Prehistoric Mestizo group which includes corns developed through hybridization of Pre-Columbian Exotic and Ancient Indigenous races and hybridization of both of these with a

---

* Wellhausen et al. (1952).

new element, teosinte; and the Modern Incipient races, those developed since the Conquest but which have not yet reached a racial stability. In addition, Wellhausen and his associates identified a group of races which have not yet been collected in sufficient amounts for a precise determination of their status.

The Pima Bajo of Maicoba cultivate representatives of all of these groups except the Modern Incipient; however, it is likely that the Maicoba Pima cultivate examples of this group since such strains as celaya, chalqueño, and cónico norteño are present among the contemporary Tepehuán who live to the southwest of the Pima Bajo of high eastern Sonora, and because cónico norteño is cultivated among the Yepáchic Pima Bajo hardly thirty miles east of Maicoba.*

---

* I collected cónico norteño among the Yepáchic Pima Bajo.

Moreover, celaya is cultivated by the Tarahumar who live southwest of the upland Sonora Pima Bajo.*

---

* Pennington (1969), 238-39.

By far the most important corns cultivated by the Maicoba Pima are corns which should be assigned to the Mountain Yellow classification developed in a tentative fashion by Edgar Anderson;* such corns do not readily fall within the Wellhausen et al classification.

*Anderson (1946).

Among the Maicoba Pima maize is known by a general term, hu'un, and as with other surviving aboriginal peoples in northwestern Mexico, color and textural differences are sometimes used to indicate specific and varietal differences. Therefore, white corn (maíz blanco) may be referred to as to'a hu'un, and hard corn (maíz duro) is referred to as ka'uk hu'un. These Pima terms are actually literal translations of the Spanish. On the whole, however, the contemporary Pima of Maicoba refer to corn types in the same fashion as do mestizos and blancos of northwestern Mexico, using such terms as maíz blanco, maíz duro, maíz pinto, maíz amarillo, maíz reventador, and so on.

Ancient Indigenous Race

Maicoba Pima Bajo cultivate, albeit to a small degree,

a chapalote, a chocolate colored representative of one of the oldest corns of Mexico, a corn that has been found in pre-Christian levels in the Tehuacán site in southern Mexico.* Collections of chapalote have been made in the

*MacNeish (1964), 34.

coastal lowlands of Sonora and Sinaloa, being found at Culiacán in Sinaloa, and at Moctezuma, Ures, Sahuaripa, and Suaqui in Sonora.* An example of chapalote is cultivated

*Wellhausen et al. (1952), 56.

by the surviving Pima Bajo who live at Ónavas on the middle Yaqui in Sonora.* Chapalote has been documented for

*I collected chapalote at Ónavas, Sonora in 1968.

the Tepehuán of southern Chihuahua,* and archeological

*Pennington (1969), 48.

evidence of the race has been found in northern Durango

and southern Chihuahua.*

---

* Brooks et al. (1962), 356-57, 365-67. Cutler (1960), 277-79.

The pre-Columbian archeological evidence for a chapalote in northern Mexico (Durango and Chihuahua), the contemporary use of the corn by the Tepehuán of southern Chihuahua, by the Pima Bajo along the middle Yaqui in Sonora, and the collection of the race in Sonora and Sinaloa prior to 1952,* suggest something with respect to the route

---

* Wellhausen et al. (1952), 56.

---

of dispersal of the corn into the Maicoba country; the race may have spread--in pre-Columbian times--northward through west central Mexico into the northern Tepehuán and Tarahumar country, from which area it spread to the mountain Pima and thence to the low country of Sonora, to the Ónavas Pima Bajo, and from these people it spread northward and southward.

Contemporary Maicoba Pima state that chapalote is rarely grown, and that when it is cultivated it is used solely as a popcorn.

Pre-Columbian Exotic Races

Harinoso de ocho, an all-purpose flour corn which is known as maíz de agua at Maicoba,* resembles South American strains and also certain of the flour corns of the northern Great Plains in the United States. And it

* Ibid., 69.

apparently is rather closely related to prehistoric flour corn found in the Cañon del Muerto in the American Southwest,* and is probably related to a Papago white corn. Thus far,

* Ibid., 70.

harinoso de ocho has been collected in northern Nayarit and in Sonora (the Yaqui Valley and at Ures), and among the contemporary Tarahumara.* There is archeological evidence

* Ibid., 69. Pennington (1969), 238.

of the race in a pre-Columbian site in northern Durango.*

* Brooks et al. (1962), 356-57, 365-67.

Therefore, on the basis of Wellhausen's assumption that the corn was once widely distributed in northwestern and western Mexico, the scattered collection of the race in Chihuahua, Sonora, and Nayarit, and the archeological evidence from Durango, we may assume that harinoso de ocho is a very old corn among the Maicoba Pima Bajo. However, there is little that can be said about how the race reached high eastern Sonora.

Another maíz de agua, also an all-purpose corn cultivated by Maicoba Pima Bajo, is marked by characteristics which demonstrate its derivation from harinoso de ocho and chapalote.

Yet another representative of the Pre-Columbian Exotic races at Maicoba is a sub-race of harinoso de ocho, an elotes occidentalis, which is known by the Pima as maíz prieto, an important roasting ear corn. The center of emphasis upon cultivation of elotes occidentalis is, according to Wellhausen and his associates, upon the Jaliscan Plateau.* The strain has been collected among the

---

*Wellhausen et al. (1952), 71.

Tarahumar.* Whatever the route of the diffusion of elotes occidentalis northward to the Tarahumar, the strain must have reached the Maicoba Pima by way of these Indians.

Somewhat puzzling is the absence among the Maicoba Pima of maíz dulce, a Pre-Columbian Exotic race which is documented for the Tepehuán of southern Chihuahua and the Pima Bajo of Yepáchic, those Pima who live hardly thirty miles east of Maicoba.*

*Pennington (1969), 238.

*Maíz dulce was collected among the Chihuahua Tepehuán in 1960 (Ibid.) and among the Yepáchic Pima in 1969.

Prehistoric Mestizo Races

Four Prehistoric Mestizo races are well represented among the Maicoba Pima. There is a true reventador which is somewhat restricted in use for preparing corn dishes, several varieties of tabloncillo which are multipurpose in use, several examples of a sub-race of tabloncillo, tabloncillo perla, a northwestern zapalote chico which is said to be all-purpose in use, and several forms of tuxpeño that are

said to be useful in preparation of all corn foods and tesgüino.

The true reventador is known among the Maicoba Pima as maíz reventador and is said to be grown only infrequently, for use as a popcorn and in the preparation of pinole. Wellhausen and his associates suggest that reventador resulted from the hybridization of chapalote and teosinte (Euchlaena mexicana), and that the race was once more widespread than it is today; these authors further state that reventador must be Pre-Columbian in origin since it is apparently the ancestor of several well-established races of corn in Mexico.* Reventador has been collected in two

---

* Wellhausen et al. (1952), 94.

---

areas in northwestern Mexico, on the west coast lowlands and in northern Sonora.* Wherever its precise origin, one might

---

* Ibid., 92

---

assume that it reached the Sonoran low country Pima from the south (I collected reventador at Ónavas on the middle

Yaqui in 1968) and was diffused from them to the Maicoba Pima, and thence to the Yepáchic Pima who live east of the Maicoba Pima, among whom reventador was grown in 1969. However, there is archeological evidence* of reventador in a northern Durango site; therefore, the possibility exists that the race could have spread northward along the eastern portion of the Sierra Madre Occidental to the Tepehuán of southern Chihuahua, and by way of these people, who certainly are linguistically connected with the upland Pima of Sonora and Chihuahua, could have reached the high eastern Sonora country. Some negative evidence for such a route rests with the fact that reventador has not been collected among the Tarahumar who live between the southern Chihuahua Tepehuán and the mountain Pima of western Chihuahua and eastern Sonora. Moreover, the race is not known among the northern Tepehuán except in the archeological site in Durango where the northern Tepehuán once lived.

---

* Brooks et al. (1962), 356-57, 365-67.

Tabloncillo and closely related strains constitute important corns among the Maicoba Pima. There is a true tabloncillo termed maíz blanco. One example of tabloncillo demonstrates characteristics of harinoso de ocho, a Pre-Columbian Exotic race. There is a tabloncillo with pink overtones, marked by very irregular rows. Maíz kawisori is an on-the-hard-side tabloncillo. Maicoba Pima cultivate two examples of a tabloncillo perla, which are known as maíz ocho de carrera and maíz cristalino.

The precise origin, with respect to time and place, of tabloncillo is not determined, but Wellhausen and his associates suggest that it resulted from influence of teosinte (Euchlaena mexicana) upon a Pre-Columbian Exotic race, harinoso de ocho, and reventador, a Pre-historic Mestizo race. Apparently, tabloncillo reached its most significant development in western Mexico, and we know that modern collections of the corn have been made in extreme southern Baja California, northern Sonora (Ures), Nayarit, and Jalisco, at elevations up to 1,500 meters.* Tabloncillo

---

* Wellhausen et al. (1952), 99.

mixed with other corns, and tabloncillo perla have been documented among the Tepehuán of southern Chihuahua.*

---

* Pennington (1969), 238.

The hard and flinty tabloncillo perla of the Maicoba Pima is an analogue of a tabloncillo perla that has been found at lower elevations in the state of Nayarit, at elevations up to 1,200 meters in the state of Jalisco, and at Ures in Sonora.* It seems likely, therefore, that tabloncillo

---

* Wellhausen et al. (1952), 99.

---

and tabloncillo perla reached the Maicoba Pima by way of a route that may be traced northward from Jalisco and Nayarit, perhaps by way of the southern Tepehuán and the Yepáchic Pima, among whom tabloncillo perla was collected in 1969.

A zapalote chico cultivated at Maicoba is a corn used in the preparation of all foodstuffs except tesgüino, and demonstrates the need for additional field collections to silve the problems of distribution of Mexican corns in the greater Southwest. This zapalote chico is an analogue of the zapalote chico that is prevalent in the Chiapas

and Oaxaca coastal lowlands at elevations of about 100 meters.* Its appearance at an elevation of at not quite

*Ibid., 127.

3,000 meters should not be considered unusual since Wellhausen and his associates grew the race experimentally at elevations up to at least 1,000 meters, in southern Mexico.* However,

*Ibid., 128.

its appearance among the mountain Pima of high eastern Sonora cannot be readily explained; the race is not recorded, to my knowledge, elsewhere in northern Mexico.

Three examples of tuxpeño, one of which is said to be rather recent in terms of use among Maicoba Pima, are cultivated. One example is called maíz Obregón, and its name suggests its recent introduction; this strain is little grown since it "takes too long" to mature. The other examples of tuxpeño are claimed to be old in use, but it is alleged that these strains are slow to mature. That tuxpeño is essentially an eastern Mexican corn seems

almost certain; Wellhausen and his associates found it to be the most important race along the Gulf Coast, at elevations up to 500 meters elevation.* How it reached

---

*Ibid., 151.

---

the high country of eastern Sonora cannot be determined with exactitude. To my knowledge, no examples of tuxpeño have been collected among northwestern Mexican peoples except among the Maicoba Pima. However, corns collected in northern Coahuila, Chihuahua, and northern Sonora, show a strong introgression of tuxpeño,* and therefore

---

*Ibid.

---

the tuxpeño among the Maicoba Pima may reflect a survival of a race that once was widespread, but which was replaced by other strains. The route of diffusion from the east of Mexico may have been northward along the coast, across northern Coahuila and Chihuahua into northern Sonora and from there southeastward into the Maicoba country.

Poorly Defined Races

Maicoba Pima Bajo cultivate an analogue of onaveño, and share this strain with contemporary Pima of Ónavas (Sónora) and Yepáchic (Chihuahua).* Onaveño is also cultivated by the contemporary Tarahumar and it is known archeologically for northern Durango, where the northern Tepehuán once lived.* Other than noting that the corn has been collected in Sonora and Chihuahua and that the race may be the result of the introgression of reventador into maíz blando de Sonora, or in some cases only a maíz blando de Sonora with flinty endosperm genes, Wellhausen and his associates offer nothing about its origin.* Onaveño is an all-purpose corn among the Maicoba Pima Bajo.

Dulcillo del noroeste is known as maíz viejo or

---

* I collected onaveño at Ónavas and Yepáchic in 1969.

* Pennington (1969), 239.

* Wellhausen et al. (1952), 198-99.

maíz dulce among the Maicoba Pima Bajo, and serves in the preparation of all corn dishes except tortillas, for which use the corn is said to be too sticky. This corn is not used in the preparation of tesgüino. Wellhausen and his associates suggest that dulcillo del noroeste, as other northwestern Mexico sweet corns, resulted from hybridization of a maíz dulce (a Pre-Columbian Exotic race) and reventador (a Prehistoric Mestizo race).* A maíz dulce

---

*Ibid., 199.

---

has been collected among the Tepehuán of southern Chihuahua, and reventador has been found in an archeological site in northern Durango.* The dulcillo del noroeste of the Maicoba

---

*Pennington (1969), 238. Brooks et al. (1962), 356-57, 365-67.

Pima may reflectemmed from a mixture of the maíz dulce of the Tepehuán, and the reventador once cultivated by northern Tepehuán in Durango, from the maíz dulce of the southern Tepehuán of today, or diffusion of a dulcillo del noroeste from the Tarahumar* into the Maicoba country.

---

*Pennington (1969), 239.

Another Poorly Defined race cultivated by the Maicoba Pima is maíz cristalino de Chihuahua, the origin of which is uncertain, but probably resulting from the mixing of an old, hard flint or popcorn with teosinte (Euchlaena mexicana) and harinoso de ocho (A Pre-Columbian Exotic race). Maíz cristalino de Chihuahua is cultivated by the contemporary southern Chihuahua Tepehuán, and vestiges of the race appear in the Río Zape site in northern Durango, a site dated at about 600 AD.* The race must have reached the Maicoba Pima

---

*Ibid., 239. Brooks et al. (1962), 356-57, 365-67.

---

by way of the Tepehuán of southern Chihuahua, or it developed in the Maicoba country because of the mixing of harinoso de ocho and teosinte (Euchlaena mexicana) which certainly appears in the mountain country of western Chihuahua and high eastern Sonora.* It is unlikely that maíz cristalino

---

*Pennington (1969), 52.

---

de Chihuahua reached the Maicoba country by way of the Tarahumar, there being no evidence that these Indians have ever cultivated the race.

Mountain Yellow Varieties

The dominant corns among the Maicoba Pima should be included within that classification termed Mountain Yellow by Anderson in 1946.* These all-purpose

---

* Anderson (1946).

(such as maíz amarillo and maíz cristalino) corns are bright yellow in color, invariably small eared, often marked by small dents, and slightly enlarged at their bases which are usually marked by irregular rowing of grains. Many of these varieties show influence of maíz blando de Sonora (a Poorly Defined race), not cultivated today by the Maicoba Pima, but which is well-known for certain areas not far removed from Maicoba, such as Bacanora, Santa Ana, Cocospero, Matape, Moctezuma, Sahuaripa, and Ures.* Maíz blando de Sonora has been documented

---

* Wellhausen et al. (1952), 196.

---

among the Tepehuán of southern Chihuahua.* The presence

---

* Pennington (1969), 239.

---

of elements of maíz blando de Sonora in the Mountain Yellow varieties cultivated by Maicoba Pima, and the cultivation of maíz blando de Sonora to the west and northwest of the Maicoba country, may mean that maíz blando de Sonora was once cultivated at Maicoba and disappeared for some reason, being represented today only as an element within the Mountain Yellow varieties. It is rather unlikely that the Mountain Yellow varieties could have been introduced into high eastern Sonora with maíz blando de Sonora as an important element in their composition, since they have been identified in purest form north of the Volcán de Colima tableland, and indeed appear to be a southern Mexican Highland group which in many respects resembles Guatemalan corn.* Certainly,

---

* Anderson (1946), 171, 173.

---

the Mountain Yellow varieites of southern Mexico are far removed from the area of concentration of maíz blando de Sonora.

On the whole, the assemblage of corn cultivated by

the Maicoba Pima bespeak races that are ancient and somewhat recent in Mexico, and the routes of diffusion of the races into the Maicoba country suggest movement along the west coast, northward by way of the western portion of the Central Plateau, and northward by way of the east coast and west through northern Mexico to central Sonora, from which area at least one strain moved eastward into the Sonora country occupied by the Mountain Pima Bajo.

Gramineae

In part, corn cultivated by the Maicoba Pima (Chart ___) Bajo may be conveniently considered within that frame of reference established by Wellhausen and his associates in 1952. However, some corns grown by these upland folk should be considered according to the classification established by Edgar Anderson in a preliminary survey of Mexican maize in 1946.

Wellhausen and his associates* divided the 25

---

* Wellhausen et al. (1952).

---

recognized races of Mexican maize into four major groups: the Ancient Indigenous group, which includes corns that anciently developed within what is today known as Mexico; the Pre-Columbian Exotic group that includes races believed to have been introduced into Mexico in prehistoric times; the Prehistoric Mestizo group which includes corns developed because of hybridization of Pre-Columbian Exotic and Ancient Indigenous races and hybridization of both of these

with a new element, teosinte (Euclaena mexicana); and the Modern Incipient races, those developed since the Conquest, but races which have not yet reached a racial stability. In addition, Wellhausen and his associates identified a group of races which have not yet been collected in sufficient amounts for a precise determination of their status.

The Maicoba Pima Bajo cultivate representatives of all of these groups except the Modern Incipient; but it may be that examples of this group are grown, since such strains as celaya, chalqueño, and cónico norteño are cultivated by the contemporary Tepehuán who live to the southeast of the high eastern Sonora Pima Bajo,* and because conico norteño is cultivated

---

* Pennington (1969), 238-239.

---

by the Yepáchic Pima Bajo who live hardly 30 miles east of Maicoba.* Moreover, celaya is cultivated

---

* I collected cónico norteño at Yepáchic in 1969.

---

by the Tarahumar who live somewhat southeast of the upland Sonora Pima.* On the other hand, a combination

---

*Pennington (1969), 238.

---

of the emphasis by the Maicoba Pima upon Mountain Yellow varieties and a certain conservatism may explain the absence of Modern Incipient strains.

By far the most important important corns cultivated by contemporary Maicoba Pima Bajo are corns which should be assigned to the Mountain Yellow classification developed in a tentative fashion by Edgar Anderson;* such corns do not readily fall

---

*Anderson (1946).

---

within the Wellhausen et al. classification.

Among the Maicoba Pima, maize is known by a general term, hu'un, and as with other surviving aboriginal people in northwestern Mexico, color and textural differences are used to indicate specific

varietal differences. Therefore, white corn (maíz blanco) may be referred to as to'a hu'un, and hard corn (maíz duro) may be termed ka'uk hu'un. These Pima terms are literal translations of the Spanish designations, and it is apparent that the Maicoba indigenes have abandoned native designations, at least to my knowledge. For the most part, contemporary Maicoba Pima refer to corn types in the same fashion as do mestizos and blancos of northwestern Mexico, using such terms as maíz blanco, maíz pinto, maíz amarillo, maíz reventador, and so on.

Ancient Indigenous Race

Maicoba Pima cultivate, albeit to a small degree, a chapalote, a chocolate colored representative of one of the oldest corns in Mexico, a race that has been found in pre-Christian levels in the Tehuacán site in southern Mexico.* Collections of chapalote have

---

* MacNeish (1964), 34.

been made in the coastal lowlands of Sonora and Sinaloa, being found at Culiacán in Sinaloa, and at Moctezuma, Ures, Sahuaripa, and Suaqui in Sonora.*

---

* Wellhausen et al. (1952), 56.

An example of chapalote is cultivated by surviving Pima Bajo who live at Onavas on the middle Yaqui in Sonora.* The strain has been documented for the

---

* I collected chapalote at Onavas in 1968.

Tepehuán of southern Chihuahua,* and archeological

---

* Pennington (1969), 238.

---

vestiges of the race have been found in northern Durango and southern Chihuahua.*

---

* Brooks et al. (1962), 356-357, 365-367. Cutler (1960), 277-279.

Somewhat puzzling is the absence of chapalote among the Yepáchic Pima who live hardly 30 miles to the east of Maicoba, particularly in view of the presence of the strain among the Tepehuán of southern Chihuahua and the archeological vestiges in the Tarahumar country.* The Yepáchic Pima may

---

*Pennington (1969), 238.

---

have grown it once and abandoned it for some reason or other. Chapalote is only rarely grown today by the Maicoba Pima who state that when it is grown it serves only as a popcorn.

The pre-Columbian archeological evidence for a chapalote in northern Mexico (Durango and Chihuahua), the contemporary use of the corn by the Tepehuán of southern Chihuahua and by the Pima Bajo along the middle Yaqui in Sonora, and the collection of the race in Sonora and Sinaloa prior to 1952, suggest something with respect to the possible

route of diffusion of the corn into the Maicoba country and beyond; the race may have spread--in pre-Columbian times--northward through west central Mexico into the northern Tepehuán and Tarahumar country, from which area it spread to the Pima of Yepáchic and Maicoba, from whom it spread to the low country of Sonora, to the Onavas Pima Bajo, and from these people it spread northward and southward.

Pre-Columbian Exotic Races

Harinoso de ocho, an all-purpose flour corn known as maíz de agua at Maicoba, resembles South American strains and also certain of the flour corns of the northern Great Plains in the United States.* And it apparently is rather closely

---

*Wellhausen et al. (1952), 69.

---

related to prehistoric flour corn found in the Cañon del Muerto in the American Southwest, and is

probably related to a Papago white corn.* Thus far,

*Ibid., 70.

harinoso de ocho has been collected in northern Nayarit and in Sonora (the Yaqui Valley and at Ures), and among the contemporary Tarahumar.* There is

*Ibid., 69. Pennington (1969), 238.

archeological evidence of the race in a pre-Columbian northern Durango site.*

*Brooks et al. (1962), 356-357, 365-367.

Therefore, on the basis of Wellhausen's assumption that the race was once widely distributed in northwestern and western Mexico, the scattered collection of the race in Chihhahua, Sonora, and Nayarit, and the archeological evidence from Durango, we may assume that harinoso de ocho is a very old corn among the Maicoba Pima Bajo. However, there is little that can be said about how the

race reached high eastern Sonora.

Another maíz de agua, also an all-purpose corn is marked by characteristics which demonstrate its derivation from harinoso de ocho and chapalote.

Yet another representative of the Pre-Columbian Exotic races at Maicoba is a sub-race of harinoso de ocho, an elotes occidentales, which is known as maíz prieto, an important roasting ear corn. The center of emphasis upon cultivation of elotes occidentales is, according to Wellhausen and his associates, upon the Jaliscan Plateau.* The strain

---

*Wellhausen et al. (1952), 71.

---

has been collected among the Tarahumar.* Whatever

---

*Pennington (1969), 238.

---

the route of the diffusion northward to the Tarahumar, the corn must have reached the Maicoba Pima by way of the Tarahumar. Somewhat puzzling is the absence

of either harinoso de ocho and elotes occidentales among the Yepáchic Pima, the logical route of diffusion of the strains from the Tarahumar to the Maicoba Pima Bajo.

Prehistoric Mestizo Races

Four Prehistoric Mestizo corns are well-represented among the Maicoba Pima. There is a true reventador which is somewhat restricted in use for preparing corn dishes, several varieties of tabloncillo which are multi-purpose in use, several examples of a sub-race of tabloncillo, tabloncillo perla, a northwestern zapalote chico which is said to be all-purpose in use, and several forms of tuxpeño that are said to be useful in preparing all corn foods and tesgüino.

The true reventador is known by the Maicoba Pima as maíz reventador, and is said to be only infrequently cultivated, for use as a popcorn and in the preparation of pinole. Wellhausen and his associates suggest that reventador resulted from the hybridization of chapalote and teosinte (Euchlaena mexicana), and that

the race was once more widespread that it is today; these investigators further state that reventador must be Pre-Columbian in origin, since it is apparently the ancestor of several well-established races of corn in Mexico.*

---

* Wellhausen et al. (1952), 94.

Reventador has been collected in three principal areas of western Mexico, in the far northwest (Sonora), in central coastal Culiacán, and in the southwestern states of Guerrero, Michoacán, Colima, Jalisco, and Nayarit.* Wherever its precise origin, we may assume

---

* Ibid., 91.

---

that it might have reached the Sonoran low country Pima Bajo from the south,* and was diffused from them

---

* I collected reventador at Onavas in 1968.

---

to the Maicoba Pima by way of the Yécora Pima. And

from the Maicoba Pima reventador spread eastward to the Yepáchic Pima, among whom the strain was yet cultivated in 1969.* On the other hand, there is

---

*I collected reventador at Yepáchic in 1969.

---

archeological suggestions of reventador in a northern Durango site, at Zape.* Therefore, it is possible

---

*Brooks et al. (1962), 356-357, 365-367.

---

that the race could have spread northward along the eastern portion of the Sierra Madre Occidental to the Tepehuán of southern Chihuahua, and by way of these people, who are certainly linguistically akin to the upland Pima of Sonora and Chihuahua, could have reached the high eastern Sonora country. Some negative evidence for such a route rests with the fact that reventador has not been collected among the Tarahumar who live between the southern Chihuahua Tepehuán and the Mountain Pima of western Chihuahua and eastern Sonora.

Moreover, the race is not known among the northern Tepehuán except in the archeological site in Durango where Tepehuán once lived.

Tabloncillo and closely related strains are important corns cultivated by the Maicoba Pima. There is a true tabloncillo known as maíz blanco. Another example (maíz) demonstrates characteristics of harinoso de ocho, a Pre-Columbian Exotic race. There is a tabloncillo with pink overtones (maíz rojo) marked by very irregular rows. Maíz kawisori is an on-the-hard-side tabloncillo. The Maicoba Pima cultivate two examples of a tabloncillo perla, which are known as maíz ocho de carrera and maíz cristalino.

The precise origin, with respect to time and place, of tabloncillo is not determined, but Wellhausen and his associates suggest that it resulted from influence of teosinte (Euchlaena mexicana) upon a Pre-Columbian Exotic race, harinoso de ocho, or upon reventador, a Preshistoric Mestizo race. Apparently,

tabloncillo reached its most significant development in western Mexico, and modern collections of the race have been made in extreme southern Baja California, southern Sinaloa, Nayarit, and Jalisco, at elevations up to 1,500 meters.*

---

* Wellhausen et al. (1952), 98.

Tabloncillo mixed with other corns, and tabloncillo perla have been documented for the Tepehuán of southern Chihuahua.* The hard and flinty tabloncillo perla

---

* Pennington (1969), 238.

---

grown by the Maicoba Pima is an analogue of a tabloncillo perla that has been found at lower elevations in the state of Nayarit, at elevations up to 1,200 meters in the state of Jalisco, and at Ures in Sonora.* It seems likely, therefore, that

---

* Wellhausen et al. (1952), 99.

---

tabloncillo reached the Maicoba Pima by way of a route that may be traced northward from Jalisco and Nayarit, perhaps by way of the southern and northern Tepehuán, to the Yepáchic Pima, among whom tabloncillo perla was collected in 1969.*

---

* Tabloncillo was lacking at Yepáchic in 1969.

A zapalote chico cultivated at Maicoba is a corn used in the preparation of all maize foodstuffs except tesgüino. This zapalote chico is an analogue of one that is prevalent in the Chiapas and Oaxaca coastal lowlands at elevations of about 100 meters.*

---

* Wellhausen et al. (1952), 127.

Its appearance at an elevation of not quite 3,000 meters should not be considered unusual since Wellhausen and his associates grew the race experimentally at elevations up to at least 1,000 meters in southern Mexico.* However, its occurrence among the Mountain

---

* Ibid., 128.

Pima of high eastern Sonora cannot be readily explained; the race is not recorded, to my knowledge, elsewhere in northern Mexico.*

---

* The presence of this corn at Maicoba demonstrates the need for additional and extensive field collections of corn throughout Mexico, in order to partly solve problems pertaining to distribution of Mexican corns in the Greater Southwest.

Three examples of tuxpeño, one of which is said to be rather recent in terms of its use at Maicoba, are cultivated. One example is called maíz Obregón, and its name suggests its recent introduction; this strain is little grown since it "takes too long" to mature. The other examples of tuxpeño are claimed to be old in use, but it is alleged that these strains are slow to mature.

That tuxpeño is essentially an eastern Mexican corn seems certain; Wellhausen and his associates found it to be the most important race along the Gulf Coast,

at elevations up to 500 meters.* How it reached the

---

*Wellhausen et al. (1952), 151.

---

high country of eastern Sonora cannot be determined with exactitude. To my knowledge, no examples of tuxpeño have been collected among northwestern Mexican peoples except among the Maicoba Pima. However, corns collected in northern Coahuila, Chihuahua, and northern Sonora, show a strong introgression of tuxpeño,* and therefore the tuxpeño among the Maicoba

---

*Ibid.

Pima may reflect a survival of a race that once was widespread in northern Mexico, but which was replaced by other strains. The route of diffusion from the east of Mexico may have been northward along the coast, across northern Coahuila and Chihuahua into northern Sonora and from there southeastward into the Maicoba country.

Poorly Defined Races

Maicoba Pima cultivate an analogue of onaveño, and they share this strain with the contemporary Pima of Onavas (Sonora) and Yepáchic (Chihuahua).* Onaveño is also grown by the contemporary Tarahumar, and it is known archeologically in northern Durango, where the northern Tepehuán once lived.*

*I collected onaveño at Onavas and Yepáchic in 1968.

*Pennington (1969), 239.

Other than noting that this corn has been collected in Sonora and Chihuahua, and that the race may be the result of the introgression of reventador into maíz blando de Sonora, or in some cases only a maíz blando de Sonora with flinty endosperm genes, Wellhausen and his associates offer nothing* concerning its origin.

*Wellhausen et al. (1952), 198-199.

Onaveño is an all-purpose corn among the Maicoba Pima.

Dulcillo del noroeste is known as maíz viejo or maíz dulce at Maicoba and serves in the preparation of all corn dishes except tortillas, for which use the corn is said to be too sticky. This corn is not used in the preparation of that fermented beverage tesgüino.

Wellhausen and his associates suggest that dulcillo del noroeste, as other northwestern Mexican sweet corns, resulted from hybridization of a maíz dulce--a Pre-Columbian Exotic race--and reventador --a Prehistoric Mestizo race.* A maíz dulce has

---

*Ibid., 199.

---

been collected among the Tepehuán of southern Chihuahua, and a reventador has been found in an archeological site in northern Duranto.* The

---

*Pennington (1969), 238. Brooks et al. (1962), 356-357, 365-367.

---

dulcillo del noroeste of the Maicoba Pima may reflect a mixture of the maíz dulce of the Tepehuán and the reventador once cultivated in northern Durango, or a diffusion of the dulcillo del noroeste documented for to Tarahumar* to the Maicoba country.

---

*Pennington (1969), 239.

Another Poorly Defined race cultivated by the Maicoba Pima is maíz cristalino de Chihuahua, the origin of which is uncertain, but probably resulting from the mixing of an old, hard flint or popcorn with teosinte (Euchlaena mexicana) and harinoso de ocho (a Pre-Columbian Exotic race). Maíz cristalino de Chihuahua is cultivated by the contemporary Tepehuán of southern Chihuahua, and vestiges of the race appear in the Río Zape site in northern Durango, a site dated at about 600 AD.* The race must have reached

---

*Ibid. Brooks et al. (1962), 356-357, 365-367.

---

the Maicoba Pima by way of the Tepehuán of southern Chihuahua, or it developed in the Maicoba country because of the mixing of harinoso de ocho and teosinte (Euchlaena mexicana) which certainly appears in the mountain country of western Chihuahua and high eastern Sonora.* It is unlikely that maíz

*Pennington (1969), 52.

cristalino de Chihuahua reached the Maicoba country by way ofthe Tarahumar, there being no evidence that these Indians have ever cultivated the race.

Mountain Yellow Varieties

The dominant corns at Maicoba should be included within that classification termed Mountain Yellow by Edgar Anderson in 1946.* These all-purpose

*Anderson (1946).

corns are often bright yellow in color (maíz amarillo and maíz cristalino), invariably small-eared, often marked by small dents, and with slightly enlarged

bases which are usually marked by irregular rowing of grains. One important variety is called maíz blanco. Many varieties show influence of maíz blando de Sonora (a Poorly Defined race), not cultivated today by Maicoba Pima, but which is well-known for certain areas not far removed from Maicoba, as at Bacanora, Santa Ana, Cocospero, Mátape, Moctezuma, Sahuaripa, and Ures.* Maíz blando de Sonora has

*Wellhausen et al. (1952), 196.

been documented among the Tepehuán of southern Chihuahua.* The presence of elements of maíz blando

*Pennington (1969), 239.

de Sonora in the Mountain Yellow varieties cultivated by Maicoba Pima, and the cultivation of the strain to the west and northwest of the Maicoba country, may mean that the corn was once cultivated by Maicoba and Yécora Pima, and disappeared for some reason,

being represented today only as an element in the Mountain Yellow varieties. It is rather unlikely that the Mountain Yellow varieties could have been introduced into high eastern Sonora with maíz blando de Sonora as an important element in their composition, since they have been identified in purest form north of the Volcán de Colima tableland, and indeed appear to be a southern Mexican Highland group which in many respects resembles Guatemalan corn.* Certainly, the Mountain Yellow varieties

---

* Anderson (1946), 171, 173.

---

of southern Mexico are far removed from the area of concentration of maíz blando de Sonora.

On the whole, the assemblage of corn cultivated by the Maicoba Pima bespeak reaces that are ancient and somewhat recent in Mexico, and the routes of diffusion of the races into the Maicoba country suggest movement along the west coast, northward by

way of the east coast, and west through northern Mexico to central Sonora, from which area at least one strain moved eastward into the Sonora country occupied by Mountain Pima Bajo

Leguminosae

At least twelve varieties of Phaseolus vulgaris are cultivated by the Maicoba Pima, in special plots or at the margins of the larger maize milpas. These varieties include the following: frijol ojo de cabra, frijol vaquito, frijol pinto negro, frijol blancito, frijol garrapato, frijol Sinaloa, frijol blanco, frijol bolito, frijol canelo, frijol güirote (a staked bean), frijol mantequilla, and a frijol vayo.

Contemporary Maicoba Pima seem not to know beans other than as frijol plus a distinguishing adjective; no one could recall a term for bean other than bav or bavi.

Only a few of the Maicoba Pima cultivated the Old World cowpea (Vigna sinensis),* which is known as frijol yurimun.

*Uphof (1968), 544.

The Old World chícharo (Pisum sativum)* is

*Uphof (1968), 414.

occasionally planted in the fields by contemporary Maicoba Pima; it is claimed that it was given more attention a generation ago.

According to information obtained in 1968, no more than 10 Pima families cultivate a variety of the sweet potato (Ipomoea batatas), which is commonly referred to among the Pima as turüv.

Almost all of the Maicoba Pima cultivate patches of the white potato (Solanum tuberosum) in their fields.

Cucurbita ficifolia, the Malabar or Fig-leaf gourd, is known as im or chilacayote at Maicoba, and generally appears in the fields amidst the corn plantations. However, scattered examples appear in what are unmistakably garden plots, or upon trash heaps near the houses.

The Maicoba Pima also cultivate Cucurbita maxima.

The winter squash or pumpkin (Cucurbita mixta) is known as im or calabaza caliente, and is cultivated in the fields amidst the corn, or in garden plots or upon trash heaps.

A winter squash, summer squash, marrow, pumpkin (Cucurbita pepo) is known as im (the generic term for calabaza) or as calabaza serrana (calabaza of the highland), and is cultivated in the fields for the most part. However, some examples of this cucurbit appear in the gardens or upon trash heaps.

The white-flowered bottle-gourd (Lagenaria siceraria), which is known as vák, váko, or guaje,

and is commonly planted in the fields at Maicoba. It is, however, seeded apart from the corn, usually along margins of the fields where it may climb upon fences or upon stakes that are implanted in the ground. This gourd also appears in garden plots, in former corral sites, and upon trash heaps. It is also seeded in an anthill inhabited by a species of red ant called močomo.

Cucurbita moschata was not recorded among the Maicoba Pima in either 1968 or 1970; however, Mason and Brugge* reported that the Maicoba Pima were

---

*Mason and Brugge (1958), 286.

---

cultivating two varieties in the late 1950's. One variety was a cashaw type with a very large peduncle and sometimes having warty ridges on the neck." A second variety had a "small peduncle, ten smooth ridges, and narrow seeds." Presumably, these varieties were planted amidst the corn, in garden plots, former corral sites, or upon trash heaps.

Perhaps some five per cent of the Maicoba Pima cultivate small plots of a variety of the introduced *Sorghum vulgare*,* a variety known locally as *malo maíz*.* Althpugh Quinby* was unable to determine the name of this variety, it probably is Hegari which is known among the Tepehuán of southern Chihuahua as *malo maíz*.* Hegari was apparently introduced into the United States from Khartoum in 1908, and the seeds were cultivated first at Chillicothe, Texas, at the United States Experimental Station, from which point the seeds were widely distributed in western Texas.* Apparently, Hegari is the only sorghum variety

* Uphof (1968), 493.

* Quinby (1969).

* Pennington (1969), 89-90.

* Quinby (1969).

that has reached the Maicoba country. The date of its introduction cannot be determined. Maicoba Pima state only that it has been cultivated for a long time. With respect to the route of diffusion, it is likely that the grain reached the high eastern Sonora country from the west or southwest; it is almost certainly the most important sorghum variety currently cultivated in Sinaloa.*

* Quinby (1960).

A variety of the Old World Wheat (Triticum aestivum)* plays a very important role among the

*Uphof (1968), 527.

Maicoba Pima, particularly when the corn crops fails during any one year, either because of drought or because of the hail which is so common in the highlands, especially in July when corn is susceptible to much damage from hail. The corn crop was generally a failure during 1967 and therefore much attention was given to the planting of spring wheat in the first warm months of 1968; this spring wheat supplemented the earlier planted winter wheat. It appears that at least one-third of the Maicoba Pima give at least some attention to wheat.

Older Pima state that about two generations ago there was more wheat grown than today. When queried as to the reason for the decline of wheat, the indigenes commented that about 70 years ago there were more oxen, which were necessary if the ground was to be properly prepared.

In 1971, Juan Gonzáles commented that he was apparently the first Maicoba Pima to cultivate the peanut (Arachis hypogaea); he stated that he had obtained seeds in 197[illegible] and planted them in April of that year, a total of four liters. The plants were growing nicely in September, in spite of damage by squirrels.

According to Mason and Brugge,* the peanut

---

*Mason and Brugge (1958), 286.

(Arachis hypogaea) was one of the "cash crops" cultivated by the Pima at Maicoba during the 1950's. However, in the late 1960's all of the Maicoba Pima questioned about peanuts specifically denied any interest in or concern with peanuts. Some of the older Pima--those who had travelled in Sonora--noted that the groundnut was cultivated by a few of the Pima who lived at Onavas on the middle Yaqui.

A variety of the Old World soybean (Glycine max)* was cultivated by several of the Maicoba Pima

---

*Uphof (1968), 246.

---

during the late·1960's, in the same plots used for tillage of beans. Those who had prepared the soybean as food commented that it was "harder" to prepare than beans and was not as tasty.

MAICOBA

Ancient Indigenous Races

palomero toluqueño

arrocillo amarillo

chapalote

[chapalote (the term use by Maicoba Pima Bajo for this example)]

Nal-tel

Pre-Columbian Exotic Races

cacahuacintle

harinoso de ocho

[maíz de agua, the term used by Maicoba Pima Bajo for this stra:

[maíz de agua, a harinoso de ocho plus chapalote]

elotes occidentales

olotón

maíz dulce

Prehistoric Mestizos

cónico

reventador

tabloncillo

tabloncillo perla

tehua

tepecintle

comiteco

jala

zapalote chico

zapalote grande

pepitilla

olotillo

tuxpeño

vandeño

Modern Incipient Races

chalqueño

celaya

cónico norteño

bolita

Poorly Defined Races

conejo

mushito

complejo serrano de Jalisco

zamorano amarillo

maíz blando de Sonora

onaveño

dulcillo del noroeste

maíz cristalino de Chihuahua

Miscellaneous varieties

central & western Mexican popcorns

elote corns

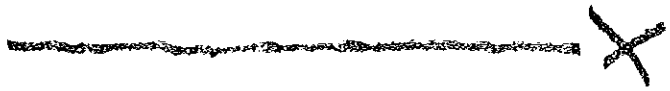
Pima-Papago varieties

Pueblo varieties

Toluca popcorn

Western Mexican yellow flint mixed with pointed popcorn

Western Mexican pointed subdent

Mountain Yellow 

Maicoba

Location of Fields 1

Within the Maicoba ejido or comunidad the fields (gaha) are located either along the streamway floodplains, on features which are locally termed mesas but which are but fairly level portions of the rolling uplands that distinguish much of high eastern Sonora in the vicinity of Maicoba and Yécora, or upon very steep slopes where plots are called magüeaches.

Until recently none of the Pima were able to effectively question the hold of blancos, the minority group within the ejido or comunidad, upon much of the potentially useful agricultural land along the streamways, that land which has, for one reason or another, come under the control of the blancos who use the land as pasture for their stock, there being little good pasture except along the streamways. The blancos have resisted the efforts of the Pima authorities to have the ejido or comunidad parcelled, which if accomplished would surely mean that blanco stock would suffer. Travel by mule in and about the vicinity of Maicoba, and air travel between Maicoba and Moris, make clear why the mestizos oppose the parcelling of lands; the scrub pine and oak timber is interspersed with a white terrain (caliche ?) that is almost totally lacking in grass cover suitable for use as pasturage.

Maicoba

Location of Fields 2

Control of so much of the streamway floodplains by the blancos has forced the Pima to make constant use of the holdings they possess along the streamway. These holdings are commonly rocky and therefore plowing is difficult. Moreover, there is much damage to these floodplain fields during the rainy season. However, it should be noted that the damage done by flooding has a positive as well as negative effect, a positive effect in that soil is deposited during flooding, and a negative effect in that sometimes the flooding takes place so late in the season that the crops destroyed cannot be reseeded during that year. It is because of such factors that the current governor of the Pima is insisting that the Hermosillo authorities remove all blancos from within the ejido or comunidad; the governor believes that such a move will make available to the Pima a great amount of floodplain land now used for pasturage by the blancos.

The upslope fields utilized for tillage by the Pima are of two types, somewhat flattish fields upon spurs of the higher mountains, fields which are difficult of being cleared of the dominant oak, juniper, madroño and manzanilla vegetation, and the plots (magüeaches) located upon very steep slopes. In both cases, the soils are very stony, and

are abandoned after several years of use. Such abandoned plots are readily identified since the vegetation that develops after abandonment is usually marked by an absence of oak, pine and juniper, being characterize by scrubby standx of madroño and manzanilla.

Some of the Pima, certainly those near Maicobita (located about two leagues from Maicoba) are an industrious lot, and they have demonstrated this characteristic by building stone terraces across some of the steeper slopes and across the small arroyos that trench the slopes. The net result is protection of plots that have proven to be more productive than the flattish upland plots and the development of very productive small terrraces behind those rock walls that cross the arroyos.

It should be noted that these trincheras, as they are termed locally, seem to be atypical of the Pima on the Maicoba ejido, since the terrraces are found only in areas where the men have left their homes for a time, to work elsewhere, in Obregón or at Nacazori, for example. Some of the Pima men insist that the labor in construction of the trincheras is wasted, since plots behind such trincheras can rarely be used for hardly ten years;

it is quite true that some plots behind the stone terraces have been abandoned, but it is not clear as to why the abandonment. It may be that the soil is not productive after eight or ten years of cropping. On the other hand, the statement that the work demanded for constructed of the trincheras is wasted may constitute something of a rationale for not working. Dolores Velásquez Duarte of Maicoba insisted that many of the Pima men and women are very lazy (šihatohod). My impression is that she exaggerated a bit, for no man who wrests a living, albeit a poor one, from much of the upslope land at Maicoba should be considered lazy, at least as I understand that term.

The term magüeache refers to a slope milpa. Federico noted that this was the kind of milpa he worked, and that since he had no sons, his mujeres worked with him.

Maicoba

Preparation of Fields 1

Trees (uš) and brush are usually felled with a metal axe (tupur) much in the same fashion that a stone axe was used hardly two generations ago, according to the older Pima. The contemporary axes are handled with wood from šipa, an encino cusi negro (Quercus durifolia) or a tu'a, an encino blanco (Q. arizonica). Since it is difficult to burn green timber the larger trees are often girdled and left to stand for several years before being burned (uš mu'idig, quemar el árbol). An axe or machete is used for girdling the tree, or the bark is hacked away with a suitably shaped stone. Very large trees are hollowed by fire so that they will topple easily. Generally, the fields are burned of grass and brush (o'dig mu'ihim, quemar el campo) several days prior to the plowing.

The wooden plow used by the Maicoba Pima is called gik or gika, by which name the digging stick is also known, and is fashioned from pine and oak timber from the same components used in manufacturing that wooden plow utilized by the Tarahumar and the Tepehuán.* The body of the plow is

---

* See Pennington [(1963), 51-52; (1969), 62-63] for a description of how this plow is fashioned.

fashioned from either encino cusi negro (Quercus durifolia), encino blanco (Q. arizonica) or the wood of an aguaciki. The handle is carved from the wood of Quercus durifolia. The plowshare is carved from either Quercus durifolia or Q. arizonica. A few of the Pima use a piece of metal obtained from the mining camps as a plowshare. The tongue is commonly fashioned of an easily worked pine (u'uk) log. Shaping of the components of the plow is done with an axe. Wooden plows are generally soaked for about two months before being used; they are placed in a stream or a pool of water.

Virtually all of the Pima families either own or have ready access to a plow, but there are few oxen available for use as draft animals. Oxen must be rented from the blancos or from fellow Pima. Or, as was the custom several years ago, the Pima might obtain oxen on a share-cropping arrangement from a blanco. Most of the Pima families own at least one burro and some families possess as many as three. Burros are occasionally used for pulling plows but most of the Pima state that this is not a satisfactory arrangement.

When fields are cleared of brush and trees they are plowed, first in one direction and then in another. Occasionally a yough will follow the plowman, pulling those weeds that are not uprooted by the plow; this custom is said to be very important when plowing gardens of some size. If the earth is very cloddy after the first plowing a drag (rastro) prepared by harnessing a draft animal to a squared log--which may be weighted with large stones--is used before the second plowing.

Some of the Maicoba Pima secure fertilizer for their gardens and fields from two sources, bats (vosog) and stock maintained in corrals. The more enterprising Indians, particularly those who have worked at locales far removed from Maicoba and Yécora, secure bat dung (vosog bi'itč) from caves that are inhabited by large numbers of a chocolate colored bat.* Fertilizer from corrals that are located in permanent

---

* Probably the Mexican Freetail bat (Tadarida mexicana) described by Burt and Grossenheider [(1952), 31].

Maicoba

Preparation of Fields 4

spots is transported in burlap or leather bags, or upon an old blanket, to portions of the fields which are known to be non-productive. In some instances, corrals are moved from place to place in the fields, in order to facilitate fertilization. However, the lack of animals precludes much attention to the use of fertilizer. Some of the Pima state that ashes (mata'i) are used as fertilizer; however I suspect that such use is more or less accidental, since I did not see evidence of ashes in field or garden. Ashes cast upon the trash heaps (montón de basura, kavilkug) near the houses may serve as fertilizer, since such trash heaps are invariably marked by a few plants which are of value to the Pima.

According to the older Pima, those Indians who can muster sufficient amounts of maize to manufacture a proper amount of tesgüino can obtain help in the difficult work of clearing a field of trees and brush.

Maicoba

Preparation of Fields 5

Data obtained in 1971

Preparation of fields in January:	get the fields ready for the May planting. Plow first in one direction and then in another, and again as the original plowing.
Preparation of field plots in April:	select a plot for potatoes near the water in an arroyo to take advantage of the water table. Plow and plant as in section 22
Preparation of field plots in May:	Plow the fields (once) in which temporal corn is to be planted
Preparation of field plots in June:	Before planting maíz de aguas plow the land once
Preparation of field plots in July:	prepare the bean plots by plow in two directions

Maicoba — Preparation of Fields 6

Materials used in fashioning the plow

handle	encino cuši (or kuši)
tongue	pino
plow	encino cuši (or kuši)
point	fierro
yoke	fresno, pino, o iguaciki

Moris — Plows - 1777

Source: Rada (1777)

There is a reference to wooden plows (arados de encino) with iron tips or points (puntas de hierro)

According to all of the informants at Maicoba, there is frequently a lack of seeds for planting, because of poor crops, or as in the case of corn, the use of maize in preparing tesgüino.

Care is taken to separate the different kinds of grains (corn, beans and squash) in order that the types are not mixed when planted in field or garden.

Field Crop	Seed Planting	
1. Gramin		
Saach cinarum var.		Old World [Bailey and Bailey (1941), 640]
Orun varities		Old World (Uphof, 1968, 493)
Tritic vum var.		Old World (Uphof, 1968, 527)
Zea ma		
2. Liliace		
Allium r.	onion	Old World (Uphof, 1968, 24)
Allium var.	garlic	Old World (Uphof, 1968, 25)
3. Iridace		
Crocuss	saffron	Old World (Uphof, 1968, 159)
4. Chenopo		
Beta s var.	beet	Old World (Uphof, 1968, 74)
5. Papaver		
Papaveis	poppy	Old World (Uphof, 1968, 386)
6. Crucife		
Brassiracea	cabbage	Old World (Uphof, 1968, 85)
7. Legumino		
Arachigaea	peanut	
Cicer num	chickpea	Old World (Uphof, 1968, 129)
Faba vs	horsebean	Old World (Uphof, 1968, 543)
Phaseolutifolius var. olius	tepary	
Phaseolgaris	(large & small pinto beans)	
Vigna is	cowpea	Old World (Gray, 1950, 937)
8. Malvacea		
Gossyp.	cotton	

9. Umbell

*Daucus carrot Old World (Uphof, 1968, 174)

10. Solana

*Lycop esculentum

11. Pedali

Sesamcum sesame Old World (Uphof, 1968, 481)

12. Cucurb

*Citrulgaris varities Old World (Uphof, 1968, 133)

*Cucumo varieties Old World (Uphof, 1968, 162)

Cucurixta

Cucurbaxima

Cucumoschata

Lagensiceraria

13. Composi

* Lactativa lettuce Old World (Uphof, 1968, 297)

Corn Seeding 1

Maicoba	Planted	Harvested
chapalote		October
harinoso de ocho		
(maíz de agua)	July (elote after 70 days)	November/December
(maíz de agua)	July (elote after 70 days)	November/December
elotes occidentales		
(maíz prieto)	July (elote after 70 days)	November/December
reventador		
(maíz reventador)	July	November

Corn Seeding 2

Maicoba		
tabloncillo		
(maíz)	July	November
(maíz blanco)	July	November
(maíz kawisori)	June (under good conditions matures in 90 days)	November
tabloncillo perla		
(maíz ocho de carrera)	July (matures in 90 days)	October/November
(maíz cristalino)	July (matures in 90 days)	October/November
zapalote chico		
(maíz)	May/June	November

Maicoba — Corn Seeding 3

tuxpeño		
(maíz)	May	November
(maíz)	May	November
(maíz Obregón)	April/May	October/November
onaveño		
(maíz duro)	June	October
dulcillo del noroeste		
(maíz viejo or maíz dulce)	May/June	November

Maicoba — Corn Seeding 4

maíz cristalino de Chihuahua		
(maíz)	July	November
Mountain Yellow varieties		
(maíz amarillo)	July	November
(maíz cristalino)	July	November
(maíz blanco)	July	November

Maicoba

Seed Planting 1

Gramineae

Wheat is sowed either in October or in very late spring, and commonly is seeded in furrows made by the plowman, the grain being carried in a small basket or sack by a man who follows the plowman. The grains are covered as the next furrow is made, or a drag may be used, a drag which is prepared by squaring a heavy log.

Corn is generally seeded in June or July and the separated grains--according to the type of corn being seeded--are carried in a basket, a leather or cloth bag, or within a rag that is anchored to the seeders's waist. It is claimed that only men and youths plant corn, never the women and girls, although no rational explanation was offered for females not planting corn. The grains are seeded in straight rows, parallel one to the other, even on the steep slopes of the magüeaches, upon which the rows trend up and downslope. The seeder usually follows a plowman during the second plowing, and four grains of corn are inserted into a hole made with a wooden stake (gika)

Maicoba

Seed Planting 2

or an iron bar; as the seeder moves forward he covers the grains slightly with his foot and as the next furrow is made additional earth is added. The Maicoba Pima claim that it is best to seed corn during the full moon. If corn is seeded during the period of the waning moon the corn will get "sick" and the mazorcas (hu'un va'akam) will not mature.

As indicated earlier, sorghum is sowed in June or July, the seeds being sowed by men or women in shallow furrows which are covered by the use of a large branch. The Pima had no rational explanation for the fact that women could seed this grain but not corn.

Leguminosae

Beans (bav) of all types are seeded by men, women and children in exactly the same fashion as is corn. Three or four bean seeds are placed in each hole. The beans are seeded in July or August.

Maicoba

Seed Planting 3

Cucurbitaceae

Those species of curcurbits which are most widely cultivated by the Maicoba Pima (Cucurbita pepo, C. mixta and C. ficifolia) are seeded in May or June, as presumably is the C. moschata which was recorded as a cultivar among the Maicoba Pima Bajo by Mason and Brugge in the 1950's.* Men, women and children seed these curcurbits. Seeds

---

* Mason and Brugge (1958), 286.

---

of the guaje (vák or váko) are planted in old corrals, upon trash heaps (kavilkug) and in fact almost anywhere, in the fields or in a suitable spot--one marked by good soil--near the houses. The hill of a red ant called močomo is much esteemed as a place for seeding guajes; this ant hill is called totinkigar. The bottle gourd is seeded in April, May, June or July.

Use a vara for making holes for planting cucurbits.

Maicoba

Seed Planting 4

Planting ceremonies

Little is recalled concerning planting ceremonies once followed at Maicoba. Some of the older people noted that there were ceremonies but they could not recall data about such activities other than if an old man was preparing for planting he prepared a great amount of tesgüino so that the younger men would be "encouraged" to help with the preparation of the field. It was further noted that not long ago a cross was erected in the field the night before the planting took place, a cross fashioned of wood. This cross was placed before an altar upon which a statue of San Isidro was placed. People drank tesgüino throughout the night, before this cross. Two old people stated that in the time of their grandparents there was dancing as well, that is, dancing accompanied the drinking of tesgüino.

Maicoba

Seed Planting 5

Planting time for the maize cultivated by the Maicoba Pima*

Chapalote (maíz chapalote)	June/July
Harinoso de ocho (maíz de agua)	July
Elotes occidentalis (maíz prieto)	July
Reventador (maíz reventador)	July
Tabloncillo	July
(maíz)	July
(maíz blanco)	June
(maíz kawisori)	July
Tabloncillo perla	July
(maíz ocho de carrera)	May/June
(maíz cristalina)	May
Zapalote chico (maíz)	May
Tuxpeño	April/May
(maíz)	May/June
(maíz)	
(maíz Obregón)	
Dulcillo del noroeste (maíz viejo or maíz dulce)	

Maicoba

Seed Planting 6

Maíz cristalina de Chihuahua (maíz)	July
Mountain Yellow	July
(maíz amarillo)	July
(maíz cristalina)	July
(maíz)	

---

* The Pima terms for the corns, which are classified according to the Wellhausen classification (1952) and the Anderson classification (1946) are given in parenthesis.

Seed Planting 7

Maicoba

Solanaceae

For a potato patch select land near the arroyo to take advantage of water table (moist ground). Plow the ground. If large potatoes are used, then cut up so that the eyes are used. If small potatoes are used then plant as is. Make a hole with a hoe, and cover with a hoe. The holes are about a foot deep. Use a rasta, or a branch behind a plow, a heavy branch--to spread out the dirt.

Gramineae (as of 1971 data)

If corn is seed on flat field and the ground is rather smooth, then use arado for making the lines, and cover corn with second plowing. For sloping land use an iron bar and cover with a foot movement.

Seed Planting 8

Maicoba

On planting of corn

-it may require a month and one-half to prepare ground for seeding 10 decalitros of corn

-it may require 20 days for 3 people to plant 10 decalitros of corn, that is, with 3 people planting 5 litros per day

With respect to celebration of beginning of planting

Some of the Pima do (as Nolasco Armas says, page 214) drink tesgüino in the fields when the corn begins to sprout ..apparently to insure a good harvest. Juan noted that some Pima (including himself) had violin, guitar, or battery tocadistos (and there were about 3 among the Maicoba Pima) for music. Images of the Virgen de Guadalupe and San Isidro are brought out. There is much drinking and every one marches about the fields sprinkling a bit of tesgüino on the corn. Five or six families participate, all neighbors, and if the questions about what happened when everyone got drunk on tesgüino means anything, the affair turns into an orgy, "since the girls like it," according to [illegible]

Maicoba

Seed planting

Nolasco Armas, 1969

page 214:

Beans are planted apart from the corn.

Pummpkins are planted with the corn

The potato is planted in April
-plant in the line made by the plow
-cover with a wooden object (a log pulled across the furrows)
-weed in the field in June
-Harvest in October
care of potatoes seems to be task of the women when planted near the house

Moris

Planting instruments - 1777

Source: Rada (1777)

There is a reference to a coa (digging stick).

Also, it is stated that "otras siembran con unas barretas de encino largos que llaman guicass."

Maicoba

Care & Protection of Growing Crops 1

Fences

Approximately one-third of the Maicoba Pima construct stone, log, and wire and post fences for protection of their milpas (ga) from predation by their own stock or that of the blanco cattlemen. It is stated that until about seventy years ago there were few fences within the Maicoba ejido. The time of introduction of the use of fences, whatever their design, cannot be determined. The older Pima insist that log fences antedate the stone fences and that the latter have never really been important; certainly they are not conspicuous in the landscape today except on land held by the blancos, and in such instances they seem always to be associated with corrals, often extending for some distance from the corrals, or in areas where stone constitutes a nuisance. Log fences are certainly more associated with Pima holdings than are stone fences and they are constructed in a simple fashion. They may be built in more or less of a straight line, with poles anchored between posts planted in the ground, each pole being separated from another by a large rock which is wedged in between two rather slender upright poles, themselves anchored firmly in the ground, or the fences are constructed

at at angle, in the fashion of rail fences in the upper American South. Occasionally, the Pima plant a pole marked by three or four projections in the ground. The transverse portion of the fence is placed upon these projections. Until recently, that is until the past two decades, hardly any Pima were able to muster funds needed for the purchase of wire; only those who went to work in mines or in lumber camps purchased barbed wire and the short stretches that were built were usually ineffective since they consisted of only two strands of wire. The Pima state that posts fashioned from a sabino (Juniperus monosperma) is the most common type with respect to wood used. Transportation of wire into the Maicoba area has long been difficult except for those blancos who could afford to pay for such transport by air, that is, the carriage of the wire to the village of Maicoba where there is a landing strip. However, today, trucks can reach Maicoba from Yepáchic which has fairly good road connections with Matachic and Cuatemoc.

Animal and Insect Predators

Animal and insect predators do a vast amount of damage to growing crops at Maicoba and the Pima use whatever means they can muster to protect their crops from the predators indicated below. However, it

should be remembered that certain of the predators--such as the squirrels, rabbits and deer--are important in the diet of the Pima, and because of this fact it is proper not to overestimate the damage by these animals to the crops.

1. Insects.

A locust which is known as so'og, and which eats corn and bean plants, appears almost yearly at Maicoba and in some years the insect appears in such numbers that a plague ensues. The Pima state that nothing can be done about the so'og. A cornworm which is called tuvu'il sometimes devours almost all of the young cornstalks (hu'un va'aga A bug (chinche compestelo) known among the Pima as o'owadam is said to do much damage to the cucurbits. Ashes (mata'i) are sprinkled upon squash plants to discourage predation by this bug. The grasshopper, which is known as mušal, and which is probably Arphia conspersa, damages young calabaza and guaje plants. If avilalbe, holy water is sprinkled upon the plants to discourage this insect. A chinchabel, which is probably Macrodacylus mexicanus, preys upon young bean and corn plants,

as does a mayate (Cotinis mutabilis). A palomillo (Hippodamia convergens) called na'akami is said to attack nearly dry ears of corn in the fields, and does vast damage to dried corn in the trojes built within habitations, eating the interior of the individual grains. A gorgojo is claimed to not only damage corn in the fields but as well in storage areas located within habitations. A conchita de maíz (Metriona emarginata) is claimed to do much damage to corn in July and August; the entire crop may be wiped out. Little can be done to combat this insect except to sprinkle ashes upon the plants and holy water upon the fields.

2. Reptiles.

Two species of güikos are claimed to damage the sprouting corn plants while seeking insects. These reptiles are

3. Birds and wild fowl.

Men, women and children assist in guarding the crops against predation by wild fowl and small brush huts are yet constructed for people

who must remain in the fields to guard the crops against bird life.*

* Four of the Pima men reported the use of such brush huts but I saw no such huts during the late summer of 1968 and 1970.

A goshawk (gavilán) known as višig is claimed to damage young sprouting corn in seeking insects. The crow (cuervo) which is known as kokon, appears at Maicoba only during the planting and harvesting seasons. Scarecrows (o'idihuhug) are erected in the fields. The most effective of the scarecrows involves the construction of a cross with a "face" of zacate. A scarf is tied about this "face" and old clothes are placed upon the cross. Some of the Pima anchor rags to a stake, in the belief that when the rags stream out in the wind the birds will be frightened away

* Some birds may be frightened by such a device but I have seen birds sitting upon such a scarecrow near Maicoba.

The black raven also damages the corn fields. A woodpecker known as aruki or arsuk, and which is marked by a red copete, is said to be the sole woodpecker that damages newly sprouting corn. A small thrasher may ruin newly sprouted corn by scratching for the grains. The wild turkey (tukov or tov) sometimes appears in newly planted cornfields and scratches up the seeds.

4. Hares and rodents.

The liebre, a white-sided jackrabbit known as pariš, is claimed to nibble at and damage newly sprouted corn and wheat. The small cottontail (tuva) is said to damage newly sprouted corn and wheat. Four squirrels (ardilla parda, ardilla voladora, ardilla chichimoka and ardillo del campo), all of which are known as tuku'i, are said to climb elote cornstalks (hu'un va'aga) to reach the elote ears (ka'ibarik); it is claimed that squirrels sometimes topple these elote stalks. A gopher or mole (tuš) preys upon young maize plants. Field rats are claimed to damage the newly seeded corn. Beans and leaves

of chilicote (Erythrina flabelliformis) are mixed with nixtamal and placed in the fields as a poison for rats.

5. Carnivores.

The bear (vuhi) appears only infrequently near Maicoba today, but the older Indians remark that hardly two generations ago bears were numerous and caused much damage to the cornfields. Bears were "run off," there being no guns with which to shoot the creatures. Watupár is the mapache or raccoon that eats elote corn stalks. The coati or cholugo which is known by the Pima as sul or suyi is abundant in high eastern Sonora and is disliked because of the damage it inflicts upon growing maize. The badger, known as vávoki, is claimed to eat young corn plants as does the gray fox.

6. Cloven-hoofed animals.

The white-tailed deer (šiki) is without doubt the most conspicuous animal that preys upon young corn and bean plants. Occasionally, bands of peccaries (toskoli) appear in plantations that

that border canyons to the northwest of Maicoba; these marranos silvestres are claimed to do much damage to growing maize.

The techniques employed by the Maicoba Pima for bringing down the predators mentioned above are discussed in Chapter VI. The important thing is, of course, that the Pima are ill-equipped, with respect to arms or metal traps, for destroying animal predators.

Weeding and Hilling

About five per cent of the Maicoba Pima possess metal hoes which are useful in weeding. The remainder of the Pima remove weeds by hand, or utilize, according to some Pima, a hoe that is fashioned from a suitably shaped wooden branch. Federico Rodríguez Romero commented that sometimes brasil (Haematoxylon brasiletto) was brought in from the hot country to the west, for fashioning these hoes. One of the first chores given to boys past the age of six and girls past the age of about ten is that of handweeding the fields and removing stones which they can easily lift.

maíz blanco are more affected during the quarter moon than other corns. Squash, tomato and chile plants may be "sick" during the quarter stage of the moon.

Fertilizer

Some of the Maicoba Pima note that they fertilize their fields after the crops have begun to develop. Manure is brought from corrals and from caves inhabited by a long-eared bat; the guano from the caves is particularly desired for use on chile, tomato and tobacco plants.

Protection Against Hail

Hail (ti'a) is an every-present danger to crops during July and August in the vicinity of Maicoba, and for protection against damage by hailstones (gu'ušim ti'a) the Pima may:

(1) Burn a bit of horn (aga), along with a piece of táscate (Juniperus osteosperma), which is known as ga'a or gah, and

For hilling of corn the Pima use a metal hoe, wooden hoe, or the digging stick. Hilling of corn seems not to be universal. Certainly, a goodly number of the Pima indicate that they only plow the cornfields, but these people admitted that hilling was better. When the corn is about four feet high some of the lower shoots are removed. At least four shoots are left upon each stalk.

Plant diseases and the moon

The Maicoba Pima insist that corn and squashes often become "sick" when the moon is in its quarter stage,* and to "make the plants

---

* When asked for the Pima equivalent of the moon in its quarter stage the term súpar tugi'än was given to me. However, this seems properly to refer to elipse del sol.

---

well" holy water is poured upon plants along the edge of the field and the rosary is recited in the field. It is stated that chapalote and

dried yerbanís (Tagetes lucida) which has been stored against such need. This yerbanís is known as o'ip.

(2) Throw a bit of salt (ona) upon the fire (ta'i) and make the sign of the cross above the fire.

(3) With a machete or an axe make the sign of the cross in the direction of the cloud that appears to be harboring hail, or which appears to have brought the ahil--in the latter case less damage will be done to the crops.

Maicoba Care & Protection of Growing Crops

Nolasco Armas, 1969

page 214: Ceremonies to insure a good harvest

-Nolasco Armas notes that there is a ceremony to promote a good crop
-little ceremony after the crop is in
-man goes from house to house gather corn until he obtains a hectoliter
-tesguino is made and a fiesta is held OUTSIDE the village of Maicoba
-women and children share in this tesgüino

-Nolasco Armas notes that during the night they remain "velando" before the cross
-guitars are played
-pascola is danced
-Nolasco Armas notes that anciently this was called yumari
-now it is called "velacion" ("candling")
-according to Nolasco Armas, the Pima state that its efficacy in insuring a good harvest is unsurpassable

Moris — Care of Crops - 1777

Source: Rada (1777)

There is a reference to azadones

Moris — Crop Predators - 1777

Source: Rada (1777)

(1) Gusano (particularly in August)

(2) Chapulines (particularly in August)

(3)

1752-1754

Something on cropping (1752-1754), according to Utrera (1752-1754), Deeretoro....

fanega: 1.58 bushels (Spain)

Ures:

Sowed ("se sembraron") 95 fanegas of wheat and got ("se alzaron") 1,021 fanegas in 1754.
Sowed 5 fanegas of corn and got 43 fanegas in 1754
Got ("se alzaron") 91 fanegas of garbanzas in 1754

Ónavas, Tónichi, and Soyopa:

Sowed ("se sembraron") 20 fanegas of wheat at these places 175
Sowed 8 fanegas of corn at these placaes, 1754

Cumuripa:

Sowed ("se sembraron") 2 fanegas of corn in temporal, 1754
No wheat because no irrigation water

Movas:

Gathered ("se cogieron") 120 fanegas of wheat (1754)
Gathered 150 fanegas of corn (1754)
Gathered 5 fanegas of chile (1754)
Gathered 9 fanegas of beans (1754)

Nuri:

Gathered ("se cogieron") 500 fanegas of wheat (1754)
Gathered 150 fanegas of corn (1754)

San Jose And Tecoripa:

Sowed 6 fanegas of corn (1754)

Yécora:

Gathered ("se alzaron") 20 fanegas of corn (1754)
Gathered 17 fanegas of wheat in 1754
Gathered 8 fanegas of beans in 1754

Tecoripa:

Sowed ("se sembran") 25 fanegas of wheat. Did not produce, in spite of being under irrigation.

This is Maseca

Harvesting and Storage of Field Crops (24)

two factors for Maseca

Time of harvest

Sorghum	June/July	October
Wheat	Winter or Spring Wheat	
1 Chapalote	July	October
Harinoso de ocho (maíz de agua)	July (elote in 70 d)	Nov/Dec
2 Elotes occidentalis (maíz prieto)	July (elote in 70 d)	Nov/Dec
3 Reventador (maíz reventador)	July	November
4 Tabloncillo		
(maíz)	July	November
5 (maíz blanco)	July	November
6 (máiz kawisori)	June	November
7 (but under "good" conditions will mature in 90 days)		
Tabloncillo perla		
8 (maíz ocho de carrera) (will mature in 90 days)	July	October/N
(maíz cristalina) (will mature in 90 days)	July	October/N

Zapalote chico			
(maíz)		May/June	November
Tuxpeñp		May	November
(maíz)		May	November
(maíz)		May	November
(maíz Obregón)		April/May	November
Dulcillo del noroeste			
(maíz viejo or maíz dulce)		May/June	November
Maíz cristalina de Chihuahua			
		July	November
Mountain Yellow			
(Maíz amarillo)		July	November
(maíz cristalina)		July	November
(blaíz blanco)		July	November

Cucurbits (squashes)	Cucurbita pepo	April/May	
	Cucurbita ficifolia	May/June	October/Novembe:
	Cucurbita mixta	May/June	
Cucurbit (guaje)		April/May/June	
Legumes/		July	November

Maicoba Harvesting & Storage of Field Crops 1

Harvest ceremonies

According to the older Maicoba Pima, harvest ceremonies were once more elaborate than those of today. Musicians were hired (violin players and people who shook gourd rattles) and people danced, a jumping dance called tutkim (bailando) and the pascola. Today, people sometimes dance to the music of a battery-powered radio, in the fashion of the blancos, that is, arm-in-arm. Such dancing is in the early evening of the night before the harvesting begings. However, as in the ceremonies of a bygone time, tesgüino is drunk. Formerly, yúmari was danced at harvest ti

Harvesting and storage

1. Maize

The Maicoba Pima are well aware of the time required, under average conditions, for their corns to develop into elote and mature stages, and like other rural peoples of Mexico they are much aware of the fact that corns are in the elote stage for only a few days.

For the identified corns cultivated by the Maicoba Pima the following months were indicated for harvest time:*

---

* The terms used by the Pima are indicated within parenthesis except for the chapalote which is so known by the Pima.

Chapalote		October
Harinoso de ocho (maíz de agua)	Elote after 70 days	October
Elotes occidentalis (maíz prieto)	Elote after 70 days	November/Decembe
Reventador (maíz reventador)		November
Tabloncillo		
(maíz)		November
(maíz blanco)		November
(maíz kawisori)		November
This corn will mature under "good conditions" within 90 days.		

Tabloncillo perla (maíz ocho de carrera) (maíz cristalino)	October/November
Both of these corns will mature in 90 days under "good conditions."	
Zapalote chico (maíz)	November
Tuxpeño (maíz)	November
(maíz)	November
(maíz Obregón)	November
Dulcillo del noroeste (maíz viejo or maíz dulce)	November
Maíz cristalina de Chihuahua (maíz)	November
Mountain Yellow (maíz amarillo)	November
(maíz cristalina)	November
[Onaveño (maíz duro)	November October]

Thus, most of those corns which are seeded in June and July (see above for seed planting time) may be expected to mature in about 120 days, in October or November. Certain corns, such as maíz kawisori, maíz ocho de carrera and maíz cristalina will mature in about 90 days under circumstances which involve a warmer than usual season and the proper amount of rainfall. However, the Maicoba Pima state that such conditions rarely obtain.

Maize may be entirely dried upon stalks in the field, and if so dried the ears may be removed from the stalks with a piscador fashioned from the wood of Quercus viminea, Q. albocincta, Q. durifolia, or Q. endlichiana, from wood of a pine tree, or the leg bone of a deer or pig. In instances where the corn is dried upon the stalks the shucks are left on the stalk and the gatherer tosses the ears into a carrying basket anchored to his back with a mecapal. The corn is piled in a corner of the milpa until the entire plot of corn is gathered. The corn is then removed to the house in carrying baskets anchored to both sides of a burro. Some of the Pima prefer to remove the ear before it is wholly dry and in such cases the gatherer removes the ear of corn from the stalk

with a piscador, tosses the ears into a basket anchored to his shoulders and piles the corn in a corner of the milpa. When all of the corn is collected the ears are shucked and they are spread upon petates and watched for several days while they are drying. The ears are then removed to the house upon burros, in the fashion indicated above.

According to the older Pima, there was much use of wooden storage structures about two generations ago, structures which were built apart from the houses. These structures were made of squared or smoothed logs, locked at the corners with notches, and roofed with slanting canoas upon which earth was placed. Entry to such structures was by a door hardly large enough to admit a medium sized adult. This door, which was located in the center of one side of the structure, was of wood, and hinged with leather, and wedged shut, there being no locks or latches of any kind. The Pima note that there was really no need for locks, since there was little theft! The floor was either of logs or planks. Some of these structures were roofed with shinges. Only one such structure, a tumbled-down affair, was noted during the field session of 1968 and 1969, near Maicobita. However, the lack of remains of such huts should

not be taken to indicate that such storage structures were not commonly used. Firewood is such a problem in and about Maicoba that such buildings would have been torn down. Just why the Pima abandoned the wooden structure that were built apart from their houses and why they adopted the inside trojes which are common today cannot be determined. The contemporary trojes are but small cupboards made of planks and logs, constructed in one corner of the house, usually built about half-way from the floor to the roof. These cupboards are tightly constructed, sometimes chinked with mud, to prevent entry of rats.

Long ago, according to Dolores Velásquez Duarte, small natural openings on the faces of cliffs were used as storage cribs for corn. The openings were frequently walled in with mud and mortar. She recalled that when she was a child people would occasionally find a long abandoned cliff storage crib with corn therein.

Large ears of corn are stored as they are brought from the field. The smaller ears are shelled, and the grains are stored in sacks which are placed in the drib. Three modes of shelling corn are followed by

the Maicoba Pima. Two ears of corn may be struck together, one ear of corn may be struck sharply with the butt end of another ear, or if the grains are not too tightly arranged they are removed with a finger. [see obverse]

Stalks of corn upon which the shucks are left are removed from the field, bundled up and stored in a troje of logs, a crudely constrcuted square structure located to one side of the field. Or, the shucks left from shucking the corn at the edge of the field may be bundled and stored either in a troje or upon a platform constucted in a tree.

2. Wheat.

Wheat is dried in the field and then cut and removed to a threshing area, a circular area usually located upon very hard ground, with an upright pole in the center. Cattle are used in threshing if available; otherwise, a burro is used. The wheat is separated from the chaff by winnowing in large baskets. Wheat is stored in sacks, either upon shelves or within the cribs built inside the houses.

Dolores Velázquez Duarte remarked that the proper way of shelling corn is to strike the ears of corn together. The lazy way is to strike the mazorca (hu'un va'akam) upon a log or stick, permitting the grains to fall onto a piece of cloth placed beneath that log or stick, or upon a petate.

Maicoba Harvesting & Storage of Field Crops 8

3. Beans.

Beans are harvested in November. The plants are pulled out by the roots and removed to a hardpacked threshing place. The plants are piled up and threshed with a stick. The beans are winnowed by being tossed in a basket and are stored in sacks within the cribs that serve as trojes within the houses.

Or, if the bean plot is quite large, the plants are pulled and piled at the end of each row, after which time the separate piles are removed to a threshing place.

4. Cucurbits.

The s quashes and the bottle-gourd are usually harvested in October and November. Fruits of the squash plants may be stored in a cool place--usually within a dwelling--for a few weeks before being baked or boiled. For a longer period of storage, the squashes are halved, cleaned of their rinds, and cut into strips which

are partially dried before being wound upon sticks which are thrust into cracks in the rafters or walls of a dwelling. These data are consistent with a comment made by Mason and Brugge in the 1950's, to the effect that the MaicobaPima cut pumpkins into strips which are dried for winter storage.*

---

*Mason and Brugge (1958), 286.

On harvesting of corn

About 1 month is required for harvesting 10 decalitros of corn planted.

On construction of trojes

Federico and Juan noted that antes the storage houses were constructed outside of the houses, of timber, but today, most are in the houses.

Appearance of elote corn

1. maíz temporal elote appears about August 15th.
2. maíz de agua elote appears during early October.

Storage

Maicoba

Nolasco Armas, 1969

page 200: Storage rooms

Nolasco Armas notes that storage rooms are sometimes built (of lumber) apart from the houses, but generally such facilities are within the houses.

24

Husking Pegs

Maicoba

Brugge (1961), 10

"Husking pegs, for husking corn, sometimes made of bone, are usually wooden. These are widely employed by whites and Indians throughout the mountain region, and their history has not yet been traced there."

The Maicoba Pima insist that there is much hunger at Maicoba, particularly between March and November, since most of the harvest of the previous year is depleted by mid-March and most of the corns do not mature until November. It is during this period that the Pima experience the most hunger, except in instances where the head of the family is able to find work elsewhere, either in a mining camp, a lumber camp, or perhaps on holdings of the blancos. The allegation of hunger on the part of the Pima is denied by the blancos. However, while wandering about the Maicoba country in 1968 and 1970, it was obvious that in July and August there was a lack of food. Certainly there was little evidence of beans and corn in the storage cribs. Had it not been for the winter wheat crop gathered in 1968 many families would have suffered, since the corn crop planted in 1967 was muchly damaged by hail and drought in that year.

It is difficult to determine the annual yield of corn, beans and wheat among the Maicoba Pima, because of variations in the amount of land cultivated and because of insufficient data. However, conversations with Pima who were considered by their fellows to be extremely poor or extremely

well-off give some indication of the yield. The data are significant since the well-off Pima family tilled land that was comparatively level and which was distinguished by what was clearly a superior soil, a floodplain soil. The extremely poor family tilled sloping and stony soil which produced hardly one-half as much as did the level plot.

1. Corn.

The well-off Pima family consisted of two adults and five young people and the youngest member of the family was five years of age. This family commonly planted 30 litros (21 kilos or 3 decalitros) of corn. In a good year the harvest would yield 30 hectolitros (3,000 litros or 2,100 kilos), that is, shelled corn. The family commonly consumes 4 litros (2.8 kilos) each day, in the preparation of corn dishes of one kind or another. Therefore, this means that to sustain each person in the family for a year about 146.0 kilos of corn are necessary, a total of about 730 kilos, about one-third of the yield for the year.

The less well-off family, that one which tilled very poor land, got a yield of about 1,500 kilos. This family, which consisted of two adults and five children required about 730 kilos of corn per year.

One might assume that in both instances there would be an adequate amount of corn for any given year. However, this assumption does not take into consideration several very important factors. Corn is often the source of cash income used to purchase staples such as beans, sugar, salt and coffee and as well articles of clothing. A certain amount of the corn is lost because of rats and insects that damage the corn in the storage bins. Most importantly, the Maicoba Pima prepare a great amount of tesgüino when corn is available. To prepare a five gallon olla of this fermented beverage at least 15 litros (about 10.5 kilos) of corn are required. It appears, that on the average about 42 kilos of corn may be used in preparing tesgüino each month, during the period November through March. This would account for about 210 kilos of corn.

It is clear that a Maicoba Pima family that produces about 1,500 kilos per year, that is for a good year, does not produce enough corn to sustain that family, given the prevailing customs. Moreover, the Pima at Maicoba insist that on the average, within a ten-year period, four crops are not brought in, because of hail, la langosta and the gusano

Crop Yield 4

Maicoba

de maíz.

A family that has good land and which produces about 2,100 kilos per year is much better off than a family that produces 1,500 kilos of corn on poor land. But the better-off family also prepares tesgüino, also must purchase certain staples. Moreover, according to data obtained in 1968 and 1970 hardly any Pima family at Maicoba produces a sufficient amount of beans to sustain a family of five people. If there is excess corn, it must be used, in part, for the purchase of beans.

2. Beans.

A Pima family with good and level land ordinarily plants 3 decalitros (30 litros or 24 kilos) of beans, and in a good year will harvest 2 hectalitros (about 200 litros or 160 kilos). A family of seven (two adults and five children) will normally consume about 1 litro or 800 gramos of beans each day, in the preparation of bean foods. Therefore, to sustain each person per day about 115 gramos of beans are needed. This means that to sustain each person per year with respect to beans, about 41 kilos are needed. Therefore, at

Crop Yield 5

Maicoba

287 kilos of beans are needed to sustain a family of seven people per year. The 160 kilos of yield on the good land is far short of this figure.

As in the case of corn, it is claimed that the sloping land produces fewer kilos of beans per year. However, the poor land apparently yields --proportionately--more beans than corn. It is claimed that a poor plot of sloping land, equal in size to that good land in beans--will produce about two-thirds as much beans. This means that the poorer land will be expected to produce about 106 kilos of beans, which is, however, far short of the amount of beans needed to support a family of seven people per year.

3. Wheat.

Wheat is rarely cultivated on sloping and stony land, and those Pima who have good land usually plant about 2 decalitros (20 litros or 16 kilos) . A good year will result in a harvest of about 4 hectalitros (about 400 litros or 320 kilos). This wheat is used for either making "bread", atole or tortillas. For those Pima families who have good land wheat is most important, either winter wheat or spring wheat. In either case, the wheat is harvested at about the time the corn from the previous

year is about depleted.

Sketchy though these data area, they make clear, at least in part, why there is much hunger at Maicoba.

On Corn Yield and the Food intake (adequacy), as of data for 1971

1. Apparently, for planting corn, an average family plants about 10 decalitros of corn

2. A good year would result in 8 cargas yield per 1 decalitro planted.

3. 1 carga equals 10 decalitros

4. Therefore:

   GOOD YEAR: 80 decalitros from 10 decalitros planted

   BAD YEAR: 50 decalitros from 10 decalitros planted

5. 80 decalitros equals about 800 litros or 650 kilos approx

   50 decalitros equals about 500 litros or 305 kilos approx

6. According to Federico & Juan

   -a family of 5 (2 adults & 3 children) consumes about 60 tortillas per day

   -this means that about 1,050 kilos needed for this family cada año

   -or about 2.4 kilos per day

7. OBVIOUSLY

   a. there is a difference in the 1,050 kilos needed by family of 5 at Maicoba for a year

      and the 350 kilos needed at Yepáchic for a family of 5 for a year

   b. The explanation is simple:
      -at Yepáchic the tortillas smaller and thinner
      -at Maicoba the tortillas are thicker & bigger
      -Juan noted that 2 tortillas at Yepáchic would make 1 tortilla at Maicoba

In any case, whether good year or bad, there is a lack of corn at Maicoba

Maicoba

Crop Yield 8

Juan on a very good year for corn

-Juan and Federico always referred to how many decalitros planted and how many yielded

-a good year would result in 18 cargas from 1 decalitro planted

-since 1 carga equals 10 decalitros, this means that for 1 decalitro planted the yield would be 180 decalitros, 1,800 litros, or about 1,300 kilos

NOTE: At Yepáchic, Luz recognized the amount of land for 1 hectare, and he knew how many kilos required to plant 1 hectane. Further, he knew something of the yield PER HECTARE

WHEREAS LUZ AND FEDERICO ALWAYS REFERRED TO HOW MANY DECALITROS PLANTED AND HOW MANY YIELDED

Maicoba

Crop Yield 9

Wheat Yield

-on an average, those few people who plant wheat plant about 5 to 6 decalitros per year

-the yield on the average is about 14 hecalitros, about 1,400 litros, or about 1,000 kilos

Beans and their Yield

-on an average about 12 decalitros planted

-on the average, yield for this amount would be 20-22 hecalitros, or about 2,000 to 2,200 litros, or about 1,540 kilos

-a family of 5 needs about 1/2 kilo per day

-a family of 5 would therefore need about 184 kilos per year

-Juan noted that beans were often sold

Yield of Calabazas

-it is difficult to determine just how many calabazas, on the average, are obtained each year

-in the first place, many are eaten as they ripen, so a count would be difficult

-but Juan and Federico noted that a good year might yield 6 cargas (and 1 carga equals about 30 calabazas)

-this means that 180 calabazas might result from a good year

On crop years during the past several years

1971 - bad
1970 - bad
1969 - good
1968 - good
1967 -bad (but calabazas did well since they did not need much water)

On the comparison of crop yield at Yepáchic & Maicoba

1. Is there any chance that the Maicoba Pima are less flojo than the Yepáchic Pima?

2. The yield in corn (greater at Maicoba) might suggest this, but this might be a function of poor land at Yepáchic.

3. Or, it might be a function of the lumber camp operating at Yepáchic, or thereabouts, since 1952

On quality of the land

It appears that the poorest land is in the southern portion of the Maicoba Ejido, as for example, where Juan and Federico live. Both men plant magüeachic, and yet these people produce more than most Pima. They insist that the people in the northern portion have better land but are flojo.

On the greatest period of hunger

Said to be during May, June, and July.

Nolasco Armas, 1969

page 208: **Food requiremenvs**

One family of 5 conumes about 1/2 kilo of beans per day
One family of 5 consumes about 1.75 kilos of corn per day
Or **about** 3/4 kilo of wheat flour
A b**it of salt, coffee or tea, and grasa vegetal, and sugar**

page 215: The "lean" period of food

-from the end of March to the beginning of March the Pima must derive sustenance from some kind of work [if food has not been stored in ample amounts]

-there was work at Yécora and Talayotes as of 1961
-but not longer available--THESE SAW MILLS in 1972

Maicoba

	Planted	Harvested
chapalote		
(maíz)		October
harinoso de ocho		
(maíz de agua)	July (elote after 70 days)	November/December
(maíz de agua)	July	November/December
elotes occidentales		
(maíz prieto)	July (elote after 70 days)	November/Decmeber
reventador		
(maíz reventador)	July	November
tabloncillo		
(maíz)	July	November
(maíz blanco)	July	November
(maíz kawisori)	June	November
(under good conditions matures in 90 days)		
tabloncillo perla		
(maíz ocho de carrera)	July (matures in 90 days)	October/November
(maíz cristalino)	July (matures in 90 days)	October/November
zapalote chico		
(maíz)	July	November
tuxpeño		
(maíz)	May	November
(maíz)	May	November
(maíz Obregón)	April/May	October/November

Harvesting and Storage of Field Crops (24)

Harvesting Ceremonies

The older Pima state that about two generations ago there were harvest ceremonies. Musicians were hired (violin players and people who shook gourd rattles) and people danced, a jumping dance called tutkim (bailando) and the pascola. Today, according to Federico Rodríguez Romero people sometimes dance to the music of a battery radio, in the fashion of the blancos, that is arm-in-arm. Such dancing is in the early evening of the night before the harvesting begins and tesgüino is drunk by the people who attend the gathering.

Harvesting + Storage

1. Maize.

The Maicoba Pima are familiar with the time required, under average conditions, for their corns to develop into elote and mature stages, and like other rural peoples of Mexico they are very aware of the fact that corns are in the elote stage for only a few days; such days are referred to as a time of "much eating" of roasting ears.

The harvesting time for the Maicoba corns are indicated below:*

---

*Where the corns are known by terms other than those used by Wellhausen or Anderson in their classifications of 1952 and 1946, respectively, I have indicated such terms in parenthesis.

Chapalote		October
Harinoso de ocho		
(maíz de agua)	Elote after 70 days	October
Elotes occidentalis		
(maíz prieto)	Elote after 70 days	November/Decemb
Reventador		
(maíz reventador)		November
Tabloncillo		
(maíz)		November
(maíz blanco)		November
(maíz kawisori)	[will mature under "good conditions: in 90	November
Tabloncillo perla		
(maíz vocho de carrera)	(will mature in 90 days)	October/Novem
(maíz cristalina)	(will mature in 90 days)	

Zapalote chico	
(maíz)	November
Tuxpeño	
(maíz)	November
(maíz)	November
(maíz Obregón)	November
Dulcillo del noroeste	
(maíz viejo or maíz dulce)	November
Maíz cristalina de Chihuahua	November
Mountain Yellow	
(maíz amarillo)	November
(maíz cristalina)	November
(maíz blanco)	November

Thus, those corns which are planted in June and July (see above section with reference to seed planting) may be expected to mature in October or November; and those corns which are seeded in April or May generally are harvested in November. Certain corns, such as the maíz kawisori, maíz ocho de carrera and, maíz cristalina will mature in about ninety days under "good conditions", circumstances which involve a warmer than usual season and the proper amount of rainfall. However, the Maicoba Pima state that such conditons rarely obtain.

The corn may be dried upon the stalks in the fields. If so the ears are removed farom the stalks with a piscador fashioned from the wood of Quercus viminea, Q. albocincta Q. durifolia, or Q. endlichiana, from a pine tree, or the leg bone of a deer or piag. The ears are tossed over the shoulder of the husker, into a carrying basket held upon the man's back with a mecapal prepared from leather or fiber. A great pile is made in one corner of the milpa and when all of the corn is gathered is it is removed to the house upon burros, within carrying baskets anchored to either side of the burro or in sacks anchored to a crude wooden device anchored to the animal in the manner of a saddle.

According to the older Pima, there was much use of wooden storage structures about two generations ago. The structu were made of squared or smoothed logs, locked ath the corners, and roofed withslanting canoas upon which earth was plac d. The entry to these strutures was by a door hardly large enough to admit a medium sized adult. This door, which was located in the center of one side of the structure was of wood, and hinged with leather, and weged shut, there being no locks or latches of any kind. The Pimastate that there was really no

need for locks since there was little theft! The floor was either of logs or of planks. Some of these structures were roofed with shingles. ~~Almost no remains of such structures// were/ noted-during-1968-and-1970-and-when-I-asked-why---I--- noted-only-~~ Only one~~s~~ such structure, a tuhhled down affiar was noted during the field sessions of 1968 and 1969, near Maicobita. But this lack of remains should certainly not be taken to indicate that such storage strcutres were not commonly used once. Firewood is such a problem in and about Maicoba that such buildngs would have been turneddown. Just why the Pima abandoned the wooden strucutres that were builtseparate from the houses and why they adopted the <u>trojes</u> which are common today within the houses cannot be determined. The contemporary trojes are butsmall cupboards made of planks and logs, constructed in one corner of the house, usuallybuilt about half-way up from the foor to the roof The cupboards are tighly constructed, sometimes waddled, to prevent entry of rats.

Longago, according to Dolores Velázquez Duarte, small natural oepnings on the faces of cliffs were used as storage bins for corn. The openings were frequently walled in with mud and mortar. She recalled that as a child someone would occasionally find a long abnaddoned cliff storage hut with corn therein.

Large ears of corn are ~~stored/~~ tossed into the storage bin. The smaller ears are shelled, and the grains are stored in costales within the bin. Three modes are used to shell corn. ~~The/cobs-may-be-struck-~~ Two ears of corn may be struck atogether, one ear of corn may be struck sharply with the butt end of another ear, or if the grains are not too tightly affanged they are removed with a finer.

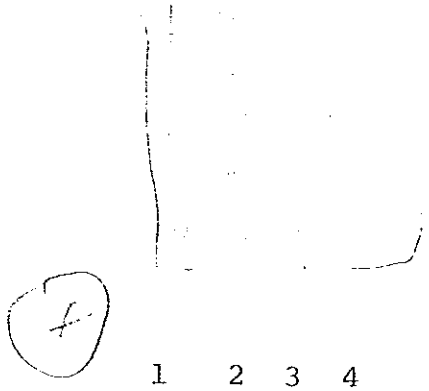
The shucks which are muchly used as pastura are usually gathered and stored in a troje of logs, a crudely constructed
The Pima say that the ancient storage cribs were constucted like
square stucture located to one side of the field. Or, the shucks may be bundled up and stored in a tree, upon a platform which is covered with ~~by~~ a low roof made of branches.

2. Wheat

Is dried in the field and then cut and reoved to the threshing area, a round area usually located upon very hard groud, and area with an upright pole in the center. Cattle are used in threshing. The wheat is separated from the chaff by winnowing in large baskets. Wheat is stored in sacks, either upon shelves or within the trojes.

3. Beans

The legumes are gathered in November. Plants are pulled out by the roots and removed to a threshing place--a hardpacked area. First, the beans are piled in the plot and then removed to a special place marked x. Thresh with a small stick and place the winnowed beans in the sacks as 1, 2, 3 and 4. Then take to the house and store.



4. Cucurbits

The squashes and the bottle-goud are usually harvested in October and November. Fruits of the cucurbits may be stored in cool place--usually within a dwelling--for a few weeks before being baked or boiled. For a longer period of storage, the squashes are halved, cleaned of their rinds, and cut into strips which are partially dried before being wound upon sticks which are thrust into a crack in the rafters or walls of a dwelling. These data are consistent with a comment made by Mason and Brugge in the 1950's that the Maicoba Pima cut pumpkins into strips

which were dried for winter storage.*

---

* Mason and Brugge (1958), 286.

Maicoba, Pennington

Chapter 4

Notes

An astonishingly large number of ornamental and useful plants are found in many of the small gardens maintained by Pima at or near Maicoba. Such gardens are rarely more than fifteen by twenty feet in size, and are invariably protected from predators by shingles anchored in the ground and nailed to pine railings--with either commercial nails or wooden nails--or by a log rail fence.

Generally, the Maicoba Pima grow their ornamental plants in small gardens, whereas the mestizos maintain ornamental plants in ollas or in lard cans.

NOTE:

Juan and Federico were familiar with such plants as beets and carrots. When I asked why Eugenio, so aggressive in some matters, did not get a variety of seeds, by using money he might obtain in some way as Governor, the response was that he was indolent!

Sorghum vulgare

A variety of the Old World Sorghum vulgare*, probably Hegari (see Chapter III), is cultivated in small amounts in gardens.

* Uphof (1968), 493.

Canna sp.

A species of Canna known as lirio is cultivated both as an ornamental and medicinal plant (see Chapter VIII) in the tiny garden plants maintained by Pima in canyons near Maicoba.

Allium Cepa var.

The Old World onion* is cultivated by the Pima Bajo in their small

*Uphof (1968), 24.

gardens. It is stated that bat dung (vosog bi'itč) is used as a fertiliz for onion plants.

Allium sativum var.

A variety of the Old World garlic* is cultivated by perhaps ten families Maicoba Pima Bajo/in their small gardens; the bulbs are lashed together in a chain by twining the shoots of the plant together. The chain of garlic is then hung to dry. It is stated that bat dung is used as a fertilizer on garlic plants. Planted in October-November, and harvested in June.

*Uphof (1968), 25.

Maicoba Liliaceae (21) 27

Lilium sp.

This lirio is grown as an ornamental by some of the Pima Bajo at Maicoba.

Amaranthus cruentus

Maicoba Pima cultivate small amounts of this bledo or okiti in their garden plots; the seeds are used in the preparation of pinole and esquite. The plant also appears in the immediate vicinity of habitations, and undoubtedly is an an escape in such instances.

Maicoba Amaranthaceae (35) 27

Amaranthus cruentus

Antiquity of the use of this bledo or okiti by the Mountain Pima cannot be dtermined but it is likely that its use is rather ancient. Jonathan Sauer* writes that Amaranthus cruentus was the dye amaranth

---

* Sauer (1968).

---

once utilized by the Hopi and that the highland Maya once utilized it as a source of grain. Evidence of the plant has been found in deposits at Tehuacán which have been dated to about 4,000 BC, and since its appearance in northwestern Mexico--in the area between where it was ancien used in the north and south--has been documented, it seems likely that northwestern Mexican aborigines made at least some use of the plant.

Portulaca sp.

This amor por un rato, a purslane, is cultivated by Maicoba Pima in their small gardens as a source of leaves used in the preparation of a medicinal potion.

Papaver Rhoeas

This Old World poppy*, or amapola, as it is known among the Pima,

* Uphof (1968), 386.

is occasionally cultivated in small garden plots maintained by the Pima at Maicoba; the flower petals are used in the preparation of a medicinal tea.

Questions about this plant elicited many smiles, and Juan noted that they would be "hung" if they planted much of it.

Brassica juncea

According to Juan and Federico, a few of the Maicoba Pima cultivate this Old World plant*.

*Uphof (1968), 84.

Maicoba Cruciferae (45) 27

Brassica oleraceae

The Old World cabbage* is occasionally cultivated in garden plots

*Uphof (1968), 85.

by Maicoba Pima, particularly by those Pima who have at one time or another worked outside of the Maicoba habitat, as for example those who have worked in the mining communities where cabbages are grown. It is claimed that bat dung is used as fertilizer on cabbages.

Maicoba Rutaceae (59) 27

Ruta graveolens

This Old World rue* is cultivated in gardens by a few Maicoba Pima because its leaves are used in the preparation of a medicinal tea.

*Uphof (1968), 461.

Maicoba Malvaceae (74) 27

Althaea rosea

The Old World hollyhock* is grown as an ornamental plant in some Pima gardens near Maicoba.

*Uphof (1968), 28.

Viola sp.

This aleli, a species of violet, is grown by some of the Maicoba Pima as an ornamental plant, in the gardens.

Coriandrum sativum

This Old World coriander* known among the Pima as cilantro is

*Uphof (1968), 153.

cultivated as the source of an esteemed condiment. It is planted in November or December and the seeds are harvested in May.

Pimpinella anisum

The Old World anise* is cultivated in garden

*Uphof (1968), 406.

plots by perhaps four or five Pima families, according to Federico and Juan. The seeds are planted in October or November and harvested in March.

Mentha canadensis

This yerba buena which supplies leaves used in the preparation of a medicinal potion is cultivated by the Maicoba Pima in their gardens; the Indians note that when the plant dies out additional small plants are removed from their natural habit near a water course and planted in the gardens.

Lysopersicum esculentum

This inferior tomato, known as tutku'il or tomatillo, is cultivated by the Pima at Maicoba in their gardens. The plants are fertilized with dung (bi'itč) obtained from caves inhabited by a chocolate colored bat that is common to high eastern Sonora.

Maicoba Solanaceae (116) 27

Capsicum annuum

This pepper plant is cultivated by a few [illegible] of the Pima Bajo who live near Maicoba. In the green state it is known as chile verde, in the mature state as chile colorado. Or, it may be known by its Indian term, kókol or kókori. It is particularly esteemed when used as a condime in potato or bean dishes, or in a food prepared from nopales. It is sometimes used as a condiment added to chícharo dishes.

Nicotiana tabacum (1)

This papanti or viv is cultivated by a few Maicoba Pima--Federico Rodríguez Romero noted that he knew of only eight families that cultivated tobacco--. The seeds are first grown in a seed bed which is usually prepared in the lower portion of a large olla--the upper portion has been chipped away with a sharp stone--filled with loose earth. After about three weeks of growth the plants are transplanted to garden plots. The tobacco is irrigated, the water being brought by women in large ollas. Goat dung serves as a fertilizer, being brought, at great effort, in sacks from Santa María or El Pilar. The mature leaves are removed from the plants and dried for several days. Leaves are spread upon the ground while drying. A bit of mescal may be sprinkled upon the leaves whilst they are drying, in order that the tobacco will be "strong." The seed pods from which seeds for the next year's crop is obtained are left upon stalks which are hung up in the houses. The dried tobacco is stored in sacks.

Almost all of the adult males smoke when tobacco is available. There are apparently no restrictions regarding smoking by women; however, few of the women seem to smoke. As with the mestizos, the young men rarely smoke before their parents.

Maicoba Solanaceae (116) 27

Nicotiana tabacum (2)

Lacking the true tobacco, the Pima see leaves of a cornetón (Nicotiana glauca) which grows in canyons near Maicoba and Yécora, or the leaves of N. trigonoophylla known as tobaco cimarrón or mapuche. The older Pima state that both of these tobacco substitutes were once much used, and that the leaves were dried, crushed and smoked in corn husks (hu'un áhag), in exactly the same fashion that the true tobacco is smoked today. Sometimes, children chew the leaves of Nicotiana trigonophylla and "become drunk."

Nicotiana rustica

According to Mason and Brugge,* the Maicoba Pima cultivated &

---

* Mason and Brugge (1958), 286.

"little tobacco, probably Nicotiana rustica," during the 1950's.

Sechium edule

This chayote appears occasionally in garden plots or near habitations where it grows from "year to year" and climbs upon a fence or stakes. The fruit is said to be "muy sabrosa"

Cucumis Melo

Muy poco, according to Federico and Juan.

Maicoba Cucurbitaceae (128) 27

Cucurbita ficifolia
Cucurbita mixta
Cucurbita pepo
Cucurbita moschata
Lagenaria siceraria

Cucurbita maxima

At least four species of edible species of Cucurbita (C. ficifolia, C. mixta, C. pepo, and C. moschata*) are cultivated to a small extent in

* Seeds of Cucurbita ficifolia, C. mixta and C. pepo were collected among the Maicoba Pima in 1968. Mason and Brugge [(1958), 286] state that the Maicoba Pima cultivated two varieties of Cucurbita moschata in the 1950

Pima gardens at Maicoba, upon trash heaps, on ant hills, or on former corral sites. However, these edible cucurbits as well as the Lagenaria siceraria, the bottle-gourd, which also appears in the aforementioned sites usually are cultivated in the fields.

Citrullus vulgaris

The Old World watermelon* is grown by perhaps ten percent of the Maicoba Pima in their garden plots.

*Uphof (1968), 133.

Artemisia mexicana

This mugwort appears in Maicoba Pima gardens and it serves as the source of leaves used in preparation of a medicinal potion. Whether or not it is actually cultivated is a moot question; some of the Pima insist that it is planted, whereas others insist that it appears from year to year

Dahlia coccinea

This scarlet-flowered dahlia, which appears in many of the Pima gardens is said to be of no value except as an ornamental plant. It is rather carefully tended, in that weeds are removed from the vicinity of the plant and if the plant dies out other tubers are obtained from Indians or mestizc

Maicoba Compositae (130) 27

Lactuca sativa

The Old World lettuce* is cultivated in gardens

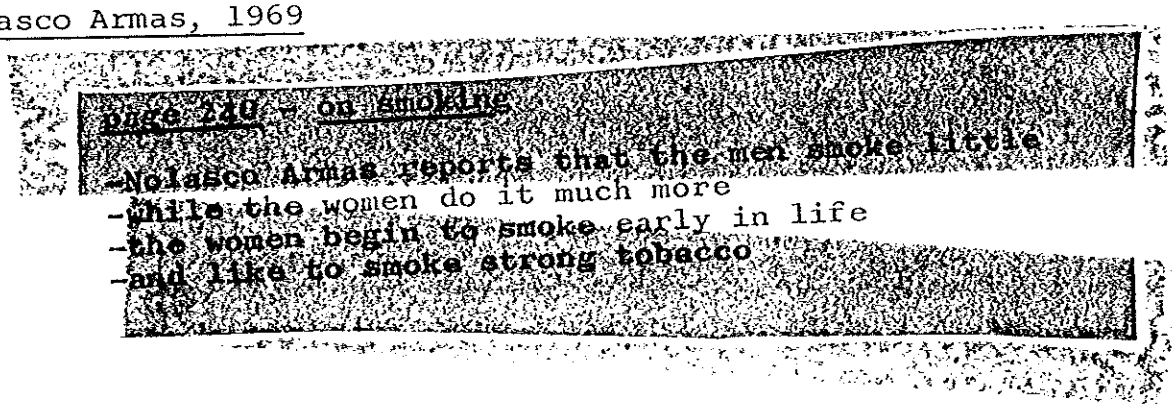
---

* Uphof (1968), 297.

---

by perhaps five Pima families at Maicoba. Seeded in October or November and December.

Nolasco Armas, 1969



page 240 - on smoking

-Nolasco Armas reports that the men smoke little
-while the women do it much more
-the women begin to smoke early in life
-and like to smoke strong tobacco

Source: Rada (1777)

1. Chile
2. cebollas — February through May for such planting
3. Ajo
4. demás verduras

Fruit trees are commonly planted in clusters in the yards which are invariably surrounded by some sort of fence, usually a rail fence south and west of Maicoba; sometimes, the fruit trees are found in gardens.

Information obtained at Maicoba in 1969 and 1971 indicated that the Pima did not dry peaches or apples; a few poblanos preserved peaches, but this was an expensive matter, involving the purchase of jars and sugar.

Fruit trees are considered to be the possession of the female head of the house.

Ficus Carica

This Old World fig* is occasionally cultivated by Maicoba Pima in warmer canyons near Yécora. There are two kinds of figs, one white and black.

* Uphof (1968), 224.

Citrus Aurantium

A few examples of this orange tree introduced from the Old World *

---

* Uphof (1968), 133.

---

appear in gardens maintained by Pima who live in warm canyons near Yécora.

Cydonia oblonga

A few examples of this quince * were noted in yards at Maicoba in 1968.

---

* Uphof (1968), 167.

The seed is planted and the young tree is transplanted.

Prunus Armeniaca

This Old World apricot* is cultivated to a limited extent by

*Bailey and Bailey (1941), 600.

Maicoba Pima, either in their yards or in gardens. Seeds of this chabacán are hit to make pop open, and then planted, and transplanted.

Prunus Persica

The common peach, an introduction from the Old World,* is grown

*Gray (1950), 878.

in a limited way by Maicoba Pima, in clusters in the "yards." There are two types, yellow and white. Plant the seeds and transplant when of a certain size.

Pyrus baccata

This crabapple, an introduction from the Old World,* is cultivated

*Uphof (1968), 437.

to a great extent in the Pima "yards" at Maicoba.

Maicoba Rosaceae (51) 28

Pyrus communis

A few examples of this Old World pear* are found in Pima yards

*Uphof (1968), 437.

or gardens at Maicoba. Plant the seeds and then transplant.

Pyrus Malus

This common apple, an introduction from the Old World,* is cultivated

*Uphof (1968), 438.

by the Maicoba Pima, usually in clusters in the "yards" near Maicoba. Plant the seeds and transplant. There are Red, Yellow, and White types of apples.

Punica Granatum

The Old World granada* is cultivated by many Pima, in he

*Uphof (1968), 436.

uplands and in the canyons. BUT, according to Juan and Federico those in the uplands are mostly for "show," and only those at lower elevations bear fruit.

Tuna de castilla

Many of these plants are cultivated near the houses. The fruits appear in September.

Nolasco Armas, 1969

page 214: Orchards

The women maintain a small orchard or garden in the fenced area about their homes
Chile, tomatoes, potatoes
Irrigated daily
Such crops may be transplanted to another place so that when the rains come the crops will grow better
The women and their small children attend to the orchards and gardens

Maicoba, Pennington

Chapter 5

Notes

Time for meals & content of meals

According to Federico Rodríguez Romero, most mountain Pima begin to stir about at daybreak during the winter months. There is a tendency to get up somewhat later during the summer months because of people going to bed somewhat later than during the winter.

Breakfast is eaten between 8 AM and 10 AM. The staple foods are tortillas, beans, and atole, and when available eggs, potatoes or meat may be prepared.

The midday meal is eaten about noon time, regardless of the time of the first meal; the foods may include beans, atole, chile, chacales, eggs and tortillas.

The evening meal is taken between 4 and 5 in the afternoon and invariably consists of beans, with a very few tortillas.

On Washing of Hands

Federico Rodríguez Romero noted that everybody washed their hands before eating. However, I noted that he never did so when he ate with me.

On salt

Salt (on or ona) is purchased at the local stores or in Yécora, in very crude form which is ground upon the metate.

Atole

This common dish is called vakülč by the Maicoba Pima. If dried corn is used the grains are toasted as for preparing pinole, after which the grains are mashed thoroughly on the metate. A sufficient amount of water is added to form a paste which is added to boiling water. If elote corn is used the soft grains are mashed, formed into a paste and added to boiling water.

Certain condiments may be added to atole, such as the Old World coriander (Coriandrum sativum), green or mature fruits of Capsicum annuum (kókol or kókori), leaves of ipazote (Chenopodium ambrosioides), fruits of the chiltepín (Capsicum annuum var. minimum) purchased from traders who come from the hot country to the west, a bit of cinnamon or cloves if available, mature examples of orégano (Lippia Berlandieri or L. Palmeri), almost any of the collected fruits (see Chapter VI), and bits of piloncillo or panocha.

Chacales

This is a dish prepared from cooked and dried elote corn and is usually prepared from the last of the elote corn, whenever it develops. It is claimed that chacales is not prepared from the first elote corn. The ears are shucked and the corn is boiled upon the cob. Dry the boiled corn in the sun and remove the grains, with the fingers or with a knife. The dried corn may be stored for use in preparing food for a special occasion, as Easter. When preparing chacales the grains are crushed slightly upon the metate and then boiled with chiltepín peppers (Capsicum annuum var. minimum) purchased from traders who come from the hot country to the west, or dried chile peppers (Capsicum annuum).

Chicos

This is elotes tiernas. Boil the corn, dry for from one to six days, remove grains, and fry with meat. Prepared mucho according to Juan.

Chacales : Pull a shuck away from two ears of corn and tie the two ears together with the shucks. Boil until the shucks are white. Dry from 4 to six days. Remove grains and fry.

Esquiate

This dish is known as tušiv. Shelled corn is toasted as when preparing pinole. The toasted corn is ground upon the metate, water being added during the grinding process. The wetted mixture is added to water and any one of the condiments added to atole may be added before the dish is eaten.

Esquite

Among the Maicoba Pima, esquite is known as háhag. Shelled corn is toasted in an olla, with or without sand (ohi or o'oho'i). The toasted grains are eaten without further preparation.

Pinole

This most common food is known as tu'i among the Maicoba Pima. Almost any type of maize is used in preparing pinole. Grains are removed from the cob and placed in an olla of water. Those grains that sink to the bottom are used for making this dish, those which float are discarded. The corn is cooked for about fifteen minutes, or until it is soft. The mixture is then poured through a loosely woven basket. The corn is dried, either in a cajete (čikla) over a low fire, or upon a board in the sun or in shade. The corn is then ground upon the metate several times, certainly until it is very fine. This "flour" is added to water or to milk if available.

When pinole is carred upon a journey it is carried in a bag called hu'asumkar, and this term is apparently derived from the fact that hu'asumka refers to the "bolita de madroño que tiene larva." Seeds of the bledo or okiti (Amaranthus cruentus) may be toasted and ground and added to pinole.

Pozole

Shelled corn is prepared as for nixtamal (matmič). The mixture is then put into an olla with water and cooked. Onions, ribs of meat, or other portions of meat may be added.

Tamales

This food is known as notč among the Maicoba Pima.

First, prepare nixtamal in this fashion. Boil some corn in one olla and a bit of lime in another olla. Then add the boiled corn to the lime water. Cook the corn until all grains are soft and begin to "peel." Then let the mixture cool for a short time. Pour the cooled mixture into a loosely woven basket. Pour water over the material until the water runs clear.

Then, mash the material upon the metate and add some grease. Form a paste. Wash some corn shucks (hu'un ahag) and insert an elongated pat of nixtamal into each shuck. Roll the shuck up and tie with string made from shucks. Cook in water for about two hours.

Lime is prepared in this fashion. Break limestone rock into small pieces, place in piles, cover pile with dried cow dung and set the dung on fire. When the fire has burned out place the limestone in an olla and pour a small amount of boiling water therein. Cover quickly and the limestone rock turns to powder.

Tamales (continued): 2

If limestone rock is not readily available, then use the bark of Quercus chihuahuensis (encino peludo or vokotu'a or vopkomtu'a) or Quercus oblongifolio (encino chino) in preparing ashes that may be used to soften the grains of corn. This bark is burned under animal dung or any slow-burning wood and after being cooled is winnowed.

Tortillas

Nixtamal is prepared as the first step in fashioning this staple foodstuff among the Maicoba Pima. Tortillas are known as tomč. A bit of water is added to the nixtamal as it is ground upon the metate. The ground material is then formed into small rolls which are patted into the shape of a tortilla. Tortillas are cooked upon a comal or upon an iron plate. Ashes are used to clean the comal or the iron plate.

Yoriki

This dish is known as hu'uniger by the Maicoba Pima. Wash dried shelled corn, crush the corn upon the metate and add a bit of water during the crushing. Then cook for a short time, stirring all the while. Add aditional masa and continue to stir. When you think the yoriki is cooked add a bit of cold water. If portions of the cooked corn remain at the top the yoriki is ready to eat. If portions of the material drops to the bottom of the water then cook again.

Dolores Velázquez Duarte remarked that yoriki was the common food for children not long ago, but that it was rarely used today.

The dried shelled corn is ground only roughly on the metate.

Elotes tatemadas

Baked elote corn is called ka'ibä muhit and the ears of corn are baked in a maya. A hole is dug in the ground, a fire is built within the hole and rocks are tossed upon the fire. When the fire has burned down and the rocks are heated the shucked ears of fresh corn are placed upon the rocks and acovered with ashes and cornstalks and finally covered with a layer of earth. About three hours of baking is required.

Boiled Corn

Elote corn may be removed from the cob and boiled for a short time. Or the elote ears may be boiled. The latter process is apparently the most common mode of preparing boiled corn among the Maicoba Pima.

On the Use of the Molina (1971)

The molina is used for grinding nixtamal if one is available, and almost all of the Pimahave a molina

Nolasco Armas, 1969

page 208: Food preparation

Corn is cooked in water with salt and lime
As nixtamal
Then drained
And milled in the mechanical mill and remilled on the metate
In preparing tortillas

Sometimes, it is (the corn) milled on the metate with water, to convert it immediately into tortillas [but this would only be a certain type of corn]

Atole is made

Wheat tortillas are not as common as corn tortillas

1. Pinole.
2. Atole.
3. Esquiate.
4. Pozole.
5. Tortillas.
6. Pan (make with lebadura, yeast that is, and cook in an earth oven).

On making wheat **tortillas**:

a. Wash the wheat.
b. Dry the wheat.
c. Grind on the metate with a bit of water.
d. Knead and pull for a time before forming the pat that will be the tortilla.

Nolasco Armas, 1969

page 209: **Food preparation**

Wheat tortillas: flour is beaten with vegetal grease, salt and hot water, ti give a heavy consistency, similar to the corn dough

Squash Flower Soup

A soup is prepared from the flowers (hi'osik) from bawil or calabaza serrana (Cucurbita pepo) and im or calabeza caliente (C. mixta) without regard to whether they are male or female flowers. The flowers are boiled for a short time and a bit of salt is added.

Pima and mestizo denied that flowers of the chilacoyote (Cucurbita ficifolia) are so used, but gave no rational explanation as to why not. It may be that flowers of the Cucurbita moschata recorded by Mason and Brugge for the Mountain Pima during the 1950's* are used in preparing a soup.

* Mason and Brugge (1958), 286.

Toasted Seeds

Seeds (ga'i) of Cucurbita pepo, C. mixta, C. ficifolia, and presumably those from the C. moschata recorded by Mason and Brugge in the 1950's*, are washed, toasted upon a comal (túmčka) and lightly salted before being eaten. The Pima denied that seeds of the chayote (Sechium edule) are eaten.

* Mason and Brugge (1958), 286.

Toasted squash seeds are prepared as a foodstuff called pipian; the seeds are toasted, ground upon the metate, added to a bit of water to which chile colorado (Capsicum annuum) is added.

Baked Squash

Fruits of Cucurbita pepo, C. mixta, and presumably the C. moschata recorded by Mason and Brugge in the 1950's,* are halved, cleaned of their seeds and baked in ashes (mata'i) near a rapidly burning fire, or the halved portions may be placed with their rinds uppermost upon coals (tur or turha) until well done. Squash may be baked in a maya in exactly the same fashion as elote corn. This food is called im tu'ama mat (calabazas tatemadas).

*Mason and Brugge (1958), 286.

Apparently, Cucurbita ficifolia and the chayote (Sechium edule) are not prepared as baked squash.

Boiled Squash

Fresh or dried pieces of Cucurbita pepo, C. mixta, C. ficifolia, and presumably C. moschata recorded for the Mountain Pima by Mason and Brugge in the 1950's,* are boiled until tender; this food is called imhiger. Fruits of the chayote (Sechium edule) are boiled and lightly salted before being eaten. Pieces of chayote are carefully washed before being cooked.

*Mason and Brugge (1958), 286.

Dried squash is called bičikori and the strips of squash used in preparing dried squash food are called viškol.

Cubiertas

Those Pima Bajo who live in or near the village of Maicoba prepare a dulce (cubiertas) from the pulp of Cucurbita pepo, C. ficifolia, C. mixta, and presumbly from that of C. moschata which was reported for the Maicoba Pima by Mason and Brugge in the 1950's.* The fruit of chayote (Sechium edule) is not considered suitable for preparing this food.

*Mason and Brugge (1958), 286.

The rind is removed from the halved fruits. Seeds are removed and the halved portions are washed and boiled in water into which a bit of lime (ka'il) is placed. The material is removed from the water after being boiled for about two hours. It is then dried for twentyfour hours. It is then cut into squares and boiled with piloncillo, or with refined sugar if it is available. You may add a bit of clove or honey (sa'ivoli) if available. When the pieces are boiling prick them with a stick or fork. Let the pieces cool before cutting them into small squares.

Cubiertas (continued): 2

The Pima who live somewhat removed from Maicoba do not prepare this dish, which suggests that the custom is one borrowed from the mestizos.

1. Boiled fresh beans.

Green pods are cut up and boiled.

2. Boiled dried beans.

The common type of bean dish among the Pima. The beans are not soaked before being boiled. Occasionally, a bit of cut-up meat, leaves of ipazote (Chenopodium ambrosioides), leaves of an orégano (Origanum sp.),* garlic (Allium sativum var.) and

---

*This is probably Origanum vulgare which has been naturalized in the New World [Darlington and Janaki Ammal (1945), 274].

---

onion (Allium Cepa var.)--both of which are Old World plants introduced into the New World-- are added. Sometimes, a bit of nixtamal is added

---

*Uphof (1968), 24-25.

---

to cooked beans.

3. Bean atole.

Beans are sometimes toasted upon a cajete, then mashed upon the metate, and cooked as a mush for a short time, in the fashion of atole.

4. Bean pinole.

Beans are occasionally toasted, ground up, and eaten as a pinole, with water or milk.

5. Gorditos.

These are tortillas (tomč) which are made rather thick and which are split and stuffed with beans (bav or bavi).

6. Pozole de frijol

Boil some beans, add some crude corn, and boil as pozole de frijol.

7. Ejotes de frijol (1971 data)

Ejotes de frijol are ready for eating in September and when Juan and Federico were queried about how much they were used the response was "usamos muchos."

Maicoba Bean Foods 32a

Nolasco Armas, 1969

page 208: beans are cooked with salt & water
seldom are beans fried

1. Corn tassles.

According to Dolores Velásquez Duarte, corn tassles (hu'un mo'idug) are eaten; the espigas are cut just before they bloom, are washed and then cooked in a bit of water. They are removed from the water, dried, and then ground upon the metate before being eaten as a kind of pinole.

2. Hongo de maíz.

Grows upon the top of the corn plant, when the plant is in the elote stage. There are two types, one black and one white, and the black one is claimed to be poisonous. The white hongo is shaped like a tamale and is fried upon a griddle, with a bit of grease. Cheese and chile colorado may be used if available.

3. Earth eating.

According to Federico Rodríguez Romero, children eat earth all the year, not because of hunger but because the children had worms.

Apparently, no adults except pregnant women eat earth. A weak purga prepared from a plant called pipichaguä--which is obtained from tierra caliente--is given to children who have worms and it is claimed that two such doses will cure the children, not only of worms but of the desire to eat earth. It is stated that there is "danger" in giving this purga to pregnant women, that it would induce an abortion. The Pima state that the purga prepared from pipichaguä is only given to people who are expected to die from locked bowels. Federico noted that pregnant women often eat earth, noting that their stomach "obligates" them to do so. Juan noted that he had seen pregnant women pull earth from a wal and eat it.*

4. Sorghum pinole.

Seeds from the Old World variety of Sorghum vulgare cultivated

---

* Uphof (1968), 493.

---

are used in preparing a pinole; the seeds are toasted and ground in the fashion of maize prepared as pinole flour.

5. Pontedura

-use maíz blando
-toast in an olla
-break up a bit on the metate, into fairly small pieces and add liquid panocha
-you may add canela, clavo, anis, to the liquid panocha
-make into balls
-muy poco, according to Juan

6. Piloncillo

-some of the Pima who live in the hot country near Moris are aware of how to prepare piloncillo and some do
-they remove juice from the cane with a stone mill
-the miel is cooked in a large pot
-put a bit of salt in and pour into wooden molds
-muy poco according to Juan

The use of maize in the preparation of a fermented beverage is one of the most common elements in Mountain Pima culture of today. Drunkeness is apparently quite common among the Pima men, less so among the Pima women. There is little stigma attached to drunkeness and it is only when someone becomes "difficult," that is, abusive of his fellows or his family, that people in the area insist that that person be shut up for a time in a "house apart," the term used to designate the jail, a one room structure located in the plaza at Maicoba. After the person has sobered up he is "talked to" by the older men. As is indicated in Chapter III, the preparation and the drinking of tesgüino is an important aspect of agricultural activities, particularly with respect to encouraging aid in the clearing of fields and the planting and harvesting of crops.

Tesgüino

Among the Maicoba Pima, tesgüino is known as vaki. Shelled corn is soaked for a short time, and then placed within loose dirt in a hole prepared in the shade, or within an olla filled with loose earth. The corn is only slightly buried and the top of the hole or olla is covered with pine needles. The grains are kept wetted and are permitted to sprout for about six days. The sprouts are removed, washed carefully, and then ground upon the metate. The ground material is added to water and cooked for about twelve hours. The mixture is strained at least three times during the cooking process, through a loosely woven basket. It is set aside for fermentation, in a large covered olla, for about two days.

During the fermentation stage a bit of cinnamon or clove may be added if available. Some of the Pima add a plant called lebadura (Bromus arizonicus or B. molliformis) which is known as to'inčkum. Those Pima who have had contacts with the Tarahumar may add a bit of

peyote (Lophophora Williamsii) which is known as makag: this peyote must be obtained from the Tarahumar by trade.

Tepache

There are two ways of preparing this maize beverage. Shelled corn is toasted in an olla, with or without sand. The toasted corn is ground upon a metate. The mixture is added to water and boiled for about twelve hours. It is then set aside for fermentation for several days, in another olla. The Pima state that tepache prepared in this fashion is not strained. Cinnamon, clove, peyote (Lophophora Williamsii) and lebadura (Bromus arizonicus or B. molliformis) may be added during the fermenting stage. Or, the corn is toasted, ground very coarsely upon the metate and put within a cloth bag--into which a bit of cinnamon and clove may be placed--which is put into an olla filled with water. This type of tepache is boiled for several days. The bag and its contents are discarded and the tepache is put aside to ferment for three days. Cinnamon, clove, peyote and lebadura may be added during the fermentation stage.

The significance of the use of maize for preparing tesgüino is obvious, when one considers that about 15 liters of maize are required to make a large olla of tesgüino, about 5 gallons. Undoubtedly, the constant preparation of tesgüino is one reason for the shortage of maize toward the end of the crop year.

There is a special name for ollas used for tesgüino, vámokor.

Another version of tepache de maíz preparation

-toast a bit of corn
-break up a bit on the metate
-put in an olla with a bit of panocha, clavo, anis, canela
-2 litros de esquite added to 6-7 litros of water
-it bubbles in about 4 hours - is not boiled
-set aside for about 24 hours
-you need a special olla, a tesgüinera

On tesgüino from corn sprouts

Sprouted corn used in preparing tesgüino may or may not be dried in the sun before being boiled in preparing tesgüino.

Nolasco Armas, 1969

page 209: Tesgüino preparation

corn is put in a hole in the ground for germination
covered with pine needles
keep throughly wetted
when sprouted (born, they say) dry for several hours in the sun
then grind it on the metate or in the mill
boil in water
add some wheat to the water and some piloncillo
then put aside for fermentation in a COVERED OLLA
left for a day or two
then strained in a colander or a basket

prepared for all fiestas

A fermented beverage is prepared from juice expressed from the hearts or crowns of four species of agave found in the Maicoba country, Agave Patonii, A. Schottii, A. Hartmanii and A. bovicornuta. However, it is claimed that Agave bovicornuta hearts are used only in the absence of the other agaves, since the beverage made from its juice is hardly palatable.

Hearts of any of these agaves are pit-baked, in a hole called hovarakak, which is about four feet deep and several feet in diameter. This hole is prepared with a pointed stick used to loosen the earth which is removed by hand. Line the hole with stones and build a fire therein, using very dry oak. When the wood has burned out the hearts of the agaves are placed upon the stones and covered with grass which in turn is covered with earth. After three days the hearts are removed and mashed within a canoa or the hollow of a rock. The mashed material is placed in an olla about three-fourths filled with water, and boiled for several hours, after which time the liquid is set aside for fermentation. Lebadura (Bromus arizonica or B. molliformis) may be added as a catalyst during the fermenting process.

A tepache de maguey may be prepared from these plants. Cook the hearts in a pit, and when cool mash in a canoa, and then just put water in an olla for about 3 days, for fermentation.

1. A fermented beverage is preapred from the hearts of Dasylirion Wheeleri. The hearts of this plant are pit-baked in exactly the same fashion as those agaves used in the preparation of a fermented beverage. The crushed hearts are boiled for about four hours and then set aside for fermentation. Lebadura (Bromus arizonicus or B. molliformis) may be added during the fermenting stage.

2. What is locally termed sotol is prepared from juice expressed from hearts of Dasylirion Wheeleri, although this beverage seems more typical of the mestizos than the Pima. The Pima state that the juice from mashed hearts is placed in a large olla which is covered with a board and after fermenting for several days is removed to another equally large olla which is covered with a board which is marked by an opening in which a piece of copper pipe is inserted; this pipe leads to another olla. A fire is built beneath the olla that contains the juice and maintained until the liquid in the olla is transferred to the other olla by vaporizing. About two hours is required for this process. The liquid from the second olla is returned to the first olla and the process is repeated.

Maicoba Liliaceae drinks 37

Nolasco Armas, 1969

page 209: Mezcal wine

Nolasco Armas reports the use of sotol, but notes that it may be bought from the blancos

Peach tesgüino

1. Place peaches in wari
2. Place wari above a container
3. MASH the peaches thoroughly
4. Put juice in water with panocha or azucar
5. Let ferment for 8-10 days
6. Add any available catalysts

Coffee

The ground coffee used by virtually all of the Pima is prepared from coffee beans purchased for about $18.00 (pesos) from Maicoba stores. A special olla is used in preparing the coffee. Heat the olla until the remains of the sugar used in preparing the previous batch of coffee is removed, that is, until the sugar which has stuck to the sides and bottom of the olla has come loose. The coffee is then toasted in the olla and about 1 kilo of sugar is added. Cook and stir as the sugar melts. When the sugar is melted remove the mixture from the olla, dry, and grind upon the metate.

Sorghum vulgare var.

A variety of the Old World sorghum* cultivated by the Maicoba

*Uphof (1968), 493.

Pima supplies seeds that are sprouted and used in the preparation of a sorghum tesgüino, to which is added as a catalyst *Bromus arizonicus* and *B. molliformis*.

Triticum aestivum var.

A wheat tesgüino and tepache is prepared from this Old World introduction.* The drinks are prepared exactly as tesgüino and tepache

---

* Uphof (1968), 527.

---

from maize.

Maicoba Fagaceae (28) 3

Quercus durifolia

Mature acorns from this encino are toasted, crushed and ground upon the metate and used in preparing a crude coffee-like drink.

Polygonum lapathifolium

A refreshing tea is prepared by using the stems of this carricito; the stems are boiled for a short time in water which is then strained through a loosely woven basket.

Platanus Wrightii

Small amounts of the bark of this aliso are used in preparing a refreshing tea taken during the summer months.

Erythrina flabelliformis

The seeds of this plant are used in preparing a "coffee" but the Pima state that the seeds must be thoroughly toasted and ground upon the metate before being placed, in small amounts, in a small olla of hot water.

Maicoba Leguminosae (53) 39

Cologania sp.

Roots and leaves of this nogalito are used in preparing a refreshing tea.

Condalia Brandegeei

A refreshing drink is made by steeping a few leaves of this junco in hot water.

Maicoba Compositae (130) 39

Chrysanthemum sp.

All of this artemisa is used in preparing a refreshing drink; the crushed plant is steeped in hot water.*

---

* This plant is apparently an introduction, since most species of chrysanthemum are Old World in origin [Bailey and Bailey (1941), 174].

Maicoba, Pennington

Chapter 6

Notes

Fowling is practiced by the Pima at Maicoba and Yécora for several reasons--as a means of securing foodstuff, the use of certain birds for medicinal purposes, for sport, and because many of the high eastern Sonora birds prey upon newly planted corn fields. Certain birds are rarely killed because they are held in superstituous regard, or because they perform some function of value, as for example, two wrens which eat scorpions that are common around Pima Bajo habitations. Wild fowl apparently do not constitute as important a source of foodstuff as does wild game, although the eggs of certain birds--the quail, for example--are eagerly sought. As with the wild game, the techniques for bringing down fowl are both old and new, there being however, an emphasis--at least until recently--upon a relatively new technique, the use of the rifle.

Heron

A large blue heron occasionally appears in the high sierras near Maicoba and Yécora; this garza, which is known as vakin is

probably Ardea herodias that is known to range northwestern Mexico.*

---

* Blake (1953), 27.

Some Indians insist that this bird is never killed since its meat is not palatable. Older Indians note that the bird has always served as a starvation food and that it was killed with a rock and rifle. These Pima stated that the heron was defeathered, eviserated and roasted (gu'išarta) upon a spit (ga'ikadug).

Ibis

A burro del agua, which is marked by a white band about its neck and by coffee-colored feathers and a long decurved bill, and which is probably Plegadis falcinellus mexicana, a not uncommon bird in northwest Mexico,* appears in March andApril. It is only killed for sport, being

* Ibid., 39

downed with a rock or with a rifle.

Hawks and Eagles

Maicoba Pima describe an aguililla which is essentially black except for two white bands about its tail. This is probably the zone-tailed hawk (Buto albonotatus albonotatus) which is known to range highland pine forests in northwestern Mexico.* Among the Pima this eaglet

* Ibid., 80.

is known as višag and it is brought down with a rifle whenever possible, since it preys upon young chickens. Another višag that preys upon chicken

is a dark brown eagle, doubtless Buteo swainsoni which has been recorded for northwestern Mexico.* Maicoba Pima describe a large águila real

* Ibid., 81

that is marked by brown plummage except for some golden feathers about its neck. This eagle must be the golden eagle, Aquila chrysaëtos canadensis which has been identified in northwestern Mexico.* There are many stories

* Ibid., 90

of how this large eagle (vara) preys upon children--Maicoba Pima insist that about ten years ago a child was carried away by such a bird. This is probably a fable, since a similar story is often told by the Tarahumar and the Tepehuán; what is important, however, is that this large bird is known to prey upon young goats, chickens and calves. Therefore, whenever

possible, it is killed with a rifle. The Indians near Maicoba describe a small halcón called višag, marked by a reddish tail and back. This is doubtless the sparrow hawk (Falco sparverius) that is common to northwestern Mexico.* This small hawk preys upon chickens and is killed with a rifle.

---

* Ibid., 99.

The goshawk (gavilán), which is also known as višag and which is essentially gray with black bars upon its tail, is probably one of the races of Buteo nitidus which has been identified in northwestern Mexico.* It is

---

* Ibid., 83-84.

---

killed with a rifle because it damages young corn plants when scratching

for seeds. The Pima state that when this gavilán hovers over the field, when frightened by a scarecrow (o'idighug) characterized by fluttering rag it is easily killed.

Quail

At least three quail species are sought by Maicoba Pima Bajo, not only because they are an esteemed delicacy when drawn, spitted and roasted, but because their eggs are eaten raw. Sometimes, as many as twenty eggs may be found in one quail nest. These eggs (u'uhug supnáka) are scrambled with a bit of grease. Quail are sought near stands of Oxalis amplifolia, since the birds browse upon the tiny seeds of the plants. Quail also are sought in the vicinity of a cordoniz, an unidentified plant that belongs to the family Compositae.

One of the quails sought is a gray-brown bird known by the Pima as hohogi; this bird is probably Callipepla squamata which ranges northwestern Mexico.* Another is the readily identified bob-white, which

*Ibid., 108-09.

is known as cordoniz, by which name the mestizos know the gray-brown quail The bob-white is undoubtedly Colinus virginianus which is wellknown for northern Mexico.* The third quail is a perdiz, or hohogi, the distinctly

*Ibid., 112-13.

marked harlequin quail, which is doubtless Cyrtonyx montezumae that is known to range pine and oak woodlands of northwestern Mexico.* Quail

*Ibid., 115-16.

are brought down with expertly thrown stones after being flushed from their habitat.

Turkey

A wild turkey (guajalote, wihalo) is known among the Maicoba Pima of high eastern Sonora as tokov or tov; this bird is surely Meleagris gallopavo described by Leopold and Blake.* The turkey is

*Leopold (1959), 268-75. Blake (1953), 117.

sought not only because it serves as food but because it damages the corn fields. The tokov is sometimes run down by men and youths, and the most opportune moment for such capture is when the bird goes to drink at a stream. After the turkey drinks copiously he cannot fly as readily, and since he generally must run up a slight slope--from the stream--before taking flight, he can easily be run down. Two types of traps for trapping

the turkey are known among the Pima of Maicoba. One type is made of brush and sticks which are arranged in a rectangular fashion, slightly peaked in form. There is no trap door--only an opening large enough to admit a large turkey which is lured into the trap with grains of corn placed within a thick layer of pine needles in the trap. As the bird scratches for the corn, he closes the opening with the flying pine needles. Another kind of trap involves the construction of a small trap of wood and branches with a very low opening. This trap is conical in design; and as the bird enters the trap he must lower his head and when his head is raised he does not realize that he can leave the trap by way of the opening which he entered. Turkeys are brought down with slingshots or with expertly thrown stones. The Pima report that sometimes as many as fifteen eggs may be found in a turkey nest; these eggs are considered a great delicacy when boiled. Turkeys are usually roasted upon a spit, after being defeathered and eviserated.

The Maicoba Pima refer to three devices used to attract attention of turkies. One is a wooden whistle (known as kanó among the Indians) about three inches in length. A second device involves the notching of a stick which is rubbed with another stuck to make the "sound" of a turkey.

Federico Rodríguez Romero noted that during his youth a slightly notched rasping stick was used with a very small olla to attract attention of turkies; the stick was rubbed or struck lightly across the top of the olla.

Sometimes wild turkey eggs are brought to the houses and placed under chickens for hatching; it is said that the little ones do not run away as do the small turkies when captured and brought to the house.

Crane

A sandhill crane, which is probably Grus canadensis,* occasional

---

* Grus canadensis has been well documented for northwestern Mexico [(Ibid.), 118].

---

appears along wateracourses during the winter months. This grulla (kókorah) is sometimes killed for sport, and is occasionally roasted upon a spit as a starvation food, after being defeathered and eviserated.

Pigeons and Doves

Some of the blancos who live at or near Maicoba or Yécora maintain the introduced domestic pigeon (Columba livia) as a source of food. These birds are occasionally captured (stolen ?) by the poblanos who esteem the birds as a foodstuff when roasted upon a spit. A band-tailed pigeon, which is certainly Columba fasciata--a wellknown pigeon in northwestern Mexico-- is known as makov or paloma by the Pima.*

* Ibid., 180-81.

It is brought down with an expertly thrown stone or a rifle. The bird is defeathered, eviserated and roasted upon a spit. The common ground dove, undoubtedly Columbigallina passerina as reported for northwestern Mexico by Blake* is known simply as tortilito and like the band-tailed

* Ibid., 184-85.

serves as a favored food. Yet another tortolito is a gray-brown bird, doubtless the Inca dove (Scardafella inca), a wellknown bird in northwestern Mexico.* This tortolito is also an esteemed foodstuff.

* Ibid., 184.

The Maicoba Pima refer to the use of eggs of a paloma pitayera that is not found near Maicoba, but rather near Mulatos and Moris, both of which are located upon the fringe of the mountain area. Travellers who journey to either Mulatos or Moris may bring to Maicoba eggs of this this paloma pitayera.

Roadrunner

There are roadrunners in abundance near Maicoba and Yécora; these ground birds are called churea and probably represent Geococcyx californianus recorded for northwestern Mexico by Blake.* Some of the Pima

* Ibid., 297-98.

state that these birds are rarely killed, whereas others state that they are, since their flesh tastes like that of a chicken. It is certain that some of the younger people believe that killing a roadrunner is one way of "proving one's self" in hunting birds. The roadrunner is killed with a rifle or an expertly thrown stone. It is claimed that the churea kills poisonous snakes, by first putting a ring of thorny branches about the sleeping snake, and then annoying the awakened snake until he impales himself upon the thorns.

Owls

The common screech-owl of high eastern Sonora, is known among the mestizos as lechuza and among the poblanos as kuku'il or kukuwuri; this bird is doubtless a variety or a race of Otus asio which is known to range northwestern Mexico.* The lechuza is readily killed with an

---

* Ibid., 211-12.

---

expertly cast stone, but is rarely molested since it eats the güicos

that damage young corn plants while searching for insects. The kuku'il is held in superstituous regard--it is claimed that its "song" pressages arrival of visitors, or a death (mo'okda) in the family nearest to where the bird makes its distinctive call.

Maicoba Pima refer to the great horned owl (buho) as tutu'i or tukur, and this owl which is undoubtedly one of the races of Bubo virginianus recorded for northwestern Mexico, is said to prey upon chickens and cats.

---

* Ibid., 215.

The tutu'i is brought down with a stone cast from a slingshot or it is killed with a rifle. Like the kuku'il, the tutu'i is held in superstituous regard--a person who hears its "song" all through the day realizes that he is to die very shortly.

The Maicoba Pima describe what must be the long-eared owl, marked by a tawny colored face and no distinctive white plummage. This bird is probably Asio otus wilsonianus which is known for northwestern Mexico.* The Pima state that this owl eats chickens and kittens and that

* Ibid., 221-22.

it is killed with an expertly thrown stone or with a rifle. A short-eared owl, distinguished by very inconspicuous horns and tawny of buff in color, is frequently mentioned by poblanos of Maicoba; this owl is doubtless Asio flammeus flammeus which has been recorded for northwestern Mexico.*

* Ibid., 222-23.

Said to live near the stream courses, this owl is reported to prey upon young chickens. It is readily killed with an expertly thrown stone; the

Indians note that it is readily brought down since it does not "fly" well.

A small hornless owl that likes among the rocks is known as du bakta. This owl is probably Speotyto cunicularia which Blake states is virtually country-wide in barren open country.* Du bakta is known as aguadores

* Ibid., 217-18.

among the mestizos who state that its "song" pressages the beginning of the rainy season.

Hummingbirds

At least two hummingbirds are held in superstituous regard by the Pima of Maicoba and Yécora. One of these is a ruby-throated bird, a tiny creature that is known among the Indians as upš, a term which is probably a corruption of the Spanish chuparrosa (hummingbird). This hummingbird is doubtless Archilochus colubris which is known to range northern Mexico.* The other small bird is the conspicuous broad-tail

*Ibid., 263-64.

hummingbird also known as upš; this bird is probably the Selasphorous platycercus recorded by Blake.* These small birds are killed by being

*Ibid., 267.

struck with a branch while feeding. Either of the tiny creatures is crushed, dried, and placed in the palm of one's hand when the lady of his choice is greeted. According to popular belief, the lady will come "running."

Woodpeckers

At least four woodpeckers are frequently mentioned by poblanos at Maicoba. One is a red-shafted flicker, probably a race of Colaptes cafe

described by Blake.* This flicker is killed for sport, specifically to

*Ibid., 288-89.

prove the ability of the hunter with a rifle. Woodpeckers are never eaten--the Indians state that they are not palatable. A flicker that faintly resembles the red-shafted flicker is killed for sport. This flicker is probably Colaptes chrysoïdes described by Blake.* The acorn

*Ibid., 289.

woodpecker, a bird marked by a black chin and a red crown, is known as aruki or arsuk by the poblanos. This aruki or arsuk is doubtless Melanerpes formicivorus recorded for northern Mexico by Blake.* Like the

*Ibid., 294.

other woodpeckers, the aruki is killed for sport, and because it is reporte to damage the newly planted corn fields. The distinctly marked ladder-backed woodpecker--doubtless the Dendrocopos scalaris reported by Blake--* is killed for sport.

*Ibid., 301.

Flycatchers

There is no evidence that flycatchers are killed for sport or as a source of meat, but the nests of at least four flycathcers are sought because of their eggs which are eaten raw. One of the flycatchers is marked by a bright yellow breast and must surely be the great kiskadee

(Pitangus sulphuratus) which is known for northwestern Mexico.*

*Ibid., 346.

A second flycatcher is marked by a yellowish-brown breast marked by dark brown streeks, no doubt the sulphur-bellied flycatcher (Myiodynästes luteiventris) reported for Mexico by Blake.* A third

*Ibid., 343-44.

flycatcher is a black phoebe distinguished by a black breast and head, doubtless Sayornis nigricans which is known for northwestern Mexico.*

*Ibid., 337.

The fourth flycatcher must be the eastern phoebee which is marked by a dark head and a black bill, Sayornis phoebee.*

---

* Ibid., 337.

Swallows

Three swallows are described by the poblanos who live near Maicoba and Yécora. One of these birds must be the cliff swallow, Petrochelidon pyrrhonota, which is described for northwestern Mexico by Blake.* This swallow appears in abundance in cliff areas southwest

---

* Ibid., 369.

---

of Maicoba. Another golondrina, which is found in caves near Maicoba, is

probably Petrochelidon fulva, also wellknown for northern Mexico.*

---

* Ibid., 370.

The best known of the swallows is the forked-tail barn swallow, surely Hirundo rustico erythroyaster, which is marked by a light undercoat. All three of these birds are known among the mountain Pima as gigdi. The birds are held in superstituous regard and are killed only for medicinal purposes; crushed, dried, defeathered and eviserated swallows are given as food to children who are having difficulty in learning to talk. Swallows are killed with a rifle or with an expertly thrown stone.

Crows and Jays

One of the birds that does the most damage to corn fields

a black raven, doubtless Corvus corax sinuatus which ranges northwestern Mexico.* This glossy bird is killed with rocks or is frightened away

* Ibid., 375.

by scarecrows, or by children who are staioned in the fields as birdwatcher The black crow is known as kokon, and is probably Corvus brachyrhynchos hesperis which has been recorded for northwestern Mexico.* Like the raven,

* Ibid., 375-76.

the crow is disliked because it damages newly planted corn fields and it is killed with an expertly thrown rock or is frightened away by birdwatchers.

The Maicoba Pima refer to a gray-breasted blue jay (azuelejo) as si'aka'i. This bird is doubtless Aphelocoma ultramarina which is known to range the mountains of western and eastern Mexico.* The bluejay

* Ibid., 383.

is occasionally killed for sport, but the Pima state that such killing is unwise, since the bird is a harbinger of snow, always a difficult circumstance in the high eastern Sonora world. The presence of blue jays suggests that plans must be made to cope with bad weather.

Wrens

Two saltaparedes are never killed by the Pima at Maicoba because the birds eat scorpions that are fairly abundant near habitations, particularly in the warm canyons. One of these wrens has a stripe along its eye and is marked by a white breast; doubtless, this

wren is Thryomanes béwickii which is common to northwestern Mexico.*

* Ibid., 405.

The other wren is a canyon wren, no doubt Catherpes mexicanus, which is documented for northern Mexico,* a wren that is conspicuous because of

* Ibid., 410.

its white throat and breast.

Thrashers and Mockingbirds

The Maicoba Pima describe a small bird that cuts down young cornstalks; this bird is marked by a straight bill, yellow eyes and

streaks upon its gray-brown breast. This bird is probably one of the races of Toxostoma bendirei which is known as one of the thrashers that range northwestern Mexico.* According to the Pima, this small bird is

* Ibid., 414-15.

stalked when it cuts down the stalks as it searches for grains of corn--which it never finds--and is killed with an expertly cast stone. The mocking bird (censontli) of the Maicoba country is surely Mimus polyglottos leucopterus, the common mockingbird of northwestern Mexico.* Mockingbirds

* Ibid., 419.

are sometimes caught and kept in a reed cage until sold to a "passing person." This bird is never killed because it makes such a "sweet song."

Fowling as of data obtained in 1971

A. Crow: -damages corn
-not eaten

B. Woodpeckers: -damages corn
-not eaten

redheaded
spotted
small one

C. chuines: -damages corn
-not eaten

(blue and white on chest)

D. codorníz: -damages corn
-flesh and eggs eaten

gray
spotted

E. Turkey: -hunted all the year round
-damages beans, wheat, in broad daylight
-hunted with traps

F. Tecolote: -not eaten

G. Lechuza: -not eaten

Introduction

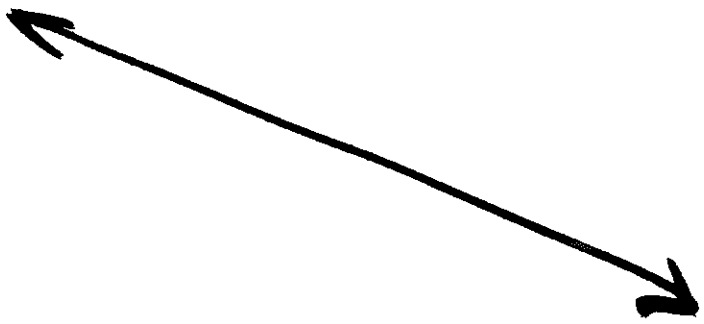
Hunting and trapping activities not only provide food and sport for the Pima of high eastern Sonora but they also assist in lessening damage done to field and garden crops by predators. Certain of the wild animals--the cottontail and the squirrel--provide a significant amount of supplementary foodstuff, and it is likely that the importance of these animals as a foodstuff outweighs the damage they do to crops. Also, hunting and trapping are important because the Pima utilize skins in the manufacture of numerous articles used in everyday life. The techniques used in bringing down wild creatures are both old and new.

Animal skins are important in that they may serve as a source of income for the Pima. For example, a coyote skin may bring $20.00 (pesos) when sold to mestizos, skin of the tejón $10.00 (pesos), skin of the cholugo $10.00 (pesos), deerskin $65.00 (pesos), peccary skin $60.00 (pesos) gato montés skin $30.00 (pesos) and a puma skin $200.00 (pesos). At least, these were the sums mentioned in 1970 at Maicoba and surrounding areas.

For the most part, several people hunt together, although hunting by one individual is not uncommon. Group hunting apparently reflects a comrade arrangement rather than a desire of the hunters for assistance, except perhaps in the case of hunting peccaries.

Hare and Rabbit

At Maicoba, two representatives of the order Logomorpha are much hunted, not only as a source of food but because the animals do



much damage in newly planted corn fields, bean and wheat milpas. The larger of these animals is a liebre, a white-tailed jackrabbit, doubtless Lepus callotis, or a related species described by Leopold.* The smaller

* Leopold (1959), 344-45.

is a cottontail called túva by the Pima, and is probably Sylvilagus floridanus which is known for northwestern Mexico.* Both animals are

* Ibid., 352.

brought down with a skillfully thrown rock, a stone cast from a slingshot, a rifle, or, are caught either in a figure-4 release rock trap or a metal trap borrowed from the mestizos. The Maicoba Pima know of the Tarahumar custom of a number of men or youths encircling a rabbit in order to close in upon the creature but state that the technique is rarely

successful. Dogs (gogoši) are used in bringing down hares and rabbits, and the Pima make no effort to train dogs in hunting, noting that the dogs learn to hunt on their own. Formerly, according to the older Indians, bows and arrows were used to kill hares and rabbits. Skins of the liebre and the conejo are carefully processed for use in the manufacture of soft shoes (tegùas) and the meat (ga'i) of both animals is a favorite delicacy when roasted over a bed of coals (tur or turha). The spit (ga'icadug) is thrust through the carcass of the animal and is anchored to two short stakes that are implanted in the ground upon either side of a bed of coals.

The figure-4 release rock trap is constructed in a simple fashion. A suitable rock is propped up with sticks arranged in the form of a figure 4 and a few grains of corn are affixed to the trigger stick with ixtle fiber. When the bait is disturbed the trap collapses, crushing the hare or rabbit. There are two kinds of slingshots utilized by the Maicoba Pim; one is a niggershooter (resortera, uš hon), the other a honda de ramal called hondü by the Pima. The former type is used but little, there being few opportunities for obtaining the rubber required for its manufacture. The hondü is fashioned from a small piece

of dressed hide and ixtle (hagtu'iwig) cordage. Slingshots are said to be very useful in wounding hare and rabbit just enough so that they cannot move, and may be dispatched with a stone held in the hand. When dogs are used in hunting hare or rabbit the dogs are fed before the hunt begins, so that the game will not be eaten before the hunter can reach it. The bow and arrow exist only in tradition among the present-day Pima of Maicoba; however, the older Indians maintain that bow and arrow were commonly used a generation ago. The bow (ga'at) was fashioned from four sources, two of which were obtained at places other than near Maicoba. At Maicoba, the wood from mora (Morus microphylla), known among the Pima as so'olyika, and a palo chino (Pithecolobium mexicanum) were used; the former tree is abundant in arroyos near Maicoba, whereas the latter is found only in the warmer canyons to the southwest and west. Some Pima journeyed to Moris or Santa María to obtain branches of vug uš, the brasil tree (Haematoxylon brasiletto). Those Pima who lived somewhat to the north and northwest of Maicoba went to Mulattos to secure branches of the batayáqui (Montanoa Rosei or M. patens).* This batayáqui is known

---

* Gentry [(1942), 265] states that batayáqui is sometimes pronounced--by the Varohío--as matayáqui, "meaning Yaqui-killer." The Varohío reported that their "fathers formerly used the stems [of Montanoa Rosei] for the points of arrows, as the sap of the plant is reputedly venemous in wounds."

---

as uškar among the Pima. Each man made his own bow and the bow was slightly curved. Both ends were notched, upon both sides. Only one-half of the bow was decorated, with a pigment called sata colorada which was said to be distinct from almagre. The bowstring (ga'at kahig) was made from the tendon (tatgar) of a deer. Arrows (ú'uk) were manufactured from any of the hard woods available in the pine and oak forest near Maicoba, from species of Garrya which appear upon lower slopes, and from the quiote of a magueyito (a diminuitive Agave Hartmanii) There was general agreement among the Maicoba Pima that wood from the species of oak that were common near Maicoba was the most desirable element for manufacturing arrows. Some of the contemporary Pima state that arrows

were decorated, others said that they were not. The older Pima stated that sata colorada was used, that a bit of scrapings from the rock was mixed with water and applied to the end of the arrow with a feather. Two feathers (a'anar) were affixed to the arrows, being anchored with a very thin strip of processed leather, tendon of a deer, or with gum from a pine tree. These feathers were obtained from the wild turkey, a chicken, an aura or zopilote, or from an águila. The feathers were first inserted into tiny slits made in the ends of the arrows. Arrows were wetted and shaped with a special stone device. There was disagreement about whether or not arrowheads were used. Some of the Indians stated that they were never used. Others noted that arrowheads were used in hunting deer and in warfare against the Apache. A light-colored hard stone was preferred for fashioning these arrowheads. There was agreement that arrow poison was used, being obtained from a yerba de la flecha which grew near Moris, Nuri, Tepoa, Teposaco and Mulatos. This small tree had a white flower and the "milk" that served as poison (hínčaka) "stung" the hands. Undoubtedly, the tree was Sebastiana Pringlei which appears in the canyons near Moris and Nuri near the Río Yaqui. Arrow poison was used not only on arrows used in hunting deer but on arrows used in warfare. The contemporary Pima state that

the bow was held vertically and that a pulcera (hog nov) was worn.

There is no evidence that a significant number of Pima at Maicoba owned rifles during recent years. But prior to 1970 eleven Pima at or near the village possessed rifles which were valuable in bringing down deer and other game. Early in 1970 the federal police came to Maicoba and confiscated these rifles, apparently because of the increasing friction between Indians and the blancos. The Pima were angered because guns were not collected from the blancos and a delegation was sent to Hermosillo to protest. This delegation was informed by the state authorities that nothing could be done, since the confiscation was a federal matter. The confiscation of these guns is a serious thing, since the Pima must resort to less effective means of bringing down game. And the Indiams will have trouble in eradicating certain of the larger animals that prey upon crops. It is apparent that resources were pooled for the purchase of cartridges used by the Pima, and although there were few rifles the net influence of the guns was considerable, since a man who could purchase cartridges often hunted with a man who had a rifle, in return for the sharing of the game.

Rodents

At least four species of squirrels, each of which is known as tuku'i, are known to and are sought by high eastern Sonora Pima as a source of food and because of the damage caused by the creatures in freshly seeded maize fields. These squirrels are also said to prey upon elote corn Three of the squirrels are tree squirrels (ardilla parda, ardila voladora and ardilla chichimoka), the fourth is a ground squirrel. Squirrels are killed with an expertly thrown stone, a rock cast from a slingshot, rifle, or with a figure-r release rock trap. Skins of squirrels are processed for their use in manufacturing teguas and their meat is roasted upon a spit in the same fashion as that of the rabbit and hare.

A gopher, which is known as tuš--an obvious corruption of the Spanish tuza--is difficult to kill because of its living habits. However, since this small creature, which is doubtless Cratageomys castanops or a related species described by Burt and Grossenheider,* eats young corn plants and

*Burt and Grossenheider (1952), 85.

elote stalks, and because it serves as a foodstuff, is sought by the Pima who wait patiently with a pointed stick at the place where the animal will enter its burrow. Or, a small figure-4 release rock trap is baited with a few grains of corn. The Indians state that the commercial iron trap is of little value in bringing down the gopher. This pocket gopher is a favorite delicacy when it is skinned, drawn and roasted upon a spit.

Rats, which do much damage to corn stored in the houses, are often forced from their nests with sticks. Some of the older Pima state that "fat rats" were once eaten as a starvation food.

Carnivores

One of the most conspicuous of stream wild life in high eastern Sonora is the nutria (perro del agua) which is known among the Pima as vahali. This Lutra canadenis* is a swiftly moving creature

*See Leopold [(1959), 461-65] for a comment on the significance of Lutra canadensis in Mexico.

and is difficult to bring down except when it goes into its lair along the side of streams, at which time it is stabbed to death with a long pointed stick. It is much liked as a foodstuff, and after being skinned, drawn and carefully washed, the carcass is spitted and roasted; the flesh is said to taste "like that of a fish." Skins of nutrias are sold to the mestizos or are processed and used in the manufacture of soft shoes (teguas) that are so commonly worn in high eastern Sonora.

One of the most talked about, albeit uncommon predators found in eastern Sonora is a black bear, which is known among the Indians as vuhi. This oso negro is doubtless Ursus americanus described by Leopold,* and

---

* Ibid., 411-16.

---

according to older Indians at Maicoba was once numerous in the rough country that surrounds Maicoba and Yécora. Contemporary Indians maintain

that there were bears of two colors, one black and one brown. However, according to Leopold,* "these color phases represent natural variants

---

* Ibid., 412.

---

within the species americanus; a 'cinnamon bear' may come from the same litter as a 'black bear.'" In the past, as today, the vuhi preys upon the corn fields, eating elote ears. For this reason, and because the meat is eaten, the vuhi is killed whenever possible. Not long ago at Maicoba and Yécora, according to the older Pima, bears were hunted by men in gangs; the bear was brought down with a bow and arrow, a rifle, or with large stones (?). Bear meat is roasted upon a spit, and the pelt is sold or traded to mestizos.

Watupár is the Indian term for the raccoon (mapache), probably Procyon lotor described by Leopold.* Raccoons are plentiful along the

* Ibid., 428-32.

permanent streams near Maicoba and Yécora. This coon pulls down elote stalks of corn, eating not only the ears, but as well the softer portions of the stalk. Raccoons are flushed into fairly open spaces with dogs and are killed with stones. Not long ago, according to the older Pima, the bow and arrow were used in bringing down raccoons. Skins of the watupár are processed and affixed to house posts as ornaments. The meat is considered a delicacy after being carefully washed and roasted upon a spit.

Occasionally, the Pima make pets of young animals which, in their adult years, are known to damage the elote cornfields. Several of the litter of a cholugo or coati, which is almost certainly the Nasua narica

described by Leopold,* and which is known as sul or suyi, may be kept

* Ibid., 432-37.

in fruit crates for a few months, after which time they are killed and eaten. Bedause of their habit of carrying their tails in an erect position, coatis are easily spotted in a field, and they are often killed with expertly thrown stones. Some of the Indians maintain that a coati rarely returns to a field when frightened away. Coati skins are processed and fashioned into teguas, and the meat is roasted upon a spit. If the skin is large enough, it may be used in manufacturing a quiver.

A ring-tailed cat, which is doubtless Bassaricus astutus described by Leopold*, not only preys upon elote corn, but upon chickens as well.

* Ibid., 424-26.

This nocturnal creature is flushed into a relatively open space with dogs, and if there is sufficient light, is killed with a well-aimed stone. Flesh of the ring-tailed cat is not eaten; the Indians state that the creature is "too much like a cat." The skin is used as an ornament that is affixed to house posts.

Four species of skunks, the descriptions of which must refer to the hooded skunk, the striped skunk, the spotted skunk, and the hognose skunk (Mephitis macroura, M. mephitis, Spilogale gracilis, and M. conepatus, respectively),* appear in the Pima country near Maicoba

---

* See Leopold [(Ibid.), 451-61] for a comment on the distribution of these species of skunks in Mexico.

---

and Yécora. There are apparently no specific names in current use for each of the four species; u'up is the generic term for zorillo among high eastern Sonora Pima Bajo. All of these skunks are claimed to prey

upon young and old chickens, and frequently locate eggs before owners of the chickens are able to do so. After being killed with rocks or sticks--and the Indians insist that they pay no particular attention to the wellknown protection device of the skunks--the creatures are skinned, drawn, washed in running water, and roasted upon a spit. Sometimes, drippings from the roasting carcass are caught in a small olla and when cooled, the grease is applied to rheumatic joints.

Vavoki is the badger (tejón) which is doubtless Taxidea taxus described by Leopold for Mexico;* this nocturnal animal is said to "eat"

---

* Ibid., 448-51.

---

elote stalks of corn. This statement is probably incorrect since there is no evidence that the badger eats vegetable foods. The creature undoubtedly damages elote plants when seeking rodents that are in the fields. According to the Pima, this small creature, unlike the coati,

returns to the field after being frightened away. Generally, the badger is flushed into an open space with dogs and if there is sufficient light is killed with a well-aimed stone. Badger meat is considered a delicacy; it is roasted upon a spit.

A coyote which is known among the Pima Bajo as bann, and which is probably Canis latrans,* is hated because it preys upon chickens and

---

* See Leopold [(Ibid.) 394-99] for a comment on the coyote in Mexico.

---

goats. The animal is trapped in a pit trap which is constructed as follows: a rectangular pit, about four by six feet in size, and about five feet deep, is dug; a plank, or a split log, is anchored at one end of the pit, so that the portion of the plank or log that extends over the pit is longer than that portion which rests upon firm ground; and a piece of meat, or a live chicken is anchored to the end of the catwalk that extends over the pit. When the coyote attempts to reach

the bait, the log or plank drops and he falls into the pit; a waiting observer dispatches the coyote with a rifle, a club or with stones. Coyote meat is not eaten, but the skin is dressed and used as a sleeping or sitting mat. It's skin is used in making tegüas and jackets.

Some Maicoba Pima maintain that the wolf (doubtless the Canis lupis described by Leopold*), which is known as su'i, appears only infrequently

---

* Ibid., 399-405.

---

in the country around Maicoba and Yécora. Other Indians insist that it is a common element in the landsdape. All agreed upon one thing concerning the wolf, that it preyed upon stock, and all noted that the creature was trapped in a pit fashioned like that used to trap the coyote, as well as being brought down with a rifle, or with poisoned meat. Commercial poison is obtained from mestizos or from the local stores. There are

stories of how in the past, wolves have bitten children who were wandering about. Wolf meat is not eaten, nor is there any attempt to utilize the skin other than fashioning of jackets for the men.

The gray fox (probably Urocyon cinereoargenteus*), which is known among the poblanos as gaš or kaš, is a wellknown carnivore in high eastern Sonora. It is claimed that the fox preys upon chickens. The older Pima maintain that in the "time" of their fathers the skin of the gray fox was used in preparing a quiver; however, details of how the quiver was processed are lacking. Presumably, it was processed in the fashion indicated below with respect to preparation of a quiver from the skin of a puma. Foxes are difficult to bring down with any weapon except a rifle. Some of the Pima noted that a "call" from this animal means that a death will take place near where the "call" was made.

* See Leopold [(Ibid.), 408-11] for a comment on the gray fox in Mexico.

The Maicoba Pima state that a jaguar occasionally appears near plantations and preys upon domestic animals, particularly cattle, horses and colts, and small pigs. This animal is without doubt Felix onca described for northwestern Mexico by Leopold.* Apparently, only the rifle is an effective weapon in bringing down jaguars. The meat of this animal is roasted and its skin is favored for use as a sleeping mat or sitting mat.

There is general agreement among the Maicoba Pima that the puma (mavig, which is without doubt Felis concolor described by Leopold),*

* Ibid., 464-70.

* Ibid., 478-82.

is the most difficult of the carnivores to bring down. The animal is described as being very "wise," and is claimed to be so wary of dogs that hunters leave their dogs at home. The puma preys upon deer, colts, sheep and goats. As in the case with the jaguar, the rifle is the importar weapon for killing pumas. Bones of this animal are crushed and used in preparing a soup. Puma meat is spitted and roasted, and the skin is processed into sleeping or sitting mats. The older Indians maintain that not long ago puma skins from young animals served in the fashioning of a quiver; the skin was removed whole from the animal, turned inside out and "cured" with brains and salt, and then turned again. The tail portion of the skin was then sewed together with ixtle fiber. A tirante was prepared from deer skin hide and the quiver was carried on the left shoulder. Puma skins are used in fashioning jackets for the men.

The most fierce of the preying carnivores near Maicoba is apparently the bobcat (doubtless Lynx rufus, which is wellknown for northern Mexico)*.

---

* Ibid., 484-87.

This animal is known as gato montés or cabalmoko. Rifles and iron traps are the favore means of bringing down bobcats, although packs of dogs are sometimes used. The bobcat is much disliked because it preys upon goats, sheep and chickens. Its flesh is eaten and its processed skin serves as an ornament that is affixed to house posts.

Cloven-hoofed animals

The most important of the cloven-hoofed animals sought by Maicoba Pima is the white-tailed deer (šiki) which is probably Odocoileus virginianus described by Leopold.* Maicoba Pima state that the mule

---

* Ibid., 407-13.

---

deer (Odocoileus hemionus) does not appear in high eastern Sonora. However some of the poblanos at Maicoba noted that they were familiar with the mule deer, since they had seen the creature near Hermosillo. Deer

are disliked because they damage the newly sprouted corn and bean plants, but they are important as a source of hides and food, and because they offer an opportunity for sport. The Indians state that several men may run down a deer. Or, the deer may be stalked for one or two leagues. During the winter season the deer may be tracked in the snow. Not long ago, according to Federico Rodríguez Romero, Maicoba Pima used a deerhead disguise while hunting these creatures. Formerly, deer were brought down with long wooden arrows which were tipped with arrowheads and poison (híncika) obtained from a yerba de la flecha that grew near Moris or Mulatos. It is claimed that dogs are not used in hunting deer, since their presence would frighten a deer that might be surprised at a watering place. Deer are rarely hunted by one person; commonly, a hunting party consists of from two to five men. These men may be stationed at different places along the trail that the deer are known to pass. Until recently, one of these hunters invariably possessed or could borrow a rifle. Older Pima at Maicoba refer to a snare trap used hardly a generation ago; however, details other than the fact that the deer was caught by one leg and "raised" into the air by a sapling which had been anchored to the snare

are lacking.

Apparently, the deer is the only wild animal that supplies a foodstuff other than meat. Maicoba Pima report that the heart (íbdug), liver (nunhar), tripe (hihi), tongue (nuñi), and blood (ú'ur) are prepared as delicacies. With respect to blood, the stomach is removed carefully, washed and turned inside out. The blood is taken from the neck and put into the panza. A bit of water is added and the stomach is tied up with a mecate or cuerdo. Two stones are placed near a fire, a stick is placed across the stones and the panza filled with blood is hung upon the stick. The blood thickens in about an hour. This preparation of blood is done where the deer was killed, since the blood would spoil if carried a great distance. Deer marrow (o'oga) is an esteemed food, especially the marrow frome bones in the head of a deer. The bone is cracked open, the marrow extracted, rolled into balls and cooked slightly before being eaten. Portions of the deer's stomach may be used in curdling milk processed into cheese, and the brains (ógar) are used in processing skins. Deer bones are sometimes crushed upon the metate and used in preparing a kind of soup. The only restriction pertaining to foods prepared from portions of the deer seems to be one which prohibits

the eating of ribs by women; no rational explanation was offered for this prohibition.

The sinew of a deer is divided if there are several hunters, according to some reports. On the other hand, some Pima claimed that the person who brought down the deer got the sinew.

Pregnant deer are considered to be superior in terms of the value and taste of the meat; should pregrant deer be killed the fetus is given to dogs if they are nearby. Otherwise, the fetus is discarded.

Of the hides obtained from wild animals, those from deer are the most widely used in the manufacture of useful articles, particularly a small bag used for carrying pinole, sitting mats, sleeping mats, and chair coverings. The details for processing of deer and other skins are given in Chapter IX.

The jabalí (probably Pecari tajacu described by Leopold),* is known

---

* Ibid., 493-97.

---

appears only infrequently near Maicoba and Yécora; apparently, the animals come from somewhat dry canyons located to the northwest. This marrano silvestre is disliked because of the damage it does in newly sprouted and elote corn fields. The Indians state that the easiest way to bring the jabalí down is with a rifle, but the older people refer to older techniques. When there are groups of peccaries there is generally a cave nearby, and the cave is located when the animals are driven from the fields back into the canyons. The animals are frightened and seek refuge in their caves. A fire was built before the cave entrance and smoke forced the animals out into the open. Or, the animals might be cornered in very thick brush. In either case, they are stabbed to death with a long pointed stick, or with a spear-like instrument made of a pole from encino

colorado with a knife affixed to one end. The very old Pima noted that such a spear was used against the Apache in the last century. A wooden club was also used to kill peccaries. Federico Rodríguez Romero recalled having heard that stone clubs and stone axes were used to dispatch peccaries.

Jabalí meat is a favore delicacy, and the skin is used in manufacturin teguas.

The rifle situation as of 1971 (got wrong in 1970)

1. About 1/2 of the Pima have them.

2. Some 10 "lost" rifles because they foolishly (according to Juan) brought their rifles in to Maicoba for "checking of numbers."

3. Rifles were said to have been taken to Hermosillo but Juan believes that the blancos retained them.

4. Juan and Federico believed that the "call" came because the blancos were worried during the squabble over the fence.

More on Hunting & Trapping (as of 1971 Data)

1. Traps

   A. Metal Traps: the Pima know of them but few can afford them.

   B. Snare traps: rarely used today for deer.

   C. Figure 4 trap: rarely used today except for squirrels.

   D. Pit trap (lobera): lobos and coyotes, mostly

2. Animals sought

   A. Deer:
   -skin used for tegüas, bolsas, cordage
   -meat eaten
   -predator (milpas, corn, beans)

   B. Fox:
   -skin sold to people from Obregón
   -preys upon elote maíz, gallinas

   C. Watepe:
   -skin not used
   -meat eaten, boiled or fried
   -preys upon chickens

D. tlacauche:
-skin not used
-meat not eaten
-eats chickens
-tail used for medicinal purposes

E. zorillo:
-skin not used
-meat not eaten
-preys upon chickens

F. coyote:
-skin not used
-meat not eaten
-preys upon elote corn, chivas

G. cholugo:
-skin not used
-meat not eaten
-preys upon elote corn

H. gato montés
-skin not used
-meat not eaten
-preys upon chivas, gallinas

I. león
-skin is sold to people who come from Obregón
-meat is eaten
-preys upon small stock, gallinas

J. jabalí:
-skin used for tegüas
-meat is eaten

K. lobo:
-skin is not used
-meat is not eaten
-eats small chickens, large chickens, may kill burros, chivas

L. ardillas:
-skin is not used
-meat is eaten
-does much damage to maíz (just when planted, when elote stage, when ripens)

pardito
red squirrel

M. Conejo:
-skin is not used
-meat is eaten
-damages milpas

N. liebre:
-skin not used
-meat is eaten
-damages milpas (corn and wheat)

Importance of hunting

1. The following animals are are hunted all the year round:

deer
liebre
conejo

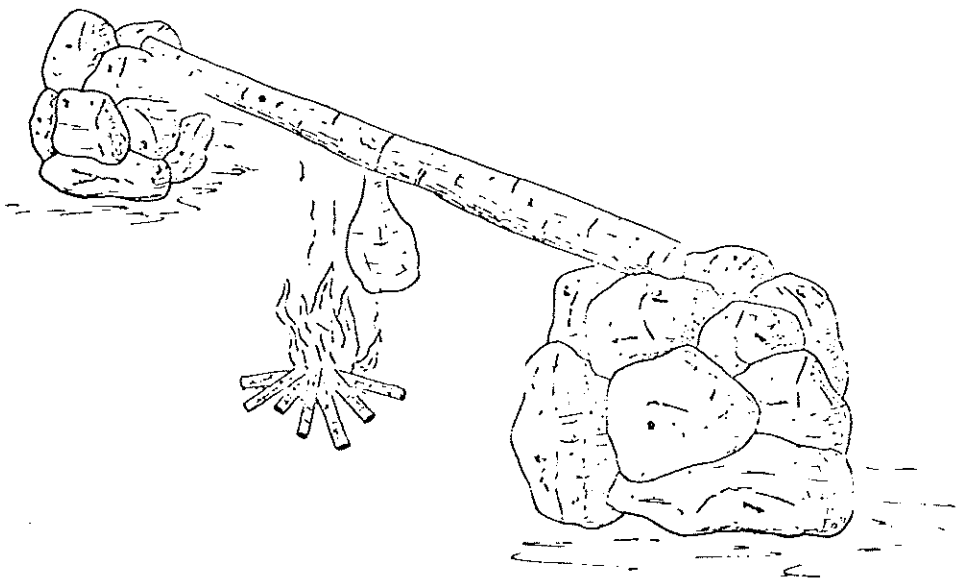
On hu nting of squirrels

1. Hunted with dogs
2. If in a hollow tree may cut the tree down
3. If in a nest underground may pry out with stick or bar

On parts of deer eaten:

1. Brains
2. Marrow
3. Heart
4. Kidneys
5. Tripa
6. Testicles
7. Blood

Maicoba 42



Nolasco Armas, 1969

page 218: Slings

-made of palm fiber unted with cords
-children use the hondas to toss stones

page 218-219: Hunting & Fishing

-deer, wild turkey, hares, rabbits & squirrels are sought
-using pistol, rifle, or hondas

Source: Rada (1777)

Arrow poison:

yerba de la flecha (jintiqín), que quiere decir
ponzoñosa de la cual usan untándola en las puntas de flecha

Moris — Arms - 1777

Source: Rada (1777)

(1) bows, which were called gato.

(2) Arrows

(3) Lanzas

(4) "Y algunas cargan cuchillos"

Maicoba — Arrow wrenches — 42

Brugge (1961), 10

"The only bone tools I could find still in existence, but no longer used, were perforated arrow wrenches made of cow bone."

Maicoba Arrows /Bow/Arrow Poison/quiver/wrist guards 4.

Brugge (1961), 13

In recounting what he was told by Pima about the old wars with Apache... "a self bow about 2 feet long and two inches wide was used, each man carrying two in battle to be prepared should one break. The arrows were made of the flowering stalk of the sotol (Dasylirion sp.) and sharpened fire-harded wood foreshafts They were fletched with three turkey feather va A poison was prepared fromthe juice of a plant mixed with the pulp of prickly pear (Opuntia sp) stem segments. The wooden arrow points were soaked in this long enough for the wood to absorb the poisonand remain deadly for a considerable period. The arrows were carried in a hide quiver and archers wore leather wrist guards,"

Maicoba Sling/War club 4

Brugge (1961), 13

"The sling wsas another important weapon. This was made of fibers of beargrass (Nolina sp) twisted into a two-ply cord, with a handwoven pad about at midpoint. The potato-masher war club was probably used at an earlier period. /A similar instrument used today, as a maul, is referred to as a macana, the Spanish term for a war club, but its use in warfare has been forgotten."

Introduction

The Maicoba Pima refer to fishing as an activity that does not provide a significant amount of food, but rather as an activity which provides some food and much sport.

Types of Fish

There are references to the following types of fish at Maicoba:

(1) A bagre (músiv, mušog, or sobol) which is undoubtedly a species of catfish.

(2) A sardina.

(3) A matalote.

(4) A trucha, a species of trout.

(5) A guajalota (vatop).

(6) A pescado negro (tukvat).

Fishing techniques

(1) Hook and Line.

A fishing line is prepared by twisting the hair from a horse's tail and rolling the twisted hair upon the thigh for a short time. The hook is a bent nail and the pole is fashioned from a long carrizo (Arundo donax), an introduction from the Old World,* or from otate (Arundinaria longifolia), both of which are brought in to the high country from the southwest or northwest, or from the vicinity of Moris. Worms are used as bait. The fishhook is fashioned from a nail or a piece of wire, or a cactus thorn and is called noli.

* Uphof (1968), 53.

(2) Weirs and Traps

Where fish are known to be in a stream where water falls over a precipice a reed weir may be placed before the point of fall. This weir may be constructed from otate (Arundaria longifolia), carrizo, the Old World Arundo donax both of which must be brought to the high

---

* Uphof (1968), 53.

---

country around Maicoba from the southwest or the northwest, or from the vicinity of Moris, to the south, or from batamote (Baccharis glutinosa) which grows in abundance near Maicoba, along streamways. Such weirs are called vátiš which seems to be the Pima analogue of the Spanish trampa. A funnel-shaped trap fashioned from otate, carrizo or batamote may be placed between two large stones that serve as an anchor; such a trap is placed in swiftly flowing water that contains fish.

(3) Lance or spear,

According to the older Pima, a reed or wooden lance tipped with a nail or a cactus thorn was once used to spear fish. This device was called as'do'or, which is clearly a corruption of the Spanish asador.

(4) Stupefaction.

The roots, leaves, or bark from representatives of a number of plant families are used in stupefying fish found in relatively quiet water; no attempt is made to stupefy fish in swiftly moving water. The substances that are known to be toxic are dumped into quiet water, or are placed in a basket which is doused in the water.

(5) Dynamite

Amaryllidaceae (22)

Roots and leaves of four species of Amaryllidaceae, all of which are relatively abundant on the rocky slopes near Maicoba, are crushed and thrown into fish-bearing streams. These species are:

(1) Agave mayoensis (kokhor).

(2) Agave bovicornuta (ho'i)

(3) Agave Hartmannii (utkim or utkadi).*

(4) Agave Schottii.

---

* The exact toxic substances in these species of agave are not known; however, it is known that sapogenins are present in many Mexican species of Agave [Wall et al. (1957), 655-59].

Juglandaceae (26)

Leaves of a nogal cimarrón (Juglans major) are gathered during the spring and after being crushed upon a large stone with a stick are dumped into fish-bearing water.*

---

* The precise toxic agent in Juglans major is unknown but tannins and flavonoids have been isolated from a related species, J. nigra [(Ibid), 708]. Tannins and resins have been isolated from yet another related species, Juglans cinera [Claus (1956), 256].

Papaveraceae (44)

Leaves of a cardón (Argemone ochroleuca subsp. ochroleuca) which appears abundantly in canyons near Maicoba are used as a fish stupefying agent.* The leaves are crushed and placed in a basket which is

---

* According to Seine (1960), this plant contains the alkaloids protopine and allocriptopine, and small doses of protopine have a narcotic effect upon frogs. Large doses inhbit their reflex actions. It is likely that a similar action is exerted upon fish.

---

sloshed in quiet pools that contain fish.

Leguminosae (53)

All of a yerba del pescado (vahtop), which is Tephrosia Palmeri, is mashed and used as a pisicide. The roots of another yerba del pescado (Phaseolus silicifolius) and the leaves and bark of a palo piojo (Brongniartia Palmeri) are thrown into fish bearing streams in great quantities; both of these substances are claimed to be particularly effective in stupefying fish. Roots of a yellow-flowered algarroba (Acacia pennatula) are crushed and thrown into quiet pools of water that contain fish.

Euphorbiaceae (64)

Pima who live in the low canyons to the southwest of Maicoba--and towards Moris--use a yerba de la lisa (Croton texensis) in stupefying fish. It is stated that this plant is one of the most effective in stupefying fish.

Umbelliferae (96)

A matariqui (Prionosciadium madrense) is probably the most important fish stupefaction agent used by Indians who live at elevations somewhat higher than at Maicoba. The whole of the plant is crushed and in great quantities is claimed to be very effective as a pisicide.

Compositae (130)

Yet another matariqui (Cacalia decomposita) is crushed and used in stupefying fish; the crushed material is placed in a basket which is doused repeatedly in pools of water known to contain fish.

Unidentified Specimens

Two unidentified plants are used as fish stupefaction agents. One is a tiny mescalito (o'otkil) which grows in no one place in significan numbers. Therefore, much effort is required to obtain the requisite amount to kill fish. However, the Pima report that the efficacy of the plant is such that the search is worthwhile. Another plant is one called no'il, a gray-colored plant with plume-like stems and characterized by a pink flower in April; this plant is also said to be very effective, when crushed and thrown into quiet pools that contain fish, in exactly the same fashion that o'otkil is utilized.

Preparation of Fish as Food

Fish are cleaned, boiled or fried, or may be split in four pieces and dried in the sun for storage; when desired for food, the dried fish is soaked for a time, then dried and fried. Fish may also be roasted in an earth oven, in exactly the same fashion as mescal. Salt is added during the drying process.

Nolasco Armas, 1969

pp. 218-219:

"In the rainy season a certain dust called "bombio" is thrown into the water to poison fish"

Juniperus californica

Fruits of this sabino are eaten.

Maicoba Cupressaceae (5) 44

Juniperus oseosperma

Berries of this táscate are eaten crudo, usually as a starvation food. Some of the Pima stated that the fruits were collected and sold to the stores at Maicoba and Yécora.

Yucca rigida

The Pima state that the fruits of this white-flowered yucca are eaten in the early stage of their development.

Maicoba Amaryllidaceae (22) 44

Agave sp.

This agave is called sahualiki or hu'ug (the Pima term). The plant is somewhat like the common agaves near Maicoba (Agave Patonii and A. Schottii). It has a white-yellowish flower which resembles a tamale and has black seeds. The flowers are boiled in the fashion of squash flowers.

Juglans major

Nuts from this nogal are collected and stored by the Maicoba Pima in September. Use a stick, a long stick marked by a bent nail at one end, to remove the nuts from the tree. It is said that these nuts are stored for use in April and May.

Quercus durifolia

cusi negro

Acorns from this encino/are eaten crudo when tender. Mature fruits are crushed and ground upon the metate and used in making an atole; the acorns are not toasted, according to Federico Rodríguez Romero.
The tree is known as šipa among the Pima.

Quercus hypoleucoides

Acorns (ka'al) from this encino barril are toasted and eaten. The nuts are also washed, toasted, mashed upon the metate and eaten as a gruel after being boiled for about ten minutes. The acorns are toasted upon a cajete (čiklá). The acorns may be sold to stores at Maicoba and Yécora.

Morus microphylla

Fruits of this mora are eaten, but only in May after a rain. It is believed that if they are eaten at any other time the eater will develop a fever.

Phoradendron villosum

Fruits of this tohi de encino are eaten in Apri, May and June.

Frageria mexicana

Fruits of this fresa cimarrona are eaten.

Prunus Capuli

Fruits of this aguaciki are eaten. The Pima know this tree as humpa'il or húmpil.

Prunus Fremontii

Fruits of this capulín (mo'oskom) are eaten in August. In very dry years the tree does not bear fruit.

Prunus sp.

Fruits of this aguaciki are eaten. The Pima know the tree as humpa'il or húmpil.

Parkinsonia aculeata

Seeds of this guacóporo* are eaten by children during the months of June and July; the tree does not appear at Maicoba but rather in lower portions of nearby canyons.

* According to Santamaria [(1959), 601], guacóporo is derived from huacáporo, a Cáhita word. There is no evidence that the Pima Bajo cultivate this tree as do the Varohío [Gentry (1942), 131].

Pithecolobium dulce

Fruits of this guamúchil are eaten and the Pima who live at high elevations journey to the warm canyons to collect the fruits.

Prosopis juliflora

Mesquite trees do not appear in the high country near Maicoba, but it does appear in the low canyons to the southwest and northwest, as at Trinidad and Santa Rosa. The Pima state that formerly people collected the mature seeds, ground them on the metate and used the meal in preparing a dish not unlike the atole prepared from maize.

Karwinskia Humboldtiana

This tullidor appears sporadically in canyons west of Maicoba. Children sometimes eat the fruit and are reported to become very ill afterwards.

Maicoba Vitaceae (72) 3 44

Vitis girdiana

Fruits of this uva cimarrona (túmbor) are eaten by the Maicoba Pima.

Cephalocereus alensis

Fruits of this pitahaya barbón which appears in warm canyons to the southwest and northwest of Maicoba are eaten.

Opuntia sp.

Fruits of species of Opuntia are removed from the spiny leaves with a short stick to which a nail has been attached and bent. Or, remove the spines of the leaf with a stick and then pluck the fruits by hand.

Pachycereus pecten-aboriginum

Fruits of this tutč or pitahaya are much esteemed and they are sought in warm canyons near Maicoba, Yécora, Trinidad, Moris and Santa Rosa. The fruits are knocked down with rocks or are removed with a hook fashioned from a bent nail and anchored to a long wooden pole.

Arbutus arizonica

Fruits of this madroño are eaten by the Maicoba Pima.

Arctostaphylus pungens

Berries of this manzanilla (known as jol) are eaten.

Lantana sp.

Fruits of this confitura morada are collected in September as an esteemed foodstuff.

Capsicum annuum var. minimum

Chiltepín trees do not grow in the immediate vicinity of Maicoba but they are numerousd at Santa Rosa and Tepoca. People from these places bring chiltepínes to Maicoba and sell them for about $10.00 (pesos) per liter. Or, when Maicoba Pima have business in any place--such as the warm canyon country to the southwest or at Moris--where chiltepín trees grow they gather the berries in great quantities and bring them to Maicoba for personal use, usually in July and August.

Chiltepínes are a favored food as such or as a condiment added to meat dishes and atole. The fruits are called kókol or kókori.

Maicoba Solanaceae (116) 44

Physalis ixocarpa

This tutku'il (a tomatillo) is frequently found growing upon trash heaps near Pima habitations; fruits are eaten.

Randia echinocarpa

Fruits of this handsome white-flowered papache* are eaten during the early winter months; the fruits, which are round with spiny protuberances, are removed from trees that grow in canyons to the southwest of Maicoba.

* According to Santamaria [(1959), 799], papache is a term applied to plants of the genus Randia in Sinaloa, and the term is derived from the Mexican verb papatzoa which means "ablandar fruta con los dedos."

Maicoba Rubiaceae (125) 44

Randia sonorensis

Fruits of this papache borracho, which is known as nanaha among the Pima, are sought in warm canyons to the southwest and west of Maicoba, and towards Moris. Fruits are said to be very sweet and when consumed in quanity cause the consumer to become "drunk."

Apodanthora undulata

Fruits of this sandía de coyote are bitter, but according to the Maicoba Pima they are eaten as a starvation food.

Source: Rada (1777)

d. y capulines, que en su lengua [pima] llaman usica.

e. las tunas aunque hay pocas

Rumex crispus

This cainero serves as an esteemed quelite when boiled, drained and salted.

Chenopodium ambrosioides

This ipazote appears in small amounts along arroyo margins in the canyons west of Maicoba. It serves as a quelite when boiled, drained and salted. The Indians state that it should be boiled at least twice.

Chenopodium arizonicum

This chual, which is known as tukga'i among the Maicoba Pima, serves as a quelite when boiled, drained and salted.

Maicoba Chenopodiaceae (34) 45

Chenopodium leptophyllum

This chual is an important quelite, when boiled, drained and salted.

Rumex sp.

Leaves of this lengua de vaca which is known among the Pima as nuñar or nũni (tongue) are a favorite quelite when boiled, drained and salted.

Amaranthus cruentus

This okiti or bledo is cultivated to a limited extent in the gardens but it appears in the wild state as well; it is an esteemed quelite when boiled, drained and fried.

Amaranthus Palmeri

This quelite is one of the most sought after greens in canyons near Maicoba; it grows rankly almost everywhere there is moisture.

Maicoba Amaranthaceae (35) 45

Amaranthus sp.

This amaranth has a white espiga and appears in arroyos near Maicoba and Yécora; it serves as a quelite when boiled, drained and salted.

Portulaca oleraceae

This verdolaga, which is presumably an introduction from the Old World,* serves as a quelite.

---

*Gray (1960), 609.

Melilotus indica

This trébol serves as an important quelite near Maicoba and Yécora.

Maicoba Oxalidaceae (55) 45

Oxalis stricta

This agrio serves as an esteemed quelite which is boiled, drained and salted.

Maicoba Sterculiaceae (76) 45

Waltheria indica

This yerba del pasmo which appears along streamways in canyons near Maicoba serves as a quelite when cooked and drained.

Lippia Berlandieri

Known as orégano, this plant is eaten as a quelite when young and tender; it is boiled for a few minutes and eaten without being drained.

Lippia Palmeri

This plant is known as orégano and is one of the important quelites sought near Maicoba and Yécora.

Solanum americanum

Leaves of this chichiquelite are used as a quelite, but only after being boiled and drained.

Maicoba Unidentified Quelites 1 45

(1) The Maicoba Pima use a pato de cuervo (kókintar) as a quelite; the plant is cooked a bit and then fried with onions.

(2) An agritos is a rather commonly used quelite--slightly boiled and salted--at Maicoba.

Sabal uresana

Young hearts of this palma (saval among the Pima) are pit-baked or roasted, after being sliced, upon a bed of embers.

The crowns or hearts are pried out with a wooden bar. A hole is prepared in the ground. A lining of rocks is placed in the hole and oak wood is added. This wood is fired and when the wood has burned down--and a second fire is built if the rocks heat slowly, as they sometimes do in damp weather--the crows are placed upon the rocks. The whole is covered with grass and earth and left to bake for about twenty-four hours. The sliced crows are eaten with atole.

Agave bovicornuta

This lechuguilla is claimed to have "bitter" roots, but the roots are pit-baked when other more desirable species of Agave are not readily available.

Agave Hartmanii

The crown or heart of this maguellito (known as utkim or utkadi) is cooked in a hole in the ground, just as the somewhat larger crowns of Agave bovicornuta, A. Schottii and A. Patonii are prepared.

Maicoba Amaryllidaceae (22)

Agave Patonii

The hearts of this agave are pit-baked and eaten. The process for pit-baking is exactly the same as that indicated for preparing the hearts of Sabal uresana. If the mescal (ma'i) is not eaten immediately it is mashed, put in a canoa, mashed a bit more, and then the mass is formed into the shape of very large tortillas which are put in the open to dry. Such tortillas may keep for as much time as a month. They are stored in a wari or costal, which is placed upon a tapestle that is hung within the house. When desired as food they are boiled until palatable. When eaten, the pith that cannot be digested is spit out.

Agave Schottii

The hearts of this agave are pit-baked and if the cooked material is not eaten immediately it is prepared for storage in the fashion indicated for Agave Patonii.

Prionosciadium madrense

This saraviki is considered to be a papa silvestre and its roots are roasted in ashes.

Prionosciadium Townsendii

Roots of this saraviki, which is known as topohug, topkö'i or topoku'il, are considered to be not unlike a camote; the roots are eaten raw or are boiled. However, it is said that when boiled the roots are somewhat amargo (ši'uv) in taste.

Dahlia sp.

Roots of this dalea del campo or bargam are said to taste not unlike sweet potatoes; the plant has a red flower and is found in broken country in the canyons west and southwest of Maicoba. Its roots are eaten raw.

The following unidentified roots are collected and eaten by the Maicoba Pima:

1. cebollín silvestre (sak).
2. cebollín silvestre (haríš).
3. cebolla del campo (si'iva).

Source: Rada (1777)

For Moris:

a. la principal es el cabollín, que en todo tiempo se dá, y es cebolla mediana amargosa, que para comerla, la lavan muy bien , y después la cuecen, y con las hacen unos bóllos, que suple por el pan o tortilla, hay de ella en abundancia,

b. también el maguey o mezcal que desde marzo hasta que llueve lo comen,

c. lo comen así la yerba del oso

1. "Honey".

Certain insects provide food for the Maicoba Pima in the form of "honey." One of the sources of "honey" is an abeja silvestre which is a wasp (Polybia diguetana);* this insect is known as mumu

*Professor Charles D. Michener of the Department of Entomology, University of Kansas, Lawrence, Kansas, kindly identified certain of the insects collected at Maicoba and Ónavas during the summer of 1968.

(abeja de panal) or múmuv (mosca). Its roundish hive is built in a tree (usually pine or oak), or in a cave, and after the hive is knocked down with sticks or a rock is removed to a tree located near a habitation or is anchored to the house itself. A branch of the tree from which the hive is obtained is often affixed to the hive when it is anchored. The "honey" (sa'ivoli) from this nest is gathered during the winter for the most part, but the "best" honey is obtained during

the early spring, usually in May. The "honey" is claimed to be less sweet than the domesticated honey, and is claimed to be more "tasteful," that is, "strong."

Another source of honey is an jicote (huruhug) which is Bombus formosus, a bumble-bee that builds a nest underground. A fire is built near the entrance to the nest and the insects promptly come out and are driven away. The "honey" is found within tiny round cells.

2. Cubiertas de biznaga.

Some of the Maicoba Pima prepare cubiertos de biznaga from the interior of a Ferocactus Wislizeni, in exactly the same fashion as they prepare cubiertas de calabaza (see Chapter V). Some of the Maicoba Pima collect great amounts of the interior of this cactus for use as a sale item to traders who dispose of the material in Chihuahua or Hermosillo, at which places the pith is said to be used in the preparation of special tortillas. Ferocactus Wislizeni does not appear in the uplands, but is abundant at lower elevations in eastern Sonora.

3. Sorghum stalks.

Stalks of an undetermined variety of the introduced Sorghum vulgare, a variety known as malo maíz, are chewed in October, about a month or six weeks before the stalks mature.

1. Stalks.

Flower stalks of the following plants are scraped and roasted upon coals as an esteemed foodstuff:

Dasylirion Wheeleri	sotol or umag
Nolina microcarpa	sagualiki
Agave Patonii	maguey
Yucca baccata	yucca
Agave Schottii	maguey
Agave sp.	hu'ug

2. Seeds

Amaranthus cruentus	okiti or bledo

This amaranth appears in gardens and along streamways near Maicoba: when the seeds are plentiful on wild plants they are gathered

and used in the preparation of pinole and esquite. If plentiful, they serve only in preparation of okiti pinole or esquite. If not plentiful, the toasted seeds are ground and added to pinole prepared from corn, or the toasted seeds are added to esquite prepared from corn.

Martynia fragens

Seeds of this garumbullo are eaten; the seeds are removed from the sheels and eaten raw.

3. Mushrooms.

The Maicoba Pima refer to two kinds of mushrooms in the high country near Maicoba and Yécora; one of these hongos grows upon the trees and is not eaten. The other hongo is a duvur hoškam, which literally means "flower of the earth" and it is white. It is cooked upon coals and eaten with tortillas.

4. A parasitic bolita that appears upon oaks at Maicoba is collected for use as a food when it is green; only the pith is eaten.

5. Leaves of opuntias.

The leaves of several species of Opuntia are peeled, cut up, and boiled until palatable.

On Stalks, Roots, and crowns (hearts)

	Stalk	Fruit	Roots
1. Palma			
real	NO	YES	NO
jueve	NO	YES	No
espinosa	NO	YES	NO
2. sagualiki	NO	YES	NO
3. Maguey (3 species)	YES	YES	YES
4. Lechuguilla	YES	YES	YES

1. Hornet.

What is unquestionably a species of hornet, an arapara (Vespula squamosa) is known as ta'apar; this insect which is claimed to inflict great damage to horses when many of the creatures attack the animals, builds a nest underground. The nest is readily identified by its small mound. Mestizos and Indians dynamite the mound before the hornets injure the animals. According to the Pima, the "honey" in the nests is eaten. However, this substance is without doubt the larvae which is eaten not only by humans but as well by foxes. For curing bites to humans by this arapara use leaves of aguaciki (Prunus Capuli) known as humpa'il or húmpil; boil the leaves and use the liquid as a lotion upon the sting or use the leaves as a poultice.

2. Spiders.

Two spiders, one of which is a tarantula and the other an araña negra (tukum), are claimed to be very poisonous; however, the black spider is said to be more poisonous than the tarantula. For treatmer

use the leaves of maguey (Agave Hartmanii, A. mayoensis, A. Patonii and A. Schottii), lechuguilla (A. bovicornuta), and ocotillo (Fourquieria sp.); cook the leaves and place "foam" from the boiling leaves upon the sting. Some of the Pima drink a bit of the liquid.

3. Scorpions.

The Maicoba Pima repeatedly refer to two alacranes at Maicoba, both of which are called naksu'il. One scorpion is a yellow one, the other a prieto one. Both sting badly and for treatment eat a bit of garlic (the introduced Allium sativum*) and salt, or place garlic and salt upon the bite.

* Uphof (1968), 25.

4. Centipede.

A centipede (ma'i haga) is said to cause death when it stings a cat or dog. When this centipede stings a human a bit of garlic (Allium sativum) is mashed and placed upon the stick. Or, a commercial ointment is purchased.

5. Ants.

Two kinds of red ants are mentioned by the Maicoba Pima; one is a large red ang (močom), the other a small red ant (ü'ürа). Both of these ants are said to sting badly. Fur alleviating pain from such stings add salt to saliva and spread upon the sting.

6. Ticks.

Tiny garrapatas (mamas) often get into people's ears. A commercial medicine is used to "force" them out. Or, a bit of wet tobacco is placed in the ear.

7. Grubs.

Maicoba Pima enjoy eating a grub (hu'asamka) that is found upon Arbutus glandulosa and A. arizonica.

8. Lizard.

The Pima at Maicoba refer to a large lagartija (hudor kú'imdar) which is claimed to cause death when it bites a human. An effort is made to prevent death by cooking the leaves of maguey (Agave Hartmanii, A. mayoensis, A. Patonii and A. Schottii) or lechuguilla (A. bovicornuta); the foam from the liquid is applied to the bite. This lizard is about 12 inches long and is spotted (black and white).

9. Snakes.

Four rattlensakes are familiar to Pima Bajo at Maicoba and Yécora, all of which are readily identified in the field as

Crotolus scutalatus (the Mojave rattlesnake), C. atrox (the Western Diamondback), C. tigris (the Tiger rattlesnake), and C. molossus (the Black-tailed rattlesnake).* Among the Pima, three specific terms for

---

* For the distribution of these rattlers in northwestern Mexico see Stebbins [(1966), 187-88, 190-93].

---

rattlers are mentioned; however, these terms cannot be equated with certainty to the above mentioned species. There is reference to a large rattlesnake known as hadag, a small rattlesnake known as sa'ukar, and a third rattler known as mamako'a.

The Pima at Maicoba insist that although many people are bitten by rattlesnakes few of the bites result in death. Cresas (maggots) serve in the preparation of a poultice applied to such bites.

Pima at Maicoba and Yécora distinguish between the true and highly venemous coral snake (Micuroides eurygaxanthus) and those handsome banded snakes that often are mistaken for the true coral snake by outsiders. For example, the venemous coral snake is never handled by children who frequently play with at least two other banded snakes at Maicoba. One of the banded snakes is certainly the Sonora Mountain kingsnake (Lampropeltis promelana) which is known to be harmless. A coachwhip, which is known as hu'ajamari, is probably Masticophis flagellum which is known to range high eastern Sonora.*

---

* Stebbins (1966), 149-50.

This coachwhip and the Sonora whipsnake (Masticophis bilineatus) are said to eat chicken eggs. The chicotera, a snake which is said to "hang" in trees and to eat chicken eggs, is hunted frequently by the children. Maicoba Pima refer to two other snakes, the sorda and

the pollero which prey upon very small chickens and which eat eggs. An alicante and a culebra negra are said to be harmless.

Most of the aboriginal terms for specific species of snakes apparently have been lost. The name of the coachwhip, hu'ajamari, may be an aboriginal term. Three terms for rattlesnakes have been indicated above. The generic term for snakes that are not poisonous, for example a culebra, is ko'a. A víbora is called samka'i.

On Snakes

Juan Gonzales and Federico Rodríguez referred to the use of snake meat as a kind of salt. The cascabel was killed, and 1 hand length from head and from the tail was removed. The snake was hung to dry after being skinned. When it was dried it was ground between two smooth rocks and used as a kind of salt upon meat.

Maicoba, Pennington

Chapter 7

Notes

①

~~Ures Population (1752-1754) 85 families, 400 people~~

~~Tecoripa Population (1752-1754) 56 families, 230 people~~

~~Santa Rosalía pop. (1752-1754) 30 families, 150 people~~

~~San José de los Pimas pop (1752-1754) 90 families, 400 people~~

~~Suaqui population (1752-1754) depopulated but to be resettled~~

~~Onavas population (1752-1754) 150 families, 700 people~~

~~Soyopa population (1752-1754) 44 families, 200 people~~

~~Tónichi population (1752-1754) 30 families~~

~~Nuri population (1752-1754) 20 families, about 100 people~~

~~Cumuripa population (1752-1754) 30 families, 150 people~~

~~Buenavista population (1752-1754) 71 families, 300 people~~

~~Movas population (1752-1754) 40 families~~

Get data from Curts → Onavas

Livestock (1752-1754) Utrera (1752-1754), Derrotero y jornada...

Yécora:

714 head of cattle
36 colts
47 tame horses
36 cargo mules
5 burros

Cattle 52
Burros/Horses/Mules 54
Sheep/goat 53

★ Ures:

300 head of cattle
2,600 head of minor cattle (goats, sheep)
167 mares
50 cargo mules
~~some horses~~

★ Tecoripa:

2300 head of cattle
5000 small stock
1700 horses and mules

Onavas:

700 horses
70 mules
250 large stock
500 small stock

Nuri:

360 large cattle
1,000 small stock
300 mares and colts
15 burros
30 mules

Cumuripa:

362 large cattle
441 small stock
226 mares
60 mules
58 horses

256

Movas:

337 ganado mayor
1,026 ganado menor de pelo y lana
256 mares
15 oxen
12 mules
55 colts
2 small mules
15 jackasses
23 tame horses

256
55

226
58
284

256
55
23
334

According to data obtained in 1968, approximately one-third of the 91 Pima families at Maicoba possessed cows, the average being two to three animals per family. However, one Pima owned between ten and fifteen animals. The value of a cow was about $800.00 ($64.00 US) if the animal was sold. To purchase a cow required an outlay of about $900.00 ($72.00 US). Milk was generally consumed at home, but when sold by the liter it brought from two to three pesos. Those Pima who prepared cheese either consumed the cheese or sot it for as much as $30.00 ($2.40) per liter.

Whether or not the Pima possessed many oxen several generations ago, as is claimed by the older contemporary Pima, cannot be determined. But as of 1968 there were apparently no more than 10 owned by Pima. Therefore, the Indians had either to rent oxen from those Pima who owned them, from those blancos who were willing to rent their oxen, or the Pima had to work their lands under the a media system, whereby the patrón supplied the oxen and perhaps seed. As indicated in Chapter III, there was and yet is some use of burros as draft animals; however, the Pima state that burrows are not really suitable for use as draft animals.

A media planting has virtually been abandoned, largely because of the influence of the current (1970) Pima governor. Arrival of the 280 head of stock placed upon the Maicoba ejido by government authority within the past several years--stock that is under control of the Pima--means that oxen are available for use as draft animals.

Currently (1970), if a Pima sells an ox he receives about $900.00 ($72.00 US) but if he must purchase one he must pay from $1200.00 to $1500.00 ($90.00 to $120.00 US).

Those animals which have been placed upon the Maicoba ejido by the government are marked with a special brand, and stock owned by mestizos are branded according to brands registered with the government. Animals which are owned outright by individual Pima are apparently not marked in any fashion to indicate ownership. It is said that each man "knows" his animals.

Larger animals are permitted to roam for pasturage, but the young calves are carefully watched because of certain predators, the golden

eagle (vara), the wolf (su'i), the jaguar, the coyote, and the puma (mavit) Generally, young animals are maintained in square or round corrals at night; these corrals are constructed of smoothed saplings and are put together in the manner of rail fences, with two upright saplings being placed upon either side of the corrals at intervals, to maintain the sides of the corral against pressure by the animals.

There is no evidence that cow or oxen are killed today for celebrations, as at a funeral for example. However, the older Pima state that this was done about two generations ago and they admit that the practice was a bad one. Several old men remarked that probably as many cows and oxen were lost to service in this fashion as were lost by what are termed unfair purchases by the blancos. The Pima of today state that the only reason for killing a cow or an oxen was to feed those people who came to the funeral.

Horns of cattle are of value because they can be used for storage of bacanora and mescal designated for use as medicine (see Chapter VIII). Formerly, horns were used in fashioning a crude ladle used for panning gold

Data as of 1971

Relatively few of the Maicoba Pima possess bueys for use as draft animals. Those sent as of 1970 and 1971 by the government were bronco.

Pairs of oxen may be rented from any one of 5 blancos at Maicoba, for a sum of $600.00, which must be paid regardless of whether the crop comes in or not.

If no cattle, then use a vara.

A good buey costs about $1,500.00.

It was stated that about 30 families own cows, and have had them for a long time, one may having as many as 60, but the average is 2 to 3.

On vaccination of cattle

This is done by the Banco Ganaderia folk at Encinal, where stock is dipped and vaccinated.

Nolasco Armas, 1969 Cattle (2)

page 216: Cattle activity

-few Pima raise cattle on their own accout
-but some do work as vaqueros for the whites
-at from $10.0o to $13.00 per day
-in reality they receive about $5.00 to $7.00 per day and food
-often the cattlemen pay in corn, beans, clothing

-those Pima who have cattle, take them from pasture to pasture from August to April
-from end of April to July, bring together in a small pasture where partially feed with "harinolina"

-little vaccination of cattle
-if an aniaal dies, it is usually buried

-from July to November calves are kept in a corral

Nolasco Armas, 1969 Cattle (3)

Page 217 (Cattle raising, continued)

-the Pima claim they once had more cattle
-the Pima claim whites took the cattle
-by offering a goblet of mezcal, then another and another
-until the Pimita got drunk
-the next day the whites came and took thecattle
-claiming that they had already paid
-some whites paid as little as $20.00 to $300 per head of stock

Source: Lizasoain (1763)

Cattle, including milking (ganado vacuno chichiguo)	650
Cattle, wild wandering (ganado vacuno de rodeo)	302

Yécora & Maicoba | Cattle 1763 | 52

Source: Lizasoain (1763)

Cattle for Yécora & Maicoba (reses) 300

Moris | Cattle - 1777 | 52

Source: Rada (1777)

A few cattle were indicated for Moris and its dependency, Maicoba.

During 1968 no sheep were reported as being owned by the Maicoba Pima but about one-half of the poblanos were said to own a few goats. These animals were clearly inferior with respect to usefulness of their wool which was not used at all, according to all informants. No rational explanation was forthcoming with regard to questions as to why the wool was not used for the making of blankets which are useful in high eastern Sonora, even during the summer months. The older Pima women stated that they knew how to weave blankets, as their Mothers had done. The goats served only as a source of food. Information obtained in 1970 indicated that those goats owned by Pima during 1968 had either been sold or eaten, because of a series of bad crop years, and because increasing tension between blancos and Indians had resulted in a breakdown of the earlier working arrangements between the two groups with respect to a media planting and renting of oxen from a blanco. In 1968, the value of a goat was given as between $10.00 and $12.00, but in 1970 an adult goat brought as much as $40.00 ($3.20 US); this rise in value reflected the same rise in value typical of other areas in northwestern Mexico.

Data as of 1971

Some stated that about 3 families possesed goats, valued at from $50.00 to $60.00 (pesos) each. No sheep were reported.

Maicoba — Sheep & Goats

Source: Larrea, 1701 (1)

Stray lambs are mentioned near Tutuaca in a declaration made by Manuel, a Pima of Tutucaca, before Juan Bautista de Larrea, Captain General and Governor of Nueva Vizcaya, at Papigochic, in 1701.

Yepáchic — Sheep & Goats 1763

Source: Lizasoain (1763)

Goats (cabruno)	37
Sheep (ganado menor ovejuno)	49

Moris — Sheep & Goats 1763

Source: Lizasoain (1763)

Sheep & goats (ganado menor) 51

Moris — Sheep and Goats - 1777

Source: Rada (1777)

A few sheep and goats were said to be in the mission and its dependancy, Maicoba

Maicoba

Horses, Burros & Mules 1

In 1968, about ten Pima families owned at least one horse, an animal which is considered to be a prestige animal. Ownership of a horse not only gives status to a Pima among his fellows but it enables him to earn a bit of money by renting the animal to blancos at times. There is no evidence that horses are used as draft animals and they are not used for cargo purposes as are the burros. A good horse brought about $400.00 ($32.00 US) when sold in 1968 but to purchase a good animal from the blancos required at least $600.00 ($48.00 US). These sums had not changed by 1970. The Pima refer to the killing of horses in time of need and apparently have no inhibitation about eating horse meat.

Most of the Pima families at Maicoba owned at least one burro in 1968, some families owning as many as three. Burros are rather important since they may be used for transporting firewood for use at the Indian habitations and for sale to the blancos in Maicoba. Moreover, burros are sometimes used as draft animals, although it is stated that such use is not really satisfactory. A burro was valued at $100.00 ($8.00 US) if sold in 1970. However, if a Pima purchased a good burro from a blanco he had to pay as much as $200.00 ($16.00 US).

Source: Lizasoain (1763)

Mules (bestias mulares)	26
Horses (caballos)	102

There is no evidence that mules are maintained by any of the Maicoba Pima who report that the animals may be purchased from the blancos for about $1,000.00 ($80.00 US). A good riding mule may cost as much as $2,000.00 ($160.00 US).

Data as of 1971

About 20 Pima owned horses as of 1971. Could use them with iron plows but do not own iron plows. Horses may be rented for about $4.00 per day for use as riding animals.

About 20 Pima owned burros, do not use them for plowing since they are not "strong" enough.

No mules.

Yécora — Horses 1763 — 54

Source: Lizasoain (1763)

Mares (yeguas) 120

Moris — Horses, burros, mules - 1777 — 54

Source: Rada (1777)

Horses, burros, and mules were mentioned, but there was a specific statement that there were not many in the mission and its dependancy (Maicoba)

Information obtained from Maicoba Pima in 1968 indicated that virtually all of the Pima families owned a few pigs. The value of a small pig was $75.00 ($6.00 US). Pigs were much esteemed because they provided a foodstuff at festival times and during the winter months. Almost no pigs were reported in 1970; the Pima stated that the poor crops of the preceding two years had forced the Pima to either kill the pigs or sell them. In 1970, a full-grown pig was valued at from $300.00 to $400.00 ($24.00 to $32.00 US), whereas a piglet brought from $90.00 to $100.00 ($7.20 to $8.00 US).

Apparently, the task of caring for the small pigs is delegated to the women. At Maicoba in 1968, a number of women were transporting quelites from near the river to pens where pigs were penned or to where pigs were anchored by a long mecate to a stout pole implanted in the ground.

In 1971, when asked about swine, the response was muy poco and a 1 year old pig was valued at $100.00, a 2 year old at about $200.00.

Several Pima make sausage from pig meat (mash meat, add vinager, garlic, and orégano).

Virtually all of the Pima families visited in 1968 and 1970 possessed dogs (gogoši) and cats (mixt). A significant number of the dogs are castrated; the Pima indicate that when not so treated the dogs wander too much. Moreover, it is believed that a castrated dog serves as a better watch dog than those not so treated. Apparently, dogs serve only as pets and watch dogs for the most part. Only a minor use is made of dogs in hunting. They are used in bringing down hare, rabbit, raccoon, ring-tailed cat and the badger. It is stated that the dog is not useful in hunting deer since these creatures "smell" the dog and run away. Dogs are not taken on expeditions made to hunt peccaries since the dogs might be injured by a cornered jabalí. During the past several years a number of dogs have been poisoned because of the government program that involves putting out poisoned meat to kill off wolves, coyotes, leones, etc.

A significant number of the male cats have been castrated, because it is believed that if not so treated the animals "kill" children when hungry, by biting the necks of the children at night. When asked if female cats were any less apt to bite sleeping children no rational response was forthcoming. Cats are certainly important because they

seek out rodents that are so common about the Pima habitations, rodents that damage corn stored in the houses. Certain birds are claimed to prey upon cats, the golden eagle (vara), a hawk (višig), the lechuza (kuku'il or kukuwuri), and a buho (tutu'il).

Cats and dogs are commonly given names, such as the following: Lobo, Lionero, Africanus, Coronel, Cantador, Sargento, Capitán and Vaquero.

Virtually all of the Pima at Maicoba maintain a few chickens (supun). These fowl are rarely killed as a foodstuff, since their eggs (supnáka) provide a source of income. During the summer of 1968 eggs were valued at fifty centavos each. The Indians frequently seel as many as eight eggs to mestizo families, and since the eggs must often be carried great distances they are usually wrapped in a cornhusk (hu'unaha). Such eggs are transported in a shoulder rag or a basket. The keeping of chickens is difficult, because of predators, among which the following are frequently mentioned: aguililla (višig), águila real (vara); lechuza (kuku'il or kukuwuri); buho (tutu'i); ring-tailed cat; skunk (u'up); coyote (bann); fox; and a culebra pollera, a snake that eats the baby chicks.

A chicken was valued at $7.00 (about 56 centus US) in 1968; however, by 1970 the value of a chicken had risen to $11.00 (about 88 cents US).

Chickens are maintained at night in elevated chicken coops which are closed against predators. Nests are rarely constructed for the hens and children seek the nests.

In 1971, all had chicken. Valued at about $10.00 each, eggs bringing $0.50 in that year.

Source: Rada (1777)

Only chickens were mentioned as poultry.

Apparently, there has been only a few attempts on the part of the Maicoba Pima Bajo to maintain the introduced European honey bee (Apis mellifera) which is kept by some of the blancos who may sell honey to the Indians. The introduced bee is called mumu by the poblanos. Several Pima stated that they had attempted to keep the domestic bee but that the insects "froze" during a very cold spell; the Indians say that securing wild honey (see Chapter VI) is an easier thing than maintaining the domestic bee.

1. Menudo (swa'ar).

Wash the tripa (hihi, hihira, hihar) very well and cut into pieces which are placed in water. Add any one or several of the following condiments: orégano, a small plant called tu'utum or tö'inkam, which is not identified; another orégano (Origanum sp.*), which is a somewhat

---

* Perhaps Origanum vulgare, an Old World plant which has, according to Darlington and Janaki Ammal [(1945), 274], been naturalized in the New World.

---

larger plant but also known as tu'utum or tö'inkam; the Old World garlic (Allium sativum var.)*; an ipazote (Chenopodium ambrosioides); and

---

* Uphof (1968), 25.

---

garlic (Allium sativum var.) or onion (Allium cepa), both of which are Old World introductions.* When the mixture has cooked for a time add some nixtamal, mix thoroughly and cook again for about three hours.

*Ibid., 24-25.

2. Pan con cueso.

According to Dolores Velaśquez Duarte, pan con cueso is occasionally prepared by the Maicoba Pima. Prepare cheese. Grind elote corn upon the metate and mix the corn with cheese. Roll the material into balls which are mashed into pats. These pats are placed upon a metal sheet which has been greased, and are baked in a c rude oven made of clay, fired from below and above.

3. Cheese.

Use milk from cow or goat. Place the milk in a large olla and use a curdling agent obtained by purchase (a pastilla), or a portion of the stomach of a cow or deer. The time required for curdling the milk depends upon the agent used. Stir the curdled mixture with a wooden spoon. When the whey comes to the top the hard particles will settle to the bottom. Remove the whey and discard. Add a bit of salt. Place the mixture upon a clean surface and mash until the substance is partially dry. Place the mixture in a round or square wooden frame for molding. Set aside for one day.

4. Parts of animals utilized as food.

As noted above, domestic animals are killed in times of extreme food shortage, and there reports that occasionally a "hungry" Indian family will kill a cow belonging to a mestizo or to a relative. The animal is roped, tied up and turned upside down, and then stabbed in the throat with a long knife. Smaller animals, such as pigs and goats, are held down and stabbed in the vicinity of their hearts until the bleed to death.

With respect to the preparation of meat of cow, pig or goat, cut the meat into strips, put salt upon the strips, smoke them for a time--and the term that refers to smoking of meat is ga'i ku'ubiš man--and then hang them in the sun to dry, and when wanted for use soak a bit before frying.

The following parts of cow, pig or goat are prepared as foodstuffs:

A. Blood (u'ur, urha, ur) is cooked with orégano (Origanum sp.), which is probably an Old World plant naturalized in the New World,*

---

* This orégano may be Origanum vulgare which Darlington and Janaki Ammal [(1945), 274] indicate has been naturalized in the New World.

---

until it thickens; the dish is eaten immediately.

B. The heart (íbdak) is boiled or fried.

C. The kidney (ka'ami, kabablikdara) is boiled or fried.

D. The liver (numar) is boiled or fried.

E. Tripe (hihi, hihira, hihar) is used in preparing menudo and pozole.

F. The lungs are boiled.

G. Testicles (sushahar, su'ahar) are fried. The sack that contains the testicles is dried and used as a container for seeds. Or, the bolsita may be used as a cover for a saddle horn.

H. Marrow (ógar, ó'oga) of cattle and pig is eaten.

I. There was disagreement about whether or not brains (ógar, óga'i, óvag) were eaten. Some of the older Pima maintained that they are eaten, whereas equally old Pima state that brains are too important to be eaten, since they serve in softening skin during the tanning process.

J. Bones (ò'or) of pig or cow are crushed and prepared in a soup.

Pozole de carne

Boil some meat and add crude corn, and boil as pozole de carne.

DATA AS OF 1971

1. For killing a cow at yúmari, tie it up and stick heart with iron point.
2. For killing a pig, tie up and stick heart with azador.
3. For killing a goat, tie up and slit throat.

Parts of Animals Eaten

1.	Brains:	Cow	Pig	Goat
2.	Marrow:	Cow	Pig	Goat
3.	Heart:	Cow	Pig	Goat
4.	Kidneys:	Cow	Pig	Goat
5.	Tripa: .	Cow	Pig	Goat
6.	Testicles	OXEN		Goat
7.	Blood:	Cow	Pig	Goat

Add ajo, cebolla, pimiento, condimentos.

Sausage: made from pig meat; mash the meat; add vinager, garlic, orégano

Maicoba Gramineae (12) 60

Triticum aestivum

Fresh stalks of this Old World plant* serve as fooder; the Indians

* Uphof (1968), 527.

note that dried stalks are too "sharp" for such use.

Maicoba Gramineae (12) 60

Bromus sp.

A browse plant for animals.

Zea mays

Elote cornstalks (hu'un va'aga) serve as fodder for animals after the ears of corn (hu'un va'akam) are removed. Dried corn stalks are similarly used. The latter are frequently stored in the forks of trees, or upon platforms that are built in the trees.

Cyperus sp.

This zacate bolita has roots which are much sought by pigs.

Aeschynomene sp.

A pasturage plant at Maicoba.

The following oaks supply acorns that are eaten by pigs at Maicoba:

Quercus endlichiana	encino roble	ha'awa
Quercus oblongifolia	encino chino	
Quercus durifolia	encino cusi negro	šipa
Quercus viminea	encino cusi	ka'al
Quercus chihuahuensis	encino peludo	vokotu'a; vopkomtu'a
Quercus Toumeyi	encino chino	ho'ičkam; kapuku'a kusi
Quercus hypoleucoides	encino barril	
Quercus arizonica	encino blanco	t'ua

Maicoba Leguminosae (53) 60

Diphysa sennioides

Animals browse upon this shrub, a palo dulce.

Maicoba Leguminosae (53) 60

Galactia sp.

This frijolillo is a small climbing vine upon which animals browse.

Maicoba Leguminosae (53) 60

Indigofera suffruticosa

Claimed to be an excellent pasturage plant (?).

Maicoba Amaranthaceae (35) 60

Gomphrena nitida

A pasturage plant that appears along streamways at Maicoba.

Mimosa laxiflora

This gatuña provides excellent foliage for browse by animals.

Maicoba Oxalidaceae (55)

Oxalis stricta

This oreja del ratón serves as a pasturage plant.

Mascagnia macroptera

This trailing vine, known as güirote or gallinita, appears upon fences or upon other plants in canyons near Maicoba and Yécora; the Pima state that the plant is a favored browse plant.

Linum avistatum

A pasturage plant at Maicoba.

Maicoba Onagraceae (90) 60

Oenothera rosea

Said to be an excellent browse plant near Maicoba.

Maicoba Sterculiaceae (76) 60

Waltheria indica

This yerba del pasmo serves as an important pasturage plant; it is found along streams at lower elevations in canyons near Maicoba.

Maicoba Cactaceae (91) 60

Opuntia leptocaulis

Animals are said to eat the fruits of this sibuli which appears in profusion in canyons near Maicoba.

Maicoba Cactaceae (91) 60

Ferocactus Wislizeni

Maicoba Pima state that fruits of this biznaga are eaten by stock.

Maicoba Cactaceae (91) 60

Opuntia sp.

Animals eat the fruits of this cholla which grows in canyons near Maicoba.

Maicoba Verbenaceae (114) 60

Lantana achryanthifolia

Said to be an excellent browse plant near Maicoba.

Maicoba Verbenaceae (114) 60

Verbena litoralis

An important pasturage plant near Maicoba.

Maicoba Verbenaceae (114) 60

Verbena carolina

Claimed to be an important pasturage plant.

Maicoba Solanaceae (116) 60

Nicotiana glauca

According to the Pima at Maicoba, this plant, which appears along streams in the canyons to the west and south of Maicoba, is eaten by cattle.

Maicoba Labiatae (115) 60

Salvia sp.

This salvia del monte serves as a pasturage plant.

Solanum seaforthianum

Herders drive goats to streamways at lower elevations where the animals browse upon stands of the plant.

Solanum demissum

According to the Maicoba Pima, pigs eat the root of this potato-like plant.

Maicoba Scrophulariaceae (117) 60

Pagesia procumbens

Said to be an important browse plant eaten by animals maintained by Pima in canyons and arroyos near Maicoba and Yécora.

Maicoba Scrophylariaceae (117) 60

Mimulus sp.

This verbena del campo is an esteemed pasturage plant near Maicoba.

Maicoba Rubiaceae (125) 60

Richardia sp.

A Mexican clover that is an important browse plant at Maicoba.

Maicoba Bignoniaceae (118) 60

Tecoma stans

This perrito which appears along canyon streamways near Maicoba serves as a pasturage plant.

Erigeron divergens

Claimed to be an important browse plant near Maicoba.

Erigeron delphinifolius

This margarita del campo is an important browse plant near Maicoba.

Maicoba Compositae (130) 60

Vernonia sp.

Claimed to be an important browse plant near Maicoba.

Maicoba Compositae (130) 60

Tagetes sp.

An excellent browse plant, according to the Maicoba Pima.

Maicoba, Pennington

Chapter 8

Notes &

Draft

According to information obtained in 1968 and 1970, the following dates are marked by festivals at Maicoba.

1. Dia de San José (March 19).

At every house where there is a lad named José there is a party on the evening of March 18th, there being much drinking of tesgüino by the family and immediate neighbors who dance to music from radio, guitar, phonograph or violin. There are about fifteen cheaply made spring-phonographs owned by Maicoba Pima who either own or can borrow musica ranchera records. There may be as many as five battery radios owned by Maicoba Pima. The dancing is of the arm-in-arm variety. Federico Rodríguez Romero noted that there were only two violins at Maicoba and perhaps five guitars; he further noted that no one really knew how to play these instruments.

2. Semana Santa.

This Easter celebration is one of the most important fiestas held at Maicoba, the others being those of the yúmari dance (April)

and the San Francisco Festival (October).

The Easter celebration begins on the Wednesday before Easter. Those who will play the part of fariseos secure natural pigments from certain places where tierra blanca, sata colorada, sata amarilla and sata verde may be removed from veins in rocks. A black color is obtained from a carbón de pino, which is smeared on the body. The tierra blanca, sata colorada, sata amarilla and sata verde are mixed with water and applied to the body with a chicken feather. [see reverse of card]

There are usually twelve to fifteen fariseos at the beginning of the celebration but the number increases by the end of the festival, since the fariseos will be constantly fighting the soldiers (the "people") and each man who is defeated by a fariseo will become a member of the fariseo group and indeed will paint his face. This "fight" is, of course, a mock fight.

There are judíos who will wear masks and who always try to hit or punch the the Cristo with date (Arundinaria longifolia) spears, while at the same time the fariseos will try to keep them away, by pushing and shovi

Formerly, at Holy Week celebrations the Maicoba Pima used green leaves and flowers of a saúco (Sambucus caerulea) in preparing a green dye used as body paint. It is claimed that leaves of certain peach trees, presumably the introduced peach trees, were used in preparing a blue dye for similar use. However, no one could recall the details of how these dyes were prepared.

The Indian gobernador is the organizer of this festival which is held in the plaza at Maicoba village. Many of the blancos participate in the festival which is generally marked by a lessening of the tension that exists between blanco and Indian.

The first procession takes place on Thursday morning before Easter. Four men carry a platform upon which an image of Cristo has been previously placed. Under the Cristo three large adobe bricks are placed, so that those who carry the the platform suffer a form of pentinence. As the procession moves about the village square bezadores (people who know how to pray, and these people are mostly blanco) pray the pasión del Señor. The judíos attempt to reach the platform but are prevented because of the presence of the fariseos about the platform. The fariseos and the soldiers accompany the platform to the church late in the eveing and all spend the night in the church, looking after the Cristo while the judíos attempt to get at the Cristo with their reed spears.

On the Friday before Easter there is a repeat of the Thursday procession, there being processions throughout the day. The last procession

is held at 11 PM, and at that time the Cristo is carried into the church.

At 10 AM on the Saturday before Easter everyone sings the gloria in the church. After the singing of this prayer there is a great confrontation before the church, between fariseos and soldiers, who wrestle. The judíos prod the wrestlers with their otate spears. When the fariseos outnumber the soldiers the fiesta is over.

3. Yúmari (ba'asad).

According to the older Pima, yúmari (ba'asad) was once performed three times a year, in November (to celebrate the harvest), in March (to herald the coming of las aguas) and in May (in honor of the coming planting season). Today, the yúmari is danced only in March. The important reason for holding the yúmari today is to encourage the early beginning of las aguas (duki'a). The yúmari may last about thirteen days, mostly because of the time required for fermentation of several batches of tesgüino. That is, the celebration firsts last three days and nights, and will be repeated twice, leaving a certain number of days

and nights--at least two days are required for fermentation of tesgüino--between each of the three periods.

Four mayores (organizers) handle the arrangements. These people are usually older men from families long associated with yúmari celebrations; the men apparently are selected by mutual agreement. These mayores solicit provisions for the first day of the celebration, particularly batches of tesgüino which must be fermented if there is to be drinking of tesgüino on the first day of the yúmari. Food is requested (begged) of blanco and Pima alike. The mayores send correos to different ranchitas to invite people to the celebration.

A special patio is swept by the women and other people under command of the mayores. This patio is a rectangle which is located near the church. At one end is a stone upon which the cross will be put.

The first twenty-four hour period of the yúmari begins in the morning, when women grind the corn which will be cooked and strained and placed in special ollas previously arranged at one end of the patio. There may be as many as ten such ollas. During the first three day session of the yúmari women will prepare tesgüino in order to have a

sufficient amount on hand, that is, after the drinking begins, during the evening of the first day of the celebration.

It is claimed that nobody is permitted to drink during the evening of the day yúmari begins except those people who maintain watch at the patio; if the others drink tesgüino they must drink it at their homes.

At about 8 PM of the day before the yúmari begins a procession goes into the church and a persona de experiencia is charged with the task of bringing the cross to the patio while the remainder of the people pray oraciones. No songs are sung. When the cross is taken to the patio the mayores tell the women, who have been previously selected, to begin the danching, while the sonajeros begin playing and singing. The sonajeros stand at the opposite end of the patio from the place where the cross is placed. There are two musicians, a guitar and a violin player who begin playing at the same time the sonajeros begin their performance. No special clothing is worn. A reed flute may be played by a musician who stands near the sonajeros.

The group of women dancers form a line and face the cross. They then turn and move in a line to the end of the patio, while performing a kind of jumping dance. This dance continues for about an hour, with the women moving back and forth upon the patio. After the dancing ends most of the people will go home or to camps near Maicoba. Only the veladores remain at the patio; these people are permitted--by the mayores--to drink tesgüino which has been prepared earlier.

Late on the second day the people return to the patio, bringing food and leña. At 8 PM the performance of the pevious night will be repeated and everything will be the same except for the tesgüino which is shared by everyone. Care is taken to husband the tesgüino so that there will be a sufficient amount for the next day, that is, if sufficient amounts of the beverage have not been prepared for fermentation.

The evening of the third day is a repeat of the activities of the second day and everyone drinks tesgüino. The cross is taken back to the church by either the man who brought it to the patio or by some other person; the bearer of the cross is accompanied by a pascolero

and the sonajeros.

After the cross is placed within the church, one of the majores invites everyone to the second session of the yúmari which will take place as soon as maize can be got ready for manufacture into tesgüino.

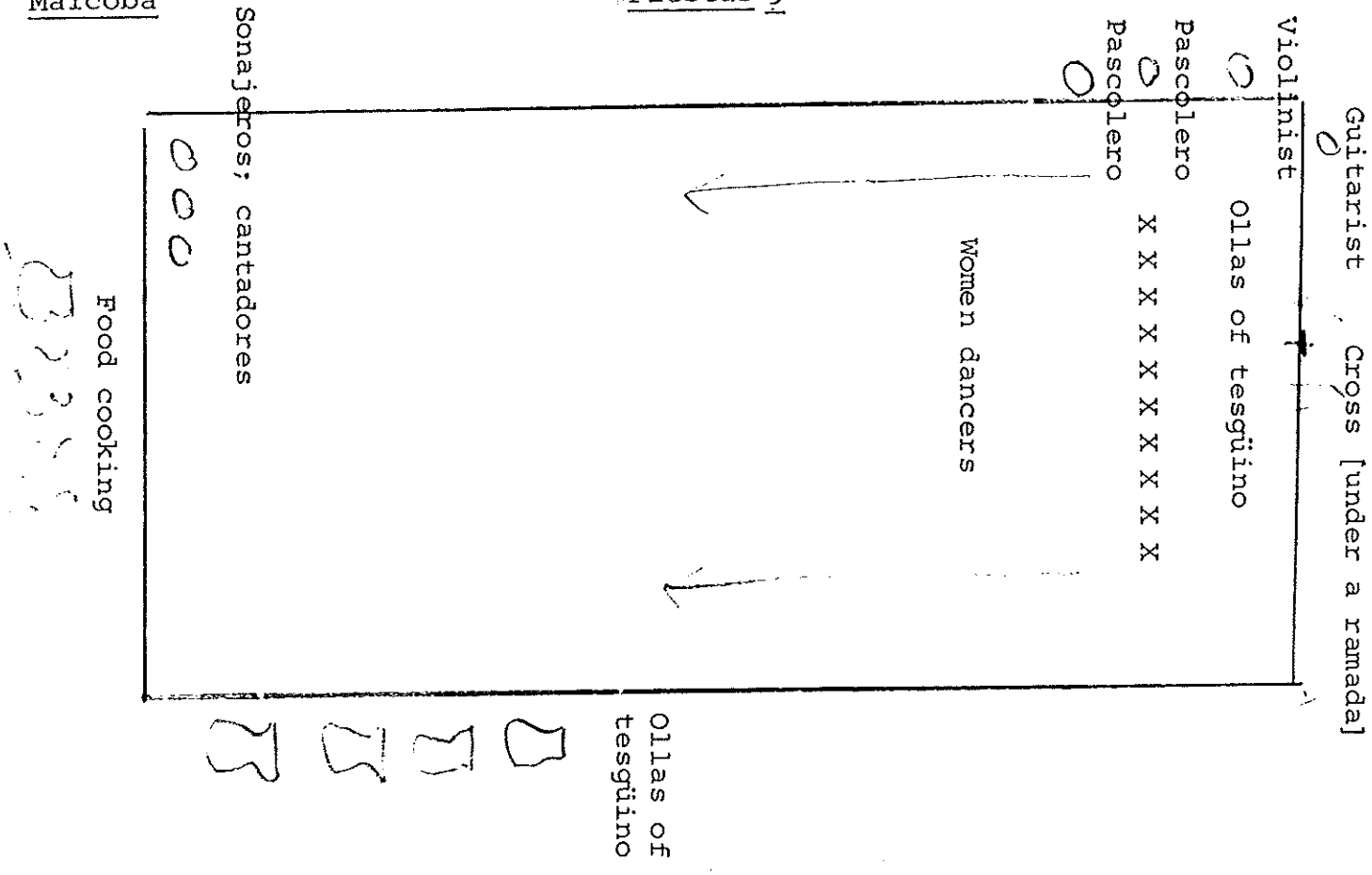
The second session of the yúmari is but a repetation of the first session, and so is the third one. At the end of the third yúmari session one of the mayores thanks everyone for participating, and tells them that he hopes to see them all the next year.

Musicians and the sonajeros are the same year after year.

The Maicoba Pima governor seems not to play the important role in yúmari as does the governor of the Pimaaat Yepáchic.

4. Día de La Santa Cruz (May 3).

Dances are held at the plaza in Maicoba. However, no tesgüino is drunk, only mescal. The dancing takes place all day.



At El Pilar and El Trigo (where there were a total of 14 Pima in 1970, there being 8 at El Pilar and 6 at El Trigo), the cross is taken from the church and placed in the plaza under a ramada. Music from record players or radio provides music for arm-in-arm dancing.

5. Día de San Juan (June 24th).

There is much drinking of tesgüino at ranches where there are people named Juan or Juana. The dances are the same as those held on the Día de San Jose. Neighbors are invited.

June 24th is the official day for the beginning of las aguas. Federico Rodríguez Romero noted that almost all of the Pima bathed upon this day but he stated that there was no "ritual bathing" of the sort reported by Dunnigan.

6. Día de Santa Rosa (July 31).

There is much drinking of tesgüino at ranches where there are girls named Rosa. The dances are the same as those held on other Saint's days.

7. Día de Marías (August 15).

Same as 6, 5, and 1 above.

8. Día de San Ramón (August 30).

Same as 7, 6, 5, and 1 above.

9. Día de San Francisco (October 4).

This is the festival day at Maicoba. Many people come, from Chihuahua and throughout Sonora, and from the surrounding area. There are bull fights and horse races. It is claimed that no tesgüino is drunk, but that beer is the favorite drink, and much tequila is drunk. The Padre comes on the 3rd and remains until the 5th. During the 4th he is in the church, to baptize children and anyone else who wishes to be received into the Catholic Church. Those Pima who can pay for baptism contribute from four to six pesos. The very poor Pima pay nothing.

10. Día de Los Muertos (November 2).

Much drinking of tesgüino on this Day of the Dead. A bit of tesgüino is taken (in a bottle) to the graves of the Pima. A few seeds of beans, squash and corn are put upon each grave, and a man who prays--a man who has experience in praying, usually a blanco--receives the seeds as a present.

11. Navidad (December 24).

On December 24, a bit of tesgüino is drunk and buñelos (flour tortillas which have been fried and which have sugar upon them) are eaten.

---

12. At Yepáchic (1971), the school children paraded about the plaza and down the road towards the old sawmill on the morning of September 16, carrying flags, and marching in formation, supervised by the teachers. Federico and Juan saw this procession and noted specifically that such a celebration WAS NOT HELD AT MAICOBA.

The Maicoba Pima have much to say about the story of their patron Saint, which is inextricably tied up with Moris, somewhat to the south of Maicoba. There were, as the story goes, many Pima at Moris long ago. The blancos arrived in Moris and mingled with the Indians at first. Finally, when the blancos took charge of Moris. The Pima brought their favorite Saint to Maicoba. Blancos from Moris came to steal it and took it away. However, on the road the statue became "heavy" and so the blancos decided to return the statue to Maicoba. But when they began the journey back to Maicoba the statute became "light" and they decided to return it to Moris after all. However, the statue again became "heavy" and so it was returned to Maicoba where it was left in a private house belonging to a blanco. All of the Pima looked for the statue, found it, and placed it in the church. About 1955 it was removed from the old church and placed in the new church, to which the blancos have the keys. The Pima claim that the blancos removed the statue because they wanted the money that was "given" by the crowds of people who came to Maicoba for the Feast of San Francisco, on October 4.

Flutes

Flute or whistle are called kwikatč among the Maicoba Pima. Although these instruments are rarely used today except at Easter, yúmari celebrations and at the San Isidro and Virgen de Guadalupe celebrations, there was apparently much wider use.

Flute or whistle were and are prepared from cane obtained in hot canyons to the west and northwest of Maicoba and to the south at Moris. The cane is otate (Arundinaria longifolia) or the Old World introduced carrizo (Arundo donax)*. The flute is fashioned of a section

---

* Uphof (1968), 53).

---

of cane the length of which varies according to the distance between the nodes of the cane. There are four holes, one small hole near the mouthpiece and three larger holes equally spaced along the instrument. Apparently, there is no particular mouthpiece, the cane being cut off evenly at the point of the node.

Maicoba Fiestas 61

Nolasco Armas, 1969

page 210: Fiestas

(1) Día de las Madres (May 10), celebrated in the schools!

(2) Fiesta Patria (September 15)

(3) San Francisco (October 4)

Rasping Sticks

Formerly, acoording to older Pima at Maicoba, rasping sticks were fashioned from any hard wood and were about 18 inches in length. The notched edge of such sticks was pulled back and forth across the top of a medium-sized olla.

Musical Bow

The Maicoba old Pima recall the use of what must be a form of a musical bow. It was stated that one just "struck" a bow with an arrow.

Drum

According to Dolores Velásquez Duarte, her father spoke of a drum used during his childhood. The instrument was fashioned from the wood of a sauz (Salix Bonplandiana) or guásima (Guazuma ulmifolia) which grow in warmer canyons south, west and northwest of Maicoba. A piece of wood was fashioned in the appropriate length with an axe, and was soaked until it could be bent into shame. If a metal band were not available to hold it in place then rawhide was used, being wetted thoroughly before being tied around the drum. The drum was covered with a skin, cut to fit either side, there being an additional piece of skin which covered the round portion of the drum. The two outer pieces were laced together with rawhide thongs.

According to Juan Gonzáles, Federico yet knows how to and yet fashiones drums from deerskin and easily worked wood.

Maicoba Drums 66

Brugge (1961), 13

"There is a reference, in a tale about Apache, of the use of a drum, a large one, made of a hollow log with rawhide heads, that was used to sound the alarm and to summon the people in case of attack"

1. Violins.

Older Pima at Maicoba note that violins were manufactured at Maicoba hardly a generation ago. Two kinds of woods were used, a species of pine (huka) and a saúz; the latter was obtained from canyons in the hot country. These woods were used in fashioning the several parts of the violin box. A hard wood was used for the arm of the instruments. Glue was prepared from several sources. The roots of an unidentified kiki belonging to the family Orchidaceae were boiled until the liquid was almost evaporated. When cooled, this gum was said to be superior to that prepared from any other materials, such as mesquite gum, from trees found in canyons west and south and north of Maicoba, and trementino de pino which was mixed with pinole. Yet another source of gum used in preparing a glue was a palo cenizo, a tree with a smooth bark and distinguished by pink flowers, obtained from canyons near Moris, Santana and Tepoca; gum from this tree was manufactured into glue exactly as that prepared from kiki. The bow strings were fashioned from nervio of a zorrilla, or from the tail of a horse. Sometimes, wire was used for bow strings.

Maicoba Musical Instruments: Violins, Banjos, Guitars 1 67

2. Banjos and guitars.

There were four commercial banjos owned by Maicoba Pima in 1968 and at least two commercial guitars. Some of the Pima stated that guitars were manufactured by the Pima, from the wood of saúz (Salix Bonplandiana). The shaped pieces of the box of the instrument were glued together with the same glues used in manufacturing violins. Strings were of wire.

Data as of 1971

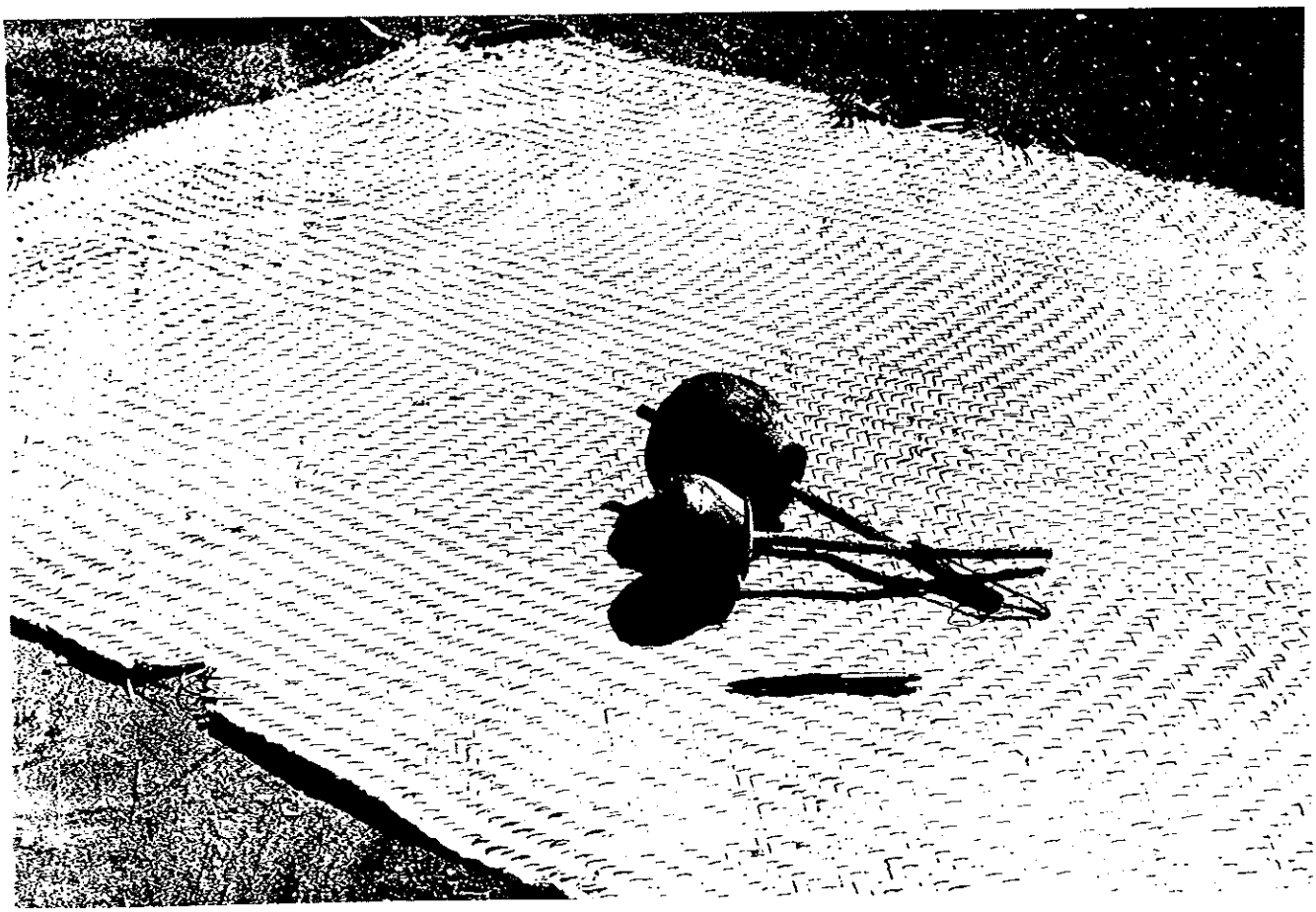
Juan Gonzales noted that his grandfather played the violin, and commented that somtimes the grandfather would say that he was playing a deer dance--then the children would dance like a deer. The grandfather would then say that he was playing a squirrel dance, and the children would dance like a squirrel, and so on.

Guitars are purchased in Obregón, for from $125.00 to $200.00 (pesos). They are used in dances at Maicoba, that is, among the Pima.

Rattles (sa'uka) fashioned by the Maicoba Pima are of two kinds, those made from the bottle gourd (Lagenaria siceraria) which is cultivated in gardens or in fields, and from a coccoon (tünyü'il) that appears upon the madroño tree (Arbutus glandulosa and A. arizonica).

Gourds from the bule are opened a bit on top and bottom, dried, cleaned of their interior and a bit of sand is inserted. Any soft wood is used in forming the stick which is thrust through the rattle and glued to the bule with any one of the glues prepared for manufacturing violin or guitar.

The coccoon rattles are made as follows: the coccoons are removed from the tree, dried, and grains of sand are inserted. The coccoons are then sewed up and anchored to an ixtle fiber cord about fourteen inches in length. These rattles are worn about the ankles of pascoleros who perform in the yúmari dance.



1. Ramadæ.

Toward Moris and Mulatos, where it is quite hot, ramadas are yet built. Four poles are implanted in the ground and the roof frame is constructed of poles and covered with brush. These ramadas are inavariably square in design.

2. Brush and pole houses.

Federico Rodríques Romero spoke of brush and pole houses of the time of his youth. Poles were fastened together at the top of a pyramid-like arrangement and brush was entwined between the openings in the poles. Such structures are yet built as huts for crop watchers where milpas are maintained not far from regular habitations of the Pima.

3. Tableta houses.

In lieu of poles, tabletas may be arranged in a pyramid-like arrangement and covered entirely with brush. These were said to be common at the ranches about the time of the Mexican Revolution.

4. Thatched houses.

According to Pima at Maicoba, thatched houses are constructed today near Moris and Navisigame. *Otate (Arundinaria longifolia) and the introduced carrizo (Arundo donax)* are used; such structures have sides

---

* Uphof (1968), 53.

---

that are smeared with mud.

Games are known as tutuk or do'ida among the Maicoba Pima, and the following games are mentioned:

1. The kickball game.

The kickball game (vapi'ak or vo'omka) is rarely played by Maicoba Pima of today, but according to the older Pima it was much played about sixty or seventy years ago. There were commonly two teams, numbering from one to as many as twenty persons per team. The teams were invariably from one locale and it was explicitly denied that there were competitive races, as between teams from Maicoba and Yepáchic, or between teams from Maicoba and Yécora. Usually, one team ran a course that was located arriba, the other abajo. Care was taken to see that the two courses were approximately the same in length and degree of difficulty with respect to terrain. Each team had a referee. The ball (kavorik) was fashioned of wood and could not be touched with the hand except when it got caught in a crevice, when it could be removed either by hand or with a stick. If a ball was tossed with the hand the team to which the tosser belonged lost the race. There was much betting and bets were called tu'ag. Clothing, corn, cattle, arms and household

equipment were bet on the outcome of the race.

When the game was played in "hot country", as near Yécora the two teams ran the same course and one team had a marked ball, generally a ball marked with almagre, which gave the object a reddish tint. Also, when the game was played in "hot country" the captain of one team might wear a red ribbon, and each team ran in a different direction, but upon the same course.

2. Quince was played formerly, and the game was described exactly as that patole played by the Tepehuán; this game was called burugdam.

3. An arrow game was played, and was described exactly as that played by the contemporary Tepehuán.

4. Cuatro (tetutwig), which was played with discs of stone, clay or wood, was placed as among the contemporary Tepehuán.

5. A game called taba (o'or) was played with a bone. The count was one or two, depending upon the side that comes up when the bone is tossed and fell into position upon the ground.

6. Palillillo (kapči) was a rough game played by two teams, there being five or six people upon each side. There were two captains. A wooden ball was tossed into the air in the midst of a rectangular shaped playing field, and the two captains competed with spoon-shaped clubs for the ball. There were two goals, and a guard was stationed at each goal, which was but a line drawn upon the ground and marked with stones. So many goals constituted a win.

7. Children's games.

A. Palanca (see-saw).

B. Commercial tops.

C. Children attach a string to a mayate (Cotinis mutabilis) and permit the insect to fly. This mayate verde is known as hum, as

opposed to an unidentifed mayate, a black one known as bi'itc vol, which is said to be unclean because it eats excrement (bi'itč)

D. A calabicillo (Cucurbita foetidissima) supplies fruits used by children in a kicking game.

Games are known as tutuk or do'ida among the Maicoba Pima Bajo, and according to the older indigenes were once an important aspect of everyday life.

The kickball game (vapi'ak or vo'omka) is rarely played today, and indeed it is hardly known among the younger Maicoba Pima except as a game played by the Tarahumar. Older indigenes at Maicoba insist that this game was much played by males about two generations ago. There were generally two teams, numbering from one to as many as 20 individuals per team. The teams were invariably from one locale, and it is explicitly denied that there were competitive races between locales, as for example, between teams from Maicoba and Yepáchic, or between teams from Maicoba and Yécora.

Usually, one team ran a course that was located arriba, the other abajo, in order that the two teams not molest each other; however, in places where there was a great deal of flattish land, as on the Yécora Plain, the two teams played in the same

general area, with one of the balls being marked by a reddish tint obtained by rubbing the ball with almagre. Wherever the race course, care was taken to see that the two courses were approximately the same in distance and degree of difficulty with respect to terrain. Each team had a captain who began the race by tossing the ball forward with his foot. Each team also had an observer who was expected to see that no one cheated. If the two teams ran the course in the same general area the captain and observer of one team wore a red ribbon.

The ball (kavorik) was fashioned of any easily worked wood. Certain rules were recognized with respect to the ball. It could not be touched with the hand except when it got stuck in a crevice, at which time it could be removed by hand or with a stick. If a ball was tossed with the hand the team to which the tosser belonged lost the race.

There was much betting and bets were called

tu'ag. Clothing, corn, cattle, arms, and household goods were bet on the outcome of a race.

Older Maicoba Pima refer to the playing of quince or patole in the time of their grandparents. Unfortunately, only the most meagre of data pertaining to this game are available. It is stated that four whole cane sticks were used, and that the cane used in fashioning the sticks was brought in from hot canyons to the west of Yécora. Each cane was marked in a distinct fashion, and the game was played upon a small square court of holes made in the ground. Two players used small stones as pawns.

Formerly, an arrow game was played, in which two or three men shot arrows at a line drawn upon the ground at some distance from where the men stood. There was much betting on this sport.

Cuatro (tetutwig) or quoits, is yet played by the Maicoba Pima. Each of the two male players used two coins or smoothed stones obtained from a stream bed. The stones or coins are marked for identification.

Stones or coins are tossed, in turn, by the players towards two holes made in the ground about 20 feet apart. A score of 15 points or more, with points being awarded according to the arrangement of the stones or coins as they fall to the ground within or near the hole.

Formerly, a game called taba (o'or) was played with a bone. The count was one or two, depending upon the side that came up when the bone was tossed and fell into position upon the ground.

The older indigenes refer to palililllo (kapči), a very rough game played by men hardly a generation ago. There were two teams, there being five or six people upon each team. Each of the teams had a captain. A wooden ball was tossed into the air in the midst of a rectangular shaped playing field, and the two captains competed with spoon-shaped clubs for the ball. There were two goals, and a guard was stationed at each goal, which was but a line drawn

upon the ground and marked with stones. The two teams played back and forth upon the field until a certain number of goals were made by one of the teams. As with the kickball game, there was much betting upon the outcome of palilillo.

Among the Maicoba Pima disease (enfermedad) is known as ko'okdag or kokodag. No Pima could recall the native term for medicine (remedio) but certain verbs used in connection with medicinal potions are remembered. The verb curar (to cure) is do'arva and the verb sanar (to relieve someone) is do'adgwa. An ill person is known as ko'okag (persona enferma). Like other rural peoples of Mexico, the Maicoba Pima talk greatly of illness and remedies for such illnesses.

The Maicoba Pima agree that the common causes of death (mumkin) among children are fever, diptheria, diarrhea, complications from measles, and something called tablazón which is described as being characterized by a swelling below the stomach. Children afflicted with this disease cannot eat; they can only drink water, and live for about a month upon onset of the illness. The common cause of death among the old people is fever, an inability to eat or to digest food, general weakness and pneumonia. Almost everyone at Maicoba comments on the prevalence of colds during the winter and at the time of the change of seasons.

As of 1968, 1969 and 1970 it was almost impossible for Maicoba Pima to secure professional medicial attention since no one could afford the cost of a flight out of Maicoba by way of the small airstrip at the village. Mestizos often went by plane to Hermosillo for medical attention. Until several years ago, the Pima could obtain free treatment at a Seventh Day Adventist Clinic at Yécora; however, apparently because of a conflict between the Doctor at Yécora and directors of the clinic the facility was closed. Few Maicoba Pima can muster funds to pay even the small fee required by the Doctor at Yécora.

Older people at Maicoba speak freely about curanderos (ʞulardam) and brujos and insist that everyone recognizes the differences between the two. Brujos are referred to as hombres malditos, who cast spells upon people. The curanderos are individuals who can cure those people who are put under spells by brujos or hecicheros. Curanderos are referred to as dotores who can cure those who have been hexed and the Indians state that the curanderos do not concern themselves with applying medicinal potions prepared from plants or animals. According to informants at Maicoba there

is one brujo yet living at the village and these informants refer by name to three brujos now dead. Maicoba Pima refer to two curanderos which were subject to call by Mountain Pima in 1970; one of these men lived at Yepáchic, the other at Maicoba. It appears that the fathers and grandfathe of the two curanderos available to Maicoba Pima were curanderos.

It is likely that careful field investigation among the Maicoba Pima would result in a great amount of information concerning activities of curanderos, particularly because of data obtained during 1970. No Maicoba Pima would discuss a specific example of a person had been been placed under a spell (dañada) during 1968 but in 1970 an informant was quite explicit about the case of a woman termed Juana Andrada in this account. This woman resided in Maicoba and in 1967 when she was about 67 years of age, became very ill. Her family did not know what to do but they were convinced that she had been hexed and that there was nothing to be done but to call the regular curador or curandero who lived near the village. This man was about seventy-five years of age and was considered to be a fine curandero. However, he was unable to cure Juana and her family decided to enlist the services of a better-kn

curandero who resided in Yepáchic. This man agreed to come to Maicoba for a fee of $200.00 ($16.00 US).

The Yepáchic curandero arrived in Maicoba with his peyote in a small leather bag; the peyote is described as a bat-like creature which is called hívihin in Pima and according to all of the older informants is used to place an evil spell upon some or is used in removing that spell. The creature is let loose in someone's house at night and is told by its owner to sit upon the one who is to be hexed, while that person is sleeping. On the following day this person will become ill. The curandero first went to the house of Juana Andrada and rubbed her with saliva (tunibar). He then went to the house of a friend for the night and while sleeping he "saw" the brujo who had hexed Juana sitting by her bed. He also noted that the peyote belonging to the brujo was sitting upon Juana's body. The curandero arose and with his peyote went to Juana's house. The brujo refused to go away & the Yepáchic curandero ordered his peyote to fight that one belonging to the brujo. Although there were other people in the house with Juana no one except the curandero could see the brujo; Juana's relatives could neither see the curandero and the brujo or hear the conversation between

the two men. The peyote that belonged to the Yepáchic curandero defeated that belonging to the brujo and the latter left Juana's house, taking his mangled peyote with him.

On the following day Juana Andrada was perfectly well. The Yepáchic curandero then told her family who was responsible for her illness. The family immediately went to see the brujo and "forced" him to leave the Maicoba area, for "other parts."*

---

* During the summer of 1970 there was much talk among Maicoba Pima about this brujo who had not returned to Maicoba since his departure in the summer of 1967.

The Maicoba Pima refer to diseases or ailments within the following categories: respiratory diseases; skin diseases; malaria; eye diseases; childbirth; stomach disorders; infections associated with bites and stings and miscellaneous ailments such as open wounds and fright (espanto). Generally, the treatment of all diseases and ailments involves the use

of plants obtained locally, grease from certain animals, pitch from a species of pine, copal, sata colorada, a bolita de encino, and inexpensive patent medicines such as aceite de comer, aspirin and Vicks.

Respiratory diseases.

Pneumonia (šikok pulmón) is the most dreaded of the respiratory diseases and the Pima state that there is little that can be done to "cure" this disease. Medicinal teas prepared from plants are claimed to alleviate the discomfort caused by pneumonia. Catarrh (sos) is treated with brews made from plants. Whooping cough (tosferina) is generally treated by rubbing the throat and chest with grease from the carcass of a skunk of león. Cough (yóhim) is treated with teas prepared from certain plants. Diptheria is claimed to be common in the sierras and is treated in the same fashion as whooping cough; it is claimed that many children die from this disease and a favorite remedy is prepared from the bolita or an oak tree. Tuberculosis is known as a disease but is said not to be common, and the older Pima could not recall specific details about people who "spat blood" when afflicted with tuberculosis. Bronchitis is recognized but is said to be uncommon.

Malaria

The Mountain Pima are familiar with paludismo and know that chills and fever are associatad with the disease. It is claimed that Pima who live in hot canyons southwest of Maicoba and Yécora and near Moris suffer from fríos (humbim) because of this disease.

Eye diseases

Pinkeye (vupidug) is very common among the small children and is treated medicines prepared from plants in the sierras. Blindness is uncommon except among the very old.

Childbirth

That there are difficulties associated with the physical aspects of childbirth is certain, but the details are lacking. A number of Pima women referred to fever (tóngin) that occurred before and after childbirth (ilobkwim); however, little can be done except to give medicinal teas prepared from local plants. The Pima women display a stoic attitude to difficulties associated with childbirth and smile

when they speak of the attitude of the mestizo women toward childbirth. One old Pima woman noted that with respect to problems of childbirth the blancas were "chicken," stating that when time time for a birth approached a plane was chartered to rush the blanca to a hospital in Hermosillo. Certain teas are prepared from plants and given to women before and after parturition. The tail of the tlaucauche is dried and stored for use in making a tea given to women who are experiencing difficulty in childbirth.

Skin diseases

Itch (kusmin), ringworm (ki'otag) and rash (hihivdag) are the most common skin disease that afflict the Maicoba Pima and such ailments seem to be accepted philosophically; the Indians state that little can be done except to apply Vicks or the grease of skin or león. Smallpox (habiğig) is recognized but is said to be rarely experienced today, because of wholesale yaccination several decades ago. Long ago, the scrapings of a rock (sata colorada) were mixed with water in preparing a medicine applied to smallpox sores; the scrapings that sank to the bottom of the water were discarded and the liquid was applied as a lotion.

Measles (sarampión) and chicken pox (habiğig lo'oka) are common among children every year and the Pima state that little can be done about either disease except to give "soothing teas" to the children.

Stomach disorders

Dysentery (sivakwim) is very common during the early part of that season marked by availability of fresh fruits and the Pima make use of many teas to alleviate stomach pains associated with this ailment.

Miscellaneous disorders

Fever (tóngin) is treated with a number of different plants which are used in preparing medicinal teas. Locked bowels (estrinimento) are treated with purgatives prepared with local plants. Rheumatism (tolč) is treated with lotions prepared by boiling local plants. Grease from the carcass of león or skunk may be applied to aching limbs. Flowers from a sauco (Sambucus mexicana) are dried and mixed with pig grease and rubbed upon back, neck, chest and feet for rheumatism.

Goitre (buche) is said to afflict people who live in canyons to the southwest of Maicoba but the Indians state that this ailment causes no great difficulty except that it makes people look "strange." Hiccough (íptä) is treated with the same potions used to alleviate cough (yóhim). Vomiting (yošim) is treated with the teas given to alleviate stomach pains. Swellings (va'igag) and wounds (morog) are treated with lotions prepared by boiling certain plants. A significant number of the Pima are afflicted with skin blotches (to'a kuk) but no particular attention is given to this affliction unless the blotches develop into a rash (hihivdag). Intestinal worms (hidiš) are said to be quite common among the children who are believed to acquire the worms through the eating of fruits that contain worms; it is stated that almost any of the purgas will eradicate intestinal worms. The Pima state that nothing can be done to alleviate hemmorhaging (ur vakwim) except complete inactivity. Stomach infections (ma'imak) are treated with teas given to alleviate stomach ache.

Broken bones, hernia, open wounds, and "fright"

When bones are broken there is little that can be done except

to prepare splints and secure the forms with rags. Dislocated bones are massaged into place. Open wounds are treated with a number of lotions prepared by boiling local plants, and as well with pitch from any one of the species of pine in the sierras near Maicoba. This pitch also serves as a poultice applied to granos. Leaves of any one of the species of maguey found in the sierras are crushed and applied to sores that are marked by pus (to'alyig). These leaves are also used as a poultice applied to burns.

Hernia is recognized and the Indians state that it generally develops after a hard day of work in the fields. If the individual takes a bath before he is throughly rested a bola develops. Shucks of an elote ear of corn are used to cure hernia; the shucks are placed upon the ground and the foot is rubbed back and forth upon them.

Espanto (totčar) is common among children and adults, particularly when they are bathing and someone approaches. Certain plants are used in preparing teas given to children afflicted with espanto.

Medicinal potions applied to bites and stings of insects and reptiles are discussed in Chapter VI.

Maicoba Disease 12 70

On the cause of illness, etc.

1. May represent a visitation from God, who is angry.
2. Cinders may be put upon brow of a sick person.
3. It is true that people "put their heads" under the mantle of San Francisco.
4. People trust San José to help them cure illness because he was an apostle of God.

On dañarse

The brujos are evil people who are supposed to have some sort of a muñeca which they prick with espinas to hex people.

Like other rural peoples of northwestern México, the Maicoba Pima have little opportunity to seek medical attention available to Mexican nations who reside in urban areas; therefore, an extensive use is made of the plant resource (Chart ___) in the preparation of medicines.

Among the Maicoba Pima disease is known as ko'okdag or kokodag. No individual could recall the native term for medicine, but certain verbs associated with medical treatment are remembered. The verb "to cure" (curar) is do'arva, that of "to relieve" (sanar), do'adgwa. An ill person is referred to as ko'okag.

The Maicoba Pima agree that the common causes of death (mumkin) among children are fever (tóñĭm), diptheria, diarrhea (sivakwim), complications from measles (sarampon)*, and something called tablazón,

---

*Clearly a corruption of the Spanish sarampión.

MAICOBA PIMA BAJO MEDICINAL PLANTS

Cupressaceae	
Juniperus osteosperma	táscate (ga'a)
Poaceae	
Unidentified sp.	otatillo (totkam)
Cyperaceae	
Cyperus sp.	
Unidentified sp.	lebadura or yerba de la calentura
Cannaceae	
Canna sp.	lirio
Liliaceae	
**Allium sativum*	ajo
Amaryllidaceae	
Agave bovicornuta	lechuguilla
Agave Hartmanii	maguellito (tutkim or utkadi)
Agave mayoensis	maguey
Agave Patonii	maguey
Agave Schottii	maguey
Hymenocallis sonorensis	ajo silvestre (sak)
Iridaceae	
Sisyrinchium arizonicum	yerba de la muela

Orchidaceae	
Unidentified sp.	lirio del campo
Salicaceae	
Populus Fremontii	álamo
Salix taxifolia	tarais or sauz
Juglandaceae	
Juglans major	nogal
Betulaceae	
Alnus firmifolia	alamillo
Fagaceae	
Quercus chihuahuensis	encino peludo (vokot'ua or vopkomtu'a)
Quercus durifolia	encino cusi negro (šipa)
Quercus oblongifolia	encino chino
Quercus Toumeyi	encino chino (ho'ičkam or kapuku'a kusi)
Quercus viminea	encino cusi (ka'al)
Polygonaceae	
Polygonum lapathifolium	
Chenopodiaceae	
Chenopodium ambrosioides	ipazote
Amaranthaceae	
Alternanthera caracasana	tianguis (šupu'ul)

Nyctaginaceae	
Mirabilis longifolia	maravilla
Portulaceae	
*Portulaca sp.	amor por un rato
Ranunculaceae	
Clematis Drummondii	barba de viejo
Unidentified sp.	yerba zorrilla
Papaveraceae	
Argemone ochroleuca subsp. ochroleuca	cardón
*Papaver Rhoeas	amapola
Platanaceae	
Platanus Wrightii	aliso
Rosaceae	
Prunus capuli	aguaciki (humpa'il or húmpil)
Prunus Fremontii	capulín
Potentilla Thurberi	yerba colorada
Leguminosae	
Acacia angustissima	durasnillo
Acacia pennatula	algarroba
Caesalpinia pulcherrima	tavachín
Cassia biflora	
Cassia Wislizeni	corcho
Crotalaria sp.	tu'ama
Desmodium sp.	

Diphysa sennioides	palo dulce
Erythrina flabelliformis	chilicote
Eysenhardtia orthocarpa	matariqui
Galactia striata	frijolillo
Lupinus concinnus	yerba loca
Mimosa biuncifera	vinorama de la sierra
Mimosa cabrera	gatuña
Mimosa laxiflora	gatuña
Prosopis juliflora	mesquite
Zornia reticulata	yerba de la víbora

Geraniaceae

Geranium sp.	yerba colorada

Oxalidaceae

Oxalis amplifolia	cañira del campo
Oxalis stricta	oreja del ratón

Balsaminaceae

* Impatians sp.	belén

Linaceae

Linum avistatum	

Rutaceae

Ruta graveolens	ruda

Burseraceae

Bursera odorata	torote

Malpighiaceae

Mascagnia macroptera	güirote or gallinita

Euphorbiaceae

Cnidoscolus multilobus	ortiguilla
Manihot isoloba	cacalosúchil
Poinsettia heterophylla	contra yerba
*Ricinus communis	higuerilla, higuera, or Palma Cristi

Anacardiaceae

Rhus diversiloba	yedra
Rhus radicans	yedra
Rhus trilobata var. anisophylla	yedra

Celastraceae

Unidentified sp.	yerba del pasmo

Rhamnaceae

Condalia Brandegeei	junco

Malvaceae

*Althea rosea	vara
Malva neglecta	malva

Sterculiaceae

Waltheria indica	yerba del pasmo

Fouquieraceae

Fouquieria sp.	ocotillo

Begoniaceae	
Unidentified sp.	cañiro
Onagraceae	
Gaura parviflora	
Oenothera sp.	ocaliti (inkwal)
Cactaceae	
Opuntia leptocaulis	tuna (sibuli)
Opuntia sp.	cholla
Umbelliferae	
Eryngium sp.	yerba del sapo (kwali)
Prionosciadium madrense	matariqui
Prionosciadium Townsendii	saraviki (topoku'il)
Pyrolaceae	
Chimaphila dasystephana	yerba del hígado (numar)
Ericaceae	
Arctostaphylus pungens	manzanilla
Loganaceae	
Buddleia sp.	palo de ocal
Apocynaceae	
Mandevilla foliosa	yerba del piojo (a'at makam)
Plumeria acutifolia	cacalosúchil

Asclepiadaceae	
Asclepias glaucescens	yerba de la liebre (u'uwokam)
Asclepias sp.	inmortal
Matelia sp.	contra yerba (tupuri)
Matelia sp.	inmortal
Matelia sp.	inmortal (tupu'il)
Matelia sp.	yerba del indio
Verbenaceae	
Verbena carolina	
Verbena delticola	verbena
Verbena neomexicana	verbena
Labiatae	
Mentha canadensis	yerba buena
Salvia sp.	salvia del monte
Solonaceae	
Datura inoxia	toloache
Datura quercifolia	toloache
Physalis sp.	coronilla (kokovi)
Solanum americanum	chichiquelite
Solanum nodiflorum	chichiquelite
Scrophulariaceae	
Castilleja rigida	
Mimulus sp.	verbena del campo
Acanthaceae	
Unidentified sp.	cordoncillo

Rubiaceae	
Bouvardia ternifolia	mirto
Caprifoliaceae	
Sambucus mexicana	sauco
Cucurbitaceae	
Apondanthora undulata	sandia de coyote
Compositae	
Achiellea millifolium	alcanforina
Ambrosia ambrosioides	chícura
Ambrosia sp.	estafiate
Artemisia mexicana	
Baccharis Emoryi	yerba del pasmo
Baccharis glutinosa	batamote (vášam)
Cacalia decomposita	matariqui
Carminatia tenuiflora	manzanilla del campo
Cosmos Pringlei	bavisa (tupuri)
Erigeron divergens	
Gnaphalium Bourgovii	manzanilla del río
Gnaphalium chilense	manzanilla del río (saka)
Helenium sp.	manzanilla cimarrona
Helianthus annuus	mirasol
Hieracium Fendleri	oreja del ratón (vosum na'aka)
Jaumea peduncularis	cempoal
Melampodium perfoliatum	
Parthenium sp.	palo santo
Senecio sp.	lengua de buey (nunyi)
Senecio sp.	ojo de toro
Senecio sp.	coronilla
Tagetes lucida	yerbanís
Tagetes sp.	cempoal
Xanthium strumarium	vara
Xanthium sp.	chícura

Zexmenia aurera — peonía (ma'imatkam)
Zexmenia podocephala

Unidentified material (family and species)

bavisa
bavisa (tupu'il)
bavisa de la sierra
canawala (soš)
copalquín
coronilla
chuchupate (pa'iša)
escorzonera
gomilla
inmortal
laurel
lengua de buey
manzanilla (jo'ol)
manzanilla casera
pipichaguä
poléo
santipuśs (šasán vuhi)
teposana
yerba buena
yerba buena (tu'unčkum)
yerba colorada
yerba de la manzanilla
yerba redonda (šiškil)

which is described as being characterized by a swelling (va'igag) below the stomach (voka, vo'ok). Children afflicted with this disease cannot eat (hugu'il); they can only drink water (sudag), and they live for about a month after onset of the illness. The common causes of death among the old people is fever, an inability to eat or to digest food, general weakness, and pneumonia (šikok pulmón).* Almost all of the Pima informants

---

*This term is doubtless derived from ši (it is), gak (dry), and the Spanish pulmonía.

---

commented on the prevalence of colds during the winter and at the time of the change of seasons, and state that frequently the old people develop pneumonia after suffering from a severe cold.

During 1968, 1969, and 1970, it was almost impossible for Maicoba Pima to secure professional medical attention, since none could afford the cost of a flight out of Maicoba by way of the small

airstrip at the village. Until several years ago, Maicoba Pima could obtain free treatment at a Seventh Day Adventist Clinic at Yécora, that is, if the difficult journey of some 30 miles could be made; however, a conflict between the private Doctor at Yécora and directors of the Clinic resulted in closure of the facility. Few Maicoba Pima can muster funds to pay even the small fee demanded by the Doctor at Yécora.

Older indigenes at Maicoba speak freely about curandero (kulardam), curandera (kularta), hechicero (obšimka), and brujo (hu'uk), and note that everyone knows the difference between these individuals with respect to their functions. Brujos are referred to as hombres malditos who cast spells upon people. The curanderos/curanderas are essentially individuals who can cure those people who have been hexed, and indeed, are referred to as doctores. It is stated that today such

individuals rarely concern themselves with application of medicinal potions prepared from plants or animals, although they once did. According to Maicoba informants, there is one brujo yet living in the village, and there are references to three brujos now dead. Informants further refer to two curanderos who were subject to call in 1970; one of these men lived at Yepáchic, the other at Maicoba. Apparently, the fathers and grandfathers of the two curanderos available at Maicoba were curanderos.

It is likely that careful field investigation among the contemporary Maicoba Pima would result in a great amount of information concerning activities of curanderos. This seems to be so because of data obtained during the summer of 1970. In 1968, no Maicoba Pima would discuss a specific example of a person who had been placed under a spell, but in 1970 an informant was quite explicit about the case of a woman who shall be termed Juana

Andrada in this monograph. This woman resided near Maicoba and in 1967, when she was about 67 years of age, became very ill. Her family did not know what to do but they were convinced that she had been hexed, and that there was nothing to be done except to call the regular curador or curandero who lived near the village. This man was about 75 years of age and was considered to be a fine curandero. However, he was unable to cure Juana Andrada, and her family decided to seek aid from a better-known curandero who resided at Yepáchic, about 30 miles east of Maicoba. This man agreed to come to Maicoba for a fee of $200.00 ($16.00 US).

The Yepáchic curandero arrived in Maicoba with his peyote in a small leather bag; this peyote is described as a bat-like creature called hívihin in the Pima dialect (Maicoba), and according to the older informants at Maicoba, may serve not only in placing an evil spell upon someone, but also in removing that spell. The creature is let loose

in someone's house at night, and is told by its owner to sit upon the individual who is to be hexed, while that person is asleep. On the following day this person becomes quite ill.

Upon arriving in Maicoba, the Yepáchic curandero went to the house of Juana Andrada and rubbed her with saliva (tunibar). He then went to the house of a friend for the night, and while asleep "saw" the brujo who had hexed Juana. This man was sitting by the sick woman's bed, and the peyote that belonged to the brujo was perched upon Juana's body. The curandero arose and with his peyote went to Juan's home. The brujo refused to leave the premises, and so the Yepáchic curandero ordered his peyote to fight that one belonging to the brujo. Although there were other people in the house, no one except the curandero could see the brujo or the two peyotes, and indeed, Juana's relatives and friends could neither see the curandero and the brujo or hear

the conversation between the two men. The peyote that belonged to the curandero defeated that which belonged to the brujo, and the latter left the house, taking with him his mangled peyote.

On the following day Juana Andrada was entirely recovered. The Yepáchic curandero then told her family who was responsible for her illness. The family went immediately to the home of this brujo and "forced" him to leave the Maicoba area, for "other parts."*

---

* During the summer of 1970 there was much talk among Maicoba Pima about this brujo who had not returned to Maicoba since his departure during the summer of 1967.

Maicoba Pima refer to disease of ailments within the following categories: respiratory diseases; skin diseases, malaria; eye diseases; childbirth; stomach disorders; infections associated bites and stings; and miscellaneous ailments such as open wounds and fright. Generally, the treatment of all

diseases and ailments involve the use of plants obtained locally, grease from certain animals, pitch from a species of pine, copal, sata colorada, a bolita de encino, and inexpensive patent medicines, such as aceite de comer, aspirin, and Vicks.

The diseases

Respiratory diseases

Pneumonia is the most dreaded of the respiratory diseases and the Maicoba Pima state that little can be done about curing this disease. Medicinal teas prepared from plants are claimed to alleviate discomfort caused by pneumonia. Catarrh (sos) is treated with brews made from plants. Whooping cough is generally treated by rubbing the throat and chest with grease from the carcass of a skunk or león. Cough (yóhim) is treated with teas prepared from certain plants. Diptheria is claimed to be common in the sierras and is treated in the same fashion as whooping cough; it is said that many

children die from this disease. An esteemed remedy for diptheria is prepared from bolitas removed from an oak tree. Tuberculosis is known as a disease but is said not to be common; the older people could not recall specific details about people who "spat blood" when afflicted with tuberculosis. Bronchitis is recognized but is claimed to be uncommon.

Malaria

Maicoba Pima are familiar with paludismo and realize that chills and fever are associated with the disease. It is said that those Pima who live in the hot canyons southwest of Maicoba and Yécora, and near Moris, suffer from fríos (humbim) because of this disease.

Eye disease

Pinkeye (vupidug) is quite common among the small children and is treated with medicines prepared from sierra plants. Blindness is uncommon except among the very old.

Childbirth

There are references to physical difficulties associated with childbirth (ilobkwim) but the details are lacking. A number of informants referred to fever that occurred before and after childbirth; however, it was stated that the medicinal teas prepared for such discomfort are rarely effective. The Pima women display a stoical attitude toward difficulties associated with childbirth and smile broadly when they refer to the attitude of the blancas; one old Pima woman noted that with respect to childbirth the blancas were "chicken," stating that when the time came for a birth a plane was chartered to rush the blanca to a hospital at Hermosillo. Certain medicinal teas are given to women immediately before and after parturition, in order to mitigate labor pains (koklin). The tail of the tlacauche is dried and stored for use in preparing a tea given to women who are suffering with labor pains.

Skin diseases

Itch (kusmin), ringworm (ki'otag) and rash (hihivdag) are the common skin diseases that afflict Maicoba Pima, and such ailments are accepted in a philosophical sense; the indigenes ;tate that little can be done except to apply Vicks or grease from the carcass of skunk or león. Smallpox (habiğig) is recognized but is said to be rare because of wholesale vaccination by government representatives several decades ago. Long ago, according to the older Pima, scrapings of a rock (sata colorada) were mixed with water in preparing a medicine applied to smallpox sores; the scrapings that sank to the bottom of the water were discarded and the liquid was applied as a lotion. Measles and chicken pox (habiğig lo'oka) are common among children every year, and the Pima note that little can be done about either disease other than to give "soothing drinks" to the children.

Stomach disorders

Stomach cramps and dysentery (sivakwim)

are prevalent during the early part of that season marked by availability of fresh fruits, and the Pima make use of many teas that alleviate stomach pains and dysentery.

Miscellaneous disorders

Fever and locked bowls are treated with a great varieties of teas prepared from local plants. Rheumatism (tolč) is treated with lotions prepared by boiling local plants. Grease from the carcass of skunk or león may be applied to aching limbs. Goitre is said to afflict people who live in canyons located southwest of Maicoba, and the Pima state that this ailment causes no great difficulty except that it makes people look "strange." Hiccough (iptä) is treated with the same potions taken to alleviate coughing. Vomiting (yošim) is treated with teas given to alleviate stomach disorders. Swellings (va'igag) and wounds (morog) are treated with lotions prepared by boiling certain plants. A significant number of the Pima at Maicoba are afflicted with skin blotches (to'a kuk),

but no particular attention is given to this affliction unless the blotches develop into a rash. Intestinal worms (hidiš) are said to be quite common among the children who are believed to acquire the worms by eating fruits that contain worms; it is claimed that any of the strong purgatives will eradicate intestinal worms. The Pima state that nothing can be done about hemmorhaging (ur vakwim) except complete inactivity. Stomach infections (ma'imak) are treated with teas given to alleviate stomach pains.

Broken bones, hernia, open wounds and "fright"

When bones (o'or) are broken (inmulyin) there is little that can be done except to prepare splints and secure the forms about the broken bone with rags. Dislocated bones are massaged into place. Open wounds (morog) are treated with any one of a number of lotions prepared by boiling local plants, and also with pitch from any of the species of pine in the sierras near Maicoba. Leaves (áhag) from species of

maguey available at or near Maicoba are crushed and applied to sores that are marked by pus (to'alyig). These leaves may also be used as a poultice applied to burns.

Hernia is recognized and the indigenes state that it generally develops after a hard day of work in the field. If the individual who has performed such labor takes a bath before he is thoroughly rested a bola develops. Shucks of an elote ear of corn are used to "cure" hernia; the shucks are placed upon the ground (duwur) and one foot (tara, tar) is rubbed back and forth upon them.

Espanto (totčar) is common among children and adults, particularly when they are bathing and someone approaches; certain plants are sought because of their supposed value in the preparation of teas given to children afflicted with "fright."

Bites of insects and reptiles

An arapara (Vespula squamosa) is said

to inflict much pain (ane kukov)* when it stings

---

*I was unable to determine a precise term for pain. Contemporary Pima at Maicoba refer to pain as ane kukov (tener dolor).

---

humans. Leaves of a species of Rosaceae are employed in preparing a lotion applied to such stings, or, these leaves may be used in preparing a poultice to alleviate discomfort caused by such stings. Leaves of any one of several species of Amaryllidaceae and at least one species of Fouquieriaceae are cooked in preparing a "foam" (tosgar) applied to the sting of an araña negra (tukum) or the bite of a tarantula. For stings made by alacranes (naksu'il) a bit of the introduced garlic is eaten, or, garlic and salt are placed upon the stings. This same treatment is applied to the sting of a centiped (ma'i haga) which is said to be exceedingly dangerous. For alleviation of pain caused by stings of two species of ants (močom and ü'üra) the Maicoba Pima mix salt

(ona, on) and saliva which is spread upon the sting.

There are references to a large lagaritja (hudor ku'imdar, the bite of which is claimed to cause death unless treated immediately with "foam" prepared by boiling the leaves of certain species of maguey. This "foam" may also be applied to bites of three rattlesnakes (hadag, sa'ukar, and mamako'a), although it is claimed that few people die from such bites. This medicine is also applied to the sting of an araña negra (tukum) or the bite of a tarantala. Similarly, a substance is obtained by boiling leaves of an ocotillo in preparing a medicine applied to such wounds. Cresas (maggots) may serve in the preparation of a poultice applied to bites by rattlesnakes.

The medicinal plants

Cupressaceae

Branches of a táscate (Juniperus osteosperma), which is known as ga'a among the indigenes at Maicoba, are used in preparing a tea

taken for fever. A sick person may be seated upon a stool and partially covered with blankets near a fire (ta'i) made by burning these branches. Smoke (ku'ubiš) from the burning táscate is blown toward the patient by an observer who uses a blanket to force the smoke toward the ill person. If there are difficulties in childbirth, smoke from burning táscate is forced toward the woman in labor.

Poaceae

An unidentified otatillo (totkam) from the family Poaceae is used in preparing a tea taken to relieve kidney (ka'ami, kabablikdara) disorders. This tea may also be used as a lotion applied to wounds.

Cyperaceae

A small bolita from a wild grass (Cyperus sp.) serves in the preparation of a tea taken for stomach disorders. An unidentified lebadura or yerba de la calentura belonging to family Cyperaceae is much sought because of the

effecacy of its leaves in preparing a drink taken for fever and cough.

Cannaceae

A lirio (Canna sp.), which appears in small garden plots as a domesticated plant,*

---

* This plant may be an introduction from the Old World. Although it was in flower, the species was unknown to Professor B. L. Turner of the University of Texas Herbarium.

---

provides a flower (hoškam, hi'osik) which is cooked for about five minutes in the preparation of a drink given to children suffering from fright.

Liliaceae

In order to alleviate stings made by an alacran (naksu'il), a bit of the introduced garlic (Allium sativum),* is eaten, or, garlic and

---

* Uphof (1968), 25.

---

salt are mixed in the preparation of a medicine

applied to such stings. This medicine is also applied to the sting of a centiped.

Amaryllidaceae

A tea made by boiling small portions of the leaves of a maguellito (Agave Hartmanii), which the Maicoba Pima know as tutkim or utkadi, is taken for fever. Sap from a lechuguilla (Agave bovicornuta) is applied to wounds and cuts. Leaves of Agave Hartmanii, A. bovicornuta, A. mayoensis, A. Patonii, and A. Schottii, are cooked to secure a "foam" which is applied to the sting of a black spider, the bite of a tarantula, the bites of any one of the three rattlesnakes common to Maicoba, and the bite of a lagartija which is claimed to result in death unless treated immediately. Leaves of a wild onion (Hymenocallis sonorensis), known as sak, are used in preparing a poultice applied to any type of wound.

Iridaceae

Roots of a yerba de la muela (Sisyrinchium arizonicum) are chewed to alleviate toothache.

Orchidaceae

An unidentified lirio del campo which belongs to the family Orchidaceae is used in preparing a lotion applied to aching backs; the entire plant is boiled for about 15 minutes.

Salicaceae

An álamo (Populus Fremontii), which does not appear in the immediate vicinity of Maicoba or Yécora, at least not to my knowledge, but rather in nearby warm canyons, is esteemed because its leaves may be used in preparing a lotion applied to people with high fever. The leaves are cooked in a small amount of water. After application of this lotion, the patient is covered with blankets so that he will sweat profusely.

Leaves of a tarais or sauz (Salix taxifolia) are utilized in preparing a lotion applied to sores. Bark and leaves of this tree may be used in preparing a very strong drink taken to reduce fever. These leaves and bark may also be burned near the

pallet of a sick person, so that the smoke may cause the patient to sweat.

Juglandaceae

It is claimed that a tea prepared from leaves of a nogal (Juglans major) will enrich the blood.

Betulaceae

A tea prepared by steeping the bark of an alamillo (Alnus firmifolia) is given to women to prmote rapid parturition.

Fagaceae

Bark (kom, komi, komar) of an encino peludo (Quercus chihuahuensis), which is known as vokot'ua or vopkomtu'a, is used in the preparation of a poultice applied to wounds upon animals; the bark is mashed and mixed with a bit of grease. People who are troubled with hoarseness seek a parasitic growth (a tiny bolita) that is found upon Quercus chihuahuensis, for use in preparing a poultice that is applied to the throat and

held there with a rag. The bark of an encino cusi negro (Quercus durifolia), known as šipa among the Maicoba Pimba, is used in preparation of a poultice applied to wounds upon animals; the bark is mashed and mixed with grease. The bark from encino chino (Quercus oblongifolia), encino cusi (Q. viminea), and from another encino chino (Q. Toumeyi) are similarly used. Quercus viminea may be referred to as ka'al, Q. Toumeyi as ho'ičkam or kapuku'a kusi.

Polygonaceae

Leaves from Polygonum lapathifolium are much sought for use in preparing a tea taken for catarrh.

Chenopodiaceae

Leaves and stems of an ipazote (Chenopodium ambrosioides), which is a common plant in moist canyons near Maicoba, are crushed and decocted into a liquid drunk to relieve discomfort caused by a cold, colic, or any stomach disorder.

The leaves and stems are said to be particularly effective in preparing a very strong drink taken to relieve dysentery.

Amaranthaceae

Leaves and roots of a tianguis (Alternanthera caracasana), which is known as šupu'ul among the Maicoba Pima, are crushed and given to children afflicted with measles. A tea prepared from the roots and leaves is taken for uringary difficulties.

Nyctaginaceae

Leaves of a maravilla (Mirabilis longifolia) are used in preparing a poultice applied to wounds a bit of grease is used in preparing this poultice.

Portulaceae

The leaves of an amor por un rato (Portulaca sp.) which appears in gardens in the warm canyons near Maicoba, * is used in preparing a

*This species could not be identified by Professor B. L. Turner of the University of Texas Herbarium, but the plant is probably one of the purslances introduced into the Americas in post-Columbian times.

tea taken to gain energy.

Ranunculaceae

An unidentified yerba zorrilla which belongs to the family Ranunculaceae is used in preparing a tea taken to alleviate stomach pains. Blooms from a climbing vine called barba de viejo (Clematis Drummondii) are cooked for about 10 minutes in preparing a potion taken to stimulate passage of urine (hi, hihi); the flowers are removed from the liquid before it is drunk.

Papaveraceae

Juice from a cardón (Argemone ochroleuca subsp. ochroleuca), which appears at lower elevations in canyons near Maicoba and Yécora, is dripped upon cotton onto which hot water is poured, and the cotton is squeezed over

an open eye to cure mal de ojo (vupidug)*. An Old World amapola (Papaver Rhoeas), which is

---

*Uphof (1968), 386.

---

cultivated by some Maicoba Pima in their gardens, supplies flowers utilized in the preparation of a medicinal tea taken to relieve stomach pains.

Platanaceae

The bark of an aliso (Platanus Wrightii), a not uncommon tree at Maicoba, serves in the preparation of an infusion given to women who fail to expell the afterbirth. The potion is also given to cows to promote calving.

Rosaceae

Leaves of an aguaciki (Prunus capuli), known as humpa'il or húmpil among the Maicoba Pima Bajo, are boiled in preparing a lotion applied to the stings of an arapara (Vaspula squamosa). Or, the leaves of this tree are applied as a poultice to such stings. Leaves of a capulín (Prunus Fremontii),

which is known as mo'oskom serve in preparing a tea taken for fever. Roots of a yerba colorada (Potentilla Thurberi) are used in preparing a tea taken for stomach disorders. A very strong drink prepared from the roots serves as a purgative. Roots of this plant are sold to hergalists who come from the low country to the west seeking medicinal roots.

Leguminosae

A drink prepared from leaves and stems of a durasnillo (Acacia angustissima) is added to a bit of mescal or tequila which is drunk to relieve discomfort associatad with colds. Crushed leaves of an algarroba (Acacia pennatula) are placed upon the head to relieve headache. A rag is tied about the head to keep the leaves in place. Branches of a tavachín (Caesalpinia pulcherrima), a handsome red-flowered shrub that appears in lower canyons ear Maicoba and Yécora, are crushed and decocted into a liquid that is drunk to alleviate discomfort that results from

venereal disease. A medicinal drink taken to relieve fever is prepared by boiling all of Cassia biflora. The bark of a corcho (Cassia Wislizeni), a white-flowered shrub or tree that appears in lower portions of canyons near Maicoba, serves in the preparation of a poultice applied to wounds or inflammations; the bark is crushed and mixed with grease. A drink taken to alleviate fever is made by boiling all of a tiny plant called tu'ama (Crotalaria sp.). A purgative is prepared by boiling roots of a species of Desmodium.

Branches of a palo dulce (Diphysa sennioides) are utilized in preparing a lotion applied to aching limbs; the branches are boiled for about one-half hour. Seeds and leaves of a chilicote (Erythrina flabelliformis) are used in small amounts in preparing a tea taken as a purgative; it is claimed that if too many leaves and seeds are used the patient will die. A tea made from a matariqui (Eysenhardtia orthocarpa) is taken by patients suffering from pneumonia. This tea may also be used as a lotion

Linaceae

A drink given to patients suffering from high fever is made by boiling Linum avistatum.

Rutaceae

A ruda (Ruta graveolens), which is cultivated in gardens, and which is surely an introduction from Europe,* is used in preparing a drink

---

*Uphof (1968), 461.

---

taken to relieve stomach cramps.

Burseraceae

Branches of a torote (Bursera odorata) are crushed and utilized in preparing a decoction taken to relieve congestion caused by pneumonia.

Malpighiaceae

The leaves of a güirote or gallinita (Mascagnia macroptera), a trailing vine, are used in preparing a lotion applied to people with high fever. The leaves are boiled for about one-half hour. Some of the Maicoba Pima insist that this plant must not

Geraniaceae

A tea prepared by boiling all of a yerba colorada (Geranium sp.) is taken as a tonic, and to relieve stomach upsets.

Oxalidaceae

All of a cañira del campo (Oxalis amplifolia) is used in the preparation of a tea taken for stomach disorders. Stems of an oreja del ratón (Oxalis stricta) are similarly used, and it is said that a very strong tea prepared from this plant is given to people suffering from high fever.

Balsaminaceae

Leaves of a belén (Impatians sp.)*

---

* Precise determination of the species was impossible, but it is probable that the plant represents one introduced into the Americas in post-Columbian times. Darlington and Janaki Ammal [(1945), 107] list 15 species, only one of which is presumed to be native to North America.

---

are cooked for about 15 minutes and after being drained the liquid is drunk to relieve headache.

applied to bruises. Leaves of a climbing vine called frijolillo (Galactia striata) are used in preparing a drink taken to relieve discomfort caused by colds. A lotion applied to sores is made by steeping the leaves of a yerba loca (Lupinus concinnus); it is claimed that animals die when they eat too much of this plant. Flowers of a vinorama de la sierra (Mimosa biuncifera) are mixed with grease and placed upon the head for headache. A lotion prepared by boiling stems and leaves of a gatuña (Mimosa cabrera) is applied to wounds upon animals or humans. Branches of another gatuña (Mimosa laxiflora) are used in preparing a drink given to people suffering from high fever. Seeds from the immature pods of a mesquite (Prosopis juliflora), which appears infrequently in canyons near Maicoba and Yécora, are ground and applied to inflamed eyelids. A tea prepared by boiling all of a yerba de la víbora (Zornia reticulata) is taken to reduce fever and to alleviate coughing spells.

be removed by hand when it appears in the milpas, since anyone who handles it develops diarrhea. These people note that the plant is removed from the milpas with a hoe.

Euphorbiaceae

Leaves of an ortiguilla (Cnidoscolus multilobus) are crushed and mixed with a bit of grease for use as a poultice applied to inflammations or wounds. A tea prepared by boiling the leaves of a cacalosúchil (Manihot isoloba) is taken to relieve severe headache. Roots of a contra yerba (Poinsettia heterophylla) are utilized in preparing a tea taken to relieve fever or discomforts caused by colds.

The Old World higuerilla, higuera, or Palma Cristi (Ricinus communis)*, the castor bean, appears in a

---

* This plant is apparently a native of Africa [(Ibid.), 462]. The manner of its introduction into the Americas is uknown, but it is found in virtually all of those portions of northwestern Mexico known to me, such as upland and lowland western Chihuahua, Durango, Sonora, and Sinaloa.

scattered fashion along streamways at lower elevations west and southwest of Maicoba. The leaves of this giant plant are crushed and mixed with grease and applied as a poultice to inflammations. The Maicoba Pima are apparently unaware that castor oil is prepared from the seeds.

Anacardiaceae

Leaves of a white-flowered yedra (Rhus diversiloba) are decocted into a potion taken by people who are suffering from high fever. The leaves of another yedra (Rhus radicans), which is known among the Maicoba Pima as tumba, are similarly used. Crushed leaves of a yellow-flowered yedra (Rhus trilobata var. anisophylla) are placed upon inflected pimples.

Celastraceae

All of yerba del pasmo which belongs to the family Celastraceae is used in preparing a lotion applied to wounds; the plant is cooked for a short time.

Rhamnaceae

A tea taken for fever or as a stimulant when one is very tired is prepared by boiling leaves of a junco (Condalia Brandegeei).

Malvaceae

The introduced vara (Althea rosea)*

---

* Presumably, the vara is an introduction from China [(Ibid.), 28].

---

appears as a cultigen in gardens in warmer canyons near Maicoba. Its leaves are cooked, drained, and mixed with grease which is applied to the head for the relief of headache. Leaves of this plant are also used in preparing a drink taken to relieve severe spells of coughing. A malva (Malva neglecta) is used in preparing a tea taken for stomach pains.

Sterculiaceae

A yerba del pasmo (Waltheria indica) which appears in canyons of low elevation near Maicoba is much sought because its leaves are valued

for use in preparing a lotion applied to wounds or sprains. The leaves may be dried and mixed with grease in preparing a poultice applied to wounds.

Fouquieraceae

Branches of a red-flowered ocotillo (Fouquieria sp.) serve in the preparation of a decoction taken to relieve severe congestion caused by very bad colds. Leaves of this plant may be boiled in preparing a "foam" which serves as a lotion applied to bites of a tarantula or the sting of a black spider (tukum).

Begoniaceae

An unidentified cañiro from the family Begoniaceae serves in preparing a liquid used for cleaning teeth; a liquid prepared by boiling the plant is used as a mouth wash.

Onagraceae

A drink prepared by boiling leaves of a Gaura parviflora is taken to relieve discomfort caused by fever. Leaves of an ocaliti (Oenothera sp.)

known among the Maicoba Pima as inkwal are used in preparing a tea taken to relieve stomach cramps.

Cactaceae

Portions of the leaves of a sibuli (Opuntia leptocaulis) are boiled, removed from water, and mashed for use as a poultice applied to festering wounds. Portions of the leaves of a cholla (Opuntia sp.) are similarly used.

Umbelliferae

Leaves of a yerba del sapo (Eryngium sp.), which is known among the Pima Bajo as kwali, are used in preparing a very strong drink taken for fever. A drink made by boiling the leaves of a matariqui (Prionosciadium madrense) is taken to relieve congestion caused by colds. Roots and leaves of a saraviki (Prionosciadium Townsendii), which is generally referred to by its Pima term, topoku'il, are used in preparing a very strong tea taken to reduce fever.

Pyrolaceae

Branches of a yerba del hígado (Chimaphila dasystephana), which is known as numar among the Maicoba Pima, are used in preparing a tea taken to alleviate liver disorders.

Ericaceae

Leaves of a manzanilla (Arctostaphylus pungens) serve in preparing a strong tea taken to relieve dysentary.

Loganaceae

Leaves of a palo de ocal (Buddleia sp.) are sought because of their presumed value as an ingredient in preparing a very strong tea taken to reduce fever.

Apocynaceae

All of a yerba del piojo (Mandevilla foliosa), which is known as a'at makam among the Maicoba Pima Bajo, is mashed and used as a poultice to remove lice from humans. A cacalosúchil (Plumeria acutifolia) which appears in canyons near Maicoba and Yécora supplies

leaves used in preparing a poultice applied to swellings and inflammations; the crushed leaves are mixed with grease.

Asclepiadaceae

Roots of a yerba de la liebre (Asclepias glaucescens), or u'uwokam as the plant is generally known among the Maicoba Pima, are used in preparing a tea taken for stomach disorders. Leaves of an inmortal (Asclepias sp.) may be chewed to faciliate removal of phlegm from the throat, or, a tea prepared by boiling all of the plant is taken to relieve coughing spells. Leaves of a contra yerba (Matelia sp.), which is known as tupuri among the Maicoba Pima, serve in preparing a drink taken to relieve stomach disorders. Leaves of an inmortal (Matelia sp.) are boiled for a short time in preparing a tea taken for fever. Yet another inmortal (Matelia sp.), commonly termed tupu'il among the indigenes at Maicoba, provides roots which are crushed and mixed with grease, for use as a pultice applied to the forehead to relieve headache. A tea made from

these roots is taken for stomach pains. The roots of a purple-flowered yerba del indio (Matelia sp.) are boiled in preparing a drink taken to relieve the discomfort that results from drinking too much tesgüino.

Verbenaceae

The whole of a verbena (Verbena delticola) is decocted into a potion taken for stomach disorders Leaves and stems of a Verbena neomexicana are utilized in preparing a very strong tea taken to reduce fever. A drink made by boiling all of Verbena carolina is taken to relieve headache.

Labiatae

A medicinal potion taken to relieve congestion of the lungs is prepared by boiling leaves of a yerba buena (Mentha canadensis) which grows along water courses and which appears as a cultigen in gardens. All of a salvia del monte (Salvia sp.) is decocted into a potion taken to gain energy.

Solanaceae

A tea taken to relieve congestion of the lungs is prepared by boiling all of a coronilla (Physalis sp.) which is known among the Maicoba Pima as kokovi. Leaves and branches of a chichiquelite (Solanum americanum) are utilized in brewing a very strong drink taken for kidney disorders. The leaves of another chichiquelite (Solanum nodiflorum) are boiled, drained, and mixed with grease for use as a poultice applied to the back for the relief of pain. Fresh or dried seeds of a toloache (Datura inoxia) found at lower elevations in canyons west of Maicoba are cooked in a bit of water which is drunk by a man or youth who wishes to fall in love. The crushed leaves of this datura are mixed with grease and applied to skin eruptions such as boils; it is claimed that this poultice "draws well." Leaves of another toloache (Datura guercifolia) are similarly used.

Scrophulariaceae

A drink prepared by boiling leaves of

Castilleja rigida is taken for stomach disorders. Leaves of a verbena del campo (Mimulus sp.) are used in preparing a lotion applied to sprains. The leaves are steeped in hot water for a short time.

Acanthaceae

All of a cordoncillo which belongs to the family Acanthaceae is used in preparing a drink taken to relieve discomfort caused by colds and fever. This drink is said to be more effective when a bit of mezcal is added to the liquid.

Rubiaceae

A drink prepared by boiling the leaves of a mirto (Bouvardia ternifolia) is taken to alleviate urinary difficulties.

Caprifoliaceae

Leaves of a sauco (Sambucus mexicana) are decocted into a drink taken for fever and stomach disorders. The flowers are used in preparing a poultice applied to aching limbs; the cooked flowers are mixed with grease of a pig. Flowers are also boiled with gum of a copal in preparing a tea given to

children afflicted with whooping cough.

Cucurbitaceae

A drink prepared by boiling leaves of a sandia de coyote (Apondanthora undulata) is set aside for 24 hours before being drunk for cough.

Compositae

A tiny bit of an alcanforina (Achiellea millifolium) is crushed, mixed with grease and put in the ear for earache. Branches of a chícura (Ambrosia ambrosioides), a canyon plant, are heated over a small fire and placed upon the buttocks of a woman who is having difficulty in parturition. Some Pima sprinkle a bit of mezcal upon the branches before they are applied. A drink made from the leaves of an estafiate (Ambrosia sp.), commonly known as moša among the Maicoba Pima, is taken for stomach disorders. Artemisia mexicana, which appears in Pima gardens, supplies leaves that are chewed to alleviate congestion of the lungs. The leaves are also used in preparing a drink taken to clear the throat of phlegm. All of a yerba del pasmo

(Baccharis Emoryi) is cooked, drained, and ground for use as a poultice applied to wounds. A medicinal drink prepared by boiling the stems of batamote (Baccharis glutinosa), which is known as vášam among the Maicoba Pima, is given to children to cure them of espanto.

Roots of a matarigui (Cacalia decomposita) are decocted into a drink taken as a cure for diarrhea. A refreshing tea is prepared by using all of a manzanilla del campo (Carminatia tenuiflora); this beverage is said to give energy. Roots of a bavisa or tupuri (Cosmos Pringlei) are utilized in preparing a drink taken to alleviate diarrhea. All of Erigeron divergens is boiled in the preparation of a lotion applied to open wounds.

A drink prepared by boiling stems of a manzanilla del río (Gnaphalium Bourgovii) is taken for stomach disorders Leaves of another manzanilla del río (Gnaphalium chilense), which is known as saka among the Mountain Pima at Maicoba, are used in preparing a drink taken for colic. This liquid is also used as

a lotion applied to boils, and is said to cure them within eight or nine days. Fruits of a manzanilla cimarrona (Helenium sp.) are crushed and sniffed for catarrh

A mirasol (Helianthus annuus) appears in the fields at lower elevations near Maicoba and Yécora; leaves of this plant are cooked in a small amount of water which is used as a lotion for bathing sick people. Leaves of the tiny oreja del ratón (Hieracium Fendleri), which is commonly known as vosum na'aka, are used in preparing a lotion applied to cuts and bruises. The leaves are boiled for a short time. In small amounts, the leaves of a cempoal (Jaumea peduncularis), which is claimed to be exceedingly poisnous, so much so that cattle die when they eat a great amount of the plants, are used in preparing what is termed a violent purgative; the leaves are boiled for a short time and the liquid is strained through a loosely woven basket before being drunk Leaves and bolitas of Melampodium

perfoliatum are crushed and applied as a poultice to inflammations. A lotion prepared by steeping leaves of a palo santo (Parthenium sp.) is used for bathing sick people. Leaves of a lengua de buey (Senecio sp.), usually referred to as nunyi among the Pima, are crushed and used as a poultice applied to open wounds. A reddish liquid exuded from the stems of an ojo de toro (Senecio sp.) is placed upon inflamed eyelids. Leaves and stems of a coronilla (Senecio sp.) are boiled in preparing a drink taken to alleviate congestion of the lungs. A drink made by boiling all of a yerbanís (Tagetes lucida) is taken for fever. Leaves of a cempoal (Tagetes sp.) are used in preparing a strong drink taken for relief of bad colds; a bit of mezcal may be added to this beverage. Leaves and roots of a vara (Xanthium strumarium) are mashed for use as a poultice applied to wounds upon animals or humans. All of a chícura (Xanthium sp) is used in preparing a drink taken for stomach disorders; the plant is boiled for about

an hour. All of a peonía (Zexmenia aurea), which is known among the Maicoba Pima as ma'imatkam, is boiled in preparing a drink taken for stomach upsets Roots of Zexmenia podocephala are sought because of their value in preparing a drink taken for diarrhea.

Unidentified plants

A'l of a yerba de la manzanilla is used in preparing a beverage given to alleviate discomfort caused by sarampión. Red and black beans from a santipús (šasán vuhi) are crushed and mixed with grease of a pig for use as poultice applied to inflamed eyelids. All of a chuchupate (pa'iša) is boiled in the preparation of a beverage taken to alleviate severe rheumatic pains. Or, the plant and its root are ground up and mixed with pig grease for use as a rubbing compound applied to aching limbs. The root may be used in preparing a drink taken for cough

Roots of a bavisa de la sierra are dried and

preparing a tea given to reduce fever. A poultice prepared by crushing leaves of a lengua de buey is said to hasten the emergence of pus (to'alyig) from boils. Gomilla is a plant used in the preparation of a drink which is mixed with tea prepared from a yerba buena and given to people with bloody stools

All of a bavisa is used in preparing a hot beverage given to induce abortion during the first three months of pregnancy. Another bavisa which is known as tupu'il is used in preparing a drink given to alleviate stomach disorders. The bark of copalquín is boiled in the preparation of a drink given to people with high fever.

Leaves of a manzanilla (jo'ol) are used in preparing a tea taken during pregnancy and just after parturition. All of a small plant called pipichaguä serves in the preparation of a beverage taken to relieve locked bowels. The leaves of manzanilla casera (a domesticated plant ?) are used in preparing a tea given to children suffering from measles. Leaves

mixed with a bit of milk which is drunk to alleviate stomach pains or to reduce fever. The leaves of a laurel are used in preparing a tea taken to reduce fever, or the leaves are used in preparing a refreshing drink taken when one is tired. This tea is mixed with mezcal when given to people suffering from malaria. The root of an inmortal is boiled in the preparation of a drink given to people with extremely high fever. An orégano silvestre is utilized in the preparation of a tea taken for violent stomach pains or diarrhea. Leaves of a yerba buena are much used in preparing a drink taken for diarrhea.

The root of a coronilla is boiled in preparing a drink taken for pneumonia. The crushed root of this coronilla may be mixed with grease of a pig and rubbed upon the chest of someone suffering from pneumonia The root of an escorzonera is boiled in preparing a beverage given to people with high fever This drink is said to be excellent for relieving congestion of the lungs. A yerba buena (tu'unčkum) is much sought because of its value in

of a yerba colorada are similarly used. Canawala is a fern called soš by the Maicoba Pima and serves in preparing a hot beverage given to alleviate severe coughing spells. A yerba redonda (šišk̆il) is sought because of its value as a remedy for sore gums; the entire plant is mashed and placed upon the gums. All of a poléo is boiled in preparing a beverage taken for stomach upsets. Leaves of a teposana are used in preparing a drink taken for kidney disorders.

Medicinal Plants collected by Campbell W. Pennington at Maicoba, Sonora during 1968 and 1970.

Nolasco Armas, 1969 Medicines, etc 1

[redacted]

- IT IS NOT TRUE that the Pima are unclean
- that they do not rid their houses of detritus
- that they are not personally clean
- that they do not sweep about their houses
- Nolasco Armas was wrong about this matter

- it is not true that every six months their houses are fumigated by the Commission for the Eradication of Paludismo

- [redacted]

Maicoba Curing 70

Nolasco Armas, 1969 Medicines, etc. 2

[redacted]

-Nolasco Armas mentions a medical student in Yécora (this was 1959-1960) who was available
-but in the rest of the zone the brujos and hechiceros serve
-the brujos or hechiceros may heal or cause trouble
-the shamans "cure", or heal, using traditional magic

- on kinds of illness

(1) One kind comes from God, and one must go under the mantle of San Francisco to be cured
(2) The second kind comes from damange caused by [redacted]

Nolasco Armas, 1969 Medicines etc. 3

p. 234

[redacted]

- but there are other illnesses
  -those illnesses that come from the cold
  -and so on

- the mantle business
  -if the illness comes from God, then perhaps the sick person and a friend goes to the church, to the Saint
  -lean one's head upon the left foot of the Saint, and covered by the tunic that is held by the man who accompanies the sick person
  -the patient remains there for a [redacted]

Nolasco Armas, 1969 Curing by Magic 2

p. 2[redacted]

A. Use smoke from straw to bring down fever.
B. Use smoke from paleo to alleviate catarrh.
C. Wood of guazaraque, when scraped and soaked, is good if you are frightened.
D. zarzaparilla and a zacate are used in preparing medicines for rheumatism.
E. Use garlic introduced in the ass to reduce fever
F. Prepare a poultice from mortaz for the head.
G. [redacted]

Nolasco Armas, 1969 Curing by Magic 1

Page 245 Curing by Magic

-Nolasco Armas reports that the principal technique for curing by the chamanes and hechiceros is the placing of the hand upon the person
-the massaging and manipulating stomach, abdomen, breast, and face
-using saliva
-while murmuring some magic words of one kind or another
-if the patient is a woman the hand is put on for 3 days
-if the patient is a woman, the hand is put on for four days

Source: Rada (1777)

Medicinal Plants

a. Yerba del indio y en lengua pima se llaman zacargoamat que quiere decir raíz amarilla
...y ésta se parece a una zanahoria delgada
...es muy amargosa y caliente, sus virtudes son para componer estomago, resfriado, bebidas y también
[illegible] enfermedades provienen de [illegible]
[illegible] falta en esto

Maicoba Cupressaceae (5) 70

Juniperus osteosperma

Branches of this táscate, which is known among the Pima as gah or ga'a, are burned and an ill person stands nearby so that the smoke may be blown towards him. The patient is partially covered with blankets. If the sick person is very old he may sit upon a stool and is almost completely covered with rags or a blanket. Smoke from the burning táscate is blown towards andopening in the rags or blankets.

A medicinal tea prepared by "cooking" the branches is taken for fever.

If there are difficulties in childbirth, then get branches of this tree and burn so that the smoke is blown towards the woman in labor.

An unidentified otatillo (totkam) from the family Poaceae is used in preparing a tea that is taken to relieve kidney disorders. The tea may also be used as a lotion applied to wounds.

Cyperus sp.

This small plant is known as zacate bolita and serves in the preparation of a tea taken for stomach disorders.

An unidentified lebadura or yerba de la calentura that belongs to the family Cyperaceae is used in making a tea taken for fever and cough; the leaves are used.

Canna sp.

This species of Canna is known as lirio and appears in small garden plots as a domesticate.* Its flower is cooked for about five minutes in water which is given to children suffering from fright (šito'ad).

*The plant may be a species introduced into the Americas. Although in flower, the specimen was unknown to Professor B. L. Turner of the University of Texas Herbarium.

Agave Hartmanii

A tea prepared by using small portions of the leaves of this maguellito (utkim or utkadi) is taken for fever.

Agave bovicornuta

Sap from this lechuguilla is applied to wounds.

Hymenocallis sonorensis

Leaves of this wild cebollín (known among the Pima as sak) are used in preparing a poultice applied to any type of wound.

A. Havardii
A. [illegible]ensis
H. Palmeri
H. Schottii
A. bovicomata
see above
[illegible]

Sisyrinchium arizonicum

The root of this yerba de la muela is chewed to alleviate toothache.

19. pipichaguä.

All of this small plant is used in making a tea taken when a person is afflicted with locked bowels.

20. manzanilla casera.

Used in preparing a tea taken for measles.

21. yerba colorada.

Used in preparing a tea taken for measles.

22. canawala.

This fern is called soš by the Pima and is used in preparing a tea taken to alleviate severe coughing spells.

23. yerba redonda.

This šiškil provides a remedy for sore teeth; mash all of the plant and place upon the gums.

24. pŏléo.

All of this plant is used in preparing a tea taken for stomach upsets.

25. teposana.

Leaves from this shrub are used in preparing a tea taken for kidney disorders.

Cosmos Pringlei

Roots of this bavisa or tupuri, as the plant is known among the Pima, are used in making a tea taken to cure diarrhea.

Maicoba Compositae (130) 70

Erigeron divergens

Boil the entire plant and use the liquid as a lotion applied to open wounds.

Gnaphalium Bourgovii

A tea prepared from the stems of this manzanilla del río is taken for stomach disorders.

Gnaphalium chilense

Leaves of this manzanilla del río, known among the mountain Pima as saka, are used in making a tea taken for colic. The tea is also used as a lotion applied to boils, and is said to "cure" them within eight or nine days.

Helenium sp.

Fruits of this manzanilla cimarrona are crushed and sniffed for catarrh.

Maicoba Compositae (130) 70

Helianthus annuus

This mirasol appears in fields at lower elevations near Maicoba and Yécora; the leaves are cooked in a small amount of water which is used as a lotion for bathing sick people.

Hieracium Fendleri

This tiny plant is known as oreja del ratón among the mestizos, and as vosum na'aka among the Pima; its leaves are used in preparing a lotion applied to cuts and bruises.

Maicoba Compositae (130) 70

Jaumea peduncularis

In small amounts, the leaves of this cenpoal, which is claimed to be exceedingly poisonous--so much so that cattle die when they eat much of the plant--are used in preparing what is termed a "violent" purgative; the leaves are boiled for a short time and the liquid is strained through a loosely woven basket bafore being drunk.

Melampodium perfoliatum

Leaves and bolitas of this plant are crushed and applied as a poultice to inflammations.

Maicoba Compositae (130) 70

Parthenium sp.

A lotion prepared by steeping the leaves of this palo santo is used for bathing sick people.

Senecio sp.

Leaves of this lengua de buey, or as it is known among the Pima --nunyi--are crushed and used as a poultice applied to open wounds.

Senecio sp.

A reddish liquid exuded from the stems of this ojo de toro is placed upon inflamed eyelids.

Senecio sp.

This coronilla is said to be excellent for use in preparing a tea taken to alleviate congestion of the lungs; the leaves and stems are used.

Maicoba Compositae (130) 70

Tagetes lucida

A tea made from all of this yerbanís is taken for fever.

Tagetes sp.

Leaves of this cenpoal are used in preparing a tea drunk for colds; a bit of mescal is added. The tea is also thought to be a fine cure for dysentery.

Maicoba Compositae (130) 70

Xanthium strumarium

Leaves and roots of this vara are mashed and used as a poultice applied to wounds upon animals or humans.

Xanthium sp.

All of this chícura is used in preparing a tea taken for stomach disorders.

Zexmenia aurea

All of this peonía, which is known as ma'imatkam, is used in preparing a tea taken for stomach disorders.

Zexmenia podocephala

Roots of this peonía (ma'imatkam) are decocted into a tea taken for diarrhea.

---

1. yerba de la manzanilla.

All of this plant is used in preparing a tea taken to alleviate discomfort caused by sarampión.

2. santipús.

This plant is known among the Pima as šasän vuhi; the red and black beans are used in preparing a mixture that is mixed with the grease of a pig and rubbed upon the eyelids for mal de ojo.

3. chuchupate (pa'iša).

Boil all of this plant in making a tea taken for rheumatic pains. Or, prepare the root by grinding it and mixing with a bit of greas for use as a rubbing compound applied to aching limbs. Or, the root may be used in preparing a tea taken for cough.

4. bavisa de la sierra.

The roots of this plant are ground, dried, and mixed with a bit of milk which is taken to alleviate stomach pains or to reduce fever.

5. laurel.

Use the leaves of this plant in preparing a tea taken for reducing fever or as a refreshing drink. The tea may be mixed with mescal when people are suffering from malaria.

6. inmortal.

Boil the root of this plant and use the mashed material in preparing a tea taken for yellow fever. A bit of mescal may be added.

7. orégano silvestre.

Much used in preparing a tea taken for diarrhea or violent stomach pains.

8. yerba buena.

Much used in preparing a tea taken for diarrhea.

9. coronilla.

Boil the root and take the liquid as a tea for pneumonia. The root may also be mashed and mixed with grease of a pig and rubbed on the chest for pneumonia.

10. escorzionera.

Boil the root in making a tea, or mash the root and rub on the chest for pneumonia; the tea made from the root is said to be fine for relieving congestion of the lungs.

11. yerba buena.

This tu'unčkum is used in preparing a medicinal tea for almost any infirmity. Add a bit of cilantro if available. The tea is said to be particularly good for fever.

12. lengua de buey.

This nunyi sa'i is used on boils. Mash all of the plant and place upon the infected area. The use of this plant is said to hasten the emergence of pus (to'alyig).

13. gomilla.

A plant used in preparing a tea which is mixed with tea made from a yerba buena and taken for bloody stools.

14. estafiate.

This múša is said to be particularly effective in getting rid of fleas in houses. The plant is boiled and the liquid is placed upon the floor of the house, to not only get rid of fleas but of chinches also. The liquid is used for ridding humans of fleas as well; use the liquid as a lotion.

15. bavisa.

This plant is used in preparing a tea taken to induce abortion during the first three months of pregnancy.

16. bavisa.

Another bavisa which is known as tupu'il, and which is used in preparing a tea taken for alleviation of stomach disorders.

17. copalquín.

The bark of this tree is used in preparing a tea taken for fever.

18. manzanilla.

The leaves (jo'ol) are used in preparing a tea taken during pregancy and just after the birth of a child. Add a bit of cinnamon if available.

Verbena carolina

A medicinal tea made from all of this plant is taken to cure headache.

Mentha canadensis

A medicinal tea taken to relieve congestion of the lungs is prepared from leaves of this yerba buena which grows along water courses and which is cultivated in gardens.

Mentha sp.

A tea prepared from this yerba buena is taken to alleviate discomfort caused by colds.

Maicoba Labiatae (115) 70

Mentha sp.

Leaves of this yerba buena are used in preparing a medicinal tea taken by children who suffer from coughing.

Salvia sp.

All of this salvia del monte is decocted into a potion taken to gain energy.

Physalis sp.

A tea taken to relieve congestion of the lungs is prepared from all of this coronilla which is known among the Pima as kokovi.

Solanum americanum

Leaves and branches of this chichiquelite are utilized in brewing a very strong tea taken for kidney disorders.

Solanum nodiflorum

Mash all of this chichiquelite, boil the mashed material and apply as a poultice to back pains.

Datura inoxia

This toloache is found at lower elevations in canyons west of Maicoba. Fresh or dried seeds from this datura are cooked in a bit of water which is drunk by a man or youth who wishes to fall in love. But more importantly, the crushed leaves are mixed with grease and applied to skin eruptions, particularly boils. The poultice is said to "draw well."

Maicoba Solanaceae (116) 70

Datura quercifolia

Leaves of this toloache are crushed and applied as a poultice to wounds.

Castilleja rigida

A medicinal tea prepared from the leaves of this plant is taken for stomach disorders.

Maicoba Scrophulariaceae (117) 70

Mimulus sp.

Leaves of this verbena del campo are used in preparing a lotion applied to sprains. The leaves are steeped in a bit of water for a few minutes.

All of a cordoncillo which belongs to the family Acanthaceae is used in preparing a medicinal tea taken for colds and fevers. Add a bit of mescal to this tea.

Bouvardia ternifolia

Tea prepared by using the leaves of this mirto is taken to alleviate urinary difficulties.

Sambucus mexicana

Leaves of this Mexican elder (sauco) are decocted into a tea taken for fever and stomach disorders. The flowers are used in preparing a poultice applied to aching limbs; the cooked flowers are mixed with grease of a pig. The flowers are also boiled with copal gum in preparing a tea given to children afflicted with whooping cough.

Maicoba Cucurbitaceae (128) 70

Apondanthora undulata

A tea is prepared from the leaves of this sandia de coyote, set aside for twenty-four hours and then drunk for cough.

Achillea millifolium

A tiny bit of this alcanforina is mashed, mixed with grease, and applied to the ear for earache.

Maicoba Compositae (130) 70

Ambrosia ambrosioides

Branches of this chícura, a canyon plant, are heated over a small fire. Mescal is then sprinkled upon the branches which are crushed and placed upon the buttocks of a woman who is having difficulty in parturition.

Ambrosia sp.

A tea made from the leaves of this estafiate or moša, as the plant is known by the Pima, is taken for stomach disorders.

Maicoba Compositae (130) 70

Artemisia mexicana

This mugwort, which appears in Pima gardens, supplies leaves that are chewed to alleviate congestion of the lungs. The leaves are used in preparing a tea taken to clear the throat of phlegm.

Baccharis Emoryi

All of this yerba del pasmo is cooked, drained, and ground up as a poultice applied to wounds.

Maicoba Compositae (130) 70

Baccharis glutinosa

A medicinal tea prepared by using stems of this batamote, or vášam as the plant is known among the Pima, is given to children to cure them of espanto (fright).

Cacalia decomposita

Roots of this matariqui are decocted into a drink taken as a cure for diarrhea.

Carminatia tenuiflora

A refreshing tea is prepared by using the whole of this manzanilla del campo.

Poinsettia heterophylla

Roots of this contra yerba are used in preparing a tea taken for fever or a cold.

Maicoba Euphorbiaceae (64) 70

Ricinus communis

This Old World higuerilla, higuera or Palma Cristi,* the castor bean, appears in scattered examples along streamways at lower elevations in canyons west and southwest of Maicoba. The leaves of the plant are crushed and mixed with grease and applied as a poultice to inflammations. The mountain Pima seem not to know that castor oil is prepared from the seeds.

* This plant is apparently a native of Africa [Uphof (1968), 462]. The manner of its introduction into the Americas is unknown to me, but it is found in virtually all of those portions of northwestern Mexico which are familiar to me, such as upland and lowland western Chihuahua, Durango, Sonora, and Sinaloa.

Rhus diversiloba

Leaves of this white-flowered yedra are decocted into a potion taken by patients with high fever.

Rhus radicans

Leaves of this yedra, which is known by the Pima as tumba, are used in preparing a tea taken for fever.

Rhus trilobata var. anisophylla

Leaves of this yellow-flowered yedra, known as tumba by the Pima, are crushed and placed upon pimples or sores.

All off a yerba del pasmo which belongs to the family Celastraceae is used in preparing a lotion for wounds; cook the plant for about fifteen minutes.

Condalia Brandegeei

A medicinal tea is prepared by using many leaves of this junco; the tea is taken for fever or as a stimulant when one is very tired.

Althea rosea

This introduced vara (the hollyhock),* appears as a cultigen in gardens in warmer canyons near Maicoba. Its leaves are cooked, drained, and mixed with grease which is applied as a poultice to relieve headache. The grease is placed upon the forehead and held there by a rag wrapped about the head. Leaves of the hollyhock are also used in preparing a tea taken for cough.

* Presumably, the hollyhock is an introduction from China [Uphof (1968), 28].

Maicoba Malvaceae (74) 70

Malva neglecta

This malva is used in preparing a tea taken for stomach pains.

Maicoba Sterculiaceae (76) 70

Waltheria indica

This yerba del pasmo appears in canyons at lower elevations near Maicoba, along the streamways. Its leaves are cooked in preparing a lotion applied to wounds or sprains, or, the leaves are dried and crushed and added to grease in preparing a poultice applied to wounds.

Fouquieria sp.

Branches of this red-flowered ocotillo are utilized in preparing a decoction taken to relieve severe congestion caused by a cold.

An unidentified cañiro from the family Begoniaceae is used in cleaning the teeth; a tea is made from the plant and used as a mouth wash.

Gaura parviflora

A medicinal tea prepared from all of this plant is taken for fever by the Maicoba Pima Bajo.

Oenothera sp.

A medicinal tea prepared from the leaves of this ocaliti, which is known among the Pima as inkwal, is taken for stomach disorders.

Opuntia leptocaulis

Portions of the leaves of this sibuli are boiled, removed from the water, and crushed before being used as a poultice upon wounds.

Maicoba Cactaceae (91) 70

Opuntia sp.

Portions of the leaves of this cholla, a common cactus in canyons near Maicoba, are boiled, crushed, and used as a poultice applied to wounds.

Eryngium sp.

Leaves of this yerba del sapo (known as kwali among the Pima Bajo) are used in preparing a tea taken for fever.

Prionosciadium madrense

A medicinal tea prepared from this matariqui is taken to relieve congestion when someone has a very bad cold.

Prionosciadium Townsendii

Roots and leaves of this saraviki, known by the Pima as topoku'il, are used in preparing a tea taken for fever.

Chimaphila dasystephana

Branches of this yerba del hígado, known among the Pima as numar, are used in preparing a tea taken for liver disorders.

Arctostaphylus pungens

Leaves of this manzanilla are used in preparing a tea taken for dysentary.

Buddleia sp.

Leaves from this palo de ocal are used in preparing a tea taken for fever.

Mandevilla foliosa

A yerba del piojo, the entire plant of which is mashed to remove lice. The plant is known as a'at makam.

Plumeria acutifolia

This cacalosúchil,* which appears in canyons near Maicoba and Yécora,

*According to Santamaria [(1959), 1970], cacalosúchil is derived from the Aztec cacalotl (crow) and xochitl (flower).

supplies leaves used in preparing a poultice applied to swellings and inflammations. The crushed leaves are mixed with grease which is smeared upon the body.

Asclepias glaucescens

Roots of this yerba de la liebre (or u'uwokam as it is known among the Pima) are used in preparing a tea taken for stomach disorders.

Asclepias sp.

A tea prepared from this inmortal is taken for cough; the fresh leaves may be chewed to facilitate removal of phlegm from the throat.

Matelia sp.

Leaves of this contra yerba, known as tupuri by the Pima, is used in preparing a tea taken for stomach disorders.

Maicoba Asclepiadaceae (109) 70

Matelia sp.

Leaves of this inmortal are used in preparing a tea taken for stomach disorders and to reduce fever.

Matelia sp.

Roots of this inmortal which is known as tupu'il among the Pima, are used in preparing a poultice applied to the head for headache. A tea made from the roots is taken for the relief of stomach pains.

Maicoba Asclepiadaceae (109) 70

Matelia sp.

Roots of this purple-flowered yerba del indio are boiled in preparing a tea taken to alleviate the discomforts that result from drinking too much tesgüino.

Verbena delticola

The whole of this verbena is decoted into a potion taken for stomach disorders.

Maicoba Verbenaceae (114) 70

Verbena neomexicana

All of this plant is boiled in preparing a tea taken for fever.

Prunus Fremontii

Leaves of this capulín which is known among the mountain Pima as mo'oskom are used in preparing a tea taken for fever.

Maicoba Rosaceae (51) 70

Prunus sp.

Leaves of this aguaciki which is known as humpa'il or húmpil are mashed and placed upon cuts.

The crushed leaves are also applied as a poultice to bites of an avispón or arapara (ta{apa or ta'apar).

Potentilla Thurberi

Root of this yerba colorada is used in preparing a tea taken for stomach disorders. A very strong tea prepared from the root serves as a purgative. The root is often sold to herbalists who come from the low country to the west seeking roots.

Acacia angustissima

A tea prepared from the leaves and stems of this durasnillo is added to mescal or tequila and taken for colds.

Acacia pennatula

Crushed leaves of this algarroba are placed upon the head to alleviate headache. A rag is tied about the head to keep the leaves in place.

Maicoba Leguminosae (53) 70

Caesalpinia pulcherrima

Branches of this tavachín, a handsome redflowered shrub that appears in lower canyons near Maicoba and Yécora, are crushed and decocted into a liquid that is drunk to alleviate discomfort that results from venereal disease.

Cassia biflora

This plant appears in rather open areas at lower elevations of canyons near Maicoba and Yécora; a medicinal tea taken for fever is made by boiling the entire plant.

Maicoba Leguminosae (53) 70

Cassia Wislizeni

Bark of this corcho, a white-flowered tree or shrub that appears in canyons near Maicoba, is used in preparing a poultice applied to inflammations or wounds.

Crotalaria sp.

A medicinal tea prepared by using all of this plant called tu'ama or tonjig by the Pima is taken for fever.

Maicoba Leguminosae (53) 70

Desmodium sp.

The root of this purga is used in preparing a decoction that is claimed to be the most important emetic used by Pima near Maicoba & Yécora.

Desmodium sp.

The root of this purga is used in preparing a decoction that is claimed to be the most important emetic used by Pima near Maicoba & Yécora.

Maicoba Leguminosae (53) 70

Erythrina flabelliformis

Seeds and leaves of this chilicote are used, in very small amounts, however, in preparing a tea taken as a purgative; it is claimed that if too many leaves and seeds are used that the patient will die.

Eysenhardtia orthocarpa

A tea made from this matariqui is taken for stomach ache; the leaves are used. It is said that a great amount of the leaves may be used in preparing a tea taken for pneumonia. The tea also is used as a lotion applied to bruises.

Galactia striata

The leaves of this climbing vine called frijolillo are used in preparing a tea taken for colds.

Lupinus concinnus

Steep the leaves of this yerba loca in preparing a lotion applied to sores. It is claimed that animals die when they eat too much of this plant.

Maicoba Leguminosae (53) 70

Mimosa biuncifera

Flowers of this vinorama de la sierra are placed upon the head for headache; a bit of grease is mixed with the flowers.

Mimosa cabrera

A tea prepared by using the stems and leaves of this gatuña is used as a lotion applied to scorpion wounds upon animals or humans.

Maicoba Leguminosae (53) 70

Mimosa laxiflora

The flowering branches of this gatuña are used in preparing a lotion applied to people with high fever.

Prosopis juliflora

This mesquite appears infrequently in canyons near Maicoba and Yécora, at lower elevations; seeds from the immature pods are ground up and applied to inflamed eyelids.

Zornia reticulata

A tea prepared from all of this yerba de la víbora is taken to reduce fever and to alleviate coughing.

Geranium sp.

Tea prepared from all of the plant of this yerba colorada is taken as a tonic, and to relieve stomach disorders.

Oxalis amplifolia

A tea prepared from this cañira del campo is taken for stomach upsets.

Oxalis stricta

This oreja del ratón is utilized in preparing a tea taken for fever.

Impatians sp.

Leaves of this belén* are cooked for about fifteen minutes and after being drained the liquid is drunk to relieve headache.

* Precise determination of the species was impossible but it is probable that the plant represents one introduced into the Americas in post-Columbian times. Darlington and Janaki Ammal [(1945), 107] list fifteen species, only one of which is presumed to be native to North America.

Linum avistatum

A medicinal tea prepared from this plant is taken for fever.

Ruta graveolens

This ruda, which is an introduction from Europe* and which is

*Uphof (1968), 461.

cultivated in gardens, is used in preparing a tea taken to relieve one suffering from "gas" on the stomach.

Bursera odorata

Branches of this torote are crushed and utilized in preparing a decoction taken to relieve congestion caused by pneumonia.

Mascagnia macroptera

This güirote or gallinita is a trailing vine that appears upon fences or plants; the leaves are used in preparing a lotion for bathing people with fever.

Some of the Pima insist that this plant must not be pulled up, since anyone handles it gets diarrhea. These people note that the plant is always weeded out with a hoe when it appears in the fields.*

---

* The Ónavas Pima use runners of this plant as cordage and no one reported that diarrhea resulted from its use.

Cnidoscolus multilobus

Leaves of this ortiguilla are crushed and mixed with a bit of grease for use as a poultice applied to inflammations or wounds.

Manihot isoloba

A medicinal tea prepared from this cacalosúchil is taken for headache.

This unidentified lirio del campo which belongs to the family Orchidaceae is used in preparing a lotion applied to aching backs; boil the entire plant for about fifteen minutes.

Populus Fremontii

This álamo, the cottonwood, does not appear at Maicoba or Yécora but it grows in nearby rather warm canyons. Leaves are cooked in a small amount of water which is used as a lotion applied to people who have high fever. After application of the lotion the patient is covered with blankets so that he will sweat profusely.

Salix taxifolia

Leaves of this floodplain tarais or sauz (tu'ɬ1) are used in preparing a lotion applied to sores. The bark and leaves may be used in preparing a very strong tea taken for fever.

The leaves and bark may be burned and the smoke is blown towards an infirm person.

Juglans major

A tea prepared from the leaves of this nogal is claimed to enrich the blood.

Alnus firmifolia

A tea prepared by using the bark of this alamillo is taken to promote rapid parto.

Quercus chihuahuensis

The bark of this encino peludo (vokotu'a or vopkomtu'a) is used in preparing a poultice applied to wounds upon animals; mash the bark and add to a bit of grease.

People who are troubled with hoarseness seek a parasitic growth (a tiny bolita) that is found upon this oak for use in preparing a poultice that is applied to the throat and covered with a rag.

Quercus durifolia

Bark of this encino cusi negro (šipa) is used in preparing a poultice applied to wounds upon animals; mash the bark and add to a bit of grease.

Quercus oblongifolia

Bark of this encino chino is used in preparing a poultice applied to wounds upon animals; mash the bark and add to a bit of grease.

Quercus viminea

Bark of this encino cusi (ka'al) is used in preparing a poultice appli to wounds on animals; mash the bark and add to a bit of grease.

Quercus Toumeyi

Bark of this encino chino (ho'ičkam or kapuku'a kusi) is used in preparing a poultice applied to wounds upon animals; mash the bark and add to a bit of grease.

Polygonum lapathifolium

Leaves of this plant are used in preparing a tea taken for catarrh.

Chenopodium ambrosioides

Leaves and stems of this ipazote,* which appears in canyons near Maicoba, is crushed and decocted into a liquid drunk to relieve colds, colic or any stomach disorder. It is claimed to be particularly effective in preparing a tea taken to cure dysentery.

* According to Santamaria [(1959), 497], ipazote or epazote is derived from the Aztec epazotl which itself is derived from epatl (skunk) and tzotl (dirty).

Alternanthera caracasana

Leaves and roots of this tianguis which is known as šupu'ul among the Pima are teten by children who are afflicted with measles. A tea prepared from the root and leaves is taken for urinary difficulties.

Mirabilis longifolia

Leaves of this maravilla are used in preparing a poultice applied to wounds. Use a bit of grease in preparing the poultice.

Portulaca sp.

Leaves of this amor por un rato, which appears in gardens in the warmer canyons near Maicoba,* is used in preparing a tea taken to gain energy.

*This species could not be identified by Professor B. L. Turner of the University of Texas Herbarium but the plant is probably one of the purslanes introduced into the Americas in post-Columbian times.

An undetermined yerba zorilla is used in preparing a tea taken to alleviate stomach pains; the plant belongs to the family Ranunculaceae.

Clematis Drummondii

Blooms from this vine called barba de viejo, which appears upon shrubs, trees and fences, are cooked for about ten minutes in preparing a potion taken to stimulate passage of urine; the blooms are removed from the liquid before it is drunk.

Argemone ochroleuca subsp. ochroleuca

This cardón appears at lower elevations in canyons near Maicoba and Yécora. Juice from the stem is dripped uppn cotton on to which hot water is poured; the cotton is squeezed over open eye to cure mal de ojo.

Papaver Rhoeas

This Old World amapola* which is cultivated in gardens by some Pima supplies flowers used in the preparation of a medicinal tea taken to relieve stomach pains.

*Uphof (1968), 386.

Platanus Wrightii

At Maicoba, the bark of this aliso is used in decocting an infusion given to women who fail to expell the afterbirth. The decoction is also given to cows to promote calving.

Maicoba, Pennington

Chapter 9

Notes

may be placed: (1) Quercus viminea (ka'al); (2) Q. Toumeyi (ho'ičkam); (3) Q. endlichiana (ha'awa); (4) Q. oblongifolia; (5) Acacia pennatula; (6) Pithecolobium mexicanum; and (7) Lysiloma divaricata (.a . mauto which does not appear at Maicoba, but rather in tierra caliente to the south and west).

The bark is called kom or komi. The skin is left in the tanning solution for about a week, after which time it is removed, wrung out, beaten with a stick until it is dry, and then kneaded upon a flat surface until it is softened. Some of the Maicoba Pima state that formerly brains and marrow of the deer were used as a softening agent; after being cooked for a short time, this substance was smeared upon the skin before it was soaked in the tanning solution.

Skins of wild game and domestic animals are very important in the Maicoba Pima economy since there is little opportunity for the Indians to obtain cash for purchase of leather goods, particularly shoes. Processed skin is not only valuable in the manufacture of items used in and about the household but also serves as a barter or sale item in western Sonora.

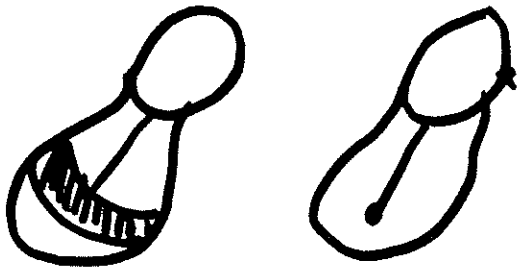
Whatever the type of skin processed, the techniques used in processing hide are essentially the same. If skins are used for adorno, that is, if they are stuffed, and occasionally a squirrel is so prepared, the skin is removed over the head of the animal. When the skin is destined for some other purpose the animal is slit down its belly and its skin is pulled or cut from its body. The skin is then hung to dry. It is then scraped thoroughly, with either a rib bone of a horse, a knife, or a stone that has a sharp edge. According to all informants, there is no attempt to sharpen this stone which is sought in a stream bed. The skin is then soaked in a canoa for several days. It is then removed, wrung out and placed again in a canoa, into which bark of any one of the following trees or shrubs

An alesna is made from deer bones. Wooden awls an needles are used.

Relatively few adult males and youths go without footgear at Maicoba but a significant number of female adults and girls, perhaps forty per cent, go barefooted. According to the older Pima virtually all Pima at Maicoba and Yécora went barefooted about two generations ago. However, some crude "shoes" were made, from skins of animals, and occasionally from leather traded from mestizos; the Pima stated that their ancestors did not know how to prepare leather as did the mestizos. There is a story of the use of hob-nailed boots; Dolores Velásquez Duarte noted that her Grandfather was killed by the Apache because he could not run fast enough since he was wearing such boots. These boots were obtained from mining folk.

Today sandals (susak) are prepared from pieces of rubber tires and anchored to the ankles with strips of dressed hide. However, such footgear seems to be uncommon. Rather, most of the men and boys wear tegüas prepared from dressed skin, obtained by processing hides of the following animals: cattle; burros; horses; hare and cottontail;

types, as indicated below. Ule or marrano silvestre (the jabalí) are preferred for making soles but any of the skins mentioned above may be cut into strips and used as thongs, or for manufacturing the flap that characterizes some of the sandals worn by the men, a strap across the front of the sandal.



The importance of the tegüas is self-evident when one considers that a good pair of men's shoes at Maicoba costs at least $200.00 ($16.00 U

Wooden needles (/ovič alčim) are used in fashioning the tegüas; such needles are made from pine or oak.

squirrels; nutria (vahali); cholugo (sul, suyi); skunk (u'up); tejón (vavoki); coyote (bann); wolf (su'i); gato montés; peccary; and the white-tailed deer (šiki). Such skins are used for the fashioning of the upper portions of the tegüas, that is, except for the peccary (toskoli) the skin of which is tough enough for fashioning soles. Most of the soles in tegüas worn by males are fashioned from pieces of rubber tires.

Women's tegüas are invariably prepared from the softer skins of the above mentioned animals, and sole and upper portion of the tegüas worn by women and girls are of the same skin.

Tegüas that are made by ule soles are sewed together or the hide is anchored to the sole with small nails. According to Federico Rodríguez Romero there are about ten shoe-shapers (metal) owned by Pima at Maicoba. If a shaper is not available the skin is cut to fit the foot of the person for whom the tegüa is destined.

Sandals or hueraches (susak) worn by the men are of two general

Maicoba Pima fashion ropes and quirts from dressed or non-processed hides of domestic or wild animals.

For a comment on fashioning of quivers see Chapter VI.

Tumplines are fashioned from processed hide from domestic or wild animals and are used with the carrying baskets.

Leather Goods - Nets for Carrying Baskets - 1

Rawhide is used in fashioning nets for carrying baskets.

Maicoba

Leather Goods - Sleeping & Sitting Mats

The following animals are important as a source of hide used in preparing sleeping and sitting mats: deer; león; cholugo; tejón; fox; peccary; and cow or oxen. Skins of deer and domestic stock are the most esteemed since most of skins of remaining animals are not large enough for use as sleeping or sitting mats and the Pima seem disinclined to sew the smaller skins together.

Those Pima who maintain horses often use processed hide as a saddle pad or blanket. Belly bands to anchor the crude wooden frame used in connection with transport of leña are made of processed hide.

Arrieros sometimes fashion aprons of processed hide, aprons which are of value in protecting one's legs while chasing animals from brush.

Some of the Maicoba Pima fashion jackets of processed hide, particularly hides of the coyote, wolf and león.

Small and large bags are fashioned of processed hide by the Maicoba Pima. Pinole is commonly carried in a small leather bag made from any one of the animals available in high western Sonora except that of the peccary whose skin is said to be too tough for fashioning bags. Deerski is, however, the favored source of leather for bags. The larger carrying bags are usually about 12 x 13 inches in size and are invariably prepared from dressed cowhide or deerskin.

For a comment on slings manufactured by the Maicoba Pima see Chapter VI.

For a comment on wrist guards (pulceras) used by the Maicoba Pima see Chapter VI.

Leaves of a lecheguilla (Agave bovicornuta), A. Schottii, A. Patonii and A. chihuahuana, are utilized as a source of ixtle used in manufacturing cordage of one type of another, such as ropes, tumplines, nets for canteens and small net bags. Some of the gente de razón extract fiber from leaves of Yucca baccata; these gente de razón live at Santa María.

The maguey leaves are processed in the following way:

(1) Cut the leaves.
(2) Tie them up into bundles.
(3) Dig a hole.
(4) Build a fire in the hole.
(5) Place rocks in the hole.
(6) When the wood has burned down drop the bundle of leaves into the hole.
(7) Cover the leaves with a pile of grass.
(8) Cover the grass with mud.
(9) Cover the mud with earth.

(10) Leave the leaves in the hole for several days.
(11) Remove the leaves and place them in the sun to dry.
(12) Carry the leaves to an arroyo in which there is water.
(13) Cut the leaves up.
(14) Shake out the fibers.
(15) Wash and dry the fibers.

Some of the Pima stated that the gente de razón who use yucca as a source of fiber simply mash the leaves of the plant with a stick or a stone, and then remove the fibers by hand. Other Pima stated that the more correct way of removing fibers from yucca was in the fashion mentioned above for the magueys.

The tarabilla is used in making the cordage, for whatever purpose.

The larger baskets bring about $4.00 ($0.32 US), the smaller ones only $2.00 ($0.16 US). Money from the sale of the baskets belongs to the women.

Men or women fetch the weaving materials which are not readily accessible at Maicoba. The important sources are as follows:

(1) Nolina matapensis (ša'ava'i).

(2) Dasylirion Wheeleri, a sotol (mo umag).

(3) Sabal uresana, a palma del suelo (saval, duvurtum ša'ava'i).

A stone implement is used for removing the sharp edge of fibers used in fashioning baskets. This tool is made of an easily worked stone, chipped out with a piece of iron or a rock, and is called vómkar.

(4) Nolina microcarpa, known as sagualiki, must be brought in from warm canyons to the south, west and northwest of Maicoba.

(5) Yucca baccata, which must be brought in from lower elevations.

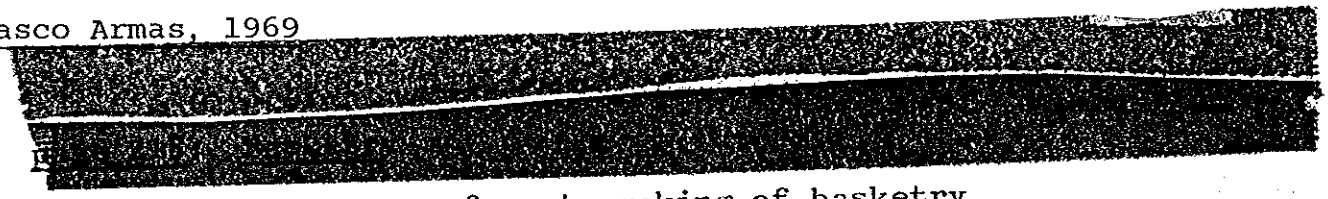
According to Dolores Velásquez Duarte, the weaving house or underground hut is called hu'uki or hu'ukibonamta; the latter term is derived from hu'uki and bonam (hat). This underground hut is a small depression prepared in the ground and partially surrounded by stone walls and covered with a roof (kikómer) made of canoas topped with earth, or the depression may be covered with a cone-line arrangement of logs, the elevated portion of the half-cone being supported by a log placed across two poles implanted in the ground, and the whole covered with earth. Remains of such underground structures may be seen almost everywhere in the Maicoba area, and such remains suggest the presence of habitations which have long since disappeared.

Baskets are round or square in design, and are fashioned with or without tops. Baskets are usually single-twilled, there being few examples of double-twilled baskets. Baskets are called háhar or hašhar. Handles may be fashioned. Dolores Velásquez Duarte notes that present-day Pima women are muy flojo (šihatohod) with respect to weaving baskets, that is near Maicoba and at Yécora where she once lived.

Brugge (1961), 10

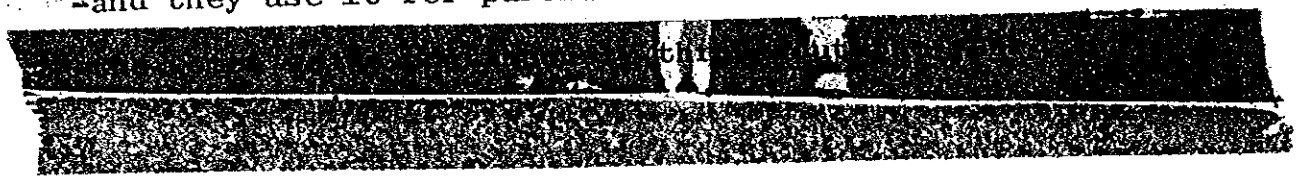
"One stone tool still used in basket making is a grooved stone of soft red vesicular basalt used to remove the tiny spineo of beargrass leaves. As the groove or grooves are irregular or rectangular in cross section, the tools can be distinguished from arrow shaft straighteners."

Nolasco Armas, 1969



-Nolasco Armas refers to making of basketry
-on page 217 she notes that some palma is brought from Güisopa, Sonora
-and another kind is available in the mountains near the Pima homes
-the women do the weaving, inside the jukis
-the single weave baskets are called waris
-the double twill baskets are called "waris dobles" of "jimaras"

-the women keep the money obtained when they sell baskets
-and they use it for purchase of coffee, sugar, matches



Pyramidal or cone-shaped cargo baskets are fashioned by the Maicoba Pima. These baskets are carried on the back of an indivudal and supported by a tumpline (nu'ol) about the head; the tumpline is made of processed hide of ixtle (hugtubi or habtu'iwig) fibers. Or, the baskets are anchored to a burro if corn is to be transported for some distance, as from a far-away milpa to the house. These baskets are very useful in transporting mescal to the houses.

The following materials are used in fashioning carrying baskets at Maicoba:

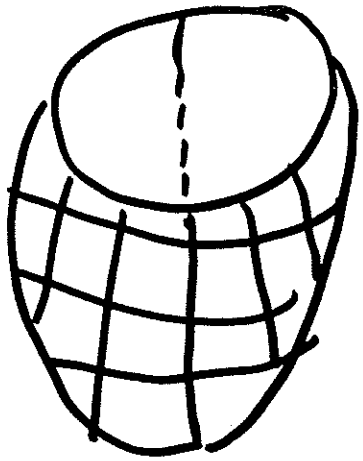
(1) The circular band at the top of the basket and the three supporting pieces--which are anchored to the top of the basket with ixtle fiber and tied together at the bottom with the same fiber, that is if the supporting pieces are not fashioned of a long branch that can be shaped--may be prepared from a batayáqui (Montanoa Rosei or M. patens), which is known as uškar or kokmog uš, and which must be brought in from warm canyons west and south of Maicoba, or from two woods available in the high country, Morus microphylla and a saúz (Salix laevigat

The net may be fashioned from ixtle fibers (Agave Schottii, A. Patonii and A. Hartmanii).

Angarillas are fashioned from

(1) Batamote

(2) Batayaki



(2) Pliable branches of a vášam (Baccharis glutinosa), one of the common shrubs along stræmways in the high country, are generally used for fashioning the "net" of the cargo basket; the branches are loosely entwined.

(3) There is a minor use of a palo chino (Pithecolobium mexicamum) in fashinning the "net" of a cargo basket.

(4) Formerly, according to the older Pima, young and pliable stalks of a carrizo (Arundo donax), the Old World cane,* and otate (Arundinaria

---

* Uphof (1968), 53.

---

longifolia) were used in fashioning baskets for cargo purposes; both of these canes had to be brought in from warm canyons located west of Maicoba and Yécora. The frame was of wood and the cane was affixed to that frame with vegetable fibers or leather thongs.

Sleeping and sitting mats (ma'ini) are commonly fashioned today by the Maicoba Pima, from the same fibers utilized in the making of baskets, Nolina matapensis, Dasylirion Wheeleri, and Sabal uresana. However, the more mature leaves are utilized. Formerly, petates were used for wrapping the dead.

Plants Used in Making Petates

1. Palmilla rastrada
2. Palmilla espinazo (como sotol, but marked by tallo)
3. Palma jueve
4. Palma real

Few of the contemporary Pima weave hats (bonam) but according to the older Pima a great many people--both men and women--wove hats about two generations ago. The hats are round and are fashioned without regard to size. There is a brim and the weave is double-twilled. Young shoots of Nolina matapensis, Dasylirion Wheeleri and Sabal uresana are used in fashioning hats.

A well-made hat may bring from $15.00 to $20.00 ($1.20 to $1.60 US).

The palma real is the favored source of material for making hats.

page 12

-Brugge noted that "occasionally, when built away fsrom home near saw mills, where the men often find employment, hukis are roofed with pine slabs from waste of the saw mill. They have a rectangular entry framed with poles and the sides and sloping roof are both of waste slabs.

-"the huki may be an adptation of the menstrual lodge, or woman's house, which was used by Piman tribes and where women often passed the time when weaving baskets."

"the term huki appears to be Piman in origin, the last sylable ki meaning house. The meaning of the prefix hu is unknown

Brugge (1961), 10-12

-located sometimes close to the house
-or may be as far "as a hundred yards distant"
-"some locations are selected at random"
-"but most hukis are situated so that the entry is somewhat sheltered from direct sunlight that would hasten the drying of fibers"
-therefore, orient the huki toward the north, or by building it to face some shltering object "such as a tree, bush, or house"
-the "subterranean portion of the huki is a circular excavation from 12 to 20 inches deep and from five to seven feet in diameter. the walls and floor are bare earth, given no special treatment, and lack such features as pits or niches."
-"a large branch, 10 to 14 inches in diameter, with a natural curve of angle in the center of about 90 degrees is placed on the side on which the entry is to be located. The angle extends upward and the ends are embedded in the earth to hold it in position. The result is an arched lintel above the entry."
-"straight poles, 2 to 5 inches in diameter, are laid at right angles to the lintel, one end resting on the lintel and the other on the ground on the opposite side of the excavation. The roof is then covered with soil from the excavation and the huki is completed."

Maicoba Pima secure ixtle fiber (hugtubi, hagtu'iwig, tašnim) from magueys and yuccas for use in manufacturing rope, tumplines, small bags, nets for canteens, and small net bags. Some of the gente de razón utilize these fibers in making large sacks and material for covering the x-frame cots.

The tarabilla is used for manufacturing the cordage.

Ixtle is sought from sagualiki and maguey (una clase).

The tarabilla is used for fashioning hair of the tail of horse or cow into cordage.

Most Pima men and youths at Maicoba dress as do the poorer mestizos, wearing the cheapest of shirts and pants purchased at Maicoba or Yécora. Very small boys wear what only may be described as rags. Shirts and drawers may be made by women from very cheap material purchased by the meter at Maicoba or Yécora. Men and youths generally wear tegüas or sandals fashioned from domestic or wild animal skins, although some Pima men wear shoes purchased at exhorbitant prices at Maicoba.

Older Indians state that no more than two generations ago there were Pima men who wore only a taparrabo (kulvänyi) made of cloth or of processed hide; this article was described as something like a child's diaper. The upper portion of the body was covered with a cotense. Some men wore very short calzones made of cheap cotton cloth, the upper portion of the body being covered with a cotense. Sashes (gívur) which were woven by the women, were made from thread made on the tarabilla from the fibers of ixtle. It was also claimed that sashes were made from cordage made from hair of tail of horse or cow on the tarabilla.

Pima, although it may be that the men referred to as serranos may be more Tarahumar than Pima in background. The exact distribution of the Tarahumar has never been determined and the reputed appearance of the serranos at Yepáchic is suggestive of an affiliation by those people with the Tarahumar who live not far from Yepáchic, to the south and southeast.

Just how long the use of the taparrabo persisted as a general article of clothing among the Maicoba Pima is not known. However, a mestizo who lives with a Pima woman at Maicoba, and who has a family by her, stated that when he came to Maicoba about 1953 there were still serranos who wore nothing but loincloths. The children of such people went naked until about the age of six, something that apparently is not encountered today. Such people lived at some distance from the village of Maicoba and were only seen when travellers journeyed to and from Moris--located somewhat south of Maicoba--by horseback through the rough terrain south and southwest of Maicoba because of high water along the customary routes. Such people rarely came to Maicoba and never went to Yécora, but were said to appear occasionally at Yepáchic.

That country between Moris and Maicoba is exceedingly rough, as is readily seen when travelling by air between the two villages. The terrain is as rugged and difficult of penetration as along the middle portions of the Río Urique and the Río Verde country south of Guagochic in Chihuahua. A number of isolated milpas may be seen from the air, in the canyons and upon the great bufas that make travel so difficult. There is no good reason to doubt that there are yet rather primitive Mountain

Source: Rada (1777)

The Indians made pants from skins of deer.

The ancient Indians went naked (desnudos totalmente)

The women wore only a piel de venado cubrian lo forzozo

As of 1777:

1. coton de zaycul
2. unos calzones de gemuza
3. una manta grande de lana
4. otros andan desnudos con solo un bragero y su manta
   MUY POCO TIENEN OTRA ROPA
5. las mujeres parte tiene una manta cenida en la cintura que suple por naguas
6. Otras tienen naguas de vayera y todas un coton blanca de man o una manta de lana

Nolasco Armas, 1969

page 207: On wearing of footgear

Nolasco Armas notes that "only the small and babies walk barefooted." THIS IS NOT SO, FOR I HAVE PHOTOS OF ADULTS WHO COMMONLY GO BAREFOOTED, according to their own admission

page 208: On clothing

Nolasco Armas notes that the Pima usually have two sets of clothing, sometimes three, but very few as much as four.

The complete set of clothing for men or women might be from $60.00 to $80.00; for the children up to $35.00... that is, for 1961 prices.

Maicoba Pima women and girls dress as do the poor mestizas except that the Indian women go barefooted far more than do the latter. Dresses worn by Pima are either ready-made very cheap garments purchased at Maicoba or at Yécora, are are made by the Pima from cheap material purchased at either Maicoba or Yécora. The acquisition of any sort of footgear by women except tegüas fashioned from skins of wild or domestic animals is difficult; it is said that the available money must be used for purchase of shoes for the men since they must perform the hard work.

Some of the very old Pima women who live near Maicoba wear long shift-like dresses and go barefooted all the time. It is claimed that these shift dresses were worn by all women until about two generations ago. Apparently, the women never wore sashes such as those worn by the men

Formerly, according to the older Pima at Maicoba, wool was obtained from goats. This wool was used in the weaving of blankets and belts.

west or northwest of Maicoba. Most blankets were distinguished by fringes. Stripes were utilized as decorations at each end of the blankets, the stripes being about one-half inch in width. If the blanket were black then white, red or yellow stripes were used. If the blanket were white, then black, red, yellow or blue stripes were used.

The available evidence does not suggest that a great many blankets were made of wool several generations ago. The older Pima at Maicoba state that pita blankets were far more common.

No contemporary Pima could recall the name of a woman who had woven a blanket within the current generation, but four women stated that their grandmothers had woven woolen and pita blankets. The woolen blankets used by contemporary Maicoba Pima are said to have been brought from Yepáchic.

Looms

The older Maicoba Pima refer to a horizontal loom which was rectangular in design, anchored to four forked saplings implanted in the ground. The instrument was about a foot above the ground and the weaver sat upon the ground. Looms were placed on the side of the house where the weaver would be in the sun.

The weaver was called ádim, the loom esta'ag--probably a corruption of estaca--, and the shuttle was called alšim. The shed stick was called woli, probably a corruption of bolillo. It appears that both men and women knew how to weave although customarily the women did the weaving.

Blankets

Blankets (saráp) were manufactured by the Maicoba Pima and were decorated with material dyed with commercial dyes or colors prepared from local plants or plants brought in from hot country to the south

Nolasco Armas, 1969

page 204: Description of the juki

Near the houses there are some small subterranean constructions called jukis, of circular form, very irregular, with an approximate diameter of 1.50 m. They are but holes in the ground as of about 50-60 cm in depth, to which, following the border of the hole, stone walls have been added. In the enter of the juki and "y" for stick if put on to hold on either laths or some other heavy lumber to form the roof of boards or shingles, with dirt upon it. The floor is of earth, and is sprinkled during winter and summer. This keeps the palm always fresh.

Belts

Belts (gívur) were worn by the men and youths, not by the women, about two generations ago. These sashes were made from thread of ixtle as well as from animal fiber from the tail of horse or cow. There was uncertainty as to whether woolen belts were made.

Brugge (1961), 10

"Weaving was done on a horizontal loom set up on four short posts placed in the ground."

Maicoba Weaving 98

Nolasco Armas, 1969

Page 200: The weaving room

Nolasco Armas notes that the juki is constructed within the corral that fences a portion of the yard about the house.

The contemporary Pima at Maicoba refer to the following sources of dyes used in preparing wool for decoration of blankets:

(1) Brasil (ú'uška), which is Haemotaxylon brasiletto brought in from canyons near Moris and Batopilillas. A red dye was prepared from the bark of this tree. The bark was crushed and placed in a canoa with water and wool for about two weeks.

(2) Leaves of a saúco (Sambucus mexicana) were used in preparing a blue dye. The leaves were boiled with wool for about twenty-four hours. This tree is found in warm canyons near Maicoba, at Moris and Batopilillas.

(3) Leaves of an algarroba (Acacia pennatula) are used in preparing a yellow dye; the leaves are boiled with wool for about twenty-four hours. This algarroba is sought in warm canyons near Maicoba.

(4) Bark of a palo chino (Pithecolobium mexicanum) found in warm canyons near Maicoba supplies bark used in preparing a white dye. The bark is boiled for several days and black wool is soaked in the mixture for at least a week.

(5) A tepeguaje (Lysiloma Watsoni) which is available near Moris and Batopillas provides a bark used in preparing a red dye.

(6) A mauto (Lysiloma divaricata) which is found near Moris and Batopilillas is sought because its bark is used in preparing a red dye.

In lieu of commercial soap, which is much too expensive for the Pima to purchase, leaves of certain magueys (Agave Schottii, A. chihuahuana and A. Patonii) are crushed and rubbed upon clothes which are then soaked in water before being rubbed upon a stone rubbing stone.

Combs

Pine cone combs are yet common among the Pima of Maicoba, the combs (gašikar) being prepared from cones of pines found in the high country east of Maicoba.

The spiny fruits of Pachycereus pecten-aboriginum (tutč) which appears in the canyons near Moris and in canyons west of Maicoba are used in the preparation of combs.

Men's Hair Styles

Formerly, men are said to have worn their hair in bangs (tutumo'okam). The back hair was long and fell loosely to the shoulders, often being held back with a band of cloth or ixtle fiber tied about the head. Some of the very old men stated that men once wore braids which fell to the shoulders. Ixtle fiber was sometimes used to tie loosely falling hair at the neck.

Women's hair styles

According to information obtained at Maicoba the women anciently wore their hair in braids which fell to their waists. Flowers were worn in the hair at festivals.

Until recently, an unbaptized boy or girl wore their hair in braids until a priest came to Maicoba. After baptism the braids were cut off and placed near the statue of San Francisco in the church.

Maguey leaves (Agave Schottii, A. patonii and A. chihuahuana) serve as a source of detergent used for washing hair. Small pieces of mature leaves are soaked and rubbed upon the hair.

Certain seeds are claimed to have been formerly used in fashioning necklaces, such as seeds of

(1) A sabino (Juniperus monosperma).

(2) An unidentified naranjo de amor belonging to the family Solanaceae.

Shells from the "arroyos" were used in fashioning necklaces. Pita fiber was used as thread.

Only the women wore earrings anciently. The ears were pierced with a wooden needle or a sharpened stick. The ears of baby girls of today are pierced with a steel needle

Older Pima at Maicoba state that about two generations ago ixtle fiber was used in the fashioning of hair nets, loosely woven nets.

The use of natural pigments (tierra blanca, sata colorada, sata amarilla and sata verde) and carbón de piño for painting the body at Easter celebrations is discussed in Chapter VIII, as is the former use of a body paint or dye prepared from leaves and flowers of saúco (Sambucus caerulea) and peach trees.

Maicoba, Pennington

Chapter 10

Notes

warm canyons near Maicoba serves as a glue; and (3) pitch from any species of pine found in the high country may serve. The broken dipper is glued together and then sewed tightly with ixtle fiber.

Gourd utensils are fashioned from Lagenaria sicararia (vák, váko), cultivated in field or garden. A dipper (havo) is prepared from a dried gourd of the desired size; the gourd is slit longitudinally if there is a neck, so that the neck portion serves as a handle. Round gourds without necks are split in half. In either case, the gourds are stored away until dry before they are split and cleaned of their interior pith and seeds. A gourd canteen (vaka) may be prepared from a gourd that has a neck. When the groud has dried the tip end of the neck is cut away and a net of ixtle fiber, of processed strips of hide, or cordage made with the tarabilla from hair of cow or horse is made. A carrying handle may be fashioned of either of these sources. A stopper is prepared from a corn cob or any soft wood that may be cut to the desired shape and size.

Glue for mending cracked dippers is prepared from the following sources: (1) the whole of the head of any animal is boiled until only a bit of liquid is left in the olla--this liquid is cooled and used as a glue; (2) gum from a mesquite (Prosopis juliflora) which is found in

either side of the olla to facilitate its handling when used for cooking. A handled olla or one with a pichel is called duvur hahar, whereas an olla without either handle or a pichel is called ha'a, which is apparently the generic name for ollas.

A cloth rag or a yucca fiber band is wrapped about the woman's head as a cañawal (a'atmotigä) when water must be transported for some distance. Or, any pliable branches may be used.

The Maicoba Pima speak of several women who are yet well known for making ollas, such as Adela Jiménez of Tierra Panda, and Juana Galavíz and María Coyote who live near Maicoba.

Ollas for storage of water and for cooking are very important in the Maicoba economy since the Pima are too poor to purchase tin buckets for carrying water and metal cooking utensils.

Clay (bidğ) for the fashioning of ceramic objects at Maicoba is obtained from "mines" at Maicobita, Çuipur, Alamillo, and Minita. This clay is brought to the house and kneeded a bit before a bit of sand (ohi, o'oho'i) is added as a tempering agent.

Both men and women know how to process clay and manufacture ceramic objects but generally the women attend to this chore.

The base of clay objects fashioned at Maicoba consists of a flattened pat of the size desired for making large or small containers and the sides of the utensils are fashioned by adding coils of clay which are smoothed with the fingers or with a stone.

Maicoba Pima deny that designs have every been used on ceramic objects manufactured at Maicoba. The finished object is rubbed with sata colorada before it is fired.

Handles (nakar) are occasionally added to the smaller ollas used for cooking. There may be true handles or a pichel, a stub affixed to

Source: Rada (1777)

Refers to implements of barro

Nolasco Armas, 1969

page 218: Pottery making

-pottery is made by the women
-clay is sought at special sites
-near the river
-sand is used as an agent to hold the clay together
-the women make long strips of clay
-that is, the coiling method
-smoothed with stones and dried in sun
-produce
    -large ollas
    -small ollas
    -cajetes
    -cuescomates
-kilned in the open
-little of the pottery is sold, most being for
-personal use

The comal at Maicoba is known as tumčka.

The griddle (cajete) is known as čikla among the Maicoba Pima.

A tinaja fashioned from clay at Maicoba is called po'oš.

Plates are called plat čikla.

Maicoba — Stone Artifacts - Metate 1

The metate is known among the Maicoba Pima as mátar, and is fashioned from a piedra azul known as tutugmatara; this stone is found in the river. The instrument is shaped with a metal chisel and a hammer. There are apparently two kinds of metate with respect to grinding coarse of fine material. One is used for grinding coffee, the other for grinding nixtamal. Metates are often supported upon forked stands, there being a another stand at the edge of the metate stand, to support a clay bowl in which the ground material is collected. Most metates are without legs. However, some of the older Pima insist that long ago there were three-legged metates which were placed upon the ground.

On metates (1971 data)

1. Find a suitable rock in the arroyo.
2. Fashion with metal chisel today, if you do not have one then borrow one.
3. May last 50 years. Juan noted that his brother had one that was used by their grandparents.

Moris — Metates - 1777 — 114

Source: Rada (1777)

Refers to molinos de mano which they dalled metates

The grinding stone (mano de metate) which is known as mata novi or nover is also fashioned from a piedra azul found in the river at Maicoba. This instrument is held by both hands when being used.

No stone axes were noted in the vicinity of Maicoba in 1968 and 1970 but the older Pima insist that they were used hardly two generations ago.

Juan Gonzhes noted that he had seen them about.

Stone Artifacts - Chopping Stones, Hammer Stones, etc. 1

The Maicoba Pima refer to former use of chopping and hammer stones and describe a small stone bowl fashioned from piedra azul, a bowl used in the preparation of chile for meat dishes.

Maicoba

Wooden Artifacts - Bowls 1

Wooden bowls (bateas) are fashioned from the wood of Alnus firmifolia which is known as alamillo among the Maicoba Pima. If the bowls are cracked they are repaired by nailing a piece of a flattened beer can over the crack.

Maicoba

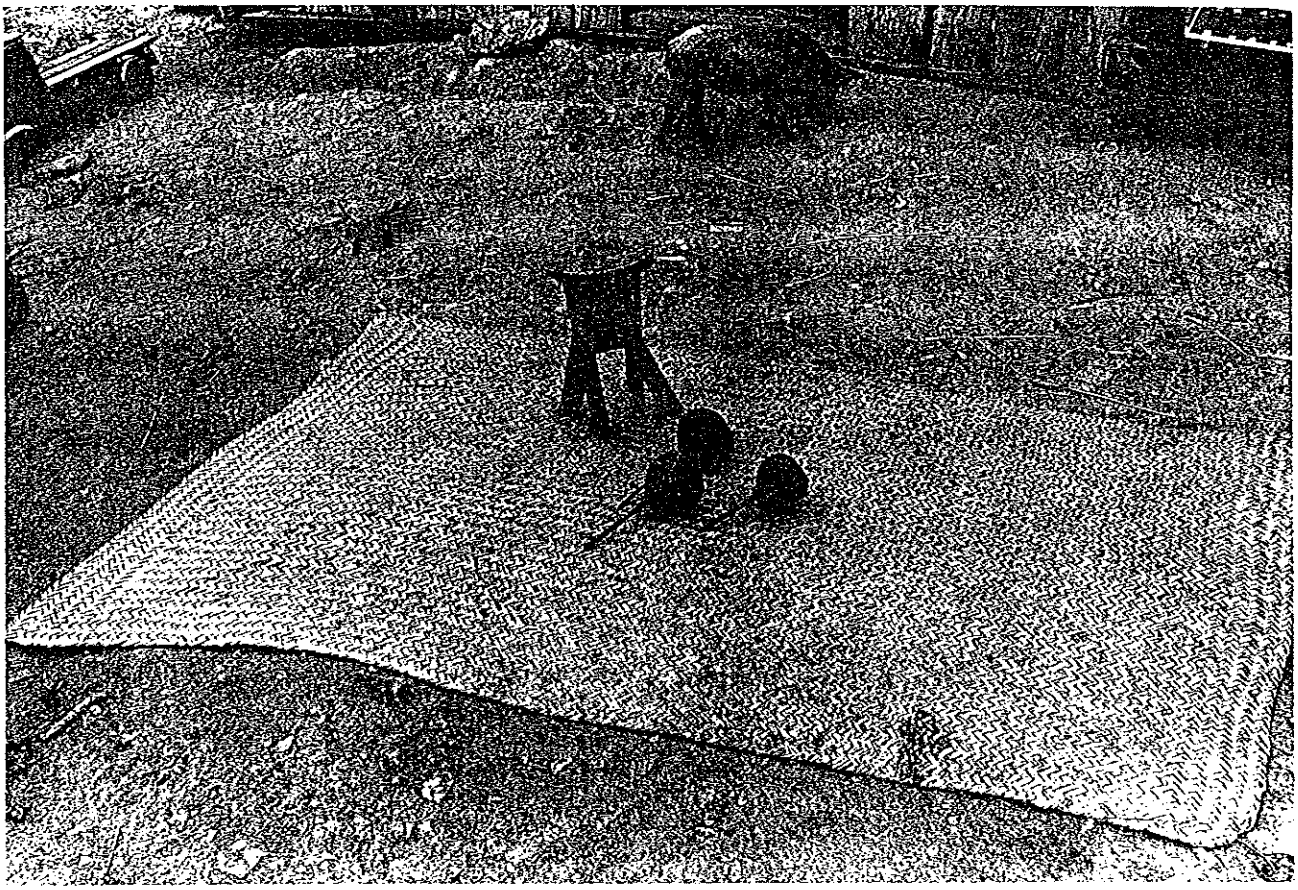
Wooden Artifacts - Spoons 1

Spoons, large and small, are fashioned from the wood of an *alamillo* (*Alnus firmifolia*) and *madroño* (*Arbutus arizonica*).

ıicoba

Wooden Artifacts - Troughs 1

Wooden troughs used for feeding stock and for processing of hide
ce prepared from easily worked timber found in the high country near
aicoba.



Maicoba Wooden Artifacts: Stools, Chairs, Benches, Tables 1 12

The Maicoba Pima fashion from any easily worked wood the following articles for use at their habitations:

(1) Stools of the 3-legged or 4-legged types, the legs being inserted into holes prepared in the bottom of the seat, or being a part of the stool if a 3-legged article may be made from a suitable portion of a tree.

(2) Chairs, which are covered with skins of any of the larger animals found in the high country. These seats are usually anchored by being laced at the bottom with rawhide thongs which are wetted after being anchored.

(3) Tables.

(4) Benches are made by nailing a plank upon smoothed portions of a log which are cut to length of about 14 inches.

Beds

Most of the poblanos sleep upon the ground, within the house during the winter months, outside during the summer months except in very damp periods of the rainy season.

The most common bed among the Maicoba Pima is fashioned in this way: four y-shaped supports are anchored in the ground in the corner of a house and a number of smoothed saplings are placed upon the frame which has been anchored to the supports. Occasionally a net of rawhide is used in lieu of the saplings.

Few of the Pima use pillows. Those who do make them use pochote from Ceiba acuminata which appears in canyons to the south, west and northwest of Maicoba.

Cots

The folding x-frame cot which has come into use in the sierras of eastern Sonora during the past three or four decades, is not much

Nolasco Armas, 1969

page 226: Sleeping arrangements

-the Pima sleep in a heap
-usually the mother with the daughters
-and the father with the sons
-but in poor housing, all sleep in one great pile

used by the Pima. The cost is too much. The cot frame costs about $15.00 ($1.20 US) and the sacking material costs about $10.00 ($0.80 US).

Tapestles

Some of the Maicoba Pima reported that tapestles of carrizo (Arundo donax, the introduced cane*) or of otate (Arundinaria longifolia)

* Uphof (1968), 53.

serve as beds in canyons west and south and northwest of Maicoba. However, most tapestles are fashinned from smoothed saplings which are no more than 1 inch in thickness. In either case, the tapestle is held together with ixtle fiber cordage and whether made of cane or wood is supported upon two or three logs or hewn blocks of wood.

Are fashinned from carrizo and otate (1971 data a repeat of earlier information)

Nolasco Armas, 1969

page 233: on fire making

-Nolasco Armas says that the Pima do not remember their traditional way to produce fire, so they use matches
-THIS IS INCORRECT
-she also says they do not conserve fire in the form of embers lighted inside thecinders
-but THIS IS INCORRECT EXCEPT WHEN THEY LEAVE HOUSES FOR some time

At Maicoba, a fire (ta'i) is maintained constantly in occuped houses. When matches are not available a fire drill is used; a suitable piece of wood is placed upon the ground and a slender fire stick (li uši, which means thin or narrow stick) is placed upon the piece of wood and rotated with the hands. Yesca is placed near the point where the bottom of the fire stick is rotated. The yesca is called ho'udug. Also, fires are started with a piedra de lumbre against which a bit of flint is struck.

The Maicoba Pima refer to several important sources of firewood (ko'ag), such as:

(1) A tarais (Salix taxifolia) which is known as tu'il in Pima.

(2) A sabino (Juníperus monosperma).

(3) Juniperus californica, also known as sabino.

Gathering of kindling is a chore given to children, the bringing of cut firewood a task of the men and older youths. The Pima rarely store firewood. Rather they seek a new supply when a burro load is depleted.

1. Tools.

A. About ten per cent of the Maicoba Pima possess hammers, and as is the case with other tools are reluctant to lend them.

B. A few Pima own saws, but as with the case of the hammer, are reluctant to lend them.

C. Machetes are owned by hardly ten per cent of the Maicoba Pima, and because these articles are so important in clearing brush they are rarely loaned.

D. Digging bars, usually iron bars that are flattened a bit at one end, are owned by virtually all Maicoba families. No data are available as to where they came from. The response to questions about their origin is usually that they were brought in from "other parts," by people who went away to work for a time. Digging bars are often traded if a family possesses two.

2. Domestic items.

A. Molinos are rather rare, their cost (about $60.00 or $4.80 US) being just too much.

B. Oil lamps are owned by almost all Maicoba Pima families, in spite of the cost of such articles. The lamps are sold in Maicoba for $20.00 ($1.60 US), the chimney for $2.00 ($0.16 US) and the wick $0.50 ($0.04 US). Oil costs $2.00 ($0.16 US) per liter.

C. Brooms (gášikar) are purchased from Maicoba stores for $7.00 ($0.56 US) or are fashioned from a stiff grass found in canyons west of Maicoba.

D. Virtually all of the Maicoba Pima possess a few enameled articles such as pans, plates, bowls, cups, and coffee pots.

E. Scythes are owned by about seventy-five percent of the Maicoba Pima and these tools are much used in clearing brush and weeds from the fields.

F. Axes are owned by every family and most adult males are expert in fashioning handles from any hard wood available in the sierras.

G. Almost all families own scissors.

H. Probably about ten per cent of the Maicoba Pima own metal shovels.

I. Possibly about seventy-five per cent of the Maicoba Pima possess metal hoes.

J. Some of the Maicoba Pima fashion crude trundles in the form of a barrow. These trundles are useful in transporting rocks from hillside milpas.

I. A stone artifact for straightening horseshoes.

E. A few Maicoba Pima possess valises of the cheapest type. However, personal belongings are usually transported in a large cloth, that is, when a family moves from one house to another, as during the cropping season when the entire family may remove to a mil"a that is mœ productive than the one nearest the permanent habitation.

F. Some of the Maicoba Pima build an estufa of mud and stone and cover it with a piece of metal, letting the smoke get out as best it can. Such a device is not used for preparing food, only as a source of heat.

G. A few of the Maicoba Pima construct a cooking platform of stone and mud, dividing one end into two compartments in which cooking is done. Ollas used for cooking are supported commonly upon three small stones; however, logs are sometimes used, being pushed forward as they burn.

H. Almost all of the Pima households utilize horns of cattle for storage of mescal and bacanora used for medicine. Gold may be stored in these horns.

Houses (ki) of today are commonly constructed near water, along the arroyos where milpas are located. Several houses scattered along an arroyo mark a nuclear family settlement, such as that at Quipur (see Chapter III). Houses are located without regard to facing any particular direction and there is an affinity for placing houses not far from where there are trees and almost every house is marked by a few fruit trees located either in the immediate vicinity of the house or in a corral nearby.

Regardless of the type of construction there are no fireplaces or smoke holes as such. Metal hinges are used to anchor the wooden doors. Windows are rarely constructed but if they are they are anchored with metal hinges. Formerly, leather hinges were used for both doors and windows. Doors and windows are fitted into well made jambs which are squared logs.

It is quite true that some Pima construct houses without windows, and with only a door. Remember the house with the man and the broken or dislocated shoulder. But some windows are constructed. Note Felipa's house and the old log structures across the arroyo from her house.

Today, there is no evidence that Maicoba Pima occupy caves (tuhov, toho) as they did hardly three generations ago. Older Pima state that during the time of their grandparents about one-half of the Maicoba Pima occupied caves which were not marked by enclosures on the outside or distinguished by interior walls.*

---

* I report the statement made by the Maicoba Pima but there is no way to check the validity of the use of the term "about one-half" in connection with how many Pima lived in caves several generations ago. Horseback travel in 1968 was marked by a casual examination of at least ten smoke-blackened caves which could have been used as dwellings. However, a minimal disturbance of the floor of such caves disclosed no evidence of human occupation and it is likely that the figure of "about one-half" is an exaggeration. People of today camp in caves for several days while watching stock or crops and fires set by these people blacken the interiors of the caves.

Nolasco Armas, 1969

page 200: House types

Generally quadrangular type, with stone foundations, and adobe walls, or rock walls, with roofs of shingle, there being earth floors. A porch is not unusual.

page 199: Cave shelters

Nolasco Armas mentions that cave shelters are yet utilized by Pima at Yécora, Los Pilares, San Miguel, and Mulatos.

page 201: Kitchen

Nolasco Armas notes that sometimes the cooking room is to one side of the house, with walls somewhat less high than the other walls. Cooking is in the open during the summer, under the porch, if there is one, during the winter, or inside the house.

The cooking hearth may be on the floor, or upon a mud and stone platform.

Maicoba House Types 130

Nolasco Armas, 1969

page 203: Altar

Nolasco Armas comments on the crude altars that are found in many houses, a shelf of wood, and sometimes glass vases and candles, and a cheap image (San Francisco de Asiz)

Yécora Houses (1678) 130

Source: Zapata (1678), Relación....

Noted that many of the Yécora people had built terraced houses.

Maicoba Houses (1678) 130

Source: Zapata (1678), Relación....

Noted that some of the Indians had terraced houses in the town.

Source: Rada (1777)

The ancient Indians were without any place of abode, for they spent some time here and some time elsewhere.

For this reason, they had no houses except enramadas

Yécora House Types - 1678 130

Source: Zapata (1678)

-Zapata noted that the inhabitants of Yécora were beginning to make adobe (terrado) houses for themselves.

Maicoba House Types - 1678 130

Source: Zapata (1678)

-Zapata noted that Maicoba was situated in a pleasant place, with a pretty creek

-the inhabitants made adobe (terrado) houses for themselves in the town

Apparently, the oldest of house types that developed after introduction of the axe is a flat-roofed log structure. No one can state with certainty when such structures were first used but it was probably in the last century, when Americans familiar with log houses entered mining activities in the northern sierras of the Mexican portion of the Sierra Madre Occidental. Here and there in the Maicoba country are splendid examples of such structures. They are square and marked by very heavy notched and interlocked logs, and covered with horizontally placed logs covered with earth. The contemporary Pima insist that canoas--hollowed out logs--have never been used by the Pima, noting that such a covering has long been typical of Tarahumar houses. These flat-roofed log structures have wooden plank doors and wooden windows which are hinged with metal hinges.

1. Shingle or Shake Structures.

Here and there in the Maicoba country there are rectangularly shaped structures with steeply pitched roofs centered on the long side of the building. All or a portion of the house may be covered with shingles fashioned by the Pima. A machete is knocked through a split piece of pine with a wooden mallet in making these shingles which are dried for a season before being used. Shingles are affixed to the structure's sides or to the roof frame with either metal or wooden nails. Doors to such structures are usually fashioned from planks as are the windows. Such structures are usually one roomed.

2. Multi-roomed log and plank structures covered with shingled roof.

Multi-roomed structures (store room, living quarters, and a partially enclosed porch) are constructed of planks and logs and covered with a steeply pitched shingle roof.

3. Shingle roofed stone and plank houses.

Shingle, stone and plank may be combined in constructing houses at Maicoba. Two side walls are built of stone and mud, the walls being about two feet in width. Shingles cover the steeply pitched roof and either end of the structure is closed with planks set upright and held in place by transverse boatds nailed to the planks.

4. Chinked log structures covered with shingle roof

These log structures, usually square in design are clearly related (derived from) the flat-roofed log structures. The roofs are usually rather steeply pitched.

5. Stone houses with shingle roof

There are stone houses, square in design, the stone walls marked by a slightly tilted inverted v-shaped roof frame covered with shingles held down with stones, in order that the shingles be removed quickly in case of fire, there being no flues inside habitations of Maicoba Pima.

6. Combination of stone, adobe and shingle-roof

Stone walls constructed without regard to size and shape of the stones and held together in part with mud and topped at either end of the inverted v-shaped roof with adobe bricks and shingled with shakes are not uncommon at Maicoba.

The older Pima state that adobe was more used a couple of generations ago than today.

Maicoba, Pennington

Chapter 11

Notes

On husband and wife relations

When the wife gets drunk the husband may beat her, according to Federico and Juan. It was never made clear just why this was done. Certainly, there is no intent to prevent the woman from drinking tesgüino. I have seen women drinking tesgüino all through the Maicoba Pima country.

Why should a wife abandon her husband and children

Federico and Juan referred to stubborness and laziness as reasons why the wife might abandon her family.

Why should a husband abandon his family

Stubborness and laziness.

On participation in national elections

Federico and Juan noted that mucho participated, but this is doubted by CWP.

On dowery matters

Sometimes a woman may bring a pig, goat, or a cow as a dowery.

On the matter of marriage (ages)

The girls may marry at from 13-14 years, the boys from 15 to 16.

On the matter of the "flight" with respect to marriage

Essentially as it was gotten by Pennington in 1970 and as reported by Nolasco Armas.

On the arrangement for marriages

The father of the boy goes to the father of the girl. Sometimes, if the parents do not agree then the children may run away (the "flight").

On burial places

1. Maicobo
2. La Cienéga de Las Aguillas
3. El Quipurito

On burial of child's first teeth

According to Juan and Federico, they were buried in the hole of a tuza, that is, in a tuzera.

Maicoba Birth Matters

Federico noted that women menstruate according to the moon, that is, when the moon is "very small." Pregnancy is recognized when the menses cease. The pregnant woman does not lift heavy objects during her pregnancy, and shortly--about a month--before partuition the woman does as little grinding on the metate as possible.

Labor pains may last as long as three days. For delivery, prepare a swing that is anchored to a viga that is a part of the ceiling or roof support. This swing almost touches the ground. In the swing is put a blánket upon which the woman sits until she expells the child. A soft blanket and/or a pile of rags is placed just where the child will be expelled. Another woman stands behind

the Mother-to-be and when the birth is expected this woman manipulates the abdomen of the woman in the swing. Adult members of the immediate family stand about, both in front and back of the expectant mother. These family members are generally female but the husband is generally present, as may be the grandparents. There is talk of there being representatives of both families. The infant is not given manual assistance in birth; it "comes out by itself." If there is a breech birth the woman assistant is "supposed to know what to do." Federico reported few such difficulties.

The child is cleaned with rags but is not held up by the legs to facilitate removal of mucus from nose or mouth. The Mother does not bathe for 6 days and is supposed to remain in the house for forty days. The partera cuts the cord with scissors and the cord is about a foot long. The cord remains upon the child for about 14 days. When the cord falls away acete de comer is rubbed upon the navel.

The placenta is buried in the corner of the house by the partera.

The first food given to the Mother is rice cooked with milk (leche de chiva or leche de vaca), atole, choco milk with leche de chiva or leche de vaca. The child is not nursed until the morning after the day of the birth. If the Mother has no milk then the child is given goat's milk with a bit of sugar.

Federico noted that the swing arrangement was by far the most common mode of giving birth at Maicoba but he knew of the arrangement at Yepáchic, whereby the woman sits uoon a low stool while giving birth, and he indicated that some woman followed that custom at Maicoba.

A belly band is placed about the child immediately after the cord is cut.

Sexual relations between the parents are resumed about thirty days after the birth of a child.

Burial Practices

Federico, in commenton on contemporary burial practices, told the same story as that got at Yepáchic...that a grave of the regular type was dug, and at the bottom a small "cave" was dug to one side of the bottom of the grave, and the body was placed therein, on a petate, or wrapped in a petate or a sheet. The "cave" was then walled in with a board. He noted that this custom was because so many of the Pima were poor and they could not afford a coffin, and "did not want the earth" thrown directly upon the deceased.

On Shitting

For shitting, the adult men invariably to to a special place, a protected area, usually in an arroyo, called saprak vu'i, which literally means a "broken [quebrado] place." The women often have a small hut, but if none are available they go into the woods. Children defecate anywhere until they are about 15, at which age they are told that they must behave like adults, that is, if they have not already realized they must do so. A corn cob [kunkar (olote)] or a clean rock is used.

On death

Federico Rodríquez Romero noted that death by hanging is by no means uncommon among the Maicoba Pima, particularly among the young men. He noted that sometimes when the parents of a boy refuse the lad permission to many the boy may kill himself. Federico knew personally of one case, a lad of 17 who killed himself for this reason (at Quípur). When asked why the parents refused persmission, Federico commented that the parents of the boy did not like the girl or her family. Women (Pima) rarely kill themselves and the old men rarely do so. Federico noted that the blanca women sometimes shot themselves.

Marriage

Very few people are married in a legal ceremony (civil or religious ceremony). Federico remarked that it cost too much, expenses for the padre, for registration, and the "celebration." However, the unions seem to last, mostly because of the respect of one person for the other, and because of the children.

On Death

According to Federico, the near relatives prepare the body. Compadres, if there are same, may help to do this. When women die, the close female relatives or friends prepare the body. When men die, it may be either the close male or female relatives that prepare the body. All of the body is washed and dressed in the usual clothing.

If the death takes place near the cemetery at Maicoba, then a coffin is bought in the village. A coffin for an adult costs about $25.00 ($2.00 US), that for a child about $12.00 ($0.80 US). If the death takes place far from the village, the body is placed upon a platform, upon a petate, covered with a sheet, and lashed to the platform, which is then carried to the town where a coffin is available. The body is covered with a blanket in transit.

If one dies in the afternoon, he or she is buried the next day. People (families, amigos, vecinos) sit with the body during the night before the burial. Coffee is drunk, nothing else.

Black clothes are worn by the women if available, for a month or so. Black coth is put on the house. For an important person, this cloth--in the form of a cross--remains for perhaps three moths. Otherwise, it is removed after a month.

Friends dig the grave. The body is taken to the church where it remains for 1/2 hour. The person who has the key to the church provides the candles.

The grave described for Yepáchic is the same at Maicoba. However, if a coffin is used the coffin is put directly in the grave. If no coffin is avilable (as among the pobres) the body is placed in a small cuevita to one side of the grave.

The Compadrazgo System at Maicoba

The child to be baptised, the ahijado, or godson, is called bakni mar. The padrinos (madrina and padrino) are called bakni nyam collectively; however, the madrina and padrino are known individually as bakni nyad. Such godparents may be chosen from either relatives, close friends, or from the blancos, if such are willing to serve.

The child and the parents and godparents go to the church for the ceremony. If no priest is available, it is the duty of the padrino to baptize the child. During baptism the madrina holds the baby. If a priest is present both of the godparents hold the child. If the baptism is done by the padrino, immediately afterwards, the madrina hands the child to mamá and embraces papá. Mamá then gives the child to papá and embraces the madrina. The papá gives the child to the madrina and embraces the padrino. The madrina then gives the child to mamá who carries the infant from the church. There is no particular celebration, according to Federico.

It is true that, according to Dunnigan "every year on the feast day of San Francisco, October 4th, the parents bring their unbaptized children to Maicoba, in order that they may be properly christened by the priest and formally registered as a member of the town."

There is apparently no charge for baptism by the priest at the Fiesta de San Francisco (October 4) but there is a payment of $10.00 (pesos) required for registration with civil authorities.

On the matter of responsibilities of the Padrino

A. Get medicine if the child is sick.
B. Provide food if the child needs food.
C. If child dies, the padrino pays for the funeral expenses and provides a coffin.
D. If the parents of the child dies the compadre (ie., the padrino) has to pay the expenses of the funeral.
E. If the parents of the child die, then the compadre (ie., the padrino) must take the child. However, if only the Mother dies, then the padrino has no particular responsibility, that remaining with the Father.

On the matter of responsibilities of the Madrino

No special responsibilities, except to help when the child is sick, or perhaps give a few gifts.

At baptism, the godparents (the padrinos) may give a few clothes, money, and food, and perhaps a little cow.

Bathing

Men bathe every week. Men have a special place for bathing, in the arroyo or river. Women bathe in the arroyo or river quite near the house, or if there is a small tin tub available this is used. Children bathe every few days, in the arroyo or at the house.

General Rules of Behavior

1. It is generally bad manners to enter a fenced yard with calling out, or knocking on the fence.

2. When men meet on the road, they shake hands, and when they separate they do not. They just saw goodbye. There is a common custom of touching one shoulder with the hand, and then shaking hands when people are leaving each other for a long time.

3. If a woman must go to Maicoba, then she goes with her husband, or with her children, or with her brother, or with a close male friend.

4. Federico could recall no specific instances of rape.

5. Adultery is very common. When a man goes away looking for work his woman usually looks for another man, "to fuck" for fun. The custom seems to be--when a man finds his wife with another man--that the husband just "flies away." But the husband informs the Pima Comisario of the Policia, at least this was the custom antes. Today, the husband informs the Governor who scolds the woman. Adulty is considered good enough reason to leave the wife. The children remain with the woman who must support herself as best she can, with the assistance of her relatives. This happened to Federico. The woman is considered a whore.

6. No sex between parents until the children are asleep, so that "they can work freely." Sometimes, when many children are about the husband and wife may go out to the milpa and fuck.

7. If a man visits another man while the other man is working in his fields the visitor may work a bit.

8. If a woman visits another woman in a house and the other woman is working then the visitor helps out a bit.

9. It is not proper to punish the child of another person, as when they are saying "bad words;" the correct thing is to report the matter to the parents.

Wife-beating

Federico specifically denied that there was wife-beating among the Maicoba Pima and noted that the question was somewhat silly.

Intermarriage of close relations

Federico did not think that there was much intermarriage between close relations, and stated that first cousins "certainly" did not commonly marry. There was no particular prohibition against such marriages but he noted that they were discouraged.

On loaning of children

Federico noted that children were "loaned" for a time, and that the children were from 13 to 15 years of age, and the "loan" was for two reasons, to help the relatives who lacked children to work in the milpas and so that the children might get to know their relations. A young person may live with an uncle or an aunt for from two to three months; older children might remain longer.

On beginning of menstruation

The girls are warned by the mothers that they must be careful and avoid men, after menstruation begins.

Masturbation

Federico noted that there was much masturbation on the part of young girls and young adult women. The girls and young women used a frascito for this purpose, whereas earlier they used their fingers. Federico noted that when he caught on of his younger sons masturbating that he spanked him. If he caught one of his daughters masturbating he referred the problem to his wife.

Washing of Hands before Meals

Federico noted that everybody washed their hands before eating. However, I noted that he never did so when he ate with me.

On Death Matters

1. When a death takes place there is much weeping among the close relatives.

2. The dead either go to heaven, where the good people go, to be with God and the Virgin Mary--God is known as tata Dios, or to the place where there are eternal fires. The demonia is known as di'aval.

3. The head of the dead person is placed towards the direction where the sun sets.

4. The blancos of Maicoba do not permit burial of Pima in certain areas of the panteón.

5. Federico knew of certain caves near Talayate, as at Agua Caliente for example, where there is evidence of multiple burials in caves, of bodies in flexed or seated positions.

On visiting a Friend for a Period of Time

When Federico visits a Friend and stays with him, or with Relatives, or when he works with someone, as CWP at Maicoba, he pays about $5.00 a day for food; this would be about $0.40 US.

On the matter of kinship

The ramifications of kinship among the Maicoba Pima are almost impossible of being untangled. For example, when Federico was asked who Isitro was, he noted that Isidro was como sobrino to him, when actually, Isidro's Father was an Uncle of Federico.

General Information at Yécora (1970)

1. José Montés Velásquez rcalled one Corpus Durate (about 70 in 1912) who hunted squirrels with bow and arrow. Also deer. The carcax was of cholugo skin. Arrows were of maguellito with stone point. Three feathers from the wíhalo were used.

2. According to José Montés Velásquez, the Pima at Maicoba came from Yécora originally.

3. At yúmari dances once held at Yécora, several deer were killed as food. The Santito in the church was brought to the patio instead of the cross.

4. Apache once came from Cascajo--near Trinidad--to Maicoba to kill people, to steal "things" and cattle.

5. The old people used to refer to times like "tiempos de maíz amarillo", suggesting of course that there was only a yellow maize.

6. José Montes Velásquez was explicit about there being no cardinal direction terms.

7. Seeds were measured formerly in terms of litros. Once, boxes were made of wood to measure decálitros (?).

On Birth Matters

Male children are preferred because they are more "useful."

The Maicoba Pima women recognize their pregnancy when the menses cease or when they having "morning sickness."

To cure barrenness use the root of a romero in preparing a tea. Scrape the dry root and grind the inside with a bit of water. Boil the ground mixture and let it cool. Drink a bit each morning for 4 days. This tea is supposed to make the woman "pee" and she will be rid of the "inside something" that is causing the barrenness. There is a notion that sometimes the male is the difficulty. And Federica used the term vanos in this connection.

There are tales of how a pregnant woman must not urinate where an animal has urinated, since the child might be born with some part of the animal.

Fathers-to-be do not tie up wood brought to the house during the pregnancy, since the child might be strangled by its umbilical cord. Do not kill poisonous animals during the pregnancy or the Mother-to-be will have difficulty in delivering the child.'

There are midwives among the Maicoba Pima. Federico mentioned the following: Rufina Alvarez, Dolores Lozano, Francisca Montés, María Luisa Alvarez. Such women are paid about $200.00 ($16.00 US) for their services.

Birth always takes place within the house.

When there are difficulties during the birth:

Maicoba Life Cycle 27

A. Rub a bit of acete de comer upon the abdomen of the Mother-to-be.

B. Take manzanilla tea.

C. Eat boiled nopales, and the child will emerge quickly.

Labor may persist for two or three days. A week of labor was the longest period known to Federico and Dolores.

It is claimed that women "rest in bed" for fifteen days after the birth.

Immediately after birth the Mother is given atole with a bit of chocolate.

The Mother is restricted to certain foods immediately after birth, such as toasted tortillas and rice (?). She may eat a bit of smashed carne seca which has been boiled. Fresh meat, beans, eggs and chile and strong foods in general are forbidden.

Newborn babes are not feed for three days, at which time they are given the breast. Meantime, that is, for the first three days, give boiled goat milk, in a bottle, and add a bit of sugar.

The child is bathed immediately after birth.

When the child cries this means that it is hungry.

Babies are placed apart from the Mother at night, either on a pallet or in a small cradle.

When babies are carried they are held within a shawl at the front of the Mother's body.

Small children are not permitted to carry babies before the age of 10 or 12.

Children are weaned at about one year of age. The Mother may stop nursing if she becomes pregnant. The child is given goat milk.

Solid food is given to a child at about 13 months of age. Tortillas, beans, caldo and any cooked vegetable are given to children just over 1 year of age.

Children are not permitted to eat chile until about 4 years of age.

Children are taught to walk by being held in the arms at about six months or a banquito may be used.

Children usually learn to talk about about 8 months of age, and the first words are agua, mamá and papá.

There is an attempt at toilet training at Macioba. The little children are told to hollar when they want to shit. The adults or older children will take the little ones outside.

At about 8 months the infants are dressed not unlike older children. It is common--at least during the summer months--for small children to wear nothing but a kind of shirt, and in fact this may persist until the child is five or six years of age, at least for the boys.

Padrinos generally select the names for the infants.

Childhood

Small boys and girls are dressed not unlike their parents. There is much affection between parents and children. Certainly, the parents fondle and kiss their small children. Children are not struck until they are about three or four years of age. When a child throws a temper tantrum he may be swatted. There is masturbation on the part of males at the age of 5 or 6 and Federico noted that the boys learned of this from the older boys.

Pima children begin to attend school at the age of 12 or 13. The children who live near Maicoba may attend school from September until May; actually this is unusual. Most of the time the children attend for hardly six months of the year.

Children are sent on errands at some distance at the
of 12 or 13. Boys begin to work in the fields at an
y age, certainly by the time they are 8 or 9. Boys
girls do not drive cattle until they are about 15 years
ge. The boys may be plowing by the time they are 15.

Boys no longer play with their sisters at the age of
t 12 or 13.

Games played by children include tatagüilla (which
lves forming a circle, racing about with hands locked,
one breaks and the others fall done) and playing with
bber ball.

th

A boy is considered to be a man at about the age of
or 16. Certainly, a male is considered to be an adult
n he is able to do a man's work. Most Pima males are
e to support themselves entirely by the time they are 20.

The first menses for the Maicoba Pima girls occurs
ner late, at about 15 or 16, according to Federico,
he is undoubtedly in error about this. It is claimed
t a tapón, like a girld, with cloth tied fore and aft,
worn by women during menstruation.

If a boy has not managed to find a house of his own, he may live with her parents, or his parents, for a time. Sometimes, a crude little shack is constructed near the house of the boy. It is stated that it is more proper for the couple to live with the boy's parents. When the couple lives for a time with either set of parents it is claimed that all get along fairly well. Moreover, when a young couple lives with the parents--in the house of the parents--there are nearly always separate quarters, and each woman has her own cooking facility.

It is claimed that there is not much quarreling between husband and wife.

With respect to who is considered to be the "boss" according to Federico, the woman is the head of the household with respect to what is planted in the garden. The father makes the decision about what is planted in the fields. Mamá makes the decision about whether or not permission will be granted to a daughter to marry a certain person. The father makes the decision about the son's marriage.

When there is cash on hand, it is the woman who holds the cash.

A great deal of authority is wielded over sons and daughters by the parents. If a son is very rebelde the parents may ask to have him jailed. The pueblo officials feed the prisoner and put him to work on local projects, such as working on the "roads." Federico recalled two specific instances of fathers having had their sons jailed. He noted that the sons did not resent this very much, but usually "flew away" after returning home from jail for a time.

At the house, when the boys are at home, the Mother has more direct control over both daughter and son than does the Father.

Sleeping Arrangements

At Maicoba, there is usually one room for cooking and one for sleeping. But all sleep in the same room. In summer, most people sleep under the portal. Children rarely sleep with their parents. If the family is very poor and lacks blankets, build a fire in the center of the room and the people scatter about it. If it is very cold anyone who awakens builds up the fire.

Adult Life

Young people are rarely consulted about matters which are considered within the province of the parents with respect to the decision making process, not even if there are older boys who would be affected if the family decided to move to another place to farm.

Acquisition of land by young couple

The father of the lad wanting land might go to his compadre, to a relative (aunt, uncle or cousin), or to a friend to see if there is a bit of land available. The youngsters usually prefer land that is distant from that of the parents. As of 1970, it was stated that the governor of the tribe was not consulted. If the ejido officially becomes a comunidad then the father would consult the Presidente Ejidal who would be a more important man to consult than would be the governor.

Marriage & Sex Relationships

Unmarried Pima are rather rare at Maicoba.

With respect to prostitution the Maicoba older men note that no putas are available in the sierras, that the single and married men seek out married women whose husbands are away for an extended time, or, the unmarried men fuck cows or burras, certainly at about the age of 14 to 18. The older men masturbate or fuck the cows.

It appears that most of the women are virgins at marriage (?), but according to three older men the men have fucked the cows and therefore are not virgin. Moreover, the men get experience "elswhere."

The girls marry at the age of 15 or 16, the boys at ages 16 or 18.

With respect to choosing of mates, the young people meet at dances and they "begin to like each other." The boy goes to the house of the girl and asks permission to court her. If the parents approve this arrangement usually leads to marriage. Sometimes, the parents of one or the other of the couple disapproves and the youngsters may run away for a year, to Obregón, to Pilar, or some place, if the boy can get work.

Many couples do not get married officially. If permission is granted when the father of the boy involved goes to the girl's father, and there is to be a civil marriage, the Juez Civil may marry them for about $100.00.

Old Age

An "old person" among the Maicoba Pima is usually defined as one who cannot work. It is said that men are sexually potent until will into the sixties. Federico, who is about 70, noted that he did it occasionally! He knew of a very old man, almost 80 years old, who married a fifteen year old girl and had a child. Federico noted that a woman of 80 would discourage sex whereas a woman of 60 or 70 would like it!

When old people are reluctant to leave their homes even though they cannot work they are often allowed to remain there, and are cared for for by their children, grandchildren or nieces and nephews.

On Caves

According to the Maicoba Pima, their ancestors lived in caves. Today, there is apparently no use of caves.

The contemporary Pima do not bury their dead in caves as was formerly done. The older people recall that people were once buried in caves, in a sitting position, in a cave that was subsequently walled up. Both Pima and blanco refer to this mode of burial, although it appears that not within the memory of living people such burials have taken place. Rather, the people at Maicoba must have learned of this custom by stumbling upon such burials or hearing the older people of an earlier generation speak of such interment.

Federico noted that in a number of caves near Maicoba bodies were in a crouched position, with petate, bow, and arrow nearby. He noted that there were walls of mud and stone in some of the caves. He explained the seated position of the bodies by noting that long ago the sun came down and burned the people crouched in the cave.

Source	Name	Locale
Larrea, 1701 (1)	tépori nacarcumudama	Papigochic (the names are included in a statement made by a Pima Indian befor Juan Bautista de Larrea, Captain General & Governor of Nueva Vizcaya)
	("oreja" at Yepáchic: na'aka) ("oreja" at Maicoba: na'ak)	
Larrea, 1701 (3)	memoquec	Cocomorachic (the reference is to a Pima named memoquec in a statement made before Juan Bautista de Larrea, Captain General & Governor of Nueva Vizcaya)
Larrea, 1701 (4)	nacarcumudama	Papigochic (the name is used in reference to a Pim in a statement made before Juan Bautista de Larrea, Captain General & Governor of Nueva Vizcaya)

Maicoba

Life Cycle - Proper Name

Source: Retana, 1700

-there is a reference to a Yepáchic Pima living along the Río Aros called nacaj, which is surely related to the contemporary terms used for "oreja" in the uplands of Sonora and Maicoba, near Yepáchic and Maicoba. At Yepáchic "oreja" is na'aka, and at Maicoba "oreja" is na'ak.

Preparations for War

Source: Larrea, 1701 (1)

In a statement made by Manuel, a Pima of Tutuaca, before Juan Bautista de Larrea, Governor & Captain General of Nueva Vizcaya, at Papigochic in 1701, it was stated that a knotted rope and grains of corn were sent from place to place in preparation for war; the bearer of the items sought participation in the war and if the leader (s) of any one settlement agreed then a grain ofcorn was placed in one knot of the rope.

Before a war, corn was stored in out-of-the-way places, at least when the Pima fought the Spaniards - but was this aboriginal?

Source: Retana, 1700

Messengers went from settlement to settlement with a knotted rope and grains of corn, soliciting aid in war. If the settlements agree then a grain of corn was placed within a knot in the rope.

Maicoba Life Cycle

Nolasco Armas, 1969

page 206: Names

Nolasco Armas believes that two aboriginal names perist, Lao and Coyote; but she noted that Coyote was being changed to Lucero, since the Pima were ashamed of such a name.

page 208: Meal habits

Three meals a day, in the morning they drink coffee, and eat beans and tortillas; in the middle of the day they eat beans, potatoes, tortillas, and tea (?); and at supper they have coffee or tea, tortillas and beans.

CWP QUESTIONS THE TEA BUSINESS

Nolasco Armas, 1969

page 222: Tradition about Moris as a ceremonial center

-Maicoba Pima recognize Moris as an ancient ceremonial center
-the surrounding lands belonged to them
-they lived well near Moris, under the care of their patron saint, San Francisco de Pimas

-but whites came and the Pima went to Maicoba
-but the Pima were unhappy because their Saint was left at Moris
-they brought the Saint to Maicoba and were happy

-then, when the whites came to Maicoba they built a new church
-and removed the Saint to the new church

Maicoba Life Cycle 5

Nolasco Armas, 1969

page 226: The compadre system

-"The compaternity looks as it is very extended among them; each adult, man or woman, has at least ten compadres, there are of

waters (baptism)
pelito (first time for cuttinghair)
manto (to help the compadre sick to go under the mantale of San Francisco)
difunto (to help someone prepare the body of a near relative, or to help bury him or her)

-the relations between compadres are cordial ones
-and they vary according to the importance of the compaternity relationship
-the first two mentioned (baptism and pelito) are more important of those mentioned above

Nolasco Armas, 1969

page 226-227 Ownership of property

-to the woman belongs the orchard, the juki, and thesmall garden she cultivates

-to the man belongs the land, the house, and ground where it is located
-and also the agricultural implements

-the woman may bring to marriage a dowry in the form of an animal (one cow, one burro, a small calif) and these remain a peculiar property of her's

Nolasco Armas, 1969 Birth Matters 1

page 227 Birth matters (associated with medicine in book)

-the woman knows when she is pregant, when the menses stop
-she knows that she must wait about 9 months
-the avoids heavy chores during pregnanacy but keeps on working
-certain taboos
  -do not stop work completely for the child will "stick" and die
  -no fresh fruits may be eaten or hard beverages eaten for the child will be tubercular
  -whims of the woman must be considered or the child will be incomplete
-the preferred sex is the masculine

-to give birth, the woman kneels down, being helped by the father-in-law, and in case these do not exist, by the husband's parents or relatives

Nolasco Armas, 1969 Birth Matters 2

-the placenta is buried in the trash heap nearby
-the umbilical cord is dried, falls, and is tossed into an ant hill, so that the baby will be immune to the biting of the said insects
-and so that he will be a brave man when full grown

-during the delivery it is common that some men, relatives, or not, be present, which does not cause shame or moleting to the woman, for she believes that having a baby is a natural thing

-after delivery, the woman rests for about five days
-during the following 40 days no sex
-the woman does not bathe
-keeps the head covered

-the child is registered shortly after birth [at Maicoba]

Maicoba Life Cycle 5

Nolasco Armas, 1969 Birth Matters 3

-water used in baptism is brought from the church in a cup or glass, and the water must be clean and taken from running water
-water is brought to the church where the parents are waiting with the baby
-and there are relatives and friends about
-the godmother carries the child on one arm, and with the other puts some water on the child
-the godfather stands nearby, holding one foot of the baby
-the water is not allowed to fall to the floor but it caught in a container which is placed at the foot of the Santo, and at the end of the ceremony may be sprinkled upon the ground, inside the church
-when the baptism is over, the godmother comes near the mother and hands her the child, while she says comadre, and then she puts her free hand upon the shoulder of the mother
-who takes the child
-and then gives it to the godmother who hands it to the godfather, so he in turn gives it to the father
-in the same manner that was done with the mother
-all kneel down and pray
-then return to the child's house for a fiesta, prepared by the godparents

Nolasco Armas, 1969 Birth Matters 4

p. 228

-godparents are slected without following fixed rules
-they may be a relative, a person of prestige, or some white person
-the number and sex varies slightly
-it may be only a man, or a woman
-or two women, or one man and one woman
-the name of the child is selected without following any particular rule
-may be a Saint's name

-usually, the godparents make presents, a set of clothing

page 228: falling teeth

-when athe children's teeth fall out they are buried in squirrel holes, so that the teeth that come next will be strong and resistant

Nolasco Armas, 1969

pages 229-230: The "flight story", with respect to marriage, etc.

-the usual process for marriage is the "flight"
-the couple goes away for 10 to 15 days
-sometimes, the girl's father knows of this flight
-no interference, usually
-when the parents do not approve they try to interfere
-longago, the mother of the bridegroom went to the parents of the girl
-the girl's parents may refuse
-then, in about several months the mother and father of the boy try again
-and perhaps successful
-civil marriage is optional
-marriage between cousins was not permitted long ago
-but it is not uncommon now
-Nolasco Armas says that women in this position (cousins to husband) are considered whores.

Nolasco Armas, 1969

page 231: burial customs

-when a person dies, they wash heads, feet and hands
-dressing body with clean clothing or new
-finally putting body in a wooden coffin
-body is wrapped in sheet of cotton, sarape, or petate
-near the body is put some fodd (tesgüino, water, pinole, chocolate)
-relatives make the hole for burrial
-it is done for free, by the compadres
-Pima believe that death is announced by tecolote
-buried in the cementary after being watched all night
-the head of the body is towards the east
-the bells toll at the church if burial is at Maicoba
-and white women called for the job do the praying
-some wear black for a time
-a year for a dowager
-the men wear black for 6 months
-for young children, black is worn for 3-4 months

Maicoba Life Cycle 5

Nolasco Armas, 1969-

page 230: first home of newly married couples

-usually near the family of the man
-if no house they live with the man's family
-the house is usually divided into two parts (if the young couple moves in with papa)
-the principal area is under domination of the Mother-in-law
-the daughter-in-law must respect the Mother-in-law
-and there is some evidence that the older woman is rather domineering

Nolasco Armas, 1969 Tradition about destruction of world 1

pp. 232-233 - tradition about destruction of the world

-the Pima note that the world has been destroyed twice
-everything was destroyed by fire because people were bad
-Father God was then on the earth, walking the land
-they lectured him and ordered him to plow the land alone
-but he would not do this, and made his own small home and lived alone
-the Sun came out and burned everything, but the House of God
-later, Father God and the Virgen began to play
-and made men with clay
-but these became mean, and the God sent the flood
-a few men survived, climbing the mountain until the deluge passed on
-the water remained a long time
-occasionally, the ravens and wild turkeys tried to stand

Maicoba Life Cycle 5

Nolasco Armas, 1969 Tradition about destruction of world 2

pp. 232-233

on the ground
-this is why they have black feet
-the children came down to sow' [from the mountain]
-from one day to another the milpa was "jiloteando", had "jilotes"
-but the children were idle
-Father God looked for a job for them
-when more corn was planted, no ears of corn were seen the next day
-about 4 days later, as the children were yet lazy, but the God made "jiloteara"
-up the fifteenth day
-but the people were yet lazy and so Father God makes them work more
-and now it is "jilotear" for about 4 months
-and it is said that if people are mean, then the "jiloteada" will be delayed for a year

Nolasco Armas, 1969-

Page 235-236 - on delivery (parto)

-a woman midwife usually is available
-women usually kneel down for delivery
-but some tie cord from the roof, the cord passing through the armpits of the woman
-this is said to be a more comfortable position than kneeling
-midwife, fathers-in-law and husband's relatives help in time of delivery
-massaging the stomach and giving infusions of various herbs
-cord is cut between two extremes, that is between the two knots
-they pull the placenta "lightly" and bury it in the rubbish area
-oil is put on navel of the child
-about one month later, the mother bathes in the river, accompanied and helped by the husband, her father in law and other relatives of her husband

Maicoba Life Cycle 5

Nolasco Armas, 1969

page 236 - on abortion

-according to Nolasco Armas, the mountain Pima know how to provoke abortion
-but she notes that it is not frequent
-but many young woman apparently die because of badly effected abortion efforts
-Nolasco Armas says that the Pima do not sanction abortion

page 239 - thoughts on the dead

-to die is to be said
-you walk much on the plains
-the dead are like the wind that spirals
-the wind is the singing of the dead in the llanos

page 236 - conflict about the story of the Saint

-the patron saint is called either "San Francisco de Maicoba, or San Francisco de Pima, not by San Francisco de Asís
-the Pima seem to associate good or bad times with the Saint
-some Pima suggest that the Saint has always been at Maicoba, that it just "appeared there"
-Nolasco Armas reports tghe sotry of a pedlar selling a Saint and a bell, the cost was too high, pedler left, but three days later appeared, astonished that the Saint was there, claiming that it had been stolen
-the Pima paid the price
-and built a church, in which the Saint and the bell were placed

-this version is different from the story about Moris
-see version in Nolasco Armas' paper, earlier on

Maicoba, Pennington Bibliography

Anderson, Edgar.

1946 - "Maize in Mexico--A Preliminary Survey," Annals of the Missouri Botanical Garden, XXXII, 147-247,

Brooks, Richard H., et al.

1962 - "Plant Material from a Cave on the Río Zape, Durango, Mexico," American Antiquity, XXVII, No. 3, pp. 356-69.

Cutler, Hugh C.

1960 - "Cultivated Plant Remains from Waterfall Cave, Chihuahua," American Antiquity, XXVI, No. 2, pp. 277-79.

Cobarruvias, Bernardo Tarandoy

1784 "Expediente de Real Orden Sobre El Estado de Las Misiones de Californias, 31 de diciembre," in Crónicas y Relaciones del Occidente de México, Fernando Ocaranza (2 vols., México: Antigua Librería Robredo, de J. Porrúa e Hijos, 1937-1939), II, pp. 329-56)

Hinton, Thomas B.

1959 - A Survey of Indian Assimilation In Eastern Sonora. Anthropological Papers of the University of Arizona, Number 4, 32 pp. Tucson.

Pennington, Campbell W.

1969 - The Tepehuan of Chihuahua, Their Material Culture.

Salt Lake City: University of Utah Press.

Sauer, Jonathan D.

1950 - "The Grain Amaranths: A Survey of Their History and Classification," Annals of the Missouri Botanical Garden, XXXVI, 561-632.

1968 - Letter to Campbell W. Pennington, November 14, 1968.

Wellhausen, Edwin J., et al.

1952 - Races of Maize in Mexico, Their Origin, Characteristics and Distribution. Cambridge: Bussey Institution of Harvard University.

Wall, Monroe E., et al

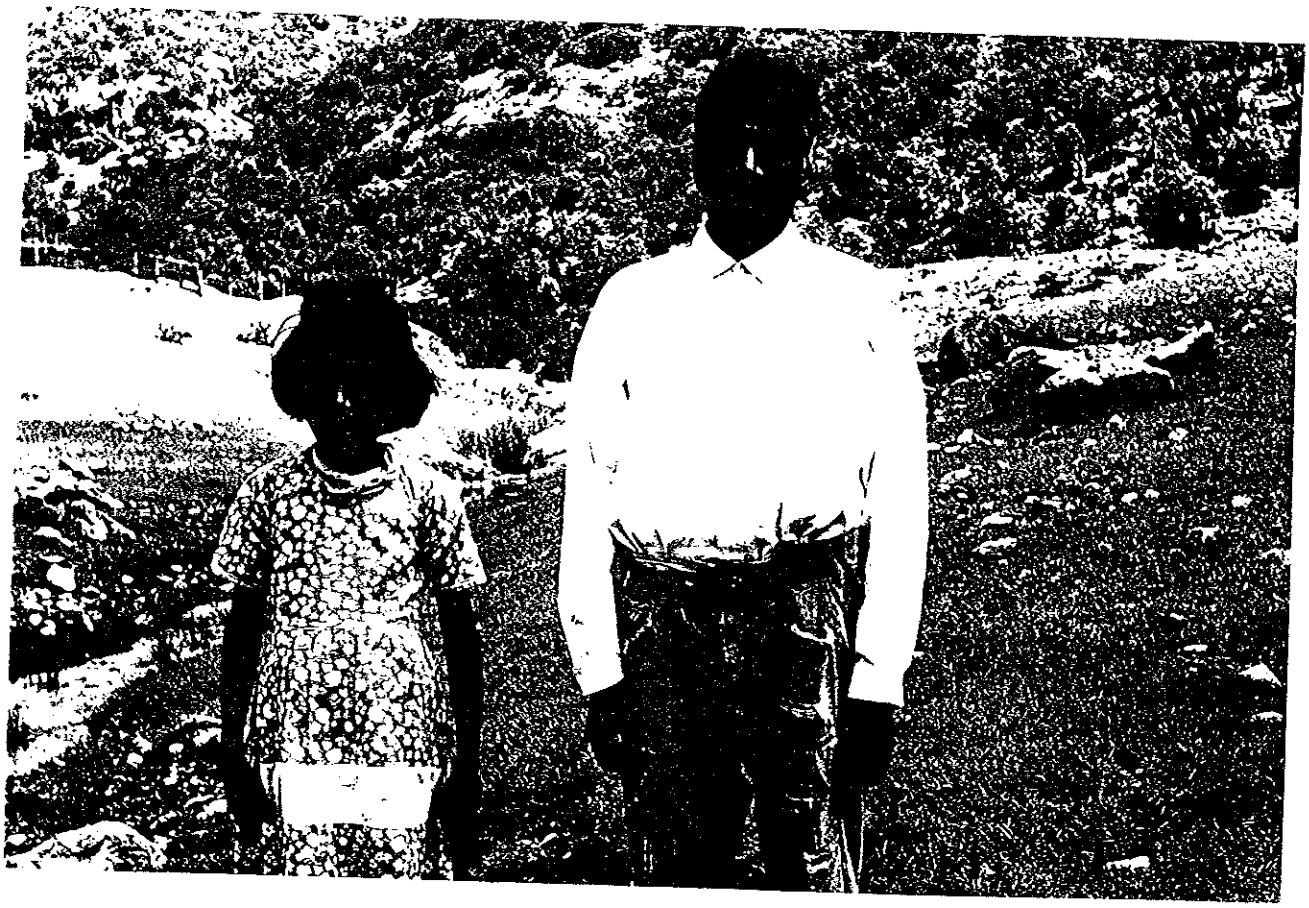
1957 - "Steroidal Sapogenins, XLIII; Survey of Plants for Steroidal Sapogenins and Other Constituents," Journal of the American Pharmaceutical Association, scientific edition, XLVI, No. 11, pp. 653-84.

Zapata, Juan Hortiz

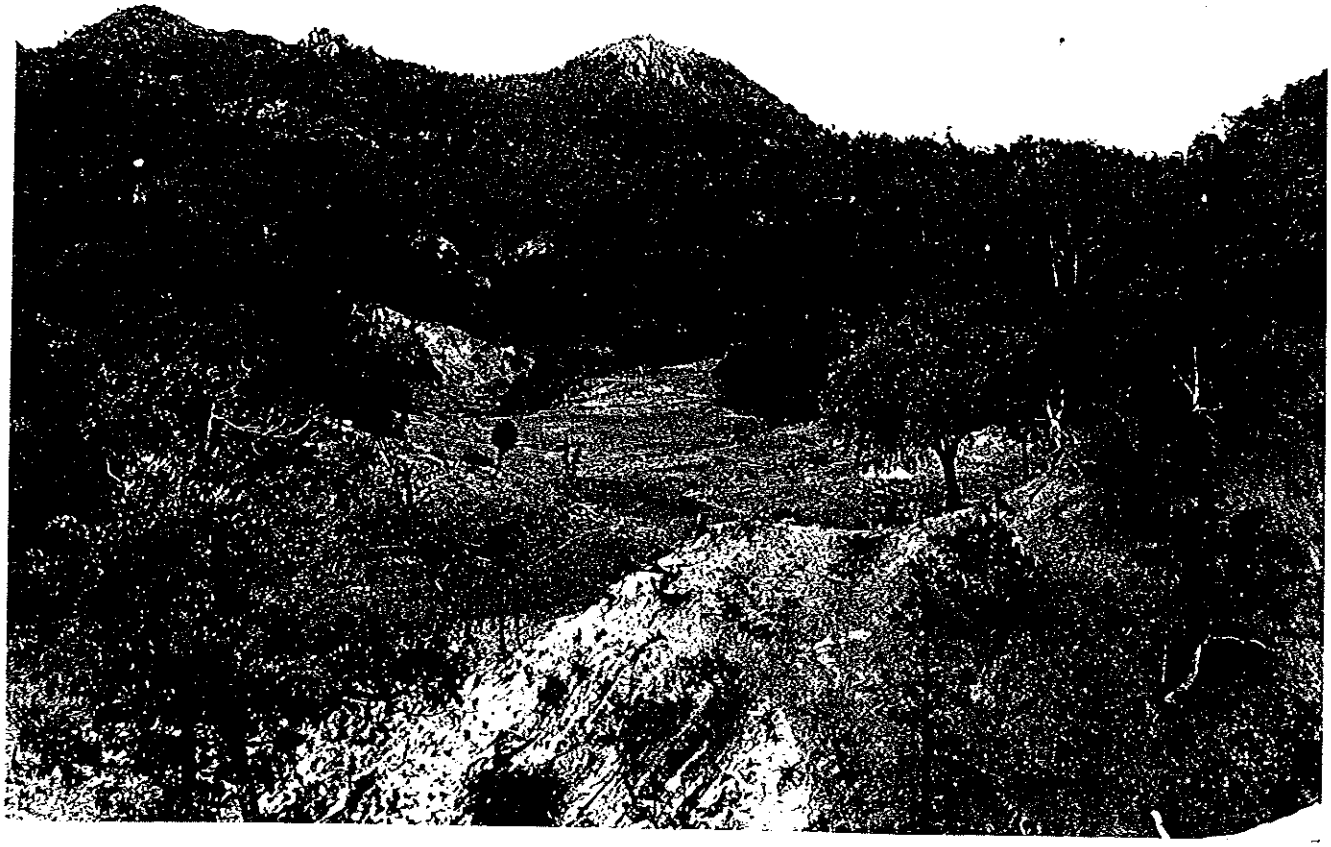
1678 Relación de las Misiones que la Compañía tiene en el Reyno y Provincias de la Nueva Vizcaya en la Nueva España, echa el año de 1678 con ocasión de la visita General dellas que por orden del Padre Provincial Tomás Altamirano hizo el Padre Visitador Juan Hortíz Zapata de la misma Compañía. Bolton Collection, Bancroft Library, University of California, Berkeley.

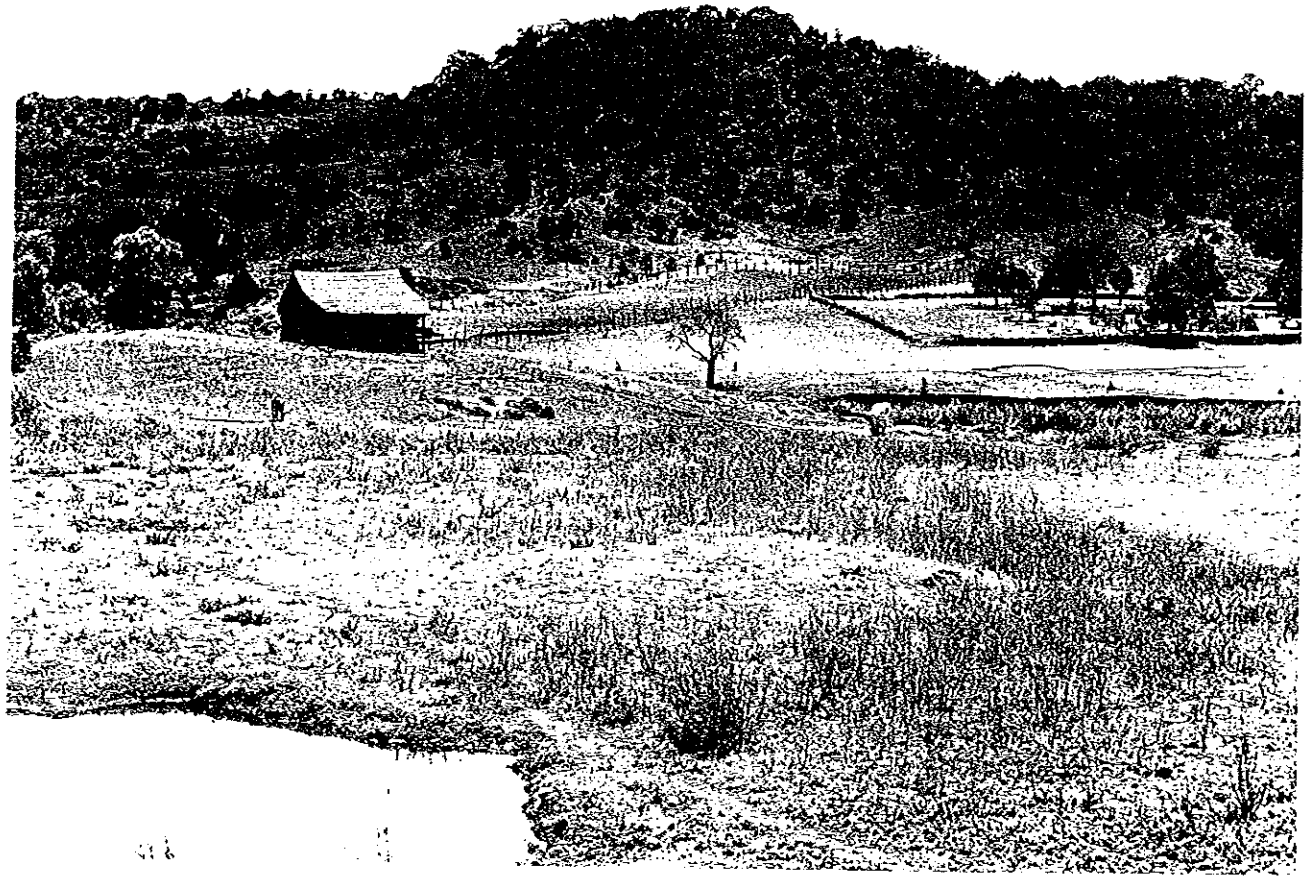
Maicoba, Pennington

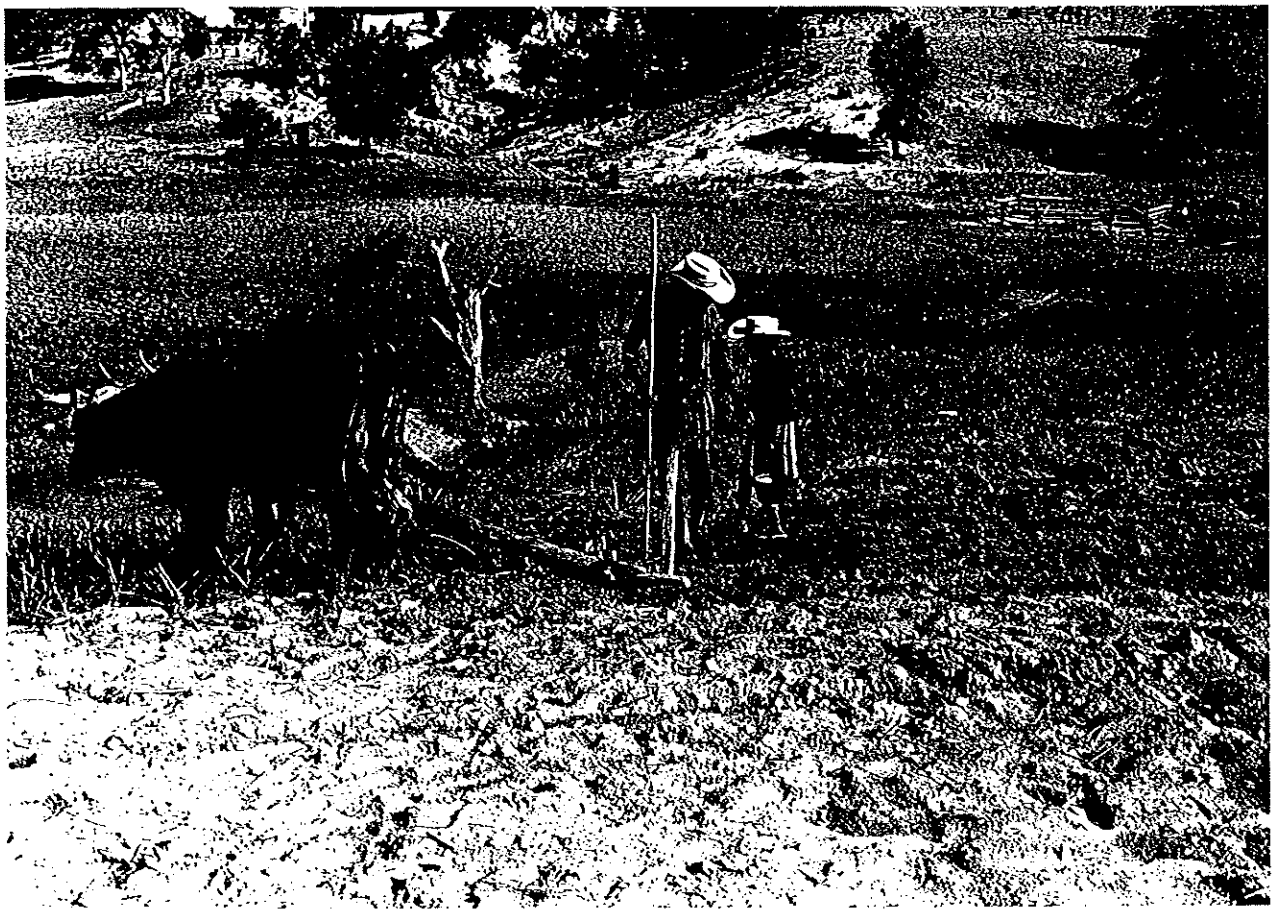
Illustrations

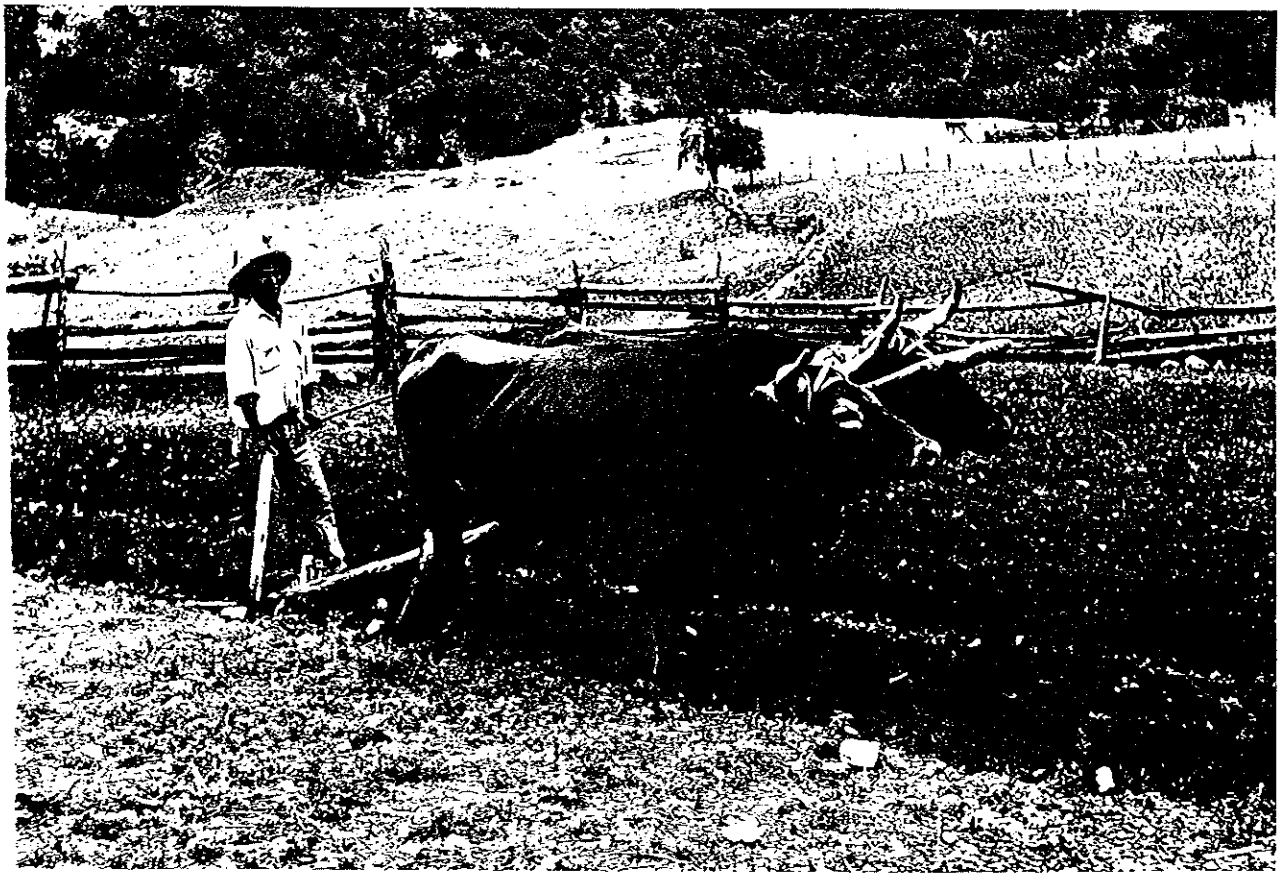


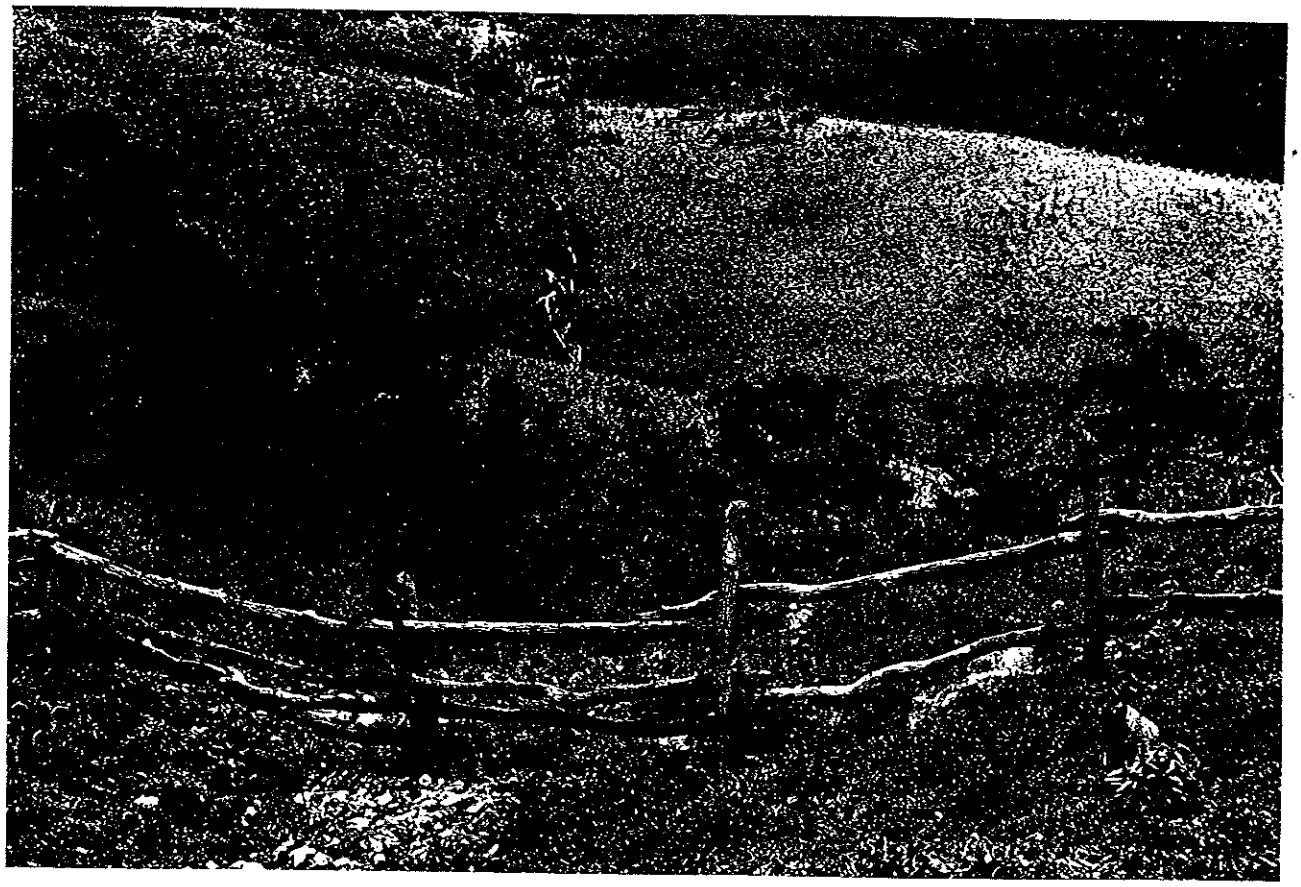
Attn.
Pina Bayo
Sonora
Maicoba

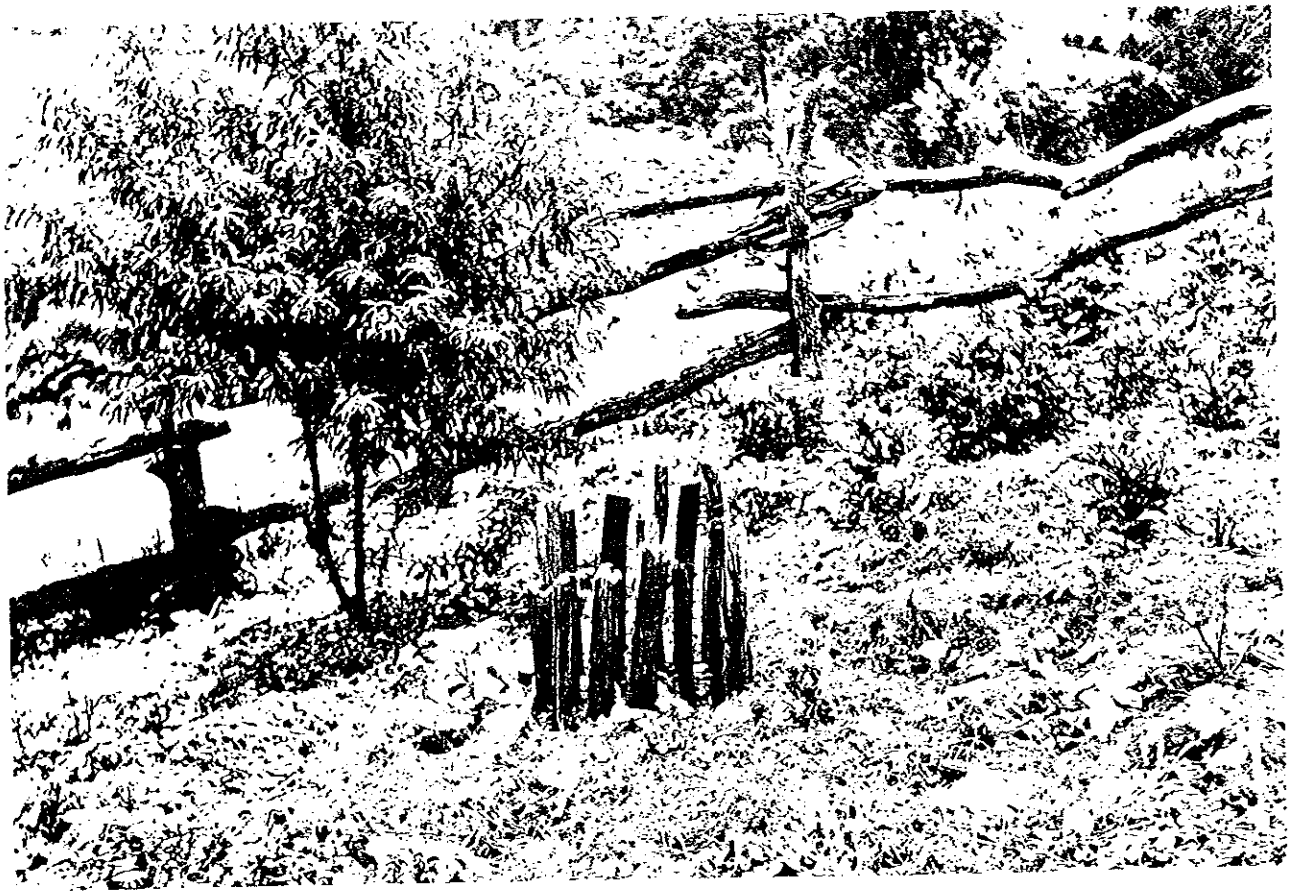


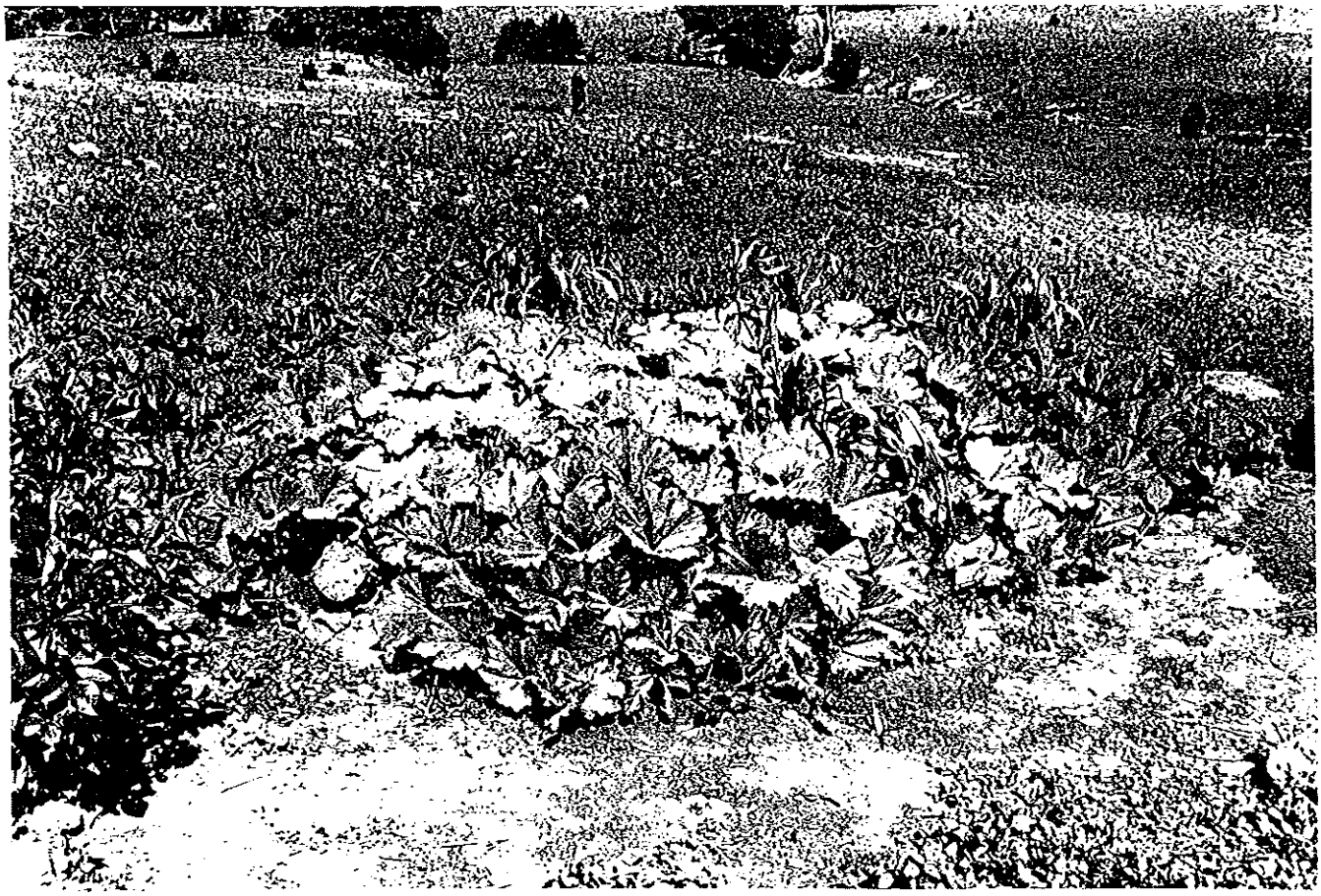


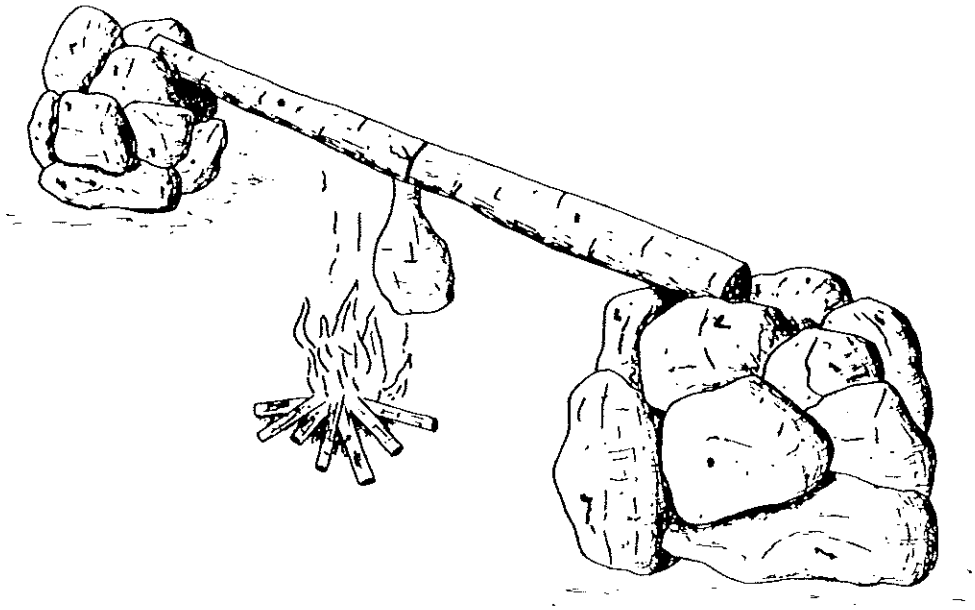






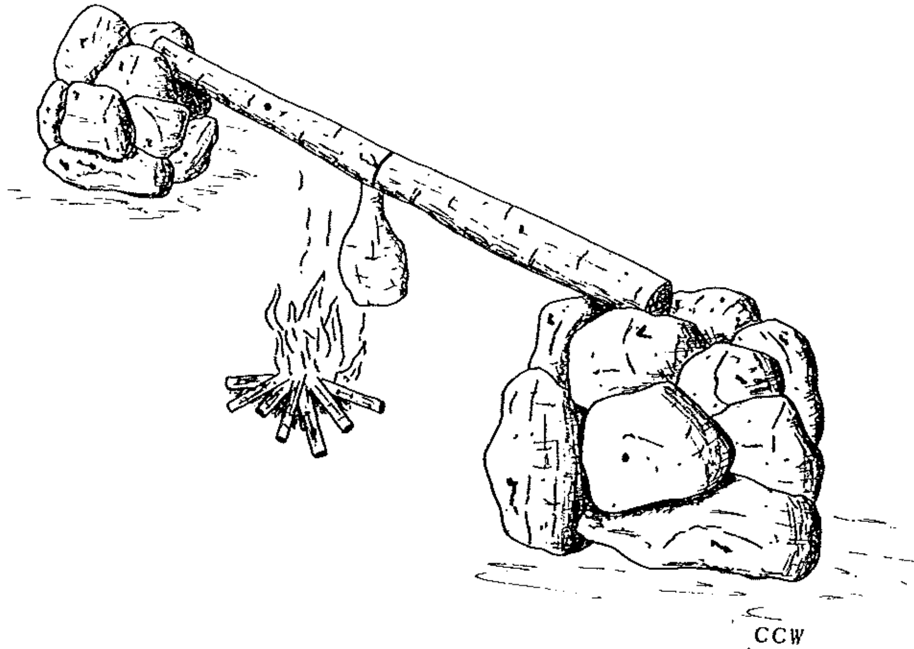






CCW

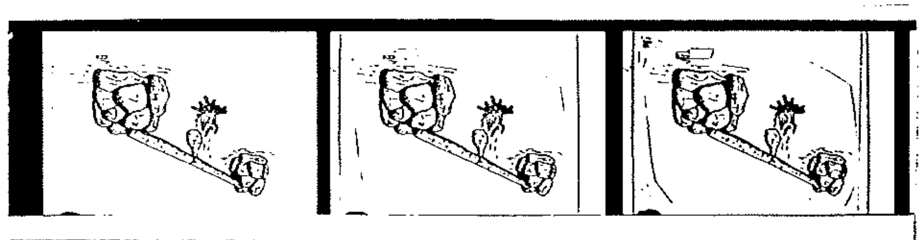
Maicoba
Miscell. sketches
comments in
card file



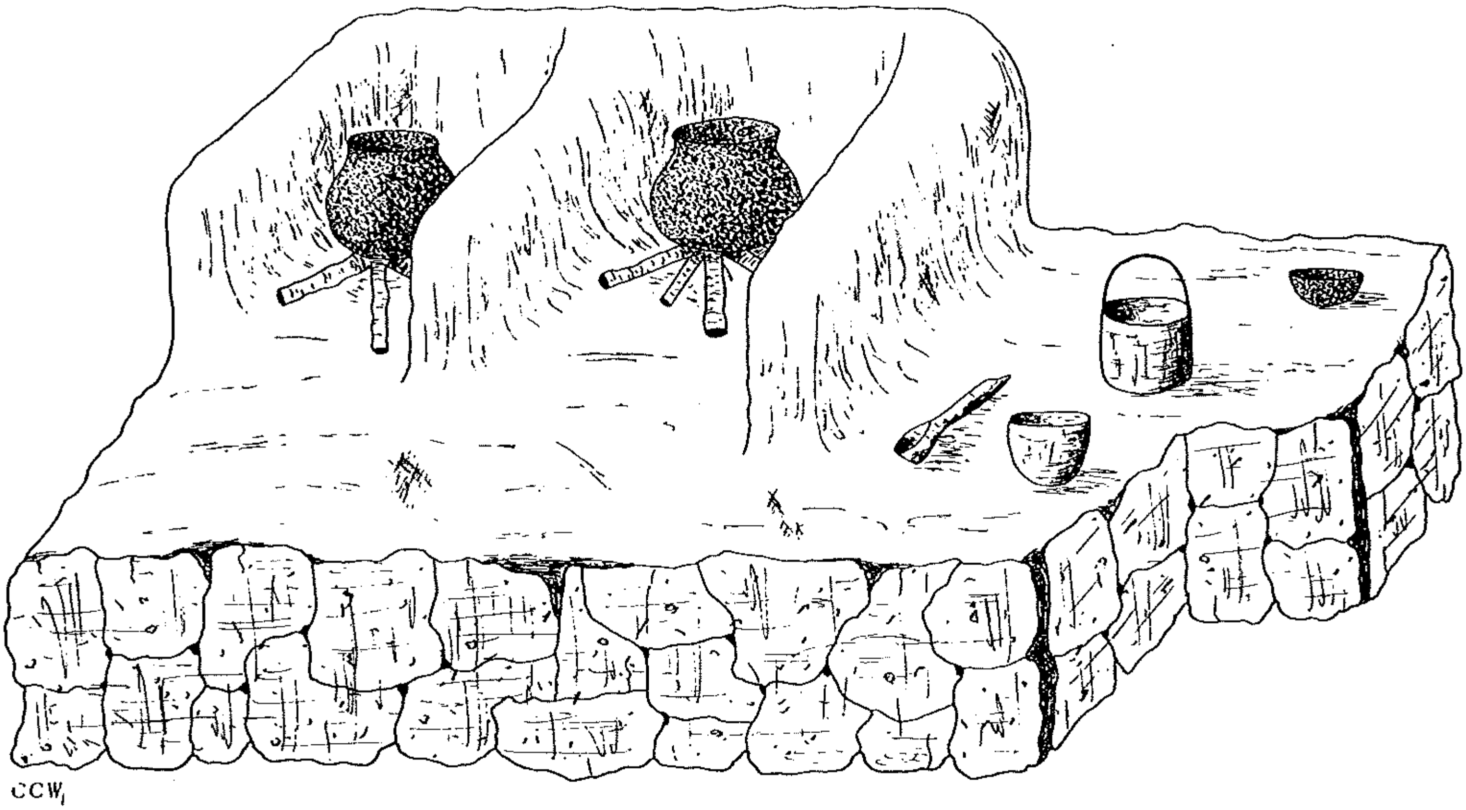
~~[illegible]~~

Maicoba

No reduction

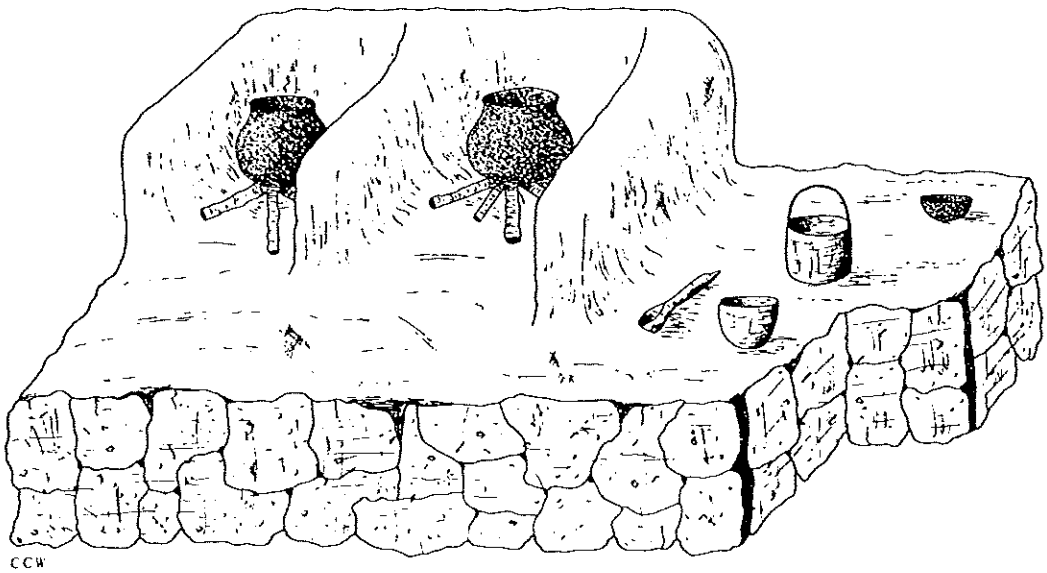


Cooking deer blood

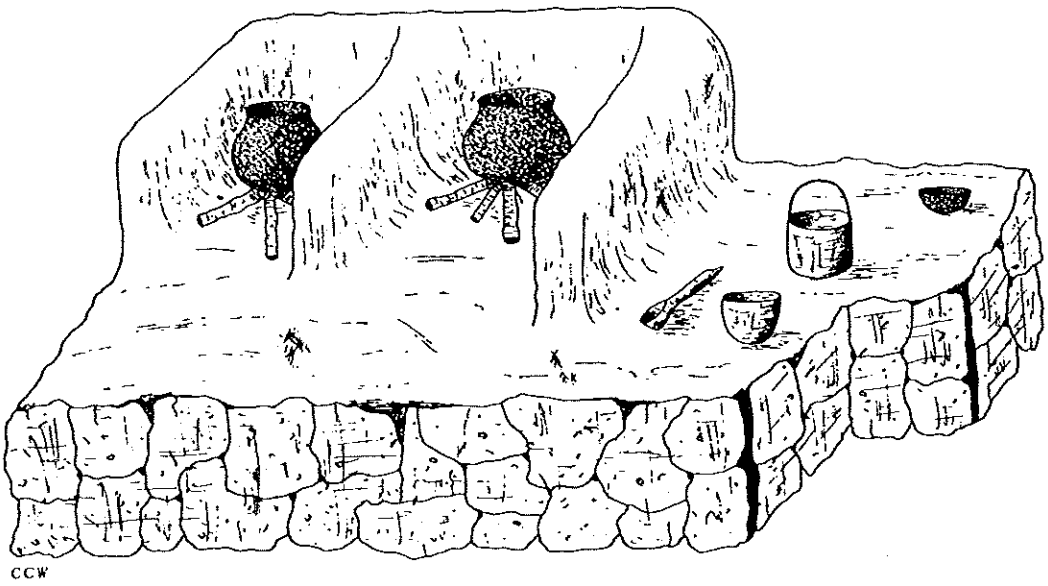


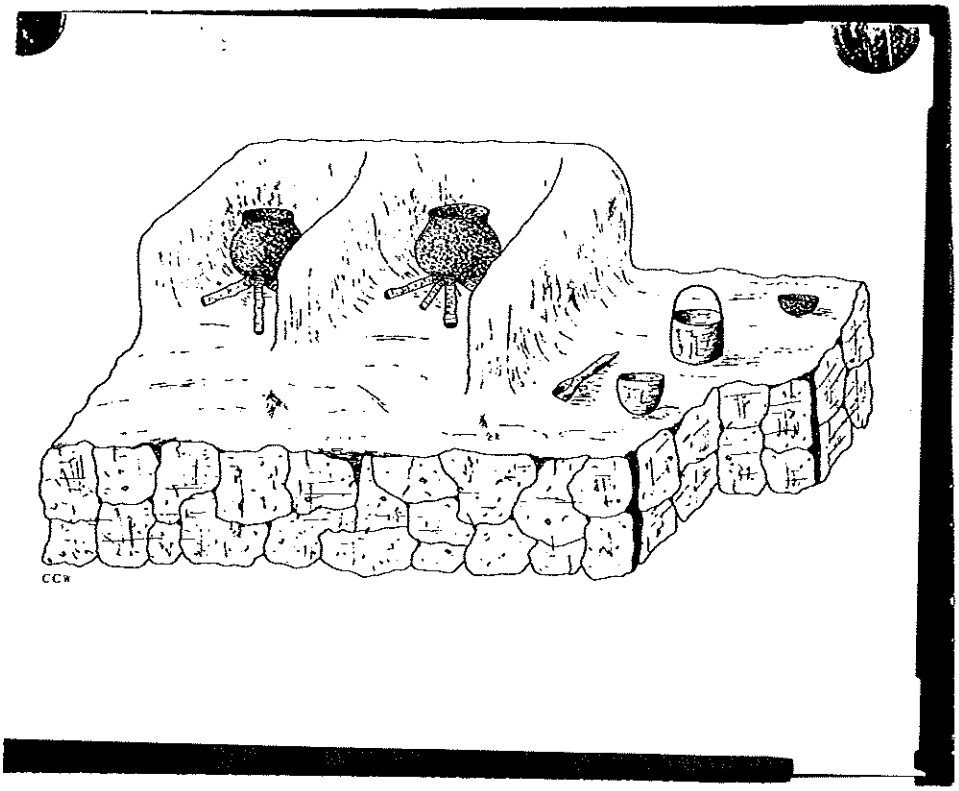
Maiçoba

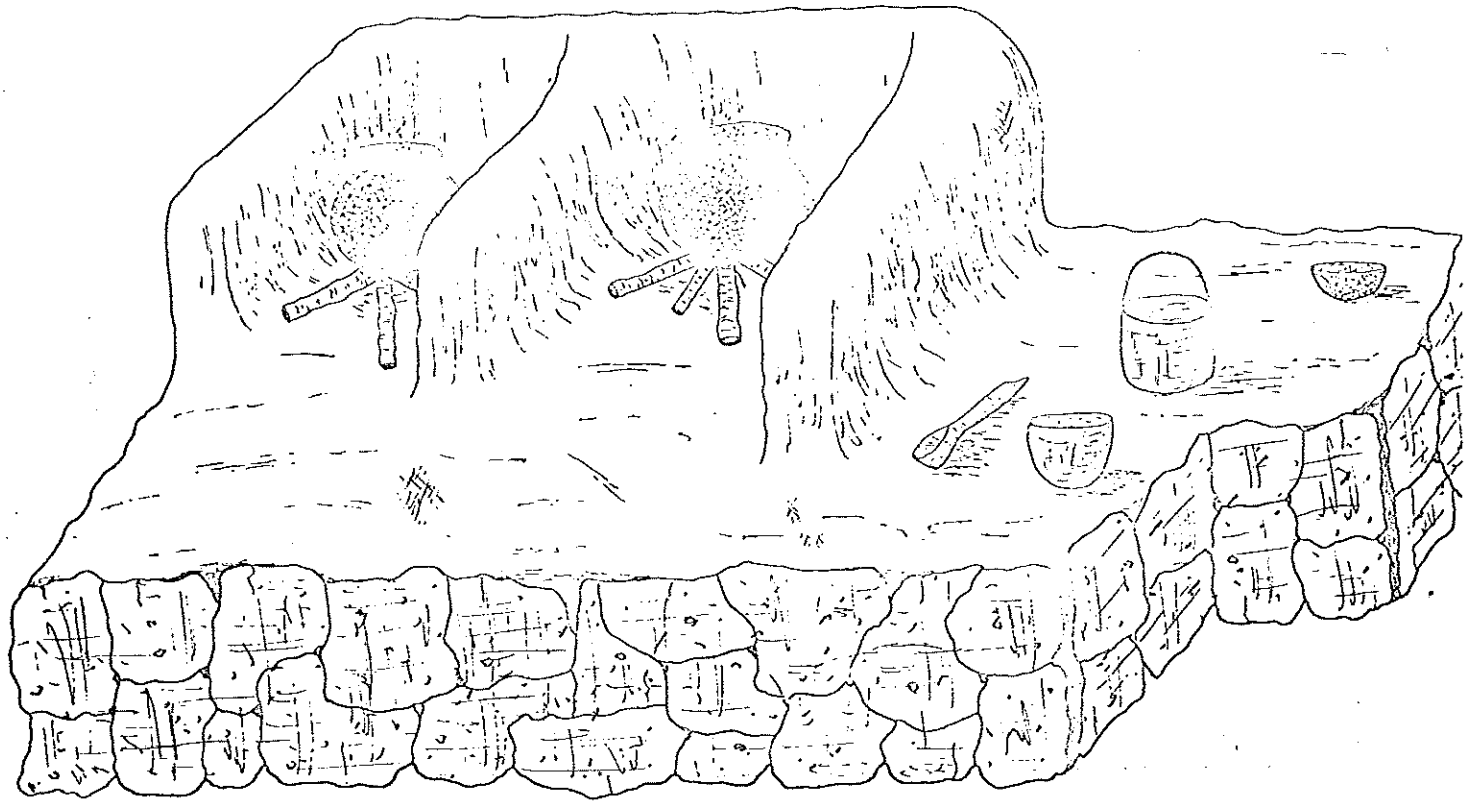
62% of original size



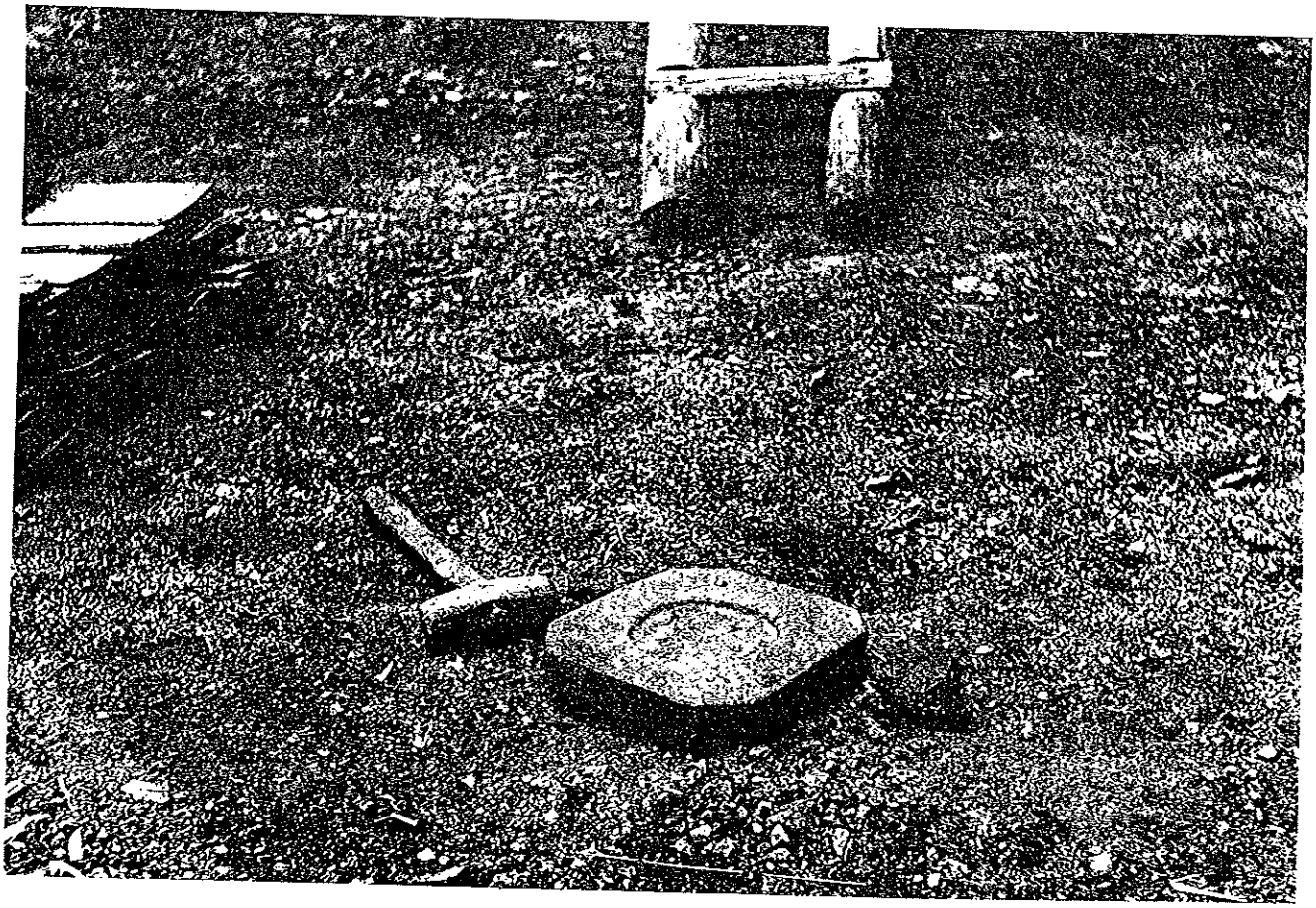
CCW


CCW


CCW

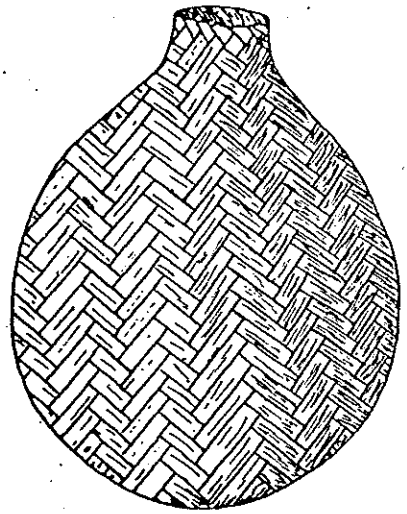


C. WEISS



MAICOBA

#85 – Fiber Basket

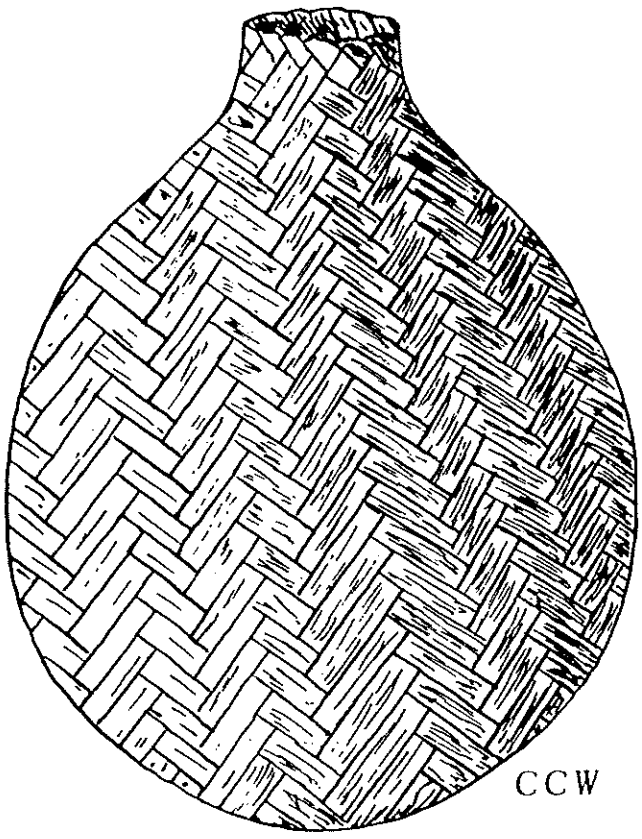


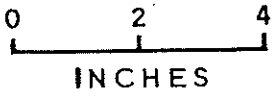
Maicoba

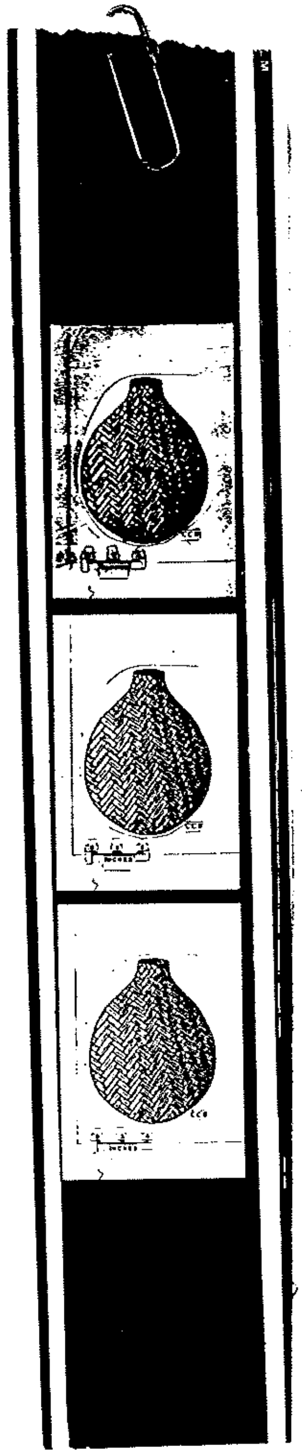
Fibers - Baskets 3

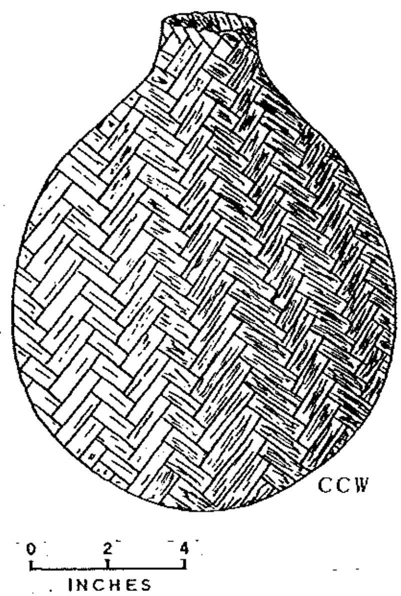
Plants used in making baskets

1. Palmilla curra.
2. Palmilla rastrada.


CCW


0
2
4
INCHES

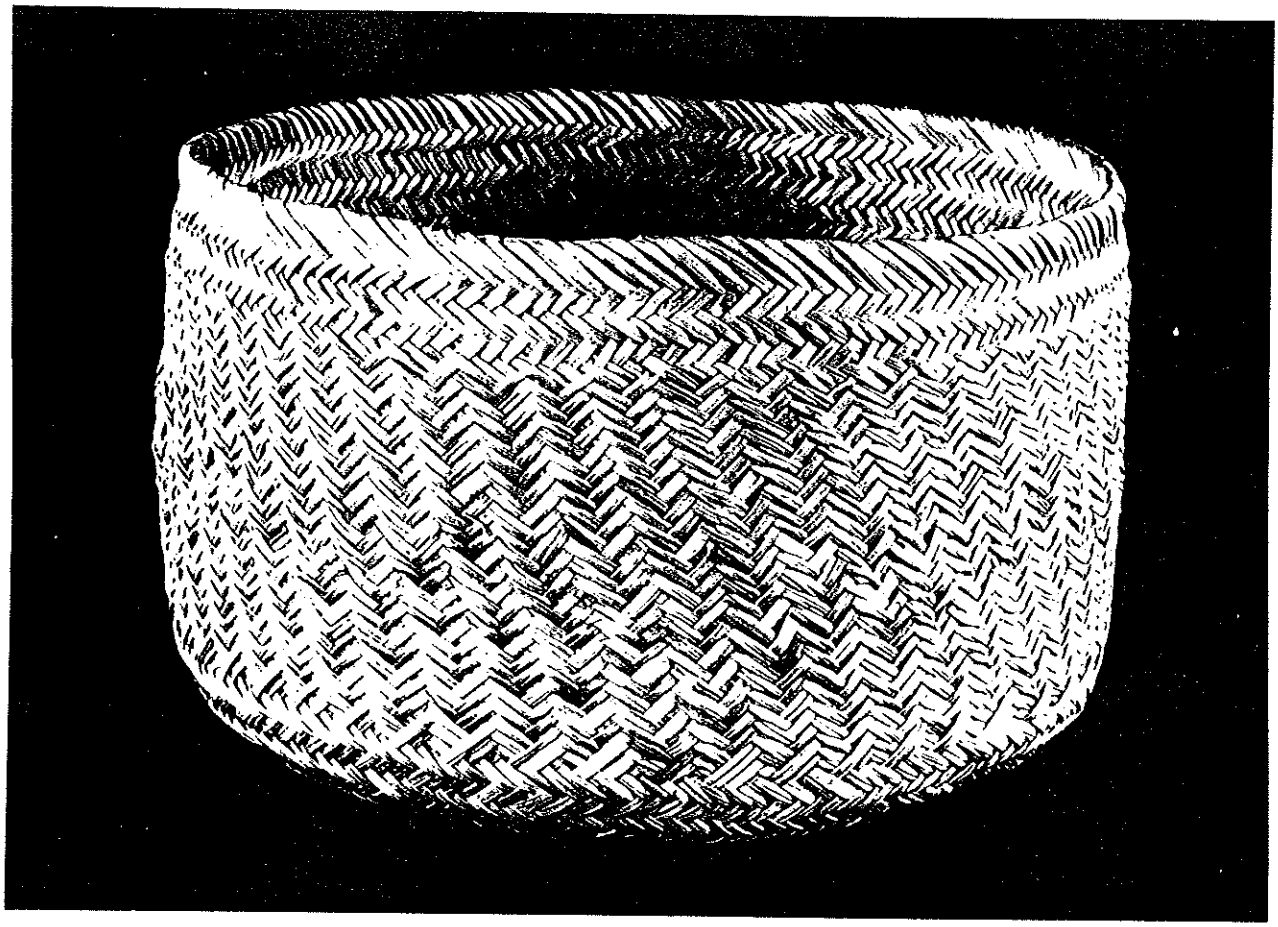


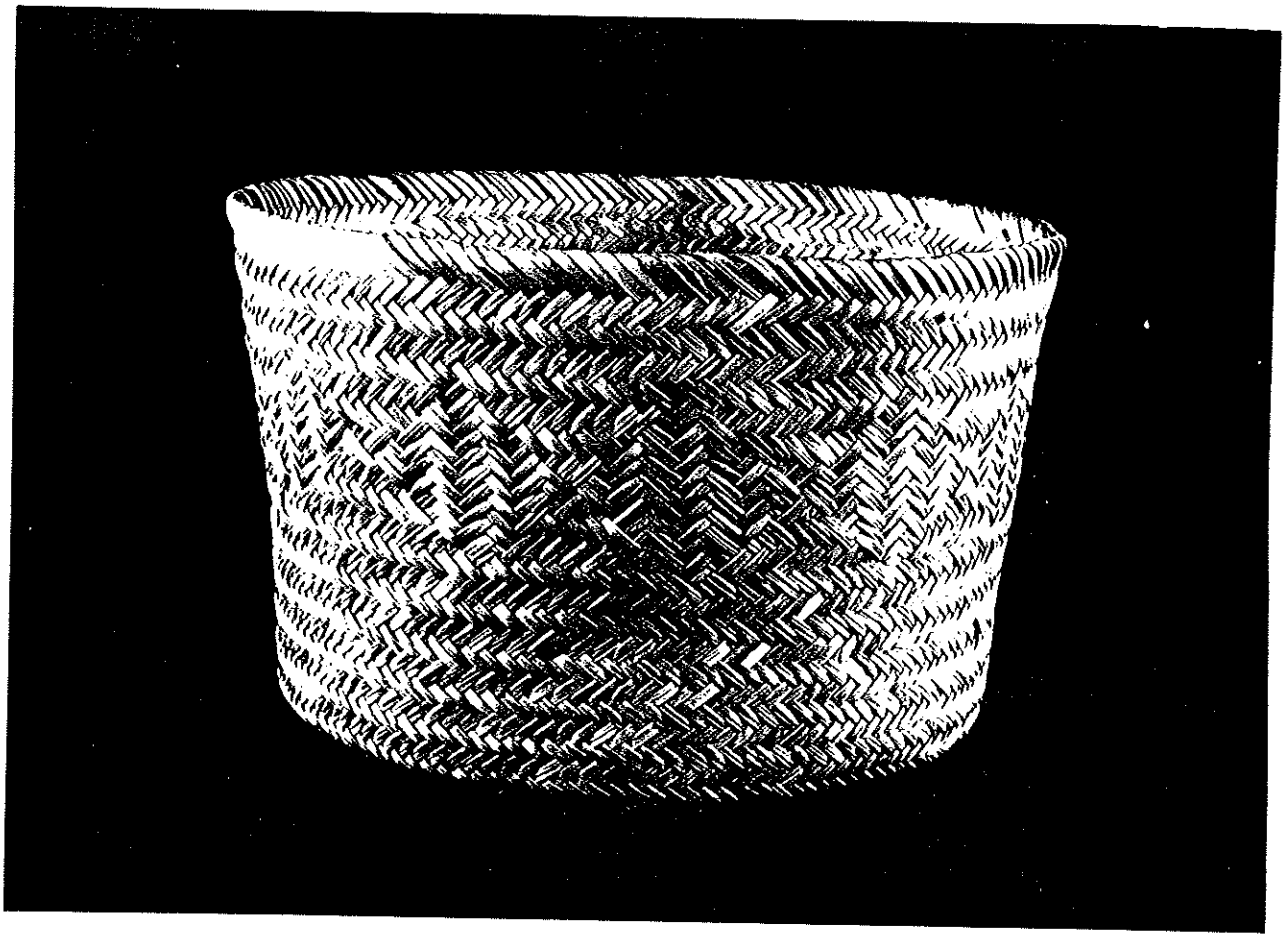


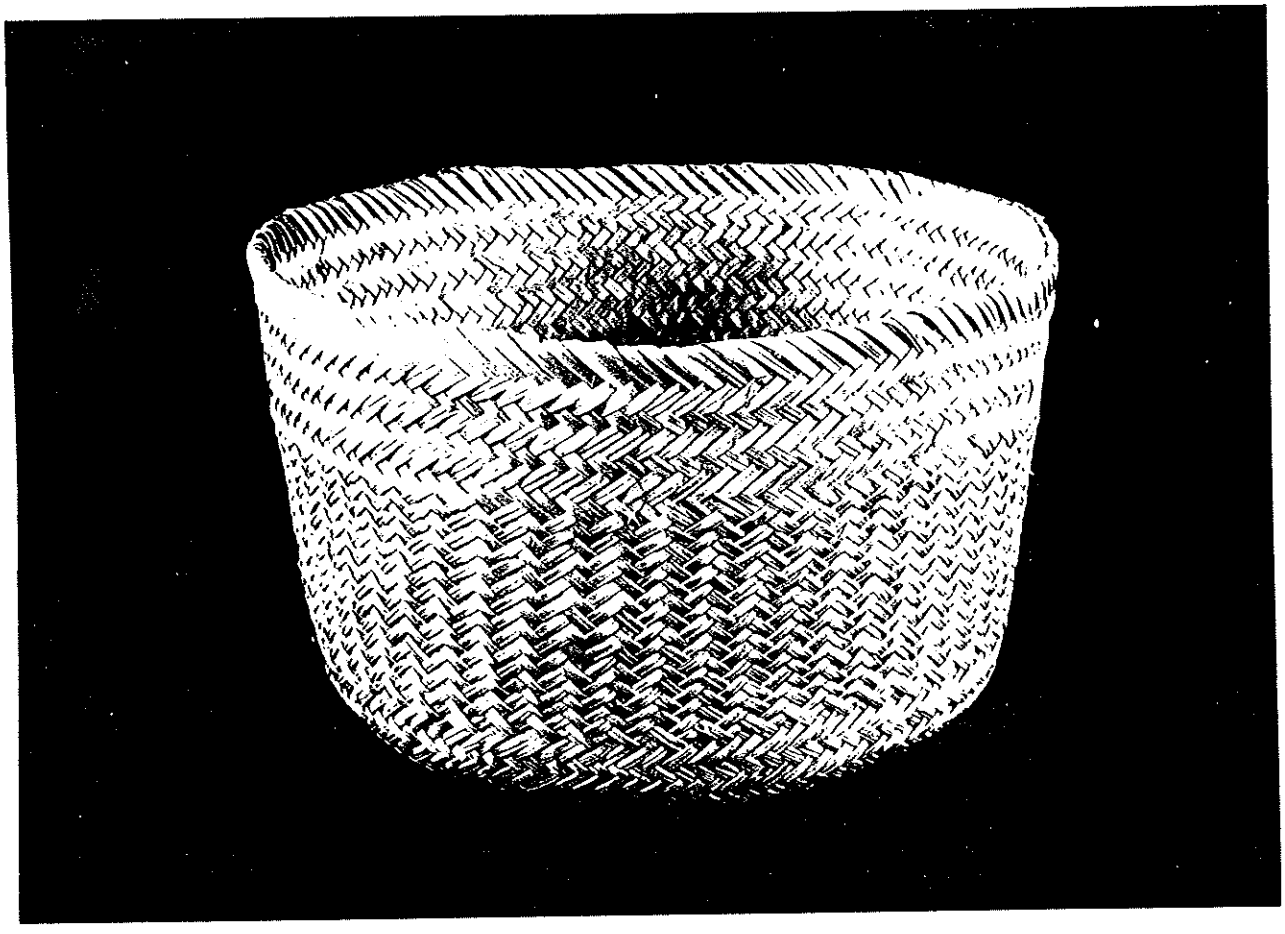
Maicoba

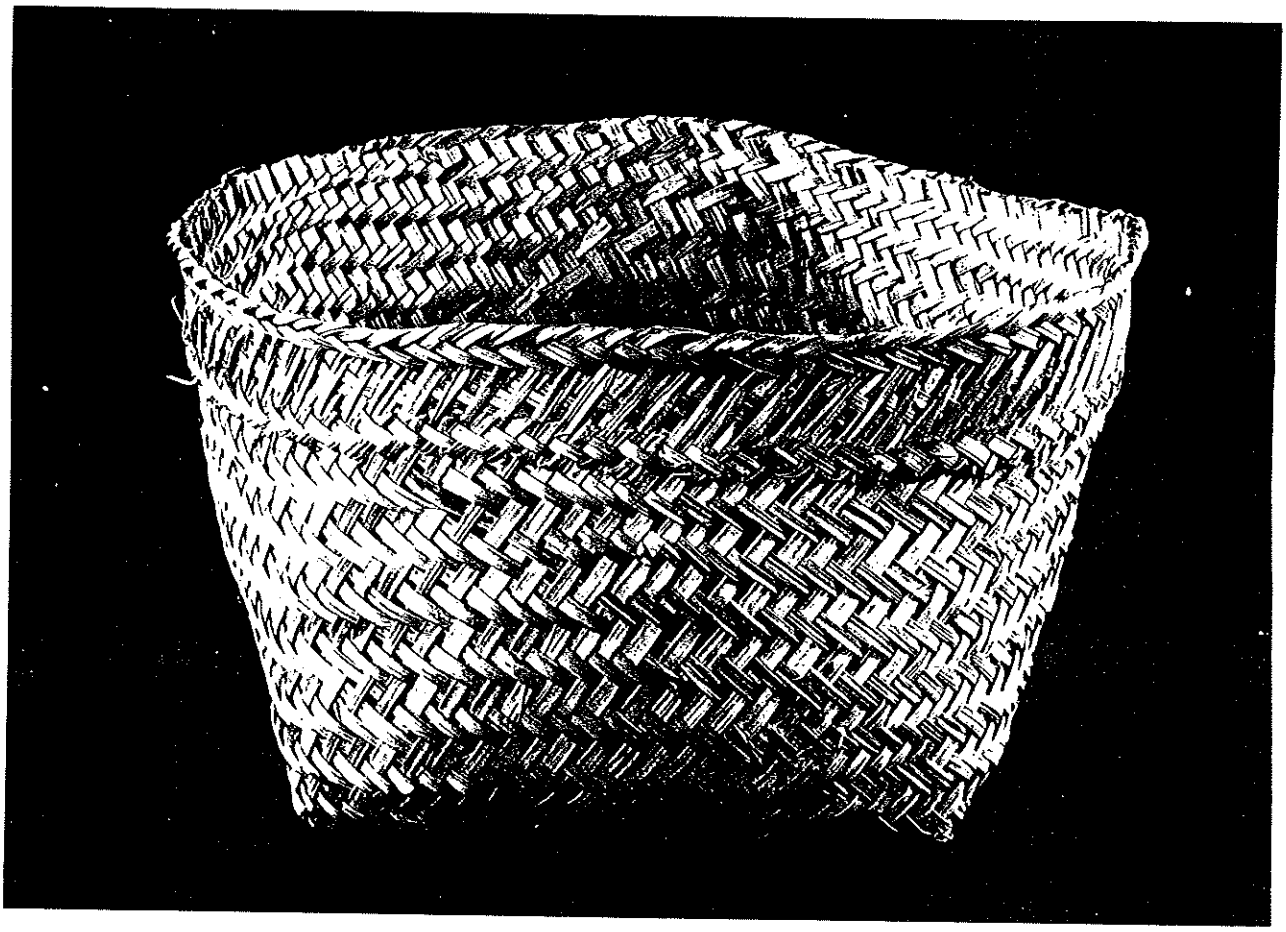
r Basket #85 Fiber basket

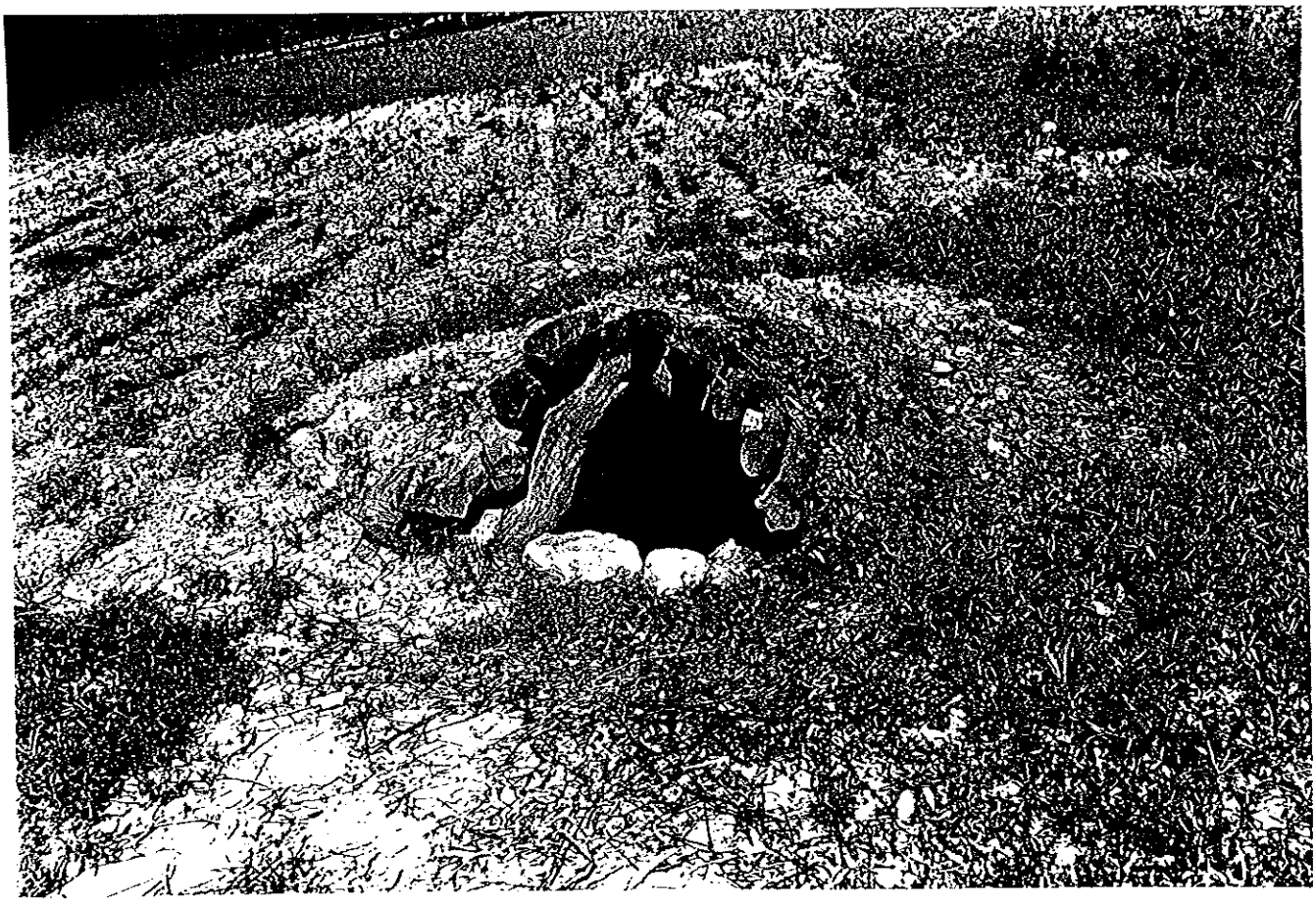
No reduction

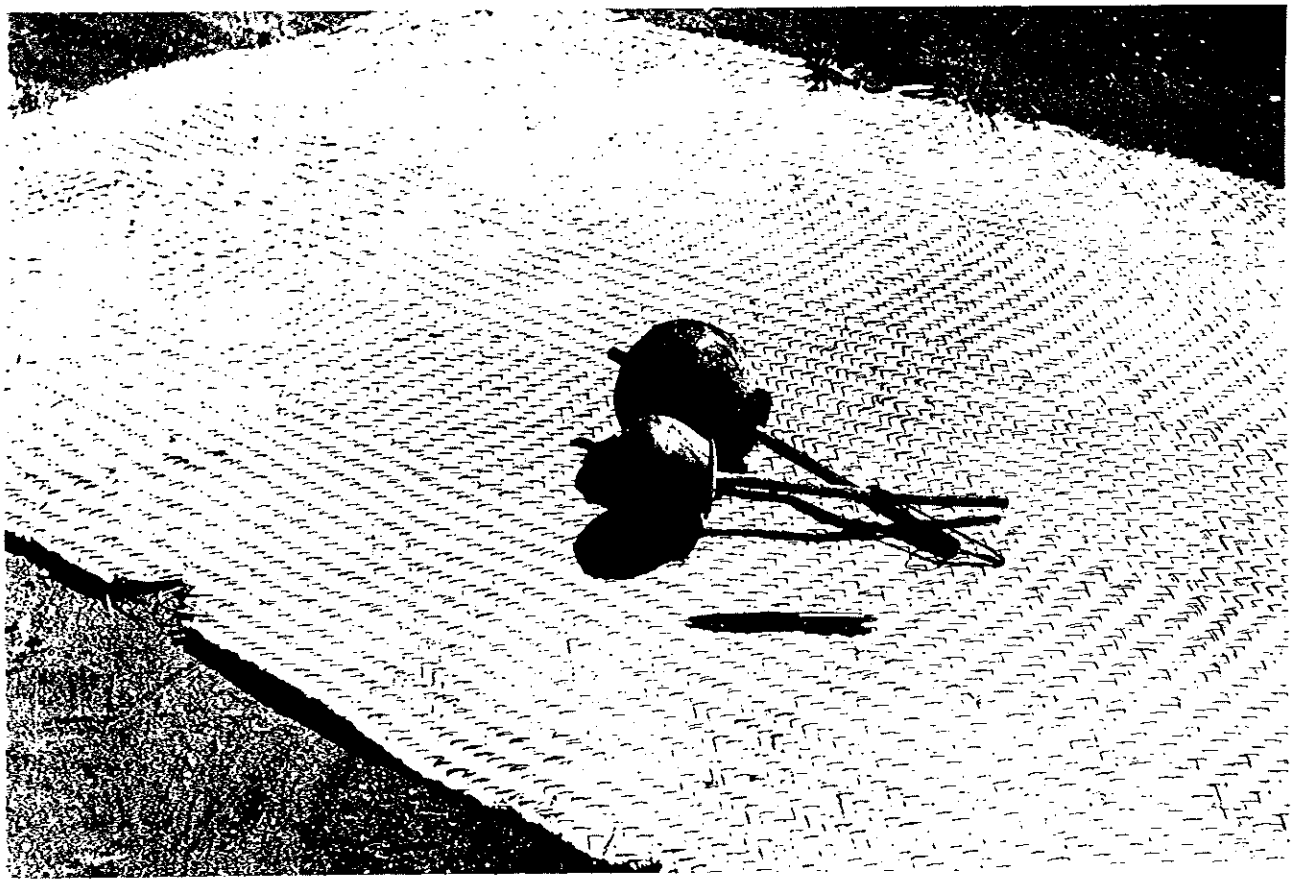


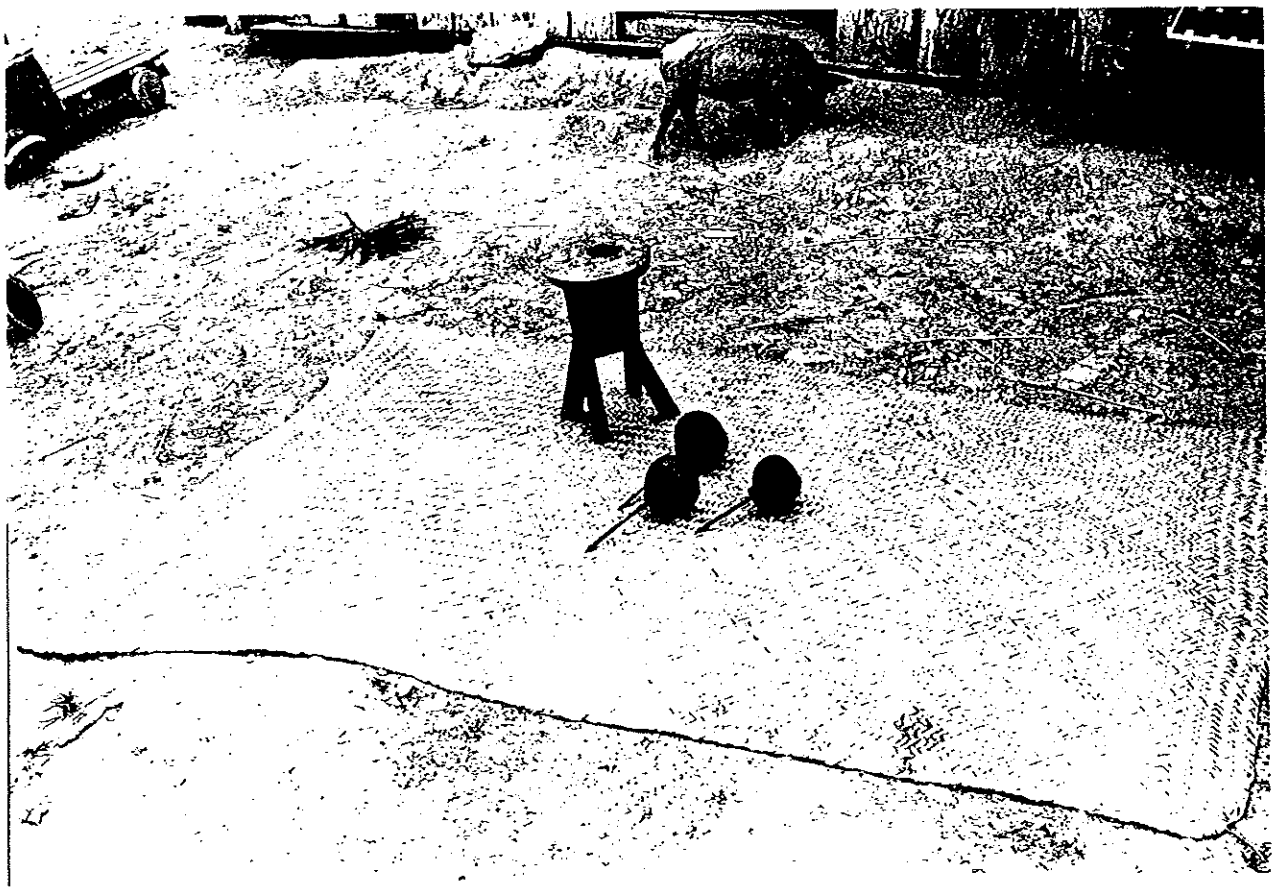


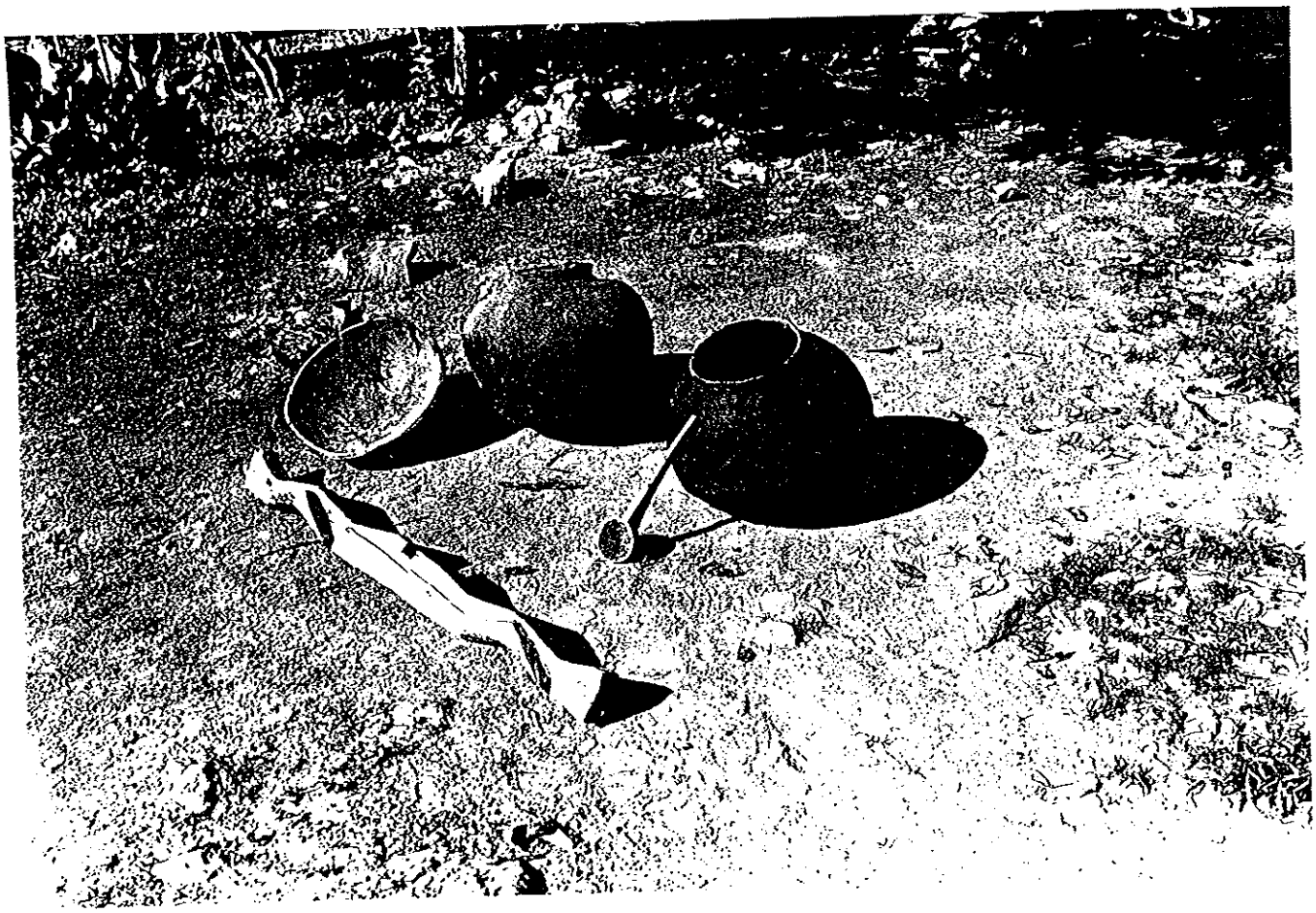


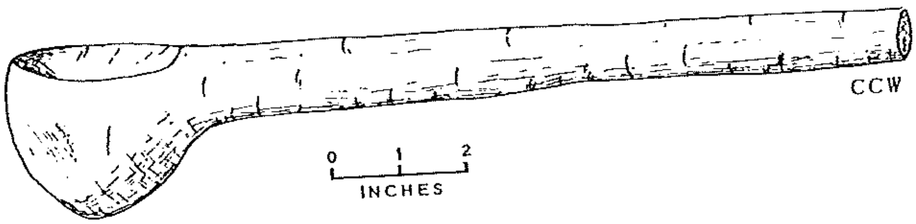








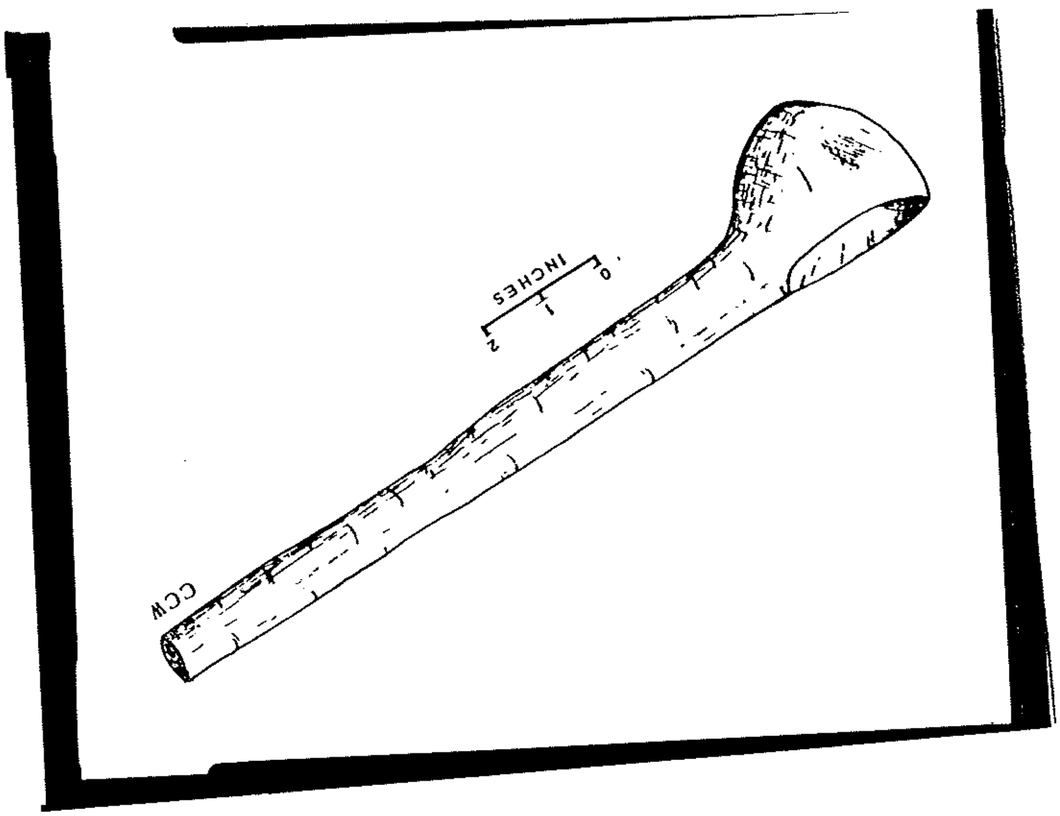




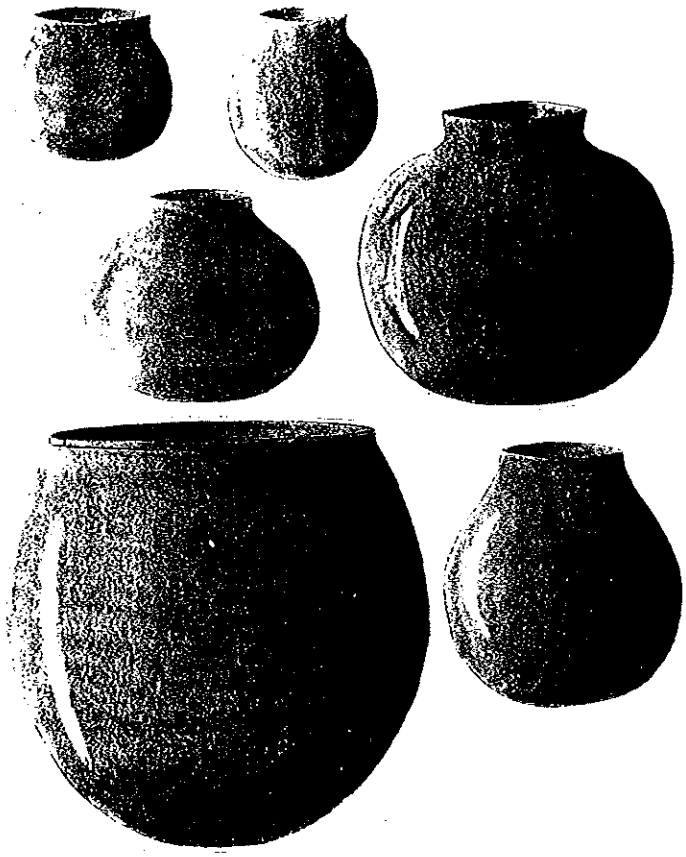
~~YEPHEMC~~/MARICOPA

#121 - Wooden Spoon

No reduction



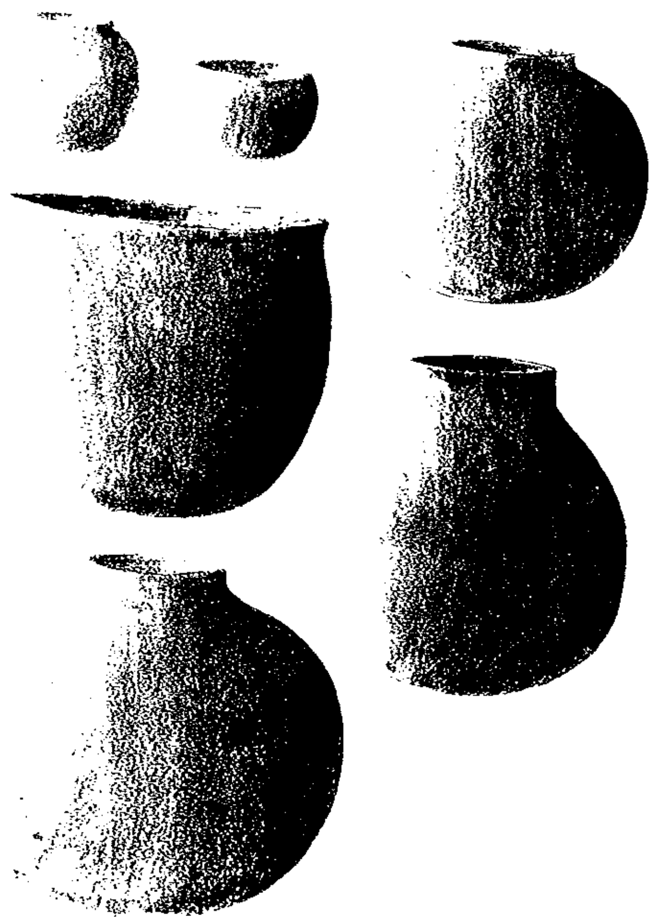
Maicoba



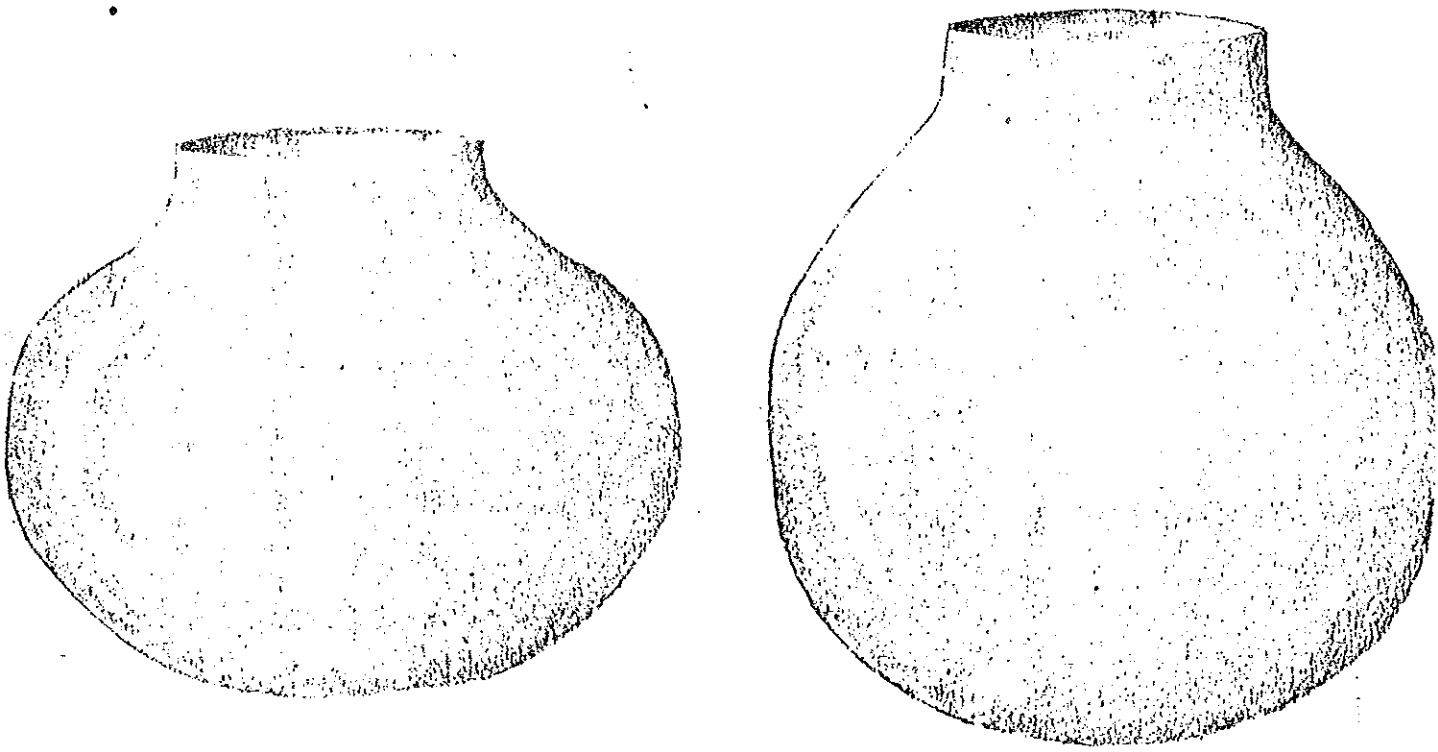
maicoba

Chile?

Maricopa



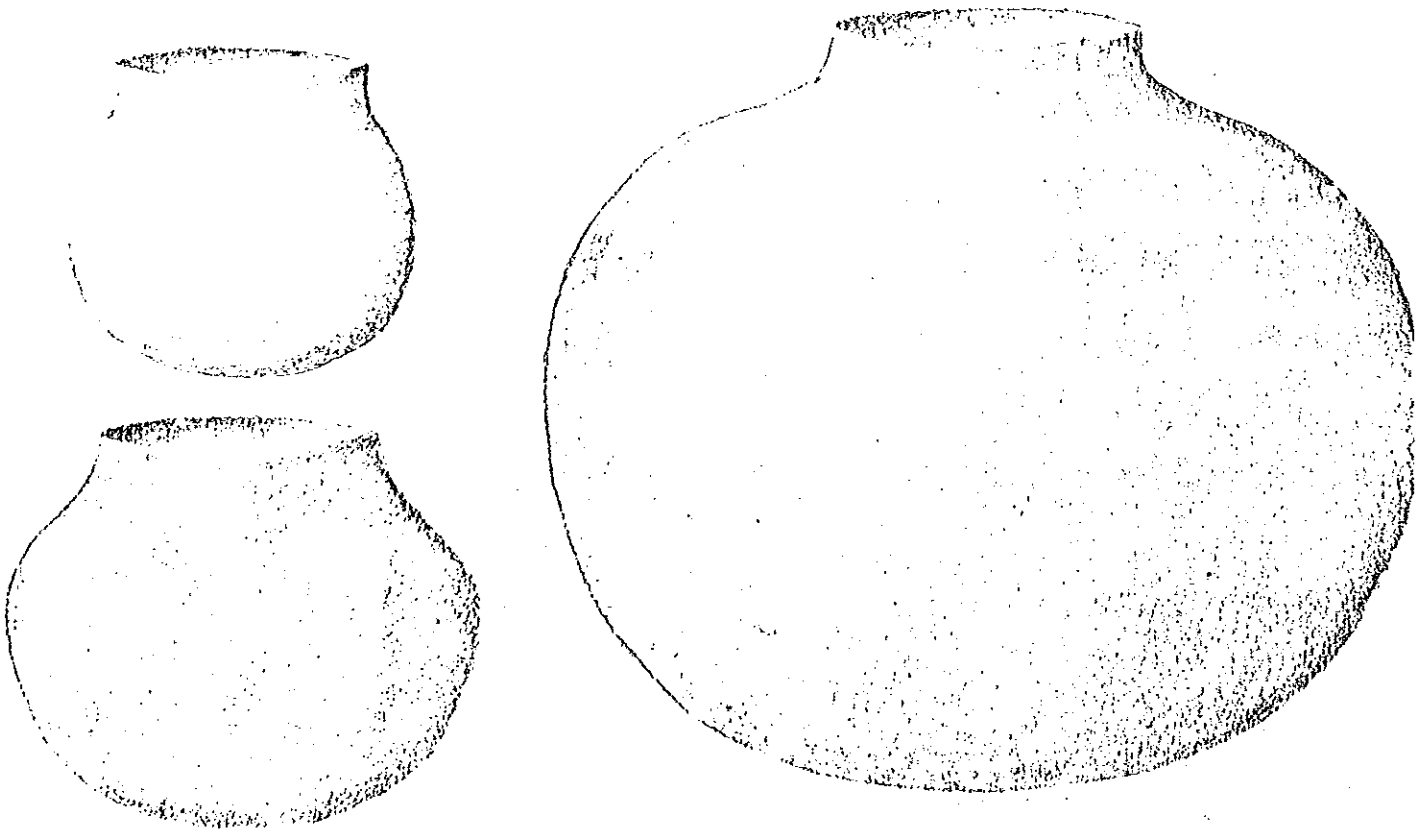
#107 – Ollas (1970's)



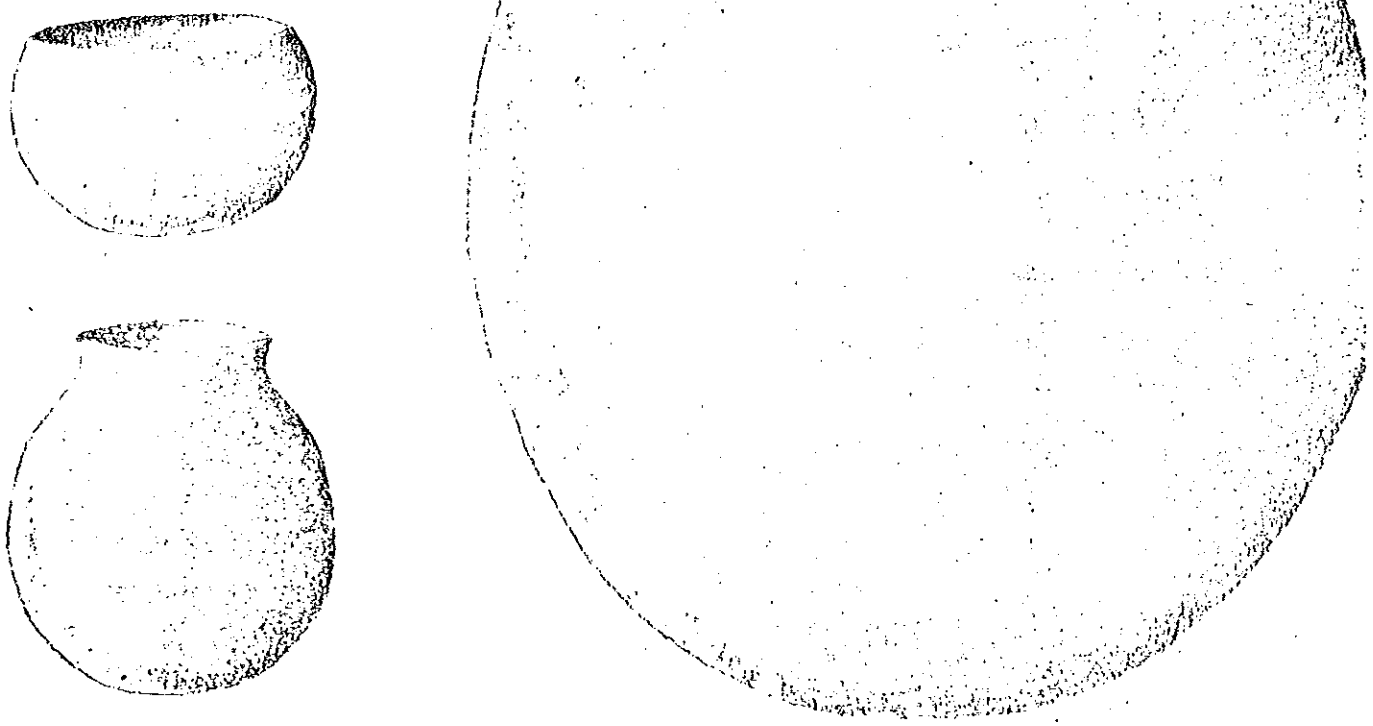
MAICOBA

#107– Ollas (1970's)

MAICOBA
#107 – (• Ollas (1970's)

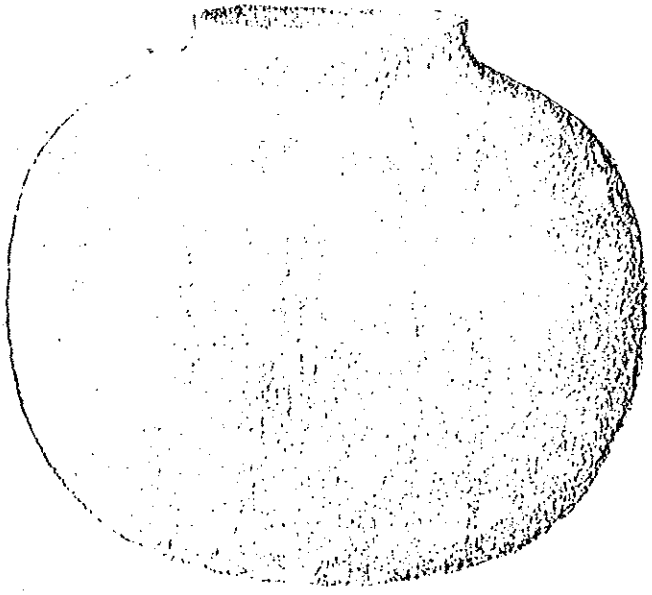


MAICOBA
#107 –• Ollas (1970's)



#107-

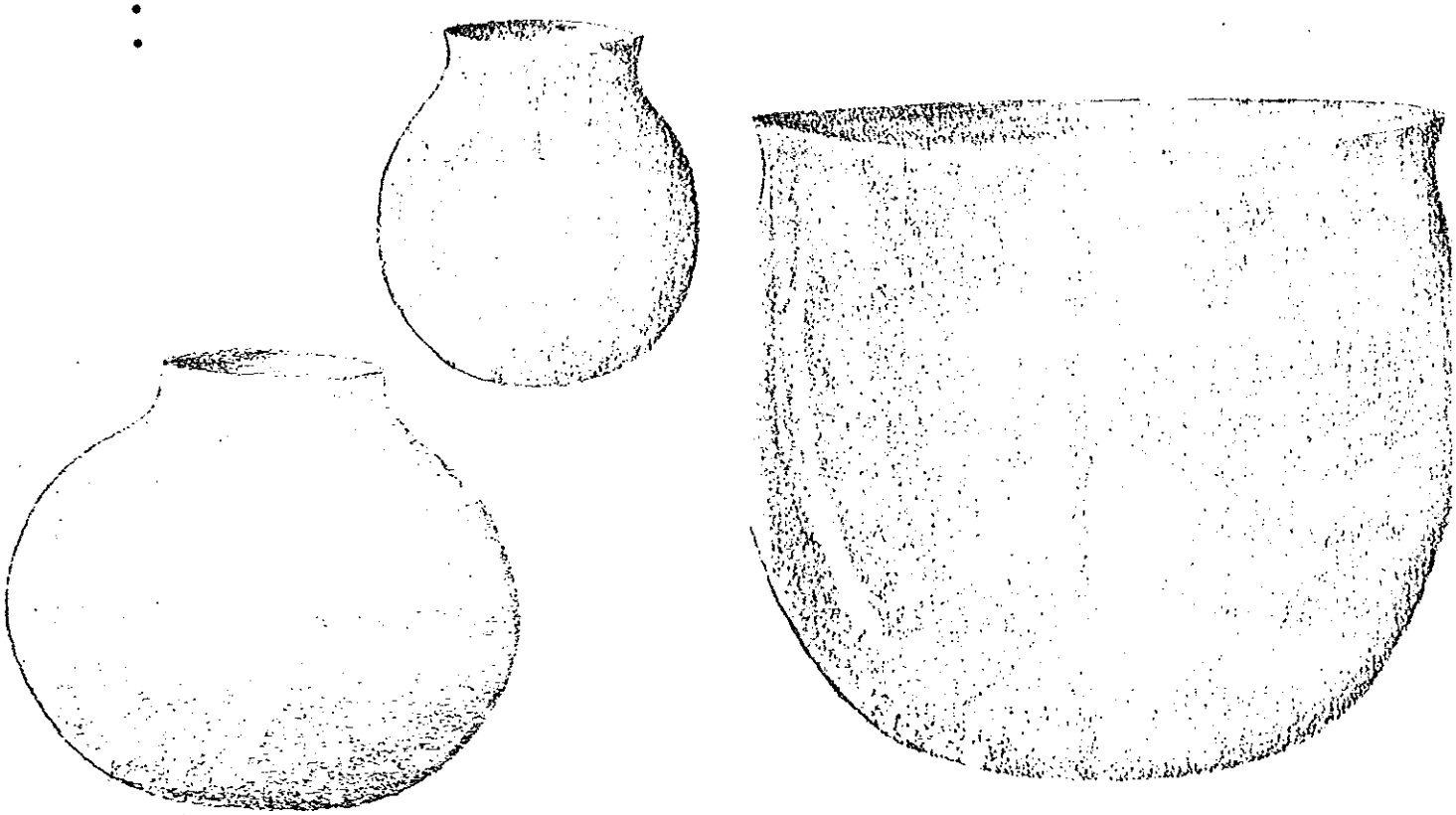
- Olla (1970's)



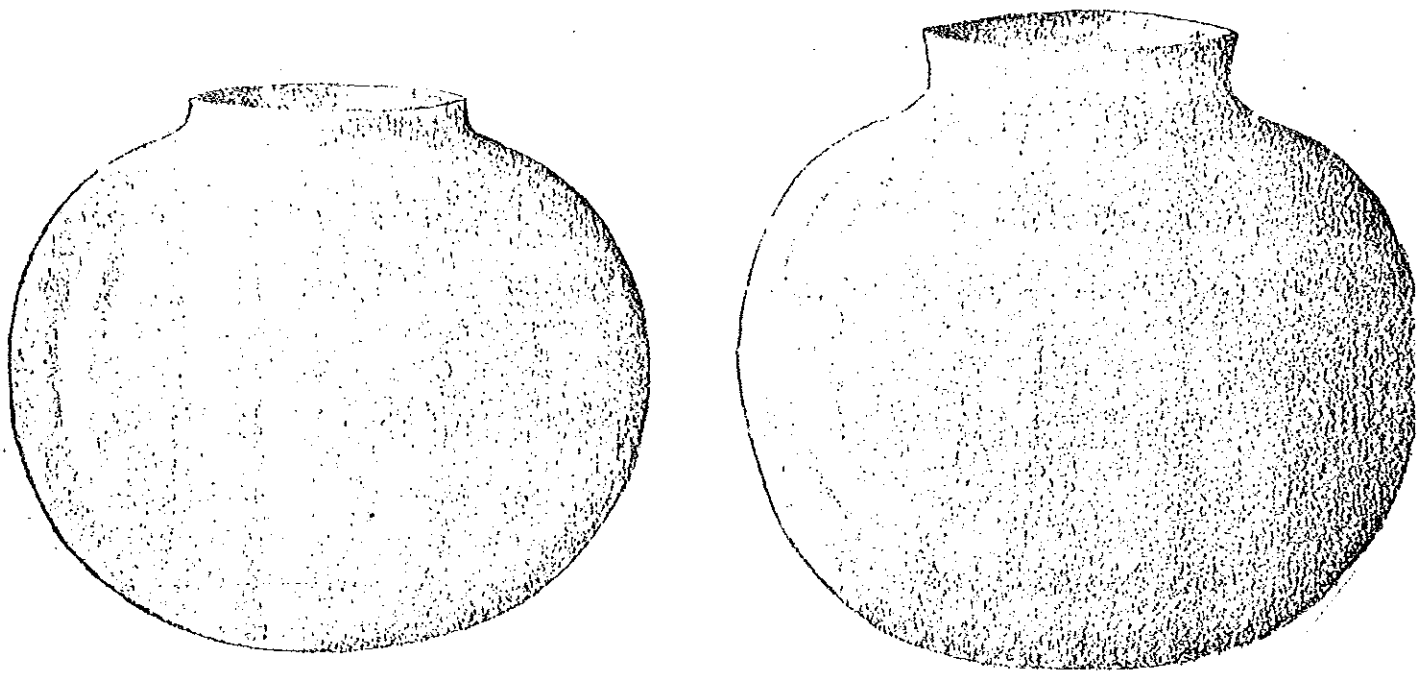
MAICOBA

#107 -

- Ollas (1970's)

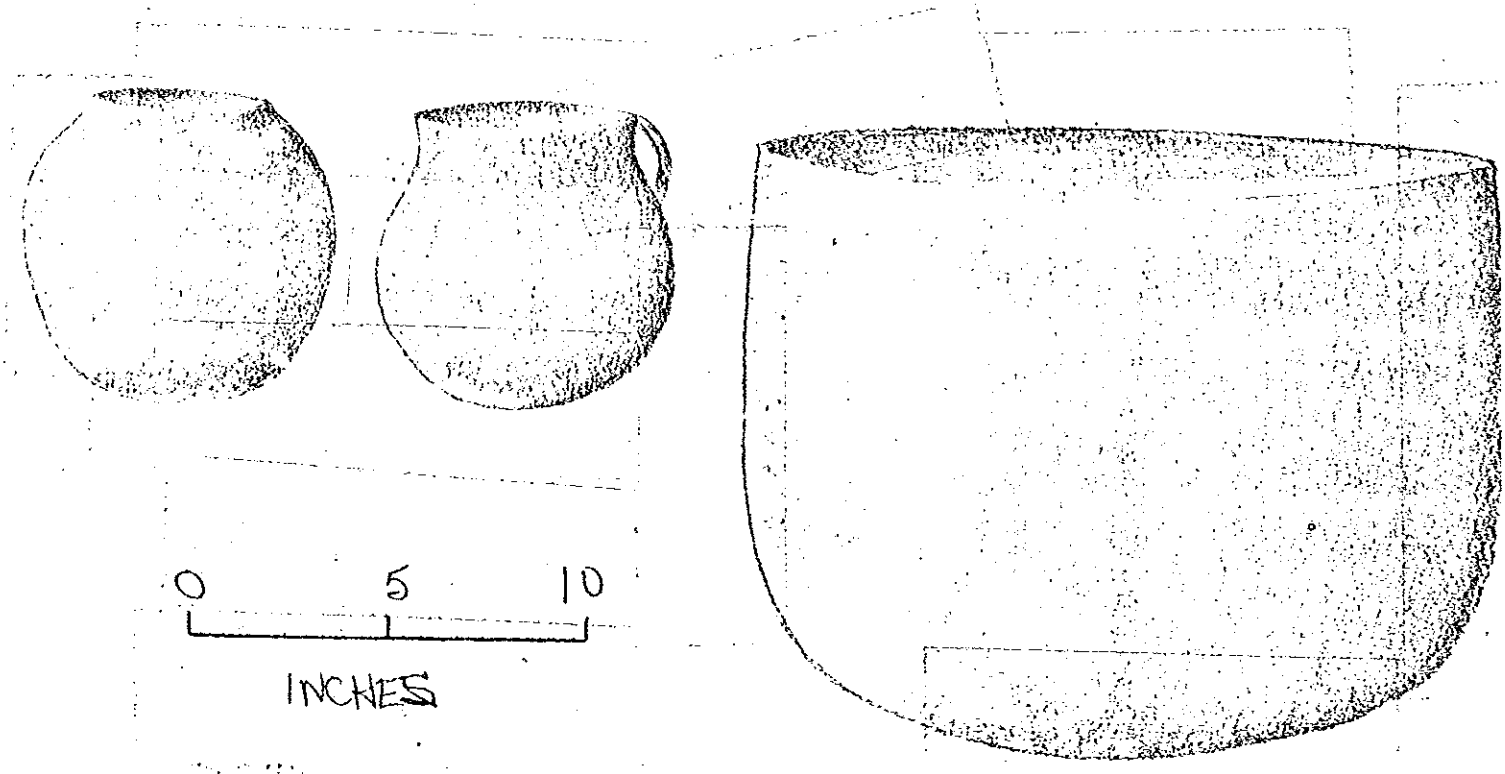


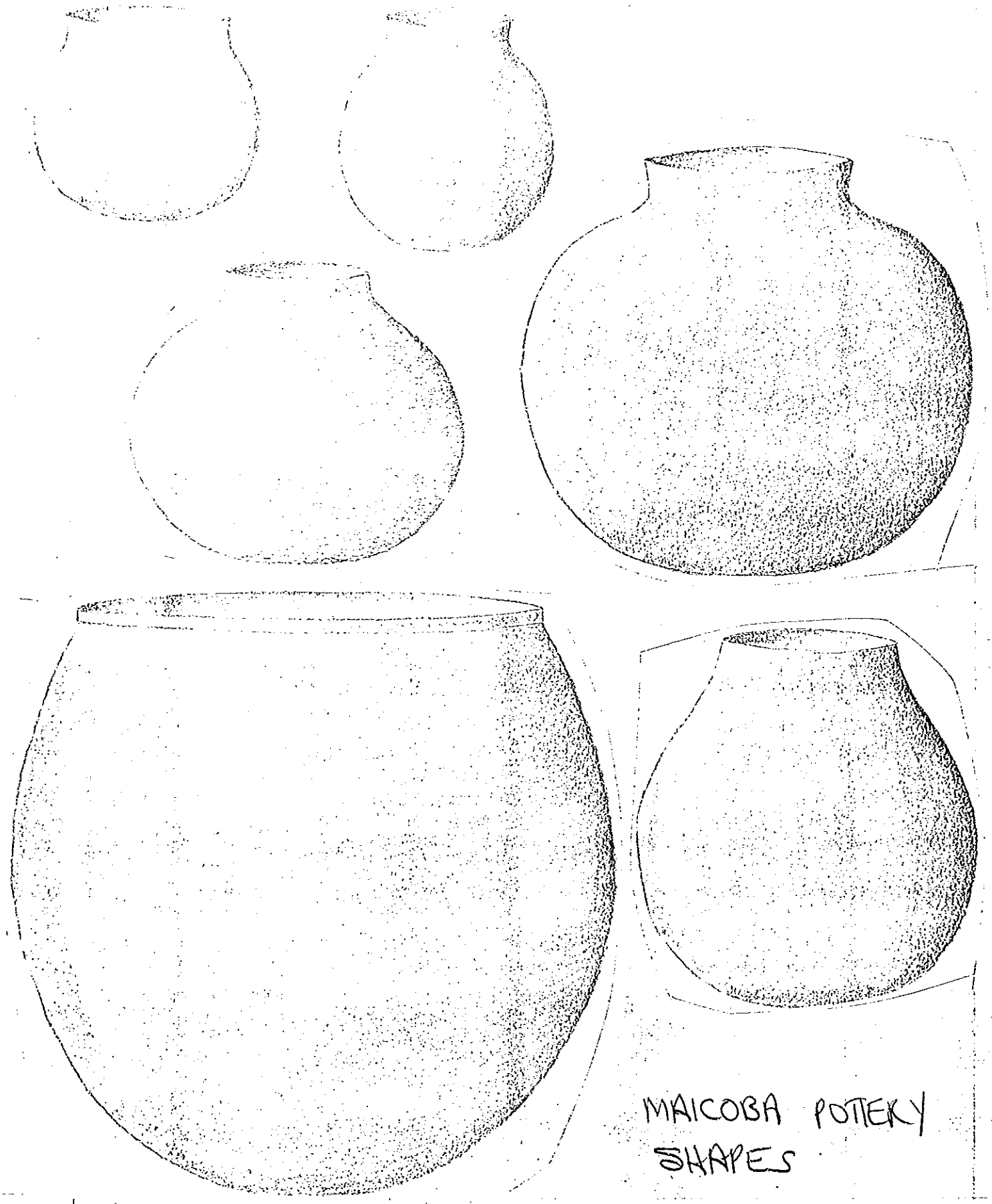
#107 – Ollas (1970's)



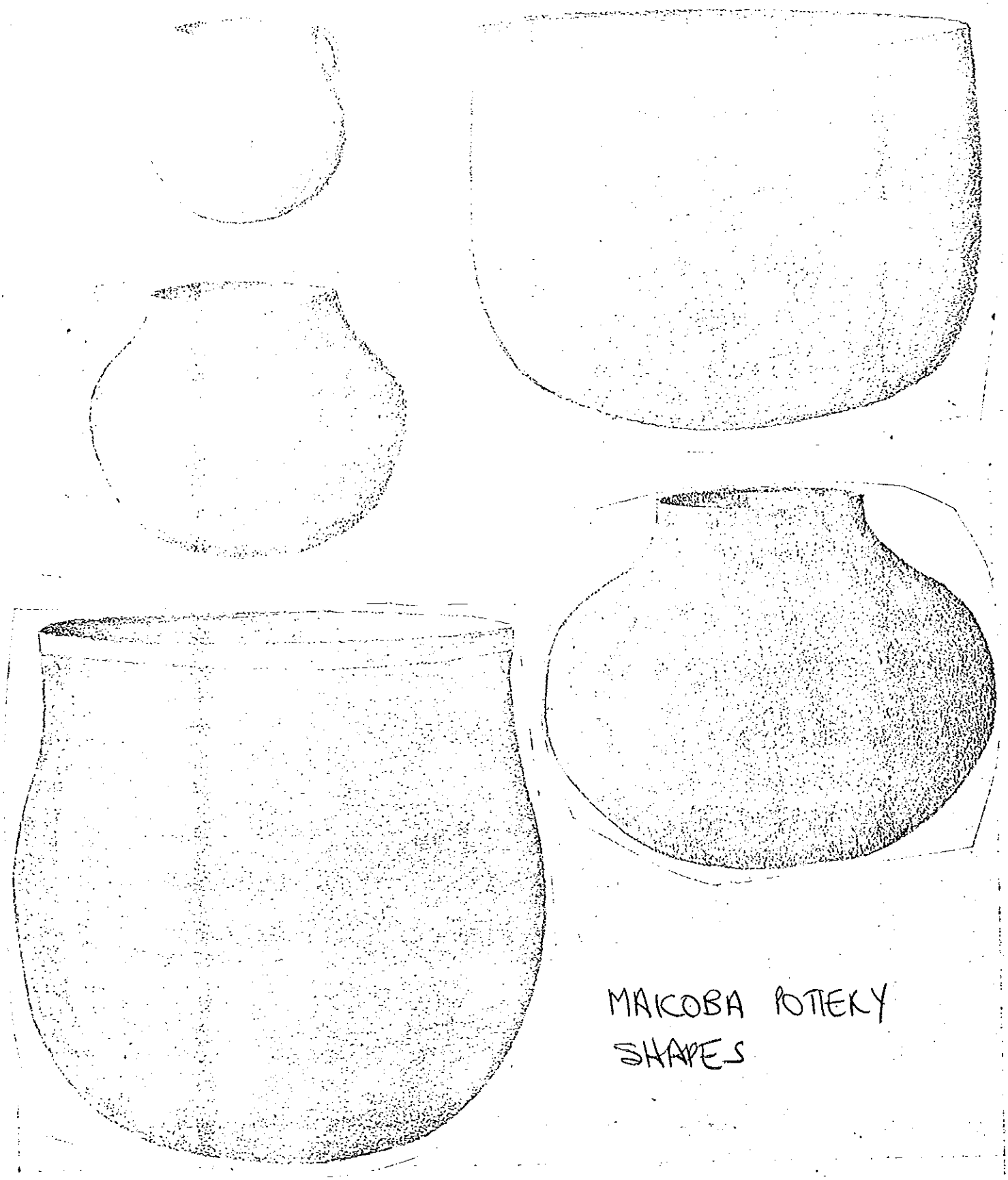
MAICOBA

#107 – Ollas (1970's)

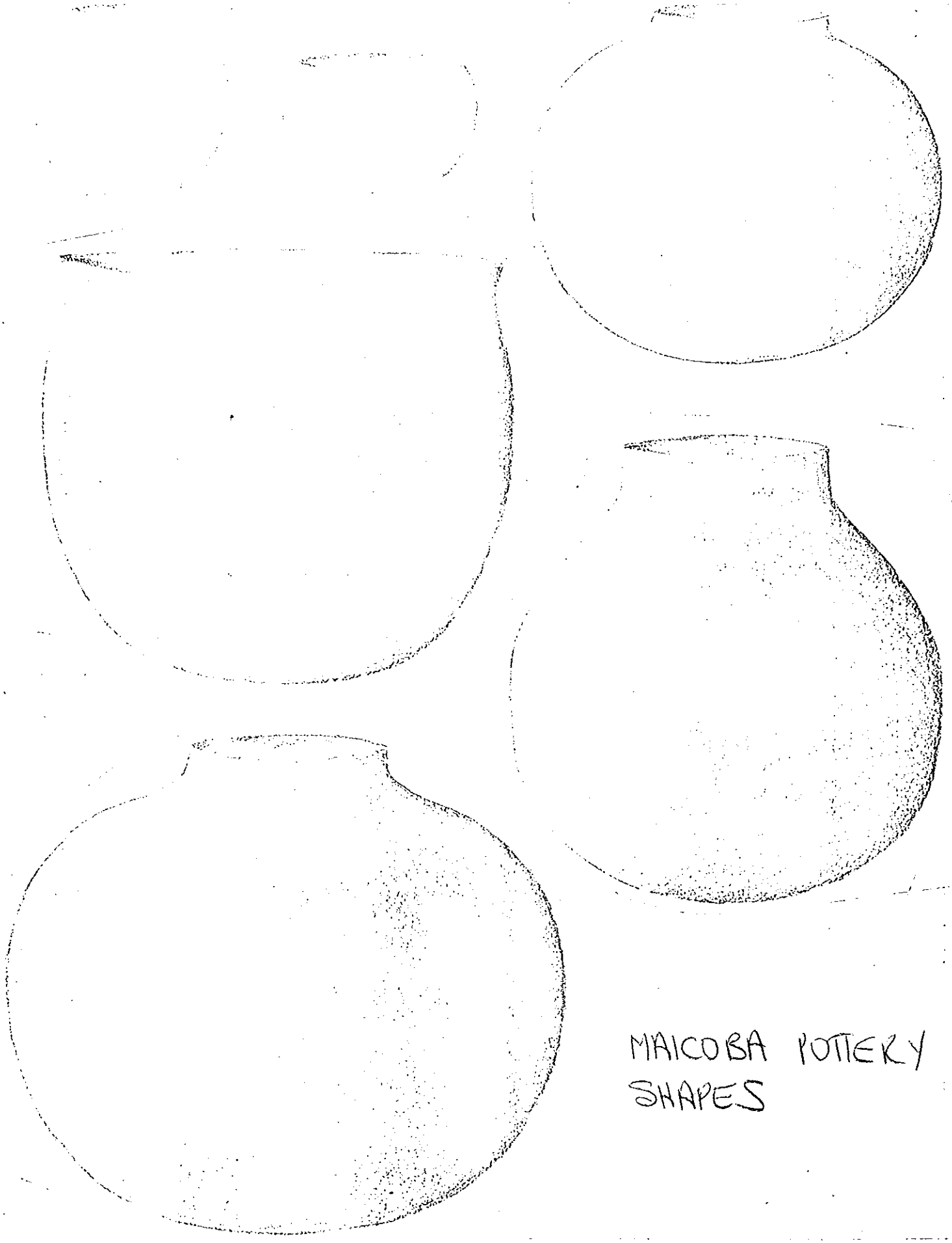




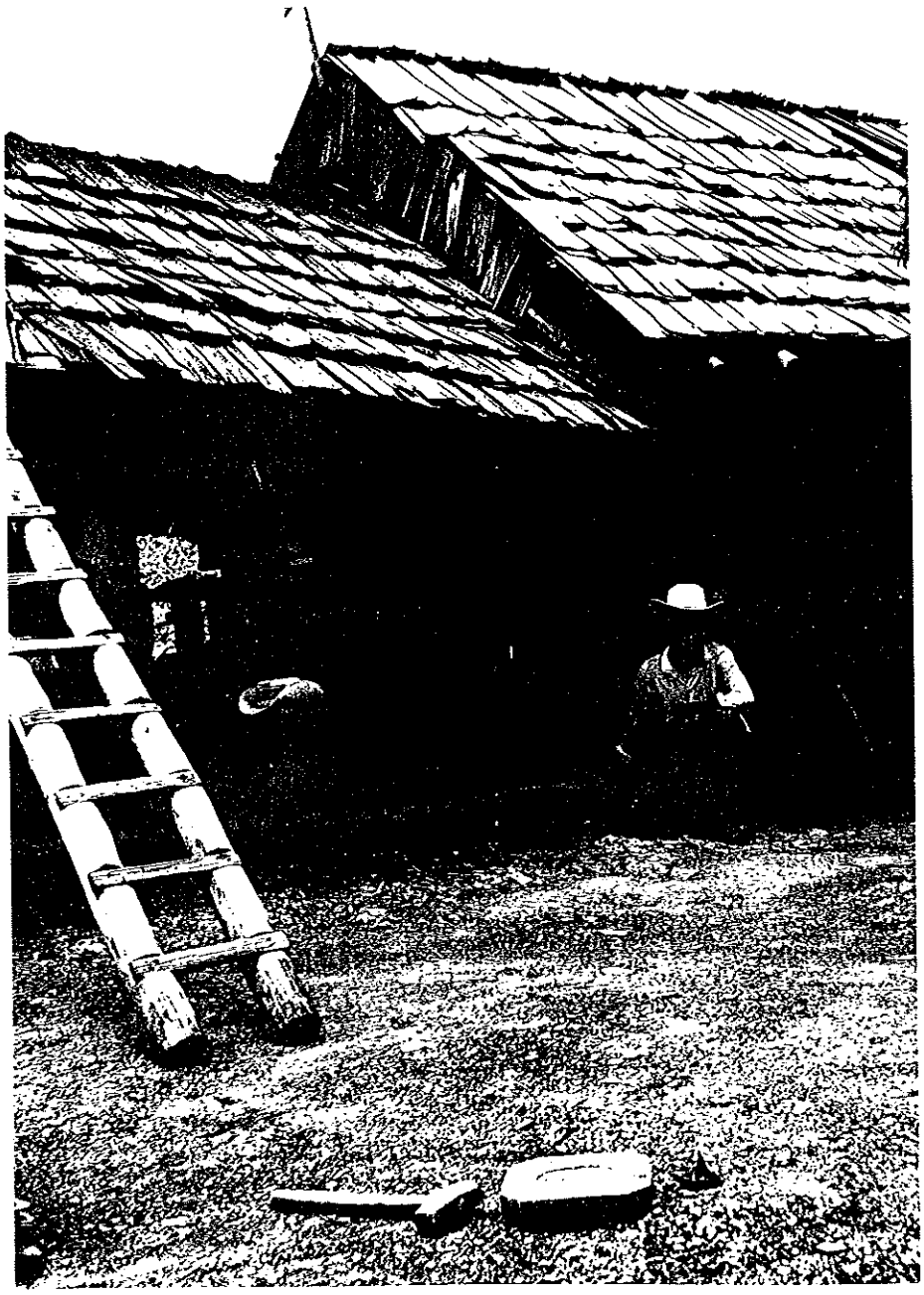
MAICOBA POTTERY SHAPES

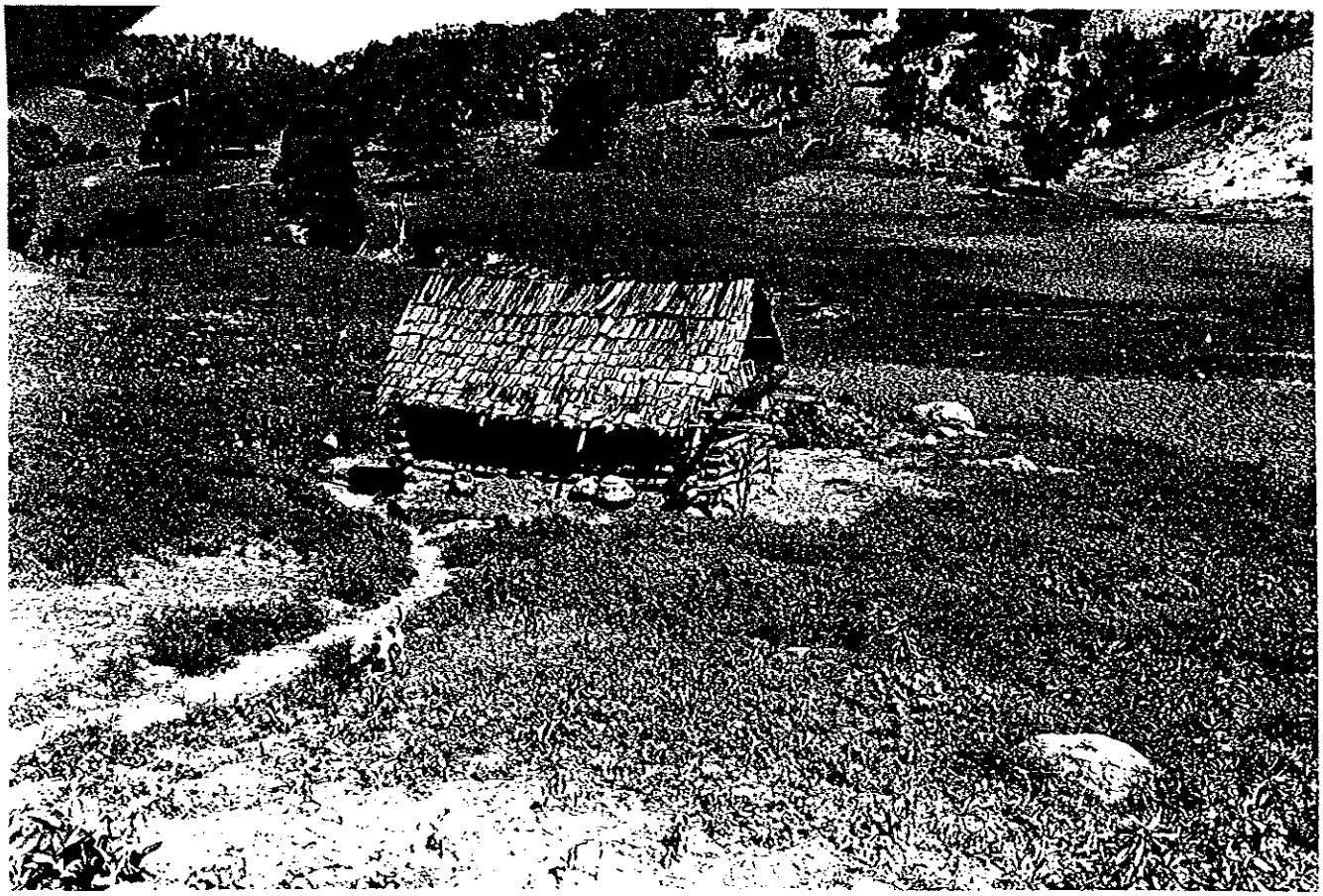


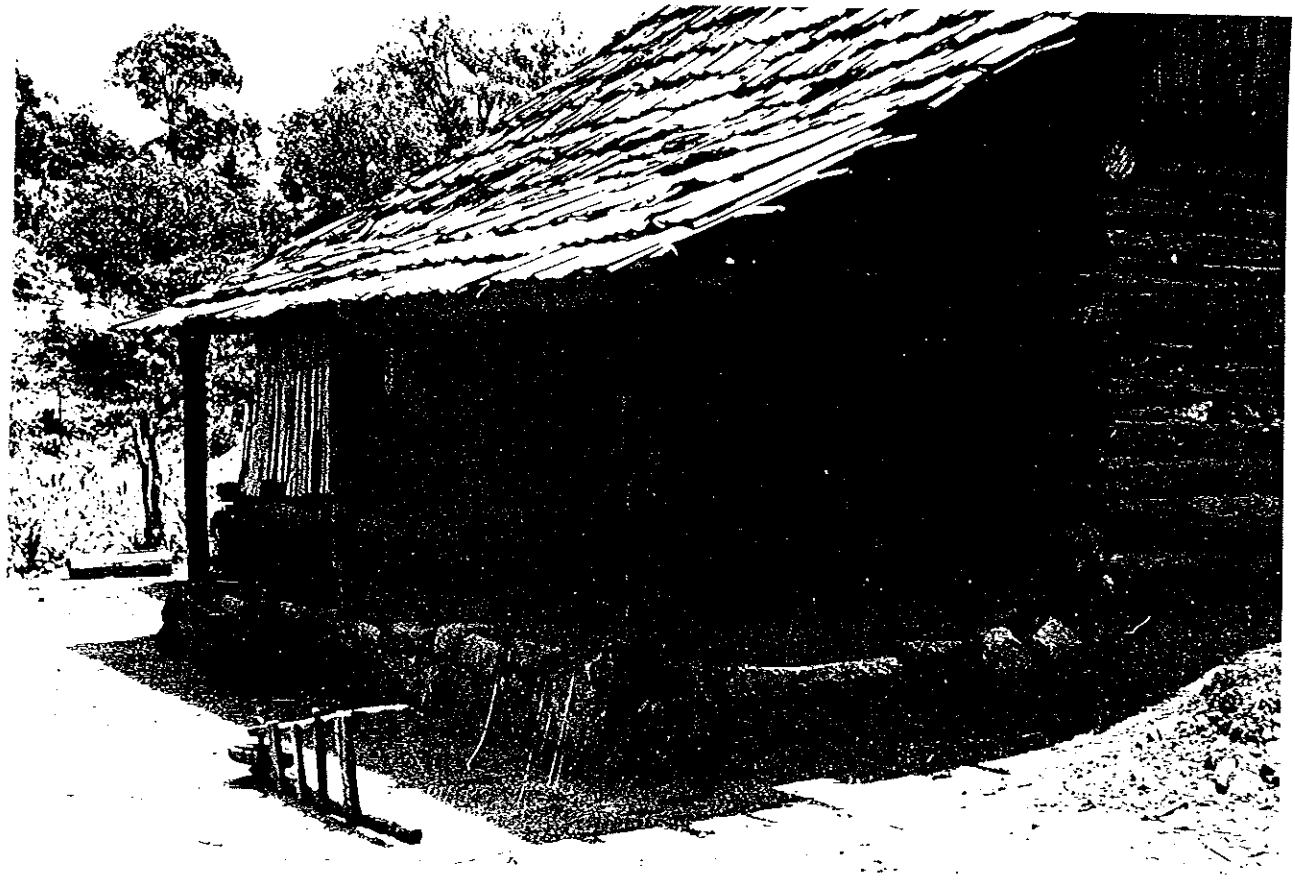
MAICOBA POTTERY
SHAPES

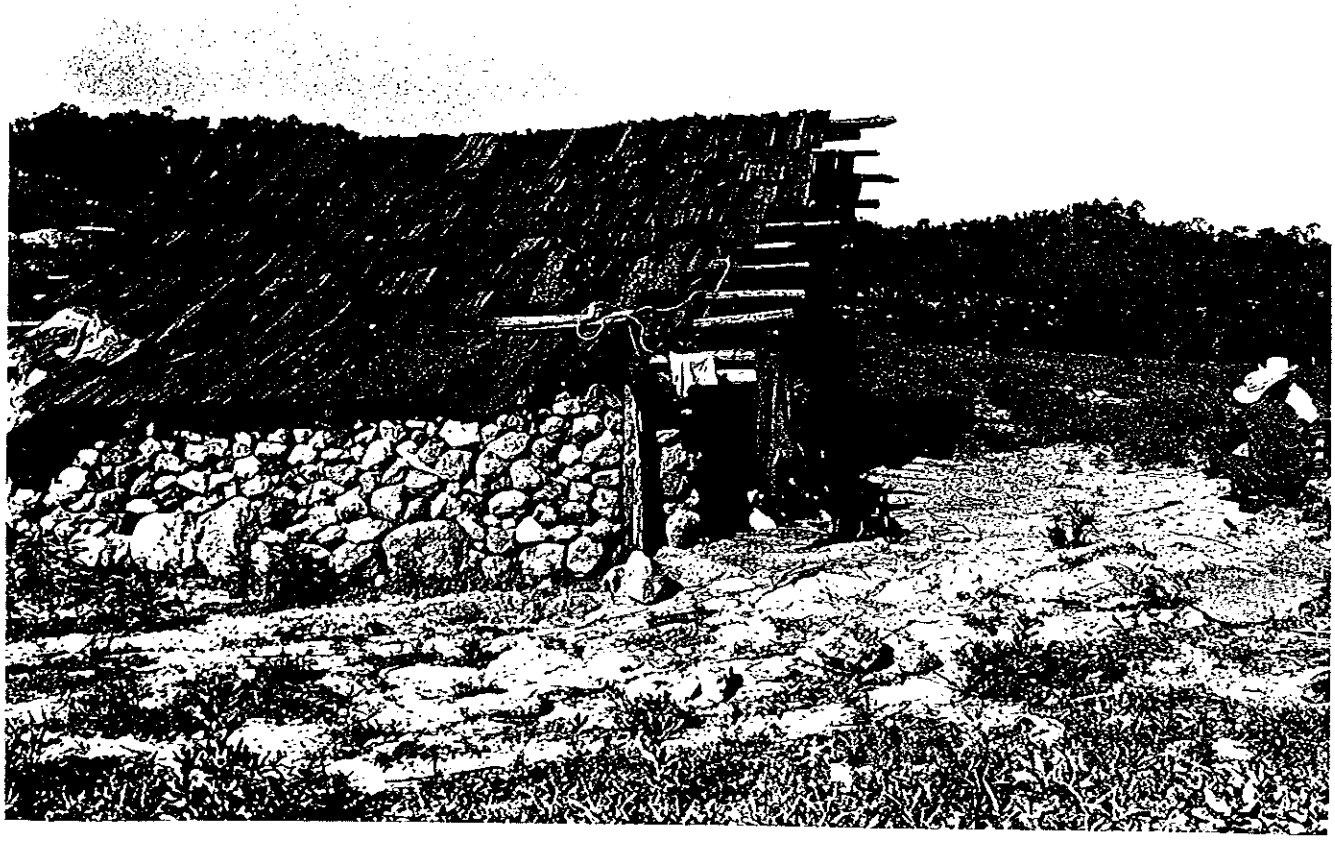


MAICOBA POTTERY SHAPES









Maicoba, Pennington Plant Collections, Identifications, & Correspondence

November 5, 1968

Dear Jonathan:

I enclose two seed packets and under separate cover am sending a plant specimen. Will much appreciate any comment you may care to make.

Had a good letter from your Mother who seemed to be in fine fettle. What parents you have, gadding about at the age when most sit and fret. They are fortunate and so are you. I hope to see them later this month when I go to the Bancroft Library for a short time.

The Pima Bajo project goes only slowly, in part because I had trouble with the Tepehuán manuscript copy editor (she mucked up the botanical terms in such fashion that the manuscript had to be retyped!), and in part because we are cursed hereabouts with so-called geographers dedicated to "problems," jargon and institutes. I long to shout "Well, when are you going to scratch about a bit and put pen to paper, or at least mount your typewriter and turn out something." Sometimes I think that if I were not so old I would cast about for another spot...but the goodies are good and I'm allowed (?) to go my way for the most part.

Cheers and every good wish to you,

November 7, 1968

Mr. J. C. Stephens
USDA
Crops Research Division
Cereal Crops Branch
Chillicothe, Texas

Dear Mr. Stephens:

Back in 1960 and 1961 you were kind enough to tag some sorghum material I picked up among the Tepehuán who live in southern Chihuahua south of the Río Verde. The monograph concerning those Indians is now in press at the University of Utah and your efforts, and those of Mr. Quinby, were properly acknowledged.

I have just got back from a longish session among the Pima Bajo of Maicoba (elevation about 5500'), Sonora and Onavas (elevation about 550'), Sonora. I have three examples of grain sorghum. Can you possibly help me again?

My thanks for any assistance you may give me.

Sincerely,

Campbell W. Pennington
Professor

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
CROPS RESEARCH DIVISION
U. S. Horticultural Field Station
P. O. Box 150
La Jolla, California 92037

AIRMAIL

November 12, 1968

Dr. Campbell Pennington
Professor of Geography
Southern Illinois University
Carbondale, Illinois 62901

Dear Campbell:

Attached are my determinations of the 9 cucurbit seed items sent to me for determination. Item 6 is a puzzle since it appears to contain two types of seed. In addition to the Cucurbita mixta seeds there are some well developed seeds without a margin. Such seeds are rare in species of the cultivated Cucurbita. Anyway I am retaining a sample to grow in the experimental garden next summer to see what they produce. Do you know the history of this collection; i.e., did it come from a single fruit, or did you collect the seed from a farmer or in the marketplace?

Your letter of November 5, 1968, indicated you were sending forward a "buli". This article has not arrived in La Jolla as yet. Perhaps the mails are at fault. I was glad to hear about your endeavors of the past summer. Evidently the spadework of geography cannot be done from an air-conditioned hotel. Thanks for the opportunity to examine your collection and kindest regards.

Sincerely,

Thomas W. Whitaker

Thomas W. Whitaker
Research Geneticist

P.S. I hope the University of Texas comes to a favorable decision about the papers from the "Contacts Symposium". The seed samples are being returned under separate cover.

Geography Department
Southern Illinois University
Carbondale, Illinois 62901
July 31, 1968

Dr. Thomas W. Whitaker
U. S. Department of Agriculture
P. O. Box 150
La Jolla, California 92037

My dear Whitaker:

I have not forgot the pleasant note I had from you after the meeting in Santa Fe and I should have written earlier. However, I was trying to get ready for a long session in western Chihuahua and eastern Sonora and in trying to make arrangements for settling family matters in Illinois and in Texas just failed to acknowledge your note. Enough said on that matter.

Under separate cover I am sending 9 packages of seeds and 1 guaje picked up in Maicoba, Sonora, or thereabouts, in July, at an elevation of about 5,000 feet, according to the "bush pilot", who took me in and got me out, when I couldn't cross the river. Sometime, when we meet again, I'll regale you with stories of the six weeks in Maicoba, stories that you will not believe.

I am in Austin, Texas for the moment, because of the death of a member of my family, the last link with the giddy past of the time of the parents. I knew nothing of Tillie's death until she had long been buried. A plane was sent for me from Chihuahua but because of fog and rain could not land. I had to come home to settle some business matters and in a few days I'll return to Sonora, to Onabas where there are low-country Pima. So, there will be additional seeds in about two months.

It was nice meeting you, very much so.

My thanks for your help in the seed matters,

Campbell W. Pennington
Professor

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
CROPS RESEARCH DIVISION
U. S. Horticultural Field Station
P. O. Box 150
La Jolla, California 92037

August 12, 1968

Dr. Campbell W. Pennington
Professor, Geography Department
Southern Illinois University
Carbondale, Illinois 62901

Dear Campbell:

Thanks for your letter of July 31, 1968, along with the seeds and the gourd. Attached are the sheets with my identifications. I feel that my identifications are 100% correct. Usually among most collections there are one or two items of which you are not quite certain about their precise identity. The items of your collection, however, were easily identified, and you can have considerable confidence in the result.

As to the collection, I was surprised to find the black-seeded form of Cucurbita ficifolia in Sonora. Also, the absence of C. moschata is puzzling, but the altitude may be the limiting factor for this species.

Many thanks for the opportunity of examining the collection. With kindest regards, I am

Very sincerely yours,

Thomas W. Whitaker

Thomas W. Whitaker
Geneticist

Enclosures

P.S. I will be anticipating an account of your adventures in Western Sonora. I have enclosed a couple of reprints which may be of interest.

November 5, 1968

Dr. Thomas W. Whitaker
U. S. Horticultural Field Station
P. O. Box 150
La Jolla, California 92037

Dear Thomas:

There is no good excuse for my delay in responding to your good letter of August 12 and for the identifications attached thereto. I have been busy, trying to get back into the routine of academia and retyping a longish manuscript. The typing is done and now for some good fun in working on the Pima Bajo project.

I've no complaints about the summer in Mexico, in spite of some problems resulting from a couple of bad falls. Maybe I'm a bit old for this kind of field work but I intend to go again next summer, particularly to Onavas. Onavas is, without doubt, the "hottest" place on earth other than a 19th century Methodist Hell, at least I found the village and surrounding country so in August and September.

Under separate cover I'm sending nine packages of cucurbit seeds from Onavas and I'll muchly appreciate your comment on same.

By the way, the symposium manuscripts are now at the University of Texas Press and we are anxiously awaiting a verdict.

Cheers and all good wishes,

UNIVERSITY OF CALIFORNIA, LOS ANGELES

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO | SANTA BARBARA • SANTA CRUZ

DEPARTMENT OF GEOGRAPHY
LOS ANGELES, CALIFORNIA 90024

November 14, 1968

Dear Campbell,

Thanks for the Pima Bajo amaranths--very exciting, because they are Amaranthus cruentus, instead of the usual northwest Mexican A. hypochondriacus, of the Mayo, Warihio, et al. You may remember that the Hopi dye amaranth is A. cruentus and so is the highland Maya grain amaranth. There was a big gap in this species distribution when I did my thesis, only partly bridged by an Edward Palmer collection from Ymala and a Wislizenus collection from Cusihuiriachic, the latter not noted as a grain crop and dark seeded. Now A. cruentus turns out to be the early crop at Tehuacan, going back to 4,000 B.C. So it looks like there may be a substrate of A. cruentus through much of Mexico up into the Pueblo region, with A. hypochondriacus displacing it later.

In my revision (Mo. Bot. Gard. Annals 54:112-113) I speculated that some historic Pima records from Arizona might refer to grain amaranths, supposedly A. hypochondriacus. One of these gives the name ki'ak. Do you think there's any connection with okiti? Maybe these were A. cruentus, too, if so.

Did you make the corrections in that coconut paper or should I write somebody about them?

Had a nice weekend in Berkeley, the folks just back from Canada and in a glow about what a grand time they had. Len Sawatsky apparently did handsomely by them.

Best,

Jonathan

Entered Nov 5, 1970

Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Seed packet 30:

okiti
Pima Bajo of Maicoba, Sonora (elevation about 5500')
Cultivated by a few people
Some state that grows "wild"
Planted in gardens in Las Aguas
Leaves eaten as quelite when tender
Seeds are toasted and used for pinole

Seed packet 6:

blede; okiti
Pima Bajo of Onavas, Sonora (elevation about 550')
Grown in gardens
Liked as an ornamental plant in gardens
Leaves and seeds are eaten
Toast seeds, "mash" and use as a pinole; also as esquite

Plant 115

Maicoba, Sonora (elevation about 5500')

Pima Bajo
okiti
Seeds are used for pinole and esquite
Some insist that young plants are eaten as quelite

MISSOURI BOTANICAL GARDEN
"SHAW'S GARDEN"

SECOND CENTURY 1859

2315 TOWER GROVE AVENUE
ST. LOUIS, MISSOURI 63110
TOWNSEND 5-0440

November 15, 1968

Dear Campbell:

We enjoyed seeing you here and hope you'll be back soon.

I have gone over the pages you left (445-454), and will go

over the collections again if there is still time to make any changes. In the ms, there should be Onaveño from the Tepehuan. Maiz dulce and Dulcillo del noroeste are the same. Sweet corn is variable because there is gradual crossing with other kinds in any region, although the selection for the sweet corn character, which is recessive, tends to keep sweet corn relatively uniform. So you can check both as being grown by both groups. There are some differences in the corn, but the only way to make good comparisons would be to compare the collections by the name or use groups of the natives, or to make direct measurements and lists of characters for comparisons. In the reports we sent to you we tried to fit the highly variable corn you collected into an artificial pattern set up by Wellhausen et al with practically no good collections from northern Mexico small farmers. With the data you have on uses and names it is possible to set up categories for the region.

Looking rapidly at the last lot...the Papago corn...it is striking to see how few colored ears are present.

Do you have lists for the Tepehuan and Tarahumar of what they consider the"kinds"of corn they grow? We tried sorting out the names and the uses but it didn't come out very well and I suspect that some of the names are synonyms (within the Tepehuan).

What is your date for the ms? We might try to get something together that would be in table form, as yours, comparable to Maize in Mexico, but still be geared to actual specimens. If there isn't time, your discussion would call attention to the differences. Meanwhile, let me have some notes on environment, altitude, rainfall, and location of your three large lots, and also of Wiegands Huichol material if possible.

Sincerely,

Hugh Cutler

INDIANA UNIVERSITY
BLOOMINGTON, INDIANA 47401

DEPARTMENT OF BOTANY
JORDAN HALL

AREA CODE 812
TEL. NO. 337-5822

November 16, 1968

Dr. Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Dear Dr. Pennington:

Your letter and package have arrived. The peppers I am glad to see but I am not sure that I can say the same for the tobaccos since I am no authority on that group. However, there is a good, recent monograph (Goodspeed in Chronica Botanica) so as soon as I find the time I'll see what I can do with them.

The chiltepines (#17 and 245) are both Capsicum annuum var. minimum (Miller) Heiser. This is the same as what used to be called C. annuum var. baccatum. It has recently been discovered that the name C. baccatum belongs to a South American species; hence the change.

The seeds (#25 and 38) probably belong to C. annuum. I can't always identify the species from seed alone with certainty, so I'll have to grow these out. How soon that will be I don't know, for I am leaving for South America for several months early next year.

Sincerely,

Charles Heiser

Charles B. Heiser, Jr.
Professor of Botany

ckd

While the meeting typed I had a chance to look at the Mexicanas so further determinations are enclosed.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
CROPS RESEARCH DIVISION
U. S. Horticultural Field Station
P. O. Box 150
La Jolla, California 92037

November 18, 1968

Dr. Campbell Pennington
Professor of Geography
Southern Illinois University
Carbondale, Illinois 62901

Dear Campbell:

The herbarium specimen arrived yesterday. There is nothing wrong with this specimen; in fact, it is pretty good compared to some I have seen. It appears to be a variety of the white-flowered gourd, Lagenaria siceraria (Mol.) Standl. It is difficult, if not impossible, to determine the variety of these gourds from herbarium specimens. About the best that can be done is to make an identification at the species level. If the fruits are used for a drinking vessel, as you suggest, I would guess it might belong to the Hercules Club group of varieties.

I am returning the specimen under separate cover. Thanks for the opportunity to look at your material. Kindest regards.

Sincerely,

Thomas W. Whitaker

Thomas W. Whitaker
Research Geneticist

PIONEER

PIONEER SORGHUM COMPANY

BOX 788 · PLAINVIEW, TEXAS 79073 / PHONE (AC 806) CA 3-2631

November 22, 1968

Prof. Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Dear Professor Pennington:

J. C. Stephens died several years ago and your letter of November 7 has been sent to me.

I shall be glad to grow the sorghum varieties you obtained from the Pima Bajo. We should know what they are about September 1, 1969. Send me the seed at your convenience.

Sincerely,

J. Roy Quinby

jc

cc: Dr. K. F. Schertz

November 26, 1968

Mr. J. Roy Quinby
Pioneer Sorghum Company
Box 799
Plainview, Texas 79073

Dear Mr. Quinby:

I muchly appreciate your kind letter of November 22nd. Under separate cover I am sending three packets of seeds (actually, two "heads" and a packet of seeds). Any comment you might make now or next year will be welcome.

Sincerely,

Campbell L. Pennington
Professor

Southern Illinois
University

CARBONDALE, ILLINOIS 62901

Department of Geography

June 14, 1969

Friend Bill Turner:

Believe me, I am grateful for your help in the matter of tagging the plants I fetched back from Maicoba and Onavas last summer. I've entered your determinations on my copy of the sheets I left with you, and I am hoping that you can do something with the following, all of which are florescent (spelling ?) and which are important to my small story. Will you see what can be done about the numbers indicated below?

1	papache (Randia echinocarpa Sesse' & Moc.)	My field notebook indicates that this smallish tree is a most important source of fruits
4	cardón (Argemone ochroleuca)	One of the most used medicinal plants for alleviating pink eye (mal de ojo)
5	chícura (Ambrosia ambrosioides)	An important medicinal plant
13	guirote or gallinita (Mascagnia macroptera)	A muchly referred to medicinal plant used in preparing a lotion applied to people with high fever
16	lirio	Medicinal plant that is widely used
22	salvia	A tea made from entire plant is claimed to give "energy" to tired people
24	ortiguilla (Cnidoscolus multilobus)	A widely talked of medicinal plant
26	gatuña (Mimosa laxiflora Benth.)	Lotion prepared from flowering branches used as a wash to "reduce" fever
27	verbena	A commonly used medicinal plant
28	amor por un rato	Another one of those energy-giving teas is made from this plant

31	confituria morado	Field notes indicate this is a common source of edible fruits (eaten in September)
41	Ferocactus wislizeni B.&R. biznaga	Very important to me since interior of plant is removed and sold to traders...this identification may be a sticky one but I'll appreciate a try
48	Opuntia cf. leptocaulis sibuli	Another important medicinal plant
53	jumete Mascagnia macroptera	One of those plants about which there is some magical notion.. people claim to be afraid to touch it although it grows muchly in corn fields and must be removed
65	Mimulus sp. verbena del campo	Lotion prepared from plant is applied to sprains
67	quelite chino	A widely used edible green
73	agritos	An important edible green
74	[name misplaced]	A tea made from plant is taken for fever
77b	inmortal	An important medicinal plant... tea made from plant and also leaves are chewed
85	Mimosa biuncifera Benth. vinorama de sierra	Of interest to me because the flowers are held on head to alleviate headache
92	alamillo	Particularly important because of use of wood for bateas, spoons, etc. A medicinal use was also reported
120	Mimosa cf. cabrera Icarst gatuña	An important medicinal plant because lotion made from it used for scorpion bites
144	[name misplaced]	Tea made from plant said to "cure" urinary problems
146	contra yerba	A much talked of medicinal plant
147	maguellto	MOST IMPORTANT AS A FISH STUPEFACTION PLANT

161	inmortal	Claimed to be most effective in reducing fever....a tea made from plant
166	mirto	A tea prepared from plant taken for fever
168	[name misplaced]	Medicinal tea prepared from plant taken for fever
172	inmortal	Another important medicinal plant among the Pima of Maicoba
177	Physalis ixocarpa Brot. ex Hornm. tomatillo	Of much moment because it appears frequently on trash heaps...fruits are eaten
182	Solanum demissum Lindl. papa cimarrona	an important plant because the pigs seek its roots
184	Mirabilis longiflora L. maravilla	Poultice made from this plant applied to wounds
188	Chimaphila dasystephana Torr. yerba del higado	A much talked of medicinal plant
192	cordoníz	Important to me because quail are sought where this plant grows
197	Solanum nodiflorum Lindl. chichiquelite	Lotion prepared from plant applied to back to alleviate pain
207	yerba de la muela	One of the most talked of plants used to "cure" toothache
210	Asteranthera ovata (Cav.) Hanst. tianguis	Another widely used medicinal plant
212	zacate bolito	Pigs eat roots. Plant is used in making tea taken for stomach disorders
225	yerba del pasmo	A widely used medicinal plant
226	cordincillo Elytraria imbricata (Vahl) Pers.	Important to me because the plant serves in preparation of a tea that is added to mescal
229	matariqui	VERY IMPORTANT as a fish stupefaction plant
231	Solanum nodiflorum Jacq. chichiquelite	A widely used medicinal plant
237	yerba zorilla	A widely used medicinal plant
241	saraviki	VERY IMPORTANT because roots are cooked in ashes and eaten

Ruellia nudiflora (Engelm. & Gray) Urb.

249	conivari	Important because of its use in making a refreshing drink
268	yerba del oso (Heliotropium macrostachyum (DC.) Hemsl.)	A much talked of medicinal plant
270	chicayote	IMPORTANT as a source of "soap"
281	chual	IMPORTANT as an edible herb
296	coronel del señor	NOT a domesticated plant, but flowering branches are collected for use in church!
310	corona del muerto (Jacquemontia sp.)	A muchly talked of medicinal plant
326	vara prieto	SOURCE of posts for houses... VERY IMPORTANT
331	Juan emitili	Tea taken for measles...is prepared from this plant
332	bledo (Amaranthus palmeri Wats.)	Important as a quelite
335	yerba de la lisa	IMPORTANT fish stuppfaction plant

Croton tekensis (Klotz.) M. Arg.

I have omitted from the above list those specimens without flowers....forget them unless you can give a reasonable approximation of the genus.

I want to attend to symposium in the west next October.... and am hoping to give a short paper on medicinal plants used by my Injun friends.....if you could possibly do something with the above the Pima story would be of moment.

Again my thanks.....and I'm rather impressed with the "new" Turner, in spite of my teasing.

Consider this letter as a plea for additional help.

Cheers,

Campbell

See you in Sept

THE UNIVERSITY OF TEXAS AT AUSTIN
AUSTIN, TEXAS 78712

The Department of Botany

July 22, 1969
(Dictated July 20, 1969)

Dr. Campbell Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Dear Camp:

Enclosed please find identifications for nearly all of your Mexican collections of last year. I have (or will) send off the 4 ferns for specific identification by Dr. D. C. Correll.

There were a few plants listed that presumably were not present in your bundle. The sterile plants proved difficult but I did what I could and at least they are in the herbarium here if anyone wishes to check them.

I'm in a hurry to get off to Mexico myself tomorrow so forgive my haste.

With best regards,

Sincerely yours,

B. L. Turner (f.d.)

B. L. Turner

BLT:fd

PIONEER®

PIONEER SORGHUM COMPANY

BOX 788 • PLAINVIEW, TEXAS 79072 / PHONE (AC 806) 223-2631

September 5, 1969

Professor Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Dear Professor Pennington:

Seed of the three sorghum varieties you sent me were planted on June 4. Malo maize-12 from Maicoba, Sonora failed to come up. Malo maize-1 from Onovas, Sonora is Chinese Amber that reached the United States as Chinese Sugar Cane in 1857. I think you sent me this variety once before. This variety was grown on Indian Reservations in Texas in 1857.

Malo maize-2, also from Onovas, Sonora is just heading but appears to be Gooseneck, a sweet sorghum that was introduced from Natal, South Africa before 1875. Gooseneck was used to make sirup in Texas soon after that time.

I hope you had a profitable summer in Mexico but suspect that you are glad to be back in Illinois.

Sincerely,

J. Roy Quinby

gh

February 22, 1970

Dear Tom:

The Tepehuán book is out, glory be, and shortly you will have a copy. I have asked the University of Utah Press to send you a copy, and once again, I thank my fine friend for his help in tagging the cucurbit material.

I spent last summer at Onavas, Sonora, working on the the untangling of that ancient Pima Bajo vocabulary I accidentally located in New York City and the editing is almostcompleted. This chore had to be done first since there is so much material culture data therein, which must be incorporated into the first volume of the proposed two-volume set which Utah will "do" for me. I went to Chihuahua for six weeks early this year and got help from Jesuit friends on some linguistic matters and so, another task is completed. If all goes well, and I can manage a bit of money I shall fly away to dear old Chihuahua sierra country this summer, to see some Pima that I did not know existed. So, expect some material of one sort or another.

In your letter of November 12, 1968 you noted that there were some "well developed [Cucurbit] seeds without a margin. Such seeds are rare in species of the cultivated Cucurbita. Anyway, I am retaining a sample to grow in the experimental garden next summer to see what they produce." Has by chance this been done?

As you know, the MAN ACROSS THE SEA volume is coming along nicely and Cal tells me that we should be working on the index very shortly. Hope it will be out come this fall.

With every good wish,

INDIANA UNIVERSITY
Department of Botany
JORDAN HALL
BLOOMINGTON, INDIANA 47401

AREA CODE 812—337-5822

11 March 1970

Dr. Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Dear Dr. Pennington:

Your peppers were not grown last year, but they are already planted for this year. So if I have some germination I should be able to let you know what they are by the end of the summer.

I returned too late last year to start the peppers so I concentrated on bottle-gourds (Lagenaria siceraria). If you should run across any of these on your trip this summer I would appreciate getting seeds, and, of course, we're always glad to have more peppers, particularly the little wild bird-peppers.

Have a good trip.

Sincerely,

Charles B. Heiser, Jr.
Professor of Botany

CBH/dh

September 20, 1970

Dear Tom:

I am at last back in Carbondale, after one of the very best of field sessions. It's good to be home, in spite of the problems that we seem to be facing, the same old thing, student unrest, and arguments in the department about "direction." I never can fathom why there should be an argument about "direction," when our business is education!

Anyhow, under separate cover I am sending five packets of seeds, and would appreciate a comment, by number, if you can find the time.

The galleys of the book should be here within a couple of months.

In haste, and with every good wish to you, Sir.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
CROPS RESEARCH DIVISION
U. S. Horticultural Field Station
P. O. Box 150
La Jolla, California 92037

August 12, 1968

Dr. Campbell W. Pennington
Professor, Geography Department
Southern Illinois University
Carbondale, Illinois 62901

Dear Campbell:

Thanks for your letter of July 31, 1968, along with the seeds and the gourd. Attached are the sheets with my identifications. I feel that my identifications are 100% correct. Usually among most collections there are one or two items of which you are not quite certain about their precise identity. The items of your collection, however, were easily identified, and you can have considerable confidence in the result.

As to the collection, I was surprised to find the black-seeded form of Cucurbita ficifolia in Sonora. Also, the absence of C. moschata is puzzling, but the altitude may be the limiting factor for this species.

Many thanks for the opportunity of examining the collection. With kindest regards, I am

Very sincerely yours,

Thomas W. Whitaker

Thomas W. Whitaker
Geneticist

Enclosures

P.S. I will be anticipating an account of your adventures in Western Sonora. I have enclosed a couple of reprints which may be of interest.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
CROPS RESEARCH DIVISION
U. S. Horticultural Field Station
P. O. Box 150
La Jolla, California 92037

September 24, 1970

Dr. Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Dear Campbell:

Thanks for your note of September 20, 1970, and the 5 packets of Cucurbita seed from Sonora and Chihuahua, Mexico. Their identifications are listed below. You can assume they are 100% reliable. The Taos mixta is unusual; I am not aware of any collections of this item from Mexico. I expect to plant it in our experimental garden next year. This year we have in the experiment field one of the items you sent forward about which I was uncertain. I thought it might be C. pepo but it turned out to be C. mixta.

Many thanks for the seeds. Do you think the book will be out by 1971? Kindest regards - it was good to learn that you had a profitable summer.

Sincerely,

Thomas W. Whitaker

Thomas W. Whitaker
Research Geneticist

1. Calabaza frio (Cucurbita mixta Pang.)
   Yécora, Sonora 8/2/70
2. Calabaza caliente (C. mixta Pang.) Taos
   Yécora, Sonora 8/2/70
3. Calabaza (C. mixta Pang.)
   Mulatos, Sonora July 1970
4. Calabaza caliente (C. mixta Pang.)
   Yepáchic, Chihuahua 6/22/70
5. Calabaza serrana (C. pepo L.)
   Yepáchic, Chihuahua
   Planted in May, harvested in November.

September 26, 1970

Dear Tom:

My grateful thanks for your kindness about the seeds. I have two questions, to wit:

(1) Where can I find some data about the Cucurbita mixta Pang, after which you had Taos? You noted that this seemed a bit unusual for Yecora.

(2) You noted that one of the plants that you once thought might have been C. pepo but was actually C. mixta; this you discovered after it was grown. Was this the calabaza serrana (Package No. 23) from Maicoba (Planted in field in April-May; harvested in October; much damaged by chinche compostelo and rats; cook flowers and eat...etc). Your comment was Cucurbita peppoon the sheet you returned to me. Or was it Package Number 1 which you also noted was Cucurbita pepo?

The galleys will be here very soon.

Cheers, and thanks,

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
CROPS RESEARCH DIVISION
U. S. Horticultural Field Station
P. O. Box 150
La Jolla, California 92037

October 5, 1970

Dr. Campbell Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Dear Campbell:

I have your letter of September 26, 1970. Below I have attempted to answer your questions.

(1) I have enclosed a reprint by Hugh Cutler and myself, which gives the only information known to me of the Taos seeded form of Cucurbita mixta.

(2) I have just checked the plants in the field, and through some poor staff work the questionable item among my identifications was not planted. Therefore my original identifications must be considered accurate until new information is at hand.

With kindest regards and best wishes.

Sincerely,

Thomas W. Whitaker

Thomas W. Whitaker
Research Geneticist

P.S. I hope the galley comes soon.

UNIVERSITY OF CALIFORNIA, DAVIS

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO

SANTA BARBARA • SANTA CRUZ

DEPARTMENT OF BOTANY

DAVIS, CALIFORNIA 95616

November 3, 1970

Dr. Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Dear Campbell:

It was good to hear from you again. Yes, of course, I will be very happy to identify your Chihuahuan oaks. By sheer coincidence, I am in the midst of two other bunches of Mexican oaks right now--one of these, a series of collections made last winter by our mutual friend, Walter Cottam, of Salt Lake. If you send yours off right away, they may get here before I'm finished with these others. Then I can run through yours without even "breaking stride"!

I'm hoping to get down to the Barranca de Cobre, south of your area, for a quick trip next summer. A brilliant young entomology student on this campus, Terry Sears, has been down there on two collecting trips, and brings back intriguing specimens of different sorts--including an undescribed oak. So I've got to get down there and see it myself.

Speaking of your Indian studies, if you ever have any spare complimentary copies cluttering up your office, I'd be glad to take them off your hands! I was looking through your Tarahumara study some time ago (a friend had a copy), and was mightily impressed.

With best wishes,

John

J. M. Tucker
Professor of Botany

JMT:ms

Southern Illinois
University

CARBONDALE, ILLINOIS 62901

Department of Geography

November 9, 1970

Friend Tom:

I am sending two calabacillas (Numbers 70 and 12) and would appreciate a comment on same if it is convenient. The elevations for both plants is about 5800', according to one of the pilots who flies into Quipur and Yepachic regularly.

We are supposed to have the galleys before long!

In haste, and with my thanks.

Campbell

Campbell —
many thanks for the copy of your Tarahumar study. For names on your oaks, see below. No. 6 is not an oak — but may be a species of Ilex. We have no representation of the Mexican flora in general that I'm not even attempting a name on it. Grady Webster, in this dept., says there is someone at the Chicago museum Tarahumar who names Mexican Ilex. That might be a possibility. Sorry to hear of your difficulties. Hope everything works out all right.

Best wishes,

John T.

20-XI-70

Southern Illinois University

Department of Geography

CARBONDALE, ILLINOIS 62901

November 9, 1970

Dear John:

I have only a few oaks, as follows:

Number 23	encino chaparro Quercus toumeyi Sarg.	San Isidro, Chihuahua June 29, 1970 Elevation: 5800'
Number 22	encino colorado Q. hypoleucoides A. Camus	San Isidro, Chihuahua June 29, 1970 Elevation: 5800'
Number 21	encino blanco Q. arizonica Sarg.	San Isidro, Chihuahua June 29, 1970 Elevation: 5800'
Number 9	palo encino; Q. rugosa Née cascara al reves	Yepáchic, Chihuahua June 21, 1970 Elevation: 5800'
Number 6	encino roble Not an oak. Possibly Ilex sp.	Yepáchic, Chihuahua June 21, 1970 Elevation: 5800'
Number 4	encino hoja ancha Q. endlichiana Trel.	Yepáchic, Chihuahua June 21, 1970 Elevation: 5800'
Number 3	encino colorado Q. durifolia von Seemen	Yepáchic, Chihuahua June 21, 1970 Elevation: 5800'
Number 127	encino kusi Q. durifolia von Seemen	Yécora, Sonora August 4, 1970 Elevation: 5500'
Number 126	encino blanco Q. chihuahuensis Trel.	Yécora, Sonora August 4, 1970 Elevation: 5500'

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
CROPS RESEARCH DIVISION
U. S. Horticultural Field Station
P. O. Box 150
La Jolla, California 92037

November 17, 1970

Dr. Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Dear Campbell:

I have received the 2 herbarium sheets, mentioned in your note of November 9, 1970. Number 12 is evidently a vigorous form of Cucurbita foetidissima HBK. Number 70 is probably Apodanthera undulata A. Gray. I am not sure about the identification of 70 because I do not have herbarium material for comparison. Apodanthera undulata grows to 5,500 feet altitude on dry plains and mesas. The plants have a disagreeable odor.

I am sending these sheets to Hugh Cutler, hoping he will check my identifications. Will the Texas Press send us galley within the next 10 years? I was glad to have a look at this material. Best regards.

Sincerely,

Thomas W. Whitaker

Thomas W. Whitaker
Research Geneticist

cc:
Dr. Hugh C. Cutler

UNIVERSITY OF TEXAS
HERBARIUM

B. L. TURNER
DIRECTOR

UNIVERSITY OF TEXAS HERBARIUM
BIOLOGICAL LABORATORIES BUILDING
THE UNIVERSITY OF TEXAS
AUSTIN, TEXAS 78712
AREA CODE 512 GR 1-5262

March 16, 1971

Dr. Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Dear Campbell:

I spent three days getting your material identified. The list of identifications is enclosed. There are a few plants missing, as you will note (for example, plant numbers 42 and 76); in addition, two plants numbered 136 as I have indicated.

Hope this takes care of your needs. Incidentally, I had to do everything myself since we no longer have an Herbarium assistant, but do appreciate your having made the deposition of your material here.

Please send the data that is to be included on the specimens themselves since your economic-use notes enhance the value of the material tenfold.

With warmest regards,

Sincerely yours,

Friend Bill

B. L. Turner

BLT:fd
Encl.

P.S. Send the additional notes almost immediately since I would like to get your material filed in our new Latin American collection.

B.L.T.

Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Plant Number 1 — Yepáchic, Chihuahua — Berlandiera lyrata var. marginata

Plant Number 2 — Yepáchic, Chihuahua — Prunus sevotina subsp. virens

Plant Number 5 — Yepáchic, Chihuahua — Juniperus deppeana

Plant Number 7 — Yepáchic, Chihuahu — Cupressus arizonicus

Plant Number 8 — Yepáchic, Chihuahua — Arctostaphylos pungens HBK

Plant Number 13 — Yepáchic, Chihuahua — Achaetogeron sp.

Plant Number 14 — Yepáchic, Chihuahua — Diphysa cf. racemosa

Plant Number 15 — Yepáchic, Chihuahua — Opuntia sp.

Plant Number 16 — Yepáchic, Chihuahua — Vitis girdiana

Plant Number 17 — Yepáchic, Chihuahua — Ranunculus hydrocharoïdes

Plant Number 18 — Yepáchic, Chihuahua — Mimulus guttatus

Plant Number 19 — Yepáchic, Chihuahua — Populus monticola

Plant Number 20 — Yepáchic, Chihuahua — Ranunculus aquatilis capillaceus

Plant Number 25 — Yepáchic, Chihuahua — Oxalis dillenii

Plant Number 26 — Yepáchic, Chihuahua — Hymenocallis graminifolia

Plant Number 27 — Yepáchic, Chihuahua — Prunella vulgaris

Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Plant Number 28 Yepáchic, Chihuahua Oxalis cf. divergens Benth.

Plant Number 29 Yepáchic, Chihuahua Hedyotis wrightii Gray

Plant Number 30 Yepáchic, Chihuahua Lithospermum cobrense

Plant Number 31 Yepáchic, Chihuahua Bouvardia ternifolia

Plant Number 32 Yepáchic, Chihuahua Oenothera hartwegii

Plant Number 33 Yepáchic, Chihuahua Agave cf. americana (red leaf)

Plant Number 34 Yepáchic, Chihuahua " " " (yellow leaf)

Plant Number 35 Yepáchic, Chihuahua Dasylirion leiophyllum

Plant Number 36 Yepáchic, Chihuahua Nolina erumpens

Plant Number 37 Yepáchic, Chihuahua Agave hartmanii Wats

Plant Number 38 Yepáchic, Chihuahua Yucca sp. (sterile)

Plant Number 39 Yepáchic, Chihuahua Cacalia decomposita *

Plant Number 40 Yepáchic, Chihuahua Commelina dianthifolia

Plant Number 41 Yepáchic, Chihuahua Oenothera purpusii

Plant Number 42 Yepáchic, Chihuahua _____

* Same as your #334 Aug 1968 plant!

Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Plant Number 43 Yepáchic, Chihuahua Verbena pinetorum

Plant Number 44 Yepáchic, Chihuahua Hedyotis wrightii Gray

Plant Number 45 Yepáchic, Chihuahua Lithospermum cobrense

Plant Number 46 Yepáchic, Chihuahua Ranunculus petiolaris

Plant Number 47 Yepáchic, Chihuahua Evolvulus rotundifolius

Plant Number 48 Yepáchic, Chihuahua Gnaphalium wrightii

Plant Number 49 Yepáchic, Chihuahua Cerastium vulgatum

Plant Number 50 Yepáchic, Chihuahua Oxalis dillenii

Plant Number 51 Yepáchic, Chihuahua Guardiola sp.

Plant Number 52 Yepáchic, Chihuahua Matelia sp

Plant Number 53 Yepáchic, Chihuahua Cologania obovata > Cinquefolia

Plant Number 54 Yepáchic, Chihuahua Ratibida mexicana Wats.

Plant Number 55 Yepáchic, Chihuahua Prunella vulgaris

Plant Number 56 Yepáchic, Chihuahua Tradescantia sp.

Plant Number 57 Yepáchic, Chihuahua Dodecathon sp

Plant Number 58 Yepáchic, Chihuahua Zexmenia podocephala

Plant Number 59 Yepáchic, Chihuahua fern

Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

17 Plant Number 60 Yepáchic, Chihuahua Galium microphyllum

17 Plant Number 61 Yepáchic, Chihuahua Asclepias sp. (seedling!)

17 Plant Number 62 Yepáchic, Chihuahua Vitis girdiana

17 Plant Number 63 Yepáchic, Chihuahua Mirabilis longiflora L.

20 Plant Number 64 Maicoba, Sonora Astranthium sp.

20 Plant Number 65 Maicoba, Sonora Lithospermum cobrense

20 Plant Number 66 Maicoba, Sonora Verbena pinetorum

20 Plant Number 67 Maicoba, Sonora Pinaropappus tunceus Gray

20 Plant Number 68 Maicoba, Sonora Clematis drummondii

20 Plant Number 69 Maicoba, Sonora Argemone ochroleuca

23 Plant Number 71 Quipur, Sonora Tradescantia sp

23 Plant Number 72 Quipur, Sonora Dyschoriste decumbens

23 Plant Number 73 Quipur, Sonora Castilleja sp.

23 Plant Number 74 Quipur, Sonora Tradescantia tuberosa Greene

23 Plant Number 76 Quipur, Sonora

23 Plant Number 77 Quipur, Sonora Cologania obovata

23 Plant Number 78 Quipur, Sonora Physalis ixocarpa
[a domesticated plant, but which is it?]

Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Plant Number 79 Quipur, Sonora Passiflora cf. affinis

Plant Number 80 Quipur, Sonora Berlandiera lyrata var macrophylla Gray *

Plant Number 81 Quipur, Sonora Oxalis dillenii

Plant Number 82 Quipur, Sonora Mahonia sp.

** Plant Number 83 Quipur, Sonora Asclepias strictiflora

Plant Number 84 Quipur, Sonora Phaseolus sp.

Plant Number 85 Yécora, Sonora Calliandra reticulata

Plant Number 86 Yécora, Sonora Cologania obovata

Plant Number 87 Yécora, Sonora Evolvulus rotundifolius

Plant Number 88 Yécora, Sonora Evolvulus alsinoides

Plant Number 89 Yécora, Sonora Polygala sp.

Plant Number 90 Yécora, Sonora Plantago cf. mexicana Link.

Plant Number 91 Yécora, Sonora Polygonum lapathifolium L.

Plant Number 92 Yécora, Sonora Achaetogeron (mixed with 1 plant of Astranthium)

Plant Number 93 Yécora, Sonora Lithospermum cobrense

Plant Number 94 Yécora, Sonora Datura quercifolia HBK.

*Same as your #153, July 1968 plant (which was sterile)

** – your #'s 112 (1960) and 672 + 549 (1955) are Asclepias quinquedentata (originally iden as A. brachystephana, in part)

Dampbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Plant Number 95 Yécora, Sonora Asclepias contrayerba

Plant Number 96 Yécora, Sonora Ipomoea sp.

Plant Number 97 Yécora, Sonora Ranunculus sp.

Plant Number 98 Yécora, Sonora Verbena pinetorum

Plant Number 99 Yécora, Sonora Oenothera purpusii

Plant Number 100 Yécora, Sonora Tradescantia angustifolia

Plant Number 101 Yécora, Sonora Oenothera taraxacoides

Plant Number 102 Yécora, Sonora Nemastylis

Plant Number 103 Yécora, Sonora Anthericum sp.

Plant Number 104 Yécora, Sonora Milla biflora Cav.

Plant Number 105 Yécora, Sonora Eriosema sp.

Plant Number 106 Yécora, Sonora Eryngium beecheyanum H.+A.

Plant Number 107 Yécora, Sonora Cyperus esculentus

Plant Number 108 Yécora, Sonora Cyperus sp.

Plant Number 109 Yécora, Sonora Gaura coccinea

Plant Number 110 Yécora, Sonora Zornia reticulata

Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Plant Number 111 Yécora, Sonora Zexmenia podocephala

Plant Number 112 Yécora, Sonora Tradescantia angustifolia

Plant Number 113 Yécora, Sonora Commelina dianthifolia

Plant Number 114 Yécora, Sonora Juniperus deppeana

Plant Number 115 Yécora, Sonora Perymenium sp.

Plant Number 116 Yécora, Sonora Poinsettia colorata

Plant Number 117 Yécora, Sonora Potentilla cf. thurberi Gray

Plant Number 118 Yécora, Sonora Populus fremontii

Plant Number 119 Yécora, Sonora Heterotheca inuloides Cass.

Plant Number 120 Yécora, Sonora Vitis girdiana

Plant Number 121 Yécora, Sonora Phaseolus heterophyllus

Plant Number 122 Yécora, Sonora Baccharis glutinosa

Plant Number 123 Yécora, Sonora Rhus aromatica

Plant Number 124 Yécora, Sonora Ilex sp.

Plant Number 128 Yécora, Sonora Arctostaphylos pungens HBK

Plant Number 129 Yécora, Sonora Prunus serotina

Carroll E. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

	Plant Number 130	Trinidad, Sonora	Chenopodium album
	Plant Number 131	Trinidad, Sonora	Phacelia tenuriifolia
	Plant Number 132	Trinidad, Sonora	Solanium amazonium
6	Plant Number 133	Trinidad, Sonora	Cassia occidentalis
6	Plant Number 134	Trinidad, Sonora	Caesalpinia pulcherrima
6	Plant Number 135	Trinidad, Sonora	Acacia sp. (sterile)
	136	Sonora Santana	Randia echinocapa (Shrub)
6	Plant Number 136	Santana, Sonora	Melampodium tenellum (herb)
6	Plant Number 137	Santana, Sonora	
	Plant Number 140	Santana, Sonora	Clematis drummondii
6	Plant Number 141	Santana, Sonora	Nicotiana glauca
6	Plant Number 143	Santana, Sonora	Agave americana ?

Check 1 and 2

?

UNIVERSITY OF TEXAS HERBARIUM
BIOLOGICAL LABORATORIES BUILDING
THE UNIVERSITY OF TEXAS
AUSTIN, TEXAS 78712
AREA CODE 512 GR 1-5262

UNIVERSITY OF TEXAS
HERBARIUM

B. L. TURNER
DIRECTOR

November 10, 1971

Dr. Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Dear Campbell,

I am sending today under ordinary mail 106 selected specimens of those plants you left here for identification. I am enclosing a list of names relating to these.

Since I will be out of town most of December, before and following Turkey Day, I thought I should get this done now so it would not imperil your visiter's status to Mexico.

Please send labels to what I have kept here when you can.

Warmest Regards.

B. L. Turner
Director

BLT:ee
Enclosures

CAMPBELL W. PENNINGTON
DEPARTMENT OF GEOGRAPHY
SOUTHERN ILLINOIS UNIVERSITY
CARBONDALE, ILLINOIS 62901

1.	Tradescantia sp.	September 3, 1971 Yepáchic, Chihuahua
2.	Eryngium heterophyllum Engelm.	September 3, 1971 Yepáchic, Chihuahua
3.	Ipomoea hederacea Jacq.	September 3, 1971 Yepáchic, Chihuahua
4.	Heterotheca latifolia	September 3, 1971 Yepáchic, Chihuahua
5.	Salvia longispicata	September 3, 1971 Yepáchic, Chihuahua
6.	Rumex crispus	September 3, 1971 Yepáchic, Chihuahua
7.	Bromus catharticus	September 3, 1971 Yepáchic, Chihuahua
8.	Sporobolus ~~Muhlenbergia~~ sp.	September 3, 1971 Yepáchic, Chihuahua
9.	Cyperus spectabilis	September 3, 1971 Yepáchic, Chihuahua
10.	Chloris cucullata	September 3, 1971 Yepáchic, Chihuahua
11.	Milla biflova Cav.	September 3, 1971 Yepáchic, Chihuahua
12.	Mirabilis jalapa L.	September 3, 1971 Yepáchic, Chihuahua
13.	No Plant	September 3, 1971 Yepáchic, Chihuahua

14.	Tagetes lucida	September 3, 1971 Yepáchic, Chihuahua
15.	Commelina coelestis	September 3, 1971 Yepáchic, Chihuahua
16.	Crusea hispida (Mill.) Rob.	September 3, 1971 Yepáchic, Chihuahua
17.	Berlandiera lyrata var. macrophyllum	September 3, 1971 Yepáchic, Chihuahua
18.	Eriosema sp.	September 3, 1971 Yepáchic, Chihuahua
19.	Monarda citriodora	September 3, 1971 Yepáchic, Chihuahua
20.	Solanum fendleri Gray	September 3, 1971 Yepáchic, Chihuahua
21.	Prochnyanthes sp.	September 3, 1971 Yepáchic, Chihuahua
22.	Rhamnus betulaefolia Greene	September 3, 1971 Yepáchic, Chihuahua
23.	Drymaria leptophylla var nodosa	September 3, 1971 Yepáchic, Chihuahua
24.	Cacalia decomposita	September 3, 1971 Yepáchic, Chihuahua
25.	Salvia lavanduloides Kunth.	September 3, 1971 Yepáchic, Chihuahua
26.	Eupatorium hyssopinum ~~Tithonia tubaeformis (Jacq.) Cass.~~	September 3, 1971 Yepáchic, Chihuahua
27.	Begonia martiana L. + O.	September 3, 1971 Yepáchic, Chihuahua
28.	Phaseolus sp. (sterile)	September 3, 1971 Yepáchic, Chihuahua

29.	Perymenium sp.	September 3, 1971 Yepáchic, Chihuahua
30.	Penstomon barbatus	September 3, 1971 Yepáchic, Chihuahua
31.	Muhlenbergia sp.	September 3, 1971 Yepáchic, Chihuahua
32.	Dodecatheon ~~jeffreyi~~ cf.	September 3, 1971 Yepáchic, Chihuahua
33.	Spiranthes aurantiaca (L.f.) Hemsl.	September 3, 1971 Yepáchic, Chihuahua
34.	Tradescantia angustifolia	September 3, 1971 Yepáchic, Chihuahua
35.	Polygonum lapathifolium L.	September 3, 1971 Yepáchic, Chihuahua
36.	Carphochaeta pringlei	September 3, 1971 Yepáchic, Chihuahua
37.	Arbutus arizonica	September 3, 1971 Yepáchic, Chihuahua
38.	Phoradendron bolleanum (Seem.) Eich.	September 4, 1971 Yepáchic, Chihuahua
39.	Perymenium sp.	September 4, 1971 Yepáchic, Chihuahua
40.	Tradescantia angustifolia	September 4, 1971 Yepáchic, Chihuahua
41.	NO PLANT	September 4, 1971 Yepáchic, Chihuahua
42.	Quercus endlichiana Trel.	
42.	Commelina angustifolia	September 4, 1971 Yepáchic, Chihuahua
43.	Cologania obovata Schlecht.	September 4, 1971 Yepáchic, Chihuahua

44.	Desmodium sp.	September 4, 1971 Yepáchic, Chihuahua
45.	Quercus salicifolia	September 4, 1971 Yepáchic, Chihuahua
46.	Quercus opaca Trel.	September 4, 1971 Yepáchic, Chihuahua
47.	Tagetes micrantha	September 4, 1971 Yepáchic, Chihuahua
48.	Ipomoea capillacea (HBK) G. Don	September 4, 1971 Yepáchic, Chihuahua
49.	Tagetes y. micrantha (sterile)	September 4, 1971 Yepáchic, Chihuahua
50.	Crusea brachyphylla C. & S.	September 4, 1971 Yepáchic, Chihuahua
51.	Quercus emoryi	September 4, 1971 Yepáchic, Chihuahua
52.	Calochortus barbatus (HBK) Painter	September 4, 1971 Yepáchic, Chihuahua
53.	Gomphrena decumben Jacq.	September 4, 1971 Yepáchic, Chihuahua
54.	Conyza sophiaefolia	September 4, 1971 Yepáchic, Chihuahua
55.	Carphochaeta pringlei	September 4, 1971 Yepáchic, Chihuahua
56.	Orchidaceae	September 4, 1971 Yepáchic, Chihuahua
57.	Anthericum torreyi	September 4, 1971 Yepáchic, Chihuahua
58.	Eupatorium hyssopinum	September 4, 1971 Yepáchic, Chihuahua

59. Crusea brachyphylla — September 4, 1971 Yepáchic, Chihuahua

60. Calochortus sp. — September 4, 1971 Yepáchic, Chihuahua

61. ~~Muhlenbergia~~ Sporobolus sp. — September 4, 1971 Yepáchic, Chihuahua

62. Triticum ? — September 4, 1971 Yepáchic, Chihuahua

63. Polygonum lapathifolium L. — September 4, 1971 Yepáchic, Chihuahua

64. Monarda citriodora — September 4, 1971 Yepáchic, Chihuahua

65. Ipomopsis pinnata — September 4, 1971 Yepáchic, Chihuahua

66. Erigeron rushyi Gray — September 4, 1971 Yepáchic, Chihuahua

67. Quercus sp. — September 4, 1971 Yepáchic, Chihuahua

68. Cologania ovalifolia HBK — September 4, 1971 Yepáchic, Chihuahua

69. Agastache sp. — September 5, 1971 Yepáchic, Chihuahua

70. Bidens ~~ef. pilosa~~ durangensis Sherff. — September 5, 1971 Yepáchic, Chihuahua

71. Ipomoea cristulata Hall — September 5, 1971 Yepáchic, Chihuahua

72. Tithonia tubaeformis (Jacq.) Cass. — September 5, 1971 Yepáchic, Chihuahua

73. Anoda cristata — September 5, 1971 Yepáchic, Chihuahua

74.	Crusea brachyphylla C.+S.	September 5, 1971 Yepáchic, Chihuahua
74a.	Helianthemum pringlei	September 5, 1971 Yepáchic, Chihuahua
75.	Bouvardia ternifolia	September 5, 1971 Yepáchic, Chihuahua
76.	Amaranthus hybridus L.	September 5, 1971 Yepáchic, Chihuahua
77.	Minkelersia galactioides M.+G.	September 5, 1971 Yepáchic, Chihuahua
78.	Cosmos parviflorus	September 5, 1971 Yepáchic, Chihuahua
79.	Zinnia peruviana (L.) L.	September 5, 1971 Yepáchic, Chihuahua
80.	Trifolium involucratum	September 5, 1971 Yepáchic, Chihuahua
81.	Cuphea llavea Llave+Lex.	September 5, 1971 Yepáchic, Chihuahua
82.	Coreopsis sp.	September 5, 1971 Yepáchic, Chihuahua
83.	Verbesina stricta	September 5, 1971 Yepáchic, Chihuahua
84.	Quercus sp.	September 5, 1971 Yepáchic, Chihuahua
85.	Phoradendron brachystachyum (DC.) Nutt.	September 5, 1971 Yepáchic, Chihuahua
86.	Quercus hypoleucoides	September 5, 1971 Yepáchic, Chihuahua
87.	Quercus cf. hartwegii	September 5, 1971 Yepáchic, Chihuahua

88.	Juniperus sp. deppeana	September 5, 1971 Yepáchic, Chihuahua
89.	Stevia viscida	September 5, 1971 Yepáchic, Chihuahua
90.	Dalea citriodora Cav.	September 5, 1971 Yepáchic, Chihuahua
91.	Salvia reflexa	September 5, 1971 Yepáchic, Chihuahua
92.	Ipomoea madrensis Wats.	September 6, 1971 Yepáchic, Chihuahua
93.	Solanum americanum	September 6, 1971 Yepáchic, Chihuahua
94.	Vitis bourgaeana Planch.	September 6, 1971 Yepáchic, Chihuahua
95.	Sedum chihuahuense Wats.	September 6, 1971 Yepáchic, Chihuahua
96.	Monarda citriodora	September 6, 1971 Yepáchic, Chihuahua
97.	Sidalcea neomexicana Gray	September 6, 1971 Yepáchic, Chihuahua
98.	Sidalcea neomexicana Gray	September 6, 1971 Yepáchic, Chihuahua
99.	Aster subulatus	September 6, 1971 Yepáchic, Chihuahua
100.	Dalea albiflora	September 6, 1971 Yepáchic, Chihuahua
101.	Potentilla thurberi Gray	September 6, 1971 Yepáchic, Chihuahua
102.	Echinochloa crus-galli	September 6, 1971 Yepáchic, Chihuahua

103.	Compositae (sterile)	September 6, 1971 Yepáchic, Chihuahua
104.	Abies religiosa var. emarginata	September 10, 1971 Peñasco Blanco, Chihuahua
105.	Tagetes sp. (sterile)	September 10, 1971 Peñasco Blanco, Chihuahua
106.	Garrya ovata	September 10, 1971 Peñasco Blanco, Chihuahua
107.	Verbesina sp. (sterile)	September 10, 1971 Peñasco Blanco, Chihuahua
108.	Yucca sp. (sterile)	September 10, 1971 Peñasco Blanco, Chihuahua
109.	Agave americana (sterile)	September 10, 1971 Peñasco Blanco, Chihuahua
110.	Rumex cf. obtusifolius L.	September 18, 1971 Yepáchic, Chihuahua
111.	Dahlia sp. nov.?	September 18, 1971 Yepáchic, Chihuahua
112.	Penstemon barbatus	September 18, 1971 Yepáchic, Chihuahua
113.	Stevia viscida	September 18, 1971 Yepáchic, Chihuahua
114.	Antennaria sp. (sterile)	September 18, 1971 Yepáchic, Chihuahua
115.	Schkuhria anthemoides var anthemoides	September 18, 1971 Yepáçhic, Chihuahua
116.	Carphochaeta pringlei	September 18, 1971 Yepáchic, Chihuahua
117.	Monarda citriodora	September 18, 1971 Yepáchic, Chihuahua
118.	Chimaphila dasystephana Torr.	September 18, 1971 Yepáchic, Chihuahua

119.	Potentilla (sterile)	September 18, 1971 Yepáchic, Chihuahua
120.	Fraxinus (sterile)	September 18, 1971 Yepáchic, Chihuahua
121.	Cupressus arizonica	September 18, 1971 Yepáchic, Chihuahua
122.	Celastraceae (sterile)	September 18, 1971 Yepáchic, Chihuahua
123.	Cologania obovata Schlecht.	September 18, 1971 Yepáchic, Chihuahua
124.	Cacalia decomposita	September 18, 1971 Yepáchic, Chihuahua
125.	Artemisia ludoviciana	September 18, 1971 Yepáchic, Chihuahua
126.	Senecio cf. hartwegii	September 18, 1971 Yepáchic, Chihuahua
127.	Zinnia peruviana (L.) L.	September 18, 1971 Yepáchic, Chihuahua
128.	Dasylirion leiophyllum Engelm.	September 18, 1971 Yepáchic, Chihuahua
129.	Nolina sp. (sterile)	September 18, 1971 Yepáchic, Chihuahua
130.	Begonia martiana L. & O.	September 18, 1971 Yepáchic, Chihuahua
131.	Tagetes micrantha Cav.	September 18, 1971 Yepáchic, Chihuahua
132.	Tagetes elongata Willd.	September 18, 1971 Yepáchic, Chihuahua

133.	Agave sp.	September 18, 1971 Yepáchic, Chihuahua
134.	Cosmos sp.	September 18, 1971 Yepáchic, Chihuahua
135.	Coreopsis cf cordylocarpha Gray	September 18, 1971 Yepáchic, Chihuahua
136.	Umbelliferae ? (leaves only)	September 18, 1971 Yepáchic, Chihuahua
137.	Selaginella pringlei	September 18, 1971 Yepáchic, Chihuahua
138.	Desmodium (sterile)	September 18, 1971 Yepáchic, Chihuahua
139.	Cologania ovalifolia HBK	September 18, 1971 Yepáchic, Chihuahua
140.	Rhus trilobata	September 18, 1971 Yepáchic, Chihuahua
141.	Escobedia sp.	September 18, 1971 Yepáchic, Chihuahua
142.	Perezia sp. (sterile)	September 18, 1971 Yepáchic, Chihuahua
143.	Conyza sophiaefolia HBK	September 18, 1971 Yepáchic, Chihuahua
144.	Bouvardia ternifolia	September 18, 1971 Yepáchic, Chihuahua
145.	Salvia sp.	September 18, 1971 Yepáchic, Chihuahua
146.	Euphorbia indivisa Engelm.	September 18, 1971 Yepáchic, Chihuahua
147.	Geranium wislizenii	September 18, 1971 Yepáchic, Chihuahua

148. Panicum plenum — September 18, 1971 Yepáchic, Chihuahua

149. Crusea brachyphylla C.+S. — September 18, 1971 Yepáchic, Chihuahua

150. Bouvardia ternifolia — September 18, 1971 Yepáchic, Chihuahua

151. Stachys coccinea Jacq. — September 18, 1971 Yepáchic, Chihuahua

152. Fern — September 18, 1971 Yepáchic, Chihuahua

153. Oxalis dillenii — September 18, 1971 Yepáchic, Chihuahua

154. Muhlenbergia sp. — September 18, 1971 Yepáchic, Chihuahua

155. Gomphrena decumbens Jacq — September 18, 1971 Yepáchic, Chihuahua

156. Tagetes lucida — September 18, 1971 Yepáchic, Chihuahua

157. Dahlia coccinea — September 18, 1971 Yepáchic, Chihuahua

158. Verbena sp. — September 18, 1971 Yepáchic, Chihuahua

159. Eryngium heterophyllum Engelm. — September 18, 1971 Yepáchic, Chihuahua

160. Quercus hypoleucoides A. Camus — September 18, 1971 Yepáchic, Chihuahua

161. Quercus salicifolia — September 18, 1971 Yepáchic, Chihuahua

176. Rhamnus betulaefolia Greene — September 19, 1971 Yepáchic, Chihuahua

177. Eriosema sp. — September 19, 1971 Yepáchic, Chihuahua

178. Anthericum torreyi — September 19, 1971 Yepáchic, Chihuahua

179. Asclepias (sterile) — September 19, 1971 Yepáchic, Chihuahua

180. Agastache Barberi — September 19, 1971 Yepáchic, Chihuahua

181. Tigridia pringlei Wats. — September 19, 1971 Yepáchic, Chihuahua

182. Sidalcea neomexicana Gray — September 28, 1971 Madera, Chihuahua

183. Stevia serrata — September 28, 1971 Madera, Chihuahua

184. Stevia viscidula — September 28, 1971 Madera, Chihuahua

185. Schkuhria anthemoides var. anthemoides — September 28, 1971 Madera, Chihuahua

186. Chenopodium graveolens var. mexicana — September 28, 1971 Madera, Chihuahua

187. Eriogonum atrorubens var pseudociliatum Reveal — September 28, 1971 Madera, Chihuahua

188. Senecio sp (sterile) — September 28, 1971 Madera, Chihuahua

189. Conyza sophiaefolia HBK — September 28, 1971 Madera, Chihuahua

190.	Lobelia anatina Wimmer	September 28, 1971 Madera, Chihuahua
191.	Tragia nepetaefolia Torr.	September 28, 1971 Madera, Chihuahua
192.	Bidens pilosa L.	September 28, 1971 Madera, Chihuahua
193.	Asclepias (sterile)	September 28, 1971 Madera, Chihuahua
194.	Agastache barberi	September 28, 1971 Madera, Chihuahua
195.	Quercus emoryi	September 28, 1971 Madera, Chihuahua
196.	Gnaphalium cf. wrightii Gray	September 28, 1971 Madera, Chihuahua
197.	Bouteloua gracilis	September 28, 1971 Madera, Chihuahua
198.	NO PLANT	September 28, 1971 Madera, Chihuahua

PLANTS COLLECTED BY C. W. PENNINGTON

1. Merremia aurea (Kell.) O'Donell - Convolvulaceae. (102)
2. Piscidia mollis Rose - Leguminosae. (50)
3. Parkinsonia aculeata L. - Legumin. (50)
4. Croton texensis (Klotzsch) Muell. Arg. - Euphorbiaceae. (60)
5. Nicotiana glauca R.Grah. - Solanaceae. (108)
6. Phacelia cryptantha Greene - Hydrophyllaceae (104)
7. Plumeria acutifolia Poir. - Apocynaceae (100)
8. Pithecellobium undulatum (Britt. & Rose) Gentry - Leguminosae. (50)
9. Hechtia montana Brandegee - Bromeliaceae. (15)
10. Mammillaria sheldonii (Britt. & Rose) Boed. - Cactaceae. (83)
11. Schizocarpum palmeri Cogn. & Rose - Cucurbitaceae. (119)
12. Harpalyce arborescens A. Gray - Leguminosae (50)
13. Guaiacum coulteri A. Gray - Zygophyllaceae.
14. Salvia sp. - Labiatae. (107)
15. Aesculus parryi A. Gray - Hippocastanaceae.
16. Caesalpinia pumila (Britt. & Rose) Hermann - Leguminosae. (50)
17. Randia obcordata S. Wats. - Rubiaceae (116)
18. Cassia covesii A.Gray - Leguminosae. (50)
19. Stemmadenia insignis Miers - Apocynaceae. (100)
20. Randia echinocarpa Sesse & Moc. - Rubiaceae. (116)
21. Antigonon leptopus Hook. & Arn. - Polygonaceae. (31)
22. Diphysa suberosa S. Wats. - Leguminosae (50)
23. Malpighia umbellata Rose - Malpighiaceae.
24. Acacia millefolia S. Wats. - Legumin. (50)
25. Proboscidea sinaloensis Van Eseltine - Martyniaceae.
26. Hintonia latiflora (Sesse & Moc.) Bullock - Rubiaceae (116)
27. Caesalpinia pulcherrima L. - Leguminosae. (50)
28. Mimosa laxiflora Benth. - Legumin. (50)
29. Kallstroemia grandiflora Torr. - Zygophyllaceae.
30. Allionia incarnata L. - Nyctaginaceae.

Vouchered in University of Tex. Herbarium

machi Mar 55 500

1. Arctostaphylos pungens H. B.K.
9. Erodium cicutarium (L.) L'Her.

12. Descurainia pinnata (Walt.) Britt.
19. Malva parviflora L.

ayuebo April 55 3000'

20. Ruta chalapensis
22. Platanus wrightii Nutt.
31. Nicotiana sp.
32. Melilotus indica
34. Buddleia sessiliflora H.B.K.
35. Ulmus divaricata Mueller
36. Acacia farnesiana L.
39. Euphorbia sp.
42. Pectis stenophylla
53. Helianthemum glomeratum Lag.
57. Tithonia fruticosa Canby & Rose

ownslope on quayuebo April 55 2000'

64. Exogonium bracteatum (Cav.) Choisy
68. Muhlenbergia porteri Scrib.
69. Acacia cymbispina Sprague & Riley
72. Jacobinia candicans (Nees.) H. & H.
73. Franseria cordifolia
75. Hyptis albida
82. Manihot sp.
83. Tillandia sp.
85. Plumbago scandens L.
87. Cardiospermum halicabum L.
88. Tecoma stans L.

93. Rhynchosia pyramidalis (Lam.) Urban

96. Solanum diversifolium Schlect.

98. Juglans rupestris Engelm.

100. Agave bovicornuta sp. nov.

102. Tabebuia palmeri Rose

106. Vitex mollis H.B.K.

111. Thryallis glauca (Cav.) Kuntze

112. ~~Elytraria imbricata (Vabl.) Pers.~~ Asclepias guiquedatal

119. Pithecolobium dulce (Roxb.) Benth.

124. Vitis arizonica

125. Triticum aestivum L.

126. Desqurainia pinnata (Walt.) Britt.

138. Ribes neglectum Rose.

140. Phoradendron engelmannii Trel.

149. Stemmadenia palmeri R. & S.

152. Iresine cassiniaeformis Schauer

157. Sorgum vulgare Pers.

158. Prunus Capuli Cav.

173. Salix taxifolia H.B.K.

179. Fouquiera splendens Engelm.

189. Cephalanthus occidentalis L.

193. Martynia annua L.

197. Sarvacha jaltomata

200. Condalia obtusifolia

201. Asclepias brachystephana

203. Mimosa biuncifera

Ic de Allende May 55

206. Celtis pallida
207. Equisetum laevigatum A. Br.
208. Berberis trifoliolata
209. Nicotiana glauca
212. Sambucus caerulea (S. glauca)

Sierra Durango 3 May 55 5 mex

226. Mimosa lemonii Gray
229. Oenothera rosea
246. Acacia buincifera
249. Rumex crispus

prez Ranch 4 May 55 5 mex

252. Nicotiana glauca
259. Chenopodium ambroisiodes L.
265. Krameria prostrata Brandeg.
266. Baileya multiradiata

Cerrito Durango 5 May 55 45 mex

269. Salix taxifolia H.B.K.
280. Oenothera speciosa
282. Oenothera rosea Ait.
288. Solanum elaeaginifolium Cav.
289. Sonchus oleraceus
293. Marrubium vulgare L.

Ic de Zaragoza Coah 19 May 55 4000 ft

299. Sida hastata
315. Chilopsis linearis
318. Baileya multiradiata H. & G. ?
328a. _____

Hermanas Chihuahua 20 May 55 4300'

331. Martynia annua L.
331a. Mimosa buincifera
332. Condalia obtusifolia
333. Tragia nepetaefolia
335. Aloysia lycioides
343. Melilotus indica

344. Chenopodium album L.
349. Dalea tuberculata Lag.
352. Cirsium altissimum
353. Acacia constricta Benth.
356. Condalia lycioides (Gray) Webert
358. Alternanthera repens
363. Krameria pauciflora DC (?)
364. Cevellia sinuata
365. Croton neomexicanus
366. Verbena bipinnatifida Nutt.
367. Oenothera sp.
374. Cephalanthus occidentalis
376. Cucurbita foetidissima H.B.K.
380. Psoralea pentaphylla L.
382. Asclepias brachystephana
383. Prosopis juliflora
384. Mimosa biuncifera
385. Acacia constricta Benth.
389. Rumex crispus L.
399. Andropogon saccharoides
401. Nicotiana glauca
403. Oenothera speciosa.
404. Argemone mexicana
406. Anemonopsis californica
411. Gaura parviflora
412. Aristolochia quercetorum Standl.
414. Physalis sp.
416. Microrhamnus ericoides Gray
417. Condalia obtusifolia

427. Tecoma stans var angustata
428. Asclepias brachystephana
432. Mimosa buincifera Benth.
433. Chilopsis linerias
434. Acacia vernicosa
435. Parkinsonia aculeata
437. Arbutus arizonica
449. Tecoma stans
453. Vitis arizonica
468. Mimosa buincifera
473. Acacia constructa Benth.
474. Baileya multiradiata
477. Cucurbita foetidissima H.B.K.
478. Datura meteloides DC
479. Alternanthera repens
485. Saracha jaltomata
488. Bidens bigelovi Gray
492. Tagetes lucida Cav.
506. Berlandiera lyrata var. macrophylla Gray
507. Brassica juncea
508. Zornia diphylla (L.) Pers.
510. Physalis sp.
511. Physalis sp.
512. Tragia ramosa
513. Woodia mexicana
514. Coriandrum sativum
515. Dryopteris normalis
517. Arbutus arizonca (Gray) Sarg.

518. Arctostaphylos pungens H.B.K.
522. Acalypha phleoides Cav.
523. Asclepias sp.
528. Rhus trilobata Nutt
535. Agave sp.
536. Erythrina flabelliformis
537. Mimosa dysocarpa Benth.
538. Garrya ovata Benth.
539. Phbradendron Engelmanni Trel.
540. Cupressus arizonica Greene
545. Tephrosia leiocarpa Gray
547. Eriogonum atrorubens Engelm.
548. Berlandiera lyrata var. macrophylla Gray
549. ~~Asclepias brachystephana~~ Asclepias Quinqueedentata
556. Ratibida mexicana Wats.
561. Prunus Capuli Cav.
572. Bouvardia glaberrima Engelm.
579. Calliandra humulis var. reticulata
580. Eriogonum atrorubens Engelm.
586. Lonicera pilosa (H.B.K) Willd.
591. Cheilanthes tomentosa
592. Stevia serrata Cav.
594. Cologania humfrisa H.B.K.
600. Mirabilis jalapa L.
613. Juglans repestris Engelm.
614. Oenothera triloba Nutt.
616. Mimulus guttatus DC

623. Eclypta alba (L.) Hassk.

625. Asclepias glaucescens H.B.K.

626. Equisetum laevigatum A. Br.

629. Sisyrinchium arizonicum Roth.

631. Portulaca oleracea

633. Viguiera helianthoides H.B.K.

634. Rorippa mexicanum

635. Lepidium virginicum

636. Sporobolus domingensis (Trin) Kuth.

640. Plantago galeottiana

642. Gnaphalium wrightii Gray

643. Arenaria alsinoides (?)

644. Bromus arizonicus (Shear) Stebbins

646. Zexmenia podocephala Gray

654. Erigonum undulatum Benth.

657. Viguiera decurrens Gray

659. Asclepias tuberosa L.

663. Erodium cicutarium

664. Mimulus guttatus DC

665. Euphorbia sp.

669. Oenothera laciniata Hill

670. Hieracium mexicanum Less. (?)

671. Crotalaria ovalis Pursh.

672. Asclepias ~~brachystephana Engelm.~~ quinquedentata

674. Calliandra humulis var. reticulata

678. Zexmenia sp.

681. Oxalis albicans H.B.K.

682. Ratibida mexicana Wats.

691. Macromeria Thurberi
700. Tragia ramosa
703. Lepidium virginicum L.
704. Eryngium carlinae
705. Oenothera laciniata Hill
710. Erodium cicutarium
711. Erodium cicutarium
712. Plantago argyrea
717. Populus tremuloides
719. Dryopteris normalis
725. Viola umbracticola H.B.K.
727. Chimaphila dasystephana
732. Holodiscus dumosus (Nutt) Heller
737. Erodium cicutarium
740. Cheilanthes kaulfussi Kuntze
742. Cologania humifusa H.B.K.
747. Gaultheria sp.
748. Dichondra repens (?)

Dates and Elevations of Plant Specimens

Numbers 1 to 10: Pamachi, Chihuahua (March 28, 1955)

Numbers 11 to 51: Guagueybo, Chihuahua (April 2, 1955)

Numbers 51 to 101: Downslope from Guagueybo, Chihuahua (April 3)

Numbers 101 to 124: Río Urique, Canyon (April 6, 1955)

Numbers 125 to 130: Guagueybo, Chihuahua (April 8, 1955)

Numbers 131 to 138: Guaguechic, Chihuahua (April 9, 1955)

Numbers 139 to 146: Pamachi, Chihuahua (April 11, 1955)

Numbers 147 to 159: Enroute Pamachi to Aeroponapuchi, Chihuahua (April 13, 1955)

Numbers 160 to 184: San Francisco Borja, Chihuahua (April 24, 1955)

Numbers 185 to 213: Valle de Allende, Chihuahua (May 8, 1955)

Numbers 214 to 240: Rosario, Durango (May 13, 1955)

Numbers 241-265: Lopez Ranch, Durango [near Rosario] (May 14,1955)

Numbers 266 to 295: El Canutillo, Durango (May 15, 1955)

Numbers 296 to 328: Valle de Zaragosa, Chihuahua (May 19, 1955)

Numbers 329 to 358: Talamentes, Chihuahua (May 20, 1955)

Numbers 359-366: De Talamantes para Valle de Zaragosa, Chihuahua (May 21, 1955)

Numbers 367 to 417: Valle del Rosario, Chihuahua (June 5, 1955)

Numbers 418 to 436: De Chihuahua para Parral (June 8, 1955)

Numbers 437 to 452: Majalca, Chihuahua (June 17, 1955)

Numbers 453 to 463: Foothills Santa Barbara Mts (June 20, 1955)

Numbers 464 to 476: Draw near Santa Barbara (June 21, 1955)

Numbers 477 to 521: Sitenápuchi (July 8, 1955)

Numbers 521 to 544: Enroute Sitenápuchi to Conchos (July 10,1955)

Numbers 545 to 570: Enroute Sitenapuci to Pawiciki (July 13, 1955)

Numbers 571 to 612: Norogachi, Chihuahua (July 15, 1955)

Numbers 613 to 659: Norogachi, Chihuahua, (July 15, 1955)

Numbers 660 to 686 : Norogachi (July 18, 1955)

Numbers 687 to 699: Norogachi (July 19, 1955)

Numbers 700 to 735: Samachique, Chihuahua (July 24, 1955)

Numbers 736 to 748 : Samachique, Chihuahua (July 26, 1955)

CHECK ALL CARDS FOR THESE:

Agave americana	Amaryllidaceae (22)	Maicoba
Clematis Drummondii	Ranunculaceae (41)	Maicoba
Melampodium tenellum	Compositae (130)	Maicoba
Caesalpinia pulcherrima	Leguminosae (53)	Maicoba
[medicine, roots used in making wash for stings]		
Cassia occidentalis	Leguminosae (53)	Maicoba
Solanium amazonium	Solanaceae (116)	Maicoba
[canyon plant-used in making cheese]		
Guaiacum coulteri	Zygophyllaceae (58)	Ónavas
[canyon plant; bark used in making lotion for wounds]		
Aesculus Parryi	Hippocastanaceae (69)	
Proboscidea sinaloensis	Martyniaceae (120)	Ónavas
Kallstroemia grandiflora	Zygophyllaceae (58)	Ónavas
[canyon plant; leaves used in making lotion for wounds]		
Allionia incaranta	Nyctaginaceae 36)	
Malpighia umbellata	Malpighiaceae (62)	Ónavas
[canyon plant; fruits eaten as starvation food]		

Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Seed packets:

No. 25: chile colorado — prob. Capsicum annuum L.
Maicoba, Sonora
Elevation - 5500'
Pima Bajo - kokol
Planted in gardens

No. 38: chile colorado — "
Maicoba, Sonora
Elevation - 5500'
Pima Bajo

No. 45: papanti [plant Specimen 45] — Nicotiana tabacum L.
Maicoba, Sonora
Elevation - 5500'
Pima Bajo

Plant specimens:

No. 44: tobaco cimarrón — Nicotiana trigonophylla ? Dunal
Moris, Chihuahua
Elevation - 2800'
June 23, 1968

No longer used. Statement made that children occasionally "chewed" the leaves to get "drunk"

No. 45: papanti [seed packet 45] — Nicotiana tabacum L.
Moris, Chihuahua
Elevation - 2800'

Seeds were brought to village of Moris from nearby ranch. Mash fresh leaves a bit and use in making a cigarette.

No. 247 tobaco cimarrón — N. trigonophylla Dunal ?
Onavas, Sonora, elev. 550'
vív - Pima Bajo
Leaves dried, crushed and smoked in corn husks, ahtes

No. 17: chiltepín
Moris, Chihuahua
Elevation - 2800'
Fruits are eaten; also serve as comdiment in beans.

Capsicum annuum var. minimum (Miller) Heiser

No. 245: chiltepín
Onavas, Sonora
Elevation - 850'
August, 1968
Fruits serve as condiment. Cook, wash, add to beans, potatoes, carne. Mestizos add vinager to condiment so prepared

Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Onavas

1. calabaza sehualca ha-ak (2) Cucurbita moschata Poir

Onavas, Sonora (elevation about 550')
Planted in las aguas
Gathered in September/October
Boiled or tatemada
Used in making panoche
Planted in gardens and en el campo
Flowers eaten with meat, pozole, etc.

Onavas

2. guaje vako Lagenaria siceraria (mol.) Standl.

Onavas, Sonora (elevation about 550')
Planted at same time as calabaza
In el campo; at the side of fields
Planted in June
Harvested in November

Onavas

3. guaje Lagenaria siceraria (mol.) Standl.

Onavas, Sonora (elevation about 550')
Planted at same time as calabaza
In el campo; at the side of fields
Planted in June
Harvested in November

4. Guaje Lagenaria siceraria (mol.) Standl.

Onavas, Sonora (elevation about 550')

5. calabaza no seed

Onavas, Sonora (elevation about 550')

6. calabaza (1) Cucurbita moschata Poir.

Onavas, Sonora (elevation about 550')

7. calabaza sehualca (2) Cucurbita moschata Poir.

Onavas, Sonora (elevation about 550')

8. guaje Lagenaria siceraria (mol.) Standl.

Onavas, Sonora (elevation about 550')

9. calabaza baviri (3) Cucurbita maxima Duch.

Onavas, Sonora (elevation about 550') 3 seeds Banana type, remaining ones probably Hubbard type.

Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

(1)

1. calabaza — Cucurbita pepo L.

27 June 1968
Maicoba, Sonora

Planted in May-June; harvested in October; fruit stored in dwelling for a time; seeds eaten with salt; flowers eaten in soup; fruit cooked in ashes or boiled; squirrels damage plants; MESTIZOS only - boil with lime, drain and wash thoroughly, cut into squares and cook with sugar into cubiertas.

2. chilacoyote — Cucurbita ficifolia Bouché

27 June 1968
Maicoba, Sonora

Planted in May-June; harvested in October; fruit stored in dwelling for a time; seeds NOT eaten; flowers NOT eaten; peel and boil; MESTIZOS only - boil with lime, drain and wash thoroughly, cut into squares and cook with sugar into cubiertas.

3. calabaza — Cucurbita mixta Pang.

27 June 1968
Maicoba, Sonora

Planted in May-June; harvested in October; fruit stored in dwelling; seeds eaten; flowers eaten in soup; fruit baked in ashes or boiled; MESTIZOS ONLY - boil with lime, drain and wash thoroughly, cut into squares and cook with sugar into cubiertas.

4. guaje — Lagenaria siceraria (mol.) Standl.

27 June 1968
Maicoba, Sonora

Planted in June - fruits serve as gourds for water, or as dipper.

(2) 23. calabaza serrana — Cucurbita pepo L.

28 June 1968
Maicoba, Sonora

Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

5. frijol ojo de cabra — Phaseolus vulgaris L.

27 June 1968
Maicoba, Sonora

Planted in July-August in fields; harvested in November; Planted in same fields as corn; deer and wiko (lizard) are important predators; boil and may add meat, ajo, orégano, onions; scarecrow used to frighten deer from bean field.

6. frijol vayito — Phaseolus vulgarus L.

27 June 1968
Maicoba, Sonora

Planted in July in fields; gathered in November; cooked without being soaked; may add orégano; deer act as predators; scarecrow used to frighten deer (stick with hat and streamers).

7. frijol — Phaseolus vulgaris L.

27 June 1968
Maicoba, Sonora

Planted in July in fields; gathered in November; cooked without being soaked; may add condiments; deer act as predators; use scarecrow to frighten deer away.

8. frijol vakito — Phaseulus vulgaris L. Jacobs Cattle, or Cow Bean

27 June 1968
Maicoba, Sonora

Planted in July; gathered in November; planted in garden; staked when about 1 meter high; boiledwithout being soaked; deer act as predators.

9. frijol pinto negro — Phaseolus vulgaris L.

27 June 1968
Maicoba, Sonora

Planted in July; gathered in November; planted in fields; prepare as "other beans;" deer act as predators.

10. frijol blanoito — Phaseolus vulgaris L.

27 June 1968
Maicoba, Sonora

Planted in July; gathered in November; planted in fields; prepare as other beans; deer act as predators.

11. frijol garrapato — Phaseolus vulgaris L.

27 June 1968
Maicoba, Sonora

Planted in July; gathered in November; planted in fields; prepare as other beans; frost hazard; deer as predators.

13. frijol sinaloa — Phaseolus vulgaris L.

27 June 1968
Maicoba, Sonora

Planted in July; harvested in November; planted in fields; Cook as other beans; deer as predator; frost hazard.

14. frijol cabra — Phaseolus vulgaris L.
similar tp #5

28 June 1968
Maicoba, Sonora

Planted in July; harvested in November; planted apart from corn or with corn; may rotate with corn and beans, or potatoes; deer eat small plants; jack rabbits eat plants; claimed to be an "old bean".

15. frijol — Phaseolus vulgaris L.
same as #7

28 June 1968
Maicoba, Sonora

Claimed to be a "new bean" at Maicoba.

16. frijol — Phaseolus vulgaris L.
color varxiant of Pinto, similar to #4 Pima Bajo

28 June 1968
Maicoba, Sonora

Planted in field in April-May; harvested in October; much damaged by chinche compostelo and rats; cook flowers and eat; toast seeds and eat; cut into strips and dry partially and wind on stick for storage; cut into two pieces and put in ashes for baking.

26. guaje — *Lagenaria siceraria* (Mol.) Standl.

Maicoba, Sonora
29 June 1968

Planted in April-May-June; permit to climb on tree or stick; gourds used for making utensils.

34. calabaza caliente — *Cucurbita mixta* Pang.

1 July 1968
Maicoba, Sonora

Planted in July; harvested in November; fruit stored for a short time in dwelling; baked in ashes or boiled.

35. guaje — *Lagenaria siceraria* (Mol.) Standl.

1 July 1968
Maicoba, Sonora

Planted in July; harvested in November; gourds used for utensils.

39. calabaza caliente — *Cucurbita mixta* Pang.

1 July 1968
Maicoba, Sonora

Planted in Las Aguas ; for use see 34 above.

The large gourd sent forward was of course *Lagenaria siceraria* (Mol.) Standl.

27. frijol bolito — Glycine Max, Merr (Soy bean)

30 June 1968
Maicoba, Sonora

28. frijol blanco — Phaseolus vulgaris L.

30 June 1968
Maicoba, Sonora

called in Pima "totabau"

29. frijol mantequilla — Phaseolus vulgaris L.

30 June 1968
Maicoba, Sonora

same as #17

31. frijol mantequilla — Phaseolus vulgaris L. (not same as other "mantequilla" in this collection)

1 July 1968
Maicoba, Sonora

Planted in July; harvested in November.

32. frijol asufrado (?) de Sinaloa — Phaseolus vulgaris L.

1 July 1968
Maicoba, Sonora

Planted in July; harvested in November.

33. frijol ojo de cabra — Phaseolus vulgaris L.

1 July 1968
Maicoba, Sonora

Planted in July; harvested in November.

36. frijol vayo — Phaseolus vulgaris L. (same as #6)

4 July 1968
Maicoba, Sonora

37. frijol ojo de cabra — Phaseolus vulgaris L. (same as #5)

4 July 1968
Maicoba, Sonora

Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

1

F papache — Randia echinocarpa S. + M.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Yellowish fruits (with black interior) are eatén.

2

F barba de viejo — Clematis drummondii T. + G.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Blooms are cocked for about fifteen minutes. Remove blooms from liquid which is drunk to stimulate passage of urine.

3

F cornetón — Nicotiana glauca

Moris, Chihuahua, June, 1968
Elevation - 2800'

Excellent pasturage plants.

4

F cardón — Argemone ochroleuca ssp. ochroleuca

Moris, Chihuahua, June, 1968
Elevation - 2800'

Juice from stem is dripped upon cotton on to which hot water is poured. The cotton is then squeezed over open eye. Juice claimed to be very effective in healing mal de ojo.

5

F chícura — Ambrosia ambrosioides ~~Xanthium strumarium L.~~

Moris, Chihuahua, June, 1968
Elevation - 2800'

Branches are heated over a fire. Mescal is then sprinkled upon heated branches which are crushed and placed upon buttocks of women who experience difficulty in parturition.

6

F toloache — Datura inoxia Mill.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Fresh or dried seeds from this white-flowered toloache are cooked in a bit of water which is drunk by a man or youth who wishes to fall in love! Crushed leaves may be mixed with grease and applied as a poultice to sores. This poultice is claimed to "draw" well.

7

F toloache — Datura inoxia Mill.

Moris, Chihuahua, June 1968
Elevation - 2800'

Fresh or dried seeds from this toloache with a "purplish" flower are cooked in a bit of water which is drunk by a man or youth who wishes to fall in love! Crushed leaves may be mixed with grease and applied as a poultice to sores. This poultice is claimed to "draw" well.

8

álamo — Populus fremontii Wats.

Moris, Chihuahua, June 1968
Elevation - 2800'

Leaves are cooked in a small amount of water. Remove leaves and use liquid as a lotion applied to people with fever. After application of lotion the patient is covered with a blanket so that he will sweat.

9

F jirasol — Helianthus annus L.

Moris, Chihuahua, June 1968
Elevation - 2800'

Leaves are cooked in a small amount of water which serves as a lotion for bathing of sick people.

10

F huacapor — Parkinsonia aculeatea

Moris, Chihuahua, June, 1968
Elevation - 2800'

Children eat fruits of this plant in June and July.

11

F higarilla — Ricinus communis L.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Leaves are crushed and mixed with grease and then applied as a poultice to inflammations.

12

tavachin — Caesalpinia pulcherrima (L.) Swart

Moris, Chihuahua, June, 1968
Elevation - 2800'

Branches are crushed and decoted in a liquid which is drunk to cure venereal disease.

13

F guirote or gallinita — Mascagnia macroptera

Moris, Chihuahua, June, 1968
Elevation - 2800'

Claimed to be an important forage plant for sheep and goats. Leaves used in preparing a lotion for bathing of people with fever.

14

mesquite — Prosopis juliflora (Sw) DC.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Seeds are ground up and the crushed material is sprinkled upon inflamed eyes.

15

F ipazote — Chenopodium ambrosioides L.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Entire plant is crushed and decocted into a liquid drunk to relieve colic or any stomach disorder

16

F lirio — Canna sp. (cultivated!)

Moris, Chihuahua, June, 1968
Elevation - 2800'

Flower is cooked for about five minutes in water which is given to children suffering from fright (espanto).

18

confituria — ? nopalet

Moris, Chihuahua, June, 1968
Elevation - 2800'

Fruits are eaten in September.

19

ocotillo — Fouquieria sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

This ocotillo has a red flower in July. Branches are cooked in a liquid which is drunk to relieve severe congestion caused by a cold.

20

corcho — Cassia wislizeni

Moris, Chihuahua, June, 1968
Elevation - 2800'

Remove a bit of bark from the tree. Crush and place the bark upon wounds. This corcho has a white flower in May.

21

joro de toro — Senecio sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

This plant exudes a reddish liquid that is placed upon the eye when it is inflamed.

22

F salvia — Labiatae

Moris, Chihuahua, June, 1968
Elevation - 2800'

Entire plant is decoted into a liquid taken to gain energy.

23

torote — Bursera odorata Brandg.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Branches are crushed and used in preparing a decoction taken to relieve discomfort caused by pulmonia.

24

F hortiguilla — ~~2 [illegible]~~ Cnidoscolus multilobus

Moris, Chihuahua, June, 1968
Elevation - 2800'

Leaves are crushed and applied as a poultice to wounds.

25

tullidor — Karwinskia humboldtiana (R.&S.) Zucc.

Moris, Chihuahua, June, 1968
Elevation - 2800'

An exceedingly poisonous plant with a purple flower in October, November. Children have been known to die after eating the fruits.

26

F gatuña — Mimosa loxiflora Benth.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Stated to be an excellent browse plant for animals. Some mestizos claimed that a lotion was made from flowering branches and applied to people with fever.

27

F verbena — Verbena deltricola Small

Moris, Chihuahua, June, 1968
Elevation - 2800'

Entire plant is decocted into a potion taken for dolor del estómago.

28

F amor por un rato — Portulaca sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

cultivated plant!

Tea made from the plant is taken to gain energy.

29

F vara — Althaea rosea (L.) Cav

Moris, Chihuahua, June, 1968
Elevation - 2800'

Leaves are cooked and mixed with grease and then applied to head for relief of headache. A rag may be wrapped around the head to contain the poultice.

30

F Belén — Impatiens sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Cook leaves in water which is drunk to relieve headache.

31

F confituria morado — Lantana sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Fruits are eaten in September.

32

F San polillo [spelling ?] — Jaumea pedunculariis (H.&A.) B.&H.

Moris, Chihuahua, June, 1968
Elevation - 2800'

An exceedingly poisonous plant and cattle have been known to die after eating it. In small amounts, the leaves are used in preparing what is described as a "violent" purgative.

33

yerba del Indio — Matelea sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

This yerba del Indio has a purple flower in August. The plant root is cooked in a liquid which is drunk to relieve after-effects of too much tesgüino.

34

F oascalosuche [spelling ?] — Plumeria acutifolia Poir

Moris, Chihuahua, June, 1968
Elevation - 2800'

Nuts from this plant are crushed and applied to "swellings."

35

F perrito — Tecoma stans

Moris, Chihuahua, June, 1968
Elevation - 2800'

Excellent pasturage for animals.

36

F algarroba — Acacia cf. pennatula (C+S) Benth.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Crushed leaves of this plant are placed upon the head for headache, being held on the head with a rag tied about the head. Claimed to be an effective headache remedy.

37

pato dulce — Diphysa sennioides

Moris, Chihuahua, June, 1968
Elevation - 2800'

Claimed to serve not only as pasturage for animals but also in preparation of a lotion applied to aching limbs.

38

F palo santo — Parthenium sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Lotion prepared by using the entire plant and steeping the plant in water is used to bathe sick people.

39

bellisima — Solanum seaforthianum Andrew

Moris, Chihuahua, June, 1968
Elevation - 2800'

Pasturage plant.

40

F yerba del pasmo — Waltheria indica L.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Pastura for animals. When cooked, serves as a quelite for humans. For medicinal use, cook the leaves and use water as a lotion for wounds. Or, dry the leaves and put the crushed dry leaves upon wounds.

41

bisnaga — Ferocactus wislizeni B.&R.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Animals eat the fruits of this barrel-like cactus. Interior of plant is removed and sold to traders who dispose of the pith in Chihuahua (for making dulces) and Hermosillo (for making tortillas).

42

[name misplaced] — Cassia biflora L.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Medicinal tea taken for fever prepared from entire plant.

43

confituria cimarrona — Lantana achryanthifolia Desf.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Pastura for animals.

46

manzanilla cimarrona — Helenium sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Tiny bolitas are crushed and sniffed for catarrh.

47

quelite — Amaranthus sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

This quelite has an "espiga blanca" and is an esteemed food when boiled and salted.

48

Cactus

aibuli [spelling ?] Opuntia cf. leptocaulis

Moris, Chihuahua, June, 1968
Elevation - 2800'

Animals eat the fruit. For medicinal use - boil part of the stems and remove from water and place upon sprains or wounds.

49

Cactus

cholla Opuntia sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Animals eat the fruit. Cook stems of the plant and use as poultice upon wounds or sprains.

50

Cactus F [name misplaced] Waltheria indica L.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Excellent browse plant for animals.

51

Cactus [name misplaced] Bacopa procumbens

Moris, Chihuahua, June, 1968
Elevation - 2800'

Excellent browse plant for animals.

52

Cactus F [name misplaced] Waltheria indica L.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Lotion made by boiling plant serves in relieving sprains. An excellent pasturage plant.

53

F jumete — Mascagnia macroptera

Moris, Chihuahua, June, 1968
Elevation - 2800'

This plant appears in profusion in corn fields but is not pulled up because people would develop diarrea if they touched the plant. Must be dug out with hoe.

54

[name misplaced] — Gomphrena nitida Rothr.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Excellent pasturage plant.

55

[name misplaced] — Verbena litoralis

Moris, Chihuahua, June, 1968
Elevation - 2800'

Excellent pasturage plant.

56

[name misplaced] — Gaura parviflora Dougl. ~~Populus fremontii~~ ~~tule~~!

Moris, Chihuahua, June, 1968
Elevation - 2800'

Medicinal tea made from entire plant taken for fever.

57

[name misplaced] — Melampodium perfoliatum (Cav.) Hook ~~Rich~~

Moris, Chihuahua, June, 1968
Elevation - 2800'

Leaves and bolitas are crushed and applied to inflammations.

58

[name misplaced] — Oenothera rosea Sol.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Excellent pastura.

59

F chichiquelite — Solanum americanum Mill.

Moris, Chihuahua, June, 1968
Elevation-2800'

Leaves are cooked as a quelite. Prepare a very strong tea from leaves and branches and drink for kidney disorders.

60

cainero — Rumex crispus L.

Moris, Chihuahua, June, 1968
Elevation - 2800'

An esteemed quelite when boiled, drained and salted.

61

F trébol — Melilotus indica (L.) All.

Moris, Chihuahua, June, 1968
Elevation - 2800'

An esteemed quelite.

62

F chual — Chenopodium leptophyllum Nutt.

Moris, Chihuahua, June, 1968
Elevation - 2800'

An esteemed quelite when boiled, drained and salted.

63

aliso — Platanus wrightii S. Wats.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Bark is decoted into an infusion given to women who fail to expell afterbirth. Also given to cows to promote calving.

64

F oreja del ratón — Oxalis stricta L.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Medicinal tea prepared from plant taken for fever. An excellent pasturage plant also.

65

F verbena del campo — Mimulus sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Lotion made by steeping entire plant is used on sprains. An esteemed pasturage plant.

66

F conevar del monte — Salvia sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

A pasturage plant.

67

F quelite chino — ?, (no plant)

Moris, Chihuahua, June, 1968
Elevation - 2800'

An important quelite.

68

F [name misplaced] — Richardia sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

An excellent pastura plant.

69

[name misplaced] Mimulus sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Pasturage plant.

70

[name misplaced] Polygonum lapathifolium L.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Medicinal tea prepared by boiling plant taken for catarrh.

71

F sauco Sambucus mexicana Presl.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Flowers are cooked in a decoction taken for fever and stomach disorders

---

72

táscate Juniperus osteosperma (Torr.) Little

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Berries are eaten crudo. Branches are burned and ill person stands nearby so that smoke may be blown toward him. Patient is covered by a blanket. Medicinal tea prepared from "cooking" branches is taken for fever.

73

agritos ? (no plant)

Maicoba, Sonora, June, 1968
Elevation - 5,000'

An esteemed quelite.

74

F [name misplaced] Verbena neomexicana (Gray) Small

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Medicinal tea prepared by boiling entire plant - tea taken for fever.

75

F [name misplaced] Oenothera rosea Sol.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Pasturage plant.

77a

yedra Rhus diversiloba T.+G.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Has white flower. Cook as a tea and use the infusion as a medicine for fever.

77b

F inmortal Asclepias sp.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Tea made from leaves is taken for cough. Chew fresh leaves to facilitate removal of phlegm from throat.

78

F yerba del pasmo Baccharis emoryi Gray

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Cook entire plant, grind up and use as a poultice on wounds.

79

F margarita del campo — Erigeron delphinifolius Willd

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Pasturage plant.

82

madroño — Arbutus arizonica (Gray) Sarg

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Berries are collected and eaten.

83

manzanilla — Arctostaphylos pungens H.B.K.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Berries are eaten. Tea made from leaves taken for dysentary.

84

F uva cimmarón — Vitis girdiana Muns.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Grapes eaten in August.

85

F vinorama de sierra — ~~B+~~ Mimosa biuncifera Benth.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Flowers are placed upon head and held there with rag to cure headache. Manteca may be mixed with the flowers.

86

capulín — Prunus fremontii Wats.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Fruits eaten in August. Sometimes the plant does not bear.

87

algarroba — Acacia sp. (y. pennatula)

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Has yellow flowers. Roots are mashed and put in water for killing fish.

88

junco — Condalia ef brandegeei I.M. Johnst.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Medicinal tea made from the plant; tea taken as a refreshing drink at times.

90

orégano — Origanum sp. (planis)

Maicoba, Sonora, June, 1968
Elevation - 5,000'

condiment.

91

sotol — Dasylirion wheeleri S. Wats.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Basket and hats made from leaves. Stalks are baked and eaten. Sotol (drink) made by mestozos from plant crown or heart.

92

alamillo — Alnus firmifolia Fern.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Wood used for making **bateas**, **oucharos**. Tea made from bark or leaves to encourage **parto**.

93

Iguaciki — Prunus sp.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Fruits are eaten.

94

sabino — Juniperus californica Carr.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Leña and general timber use.

95

F saúz — Salix laevigata

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Baskets made from branches.

97

contra yerba — Poinsettia heterophylla L.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Root used for making a tea taken for fever.

98

vara de Señor San José — Althaea rosea (L.) Cav.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Tea made from leaves taken for cough. [Isn't this a domesticated plant?]

99

nogal — Juglans major (Torr.) Hell.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Nuts are eaten. Tonic made from leaves claimed to enrich the blood.

100

ruda — Ruta graveolens

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Tea made from plant taken to relieve gas on stomach.

101

sabino — Juniperus monosperma (Engelm.) Sarg.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Timber used for leña and posts. Seeds sometimes used as necklace.

102

naranjo de amor — Solanaceae

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Seeds are used for making necklaces.

103

yerba buena — Mentha sp. (sterile)

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Medicinal tea made from entire plant taken by children troubled with coughing.

108

yegra (Pima - tumba) Rhus trilobata var. anisophylla (Greene) Jeps.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Leaves are crushed and placed upon sores or pimples. Plant has a yellow flower.

109

lengua de vaca (Pima - nuñar) Rumex sp.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

sterile

A favorite quelite when boiled and salted.

110

aguacíki; capulín (Pima - humpail) Prunus sp.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Fruits are eaten. Leaves are mashed and placed upon cuts.

111

papache borracho (Pima - nananha) Randia sonorensis Wiggins

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Fruits are very sweet and when consumed in quantity the consumer gets drunk.

112

F yedra (Pima - tumba) Rhus radicans L.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Leaves used in preparation of a tea taken to relieve fever.

113

toloache — Datura quercifolia H.B.K.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Leaves crushed and placed on wounds.

114

yerba buena — Mentha sp.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Tea made from leaves taken for cold.

117

saraviki (Pima-topokoje) — Prionosciadium townsendii Rose (iden. L. Constance)

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Roots and leaves are decoted into a potion taken for fever.

118

chilicote — Erythrina flabelliformis Kearn.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Leaves are mixed with masa and the mixture put in troje to kill rats.

119

palo dulce (Pima - saaka) — Eysenhardtia orthocarpa (Gray) Wats.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Tea made from leaves is taken to "enrich" blood.

120

P gatuña — Mimosa cabrera Kast.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Tea made from leaves and stems is used as a lotion applied to scorpion wounds on animals or humans.

122

capulín (Pima - moskoom) Prunus fremontii S. Wats.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Fruits eaten by people. Tea made from leaves taken for fever.

123

magallito (Pima - utkudi) (spelling ?) Agave cf. hartmanii

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Tea made from leaves taken for fever.

125

madroño Arbutus sp.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Fruits eaten. Bateas and cucharas made from wood.

129

junque Condalia cf. brandegeei I.M. Johnst.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Medicinal tea made from leaves is drunk as a stimulant.

130

F manzanilla del campo Carminatia tenuiflora DC.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

A refreshing tea made from entire plant - an infusion.

131

dalea del campo (Pima - bargam) Dahlia sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Roots eaten crudo. Considered a camote silvestre.

132

F ruda — Ruta graveolens

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant taken for stomach disorders.

134

nogalito — Cologania sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Roots and leaves used in preparing a refreshing tea.

135

yerba de liebre — Asclepias glaucescens H.B.K.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant is excellent for stomach disorders.
Root is used.

136

Guasanillo — Acacia angustissima (Mill) Ktze

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant is mixed with mescal or tequilla and taken for cold.

137

ipazote — Chenopodium ambrosioides L.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Leaves serve as a quelite and as a condiment.

138

lengua de buey — Senecio sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Leaves used in preparing a poultice applied to wounds.

139

ahfoura — Xanthium sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea prepared from plant - to cure stomach disorders.

140

palo de okal (spelling ?) — Buddleja sp(?) (sterile)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant is taken to reduce fever.

141

yerba redonda (Pima - Siskil) — Urticaceae ? sterile plants

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Remedy for teeth prepared from plant - mash entire plant and place as a poultice upon gums.

142

zara — Xanthium strumarium

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Apply mashed leaves and roots to wounds on animals.

143

tuema (Pima - tonjig) — Crotalaria sp *

Maicoba, Sonora, July, 1968
Elevation - 5,000'

*mixed collection (the other plant unknown maybe a composite

Medicinal tea prepared from plant taken for fever.

144

F [name misplaced] — Bouvardia ternifolia (Cav.) Schlecht

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea prepared from plant is taken for urinary difficulties.

145

flor de piedra — Fern

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Leaves are used as a poultice applied to wounds on humans.

146

F contra yerba (Pima - tupur) — Matelia sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant is taken for stomach disorders.

147

maguellito (Pima - utkim) — Agave cf. hartmanii

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Cook crown in hole in ground - as the large magueys. Used also as a fish stupefaction agent.

148

[name misplaced] — Labiatae

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea prepared from plant taken for stomach disorders.

149

okaliti (Pima - inkwal) Oenothera sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea prepared from plant is taken for stomach disorders.

150

coronilla (Pima - kokovi) Physalis sp.?

Maicoba, Sonora, July, 1968
Elevation - 5,000' sterile

A medicinal tea made from plant is taken to relieve lung congestion.

151

yerba del sapo (Pima - kwali) Eryngium sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for fever.

152

yerba colorada Geranium sp.
(plant sterile)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from entire plant is taken as a tonic to improve blood and to relieve stomach disorders.

153

coronillo Compositae

Maicoba, Sonora, July, 1968
Elevation - 5,000'

A medicinal tea made from plant is taken to relieve lung congestion.

154

otatillo (Pima - totkam) Poaceae

Maicoba, Sonora, July, 1968
Elevation - 5,000'

sterile

Medicinal tea taken to relieve kidney disorders. Tea used as lotion on wounds.

155

uva cimarrona Vitis girdiana Munz,

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Fruits are eaten

156

peonia (Pima - maimatkam) Compositae

Maicoba, Sonora, July, 1968
Elevation - 5,000'

sterile

Roots used in preparation of a tea taken for stomach disorders.

157

escorzonera Compositae

Maicoba, Sonora, July, 1968
Elevation - 5,000'

plants sterile!

Medicinal tea prepared from plant is taken for kidney disorders and pains in the back.

158

seedling family unknown (filed at end of 280-13)

matarique

Maicoba, Sonora, July, 1968
Elevation - 5,000'

sterile

Medicinal tea taken for stomach disorders prepared from this plant.

159

bavisa (unidentifiable - plants sterile (root seedlings)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

family not known

Medicinal tea made from plant taken for stomach disorders.

160

tohi de encino — Phoradendron villosum Nutt.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Fruits of this parasite eaten in April, May, June.

161

F inmortal — Matelia sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from entire plant is taken for stomach disorders and to reduce fever.

166

F mirto — Bouvardia ternifolia

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea prepared from plant is taken for stomach disorders.

167

F yerbanis — Tagetes lucida

Maicoba, Sonora, July, 1968
Elevation -5,000'

Tea made from this plant taken for fever.

168

F [name misplaced] — Castilleja rigida Eastw.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for stomach disorders.

169 Zexmenia cf. aurea

F peonía (Pima - maitmatkam) ~~Cordatia sp.~~

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea from entire plant is taken for stomach disorders.

F 170

yerba del pescado (Pima - vahtop) Tephrosia palmeri Wats.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Mash entire plant and use as a fish stupefaction agent.

171

F manzanilla del río (Pima - saka) Gnaphalium chilense Spreng.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant good for colic. Tea used as a lotion on boils on humans - said to cure in 8-9 days.

172

F inmortal (Pima - tupil) Matelia sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Use root in preparation of a poultice applied to head for headache. Tea made from plant is taken to relieve stomach pains.

173

contra yerba Poinsettia heterophylla L.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken to "cure a cold."

174

saravikí (Pima - topohug) Prionosciadium townsendii Rose

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Root of this plant considered a camote and is eaten in April and May. Cook in ashes.

176

F artemisa Chrysanthemum sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

A refreshing tea is made from this plant

177

F tomatillo (Pima - tutkuil) Physalis ixocarpa

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Found on a trash heap near house of Juan Gonzales. Fruits are eaten.

178

F yerba del pescado (Pima - vahtop) Tephrosia palmeri Wats.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Fish stupefaction agent (same as 170 ?)

179

carricito Polygonum lapathifolium L.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from stems of this plant found along the river - claimed to be a "refreshing tea."

180

purga — Desmodium sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Root is used in preparing a purgative chimed to be the most important purga used by Pima in high country.

181

chual (Pima - tukgai) — Chenopodium arizonicum Standl.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

An esteemed quelite, when boiled and salted.

182

papa camarrón — Solanum demissum Lindl.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Pigs eat the root of this wild potato-like plant.

183

cebollín (Pima - sak) — Hymenocallis sonorensis Staudl.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

A wild onion that grows in numbers near Maicobita. Leaves used as poultice for wounds.

184

maravilla — Mirabilis longifolia L.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Leaves used as poultice on wounds.

185 (119) Cucurbitaceae

F calabacillo — Cucurbita sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Fruits of this wild calabacillo are used as balls by children in games.

186 Salicaceae (23)

F tarais (Pima - tuil) — Salix taxifolia

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Wood of this floodplain tree used as leña. Leaves used in preparing a lotion applied to sores.

187 (119) Cucurbitaceae

chayote — Cucurbita sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

A domesticated plant.

188 (97) Pyrolaceae

F yerba del higado (Pima - mumu-or) — Chimaphila dasystephana Torr. stems

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Branches used in preparing a tea taken to cure liver disorders.

189 Leguminosae (50)

F yerba loca; loca — Lupinus concinnus Agardh.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

When animals eat this plant they die. Leaves used as "lotion" applied to sores.

Compositae 121

190

coronilla — Senecio sp. (plants sterile)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

An excellent cure for lung congestion when leaves used in preparing a tea.

Rosaceae 49

191

yerba colorado — Potentilla sp. (plant sterile)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Root used in preparing a tea taken for stomach disorders and for "throat disorders."

192

cordoníz — ? (nestled)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Quail known to frequent places where this plant grows.... hence seek quail where plant grows.

50

Leguminosae

193

yerba de la víbora — Zornia reticulata Sm.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from entire plant is taken to reduce fever and to relieve a cough.

194

bavisa — family unknown file at end of 280-13 (sterile)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Root used in preparing a tea taken to relieve colic in children.

195

yerba del piojo (Pima - a-at makam) Mandevilla foliosa (M.-Arg.) Hemsl.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Mash entire plant and apply to piojos.

196

F ipazote — Chenopodium ambrosioides L.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Used as a quelite and as a condiment in beans.

197

F chichiquelite — Solanum nodiflorum Jacq.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Mash plant in preparing a lotion applied to back pains.

198

malva — Malva neglecta Wallr.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Prepare a tea from entire plant and take for stomach pains.

199

F alcamphorina — Achillea millifolium

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Take a tiny bit of the plant, mash, add to grease and apply to ear for earache.

200

matariqui — Eysenhardtia orthocarpa (Gray) Vasey

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant is good for stomach pains, pulmonía and is used as a lotion for bruises.

202

F pastura — Indigofera suffruticosa Mill.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

An excellent pasturage plant.

203

canawala (Pima - soš) — fern

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant taken for severe coughing spells.

204

tohi de pina (Pima - hara juil) — Phoradendron villosum Nutt.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Fruits of this parasite eaten by humans.

205

orégano (Pima - tu-ulam) — Origanum sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Condiment in beans and on meat.

206

oraja del ratón (Pima - vosum na-aka) Compositae 121

Maicoba, Sonora, July, 1968 (sterile rosette)
Elevation - 5,000'

Lotion prepared from this plant applied to cuts.

207

F yerba de la muela Dridaceae 21 Sisyrinchium sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Chew root for tooth trouble.

208

sandía de coyote Cucurbitaceae 119 Ajodanthora undulata

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Fruits are eaten. Tea made from plant and drunk for cough after "sitting" for a day - the tea I mean.

209

lobadura; yerba de la calentura Cyperaceae 12

Maicoba, Sonora, July, 1968
Elevation - 5,000' (sterile)

All of plant added to tesgüino to make it ferment quickly. Tea made from plant taken for fever and cough. Has a white flower.

210

F tianguis (Pima - Supuil) Amaranthaceae 33 Alternanthera caracasana

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Leaves and roots eaten when children have measles; tea made from leaves and roots taken for urinary difficulties.

Compositae (121)

211

estafiate (Pima - moša) — Ambrosia sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant taken for stomach disorders.

Cyperaceae (12)

212

F zacate bolita — Cyperus sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea prepared from plant taken for stomach disorders.
Animals (pigs) eat the roots.

Moraceae (24)

213

mora — Morus microphylla Buckl.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Fruits eaten. Arrows once made from wood.

Oxalidaceae (52)

214

F cañira del campo — Oxalis amplifolia (Trel.) Knuth.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Quail eat the plant - so seek quail where plant grows.
Medicinal tea made from plant - taken for stomach disorders.

Verbenaceae (106)

215

F pastura — Verbena carolina L.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Excellent pasturage plant. Medicinal tea taken to cure headache made from plant.

216

batamote (Pima - vášam) Compositae 21 Baccharis sterile

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Cook entire plant in preparing a tea taken for espanto (fright). Baskets once made from plant.

217

pastura Compositae 21 Tagetes sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Pasturage plant.

218

pastura Leguminosae 50 Aeschynomene sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Pasturage plant.

219

canawala Fern

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea taken for cough prepared from this plant.

220

ohilicote Leguminosae 50 Erythrina flabelliformis Kearney

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Toast seeds for use in preparing a "coffee." Make a tea from the seeds and leaves and take for stomach disorders.

221

canawala — Jem

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for cough. (121)

221a

F manzanilla del río — Compositae (121) Gnaphalium sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for stomach disorders.

222

F pastura — Compositae (121) Erigeron divergens T.+G.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Lotion made from boiling leaves applied to wounds. An excellent pasturage plant.

223

poléo — ? (no plant)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for stomach problems.

224

F cascalosuche — Euphorbiaceae (60) Manihot isoloba Standl.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for headache.

Loasaceae 63a

225

F yerba del pasmo — Mortonia scabrella Gray

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Cook entire plant in preparing a lotion for wounds.

Acanthaceae 114

226

F cordincillo — Elytraria imbricata (Vahl.) Pers.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for colds & fever. Mix with mescal.

Linaceae 53

227

F pastura — Linum aristatum Engelm.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for fever. An excellent pasturage plant.

Oxalidaceae 5a

228

F agrio — Oxalis stricta L.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

An exteemed quelite.

Umbelliferae 88

229

F matariqui — Prionosciadium madense S. Wats.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken to relieve congestion when person has cold. Use root and flower. Also a fish stupefaction agent.

230

kiki — Orchidaceae (22)

sterile

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Root used in preparing a glue used in making rattles.

231

F chichiquelite — Solanum nodiflorum Jacq. Solanaceae (108)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea for colds and fever made from this plant.

Compositae (121)

232

avena del campo — Bromus sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

sterile

excellent pasturage plant.

Compositae (121)

233

San Paulilla — Tagetes sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Prepare a tea taken for colds from this plant...mix with mescal.

234

F frijolillo — Galactia sp. Leguminosae (50)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Prepare a tea from this plant taken for colds. Excellent browse plant.

235

lirio del campo — Orchidaceae (steril)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Lotion made from plant used to cure backache.

236

teposana — Compositae (sterile) (12)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Root is used in making a tea taken for kidney disorders. Ranunculaceae (39)

237

F yerba orilla — Thalictrum sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for stomach pains. Begoniaceae (81) Compositae (12)

238

cañiro — Begonia sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Use for "cleaning teeth."

239

F pastura — Vernonia sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Pasturage plant.

240

matariqui
yerba del pescado — seedling - family unknown - filed at end of 280-13 (sterile)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Fish stupefaction agent. *

* collect it again in flower & fruit!
B LT

241

F saraviki — Prionosciadium madrense S. Wats. (Idem. L. Constance)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Root cooked in ashes and eaten as a papa.

242

[no name] — Lupinus sp.

On road from Durango to Mazatlán.
Elevation about 7,000'

243

F [no name] — Lupinus sp.

On road from Durango to Mazatlán
Elevation about 7,000'

244

F lirio — Amaryllidaceae (20) Hymenocallis sonorensis Standl. alcoholic

Onavas, Sonora, August, 1968
Elevation - 550'

Entire plant is used in preparing a lotion applied to wounds.

246

pintapan — Bogenhardia crispa (L.) Kearn.

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant.

248

guamúchil (Pima - maksan) — ? (no plant)

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten in May.

Punicaceae (81a)

248a

granadilla (Pima - sidu) — Punica granatum

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten in July. Root used in making a tea taken to cure hemorrhoids.

Acanthaceae (114)

249

F conivari - Pima - suspinda) — Ruellia nudiflora (Englm. + Gray) Urb.

Onavas, Sonora, August, 1968
Elevation - 550'

Seeds used in preparing a refreshing drink - soak.

250

chicura — Compositae (sterile) (121)

Onavas, Sonora, August, 1968
Elevation -550'

Make a tea from plant for headaches and stomach disorders.

Leguminosae (50)

251

mesquite (Pima - kui) — Prosopis juliflora (Sw.) DC.

Onavas, Sonora, August, 1968
Elevation - 550'

Beans crushed and dried and added to atole. Bark soaked for about two days and used as a purgative - add to warm water.

Leguminosae (50)

252

chirawi (Pima - kuduri) — Acacia sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Tea made from plant taken to make kidneys "act."

Ulmaceae (27)

253

Celtis pallida Torr

Garambullo (Pima - kwavor) ~~Lantana sp.~~

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten in July.

Malvaceae (68)

254

Abutilon sp.

Cintapan

Onavas, Sonora, August, 1968
Elevation - 550'

Root used in making a tea taken for dysentary. Tea made from roots and leaves taken to relieve venereal disease discomfort.

Polygonaceae (31)

255

F San Miguelito Antigonon leptopus H. & A.

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves dried and smoked in cornhusks as tobacco.

Amaranthaceae (33)

256

Tidestroemia lanuginosa (Nutt.) Standl.

yerba de las animas

Onavas, Sonora, August, 1968
Elevation - 550'

Tea made from plant taken for dolor del estomago.

Solanaceae (108)

257

Solanum rostratum Dunl.

mala mujer (Pima - pada okx)

Onavas, Sonora, August, 1968
Elevation - 550'

Small bolitas are used to turn milk when making cheese.

Acanthaceae (114)

258

Cordoncillo — Elytraria imbricata (Vahl.) Pers.

Onavas, Sonora, August, 1968
Elevation - 550'

A refreshing tea is made from leaves. Euphorbiaceae (60)

259

Hedondilla — Croton sp.

Onavas, Sonora, August, 1968
Elevation - 550'

For tooth problems - scrape the plant, mix with manteca and place on aching gums.

Solanaceae (108)

260

toloache — Datura stramonium L.

Onavas, Sonora, August, 1968
Elevation - 550'

Long ago, according to informant, the seeds were put in tesgüino to make people drunk.

Pithecolobium undulatum (50)

261

palo fierro (Pima - hoitkam) — (Leguminosae)

Onavas, Sonora, August, 1968
Elevation - 550'

Small fruits are toasted and used in making pinole.

estéril

262

bananini (Pima - bibiogam) — Rubiaceae

Onavas, Sonora, August, 1968
Elevation - 550'

Small leaves are crushed and placed in ear for earache.

estéril

Mascagnia macroptera (58)
Malpighiaceae

Rhamnaceae (65)

263

balchata (Pima - duwuspudu) Condalia sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten crude in May; fruits are added to atole.

Solanaceae (108)

264

F cornetón (Pima - sausuwam) Nicotiana glauca

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves are used as poultice on head for headache.

Rhamnaceae (65) Karwinskia Humboldtiana

265

tulledor (spelling ?) Karwinskia sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten in small amounts. Too much eating of this fruit claimed to be harmful. One child at Onavas said to have been paralyzed from eating too much of the fruit, another child claimed to have died during past year from over eating of fruit.

Verbenaceae (106)

266

rama pegosa (Pima - sadamsai) Priva lappulacea (L.) Pers.

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves used as poultice for headache.

Leguminosae (50)

267

F flor de la chiva Cassia biflora L.

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant.

268

F yerba del oso Boraginaceae (105) Heliotropium macrostachyum (DC.) H&A

Onavas, Sonora, August, 1968
Elevation - 550'

Medicinal tea prepared from plant taken for headache and stomach disorders.

269

yerba de la flecha Salicaceae (23) Salix bonplandiana

Onavas, Sonora, August, 1968
Elevation - 550'

"Milk" from plant used as lotion on sores. Antes, was used as arrow poison.

270

F chicayote (Pima - hadrat) Cucurbitaceae (119) Cucurbita foetidissima

Onavas, Sonora, August, 1968
Elevation - 550'

This yellow flowered plant supplies a fruit used as soap when green.

271

tropajeta (spelling ?) del monte Cucurbitaceae (119) Schizocarpum Palmeri C.&R.

Onavas, Sonora, August, 1968
Elevation - 550'

Plant used as soap. Soak the plant with clothes for several hours.

272

(100) Apocynaceae

sita varo

Onavas, Sonora, August, 1968
Elevation - 550'

Ornamental plant in church.

Leguminosae (50)

273

brea (Pima - tudoxus) Acacia sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Tea made from plant is taken to cure interior wounds caused by falls.

274

malva Malvaceae (18) (Sterile)

Onavas, Sonora, August, 1968
Elevation - 550'

Plant used in preparing a purgative - make a tea by steeping the leaves. May be used as enema with equipment borrowed from mestizos.

Leguminosae (50)

275

café cimarrón Cassia sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits are toasted and used in making a coffee.

Celastraceae (63a)

276

papache borracho (Pima - sa-woo-os) Schaefferia cuneifolia Gray

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten in July. Plant has white flower.

Verbenaceae (106)

277

F confituria Lantana horrida H.B.K.

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten.

278

palo colorado (Pima - swuk-uš, Caesalpinia platyloba Wats.

Onavas, Sonora, August, 1968
Elevation - 550'

Wood used for posts in houses.

279

mauto (Pima-mawu) Desmanthus sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Wood used for posts in houses. Bark used for tanning.

280

granadilla cimarróna ~~Compositae~~ Rosaceae

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant.

281

F chual (su-awa - Pima) Chenopodium sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Quelite when boiled and salted.

282

ohicuria Compositae ?

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant.

283

torote prieto (Pima - kopitkam) Bursera confusa (Kote) Engler.

Onavas, Sonora, August, 1968
Elevation - 550'

Medicinal tea made from leaves, taken for cough.

Salicaceae (28)

284

torote papillito blanco (Pima - va-as) Populus sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Tiny leaves are mashed and placed in eys for mal de ojo (pink eye ?).

285

gatillo (Pima-sú-tum) Mimosa Leguminosae (50) sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant.

Guaiacum coulteri Zygophyllaceae (54)

286

guayacán (Pima - isvakondam) Guiacum coulteri Gray

Onavas, Sonora, August, 1968
Elevation - 550'

Deer eat fruit. Chivas eat fruit. Tea made from heart of tree taken for lung disorders. Leaves serve as soap.

287

Leguminosae (50)

F brazil (Pima - hu-swup-gu-us) Haematoxylon brasiletto Kunt.

Onavas, Sonora, August, 1968
Elevation - 550'

Boil interior of tree and use water as lotion on small boys when sick. Make refreshing tea from leaves. Antes, lances made from wood to kill peccary. Used for arrows also.

288

samota (Pima - us-abdag) Coursetia sp. Leguminosae (50)

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant. Gum from bark eaten for stomach disorders.

289

guajavilla (spelling ?) — Lysiloma divaricata

Onavas, Sonora, August, 1968
Elevation - 550'

Posts for houses made from trunks of this tree.

290

palo blanco (Pima - to-a) — Piscidia mollis Rose

Onavas, Sonora, August, 1968
Elevation - 550'

Posts for houses made from tree trunks. Leaves used for "packing" cheese.

291

salvia — Salvia sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Tea made from leaves taken to inhibit urine passage, to stop "coughing." Also used as a lotion on wounds.

292

damiana — TURNERA diffusa Willd.

Onavas, Sonora, August, 1968
Elevation - 550'

When women cannot conceive they drink a tea made from leaves of this plant.

293

guajava — Piscidia mollis

Onavas, Sonora, August, 1968
Elevation - 550'

A garden plant. Fruits are eaten.

294

yerba del manso — Polygonaceae

Onavas, Sonora, August, 1968
Elevation - 550'

Sterile

Make a tea from this plant..take to relieve pasmo (spasma)

295

Verbenaceae

igualama — Citharoxylum sp (106)

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits are eaten. Roots are used in making a tea taken for menstruation pains.

Fouquieriaceae (73)

296

F coronel del señor — Fouquieria sp

Onavas, Sonora, August, 1968
Elevation - 550'

Ornamental plant - use flowers in church

Martyniaceae (111)

297

F cuerno — Proboscidia arenaria (Engelm.) Dene

Onavas, Sonora, August, 1968
Elevation - 550'

Seeds eaten by children

Rubiaceae Loutarea Stenosperma

298

copalquin (Pima - sibu-oos) — Rosaceae (116)

Onavas, Sonora, August, 1968
Elevation - 550'

Sterile

Tea made from bark taken for fever and to enrich the blood.

Leguminosae 50

299

F tavachin — Caesalpinia pulcherrima (L.) Swartz.

Onavas, Sonora, August, 1968
Elevation - 550'

Seeds are eaten. Roots used as poultice on wounds.
Root used in making a "gargle."

Leguminosae 50

300

tepeguaje — Lysiloma divaricata (Jacq.) Mac.

Onavas, Sonora, August, 1968
Elevation - 550'

Bark used for toothache - mash and place on "bad teeth."
Mash bark, mix with sugar and put in "sore eyes." Soak bark in water for making a very strong purgative.

Sterculiaceae 70

301

guasima — Guazuma tomentosa HBK

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten. Bark used in preparing a tea taken for kidney disorders. Wood for chairs.

Leguminosae 50

302

palo verde — Cercidium floridum Benth.

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage "plant." Medicinal tea made from leaves taken for fever.

303

matoro (Pima - studugus) — family unknown (Verbenaceae?) (Sterculiaceae)

Onavas, Sonora, August, 1968
Elevation - 550'

Use entire plant for making a tea that is drunk for snake bites and used as a lotion on bite wounds.

Phytolaccaceae 35 — Stegnosperma Watsonii

Burseraceae

304

torote prieto — Bursera fagaroides

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten as food. Fruits also said to be good for cough.

57
50

305

ojasin (spelling ?) — Cassia covesii Gray

Onavas, Sonora, August, 1968
Elevation - 550'

Flowers are used in preparing a tea taken as a purgative.
Roots are used in making a tea taken at childbirth.

Fouquieriaceae

306

ocotillo (Pima - nur-iog) — Fouquieria sp.

73

Onavas, Sonora, August, 1968
Elevation - 550'

Cook bark and use lotion to wash hair. Makes the hair long.

307

maíz del monte — Tradescantia sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Pastura.

308

palo de asta (Pima - tupu dasidug) — Rosaceae

Onavas, Sonora, August, 1968
Elevation - 550'

(same as 298)

Axe handles made from wood.

Sterile plant

Rubiaceae

35

Burseraceae 57

315

torote blanco (Pima - totokopitkam) Bursera confusa (Rose) Engler

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten for cough.

316

palo dulce Eysenhardtia sp

Onavas, Sonora, August, 1968
Elevation - 550'

Fence posts, house posts, leña, bark used in preparing a lotion put on sick chickens and rubbed on people with fever

317

cacachile Karwinskia parvifolia Rose

Onavas, Sonora, August, 1968
Elevation - 550'

Very dangerous when children eat the fruit - as they sometimes do - claimed that children are paralyzed.

318

palo piojo Willardia mexicana

Onavas, Sonora, August, 1968 (Pima - a-at-muhatkam)
Elevation - 550'

Use bark in making a lotion to kill piojos

319

chilicote (Pima - bawi) Erythrina flabelliformis Kearney

Onavas, Sonora, August, 1968
Elevation - 550'

Wood very light and used in making crude "raft" for crossing river. Used for making masks.

320

palo santo — Convolvulaceae?

Onavas, Sonora, August, 1968
Elevation - 550'

Gum from the tree used as "poultice" on toothache.
Pasturage plant also.

321

amapa (Pima - hadumig) — ~~Bombacaceae~~?

Onavas, Sonora, August, 1968
Elevation - 550'

Posts for dwellings.

322

pochote — Ceiba acuminata (S. Wats) Rose

Onavas, Sonora, August, 1968
Elevation - 550'

Use "cotton" for pillows, for mattresses.

323

algondocillo — Manihot chlorosticta S. & G.

Onavas, Sonora, August, 1968
Elevation - 550'

[Data misplaced]

324

saya (Pima - sa-ad) — Amoreuxia gozalezii Sprague & Riley

Onavas, Sonora, August, 1968
Elevation - 550'

Roots and bolitas eaten when cooked.

325

palo blanco — Piscidia mollis Rose

Onavas, Sonora, August, 1968
Elevation - 550'

Pastura.

326

F vara prieto (Pima - ar-maf) Acacia sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Posts for houses. Beams for houses.

327

sacakulo (Spelling ?)
(Pima - adhipigdum) Schaefferia sp. (stem)

Onavas, Sonora, August, 1968
Elevation - 550'

Birds eat the fruits - hence, easy to kill certain birds for food.

328

cascolosuche Plumeria acutifolia Poir

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves used in preparing a lotion applied to wounds.

329

tescalama (Pima - vokulidak) ~~Euphorbiaceae~~ (stem)

Onavas, Sonora, August, 1968
Elevation - 550'

~~Milk from bark used as a lotion applied to rheumatism.~~ Fruit eaten

330

F yerba del baurir (Pima-kidmur) Kallstroemia grandiflora Torr.

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant.

331

F Juan emitili (spelling ?) ? (no plnt)

Onavas, Sonora, August, 1968
Elevation - 550'

Cook and dry leaves - use in making a tea taken to relieve discomfort from sarampion.

Amaranthaceae

332

F bledo (Pima - turgia) Amaranthus palmeri Wats

Onavas, Sonora, August, 1968
Elevation - 550'

Quelite, when boiled and salted.

(33)

333

yerba del dancer Solanaceae

Onavas, Sonora, August, 1968
Elevation - 550'

(sterile! (105)

Mash leaves and use in making a poultice (with grease) applied to wounds.

Compositae (13)

334

quelite Cacalia decomposita Gray

Onavas, Sonora, August, 1968
Elevation - 550'

Quelite for humans. Also for pigs. Grows muchly near river and saw many women cutting with machete and bringing great bundles to pigs.

Euphorbiaceae (60)

335

F yerba de la lisa (Pima - tuhobdat) Croton texensis (Klotz.) Muell. Arg.

Onavas, Sonora, August, 1968
Elevation - 550'

Used to kill fish...soak for several days - throw in quiet pool of water.

Martyniaceae (111)

336

cuernatos — Proboscidia parviflora (Woot.) w.t.S.

Onavas, Sonora, August, 1968
Elevation - 550'

Seeds used in polishing ollas.

Caprifoliaceae (117)

337

sauco — Sambucus mexicana Presl.

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves used in preparing a lotion used to bathe [illegible] childbirth.

Salicaceae (23)

338

alamo — Populus fremontii

Onavas, Sonora, August, 1968
Elevation - 550'

Wood used for making bateas and canoas.

Verbenaceae (109)

339

F confituria — Lantana horrida

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits are eaten.

Euphorbiaceae (60) Introduced

340

higuerilla — Ricinus communis L.

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves used as poultice on wounds. Leaves placed on head for headache. Bolitas used in tanning leather.

Bark + Bark

Salicaceae (23)

341

Sauz (Pima - tu-u-ur) — Salix goodingii

Onavas, Sonora, August, 1968
Elevation - 550'

Tea made from bark taken as a refreshing drink.

Compositae (12)

342

F mirasol — Helianthus annuus L.

Onavas, Sonora, August, 1968
Elevation - 550'

Ornamental flower in church.

Leguminosae (50)

343

santipus — Phaseolus sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Seeds used in rattles. Seeds used in poultice made with grease and applied to sore eyes.

Leguminosae (50)

344

guacapor — Parkinsonia aculeata

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant. Seeds are eaten by humans.

Euphorbiaceae (60)

345

yerba de la golondrina — Chamaesyce hypericifolia L.

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves are crushed and placed upon scorpion and ant bites.

346

jecota — COMPOSITAE (120) (Asteraceae)

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves are used in making a poultice to kill piojos. Leaves used in preparing a lotion applied to allergy. inflammations.

347

F malva — Melochia speciosa Wats. Sterculiaceae 70

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves used in making a lotion used to make hair "pretty." Leguminosae (50)

348

corcho — Coursetia sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Used for making stoppers for gourd canteens. Leguminosae 50

349

F hojasin — Cassia covesii Gray

Onavas, Sonora, August, 1968
Elevation - 550'

Make tea from plant and take for stomach pains. Cucurbitaceae (115)

350

melon de coyote — Cucurbita sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten.

Fouquieriaceae 73

352

F ocotillo (Pima - nuriog) Fouquieria macdougalii Nash.

Onavas, Sonora, August, 1968
Elevation - 550'

Material used for fencing and in making houses.

Leguminosae 50

353

F añil Indigofera suffruticosa Mill.

Onavas, Sonora, August, 1968
Elevation - 550'

A dye plant. Use both flowers and leaves in making a blue-black dye for tinting basket materials.

Leguminosae 50

354

F brazil Haematoxylon brasiletto Karst.

Onavas, Sonora, August, 1968
Elevation - 550'

Use flowers and scrapings from bark in making a dye.
Wood used for making implements.

X = entered on Drawer sheet

Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

1 RUBIACEAE

F papache — Randia echinocarpa.
Moris, Chihuahua, June, 1968
Elevation - 2800'

Yellowish fruits (with black interior) are eaten.

2 RANUNCULACEAE

F barba de viejo — Clematis Drummondii
Moris, Chihuahua, June, 1968
Elevation - 2800'

Blooms are cooked for about fifteen minutes. Remove blooms from liquid which is drunk to stimulate passage of urine.

3 SOLANACEAE

F cornetón — Nicotiana glauca
Moris, Chihuahua, June, 1968
Elevation - 2800'

Excellent pasturage.

4 PAPAVERACEAE

F cardón — Argemone ochroleuca subsp. ochroleuca
Moris, Chihuahua, June, 1968
Elevation - 2800'

Juice from stem is dripped upon cotton on to which hot water is poured. The cotton is then squeezed over open eye. Juice claimed to be very effective in healing mal de ojo.

5

F chícura — Ambrosia ambrosioides
Moris, Chihuahua, June, 1968
Elevation - 2800'

Branches are heated over a fire. Mescal is sprinkled upon the heated branches which are then crushed and placed upon buttocks of woman who is experiencing difficulty in parturition.

6 SOLANACEAE

F toloache — Datura inoxia

Moris, Chihuahua, June, 1968
Elevation - 2800'

Fresh or dried seeds from this white-flowered toloache are cooked in a bit of water which is drunk by a man or youth who wishes to fall in love! Crushed leaves may be mixed with grease and applied as a poultice to sores. This poultice is claimed to "draw" well.

7 SOLANACEAE

F toloache — Datura inoxia

Moris, Chihuahua, June 1968
Elevation - 2800'

Fresh or dried seeds from this toloache with a "purplish" flower are cooked in a bit of water which is drunk by a man or youth who wishes to fall in love! Crushed leaves may be mixed with grease and applied as a poultice to sores. This poultice is claimed to "draw" well.

8 SALICACEAE

álamo — Populus Fremontii

Moris, Chihuahua, June 1968
Elevation - 2800'

Leaves are cooked in a small amount of water. Remove leaves and use liquid as a lotion applied to people with fever. After application of lotion the patient is covered with a blanket so that he will sweat.

9

F girasol — Helianthus annuus

Moris, Chihuahua, June 1968
Elevation - 2800'

Leaves are cooked in a small amount of water which serves as a lotion for bathing of sick people.

10 LEGUMINOSAE

F huacapor Parkinsonia aculeata

Moris, Chihuahua, June, 1968
Elevation - 2800'

Children eat fruits of this plant in June and July.

11

F higarilla Ricinus communis

Moris, Chihuahua, June, 1968
Elevation - 2800'

Leaves are crushed and mixed with grease and then applied as a poultice to inflammations.

12 LEGUMINOSAE

tavachin Caesalpinia pulcherrima

Moris, Chihuahua, June, 1968
Elevation - 2800'

Branches are crushed and decoted in a liquid which is drunk to cure venereal disease.

13

F guirote or gallinita

Moris, Chihuahua, June, 1968
Elevation - 2800'

Claimed to be an important forage plant for sheep and goats. Leaves used in preparing a lotion for bathing of people with fever.

14 LEGUMINOSAE

mesquite Prosopis juliflora

Moris, Chihuahua, June, 1968
Elevation - 2800'

Seeds are ground up and the crushed material is sprinkled upon inflamed eyes.

CHENOPODIACEAE

15

Chenopodium ambrosioides

F ipazote

Moris, Chihuahua, June, 1968
Elevation - 2800'

Entire plant is crushed and decocted into a liquid drunk to relieve colic or any stomach disorder

16

F lirio

Moris, Chihuahua, June, 1968
Elevation - 2800'

Flower is cooked for about five minutes in water which is given to children suffering from fright (espanto).

18

confitufia

Moris, Chihuahua, June, 1968
Elevation - 2800'

Fruits are eaten in September.

19

FOUQUIERIACEAE

Fouquieria sp.

ocotillo

Moris, Chihuahua, June, 1968
Elevation - 2800'

This ocotillo has a red flower in July. Branches are cooked in a liquid which is drunk to relieve severe congestion caused by a cold.

20

corcho

Moris, Chihuahua, June, 1968
Elevation - 2800'

Remove a bit of bark from the tree. Crush and place the bark upon wounds. This corcho has a white flower in May.

COMPOSITAE

21

Senecio sp.

joro de toro

Moris, Chihuahua, June, 1968
Elevation - 2800'

This plant exudes a reddish liquid that is placed upon the eye when it is inflamed.

22

F salvia

Moris, Chihuahua, June, 1968
Elevation - 2800'

Entire plant is decoted into a liquid taken to gain energy.

23

torote

Moris, Chihuahua, June, 1968
Elevation - 2800'

Branches are crushed and used in preparing a decoction taken to relieve discomfort caused by pulmonia.

24

F hortiguilla

Moris, Chihuahua, June, 1968
Elevation - 2800'

Leaves are crushed and applied as a poultice to wounds.

RHAMNACEAE

25

Karwinskia Humboldtiana

tullidor

Moris, Chihuahua, June, 1968
Elevation - 2800'

An exceedingly poisonous plant with a purple flower in October, November. Children have been known to die after eating the fruits.

26

F gatuña

Moris, Chihuahua, June, 1968
Elevation - 2800'

Stated to be an excellent browse plant for animals. Some mestizos claimed that a lotion was made from flowering branches and applied to people with fever.

27

F verbena

Moris, Chihuahua, June, 1968
Elevation - 2800'

Entire plant is decocted into a potion taken for dolor del estómago.

28

F amor por un rato

Moris, Chihuahua, June, 1968
Elevation - 2800'

Tea made from the plant is taken to gain energy.

29

Althaea rosea

F vara

Moris, Chihuahua, June, 1968
Elevation - 2800'

Leaves are cooked and mixed with grease and then applied to head for relief of headache. A rag may be wrapped around the head to contain the poultice.

30

F Belén

Impatiens sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Cook leaves in water which is drunk to relieve headache.

31

F confituria morado

Moris, Chihuahua, June, 1968
Elevation - 2800'

Fruits are eaten in September.

32 COMPOSITAE

F San polillo [spelling ?] Jaumea pedunoularis

Moris, Chihuahua, June, 1968
Elevation - 2800'

An exceedingly poisonous plant and cattle have been known to die after eating it. In small amounts, the leaves are used in preparing what is described as a "violent" purgative.

33

yerba del Indio

Moris, Chihuahua, June, 1968
Elevation - 2800'

This yerba del Indio has a purple flower in August. The plant root is cooked in a liquid which is drunk to relieve after-effects of too much tesgüino.

34 APOCYNACEAE
[cacalosuchi]

F cascalosuche [spelling ?] Plumeria acutifolia

Moris, Chihuahua, June, 1968
Elevation - 2800'

Nuts from this plant are crushed and applied to "swellings."

35

F perrito

Moris, Chihuahua, June, 1968
Elevation - 2800'

Excellent pasturage for animals.

36 LEGUMINOSAE

F algarroba Acacia sp. af. pennatula

Moris, Chihuahua, June, 1968
Elevation - 2800'

Crushed leaves of this plant are placed upon the head for headache, being held on the head with a rag tied about the head. Claimed to be an effective headache remedy.

37

pato dulce

Moris, Chihuahua, June, 1968
Elevation - 2800'

Claimed to serve not only as pasturage for animals but also in preparation of a lotion applied to aching limbs.

38 COMPOSITAE

F palo santo Parthenium sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Lotion prepared by using the entire plant and steeping the plant in water is used to bathe sick people.

39

bellisima

Moris, Chihuahua, June, 1968
Elevation - 2800'

Pasturage plant.

40 STERCULIACEAE

F yerba del pasmo Waltheria indica

Moris, Chihuahua, June, 1968
Elevation - 2800'

Pastura for animals. When cooked, serves as a quelite for humans. For medicinal use, cook the leaves and use water as a lotion for wounds. Or, dry the leaves and put the crushed dry leaves upon wounds.

41

F bisnaga

Moris, Chihuahua, June, 1968
Elevation - 2800'

Animals eat the fruits of this barrel-like cactus. Interior of plant is removed and sold to traders who dispose of the pith in Chihuahua (for making dulces) and Hermosillo (for making tortillas).

LEGUMINOSAE

42

F [name misplaced] — Cassia biflora

Moris, Chihuahua, June, 1968
Elevation - 2800'

Medicinal tea taken for fever prepared from entire plant.

43

F confituria cimarrona

Moris, Chihuahua, June, 1968
Elevation - 2800'

Pastura for animals.

46

F manzanilla cimarrona — Helenium sp.

Moris, Chihuahua, June, 1968
Elevation - 2800'

Tiny bolitas are crushed and sniffed for catarrh.

47

quelite

Moris, Chihuahua, June, 1968
Elevation - 2800'

This quelite has an "espiga blanca" and is an esteemed food when boiled and salted.

48

F sibuli [spelling ?]

Moris, Chihuahua, June, 1968
Elevation - 2800'

Animals eat the fruit. For medicinal use - boil part of the stems and remove from water and place upon sprains or wounds.

49

cholla

Moris, Chihuahua, June, 1968
Elevation - 2800'

Animals eat the fruit. Cook stems of the plant and use as poultice upon wounds or sprains.

STERCULIACEAE

50 [yerba del pasmo] Waltheria indica

F [name misplaced]

Moris, Chihuahua, June, 1968
Elevation - 2800'

Excellent browse plant for animals.

51

F [name misplaced]

Moris, Chihuahua, June, 1968
Elevation - 2800'

Excellent browse plant for animals.

STERCULIACEAE

52 [yerba del pasmo] Waltheria indica

F [name misplaced]

Moris, Chihuahua, June, 1968
Elevation - 2800'

Lotion made by boiling plant serves in relieving sprains. An excellent pasturage plant.

53

F jumete

Moris, Chihuahua, June, 1968
Elevation - 2800'

This plant appears in profusion in corn fields but is not pulled up because people would develop diarrea if they touched the plant. Must be dug out with hoe.

54

F [name misplaced]

Moris, Chihuahua, June, 1968
Elevation - 2800'

Excellent pasturage plant.

55

F [name misplaced]

Moris, Chihuahua, June, 1968
Elevation - 2800'

Excellent pasturage plant.

56

F [name misplaced] Haura parviflora

Moris, Chihuahua, June, 1968
Elevation - 2800'

Medicinal tea made from entire plant taken for fever.

57

[name misplaced]

Moris, Chihuahua, June, 1968
Elevation - 2800'

Leaves and bolitas are crushed and applied to inflammations.

COMPOSITAE

58

[name misplaced] Melampodium divaricatum

Moris, Chihuahua, June, 1968
Elevation - 2800'

Excellent pastura.

59

ONAGRACEAE

F chichiquelite — Oënothera rosea

Moris, Chihuahua, June, 1968
Elevation-2800'

Leaves are cooked as a quelite. Prepare a very strong tea from leaves and branches and drink for kidney disorders.

60

POLYGONACEAE

F cainero — Rumex crispus

Moris, Chihuahua, June, 1968
Elevation - 2800'

An esteemed quelite when boiled, drained and salted.

61

F trébol — Melilotus indica

Moris, Chihuahua, June, 1968
Elevation - 2800'

An esteemed quelite.

62

CHENOPODIACEAE

F chual — Chenopodium leptophyllum

Moris, Chihuahua, June, 1968
Elevation - 2800'

An esteemed quelite when boiled, drained and salted.

63

PLATANACEAE

aliso — Platanus Wrightii

Moris, Chihuahua, June, 1968
Elevation - 2800'

Bark is decoted into an infusion given to women who fail to expel afterbirth. Also given to cows to promote calving.

64 OXALIDACEAE

F oreja del ratón — Oxalis stricta

Moris, Chihuahua, June, 1968
Elevation - 2800'

Medicinal tea prepared from plant taken for fever. An excellent pasturage plant also.

65

F verbena del campo

Moris, Chihuahua, June, 1968
Elevation - 2800'

Lotion made by steeping entire plant is used on sprains. An esteemed pasturage plant.

66

F conevar del monte

Moris, Chihuahua, June, 1968
Elevation - 2800'

A pasturage plant.

67

F quelite chino

Moris, Chihuahua, June, 1968
Elevation - 2800'

An important quelite.

68

F [name misplaced]

Moris, Chihuahua, June, 1968
Elevation - 2800'

An excellent pastura plant.

69

[name misplaced]

Moris, Chihuahua, June, 1968
Elevation - 2800'

Pasturage plant.

POLYGONACEAE

70

F [name misplaced] Polygonum lapathifolium

Moris, Chihuahua, June, 1968
Elevation - 2800'

Medicinal tea prepared by boiling plant taken for catarrh.

71

F **sauco** Sambucus mexicana

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Flowers are cooked in a decoction taken for fever and stomach disorders

72

táscate Juniperus osteosperma

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Berries are eaten crudo. Branches are burned and ill person stands nearby so that smoke may be blown toward him. Patient is covered by a blanket. Medicinal tea prepared from "cooking" branches is taken for fever.

73

F **agritos**

Maicoba, Sonora, June, 1968
Elevation - 5,000'

An esteemed quelite.

74

F [name misplaced]

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Medicinal tea prepared by boiling entire plant - tea taken for fever.

ONAGRACEAE

75

F [name misplaced] — Oenothera rosea

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Pasturage plant.

ANACARDIACEAE

77a

yedra — Rhus diversiloba

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Has white flower. Cook as a tea and use the infusion as a medicine for fever.

77b

F inmortal

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Tea made from leaves is taken for cough. Chew fresh leaves to facilitate removal of phlegm from throat.

COMPOSITAE

78

F yerba del pasmo — Baccharis Emoryi

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Cook entire plant, grind up and use as a poultice on wounds.

79 COMPOSITAE

F margarita del campo Erigeron delphinifolius

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Pasturage plant.

82

madroño

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Berries are collected and eaten.

83

manzanilla

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Berries are eaten. Tea made from leaves taken for dysentary.

84 VITACEAE

F uva cimmarón Vitis girdiana

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Grapes eaten in August.

85

F vinorama de sierra

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Flowers are placed upon head and held there with rag to cure headache. Manteca may be mixed with the flowers.

86 ROSACEAE

capulín Prunus Fremontii

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Fruits eaten in August. Sometimes the plant does not bear.

87 LEGUMINSAE

algarroba — Acacia sp. af. pennatula

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Has yellow flowers. Roots are mashed and put in water for killing fish.

88 RHAMNACEAE

junco — Condalia sp. af. Brandegeei

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Medicinal tea made from the plant; tea taken as a refreshing drink at times.

90

orégano

Maicoba, Sonora, June, 1968
Elevation - 5,000'

condiment.

91 LILIACEAE

sotol — Dasylirion Wheeleri

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Basket and hats made from leaves. Stalks are baked and eaten. Sotol (drink) made by mestozos from plant crown or heart.

92

F alamillo

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Wood used for making bateas, cucharas. Tea made from bark or leaves to encourage parto.

93

iguaciki

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Fruits are eaten.

94

sabino — Juniperus californica

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Leña and general timber use.

95 SILACACEAE

F saúz — Salix laevigata

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Baskets made from branches.

97

contra yerba — Poinsettia heterophylla

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Root used for making a tea taken for fever.

98

vara de Señor San José — Althaea rosea

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Tea made from leaves taken for cough. [Isn't this a domesticated plant?]

JUGLANDACEAE

99

nogal — Juglans major

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Nuts are eaten. Tonic made from leaves claimed to enrich the blood.

100

F ruda — Ruta graveolens

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Tea made from plant taken to relieve gas on stomach.

101

sabino — Juniperus monosperma

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Timber used for leña and posts. Seeds sometimes used as necklace.

102

naranjo de amor

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Seeds are used for making necklaces.

103

yerba buena

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Medicinal tea made from entire plant taken by children troubled with coughing.

ANACARDIACEAE

108

yegra (Pima - tumba) — Rhus trilobata var. anisophylla

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Leaves are crushed and placed upon sores or pimples. Plant has a yellow flower.

POLYGONACEAE

109

lengua de vaca (Pima - nuñar) — Rumex sp.

Maicoba, Sonora, June, 1968
Elevation - 5,000'

A favorite quelite when boiled and salted.

110

aguaciki; capulín (Pima - humpail) _____

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Fruits are eaten. Leaves are mashed and placed upon cuts.

111

papache borracho (Pima - nananha) _____

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Fruits are very sweet and when consumed in quantity the consumer gets drunk.

ANACARDIACEAE

112

F yedra (Pima - tumba) — Rhus radicans

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Leaves used in preparation of a tea taken to relieve fever.

113

toloache

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Leaves crushed and placed on wounds.

114

yerba buena

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Tea made from leaves taken for cold.

117

saraviki (Pima-topokoje)

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Roots and leaves are decoted into a potion taken for fever.

LEGUMINOSAE

118

ohilicote — Erythrina flabelliformis

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Leaves are mixed with masa and the mixture put in troje to kill rats.

LEGUMINOSAE

119

palo dulce (Pima - sagka) — Eysenhardtia orthocarpa

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Tea made from leaves is taken to "enrich" blood.

120

F gatuña

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Tea made from leaves and stems is used as a lotion applied to scorpion wounds on animals or humans.

122

capulín (Pima - moskoom)

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Fruits eaten by people. Tea made from leaves taken for fever.

123

magallito (Pima - utkudi) (spelling ?)

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Tea made from leaves taken for fever.

125

madroño

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Fruits eaten. Bateas and sucharas made from wood.

129 [junco ?] RHAMNACEAE Condalia sp. af. Brandegeei

junque

Maicoba, Sonora, June, 1968
Elevation - 5,000'

Medicinal tea made from leaves is drunk as a stimulant.

130 COMPOSITAE Carminatia tenuiflora

F manzanilla del campo

Maicoba, Sonora, June, 1968
Elevation - 5,000'

A refreshing tea made from entire plant - an infusion.

131 COMPOSITAE Dahlia sp.

dalea del campo (Pima - bargam)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Roots eaten crudo. Considered a camote silvestre.

132

F ruda — Ruta graveolens

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant taken for stomach disorders.

134

nogalito — LEGUMINOSAE Cologania sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Roots and leaves used in preparing a refreshing tea.

135

yerba de liebre — ZYGOPHYLLACEAE Guaiacum Coulteri

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant is excellent for stomach disorders. Root is used.

136

durasnillo — LEGUMINOSAE Acacia angustissima

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant is mixed with mescal or tequilla and taken for cold.

137

ipazote — CHENOPODICEAE Chenopodium ambrosioides

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Leaves serve as a quelite and as a condiment.

COMPOSITAE

138

lengua de buey — Senecio sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Leaves used in preparing a poultice applied to wounds.

139

ohíoura — Xanthium sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea prepared from plant - to cure stomach disorders.

140

palo de okal (spelling ?)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant is taken to reduce fever.

141

Yerba redonda (Pima - šiškil)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Remedy for teeth prepared from plant - mash entire plant and place as a poultice upon gums.

142

vara — Xanthium strumarium

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Apply mashed leaves and roots to wounds on animals.

LEGUMINOSAE

143

tuama (Pima - tonjig) — *Crotalaria* sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea prepared from plant taken for fever.

144

F [name misplaced]

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea prepared from plant is taken for urinary difficulties.

145

flor de piedra

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Leaves are used as a poultice applied to wounds on humans.

146

F contra yerba (Pima - tupur)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant is taken for stomach disorders.

147

F maguellito (Pima - utkim)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Cook crown in hole in ground - as the large magueys. Used also as a fish stupefaction agent.

148

[name misplaced]

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea prepared from plant taken for stomach disorders.

149 ONAGRACEAE

okaliti (Pima - inkwal) Oenothera sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea prepared from plant is taken for stomach disorders.

150

coronilla (Pima - kokovi)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

A medicinal tea made from plant is taken to relieve lung congestion.

151 UMBELLIFERAE

yerba del sapo (Pima - kwali) Eryngium sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for fever.

152 GERANIACEAE

yerba colorada Geranium sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from entire plant is taken as a tonic to improve blood and to relieve stomach disorders.

153

coronillo

Maicoba, Sonora, July, 1968
Elevation - 5,000'

A medicinal tea made from plant is taken to relieve lung congestion.

154

otatillo (Pima - totkam)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea taken to relieve kidney disorders. Tea used as lotion on wounds.

155

VITACEAE

uva cimarrona

Vitis girdiana

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Fruits are eaten

156

peonia (Pima - maimatkam)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Roots used in preparation of a tea taken for stomach disorders.

157

escorzonera

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea prepared from plant is taken for kidney disorders and pains in the back.

158

matarique

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea taken for stomach disorders prepared from this plant.

159

bavisa

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for stomach disorders.

LORANTHACEAE

160

tohi de encino — Phoradendron villosum

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Fruits of this parasite eaten in April, May, June.

161

F inmortal

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from entire plant is taken for stomach disorders and to reduce fever.

166

F mirto

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea prepared from plant is taken for stomach disorders.

COMPOSITAE

167

Tagetes lucida

F yerbanis

Maicoba, Sonora, July, 1968
Elevation -5,000'

Tea made from this plant taken for fever.

168

F [name misplaced]

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for stomach disorders.

RHAMNACEAE

169

F peonía (Pima - maitmatkam) Condalia sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea from entire plant is taken for stomach disorders.

LEGUMINOSAE

F 170

yerba del pescado (Pima - vahtop) Tephrosia Palmeri

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Mash entire plant and use as a fish stupefaction agent.

COMPOSITAE

171

F manzanilla del río (Pima - saka) Gnaphalium chilense

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant good for colic. Tea used as a lotion on boils on humans - said to cure in 8-9 days.

172

F inmortal (Pima - tupil)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Use root in preparation of a poultice applied to head for headache. Tea made from plant is taken to relieve stomach pains.

173

contra yerba Poinsettia heterophylla

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken to "cure a cold."

174

saraviki (Pima - topohug)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Root of this plant considered a camote and is eaten in April and May. Cook in ashes.

COMPOSITAE

176

Artemisa sp.

F artemisa

Maicoba, Sonora, July, 1968
Elevation - 5,000'

A refreshing tea is made from this plant

177

F tomatillo (Pima - tutkuil)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Found on a trash heap near house of Juan Gonzales. Fruits are eaten.

LEGUMINOSAE

178

F yerba del pescado (Pima - vahtop) Tephrosia Palmeri

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Fish stupefaction agent (same as 170 ?)

POLYGONACEAE

179

Polygonum lapathifolium

carricito

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from stems of this plant found along the river - claimed to be a "refreshing tea."

LEGUMINOSAE

180

purga — Desmodium sp

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Root is used in preparing a purgative claimed to be the most important purga used by Pima in high country.

181

CHENOPODIACEAE

chual (Pima - tukgai) — Chenopodium arizonicum

Maicoba, Sonora, July, 1968
Elevation - 5,000'

An esteemed quelite, when boiled and salted.

182

F papa camarrón

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Pigs eat the root of this wild potato-like plant.

183

AMARYLLIDACEAE

F cebollín (Pima - sak) — Hymenocallis sonorensis

Maicoba, Sonora, July, 1968
Elevation - 5,000'

A wild onion that grows in numbers near Maicobita. Leaves used as poultice for wounds.

184

F maravilla

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Leaves used as poultice on wounds.

185 CURCURBITACEAE

F calabacillo Cucurbita sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Fruits of this wild calabacillo are used as balls by children in games.

186 SALICACEAE

F tarais (Pima - tuil) Salix taxifolia

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Wood of this floodplain tree used as leña. Leaves used in preparing a lotion applied to sores.

187

chayote

Maicoba, Sonora, July, 1968
Elevation - 5,000'

A domesticated plant.

188

F yerba del higado (Pima - mumu-or)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Branches used in preparing a tea taken to cure liver disorders.

189 LEGUMINOSAE

F yerba loca; loca Lupinus condinnus

Maicoba, Sonora, July, 1968
Elevation - 5,000'

When animals eat this plant they die. Leaves used as "lotion" applied to sores.

190

COMPOSITAE

coronilla — Senecio sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

An excellent cure for lung congestion when leaves used in preparing a tea.

191

ROSACEAE

yerba colorado — Potentilla sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Root used in preparing a tea taken for stomach disorders and for "throat disorders."

192

F cordoníz

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Quail known to frequent places where this plant grows.... hence seek quail where plant grows.

193

LEGUMINOSAE

yerba de la víbora — Zornia reticulata

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from entire plant is taken to reduce fever and to relieve a cough.

194

bavisa

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Root used in preparing a tea taken to relieve colic in children.

195

yerba del piojo (Pima - a-at makam)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Mash entire plant and apply to piojos.

196

CHENOPODIACEAE

F ipazote — Chenopodium ambrosioides

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Used as a quelite and as a condiment in beans.

197

F chichiquelite

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Mash plant in preparing a lotion applied to back pains.

198

MALVACEAE

malva — Malva neglecta

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Prepare a tea from entire plant and take for stomach pains.

199

F alcamphorina — Achillea millifolium

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Take a tiny bit of the plant, mash, add to grease and apply to ear for earache.

200 LEGUMINOSAE

matariqui — Eysenhardtia orthocarpa

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant is good for stomach pains, pulmonía and is used as a lotion for bruises.

202 LEGUMINOSAE

F pastura — Indigofera suffruticosa

Maicoba, Sonora, July, 1968
Elevation - 5,000'

An excellent pasturage plant.

203

canawala (Pima - soš)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant taken for severe coughing spells.

204 LORANTHACEAE

tohi de pina (Pima - hara juil) — Phoradendron villosum

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Fruits of this parasite eaten by humans.

205

orégano (Pima - tu-ukum)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Condiment in beans and on meat.

206

oreja del ratón (Pima - vosum na-aka)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Lotion prepared from this plant applied to cuts.

207

F yerba de la muela

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Chew root for tooth trouble.

208

sandia de coyote

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Fruits are eaten. Tea made from plant and drunk for cough after "sitting" for a day - the tea I mean!

209

lebadura; yerba de la calentura

Maicoba, Sonora, July, 1968
Elevation - 5,000'

All of plant added to tesgüino to make it ferment quickly. Tea made from plant taken for fever and cough. Has a white flower.

210

F tianguis (Pima - Supuil)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Leaves and roots eaten when children have measles; tea made from leaves and roots taken for urinary difficulties.

211

estafiate (Pima - moša) — Ambrosia sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea made from plant taken for stomach disorders.

212

F gacate bolita

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea prepared from plant taken for stomach disorders.
Animals (pigs) eat the roots.

213 — MOROCEAE

mora — Morus microphylla

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Fruits eaten. Arrows once made from wood.

214 — OXALIDACEAE

F cañira del campo — Oxalis amplifolia

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Quail eat the plant - so seek quail where plant grows.
Medicinal tea made from plant - taken for stomach disorders.

215 — VERBENACEAE

F pastura — Verbena carolina

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Excellent pasturage plant. Medicinal tea taken to cure headache made from plant.

216

batamote (Pima - vášam)

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Cook entire plant in preparing a tea taken for espanto (fright). Baskets once made from plant.

217

COMPOSITAE

Tagetes sp.

pastura

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Pasturage plant.

218

pastura

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Pasturage plant.

219

canawala

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea taken for cough prepared from this plant.

220

LEGUMINOSAE

Erythrina flabelliformis

chilicote

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Toast seeds for use in preparing a "coffee." Make a tea from the seeds and leaves and take for stomach disorders.

221

oanawala

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for cough.

221a COMPOSITAE

F manzanilla del río Gnaphalium sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for stomach disorders.

222 COMPOSITAE

F pastura Erigeron divergens

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Lotion made from boiling leaves applied to wounds. An excellent pasturage plant.

223

poléo

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for stomach problems.

224 EUPHORBIACEAE

[cacalosuche]

F cacalosuche Manihot isoloba

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for headache.

225

F yerba del pasmo

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Cook entire plant in preparing a lotion for wounds.

226

F cordincillo

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for colds & fever. Mix with mescal.

227

F pastura

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for fever. An excellent pasturage plant.

228

OXALIDACEAE
Oxalis stricta L

F agrio

Maicoba, Sonora, July, 1968
Elevation - 5,000'

An esteemed quelite.

229

F matariqui

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken to relieve congestion when person has cold. Use root and flower. Also a fish stupefaction agent.

230

kiki

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Root used in preparing a glue used in making rattles.

231

F chichiguelite

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Tea for colds and fever made from this plant.

232

avena del campo

Maicoba, Sonora, July, 1968
Elevation - 5,000'

excellent pasturage plant.

COMPOSITAE

233

San Paulilla — Tagetes sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Prepare a tea taken for colds from this plant...mix with mescal.

LEGUMINOSAE

234

F frijolillo — Galactia sp.

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Prepare a tea from this plant taken for colds. Excellent browse plant.

235

lirio del campo

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Lotion made from plant used to cure backache.

236

teposana

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Root is used in making a tea taken for kidney disorders.

237

F yerba zorilla

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Medicinal tea made from plant taken for stomach pains.

238

BEGONIACEAE
Begonia sp.

cañiro

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Use for "cleaning teeth."

239

COMPOSITAE
Vernonia sp.

F pastura

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Pasturage plant.

240

matariqui
yerba del pescado

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Fish stupefaction agent.

241

F saraviki

Maicoba, Sonora, July, 1968
Elevation - 5,000'

Root cooked in ashes and eaten as a papa.

F 242 LEGUMINOSAE

[no name] Lupinus sp.

On road from Durango to Mazatlán.
Elevation about 7,000'

F 243 LEGUMINOSAE

[no name] Lupinus sp.

On road from Durango to Mazatlán
Elevation about 7,000'

244 AMARYLLIDACEAE

F lirio Hymenocallis sonorensis

Onavas, Sonora, August, 1968
Elevation - 550'

Entire plant is used in preparing a lotion applied to wounds.

246

pintapan Bogenhardia crispa

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant.

248

guamúchil (Pima - maksan)

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten in May.

248a

granadilla (Pima - sidu)

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten in July. Root used in making a tea taken to cure hemorrhoids.

249

F conivari - Pima - suspinda)

Onavas, Sonora, August, 1968
Elevation - 550'

Seeds used in preparing a refreshing drink - soak.

250

chícura

Onavas, Sonora, August, 1968
Elevation -550'

Make a tea from plant for headaches and stomach disorders.

251

LEGUMINOSAE
Prosopis juliflora

mesquite (Pima - kui)

Onavas, Sonora, August, 1968
Elevation - 550'

Beans crushed and dried and added to atole. Bark soaked for about two days and used as a purgative - add to warm water.

252

LEGUMINOSAE
Acacia sp.

chirawi (Pima - kuduri)

Onavas, Sonora, August, 1968
Elevation - 550'

Tea made from plant taken to make kidneys "act."

253

garumbullo (Pima - kwavor) — Cletis pallida

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten in July.

254 — MALVACEAE

pintapan — Abutilon sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Root used in making a tea taken for dysentary. Tea made from roots and leaves taken to relieve venered disease discomfort.

255

F San Miguelito — Antigonon leptopus

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves dried and smoked in cornhusks as tobacco.

256 — AMARANTHACEAE

yerba de las animas — Tidestroemia lanuginosa

Onavas, Sonora, August, 1968
Elevation - 550'

Tea made from plant taken for dolor del estomago.

257

mala mujer (Pima - pada oks)

Onavas, Sonora, August, 1968
Elevation - 550'

Small bolitas are used to turn milk when making cheese.

258

cordoncillo

Onavas, Sonora, August, 1968
Elevation - 550'

A refreshing tea is made from leaves.

259

hedondilla

Onavas, Sonora, August, 1968
Elevation - 550'

For tooth problems - scrape the plant, mix with manteca and place on aching gums.

260

toloache

Onavas, Sonora, August, 1968
Elevation - 550'

Long ago, according to informant, the seeds were put in tesgüino to make people drunk.

261

palo fierro (Pima - hoitkam)

Onavas, Sonora, August, 1968
Elevation - 550'

Small fruits are toasted and used in making pinole.

262

batanini (Pima - bibiogam)

Onavas, Sonora, August, 1968
Elevation - 550'

Small leaves are crushed and placed in ear for earache.

263

balchata (Pima - duwuspudu) _____

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten crudo in May; fruits are added to atole.

264 SOLANACEAE

F cornetón (Pima - sausuwam) Nicotiana glauca _____

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves are used as poultice on head for headache.

265

RHAMNACEAE

tulledor (spelling ?) Karwinskia sp. _____

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten in small amounts. Too much eating of this fruit claimed to be harmful. One child at Onavas said to have been paralyzed from eating too much of the fruit, another child claimed to have died during past year from over eating of fruit.

266

rama pegosa (Pima - sadamsai) _____

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves used as poultice for headache.

LEGUMINOSAE

267

F flor de la chiva Cassia biflora _____

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant.

268

F yerba del oso

Onavas, Sonora, August, 1968
Elevation - 550'

Medicinal tea prepared from plant taken for headache and stomach disorders.

269

SALICACEAE
Salix Bonplandiana

yerba de la flecha

Onavas, Sonora, August, 1968
Elevation - 550'

"Milk" from plant used as lotion on sores. Antes, was used as arrow poison.

270

F chicayote (Pima - hadrat)

Onavas, Sonora, August, 1968
Elevation - 550'

This yellow flowered plant supplies a fruit used as soap when green.

271

tepajeta (spelling ?) del monte

Onavas, Sonora, August, 1968
Elevation - 550'

Plant used as soap. Soak the plant with clothes for several hours.

272

sita varo

Onavas, Sonora, August, 1968
Elevation - 550'

Ornamental plant in church.

273 LEGUMINOSAE

brea (Pima - tudogus) Acacia sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Tea made from plant is taken to cure interior wounds caused by falls.

274

malva

Onavas, Sonora, August, 1968
Elevation - 550'

Plant used in preparing a purgative - make a tea by steeping the leaves. May be used as enema with equipment borrowed from mestizos.

275 LEGUMINOSAE

café cimarrón Cassia sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits are toasted and used in making a coffee.

276

papache borracho (Pima - sa-woo-os) Schaefferia cuneifolia

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten in July. Plant has white flower.

277 VERBENACEAE

F confituria [confiturilla] Lantana horrida

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten.
Entire plant is boiled and used as a wash for wounds.

278

palo colorado (Pima - swuk-uš) _____

Onavas, Sonora, August, 1968
Elevation - 550'

Wood used for posts in houses.

279

mauto (Pima-mawu) Desmanthus sp. _____

Onavas, Sonora, August, 1968
Elevation - 550'

Wood used for posts in houses. Bark used for tanning.

280

granadilla cimarróna _____

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant.

281

F ohual (su-awa - Pima) _____

Onavas, Sonora, August, 1968
Elevation - 550'

Quelite when boiled and salted.

282

ohiouria _____

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant.

283

torote prieto (Pima - kopitkam) _____

Onavas, Sonora, August, 1968
Elevation - 550'

Medicinal tea made from leaves, taken for cough.

284

torote papillito blanco (Pima - va-as)

Onavas, Sonora, August, 1968
Elevation - 550'

Tiny leaves are mashed and placed in eys for mal de ojo (pink eye ?).

285

gatillo (Pima-sú-tum)

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant.

286

guayacán (Pima - isvakondam)

Onavas, Sonora, August, 1968
Elevation - 550'

Deer eat fruit. Chivas eat fruit. Tea made from heart of tree taken for lung disorders. Leaves serve as soap.

287 LEGUMINOSAE

F brazil (Pima - hu-swup-gu-us) Haematoxylon brasiletto

Onavas, Sonora, August, 1968
Elevation - 550'

Boil interior of tree and use water as lotion on small boys when sick. Make refreshing tea from leaves. Antes, lances made from wood to kill peccary. Used for arrows also.

288

samota (Pima - us-abdag)

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant. Gum from bark eaten for stomach disorders.

289

guajavia (spelling ?)

Onavas, Sonora, August, 1968
Elevation - 550'

Posts for houses made from trunks of this tree.

290

palo blanco (Pima - to-a)

Onavas, Sonora, August, 1968
Elevation - 550'

Posts for houses made from tree trunks. Leaves used for "packing" cheese.

291

salvia

Onavas, Sonora, August, 1968
Elevation - 550'

Tea made from leaves taken to inhibit urine passage, to stop "coughing." Also used as a lotion on wounds.

292 TURNERACEAE

damiana Turnera diffusa

Onavas, Sonora, August, 1968
Elevation - 550'

When women cannot conceive they drink a tea made from leaves of this plant.

293 LEGUMINOSAE

guajava Piscidia mollis

Onavas, Sonora, August, 1968
Elevation - 550'

A garden plant. Fruits are eaten.

Fish stupefaction plant.

294

yerba del manso

Onavas, Sonora, August, 1968
Elevation - 550'

Make a tea from this plant..take to relieve pasmo (spasms).

295

igualama

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits are eaten. Roots are used in making a tea taken for menstruation pains.

296

F coronel del señor

Onavas, Sonora, August, 1968
Elevation - 550'

Ornamental plant - use flowers in church.

297

Proboscidia arenaria

F cuerno

Onavas, Sonora, August, 1968
Elevation - 550'

Seeds eaten by children

298

copalquin (Pima - sibu-oos)

Onavas, Sonora, August, 1968
Elevation - 550'

Tea made from bark taken for fever and to enrich the blood.

299 LEGUMINOSAE

F tavachin Caesalpinia pulcherrima

Onavas, Sonora, August, 1968
Elevation - 550'

Seeds are eaten. Roots used as poultice on wounds. Root used in making a "gargle."

300

tepeguaje

Onavas, Sonora, August, 1968
Elevation - 550'

Bark used for toothache - mash and place on "bad teeth." Mash bark, mix with sugar and put in "sore eyes." Soak bark in water for making a very strong purgative.

301

guasima

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten. Bark used in preparing a tea taken for kidney disorders. Wood for chairs.

LEGUMINOSAE

302

palo verde Cercidium floridum

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage"plant." Medicinal tea made from leaves taken for fever.

303

matoro (Pima - studugus)

Onavas, Sonora, August, 1968
Elevation - 550'

Use entire plant for making a tea that is drunk for snake bites and used as a lotion on bite wounds.

304 FOUQUIERIACEAE

torote prieto — Fouquieria sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten as food. Fruits also said to be good for cough.
Bark used for "soap"

305 LEGUMINOSAEE

F ojasin (spelling ?) — Cassia Covesii

Onavas, Sonora, August, 1968
Elevation - 550'

Flowers are used in preparing a tea taken as a purgative.
Roots are used in making a tea taken at childbirth.

306

ocotillo (Pima - nur-iog)

Onavas, Sonora, August, 1968
Elevation - 550'

Cook bark and use lotion to wash hair. Makes the hair long.

307

maíz del monte

Onavas, Sonora, August, 1968
Elevation - 550'

Pastura.

308

palo de asta (Pima - tupu dasidug)

Onavas, Sonora, August, 1968
Elevation - 550'

Axe handles made from wood.

309 KRAMERIACEAE

cosawi (spelling ?) Krameria parvifolia

Onavas, Sonora, August, 1968
Elevation - 550'

Tea made from plant taken as a refreshing drink.

310

F corono del muerto

Onavas, Sonora, August, 1968
Elevation - 550'

Lotion made from plant put on aching limbs.

311

F melon de coyote

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten.

312

verbena

Onavas, Sonora, August, 1968
Elevation - 550'

Quelite when boiled and salted.

313

adolorita

Onavas, Sonora, August, 1968
Elevation - 550'

Tiny roots used in making a purgative - taken as a tea.

314

F [name misplaced]

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant.

315 BURSERACEAE

torote blanco (Pima - totokopitkam) Bursera confusa

Onavas, Sonora, August 5, 1968
Elevation - 550'

Fruits eaten for cough.

316

palo dulce

Onavas, Sonora, August, 1968
Elevation - 550'

Fence posts, house posts, leña, bark used in preparing a lotion put on sick chickens and rubbed on people with fever.

317 RHAMNACEAE

cacachile Karwinskia parvifolia

Onavas, Sonora, August, 1968
Elevation - 550'

Very dangerous when children eat the fruit - as they sometimes do - claimed that children are paralyzed.

318

palo piojo

Onavas, Sonora, August, 1968 (Pima - a-at-muhatkam)
Elevation - 550'

Use bark in making a lotion to kill piojos

319 LEGUMINOSAE

chilicote (Pima - bawi) Erythrina flabelliformis

Onavas, Sonora, August, 1968
Elevation - 550'

Wood very light and used in making crude "raft" for crossing river. Used for making masks.

320

palo santo

Onavas, Sonora, August, 1968
Elevation - 550'

Gum from the tree used as "poultice" on [illegible].
Pasturage plant also.

321

amapa (Pima - hadumig)

Onavas, Sonora, August, 1968
Elevation - 550'

Posts for dwellings.

322

pochote

Onavas, Sonora, August, 1968
Elevation - 550'

Use "cotton" for pillows, for mattresses.

323

EUPHORBIACEAE

algodoncillo — Manihot chlorosticta

Onavas, Sonora, August, 1968
Elevation - 550'

[Data misplaced]

324

saya (Pima - sa-ad)

Onavas, Sonora, August, 1968
Elevation - 550'

Roots and bolitas eaten when cooked.

325

palo blanco

Onavas, Sonora, August, 1968
Elevation - 550'

Pastura.

326

F yara prieto (Pima - ar-maf)

Onavas, Sonora, August, 1968
Elevation - 550'

Posts for houses. Beams for houses.

327

sacakulo (Spelling ?)
(Pima - aʔhipigdam)

Onavas, Sonora, August, 1968
Elevation - 550'

Birds eat the fruits - hence, easy to kill certain birds for food.

328 [cacalosuchi]

APOCYNACEAE

Plumeria acutifolia

cascolosuche

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves used in preparing a lotion applied to wounds.

329

tescalama (Pima - vokulidak)

Onavas, Sonora, August, 1968
Elevation - 550'

Milk from bark used as a lotion applied to rheumatism.

ZYGOPHYLLACEAE

330

Kallstroemia grandiflora

F yerba del haurir (Pima-kidmur)

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant.

331

F Juan anitili (spelling ?)

Onavas, Sonora, August, 1968
Elevation - 550'

Cook leaf dry leaves - use in making a tea taken to relieve discomfort from sarampion.

332

F bledo (Pima - turgia)

Onavas, Sonora, August, 1968
Elevation - 550'

Quelite, when boiled and salted.

333

yerba del cancer

Onavas, Sonora, August, 1968
Elevation - 550'

Wash leaves and use in making a poultice (with grease) applied to wounds.

COMPOSITAE

334

Cacalia decomposita

quelite

Onavas, Sonora, August, 1968
Elevation - 550'

Quelite for humans. Also for pigs. Grows muchly near river and saw many women cutting with machete and bringing great bundles to pigs.

335

F yerba de la lisa (Pima - tuhobdat)

Onavas, Sonora, August, 1968
Elevation - 550'

Used to kill fish...soak for several days - throw in quiet pool of water.

336

guesnatos

Onavas, Sonora, August, 1968
Elevation - 550'

Seeds used in polishing cilas.

337

F sauco — Sambucus mexicana

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves used in preparing a lotion used to bathe women at childbirth.

338 — SALICACEAE

alamo — Populus Fremontii

Onavas, Sonora, August, 1968
Elevation - 550'

Wood used for making bateas and canoas.

339 — VERBENACEAE

F confituria — Lantana horrida

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits are eaten. Wash made from plant applied to wounds.

340

higuerilla — Ricinus communis

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves used as poultice on wounds. Leaves placed on head for headache. Bolitas used in tanning leather.

341 SALICACEAE

sauz (Pima - tu-u-ur) Salix Goodingii

Onavas, Sonora, August, 1968
Elevation - 550'

Tea made from bark taken as a refreshing drink.

342

F mirasol Helianthus annuus

Onavas, Sonora, August, 1968
Elevation - 550'

Ornamental flower in church.

343 LEGUMINOSAE

santipus Phaseolus sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Seeds used in rattles. Seeds used in poultice made with grease and applied to sore eyes.

344 LEGUMINOSAE

guacapor Parkinsonia aculeata

Onavas, Sonora, August, 1968
Elevation - 550'

Pasturage plant. Seeds are eaten by humans.

345

yerba de la golondrina

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves are crushed and placed upon scorpion and ant bites.

346

jaccta

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves are used in making a poultice to kill piojos. Leaves used in preparing a lotion applied to allergy inflammations.

347 STERCULIACEAE

F malva Melochia speciosa

Onavas, Sonora, August, 1968
Elevation - 550'

Leaves used in making a lotion used to make hair "pretty."

348

corcho

Onavas, Sonora, August, 1968
Elevation - 550'

Used for making stoppers for gourd canteens.

349 LEGUMINOSAE

F hojasin Cassia Covesii

Onavas, Sonora, August, 1968
Elevation - 550'

Make tea from plant and take for stomach pains.

351 CUCURBITACEAE

melon de coyote Cucurbita sp.

Onavas, Sonora, August, 1968
Elevation - 550'

Fruits eaten.

352

FOUQUIERIACEAE

F ocotillo (Pima - nuriog) — Fouqueria Macdougalii

Onavas, Sonora, August, 1968
Elevation - 550'

Material used for fencing and in making houses.

353

LEGUMINOSAE

F añil — Indigofera suffruticosa

Onavas, Sonora, August, 1968
Elevation - 550'

A dye plant. Use both flowers and leaves in making a blue-black dye for tinting basket materials.

354

LEGUMINOSAE

F brazil — Haematoxylon brasiletto

Onavas, Sonora, August, 1968
Elevation - 550'

Use flowers and scrapings from bark in making a dye. Wood used for making implements.

Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

1 trompillo del monte
Onavas, Sonora
July 10, 1969

Convolvulaceae (102)

Merremia aurea

Animals eat the leaves of this climbing vine.

2 palo blanco
(toa - Pima)
Onavas, Sonora
July 10, 1969

Leguminosae (50)

Piscidia mollis

Source of firewood.
Bark used in preparing a lotion applied to remove fleas from animals or humans.
Bark used in stupefying fish.
Wood used in construction (house & roof supports)

3 guacapori
(obaligam - Pima)
Onavas, Sonora
July 10, 1969

Leguminosae (50)

Parkinsonia aculeata

Seeds eaten by humans

4 yerba de la lisa
Onavas, Sonora
July 10, 1969

Euphorbiaceae (60)

Croton texensis

Apparently, the most important pisicide used at Onavas.
Grows rankly near Rancho Santana and Tortuga

palo Juan
Onavas, Sonora
July 14, 1969

Solanaceae (108)

Leaves applied during flowering time to any portion of body in pain.
Said to be poisonous for stock.

Nicotiana glauca

---

6 tonokói - Pima
Onavas, Sonora
July 14, 1969

Hydrophyllaceae (104)

Occasionally eaten by stock, that is, when little else available in the pasture area.

Phacelia cryptantha

---

7 cacalosúchil
(vidam - Pima)
July 14, 1969

Apocynaceae (100)

Plumeria acutifolia

Leaves are used in preparing a lotion applied to wounds.

---

8 palo prieto
Onavas, Sonora
July 14, 1969

Leguminosae (50)

Wood used in preparing small stools, upon which reed mats (beds) are placed.

Pithecellobium undulatum

---

9 amolito espinoso
(huupušk - Pima)
Onavas, Sonora
July 14, 1969

Bromeliaceae (15)

Plant grows on rocky slopes of El Cajón Canyon.
Red flower - or pinkish.
Cows eat the soft portions of the leaves.
Claimed to be a piscide.

Hechtia montana

---

10 cabeza de viejo
(urimo-o - Pima)
Onavas, Sonora
July 14, 1969

Cactaceae (83)

Mammillaria Sheldonii

The tiny bolitas are eaten in December.
Toast the entire plant and squeeze juice out for use in alleviating headache.

---

11 melón de coyote
Onavas, Sonora
July 14, 1969

Cucurbitaceae (119)

Schizocarpum palmeri

Fruits of this plant are very bitter but are eaten.
A medicinal tea for stomach disorders is prepared from the young plant (July-August)

H.C. Apodanthera undulata

---

12 palo piojo
Onavas, Sonora
July 14, 1969

Leguminosae (50)

Harpalyce arborescens

Bark used in preparing a lotion applied to kill fleas.
The bark is boiled.

---

13 guayacan
(us vakuandam - Pima)
Onavas, Sonora
July 14, 1969

Zygophyllaceae (54)

Fruits are eaten by goats and deer
Posts for corrals fashioned from the wood.

H.C. Guaiacum Coulteri

14 salvia
Onavas, Sonora
July 14, 1969

Labiatae (107)

Salvia sp

Pasturage plant.
Decoction taken for cough - made from leaves.
Flowers placed in ear to alleviate ~~headache~~ earache.

---

15 pochote
(toks - Pima)
Onavas, Sonora
July 14, 1969

59

"Cotton" used in making pillows.
Chew the roots when working in the woods and lacking water.

Hippocastanaceae
[where does this belong ?]

Aesculus Parryi

---

16 palo colorado
(svug us - Pima)
Onavas, Sonora
[near La Dura]
July 19, 1969

60

Wood used for beams & posts.

Leguminosae (50)

Caesalpinia pumila

---

17 papache borracho
(sawus - Pima)
Onavas, Sonora
[near La Dura]
July 19, 1969

38

Fruits are eaten.

Rubiaceae (116)

Randia obcordata

---

18 hojasin
(Onavas, Sonora)
[near La Dura]
July 19, 1969

84

A medicinal tea is prepared from entire plant and taken by pregnant women. Also serves as a tea for stomach disorders.

Leguminosae (50)

Cassia Covesii

---

19 laurel de Castilla
Onavas, Sonora
[near La Dura]
July 19, 1969

51

Grows profusely in arroys and is claimed to be poisonous when eaten by animals.

Apocynaceae (100)

Stemmadenia insignis

---

20 papache, papachón
Río Chico, Sonora
[near La Dura & Onavas, Sonora]

Fruits are eaten.

Rubiaceae (116)

Randia echinocarpa

---

21 San Miguellito
Río Chico, Sonora
[near La Dura & Onavas, Sonora]

The pink flowers are used as altar adornment in church.

[NOTE: This is what I have always known in Texas as "Queen's crown" ...is it an introduced plant--to the New World, or what?]

Polygonaceae (31)

Antigonon leptopus

---

22 guíonche
Río Chico, Sonora
[near La Dura and Onavas, Sonora]

Formerly, the hard wood was used in making whorls (used in making thread)

Leguminosae (50)

Diphysa suberosa

---

23 granadilla
Onavas, Sonora
July 24, 1969

Fruits are eaten.
Prepare also a dulce (like a sweet sweet jelly) when many fruits are available.

NOTE; Everyone was eating these fruits in July---and nearly everyone complained of the "shits" and wanted remedios!

Malpighiaceae (58)

Malpighia umbellata

---

24 guayavivo
Onavas, Sonora
July 24, 1969

Antes, the wood was used for beams. Now, the tree serves only as source of leaves for domestic

Leguminosae (50)

Acacia millefolia

---

25 cuernitos
Onavas, Sonora
July 25, 1969

(38)

Tiny bolitas are eaten by the children.

Martyniaceae (111)

Proboscidea sinaloensis

26 copalquín
Onavas, Sonora
July 29, 1969

(52)

Bark used in preparing incense

Rubiaceae (116)

Hintonia latiflora

27 tavachín
Onavas, Sonora
August 8, 1969

(38)

Tiny ejotes are eaten by humans.

Leguminosae (50)

Caesalpinia pulcherrima

28 gatuña
Onavas, Sonora
August 8, 1969

(51) (54)

Pasturage plant.
Lotion made with flowers applied to wounds.
Claimed also to be valuable for the "clap"

Leguminosae (50)

Mimosa laxiflora

29 bavurin
Onavas, Sonora
August 8, 1969

(54)

pasturage plant. medicinal tea for colic prepared from entire plant.

Zygophyllaceae (54)

Kallstroemia grandiflora

30 Juan ematilli
Onavas, Sonora
August 11, 1969

Nyctaginaceae (34)

Tea prepared from plant
taken for kidney disorders

Allionia incarnata

UNIVERSITY OF TEXAS HERBARIUM
BIOLOGICAL LABORATORIES BUILDING
THE UNIVERSITY OF TEXAS
AUSTIN, TEXAS 78712
AREA CODE 512 GR 1-5262

UNIVERSITY OF TEXAS HERBARIUM

B. L. TURNER
DIRECTOR

November 10, 1971

Dr. Campbell W. Pennington
Department of Geography
Southern Illinois University
Carbondale, Illinois 62901

Dear Campbell,

I am sending today under ordinary mail 106 selected specimens of those plants you left here for identification. I am enclosing a list of names relating to these.

Since I will be out of town most of December, before and following Turkey Day, I thought I should get this done now so it would not imperil your visiter's status to Mexico.

Please send labels to what I have kept here when you can.

Warmest Regards.

B. L. Turner
Director

BLT:ee
Enclosures

27. frijol bolito — Glycine Max, Merr (Soy bean)

30 June 1968
Maicoba, Sonora

28. frijol blanco — Phaseolus vulgaris L.

30 June 1968
Maicoba, Sonora

called in Pima "totabau"

29. frijol mantequilla — Phaseolus vulgaris L.

30 June 1968
Maicoba, Sonora

same as #17

31. frijol mantequilla — Phaseolus vulgaris L.
not same as other "mantequill in this collection

1 July 1968
Maicoba, Sonora

Planted in July; harvested in November.

32. frijol asufrado (?) de Sinaloa — Phaseolus vulgaris L.

1 July 1968
Maicoba, Sonora

Planted in July; harvested in November.

33. frijol ojo de cabra — Phaseolus vulgaris L.

1 July 1968
Maicoba, Sonora

Planted in July; harvested in November.

36. frijol vayo — Phaseolus vulgaris L.
same as #6

4 July 1968
Maicoba, Sonora

37. frijol ojo de cabra — Phaseolus vulgaris L.
same as #5

4 July 1968
Maicoba, Sonora

18

Rayburn

SEED PACKETS

1. Yepachic, Chihuahua
June 22, 1970

Frijol rayado negro
tutuk wusgagam bavi (Pima)

Planted in July; harvested in November; planted in fields apart from corn; claimed to yield from 1 to 2 toneladas per year.

2. Yepachic, Chihuahua
June 22, 1970

Frijol yurimun
yurimun bavi (Pima term)

Planted only occasionally by the Pima Bajo at Yepachic. But when it is planted it is planted twice yearly, in March and in June. The March planting is harvested in August and the June planting in November.

Claimed to yield only about 10 to 12 kilos per planting.

3. Yepachic, Chihuahua
June 22, 1970

Frijol yurimun blanco
yurimun toto bavi (Pima term)

Planted only occasionally by the Pima Bajo at Yepachic. When planted, it is planted twice yearly, in March and June. The March planting is harvested in August and the June planting is harvested in November.

Claimed to yield only about 10 to 12 kilos per planting.

4. Yepachic, Chihuahua
June 22, 1970

Frijol yurimun con manchas obscuras
yurimun tutuk kwenkam bavi (Pima term)

Planted only occasionally by the Pima Bajo at Yepachic. But when planted it is planted twice yearly, in March and in June. The March planting is harvested in August and the June planting in November.

5. Yepachic, Chihuahua
June 22, 1970

Frijol mantequilla
titger vu'am bavi (Pima term)

Planted in June and harvested in November. Claimed to yield from 1 to 2 toneladas each year.

6. Yepachic, Chihuahua
June 22, 1970

Frijol cafe
la'icafe bavi (Pima term)

Planted in June and harvested in November.

Claimed to yield from 1 to 2 toneladas each year.

7. Yepachic, Chihuahua
June 22, 1970

Frijol ojo de cabra
ojo kavri bavi

Planted in June and harvested in November.

Claimed to yield from 1 to 4 toneladas each year.

The Pima appear to favor this particular bean.

8. Yepachic, Chihuahua
June 22, 1970

Frijol Yecorene amarillo
Yecora bavi (Pima term)

Planted in June and harvested in November.

Claimed to yield from 4 to 5 toneladas each year. For one year it was claimed that 90 toneladas constituted the yield.

9. Yepachic, Chihuahua
June 22, 1970

Frijolito blanco
toto bavi (Pima term)

Planted in June and harvested in November.

Claimed to yield from 2 to 3 toneladas each year and is said to be muy sabroso.

10. Yepachic, Chihuahua
June 22, 1970

Frijol tecomero negro grande
tutuk tecomeri bavi (Pima term)

Planted on the 20th of May and harvested in November.

Claimed to yield about 40 kilos per planting.

11. Yepachic, Chihuahua
June 22, 1970

Frijol tecomero enredador cafecito
kokmag bavi (Pima term)

Planted in May and harvested in November.

This is a stake bean, and is said to be very old almongst the Pima. One stake may be used per plant, or one stake may be used for three plants.

12. Yepachic, Chihuahua
June 22, 1970

Frijol tecomere enredador pint de Negro
tutuk titger bavi (Pima term)

Planted in May and harvested in November. This is another staked bean and claimed to be old. One stake may be used per plant or one stake may serve for three plants.

13. Yepachic, Chihuahua
June 22, 1970

Frijol vayo
vayo riyata bavi (Pima term)

Planted in June and harvested in November.

Muchly planted, and is claimed to yield from 4 to 5 toneladas each year.

14. Yepachic, Chihuahua
June 22, 1970

Frijol vayo cafecito
kokmag bavi

Planted in June and harvested in November.

Muchly planted and is claimed to yield from 4 to 5 toneladas each year.

15. Yepachic, Chihuahua
June 22, 1970

Frijol amarillo zorillo
vu'am sori bavi

Planted in June and harvested in November.

Claimed to yield about 4 toneladas per year.

16. Yepachic, Chihuahua
June 22, 1970

Frijol colorado*
vu'am bavi (Pima term)

Planted in June and harvested in October. Claimed to yield about 4 toneladas per year.

* The term colorado was used, and of course this means reddish, and the bean is yellowish. However the vu'am in the Pima term means "yellowish". The Indians seem not to be careful when distinguishing colors.

17. Yepachic, Chihuahua
June 22, 1970

Frijol pinto negro
tutuk bavi

Planted in June and harvested in November.

Claimed to produce about 4 toneladas each year when planted.

18. Yepachic, Chihuahua
June 22, 1970

Frijol blanco con manchas moradas
toto vu'am bavi (Pima term)

Planted in June and harvested in November.

Claimed to produce only about 1 tonelada per planting and is said to be muy sabrosa.

19. Yepachic, Chihuahua
June 22, 1970

Frijol negro
tutkur bavi

Planted in June and harvested in November.

Claimed to produce only about ½ tonelada each year.

20. Yepachic, Chihuahua
June 22, 1970

Frijol morado
vu'am bavi

Planted in June and harvested in November.

Muchly planted and is claimed to produce about 4 toneladas each year.

21. Yepachic, Chihuahua
June 22, 1970

Frijol morado con rayas amarillo
vu'am bavi (Pima term)

Planted in June and harvested in November.

Muchly planted, and is claimed to produce about 4 torneladas each year.

22. Yepachic, Chihuahua
June 22, 1970

Frijol mantequilla
mantiki bavi (Pima term)

Planted in June and harvested in November. Claimed to produce about 4 toneladas each year.

23. Yepachic, Chihuahua
June 22, 1970

Frijol moradito
vu'am bavi (Pima term)

Planted in June, and harvested in November.

Muchly planted and is said to produce about 4 toneladas each year.

24. Yepachic, Chihuahua
June 22, 1970

Frijol pinto morado
vu'am masgam bavi

Planted in June and harvested in November.

Claimed to produce about 4 toneladas each year.

25. Yepachic, Chihuahua
June 22, 1970

Frijol tecomero blanco grande
tecomeri bavi (Pima term)

Planted on the 20th of May and harvested in November.

Said to produce only about 20 kilos each year.

26. Yepachic, Chihuahua
June 22, 1970

Frijol tecomero merado grande
i'ibim tecomeri bavi

Planted in May and harvested in November.

Said to produce only about 40 kils per year when planted.

27. Yepachic, Chihuahua
June 22, 1970

Frijol tecomero pinto grande
i'ibim tecomeri bavi

Planted in May and harvested in November.

Said to produce only about 40 kilos per year when planted.

SEED PACKETS

1. Yepachic, Chihuahua
June 22, 1970 — Phaseolus vulgaris

Frijol rayado negro
tutuk wusgagam bavi (Pima)

Planted in July; harvested in November; planted in fields apart from corn; claimed to yield from 1 to 2 toneladas per year.

2. Yepachic, Chihuahua
June 22, 1970 — Vigna sinensis

Frijol yurimun
yurimun bavi (Pima term)

Planted only occasionally by the Pima Bajo at Yepachic. But when it is planted it is planted twice yearly, in March and in June. The March planting is harvested in August and the June planting in November.

Claimed to yield only about 10 to 12 kilos per planting.

3. Yepachic, Chihuahua
June 22, 1970 — Vigna sinensis

Frijol yurimun blanco
yurimun toto bavi (Pima term)

Planted only occasionally by the Pima Bajo at Yepachic. When planted, it is planted twice yearly, in March and June. The March planting is harvested in August and the June planting is harvested in November.

Claimed to yield only about 10 to 12 kilos per planting.

4. Yepachic, Chihuahua
June 22, 1970 — P. vulgaris

Frijol yurimun con manchas obscuras
yurimun tutuk kwenkam bavi (Pima term)

Planted only occasionally by the Pima Bajo at Yepachic. But when planted it is planted twice yearly, in March and in June. The March planting is harvested in August and the June planting in November.

5. Yepachic, Chihuahua
June 22, 1970 — P. vulgaris, d pinto

Frijol mantequilla
titger vu'am bavi (Pima term)

Planted in June and harvested in November. Claimed to yield from 1 to 2 toneladas each year.

6. Yepachic, Chihuahua
June 22, 1970 — ~~Vignaxxinensis~~ P. vulgaris

Frijol cafe
la'icafe bavi (Pima term)

Planted in June and harvested in November.

Claimed to yield from 1 to 2 toneladas each yaar.

7. Yepachic, Chihuahua
June 22, 1970 — ~~Vignavignaxxinensis~~ P.vulgaris

Frijol ojo de cabra
ojo kavri bavi

Planted in June and harvested in November.

Claimed to yield from 1 to 4 toneladas each year.

The Pima appear to fevor this particular bean.

8. Yepachic, Chihuahua
June 22, 1970 — P. vulgaris, ~~xxxxxxxxxxxxxxxxx~~

Frijol Yecorena amarillo
Yecora bavi (Pima term)

Planted in June and harvested in November.

Claimed to yield from 4 to 5 toneladas each year. For one year it was claimed that 90 toneladas constituted the yield.

9. Yepachic, Chihuahua
June 22, 1970 — P. vulgaris

Frijolito blanco
toto bavi (Pima term)

Planted in June and harvested in November.

Claimed to yield from 2 to 3 toneladas each year and is said to be muy sabroso.

10. Yepachic, Chihuahua
June 22, 1970 — Phaseolus coccineus, runner bean

Frijol tecomero negro grande
tutuk tecomeri bavi (Pima term)

Planted on the 20th of May and harvested in November.

Claimed to yield about 40 kilos per planting.

11. Yepachic, Chihuahua
June 22, 1970 — P. vulgaris

Frijol tecomero enredador cafecito
kokmag bavi (Pima term)

Planted in May and harvested in November.

This is a stake bean, and is said to be very old almongst the Pima. One stake may be used per plant, or one stake may be used for three plants.

12. Yepachic, Chihuahua
June 22, 1970 — P. vulgaris

Frijol tecomere enredador pint de Negro
tutuk titger bavi (Pima term)

Planted in May and harvested in November. This is another staked bean and claimed to be old. One stake may be used per plant or one stake may serve for three plants.

13. Yepachic, Chihuahua
June 22, 1970 — P. vulgaris

Frijol vayo
vayo riyata bavi (Pima term)

Planted in June and harvested in November.

Muchly planted, and is claimed to yield from 4 to 5 toneladas each year.

14. Yepachic, Chihuahua
June 22, 1970 — P. vulgaris

Frijol vayo cafecito
kokmag bavi

Planted in June and harvested in November.

Muchly planted and is claimed to yield from 4 to 5 toneladas each year.

15. Yepachic, Chihuahua
June 22, 1970 — P. vulgaris

Frijol amarillo zorillo
vu'am sori bavi

Planted in June and harvested in November.

Claimed to yield about 4 toneladas per year.

16. Yepachic, Chihuahua
June 22, 1970 — P. vulgaris

Frijol colorado*
vu'am bavi (Pima term)

Planted in June and harvested in October. Claimed to yield about ¼ toneladas per year.

* The term colorado was used, and of course this means reddish, and the bean is yellowish. However the vu'am in the Pima term means "yellowish". The Indians seem not to be careful when distinguishing colors.

17. Yepachic, Chihuahua
June 22, 1970 — P. vulgaris

Frijol pinto negro
tutuk bavi

Planted in June and harvested in November.

Claimed to produce about 4 toneladas each year when planted.

18. Yepachic, Chihuahua
June 22, 1970 — P. vulgaris, Jacob's Cattle

Frijol blanco con manchas moradas
toto vu'am bavi (Pima term)

Planted in June and harvested in November.

Claimed to produce only about 1 tonelada per planting and is said to be muy sabrosa.

19. Yepachic, Chihuahua
June 22, 1970 — Vigna sinensis

Frijol negro
tutkur bavi

Planted in June and harvested in November.

Claimed to produce only about ½ tonelada each year.

17. frijol mantequilla — Phaseolus vulgaris L. similar to Pinto - garrapata group.

28 June 1968
Maicoba, Sonora

Planted in July; harvested in November; may be planted until August; deer and rabbits eat the plants.

18. frijol Sinaloa — Phaseolus vulgaris L. same as #6 (?)

28 June 1968
Maicoba, Sonora

Planted in July-August; harvested in November.

19. frijol blanco — Phaseolus vulgaris L.

28 June 1968
Maicoba, Sonora

Planted in July-August; harvested in November.

20. frijol bolito — Phaseolus vulgaris L. Same as #6 (?)

28 June 1968
Maicoba, Sonora

Planted in July-August; harvested in November.

21. frijol canelo — Phaseolus vulgaris L.

28 June 1968
Maicoba, Sonora

Planted in July-August; harvested in November.

21a. frijol — Phaseolus vulgaris L.

28 June 1968
Maicoba, Sonora

"New" to Maicoba, according to Pima Governor.

22. frijol guirote — Phaseolus vulgaris L.

28 June 1968
Maicoba, Sonora

A "staked bean," old to Maicoba.

20. Yepachic, Chihuahua
June 22, 1970 — P. vulgaris

Frijol morado
vu'am bavi

Planted in June and harvested in November.

Muchly planted and is claimed to produce about 4 toneladas each year.

21. Yepachic, Chihuahua
June 22, 1970 — ~~Rxxxxkgaxxx~~ P. vulgaris

Frijol morado con rayas amarillo
vu'am bavi (Pima term)

Planted in June and harvested in November.

Muchly planted, and is claimed to produce about 4 torneladas each year.

22. Yepachic, Chihuahua
June 22, 1970 — P. vulgaris, var. pinto

Frijol mantequilla
mantiki bavi (Pima term)

Planted in June and harvested in November. Claimed to produce about 4 toneladas each year.

23. Yepachic, Chihuahua
June 22, 1970 — P. vulgaris

Frijol moradito
vu'am bavi (Pima term)

Planted in June, and harvested in November.

Muchly planted and is said to produce about 4 toneladas each year.

24. Yepachic, Chihuahua
June 22, 1970 — P. vulgaris, Jaaob's ~~ixi~~Cattle

Frijol pinto morado
vu'am masgam bavi

Planted in June and harvested in November.

Claimed to produce about 4 toneladas each year.

25. Yepachic, Chihuahua
June 22, 1970 — P. coccineus, white runner bean

Frijol tecomero blanco grande
tecomeri bavi (Pima term)

Planted on the 20th of May and harvested in November.

Said to produce only about 20 kilos each year.

26. Yepachic, Chihuahua
June 22, 1970 — P. coccineus, runned bean

Frijol tecomero merado grande
i'ibim tecomeri bavi

Planted in May and harvested in November.

Said to produce only about 40 kils per year when planted.

27. Yepachic, Chihuahua
June 22, 1970 — P. coccineus, runner bean

Frijol tecomero pinto grande
i'ibim tecomeri bavi

Planted in May and harvested in November.

Said to produce only about 40 kilos per year when planted.

Plant Number 1 (June 21, 1970, Yepáchic, Chihuahua)

Berlandiera lyrata var. macrophylla Compositae (130)

peonía (mestizo term)

(1) The Pima Bajo claim that the root of this yellow-flowered plant is used in preparing a tea taken to cure stomach disorders. The root (tátkara) is boiled for about two hours and the liquid is strained through a loosely woven basket or a tin can which has had holes punched in its bottom. This medicine is taken in the early morning, before eating.

(2) It is also claimed that about six such roots are useful in preparing a drink taken by a woman who delays giving birth. The potion must be left outside of the pregnant woman's house for at least forty-eight hours before being taken.

Plant Number 2 (June 21, 1970, Yepáchic, Chihuahua)

Prunus serotina subsp. virens Rosaceae (51)

(1) This capulín grande, known as mo'oskom among the Pima, appears in great numbers in arroyos near Yepáchic, Chihuahua. Fruits are eaten in July.

Plant Number 5 (June 21, 1970, Yepáchic, Chihuahua)

Juniperus deppeana Cupressaceae (5)

(1) This táscate, known as ga'a among the Pima, is a common tree on the rolling slopes near Yepáchic. The bolitas are eaten by the Pima.

Plant Number 7 (June 21, 1970, Yepáchic, Chihuahua)

Cupressus arizonica Cupressaceae (5)

(1) This sabino, known as ga'a among the Pima, appears near the watercourses at Yepáchic. The Pima state that it serves no purpose other than that its wood is used in preparation of arches in the church.

Plant Number 8 (June 21, 1970) Yepáchic, Chihuahua

Arctostaphylos pungens Ericaceae (100)

(1) This manzanilla or yori as it is known among the Pima, appears in profusion at Yepáchic (far more so than at Maicoba - and why?) on the rough terrain so common between the water courses and the pine stands on the ridges. The Pima eat the fruits in September.

Plant Number 13 (June 26, 1970) Yepáchic, Chihuahua

Achaetogeron sp. Compositae (130)

(1) The Pima state that goats frequently browse upon this yerba del campo.

Plant Number 14 (June 26, 1970) Yepáchic, Chihuahua

Diphysa sp. af. racemosa Leguminosae (53)

(1) Known as acacia or ho'ičkam uš. A common shrub along the arroyos at Yepáchic, particularly in the fences. Serves as a source of leña and animals browse upon the leaves.

Plant Number 15 (June 27, 1970) Yepáchic, Chihuahua

Opuntia sp. Cactaceae (91)

(1) Fruits of this tuna de coyote are eaten in October.

Plant Number 16 (June 27, 1970) Yepáchic, Chihuahua

Vitis girdiana Vitaceae (72)

(1) Fruits of this uva cimarrón are eaten in October.

Plant Number 17 (June 27, 1970) Yepáchic, Chihuahua

Ranunculus hydrocharoïdes Ranunculaceae (41)

(1) The root of this plant is said to be used in preparing a tea taken for colic.

(2) Goats browse upon the plant.

Plant Number 18 (June 27, 1970)

Mimulus guttatus Scrophulariaceae (117)

(1) Grows in profusion along the water courses near Yepáchic. The entire plant is used in making a tea taken for fever.

(2) Goats browse upon the plant.

Plant Number 19 (June 27, 1970)

Populus monticola Salicaceae (25)

álamo

(1) Planted along arroyos to protect fields from debris during times of high water

Plant Number 20 (June 27, 1970)

Ranunculus aquatilis capillaceus Ranunculaceae (41)

(1) The Pima at Yepáchic state that this water plant is sometimes eaten as a green when food is lacking.

(2) Serves as a browse plant for cows.

Plant Number 25 (July 2, 1970)

Oxalis Dillenii Oxalidaceae (55)

(1) Leaves of this chilito are used in preparing a poultice applied to aching arms or legs.

(2) Goats eat the plant.

Plant Number 26

Hymenocallis graminifolia Amaryllidaceae (22)

(1) Root of this lirio del río is boiled, drained and boiled again; then it is sliced and fried as a potato.

Plant Number 27 (July 7, 1970) Yepáchic, Chihuahua

Prunella vulgaris Labiatae (115)

(1) This poléo is used in the preparation of a tea taken for stomach disorders.

Plant Number 28 (July 7, 1970) Yepáchic, Chihuahua

Oxalis cf. divergens Oxalidaceae (55)

(1) This agritos is used in the preparation of a hot tea taken as a refreshing drink.

(2) May be eaten as a quelite (green), but is not cooked.

Plant Number 29 (July 8, 1970) Yepáchic, Chihuahua

Hedyotis Wrightii

(1) A tea prepared from this anicillo is taken for stomach disorders.

Plant Number 30 (July 8, 1970) Yepáchic, Chihuahua

Lithospermum cobrense Boraginaceae (113)

(1) A tea taken for stomach disorders is prepared from leaves of this manzanilla del río

Plant Number 31 (July 8, 1970) Yepáchic, Chihuahua

Bouvardia ternifolia Rubiaceae (125)

(1) Tea prepared from this yerba de la piedra is taken for heart trouble.

Plant Number 32 (July 8, 1970) Yepáchic, Chihuahua

Oenothera Hartwegii Onagraceae (90)

(1) This amapola is used in preparing a tea taken for a. fever and b. stomach disorders.

Plant Number 33 (July 10, 1970) Yepáchic, Chihuahua

Agave sp. af. americana [old leaf] Amaryllidaceae (22)

lecheguilla

(1) Pencas eaten (boil or bake).
(2) Guirote eaten (boil or bake).
(3) Flower is eaten just before it blooms. This "fruit" is like a platano.

Plant Number 34 (July 10, 1970) Yepáchic, Chihuahua

Agave sp. af. americana [young leaf] Amaryllidaceae (22)

maguey

(1) Pencas eaten (boil or bake).
(2) Guirote eaten (boil or bake)
(3) Flower is eaten just before it blooms.

NOTE: I am positive my field notes are accurate but am interested in the fact that the Pima seem to have confused lecheguilla and maguey (young and mature plants).

Plant Number 35 (July 10, 1970) Yepáchic, Chihuahua

Dasylirion leiophyllum Liliaceae (21)

sotol

(1) Fermented beverage prepared from root of this sotol.

Plant Number 36 (July 10, 1970) Yépachic, Chihuahua

Nolina erumpens Liliaceae (21)

palmilla

(1) Hats, baskets and petates are made from this plant.

Plant Number 37 (July 12, 1970) Yepáchic, Chihuahua

Agave Hartmanii Amaryllidaceae (22)

motosa

(1) Stalks used for arrows.
(2) Goats eat stalks and leaves.

Plant Number 38 (July 12, 1970) Yepáchic, Chihuahua

Yucca sp. Liliaceae (21)

sagualiki

(1) Fruit of this tall stalked white-flowered plant is eaten, and claimed to be muy dulce. Seeds of the fruit are blackish and there is yellowish pith in the fruit.
(2) Source of pita, cook leaves and extract pita. [NOTE: this is what my field notes say, but I am by no means certain that one can extract pita from the leaves of yuccas!]
(3) Some Pima claim that the roots are used as soap.

Plant Number 39 (July 16, 1970) Yepáchic, Chihuahua

Cacalia decomposita Compositae (130)

matarín

(1) Cook entire plant in preparing a tea taken for throat problems.
(2) Claimed to be effective as a fish stupefication agent when gathered in large amounts, crushed and thrown into quiet water.

Plant Number 40 (July 16, 1970) Yepáchic, Chihuahua

Commelina dianthifolia Commelinaceae (17)

perrito

(1) The "water" behind the flower is used as an "eye wash."

Plant Number 41 (July 16, 1970) Yepáchic, Chihuahua

Oenothera purpusii Onagraceae (90)

amapolita

(1) The entire plant is boiled in preparing a decoction taken for fever.

Plant Number 43 (July 16, 1970) Yepáchic, Chihuahua

Verbena pinetorum Verbenaceae (114)

espiguilla

(1) A tea taken for stomach disorders is prepared by boiling the entire plant.
(2) Goats browse upon the plant.

Plant Number 44 (July 16, 1970) Yepáchic, Chihuahua

Hedyotis Wrightii

(1) Medicinal tea prepared from the plant taken for stomach disorders.

Plant Number 45 (July 16, 1970) Yepáchic, Chihuahua

Lithospermum cobrense Boraginaceae (113)

(1) Medicinal tea prepared from this manzanilla del río is taken for stomach pains.

Plant Number 46 (July 16, 1970) Yepáchic, Chihuahua

Ranunculus petiolaris Ranunculaceae (41)

(1) Medicinal tea for stomach disorders prepared from entire plant.
(2) Goats eat the plant

Plant Number 47 (July 16, 1970) Yepáchic, Chihuahua

Evolvulus rotundifolius Convolvulaceae (110)

(1) Medicinal tea taken for fever prepared from all of plant.
(2) A favored plant for goats.

Plant Number 48 (July 16, 1970) Yepáchic, Chihuahu

Gnaphalium Wrightii Compositae (130)

(1) Used in preparing a tea taken before and after childbirth.

Plant Number 49 (July 16, 1970) Yepáchic, Chihuahua

Cevastium vulgatum

(1) Browse plant for goats

Plant Number 50 (July 16, 1970) Yepáchic, Chihuahua

Oxalis Dillenii Oxalidaceae (55)

(1) Medicinal tea prepared from plant taken for headache.
(2) Browse plant for goats

Plant Number 51 (July 16, 1970) Yepáchic, Chihuahua

Guardiola sp. Compositae (130)

(1) Medicinal tea prepared from plant taken for stomach disorders.

Plant Number 52 (July 16, 1970) Yepáchic, Chihuahua

Matelia sp. Asclepiadaceae (109)

(1) Quelite which is known as maravilla cimarrona.
(2) Medicinal tea prepared from many plants taken for stomach disorders

Plant Number 53 July 16, 1970) Yepáchic, Chihuahua

Cologania obovata ? angustifolia Leguminosae (53)

(1) Excellent pastura for goats
(2) Some of the Pima noted that once this frijolillo was used as a medicinal plant - for fever - prepare a tea from the tender portions of the tendrils of the vine

Plant Number 54 (July 17, 1970) Yepáchic, Chihuahua

Ratibida mexicana Compositae (130)

(1) Known as onova, this plant is used in preparation of a medicinal tea taken for rheumatism and also used as a wash for achingl.imbs.

Plant Number 55 (July 17, 1970) Yepáchic, Chihuahua

Prunella vulgaris Labiatae (115)

(1) A poléo used in preparation of a tea taken for stomach upsets.
(2) Pastura also, goats and cows.

Plant Number 56 (July 17, 1970) Yepáchic, Chihuahua

Tradescantia sp. Commelinaceae (17)

(1) Excellent browse for goats.

Plant Number 57 (July 17, 1970) Yepáchic, Chihuahua

Dodecathan sp. Primulaceae (101a)

(1) Excellent pastura for goats.

Plant Number 58 (July 17, 1970) Yepáchic, Chihuahua

Zexmenia podocephala Compositae (130)

(1) This peonía is claimed to be one of the most important medicinal plants in the sierras; the Pima claim that the roots are collected by "outside" medicine men and by local people who sell to the "outsiders". The root is used in making a tea for stomach disorders.
(2) Browse plants for goats

Plant Number 60 (July 17, 1970) Yepáchic, Chihuahua

Galium microphyllum Compositae (130)

yerba del coyote

(1) Crush plant and use as a poltice applied to sprains, or bruises, or swellings.
(2) Boil the entire plant in preparing lotion used for bruises, sprains, swellings.

Plant Number 61 (July 17, 1970) Yepáchic, Chihuahua

Asclepias sp. Asclepiadaceae (109)

yerba del hígado

(1) Has a yellow flower - cook como té and take for liver disorvers.

Plant Number 62 (July 17, 1970) Yepáchic, Chihuahua

Vitis girdiana Vitaceae (72)

(1) Fruits of this uva cimarrona are eaten in September/ October.

Plant Number 63 (July 17, 1970) Yepáchic, Chihuahua

Mirabilis longiflora Nyctaginaceae (36)

(1) This plant is said to always bloom about 5 PM. Use the sticky leaves as a poultice for wounds, on animals or humans.

Plant Number 64 (July 20, 1970) Maicoba, Sonora

Astranthium sp. Compositae (130)

(1) Said to be splendid food for goats.

Plant Number 65 (July 20, 1970) Maicoba, Sonora

Lithospermum cobrense Boraginaceae (113)

(1) This manzanilla del campo is used in preparing a tea taken for stomach disorders.

Plant Number 66 (July 20, 1970) Maicoba, Sonora

Verbena pinetorum Verbenaceae (114)

(1) Use entire plant in preparing a tea taken to stop vomiting.
(2) Goats browse upon the plant

Plant Number 67 (July 20, 1970) Maicoba, Sonora

Pinaropappus junceus Compositae (120)

(1) Stems and leaves of this plant are used in making a lotion applied to wounds on animals.

Plant Number 68 (July 20, 1970) Maicoba, Sonora

Clematis Drummondii Ranunculaceae (41)

(1) Used in preparing a lotion applied to wounds on humans or animals.

Plant Number 69 (July 20, 1970) Maicoba, Sonora

Argemone ochroleuca Papaveraceae (44)

(1) Leaves of this yerba loca are used in preparing a wash for wounds
(2) Some Pima claim that the plant was once used--in great quantities--as a fish stupefaction agent.

PlantNumber 71 (July 23, 1970) Quipur, Sonora

Tradescantia sp. Commelinaceae (17)

(1) Said to be fine browse for goats.

Plant Number 72 (July 23, 1970) Quipur, Sonora

Dyschoriste decumbens Acanthaceae (123)

(1) Excellent browse plant for goats

Plant Number 73 (July 23, 1970) Quipur, Sonora

Castilleja sp. Scrophulariaceae (117)

(1) Claimed to be effective as an agent (in form of tea made from entire plant) in curing kidney infections.

marcha

Plant Number 74 (July 23, 1970) Quipur, Sonora

Tradescantia tuberosa Commelinaceae (17)

60

(1) Claimed to be an important browse plant for goats.

Plant Number 77 (July 23, 1970) Quipur, Sonora

Cologania obovata Leguminosae (53)

60

(1) Said to be a browse plant (goats).

Plant Number 78 (July 23, 1970) Quipur, Sonora

Physalis ixocarpa Solanaceae (116)

44

(1) This tomatillo is found wild and cultivated...the fruits are claimed to be very very acid

Plant Number 79 (July 23, 1970) Quipur, Sonora

Passiflora sp. af. affinis Passifloraceae (85)

44

(1) Fruits of this sandia de coyote are eaten by humans

Plant Number 80 (July 23, 1970) Quipur, Sonora

Berlandiera lyrata var. macrophylla Compositae (130)

70

(1) Roots of this coronilla are muchly used in preparing a tea taken to cure pulmonía. It is claimed that mountain Pima somesimes gather the roots and sell them to traders from the west, and that root men from the west come for the roots

Plant Number 81 (July 23, 1970) Quipur, Sonora

Oxalis Dillenii Oxalidaceae (55)

45

(1) The Pima claim that the leaves of this agrios serve as a quelite, which is not cooked

Plant Number 82 (July 23, 1970) Quipur, Sonora

Mahonia sp. Berberidaceae (42)

42 (1) The mountain Pima state that this palo amarillo once served as a source of wood used in fashioning arrows

Plant Number 83 (July 23, 1970) Quipur, Sonora

Asclepias strictiflora Asclepiadaceae (109)

70 (1) This inmortal is used in preparing a tea taken for fever; only the root is used.,

Plant Number 84 (July 23, 1970) Quipur, Sonora

Phaseolus sp. Leguminosae (53)

70 (1) Root of this cocolmeca is used in preparing a purgative.

Plant Number 85 (August 3, 1970) Yécora, Sonora

Calliandra reticulata Leguminosae (53)

34 (1) It is claimed that the plant is used in preparing a refreshing tea, one that gives "strength."

Plant Number 86 (August 3, 1970) Yécora, Sonora

Cologania obovata Leguminosae (53)

40 (1) An important browse plant (goats).

Plant Number 87 (August 3, 1970) Yécora Sonora

Evolvulus rotundifolius Convolvulaceae (110)

70 (1) Used in preparing a medicinal tea - for fever

Plant Number 88 (August 3, 1970) Yécora, Sonora

Evolvulus alsinoides Convolvulaceae (110)

96 (1) Used in preparing a medicinal tea - for fever.

Plant Number 89 (August 3, 1970) Yécora, Sonora

Polygala sp. Polygalaceae (63)

60

(1) Said to be excellent browse for goats.

Plant Number 90 (August 3, 1970) Yécora, Sonora

Plantago sp. af. mexicana Plantaginaceae (124)

60

(1) An important browse plant for goats.

Plant Number 91 (August 3, 1970) Yécora, Sonora

Polygonum lapathifolium Polygonaceae (33)

70

(1) The Maicoba Pima (with me at Yécora) stated that when used in small amounts this plant serves in preparing a purgative; however, when used in large amounts as a purgative it is very dangerous, and is said to be poisonous if even by animals.

Plant Number 92 (August 3, 1970) Yécora, Sonora

Achaetogeron sp. [1 plant] Compositae (130)

Astranthium sp. [1 plant] Compositae (130)

70

(1) The Maicoba Pima noted that this plant was used in preparing a medicinal tea for stomach disorder.

NOTE: I must have blundered in having two specimens in the packet...my error!

Plant Number 93 (August 3, 1970) Yécora, Sonora

Lithospermum dobrense Boraginaceae (113)

70

(1) This manzanilla del río is used in preparing a té taken for stomach disorders.

NOTE: Could it be that this plant, which is certainly widely distributed in the sierras, is really used because it is damned pretty? I wonder!

Plant Number 94 (August 3, 1970) Yécora, Sonora

Datura quercifolia Solanaceae (116)

toloache

(1) The Maicoba Pima noted that the bolitas are toasted, mashed and applied to sore places.
(2) The older Pima noted that antes the crushed green bolitas were added to tesgüino.

Plant Number 95 (August 3, 1970) Yécora, Sonora

Asclepias contrayerba Asclepiadaceae (109)

(1) This inmortal is used in preparing a tea taken for catarro....masn the roots, mix with aceite de comer

Plant Number 96 (August 3, 1970) Yécora, Sonora

Ipomoea sp. Convolvulaceae (110)

(1) The Maicoba Pima insisted that "seeds" of this plant were used in preparing a purga.

Plant Number 97 (August 3, 1970) Yécora, Sonora

Ranunculus sp. Ranunculaceae (41)

(1) The Maicoba Pima insist that this plant is used (the leaves) in preparing a medicinal tea taken for stomach disorders.

Plant Number 98 (August 3, 1970) Yécora, Sonora

Verbena pinetorum Verbenaceae (114)

(1) A tea taken for stomach disorders is made from all of this plant.

Plant Number 99 (August 3, 1970) Yécora, Sonora

Oenothera purpusii Onagraceae (90)

(1) The whole of this plant is used in preparing a tea taken for stomach disorders or "chest pains"

Plant Number 100 (August 3, 1970) Yécora, Sonora

Tradescantia angustifolia Commelinaceae (17)

(1) This plant is claimed to be fine browse for goats.

Plant Number 101 (August 3, 1970) Yécora, Sonora

Oenothera taraxacoides Onagraceae (90)

(1) All of the plant is used in preparing a tea taken for "headache"

Plant Number 102 (August 3, 1970) Yécora, Sonora

Nemastylis sp. Iridaceae (23)

(1) Claimed by the Maicoba Pima (with me at Yécora) to be used for making a medicinal tea - to cure rheumatism

Plant Number 103 (August 3, 1970) Yécora, Sonora

Anthericum sp. Liliaceae (21)

(1) The Maicoba Pima insist that this plant is used in preparing a tea taken for fever - use the root.

Plant Number 104 (August 3, 1970) Yécora, Sonora

Milla biflora Liliaceae (21)

(1) Claimed to be used in preparing a tea taken for rheumatism - may be used as a wash (the tea) for aching limbs.

Plant Number 105 (August 3, 1970) Yécora, Sonora

Eriosema sp. Leguminosae (53)

(1) Claimed to be used in preparing a poultice placed on wounds on animals.

Plant Number 106 (August 3, 1970) Yécora, Sonora

Eryngium Beecheyanum Umbelliferae (96)

(1) Claimed to be fine browse plant for goats

Plant Number 107 (August 3, 1970) Yécora, Sonora

Cyperus esculentus Cyperaceae (13)

60 (1) Fine browse for goats.

Plant Number 108 (August 3, 1970) Yécora, Sonora

Cyperus sp. Cyperaceae (13)

60 (1) Fine browse for goats.

Plant Number 109 (August 3, 1970) Yécora, Sonora

Gaura coccinea Onagraceae (90)

60 (1) Fine browse for goats.

Plant Number 110 (August 3, 1970) Yécora, Sonora

Zornia reticulata Leguminosae (53)

70 (1) This yerba de la víbora serves in preparing a tea taken for colds or stomach pains.

Plant Number 111 (August 3, 1970) Yécora, Sonora

Zexmenia podocephala Compositae (130)

70 (1) This peonía serves in preparation of a tea taken for stomach disorders--the root is used.

Plant Number 112 (August 3, 1970) Yécora, Sonora

Tradescantia angustifolia Commelinaceae (17)

60 (1) Excellent browse for goats

Plant Number 113 (August 3, 1970) Yécora, Sonora

Commelina dianthifolia Commelinaceae (17)

70 (1) The Maicoba Pima claim that this plant is used in preparing a medicinal tea used as lotion on wounds,

Plant Number 114 (August 3, 1970) Yécora, Sonora

Juniperus deppeana Cupressaceae (5)

táscate

(1) stems used in preparing a refreshing drink.
(2) Fruits are eaten

Plant Number 115 (August 3, 1970) Yécora, Sonora

Perymenium sp. Compositae (130)

(1) Excellent browse for goats

Plant Number 116 (August 3, 1970) Yécora, Sonora

Poinsettia colorata Euphorbiaceae (64)

(1) This flor de leche serves in the preparation of a tea taken for fever.

Plant Number 117 (August 3, 1970) Yécora, Sonora

Potentilla sp. af. Thurberi Rosaceae (51)

(1) This yerba colorada is muchly used in preparing a tea to cure diarrhea...use the root. It is claimed that some Pima collect the roots and sell them to traders who come to the mountains.

Plant Number 118 (August 4, 1970) Yécora, Sonora

Populus Fremontii Salicaceae (25)

(1) Bark of this álamo is used in preparing a tea taken by women during childbirth.

Plant Number 119 (August 4, 1970) Yécora, Sonora

Heteranthera inuloidaes Pontederiaceae (18)

(1) This chilla is used in preparing a tea taken for rheumatism.

Plant Number 120 (August 4, 1970) Yécora, Sonora

Vitis girdiana Vitaceae (72)

(1) Fruits of this parra silvestre are eaten in September.

Plant Number 121 (August 4, 1970) Yécora, Sonora

Phaseolus heterophyllus Leguminosae (53)

(1) Leaves and stems of this trompillo are used in prepating a wash used as a lotion for aching arms and legs.

Plant Number 122 (August 4, 1970) Yécora, Sonora

Baccharis glutinosa Compositae (130)

(1) According to the Maicoba Pima, long stems of this batamote were onced used in making baskets.

Plant Number 123 (August 4, 1970) Yécora, Sonora

Rhus aromatica Anacardiaceae (65)

(1) Fruits of this lima are eaten.

Plant Number 124 (August 4, 1970) Yécora, Sonora

Ilex sp. Aquifoliaceae (66)

(1) Wood from this tree was once used for making oxen yokes. The Maicoba Pima were positive about this (?).

Plant Number 128 (August 4, 1970) Yécora, Sonora

Arctostaphylos pungens Ericaceae (100)

(1) Fruits of this manzanilla are eaten in August

Plant Number 129 (August 4, 1970) Yécora, Sonora

Prunus serotina Rosaceae (51)

(1) Fruits of this capulín chico are eaten.

Plant Number 130 (August 4, 1970) Yécora, Sonora

45 Chenopodium album Chenopodiaceae (34)

(1) This chual del campo serves as an esteemed quelite in September and August.

Plant Number 131 (August 4, 1970) Yécora, Sonora

45 Phacelia teucriifolia Hydrophyllaceae (112)

(1) The Maicoba Pima state that at Maicaiba this plant is eaten as a quelite.

Plant Number 132 (August 6, 1970) Trinidad, Sonora

59 Solanum amazonium Solanaceae (116)

(1) The Maicoba Pima state that fruits may be used in cheese making, ie., in curding milk...the plant is known as sacamanteca.

Plant Number 133 (August 6, 1970) Trinidad, Sonora

30 Cassia occidentalis Leguminosae (53)

(1) The Maicoba Pima state that the flowers of this plant are used in making a refreshing tea.

Plant Number 134 (August 6, 1970) Trinidad, Sonora

70 Caesalpinia pulcherrima Leguminosae (53)

(1) Roots and "bark" are used in preparing a lotion applied to wounds.

Plant Number 135 (August 6, 1970) Trinidad, Sonora

70 Acacia sp. Leguminoseae (53)

(1) Flowers are used in making a medicinal tea taken for fever - or used as a wash for wounds

Plant Number 136 (August 6, 1970) Santana, Sonora

Randia echinocarpa Rubiaceae (125)

(1) Fruits are eaten by Pima and mestizo.

Plant Number 137 (August 6, 1970) Santana, Sonora

Melampodium tenellum Compositae (130)

(1) Young stems and leaves are claimed to be used in making a wash applied to wounds.

Plant Number 140 (August 6, 1970) Santana, Sonora

Clematis Drummondii Ranunculaceae (41)

(1) The Maicoba Pima claim that this vine is used in tying up leña collected in areas away from the houses [I do not believe this, for the vine doesn't seem to be strong enough].

Plant Number 141 (August 6, 1970) Santana, Sonora

Nicotiana glauca Solanaceae (116)

(1) The Maicoba Pima say that this is a subsitute for tabacco.

Plant Number 143 (August 6, 1970) Santana, Sonora

Agave americana ? Amaryllidaceae (22)

(1) Stalk is eaten.
(2) Flower is eaten before it comes to full bloom.

1. Tradescantia sp. (La vida) Commelinaceae

Yepáchic, Chihuahua
September 3, 1971

A fence-row plant, moist ground, pine and oak country.

2. Eryngium heterophyllum (yerba del sapo) Araliaceae

Yepáchic, Chihuahua
September 3, 1971

A fence-row plant, moist ground, pine and oak country. Use entire plant to prepare a tea taken for fever.

3. Ipomoea hederacea (barredera) Convolvulaceae

Yepáchic, Chihuahua
September 3, 1971

A fence-row plant, moist ground, pine and oak country. Much sought by goat herders for use as pasturage.

4. Heterotheca latifolia Compositae

Yepáchic, Chihuahua
September 3, 1971

A fence-row plant, moist ground, pine and oak country. The Pima state that entire plant is used in preparing a lotion applied to rheumatic joints.

5. Salvia longispicata (chía) Labiatae

Yepáchic, Chihuahua
September 3, 1971

A fence-row plant, moist ground, pine and oak country Pima and mestizo claim that it is a pasturage plant.

6. Rumex crispus — Polygonaceae (3B)

Yepáchic, Chihuahua
September 3, 1971 15|45

An Old World plant (Uphof, 1968, 460) which appears along fence rows, in moist ground, in pine and oak country. Older Pima state that not long ago the leaves were eaten as a quelite when boiled and salted.

7. Bromus catharticus (popotillo) — Gramineae (12)

Yepáchic, Chihuahua
September 3, 1971 15|60

Grows in profusion in abandoned fields near Yepáchic. Pima and mestizo say that it is an important pasturage plant.

8. Sporobolus sp. — Gramineae (12)

Yepáchic, Chihuahua
September 3, 1971 15|60

Grows in profusion in abandoned fields near Yepáchic. Claimed to be a pasturage plant.

9. Cyperus spectabilis (bolito) — Cyperaceae (13)

Yepáchic, Chihuahua
September 3, 1971 15|60

Found along fence-rows and in arroyos near Yepáchic. Pigs seek the roots.

10. Chloris cucullata — Gramineae (12)

Yepáchic, Chihuahua
September 3, 1971 15|60

A common arroyo plant near Yepáchic. Much eaten by goats.

11. Milla biflora (azucena) Liliaceae (21)

Yepáchic, Chihuahua
September 3, 1971

A common arroyo plant near Yepáchic.
Children eat the flowers.

12. Mirabilis jalapa (maravilla) Nyctaginaceae (36)

Yepáchic, Chihuahua
September 3, 1971

A common arroyo plant near Yepáchic.
The Pima claim that the roots are used in preparing a tonic taken by very old people.

13. NUMBER NOT USED

14. Tagetes lucida (yerbanís) Compositae (130)

Yepáchic, Chihuahua
September 3, 1971

A common arroyo plant near Yepáchic.
Entire plant is used in preparing a refreshing tea taken when "one is very tired."

15. Commelina coelistis Commelinaceae (17)

Yepáchic, Chihuahua
September 3, 1971

A common arroyo plant near Yepáchic.
Said to be a pasturage plant eaten by goats.

16. Crusea hispida Rubiacaeae (59)

Yepáchic, Chihuahua
September 3, 1971

A common arroyo plant near Yepáchic.
Said to be a pasturage plant.

17. Berlandiera lyrata var. macrophyllum (coronilla) Compositae

Yepáchic, Chihuahua
September 3, 1971

An arroyo plant near Yepáchic, Chihuahua.
Root is mashed and used as a poultice applied to burns.
Root is mashed and used in preparing a strong tea taken for stomach disorders.

18. Eriosema sp. Leguminosae

Yepáchic, Chihuahua
September 3, 1971

An arroyo plant near Yepáchic, Chihuahua.

19. Monarda citriodora (orégano) Labiatae

Yepáchic, Chihuahua
September 3, 1971

An arroyo plant near Yepáchic, Chihuahua.
The Pima state that long ago the leaves were dried and used as a condiment upon meat.

20. Solanum Fendleri (papa cimarróna) Solanaceae

Yepáchic, Chihuahua
September 3, 1971

A common arroyo plant near Yepáchic, Chihuahua.
The roots were once eaten by the Pima as a starvation food, raw or boiled.

21. Prochnyanthes sp. Amaryllidaceae

Yepáchic, Chihuahua
September 3, 1971

A common arroyo plant near Yepáchic, Chihuahua

22. Rhamnus betulaefolia (encino amargo ?) Rhamnaceae (71)

Yepáchic, Chihuahua
September 3, 1971 15/83?

A not uncommon large shrub in arroyos near Yepáchic, Chihuahua. The Pima state that the bark is used in tanning.

23. Drymaria leptophylla var. nodosa (flor de peña) Caryophyllaceae (40)

Yepáchic, Chihuahua
September 3, 1971 10

Grows upon rocks in arroyos near Yepáchic, Chihuahua. Plant is dried and crushed before being used in preparing a tea taken for "aches and pains."

24. Cacalia decomposita (matariqui) 15/70/43 Compositae (130)

Yepáchic, Chihuahua
September 3, 1971

A very common arroyo plant near Yepáchic, Chihuahua. Use the leaves in preparing a tea taken to alleviate throat disorders. All of the plant may be crushed and used in fish stupefaction.

25. Salvia lavanduloides 15/70 Labiatae (115)

Yepáchic, Chihuahua
September 3, 1971

11

A common arroyo plant near Yepáchic, Chihuahua. Leaves are used in preparing a tea taken for stomach pain.

26. Eupatorium hyssopinum (romero silvestre) Compositae (130)

Yepáchic, Chihuahua
September 3, 1971 15/70

An arroyo plant near Yepáchic, Chihuahua Leaves are used in preparing a lotion applied to "aching arms or legs."

27. Begonia martiana (yerba ácida) Begoniaceae (87)

Yepáchic, Chihuahua
September 3, 1971 15/70

12

An arroyo plant near Yepáchic, Chihuahua.
Use stems of the plant for cleaning teeth when they "taste sour."

28. Phaseolus sp. (frijolito del campo) Leguminosae (53)

Yepáchic, Chihuahua
September 3, 1971 15/70/53

13

An arroyo plant.
Said to be excellent pastura.
Pima at Rancho San Isidro stated that seeds are collected and sowed in abandoned milpas since goats esteem the plant.
Root is used in preparing a refreshing tea taken when "tired."

29. Perymenium sp. (peonía) Compositae (130)

Yepáchic, Chihuahua
September 3, 1971 15/70

An arroyo plant.
Root used in preparing a medicinal tea taken for stomach disorders.

30. Pentstemon barbatus (yerba de San Pedro) Scrophulariaceae (117)

Yepáchic, Chihuahua
September 3, 1971 15/70

An arroyo plant.
Boil all of the plant in preparing a lotion applied to cuts and bruises.

31. Muhlenbergia sp. (escobatillo) Gramineae (12)

Yepáchic, Chihuahua
September 3, 1971 15/128

An arroyo grass used in making brooms.

32. Dodecatheon cf. Jeffreyi — Primulaceae

Yepáchic, Chihuahua
September 3, 1971

An arroyo plant near Yepáchic.
The older Pima claim that leaves of this plant were once toasted and eaten.

33. Spiranthes aurantiaca — Orchidaceae

Yepáchic, Chihuahua
September 3, 1971

An arroyo plant near Yepáchic.
Some of the older Pima stated that once this plant served in preparing a purgative.

34. Tradescantia angustifolia — Commelinaceae

Yepáchic, Chihuahua
September 3, 1971

An arroyo plant near Yepáchic.

35. Polygonum lapathifolium (lengua de vaca) — Polygonaceae

Yepáchic, Chihuahua
September 3, 1971

An arroyo plant near Yepáchic.

36. Carphochaete Pringlei — Compositae

Yepáchic, Chihuahua
September 3, 1971

An arroyo plant near Yepáchic.

37. Arbutus arizonica (madroño) — Ericaceae

Yepáchic, Chihuahua
September 3, 1971

Found on upper slopes of arroyos and in openings of the pine and oak country.
Fruits are eaten.

38. Phoradendron bolleanum (muérdago) — Loranthaceae

Yepáchic, Chihuahua
September 4, 1971

Growing upon a madroño tree near Yepáchic.
Berries are eaten to alleviate coughing.
Goats browse this parasitic growth.

39. Perymenium sp. — Compositae

Yepáchic, Chihuahua
September 4, 1971

An arroyo plant near Yepáchic, Chihuahua

40. Tradescantia angustifolia — Commelinaceae

Yepáchic, Chihuahua
September 4, 1971

An arroyo plant near Yepáchic, Chihuahua.

41. Quercus endlichiana — Fagaceae

Yepáchic, Chihuahua
September 4, 1971

Bark used in tanning.

42. Commelina angustifolia — Commelinaceae

Yepáchic, Chihuahua
September 4, 1971

An arroyo plant near Yepáchic, Chihuahua
Goats browse upon the plant.

43. Cologania obovata — Leguminosae

Yepáchic, Chihuahua
September 4, 1971

An arroyo plant near Yepáchic, Chihuahua

44. Desmodium sp. Leguminosae

Yepáchic, Chihuahua
September 4, 1971

An arroyo plant near Yepáchic, Chihuahua

45. Quercus salicifolia Fagaceae

Yepáchic, Chihuahua
September 4, 1971

A common oak near Yepáchic, Chihuahua.
Bark used in tanning.

46. Quercus opaca Fagaceae

Yepáchic, Chihuahua
September 4, 1971

A common oak near Yepáchic, Chihuahua
Bark used in tanning.

47. Tagetes micrantha (cenpual) Compositae

Yepáchic, Chihuahua
September 4, 1971

An arroyo plant near Yepáchic.
Leaves are used in preparing a tea taken for stomach disorders.

48. Ipomoea capillacea (bi'igam: Pima term) Convolvulaceae

Yepáchic, Chihuahua
September 4, 1971

A rather common upland (pine and oak country) plant near Yepáchic.
Children gather and eat the roots.

49. Tagetes cf. micrantha (cenpual) — Compositae

Yepáchic, Chihuahua
September 4, 1971

An upland plant (as well as in arroyos) near Yepáchic.
A tea taken for stomach upsets is prepared from all of the plant.

50. Crusea brachyphylla — Rubiaceae

Yepáchic, Chihuahua
September 4, 1971

An upland plant near Yepáchic.

51. Quercus Emoryi (encino chaparro) — Fagaceae

Yepáchic, Chihuahua
September 4, 1971

A common upland oak near Yepáchic, Chihuahua
Bark used in tanning.

52. Calochortus barbatus — Liliaceae

Yepáchic, Chihuahua
September 4, 1971

A common upland plant near Yepáchic, Chihuahua

53. Gomphrena decumbens — Amaranthaceae

Yepáchic, Chihuahua
September 4, 1971

An arroyo plant in the uplands near Yepáchic, Chihuahua

54. Conyza sophiaefolia (manzanilla del río) Compositae

Yepáchic, Chihuahua
September 4, 1971

A not uncommon upland plant near Yepáchic, Chihuahua.
Use all of plant in preparing a tea taken for cough.

55. Carphochaete Pringlei (yerba de la muela) Compositae

Yepáchic, Chihuahua
September 4, 1971

An arroyo plant near Yepáchic, Chihuahua.
Use all of plant in preparing a mouth wash when teeth are aching.

56. Orchidaceae (pegal)

Yepáchic, Chihuahua
September 4, 1971

This not uncommon uplant plant is sought because its root is useful in preparing a glue used in fashioning violins and guitars; scrape and boil the root.

57. Anthericum Torreyi Liliaceae

Yepáchic, Chihuahua
September 4, 1971

An upland plant near Yepáchic, Chihuahua.

58. Eupatorium hyssopinum (yerba de la muela) Compositae

Yepáchic, Chihuahua
September 4, 1971

An upland plant near Yepáchic, Chihuahua.
Chew the plant when teeth are aching.

59. Crusea brachyphylla — Rubiaceae

Yepáchic, Chihuahua
September 4, 1971

An upland plant near Yepáchic, Chihuahua.

60. Calochortus sp. — Liliaceae

Yepáchic, Chihuahua
September 4, 1971

An upland plant near Yepáchic, Chihuahua.

61. Sporobolus sp. — Gramineae

Yepáchic, Chihuahua
September 4, 1971

A common grass in the uplands near Yepáchic, Chihuahua.

62. Gramineae (popotillo grande)

Yepáchic, Chihuahua
September 4, 1971

A common tall grass of the uplands near Yepáchic, Chihuahua. Said to be an excellent pasturage plant.

63. Polygonum lapathifolium — Polygonaceae

Yepáchic, Chihuahua
September 4, 1971

A common upland plant near Yepáchic, Chihuahua

64. Monarda citriodora (orégano) Labiatae

Yepáchic, Chihuahua
September 4, 1971

An upland plant near Yepáchic, Chihuahua.
Dried and crushed leaves are used as a condiment added to beans or meat.

65. Ipomopsis pinnata (yerbita del jabón) Polemoniaceae

Yepáchic, Chihuahua
September 4, 1971

All of this upland plant is rubbed upon clothes as a "soap." Soak the clothes for a time and then rub upon rocks.

66. Erigeron Rusbyi Compositae

Yepáchic, Chihuahua
September 4, 1971

An upland plant near Yepáchic, Chihuahua.

67. Quercus sp. (encino colorado) Fagaceae

Yepáchic, Chihuahua
September 4, 1971

Bark of this common upland oak is used for tanning.

68. Cologania ovalifolia (frijolito del campo) Leguminosae

Yepáchic, Chihuahua
September 4, 1971

A common upland plant near Yepáchic, Chihuahua.

69. Agastache sp. (yerba de la virgen) Labiatae

Yepáchic, Chihuahua
September 5, 1971

All of this upland plant is used in preparing a tea taken for stomach disorders.

70. Bidens durangensis (juve) Compositae

Yepáchic, Chihuahua
September 5, 1971

An arroyo plant near Yepáchic, Chihuahua.
Said to be an excellent pasturage plant.

71. Ipomoea cristulata (higuerilla) Convolvulaceae

Yepáchic, Chihuahua
September 5, 1971

An arroyo plant near Yepáchic, Chihuahua
The older Pima claim that the leaves were once used in preparing a medicinal tea taken for stomach disorders.

72. Tithonia tubaeformis (mirasol del campo) Compositae

Yepáchic, Chihuahua
September 5, 1971

A common upland plant near Yepáchic, Chihuahua.

73. Anoda cristata (tuchi) Malvaceae

Yepáchic, Chihuahua
September 5, 1971

An arroyo plant that is much used as a quelite.

74. Crusea brachyphylla — Rubiaceae

Yepáchic, Chihuahua
September 5, 1971

An upland plant near Yepáchic, Chihuahua.

74a. Helianthemum Pringlei — Cistaceae

Yepáchic, Chihuahua
September 5, 1971

A common upland plant near Yepáchic, Chihuahua.

75. Bouvardia ternifolia (yerba zorilla) — Rubiaceae

Yepáchic, Chihuahua
September 5, 1971

A common arroyo plant near Yepáchic, Chihuahua. All of the plant is used in preparing a medicinal tea taken for stomach disorders.

76. Amaranthus hybridus — Amaranthaceae

Yepáchic, Chihuahua
September 5, 1971

This amaranth is one of the important quelites used today by upland Pima and mestizo peoples.

77. Minkelersia galactioides (frijolillo) — Leguminosae

Yepáchic, Chihuahua
September 5, 1971

A common arroyo plant near Yepáchic, Chihuahua.

78. Cosmos parviflorus (juve) Compositae

Yepáchic, Chihuahua
September 5, 1971

A common arroyo plant near Yepáchic, Chihuahua.
The older Pima state that all of the plant was once used in preparing a medicinal tea, taken for stomach disorders.

79. Zinnia peruviana Compositae

Yepáchic, Chihuahua
September 5, 1971

A common arroyo plant near Yepáchic, Chihuahua.

80. Trifolium involucratum Leguminosae

Yepáchic, Chihuahua
September 5, 1971

A common arroyo plant near Yepáchic, Chihuahua.

81. Cuphea llavea Lythraceae

Yepáchic, Chihuahua
September 5, 1971

A common shrub in arroyo slopes near Yepáchic, Chihuahua.

82. Coreopsis sp. (té) Compositae

Yepáchic, Chihuahua
September 5, 1971

A common arroyo plant near Yepáchic, Chihuahua.
A refreshing tea is made from all of this plant.

83. Verbesina stricta (a'ačkam: Pima term) Compositae

Yepáchic, Chihuahua
September 5, 1971

Roots of this arroyo plant are scraped and mixed with grease for use as a poultice applied to wonds on animals.

84. Quercus sp. (encino kusi) Fagaceae

Yepáchic, Chihuahua
September 5, 1971

Pigs and goats eat the acorns of this common arroyo oak.

85. Phoradendron brachystachyana Loranthaceae

Yepáchic, Chihuahua
September 5, 1971

Goats eat the berries of this parasitic plant which grows upon oaks. A medicinal tea taken for cough is prepared from the fruits.

86. Quercus hypoleucoides (encino barril) Fagaceae

Yepáchic, Chihuahua
September 5, 1971

Bark of this oak is used in tanning.

87. Quercus Hartwegii (encino blanco) Fagaceae

Yepáchic, Chihuahua
September 5, 1971

A common arroyo and upland oak at Yepáchic, Chihuahua.

88. Juniperus deppeana (táscate) Cupressaceae

41

Yepáchic, Chihuahua
September 5, 1971 1.5/70/44 (5)

An arroyo and upland táscate near Yepáchic, Chihuahua. Branches are used in preparing a tea taken for colds. Berries are eaten as a starvation food.

89. Stevia viscida Compositae

Yepáchic, Chihuahua
September 5, 1971 15/60 (130)

A very common plant in the uplands near Yepáchic, Chihuahua. Said to be an important browse plant.

90. Dalea citrodora Leguminosae

15/60 (5-3)

Yepáchic, Chihuahua
September 5, 1971

An arroyo plant which is said to be an important browse plant.

91. Salvia reflexa Labiatae

Yepáchic, Chihuahua
September 6, 1971 15 (115)

An arroyo plant near Yepáchic, Chihuahua.

92. Ipomoea madrensis Convolvulaceae

Yepáchic, Chihuahua
September 6, 1971 15 (110)

An arroyo plant near Yepáchic, Chihuahua.

93. Solanum americanum (chichiquelite) — Solanaceae

42

Yepáchic, Chihuahua
September 6, 1971 — 15/70 — (16)

All of this arroyo plant is used in preparing a medicinal tea taken for fever.

94. Vitis bourgaeana — 15/70 — Vitaceae (72)

Yepáchic, Chihuahua
September 6, 1971

Leaves from this arroyo plant are used in preparing a poultice applied to poison ivy eruptions.

95. Sedum chihuahuense (siempreviva) — Crassulaceae

Yepáchic, Chihuahua
September 6, 1971 — 15/70 — (47)

Leaves of this arroyo plant are chewed to alleviate toothache.

96. Monarda citrodora (orégano) — 15/47 — Labiatae (115)

43

Yepáchic, Chihuahua
September 6, 1971

Leaves of this arroyo plant are dried and crushed for use as a condiment added to meat and bean foods.

97. Sidalcea neomexicana — 15 — Malvaceae (74)

44

Yepáchic, Chihuahua
September 6, 1971

A common upland meadow plant.

98. Sidalca neomexicana — Malvaceae (74)

Yepáchic, Chihuahua
September 6, 1971

A common upland meadow plant near Yepáchic, Chihuahua.

99. Aster subulatus — 15 — Compositae (30)

45

Yepáchic, Chihuahua
September 6, 1971

An upland plant near Yepáchic, Chihuahua.

100. Dalea albiflora — 15 — Leguminosae (53)

Yepáchic, Chihuahua
September 6, 1971

An upland plant near Yepáchic, Chihuahua.

101. Potentilla Thurberi (yerba colorada) — 15/70 — Rosaceae (51)

46

Yepáchic, Chihuahua
September 6, 1971

An upland plant of pine and oak country at Yepáchic. Roots are used in preparing a medicinal tea (used as a purga) for stomach disorders.

102. Echinochloa crusgallii — 15 — Gramineae (12)

47

Yepáchic, Chihuahua
September 6, 1971

A common plant near Yepáchic, along the lumber roads.

48

103. Compositae

Yepáchic, Chihuahua
September 6, 1971

A common upland plant near Yepáchic, Chihuahua.

49

104. Abies religiosa var. emarginata (pinabete) Pinaceae (4)

Peñasco Blanco (near Yepáchic, Chihuahua)
September 10, 1971

Wood used in making stools and chairs (?).

105. Tagetes sp. (ruda del campo) Compositae (130)

Peñasco Blanco (near Yepáchic, Chihuahua)
September 10, 1971

All of the plant is used in making a tea taken for stomach disorders.

50

106. Garrya ovata (vipiskida: Pima term) Cornaceae (97)

Peñasco Blanco (near Yepáchic, Chihuahua)
September 10, 1971

Wood is used in making beads...a portion of the branches is almost hollow and therefore readily cleaned out.

51

107. Verbesina sp. (teposán) Compositae (130)

Peñasco Blanco (near Yepáchic, Chihuahua)
September 10, 1971

Leaves of this plant are used in preparing a poultice applied to bruises or sores. Mix the crushed leaves with manteca.

113. Stevia viscida — Compositae

Yepáchic, Chihuahua
September 18, 1971

An upland meadow plant near Yepáchic, Chihuahua

114. Antennaria sp. (oreja del ratón) — Compositae

Yepáchic, Chihuahua
September 18, 1971

Leaves of this tiny plant are used in preparing a wash applied to cuts. A strong tea made from leaves of the plant is taken as a purga.

115. Schkuhri authemoidea var. authemoidea — Compositae

Yepáchic, Chihuahua
September 18, 1971

A common upland meadow plant near Yepáchic, Chihuahua

116. Carphochaeta Pringlei — Compositae

Yepáchic, Chihuahua
September 18, 1971

An upland plant near Yepáchic, Chihuahua

117. Monarda citrodora (orégano grande) — Labiatae

Yepáchic, Chihuahua
September 18, 1971

Leaves are dried and pulverized for use as a condiment added to beans.

118. Chimaphila dasystephana (yerba del hígado) Pryolaceae

Yepáchic, Chihuahua
September 18, 1971

All of this upland plant is used in preparing a tea used as a mouth wash.

119. Potentilla sp. (yerba colorada) Rosaceae

Yepáchic, Chihuahua
September 18, 1971

Roots of this upland plant are used in preparing a weak tea taken to relieve coughing, or a very strong tea taken as a purgative.

120. Fraxinus sp. (fresno) Oleaceae

Yepáchic, Chihuahua
September 18, 1971

Wood of this fresno, a common tree along arroyos in the uplands near Yepáchic, Chihuahua, is used in fashioning yokes and axe handles.

121. Cupressus arizonica (sabino) Pinaceae

Yepáchic, Chihuahua
September 18, 1971

A not uncommon tree in the uplands near Yepáchic, Chihuahua.

122. Celastraceae (sterile)

Yepáchic, Chihuahua
September 18, 1971

123. Cologania obovata — Leguminosae

Yepáchic, Chihuahua
September 18, 1971

A common upland plant near Yepáchic, Chihuahua

124. Cacalia decomposita (matariqui) — Compositae

Yepáchic, Chihuahua
September 18, 1971

Roots of this plant are used in stupefying fish. The roots are boiled in preparing a lotion applied to sores.

125. Artemisia ludoviciana — Compositae

Yepáchic, Chihuahua
September 18, 1971

A common upland plant near Yepáchic, Chihuahua.

126. Senecio cf. Hartwegii (panta mula) — Compositae

Yepáchic, Chihuahua
September 18, 1971

An upland plant near Yepáchic, Chihuahua.

127. Zinnia peruviana (calendula) — Compositae

Yepáchic, Chihuahua
September 18, 1971

An upland plant (meadows) in the Yepáchic country.

128. Dasylirion leiophyllum (sotol) Liliaceae

Yepáchic, Chihuahua
September 18, 1971

Leaves of this rather uncommon sotol near Yepáchic, Chihuahua are used in fashioning waris.

129. Nolina sp. (palmilla) Liliaceae

Yepáchic, Chihuahua
September 18, 1971

Leaves of this palmilla are used in fashioning petates and waris.

130. Begonia martiana (canaigre) Begoniaceae
(hupari: Pima term)

Yepáchic, Chihuahua
September 18, 1971

Leaves of this canaigre are used in alleviating aching gums...place the leaves on the gums.

131. Tagetes micrantha (anisillo) Compositae

Yepáchic, Chihuahua
September 18, 1971

All of this plant is used in preparing a tea taken for stomach disorders.

132. Tagetes elongata (san paulillo) Compositae

Yepáchic, Chihuahua
September 18, 1971

All of this plant is used in preparing a tea taken for stomach disorders.

68

133. Agave sp. (lechuguilla) Amaryllidaceae (22)

Yepáchic, Chihuahua
September 18, 1971

Roots of this lechuguilla are pit-baked and the stalks are roasted upon coals.

69

134. Cosmos sp. (acetillo) 70 Compositae (130)

Yepáchic, Chihuahua
September 18, 1971

All of this plant is used in the preparation of a medicinal tea taken for "general fatigue."

135. Coreopsis cf. cordylocarpha Compositae (430)

Yepáchic, Chihuahua
September 18, 1971

A common upland plant near Yepáchic, Chihuahua.

70

136. Umbelliferae ?

Yepáchic, Chihuahua
September 18, 1971

Roots are boiled as a starvation food. Tea made from crushed roots is taken for fever.

137. Selaginella Pringlei (flor de la piedra) Selaginellaceae (3)

Yepáchic, Chihuahua
September 18, 1971 70

All of this plant is used in preparing a tea taken to alleviate lung congestion.

143. Conyza sophiaefolia (manzanilla del río) Compositae

Yepáchic, Chihuahua
September 18, 1971

An upland plant found in moist meadows. A medicinal tea taken for stomach disorders is prepared from all of this plant. The tea may be used as a lotion applied to sores.

144. Bouvardia ternifolia Rubiaceae

Yepáchic, Chihuahua
September 18, 1971

An upland plant near Yepáchic, Chihuahua.

145. Salvia sp. Labiatae

Yepáchic, Chihuahua
September 18, 1971

An upland plant near Yepáchic, Chihuahua.

146. Euphorbia indivisa (yerba de la golondrina) Euphorbiaceae

Yepáchic, Chihuahua
September 18, 1971

Boil all of this plant in preparing a lotion applied to wounds and sores.

147. Geranium Wislizenii Geraniaceae

Yepáchic, Chihuahua
September 18, 1971

An arroyo plant near Yepáchic, Chihuahua.

148. Panicum plenum — Gramineae

Yepáchic, Chihuahua
September 18, 1971

An important pasturage grass west of Yepáchic, Chihuahua.

149. Crusea brachyphylla — Rubiaceae

Yepáchic, Chihuahua
September 18, 1971

A small herb of the uplands west of Yepáchic, Chihuahua.

150. Bouvardia ternifolia — Rubiaceae

Yepáchic, Chihuahua
September 18, 1971

An upland plant west of Yepáchic, Chihuahua.

151. Stachys coccinea — Labiatae

Yepáchic, Chihuahua
September 18, 1971

A rather uncommon plant in the pine and oak country west of Yepáchic, Chihuahua.

152 [fern ?]

Yepáchic, Chihuahua
September 18, 1971

A roadside plant west of Yepáchic, Chihuahua.

153. Oxalis Dillenii (agrito) — Oxalidaceae

Yepáchic, Chihuahua
September 18, 1971

Leaves of this plant are eaten as a quelite, when boiled, drained and salted.

154. Muhlenbergia sp. (escobatillo grande) Gramineae

Yepáchic, Chihuahua
September 18, 1971

Stems of this grass are used in manufacturing brooms.

155. Gomphrena decumbens (Juana milpila) Amaranthaceae

Yepáchic, Chihuahua
September 18, 1971

A lotion prepared by boiling all of this plant is applied to eruptions caused by sarampión and viruela loca.

156. Tagetes lucida (yerbanís) Compositae

Yepáchic, Chihuahua
September 18, 1971

A refreshing drink is prepared by boiling all of this upland plant.

157. Dahlia coccinea (dalea del campo) Compositae

Yepáchic, Chihuahua
September 18, 1971

An uncommon plant along arroyo margins near Yepáchic, Chihuahua.

158. Verbena sp. Verbenaceae

Yepáchic, Chihuahua
September 18, 1971

A medicinal tea taken for stomach disorders is prepared by boiling all of this plant.

159. Eryngium heterophyllum (yerba del agrio) Umbelliferae

Yepáchic, Chihuahua
September 18, 1971

A common upland plant west of Yepáchic, Chihuahua.

160. Quercus hypoleucoides (kusi saucillo) Fagaceae

Yepáchic, Chihuahua
September 18, 1971

Bark of this oak is used for tanning.

161. Quercus salicifolia (kusi blanco) Fagaceae

Yepáchic, Chihuahua
September 18, 1971

Bark of this upland oak is used for tanning.

162. Ipomoea cristulata Convolvulaceae

Yepáchic, Chihuahua
September 18, 1971

An upland plant near Yepáchic, Chihuahua.

163. Cupressus arizonica (táscate) Pinaceae

Yepáchic, Chihuahua
September 18, 1971

An upland tree near Yepáchic, Chihuahua.

164. Ceanothus buxifolius (junco) Rhamnaceae

Yepáchic, Chihuahua
September 18, 1971

Root of this plant is dried and cooked for use in preparing a crude coffee.

165. Quercus rugulosa (encino peludo) — Fagaceae

Yepáchic, Chihuahua
September 18, 1971

Bark of this upland oak is used for tanning.

166. Salvia longispicata (chía) — Labiatae

Yepáchic, Chihuahua
September 18, 1971

An upland plant near Yepáchic, Chihuahua.

167. Asclepias Lemmonii (inmortal) — Asclepiadaceae

Yepáchic, Chihuahua
September 18, 1971

Root of this upland plant is used in preparing a tea taken for stomach disorders.

168. Commelina coelistis — Commelinaceae

Yepáchic, Chihuahua
September 19, 1971

An upland plant near Yepáchic, Chihuahua.

169. Vitis bourgaeana (parra del monte) — Vitaceae

Yepáchic, Chihuahua
September 19, 1971

A vine of the Yepáchic uplands.

170. Conoclinium cf. betonicifolium — Compositae

Yepáchic, Chihuahua
September 19, 1971

An upland plant at Yepáchic, Chihuahua.

171. Prunus serotina (capulín) Rosaceae

Yepáchic, Chihuahua
September 19, 1971

This is the common capulín near Yepáchic.
Fruits are eaten.
A tea made by boiling the leaves is taken for cough. The liquid is used as a lotion on aching backs.

172. Hedeoma oblongifolium (orégano) Labiatae

Yepáchic, Chihuahua
September 19, 1971

Leaves of this orégano are used as a condiment added to bean and meat dishes.

173. Stevia viscida Compositae

Yepáchic, Chihuahua
September 19, 1971

A common plant near Yepáchic, Chihuahua.

174. Mirabilis jalapa Nyctaginaceae

Yepáchic, Chihuahua
September 19, 1971

An upland plant (pine and oak country) at Yepáchic, Chihuahua.

175. Solanum Fendleri (papa cimarróna) Solanaceae

Yepáchic, Chihuahua
September 19, 1971

Goats eat the roots of this upland plant found near Yepáchic, Chihuahua.

176. Rhamnus betulaefolia (tullidora) — Rhamnaceae (71)

Yepáchic, Chihuahua
September 19, 1971

A shrub-like plant of the uplands west of Yepáchic, Chihuahua.

177. Eriosema sp. — Leguminosae (53)

Yepáchic, Chihuahua
September 19, 1971

An upland plant of the Yepáchic country.

178. Anthericum Torreyi — Liliaceae (21)

Yepáchic, Chihuahua
September 19, 1971

An upland plant in the pine and oak uplands near Yepáchic, Chihuahua.

179. Asclepias sp. (inmortal) — Asclepiadaceae (109)

Yepáchic, Chihuahua
September 19, 1971

An upland plant in the pine and oak country near Yepáchic, Chihuahua.

180. Agastache Barberi — Labiatae (115)

Yepáchic, Chihuahua
September 19, 1971

A common plant in the pine and oak country near Yepáchic, Chihuahua.

181. Tigridia Pringlei (lirio) Iridaceae

Yepáchic, Chihuahua
September 19, 1971

The root of this plant is roasted as a starvation food.

182. Sidalcea neomexicana (yerba colorado) Malvaceae

Madera, Chihuahua
September 28, 1971

Leaves of this plant are chewed for "cleaning the teeth."

183. Stevia serrata Compositae

Madera, Chihuahua
September 28, 1971

A common meadow plant near Madera, Chihuahua.

184. Stevia viscidula Compositae

Madera, Chihuahua
September 28, 1971

A common meadow plant near Madera, Chihuahua.

185. Schkuhria anthemoidea var. authemoidea Compositae

Madera, Chihuahua
September 28, 1971

A common meadow plant near Madera, Chihuahua.

186. Chenopodium graveolens var. mexicana (yerba zorrilla)
Chenopodiaceae

Madera, Chihuahua
September 28, 1971

A common meadow plant near Madera, Chihuahua

187. Eriogonum atrorubens var. pseudociliatum — Polygonaceae

Madera, Chihuahua
September 28, 1971

A meadow plant near Madera, Chihuahua.

188. Senecio sp. (čikaka) — Compositae

Madera, Chihuahua
September 28, 1971

A meadow plant near Madera, Chihuahua

189. Conyza sophiaefolia — Compositae

Madera, Chihuahua
September 28, 1971

A meadow plant near Madera, Chihuahua. One La Junta Pima stated that the plant was used in preparing a medicinal tea taken for stomach ache.

190. Lobelia anatina (espolilla) — Lobeliaceae

Madera, Chihuahua
September 28, 1971

A meadow plant near Madera, Chihuahua. One La Junta Pima stated that the plant was used in preparing a refreshing tea.

191. Tragia nepetaefolia (ortiguilla) — Euphorbiaceae

Madera, Chihuahua
September 28, 1971

A meadow plant near Madera, Chihuahua. One La Junta Pima stated that the plant was used in preparing a lotion applied to sores and wounds.

192. Bidens pilosa (juve) Compositae

Madera, Chihuahua
September 28, 1971

A meadow plant near Madera, Chihuahua. One La Junta Pima stated that it was used long ago in preparing a reddish dye.

193. Asclepias sp. Asclepiadaceae

Madera, Chihuahua
September 28, 1971

A meadow plant near Madera, Chihuahua.

194. Agastache Barberi (yerba de las angeles) Labiatae

Madera, Chihuahua
September 28, 1971

A plant of the pine country near Madera, Chihuahua.

195. Quercus Emoryi (encino chaparro) Fagaceae

Madera, Chihuahua
September 28, 1971

A low spreading oak near Madera.

196. Gnaphalium cf. Wrightii (yerba de la mula) Compositae

Madera, Chihuahua
September 28, 1971

A plant of the pine country near Madera.
One La Junta Pima stated that the plant was used in preparing a lotion applied to cuts.

197. Bouteloua gracilis

Gramineae

Madera, Chihuahua
September 28, 1971

A common grass along the roads near Madera.