

MEDICINE AND MAGIC AMONG THE MAKÁ INDIANS OF THE PARAGUAYAN CHACO

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(Accepted July 21, 1987)

Summary

The Maká Indians are an ethnic group of hunters and gatherers of the Paraguayan Chaco. In order to heal illnesses and counteract different kinds of evil, they practice shamanism, magic and the use of medicines of vegetal and animal origin. A general review of the history, magic and medicine in this culture is undertaken. A list of the components of their pharmacopoeia, with details of their use and particular indications is presented.

Introduction

The Maká Indians form an ethnic group of hunters and gatherers native to the northern Chaco, Paraguay. They were originally seminomadic warriors and throughout their existence they have suffered displacements and migrations until they became established in their present settlement area, Colonia Fray Bartolomé de las Casas (see Fig. 1). At the present time, they are a rather reduced group. The demographic data given by different authors during the last 50 years are summarized by Chase Sardi (1971: 48–49), Braunstein (1981: 138–142) and Chase Sardi (1981: 163).

According to estimates from 1931 to the present, the figures remain relatively stable and in almost all cases do not surpass 1000 persons. Information provided by Chase Sardi (1981: 163) obtained from the Asociación de Parcialidades Indígenas from Paraguay (API) has registered 981 persons.

To heal their illnesses the Maká rely on the therapeutic treatment practised by the shamans, but they also employ medicines of vegetal and animal origin. To understand the healing systems of these Indians and those of some other ethnic groups from the Chaco, it is essential to explore the complexity of their native magic, which is very closely associated with medicine. The reference points of this magic and medicine doubtless can be found in their religion and in the richness of their myths.

In this article, an attempt is made to outline the outstanding elements of

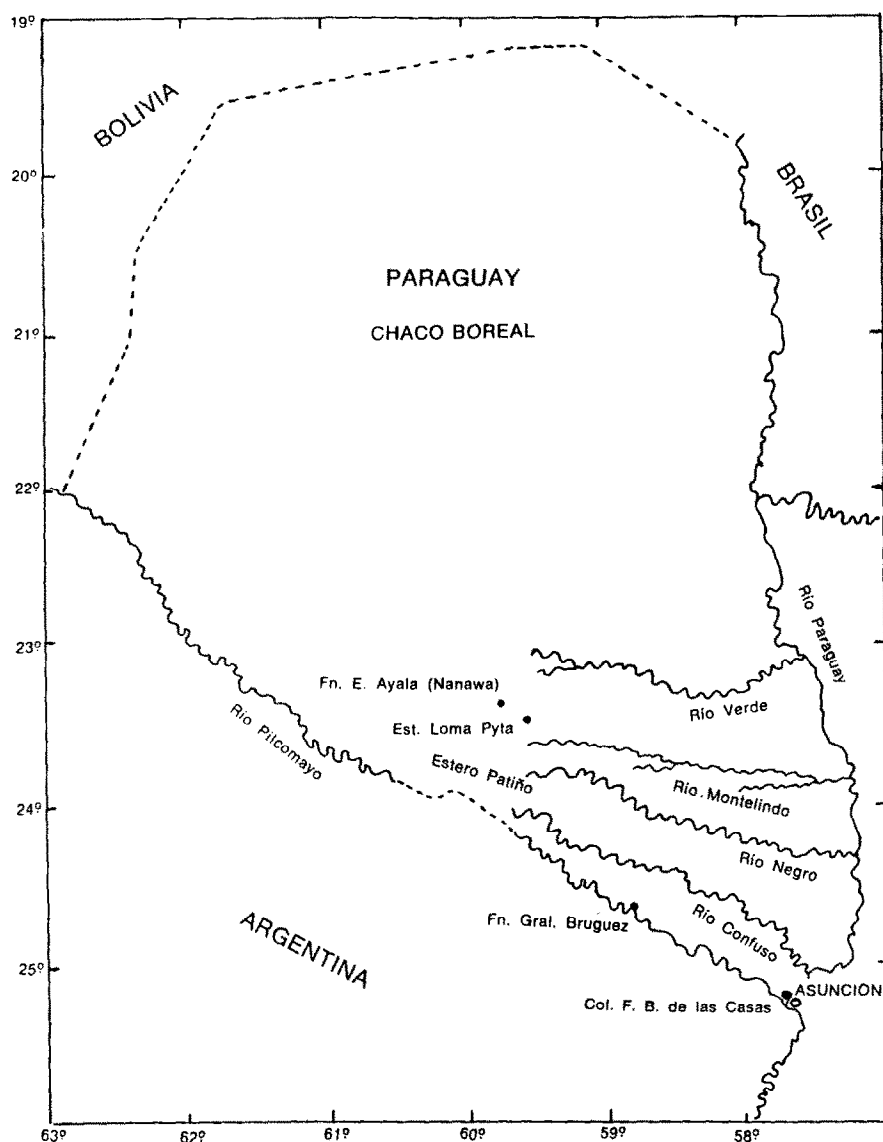


Fig. 1. Localization of the Maká Indians.

magic and the pharmacopoeia of this culture, followed by a more in-depth treatment of the pharmacopoeia. The reader will be able to observe that for the Maká there is no clear division between these elements and that if we set them apart, it is in order for Western culture to reach a better understanding of Maká healing.

The use of certain elements, such as the scarifiers and "love bundles", fall

more clearly into the realm of magic. Scarifiers are generally needles made of bone or vegetal material and are used to inflict wounds on the arms and legs for propitiating the favorable outcome of various activities, particularly hunting. The "love bundles" or amulets are used to insure the passion and loyalty of a desired person. This paper, however, will deal primarily with the medicinal elements of Maká healing (see Table 1). These medicines are of both animal and vegetal origin and may have magical as well as medicinal functions.

Most of the plants mentioned here are characteristic species of the Chaco region, whose medicinal use has to-date not been registered. This paper provides basic data which may help the search of biologically active principles for the development of new drugs.

In this review it is hoped to demonstrate the complexity of medicine and magic among the Maká. Understanding this complexity is generally an obstacle for health professionals working with this group, and who in most cases have little knowledge of their culture. These people suffer today the accelerated process of transculturation, in which their traditional values are losing importance. Traditional magic and medicine are also susceptible to these changes and, as will be seen below, they will be replaced by modern substitutes.

Ethnohistory and linguistic affiliation

The first historical reference to the members of this group was found in documents from the 18th century; they are mentioned there under different names such as: Enimagá, Enimacá, Inimagá and Imacá (Morillo, 1837: 122; Aguirre, 1950: 524–525). Such information states that the Enimagá were extremely quarrelsome and made war against neighbouring tribes except those related to them such as the Guentusé and the Lengua (Cochaboth-Juiadgés).

By 1780, the group inhabited the south bank of the Pilcomayo River in the Central Chaco, as shown by testimony of Fray F. Morillo (1837). Some years later in 1793, Father Amancio González mentioned a nomadic group of Enimagás roaming between the source of the Verde River up to the Negro River and another more reduced group that visited the Melodía Mission, that was under Father González's care (Aguirre, 1950). It has not been established when the migration of the Maká to the northern Chaco took place, but it probably happened by the end of the 18th century (Susnik, 1978: 122). It was precisely then that this group suffered a population collapse as a consequence of their warlike habit, the practice of abortion and particularly of a smallpox epidemic that produced a high mortality among the Maká (Schmidt, 1936: 155; Susnik, 1972: 97). After the 18th century, the name Enimagá disappears from the historical sources, and later explorers, chroniclers and ethnographers of the Chaco considered them an extinct people. In this century, in 1924, Vogt (1933) met a tribe called Maká in the zone of Nanawa and wrote a report about them. Since then, many studies of different kinds

were undertaken, particularly linguistic, generally emphasizing the comparison between the present Maká with the earlier Enimagá (Kisela, 1931; Schmidt, 1936; Métraux, 1942; Susnik, 1955, 1972, 1978).

Schmidt (1936: 156–157) has compared words of the Lengua, Guentusé and Inimacá lexicons with those of the present Maká language. As a consequence of this comparison, Schmidt established a close relation between the present Maká and the Enimagá. Subsequent studies confirmed this and therefore, they were included in the linguistic family Mataco-Maká (Métraux, 1942: 720–721; Mason, 1950: 203–204).

Prior to the Chaco war between Paraguay and Bolivia (1932–1935), the government of Paraguay engaged the Russian soldier Juan Belaieff to carry out topographic exploration of the zone in dispute. Belaieff adopted as guides some Maká Indians with whom he had excellent relations. In time he became the protector of this group and a student of their culture. Due to his influence and through the Asociación Indígena del Paraguay, the National Government in 1944 granted the Maká a property of 827 acres to establish a colony near Asunción. Since then, the Indians have settled permanently in this place on the outskirts of the capital city. Nowadays, only a few families remain in their original area in the Chaco, living on cattle ranches or with other groups of Indians.

The setting

The Gran Chaco is an enormous plain including part of the territories of Bolivia, Paraguay and Argentina. Based on climatic conditions it is one of the largest semiarid zones of South America. The habitat of the Maká presents the general characteristics of this geographic zone. The eastern zone is more humid becoming drier and more arid to the west. This western part suffers a long period of drought, approximately from April until November. December to March are the rainy months. Rivers and lakes are scarce and temporary, and they only acquire importance during rainy months.

The characteristic vegetation of this zone is xerophitic deciduous forest, as well as forest with thorny and shrub-sized trees; the herbaceous layer is formed by different Gramineae and thickets of Bromeliaceae and Cactaceae. There are also pyrogenic savannas and halophilous shrubby steppes (see Fiebrig and Rojas, 1933; Weber, 1969; Cabrera, 1970; Cabrera and Willink, 1973).

The last area of the Chaco occupied by the Maká, before coming to the Colonia Fray Bartolomé de las Casas, comprised the region of the headwaters of the Montelindo, Confuso and Negro rivers and the Estero Patiño (Fig. 1). Formerly the Maká comprised two major groups: *tefe teylec* (inhabitants of the west) and *fisket teylec* (inhabitants of the “palmares”, stands of *Copernicia alba*). The *tefe teylec* lived in semi-permanent villages in the western part of their habitat, while the *fisket teylec*, roamed as seminomads in the eastern region between the Pilcomayo and Confuso rivers.

The place where the Maká now live is quite different from their tradi-

tional habitat and this is the main reason why they have changed their way of life and economy. This environment presents transitional characteristics, as the Chaco elements are mixed there with those of the subtropical rain forest. In this new habitat, neither hunting, plant gathering nor agriculture can be practised. Nevertheless, as they are so near to the capital, they have become an attraction for tourists who photograph them and buy their handicrafts. At present, tourism is the principal economic resource for the Maká. Chase Sardi (1971: 49–51) remarked on the traumas and negative effects produced by this cultural impact and notes the unhappy results when villages are transferred far from their native habitats.

Materials and methods

Our information was obtained during field work (from 1977 to 1981) in the settlement of Colonia Fray Bartolomé de las Casas and during expeditions to the old habitat in Central Chaco. Data were obtained through interviews with qualified male and female informants. Most of them lived in the Colonia. The interviews were recorded on magnetophonic tapes preserved at CEFAPRIN in Buenos Aires. All the plants were collected together with the informants, who traveled with the author to the places where they used to live. The author also has made an expedition with the cacique San Martín and his family, who still live permanently in the Chaco. The places where collections were gathered are: Fortín Gral. Bruguez, Fortín E. Ayala (Nanawa) and Ea. Loma Pyta (see Fig. 1). During these expeditions, the following informants and guides assisted: Félix Zorrilla, Zacarías *konojit* and Rafael *q'inq'inex*. The voucher plant specimens are preserved in the herbarium of useful plants at CEFAPRIN (BACP). The author's plant collection is referenced according to the accession number of the herbarium catalogue of CEFAPRIN (e.g., BACP 649).

The identification of animals was made with the help of catalogues and illustrated guides, as well as with visits to the Museum of Natural History of Paraguay and to the Zoological Garden of Asunción. For the transcription of the words in Maká language, the equivalent Spanish phonetic values were used, with the exception of those sounds that differ or have an ambiguous notation in Spanish. A complete listing of these phonetic values was given in a previous paper (Arenas, 1982: 174)

The traditional Maka medicine

Serious illnesses, with internal symptoms provoking pain, fever, tumefactions, vomiting as well as mental and other illnesses, were and still are treated by the shaman. All that is connected with shamanism, that is, the origin, diagnosis and healing of sickness, is far beyond what the pharmacopoeia involves. The therapeutic methods of the shaman are based on singing, suction, rubbing and blowing, either to make the malign agent come out,

or to restore health. Illness is due to causes such as the loss of the soul, possession by spirits, punishments originated by the contravention of certain prohibitions. Unfortunately, references dealing the Maká shamanism are scarce. Chase Sardi (1970: 240) briefly observed the function of the shaman (*weyhetax*), indicating that he acts as therapist, necromancer and "psicopompo" (one who takes the departed to the land of the dead). It can be affirmed that his function encompasses wide limits and is related with many aspects of social life. Thus, there are shamans propitiating rain, fructification, crop abundance, success in war, etc. But, there is no doubt that their outstanding activity is that of therapist. Pagés Larraya (1978) has contributed much information about this point, particularly with the manner in which the shaman acts to heal mental alterations. Among his careful observations, he mentions how auxiliary spirits are obtained. The maleficent action of the shaman is avenged by means of sacrifices which are brutal murders.

On the other hand, to heal wounds, superficial pains, injuries, simple illnesses, to regulate fertility, skilled or informed persons were consulted who have acquired their knowledge without any specialization or formal initiation. These practices can be included in home medicine, the aim of which is the prevention or the treatment of illness by methods known by any untrained member of the society.

It must be mentioned that most of the Indian cultures of the Chaco have not developed an outstanding pharmacopoeia. This can be explained by the importance of shamanism and by their concept of illness and its supernatural origin. Therefore, they apply religious treatments as a way of prevention and cure. In spite of this, with all these people as well as with the Maká, a number of vegetal and animal healing elements of interest are observed. It must be emphasized that most of the plants mentioned here are characteristic of the Chaco region, dismissing the idea that their knowledge could have been acquired from some other cultures outside of the region. The proximity of the other groups, such as the Lengua-Maskoy or the Chulupí, may have contributed elements, but fundamentally the medicinal use of these species is presented as originally Maká.

Maká medicines

According to the natural and supernatural elements managed, the data can be classified into: magical remedies and natural remedies (see Table 1). To make this division, the following factors have been taken into consideration: the tangible effects observed, the material elements used, and the actions to which they are applied.

When considering these same problems, authors often divide primitive medicine into "natural medicine" and/or "magic or supernatural medicine"; some others call it "empiric and magical medicine"/ Cadogan (1949: 23) in his treatment of Guaraní medicine, divides this into "rational medicine" and "mystic medicine". These distinctions are arbitrary and in fact, as can be ob-

TABLE 1

MAKA MAGIC AND MEDICINE

Scarifiers <i>witqew</i>	{ Bone needles Wooden needles	
Love bundle <i>wit'eqfitec</i>	{ <i>fitec</i> (<i>Dorstenia</i> sp.)	
Shamanism	{ Propitiatory Preventive Therapeutic	
Remedies <i>witeqjunhet</i>	{ Of animal origin Of plant origin	{ magical natural magical natural

served in the Maká concept, there are no limits separating two different kinds of medicines.

As a matter of fact, it attracts our attention that in the use of medicines, the Indians make no distinction of this kind: "the medicine" is the same for them to "heal" a whistle in order to improve its sound, or to treat the shyness of a child or a whooping cough or a toothache. This is expressed by the noun *witeqjunhet* = medicament and the expression *heyeqjunheti* = to give a medicament.

In Table 2 a brief list of the magical remedies is presented. No details will be given in connection with them because it is presumed that the contribution of these natural products to the pharmacopoeia will be poor. The natural medicines will be now described.

Natural remedies

Animal origin

- (1) To cure burns, the affected part is rubbed with the eggs of the snail *Ampullaria* sp. (Ampullariidae = Philidae).
- (2) When the parturient woman does not expel the placenta, the horn of a deer *axtinax lekec*: *Odocoiles dichotomus*, Cervidae), is scraped into pieces with a knife, put into water, stirred and given to the woman who drinks it.
- (3) As an aphrodisiac, the man uses the bone of the penis of a coatí (*him-toso*: *Nasua nasua*, Procynidae), which is scraped, put into water and drunk, either alone or with "mate". "Mate" is an infusion made of

TABLE 2

MAGICAL REMEDIES

Scientific name	Col. no.	Plant part	Preparation and use	Therapeutic indications
CACTACEAE				
<i>Rhipsalis aculeata</i> Web.	BACP 1596	Branch	Macerated	To wash wash the hair turning it abundant and straight
CAPPARIDACEAE				
<i>Capparis speciosa</i> Griseb.	BACP 639	Branch	Standing beside the head while sleeping	To overcome grief for the dead
		Branch	Fumigation	To heal persons who talk in their sleep
		Branch	Fumigation	To prevent chickenpox epidemic
CELASTRACEAE				
<i>Maytenus vitis-idaea</i> Griseb.	BACP 649	Branch	Rubbing; fumigation	To make a weapon effective and deadly; to propitiate game to be abundant and fat
LEGUMINOSAE				
<i>Cassia bicapsularis</i> L.	BACP 1595	Branch	Placing the branch into the tube of firearm; rubbing	To make a weapon deadly
<i>Cassia patellaria</i> Desv.	BACP 695	Leaf	Rubbing	To turn the child into a shy, educated and good tempered one
<i>Mimosa</i> cfr. <i>neptunioides</i> Harms	BACP 2386	Leaf	Rubbing	
<i>Neptunia pubescens</i> Benth.	BACP 1622, 2383	Leaf	Rubbing	
ORCHIDACEAE				
<i>Sarcoglottis grandiflora</i> (Hook.) Klotzsch	BACP 2413	Root	Bundle	To attract animals while hunting
PALMAE				
<i>Trithrinax biflabellata</i> Barb. Rodr.	BACP 685, 2402	Crown leaves of the palm	Decoction, to put into or to wash the tube of a weapon	To make the weapon deadly and effective

POLYPORACEAE					
<i>Daedalea elegans</i> Fries	BACP 1619a				To wean a child
<i>Polyporus guaraniticum</i> Speg.	BACP 1917				To wean a child
<i>Pycnoporus sanguineus</i> (Fries) Murri	BACP 1618		Fumigation, Fumigation Fumigation		To wean a child
RUBIACEAE					
<i>Calyculophyllum multiflorum</i> Griseb.	BACP 1592	Leaf	Rubbing		To overcome grief for the dead
SCROPHULARIACEAE					
<i>Scoparia montevidensis</i> (Spreng.) Fries var. <i>glandulifera</i> (Fritsch) Fries	BACP 1614	Branch	Rubbing, contact with the tube of a weapon		To make the weapon deadly and effective
SOLANACEAE					
<i>Solanum glaucophyllum</i> Desf.	BACP 714, 1550	Branch	Rubbing and striking the person's legs		To avoid pain of the body and other perils, when a menstruating woman and her husband, against the taboo, get in the water in this contaminated condition
TURNERACEAE					
<i>Turnera ulmifolia</i> L.	BACP 2396	Root	Introducing it into the hole of a whistle		To obtain a good sound from the whistle
ULMACEAE					
<i>Celtis pallida</i> Torrey	BACP 636	Branch	Striking the person's legs macerating and drinking it		To make one a fast runner
<i>Celtis spinosa</i> Sprengel	BACP 1663, 1665	Branch			
<i>Phyllostylon rhamnoides</i> (Poiss.) Taubert	BACP 1648, 2411	Bark	Rubbing		To be sympathetic and to have personal attraction

"yerba mate" (*Ilex paraguariensis*), which is prepared with hot water. If cold water is added, the beverage is called "tereré".

- (4) To prevent tumefactions due to stings from bees or wasps, hands must be warmed to make fomentations on the affected part; then larvae from the same bee or wasp are mashed over the injury while some rubbing with the insects is done.

Plant origin

- (1) *Anemia tomentosa* (Sav.) Swartz var. SCHIZAEACEAE
anthriscifolia (Schr.) Mickel
witelkehetax tefiteci Fn. E. Ayala, BACP 2392
 It is a medicine against whooping cough (*witelkehetax*). It must be crushed and left in maceration with water. It can be drunk as many times as necessary.
- (2) *Begonia cucullata* Willd. BEGONIACEAE
witk'unheti'tek'e Gral. Bruguez, BACP 1581
 The roots are crushed and the resulting paste is place in the caries to calm toothache. Some people say that it is an effective medicine, whereas others maintain the opposite.
- (3) *Buchnera longifolia* H.B.K. SCROPHULARIACEAE
no'ojem leji e'fu Gral. Bruguez, BACP 1609
 Medicine used by women; it is considered haemostatic. When haemorrhages or abundant menstrual flow occur, the fruits are masticated and the juice swallowed in order to stop the bleeding.
- (4) *Bulnesia sarmientoi* Lor. ex Griseb. ZYGOPHYLLACEAE
ticiyuk Ea. Loma Pyta, BACP 717
 Fn. E. Ayala, BACP 2382
 The wood is a cicatrizant. It is particularly used for the bites or wounds produced by piranhas. The wood is scraped and the wood shavings, as well as the fine dust obtained, are placed over the wound until it is healed.
- (5) *Caesalpinia paraguariensis* (D. Parodi) Burkart LEGUMINOSAE
wek'eyuk Ea. Loma Pyta, BACP 638
 Gral. Bruguez, BACP 1575
 The fine dust inside the fruit is placed into the caries as medicine to calm toothache.
- (6) *Capparis speciosa* Griseb. CAPPARIDACEAE
fonfonok Ea. Loma Pyta, BACP 639
 When a thorn penetrates and stays in the foot, the bark is pulverized and the resulting dust is placed over the wound; on the next day the thorn comes out.
- (7) *Capparis retusa* Griseb. CAPPARIDACEAE
anheyuk Ea. Loma Pyta, BACP 651
 Gral. Bruguez, BACP 1544

Medicine prescribed for chickenpox. The root is peeled and the pieces of bark are macerated in either hot or cold water. This liquid is drunk several times — some five doses — causing the blisters produced by the eruption to disappear.

- (8) *Capparis tweediana* Eichl. CAPPARIDACEAE
jis'iyuk; inwomet taqac; sit taqac Ea. Loma Pyta, BACP 629
 The leaves of this plant are masticated and the resulting paste is placed over a furuncle causing the pus to accumulate. On the following day, the humor formed constitutes a small protuberance which is ready to burst.
- (9) *Chlorophyllum molybdites* (Meyer: Fries) Massée LEPIOTACEAE
tip'tip toqotoki Ea. Peña, BACP 2405
 The fruiting bodies of this mushroom are rubbed over furuncles to facilitate their suppuration and healing.
- (10) *Clematis denticulata* Vell. RANUNCULACEAE
kucheleweyic Gral. Bruguez, BACP 1555
 The flowers having fertilized carpels are crushed; this material, when fresh, produces an effluvium that is inhaled in order to prevent or cure colds, cough, sore throat or other diseases of the respiratory system. The substance expelled by the crushed flowers is an irritant and, acting upon the mucous membranes, frequently produces sneezing.
- (11) *Chenopodium ambrosioides* L. CHENOPODIACEAE
ciwanaq tefiteci Gral. Bruguez, BACP 1563
 The aerial part of the plant is used locally to reduce itching. It is crushed and macerated with water, with which the ill person must bathe. In case of fever, the decoction can also be drunk.
- (12) *Echinopsis rhodotricha* Schum. CACTACEAE
ji'ilek Ea. Loma Pyta, BACP 703
 The succulent parenchymatic cortical tissues of the stalk are consumed in cases of measles and chickenpox. For this purpose, the protective layers of the stalk are removed and fragments of the softest portion are directly eaten.
- (13) *Elionurus muticus* (Spreng.) Kunth GRAMINEAE
fatikhacax Fn. E. Ayala, BACP 2373
 The inflorescences of the grass (*fic'ekuk*) — *Paspalum plicatulum* Michx. and *P. unispicatum* (Scribn. & Merr.) Nash — are visited by wasps which suck the sweet juice that covers them. It is probable that this secretion might be the product of an infection produced by a mushroom of the genus *Claviceps*. The visitors carry this juice to their beehive, thus infecting the honey, which is called *fic'e* and can be recognized by its strong perfume. It is very dangerous when drunk: it produces dizziness, headache, stomachache, and symptoms similar to those of drunkenness; it may cause death. The grass *E. muticus* is the medicine for the intoxication produced by the ingestion of the honey or the beer prepared by the fermentation of that honey. To prepare

the medicine, the lower portion of the grass (about 5 plants) is crushed and then put into a container with water, shaking it up. The liquid is sour and after drinking it vomiting is produced. This grass is used in the same way for intoxication due to the ingestion of the toxic variety of manioc (*t'e'i*: *Manihot esculenta* Crantz).

- (14) *Euphorbia lasiocarpa* Klotzsch EUPHORBIACEAE
witiujiti lefitecii Fn. E. Ayala, BACP 2398

Medicine for the circinate herpes (*witiujiti*). It is of local application, the branches must be broken and the flowing latex must be placed on the affected areas. The treatment is continued until the sickness disappears.

- (15) *Euphorbia serpens* H.B.K. EUPHORBIACEAE
Gral. Bruguez, BACP 1665

This species is known under the same common name of the previous one, and it is said to have the same properties.

- (16) *Fagara naranjillo* (Griseb.) Engler var. RUTACEAE
paraguariensis (Chod. & Hassl.) Escal.
penjicetax tefitecii Gral. Bruguez, BACP 1579

The leaves are crushed and rubbed on the face in order to cure or prevent acne (*witjuci'l*).

- (17) *Gomphrena perennis* L. AMARANTHACEAE
withathic tefitecii Gral. Bruguez, BACP 1666

Haemostatic. The crushed roots are put into water in the evening and left in maceration until the next morning; then the resulting juice is drunk for prevention of menstrual haemorrhages.

- (18) *Heimia salicifolia* (H.B.K.) Link LYTHRACEAE
witlat tek'e; maajaji lop'om Gral. Bruguez, BACP 1688

When a thorn remains imbedded in the skin, the leaves are crushed and placed on the wound. In this way the thorn is attracted to the surface making easier the extraction thereof; it also heals the wound.

- (19) *Jacaratia corumbensis* O. Kuntze CARICACEAE
sehemki Ea. Loma Pyta, BACP 665

The juice of the crushed roots is drunk in case of stomachaches, abdominal pain and vomiting.

- (20) *Marsdenia castillonii* Lillo ex Meyer ASCLEPIADACEAE
yowe'k; yowek Ea. Loma Pyta, BACP 723

In order to remove thorns that stay inside the flesh, the root is squeezed and the latex is placed on the affected part. The procedure is repeated as many times as necessary; it is said that it attracts the thorn towards the surface, then it is only enough to press with the fingers to let it out.

- (21) *Melothria cucumis* (Vell.) Cogn. CUCURBITACEAE
nite'olocim wit'athic Gral. Bruguez, BACP 1661

When the menstrual flow is abundant it is used as a haemostatic. For this purpose a fruit is divided into two halves, one of which is masticated and crumbled and the abdomen is rubbed with the resulting

paste. On the following day the treatment is repeated with the remaining portion, thus decreasing the haemorrhage.

- (22) *Monvillea spegazzinii* (Weber) Britton & Rose CACTACEAE
yewu'm; yewum Fn. E. Ayala, BACP 2401
 To calm or cure earache the stem is squeezed; a piece of cloth is wetted with the juice, then dropped inside the ear. The treatment requires only two applications.
- (23) *Nicotiana tabacum* L. SOLANACEAE
finak Colonia F.B. de las Casas, BACP 920
 The resin accumulated in the stem of a smoking pipe is removed to heal the cutaneous miasis produced by *Dermatobia hominis* (*witiuju*) in the skin of man. The substance is drawn out with a little stick and placed into the wound. It is said to be a very effective treatment. It is also indicated in cases of serious pediculosis when the scalp is very damaged, rubbing the resin strongly over this part. Belaieff (1940: 61) reported that the Maká believe that the use of tobacco, either chewed or smoked, spoils the milk of the mothers.
- (24) *Passiflora misera* H.B.K. PASSIFLORACEAE
wanax lahacjil; wanax tefitecii Gral. Bruguez, BACP 1557
 To cure the wounds in cases of bites of piranhas (*wanax*), the leaves are crushed and water added, washing the affected part with the liquid.
- 25 *Petiveria alliacea* L. PHYTOLACCACEAE
lemtewei Gral. Bruguez, BACP 1561
 In cases of gripe (cough and fever) or other affections connected with the respiratory system, the root is crushed and macerated and the juice drunk.
- (26) *Polycarpon suffruticosum* Griseb. CARYOPHYLLACEAE
witeqjunhet; witeqjunhetic; witqac Gral. Bruguez, BACP 1569
 For the treatment of hoarseness of aphonia produced after prolonged singing at their celebrations, they take the succulent root of this plant which is masticated, drinking the juice and spitting out the rest of it. This juice is unpleasant, strong and removes the inflammation of the throat, restoring the capacity to continue singing. Women use this medicament as a contraceptive: the juice of the root, crushed and macerated in water, is taken several times.
- (27) *Polygala molluginifolia* St. Hil. POLYGALACEAE
ham witasi'im Gral. Bruguez, BACP 1608
 It is used as a contraceptive. To prepare the medicament, one or two roots are masticated, put in a jug and some water is added, leaving the potion to settle during the night. The ingestion of the beverage must take place at dawn, before daybreak, drinking it once or twice. Otherwise, the man masticates a piece of root passing it to the woman who swallows the substance and rubs her lower abdomen. It can be used particularly to avoid pregnancy in a young woman, so that when

she wishes to become pregnant. she takes another medicine to restore her fecundity. There is no agreement as far as the reversibility of the sterility is concerned; some persons are in favour of this belief, while others support the theory that its effect lasts for life. It is probably that this name *ham witasi'im* is a generic one that includes some others species; at least the descriptions given by our informants make us presume it, but we were unable to gather more material to confirm this.

- (28) *Pterocaulon purpurascens* Malme COMPOSITAE
witiujutec tek'e; *witiujutec teneqjunhetic*;
witiujutec leneqjunhet Gral. Bruguez, BACP 1637
 The leaves are crushed to form a paste, which is placed into the caries to calm toothache.

- (29) *Pterocaulon virgatum* (L.) DC. COMPOSITAE
 Fn. E. Ayala, BACP 2385
 This species is known under the same common name as the previous one, and it is said to have the same properties.

- 30 *Porophyllum lanceolatum* DC. COMPOSITAE
julax tefitecii Gral. Bruguez, BACP 1623
 As a remedy for conjunctivitis (*julax*), the root must be crushed and put in some water and the eyes are washed with the resulting liquid. The leaves are also good for boils: they are chewed and the paste placed over the furuncle so that on the next day it will start to suppurate.

- (31) *Ruprechtia triflora* Griseb. POLYGONACEAE
filek Ea. Loma Pyta, BACP 679
 It is a remedy for chickenpox. To prepare it, the root and the bark are scraped, macerated in water and the resulting liquid is drunk.

- (32) *Sapium haemospermum* Müll.-Arg. EUPHORBIACEAE
setuk Gral. Bruguez, BACP 1627
 Galactagogue properties are attributed to this plant. Nursing mothers rub their nipples with the latex obtained from the leaves or small branches to improve lactation. This treatment is repeated as many times as necessary.

- (33) *Schinopsis balansae* Engler ANACARDIACEAE
keteikutek Ea. Loma Pyta, BACP 656
 To make moles (*wit watheyax*) disappear, a small branch is broken and the sap is placed on the mole which on the following day disappears. If the mole is large, it may reappear, then the treatment should be repeated. This remedy desintegrates the mole leaving a sort of scar as that of a pimple. The mole may appear more than once so that the treatment must be applied frequently in order to eliminate it.

- (34) *Schinopsis* cfr. *cornuta* Loes. ANACARDIACEAE
 Fn. E. Ayala, BACP 2393
 This species is known under the same common name of the previous one, and it is said to have the same properties.

- (35) *Struthanthus angustifolius* (Griseb.) Hauman LORANTHACEAE
piifi taqakuk; piifi taqac Gral Bruguez, BACP 1541
 The branches and leaves are crushed and left in maceration in water.
 The liquid is used locally as an emollient for persons effected with
 chickenpox.
- (36) *Tabebuia caraiba* (Mart.) Bur. BIGNONIACEAE
tilenuk Ea. Loma Pyta, BACP 659
 It is indicated for stomach disturbances (vomiting, abdominal pain), fe-
 ver and chickenpox. The bark is used. It is chopped and boiled in wa-
 ter and once it has cooled it is drunk. It can be also taken with the
 "mate".
- (37) *Verbena gracilescens* Cham. & Schlecht. VERBENACEAE
 v.n. unknown Gral. Bruguez, BACP 2137
 The material was obtained by J. Braunstein from his informant Felipe.
 On the field label, it says that its roots have an aroma. According to
 Felipe, the roots are used to correct the sterility of middle aged
 women. He told about a woman over thirty who achieved her goal of
 becoming pregnant by using this plant.
- (38) *Ximenia americana* L. var. *argentinensis* De Filippis OLACACEAE
witsometek Fn. E. Ayala, BACP 2375
 The bark is used as a medicament to heal the venereal disease
witsometek. Portions thereof are boiled, and once it has cooled the
 liquid is drunk twice a day. The treatment must continue until the
 sickness disappears during a more or less extended period. The same
 liquid is also used to wash the affected parts. The illness "*witsome-
 tek*" can affect women as well as men; its symptoms being painful in-
 flammations of ganglia, bad smelling purgations, deep pain when
 urinating and in men, swelling of the glans penis.

Present day practises

Pagés Larraya (1978: 183) and Chase Sardi (1970: 50) mention that certain aspects of the Maká's traditional culture are again being appreciated, particularly the shamanism, which is still active. Nevertheless, it has been observed that shamanism in its traditional forms is losing ground, at the same time as Christianity acquires more followers.

An important messianic movement that originated among their relatives, the Chulupies, was widely accepted among the Maká in the 1950s. Regehr (1981) outlines the characteristics of this charismatic autochthonous movement, which considers the healing of sick people as one of its aims. He says that in the Indian groups, illnesses were not only a personal problem, but a menace for the group. By means of the new religion the figure of the shaman has been restored in order to confront the malevolent powers, the frustration and the illnesses. The same movement is outlined by Braunstein (1981: 542–550) who reproduces a long testimony of a protagonist of the messianic transcendent event of Maká religious life. Braunstein explains

(1981: 550) that healing was at the center of the new religion. There appeared two Maká "quack" doctors who cured by means of prayer. Braunstein (1981: 560—571) tells in detail the stories of the healing events successfully developed by González and Luciano, which were interrupted by their deaths. In spite of shamanism, having lost ground, the evil that was before faced by the shaman is nowadays treated by charismatic preachers who find enthusiastic followers among the Maká. The spiritual healing by pentecostal preachers provides a new equilibrium for the community.

As far as the pharmacopoeia is concerned, most of the species are absent in the present habitat of the tribe, making their use almost impossible. Through the years elapsed in the Colony, the Maká have relied on professional medical assistance, which was given by individuals or charitable institutions as well as by health care centers. For the healing of wounds, fractures, accidents or simple illnesses they visit these centers in Asunción, particularly the Baptist Hospital. Methods for the regulation of fertility are now also provided by modern medicine.

In spite of the contact maintained with the creole and general population, the Maká did not adopt the medicinal herbs used by the Paraguayan people. But some elements of the folk medicine of Guaraní origin were incorporated. These are drunk with the mate or tereré. These medicinal herbs can be easily obtained in stands in markets or from ambulatory traders, and are considered to be aromatic, refreshing and diuretic.

In the unique situation of the Maká, there can be found traditional elements still in use together with new ways adapted to their present reality. In connection with the use of the pharmacopoeia, the natural species formerly employed will be lost forever when the knowledgeable old people disappear. At present it cannot be predicted whether the young generation of Maká will adopt the healing habits of the Paraguayan folk society, or will prefer the pharmaceutical medicines. As far as those ailments that doctors are not able to cure nor understand, the pentecostal cult offers an alternative.

Acknowledgements

The author cordially thanks the help and the teachings given by the Indian informants, as well as to all the Maká who in any way have cooperated in this work. Special gratitude is expressed to Prof. M. Bacigalupo, Prof. A. Basch, Dr. J.A. Braunstein and Ing. Agr. G. Giberti for their valuable assistance in the preparation of the manuscript. Dr. J. Wright was kind enough to identify the fungi. I am also indebted to D. Soejarto, T. Plowman and D. Williams for their suggestions and revision of the English translation of this paper.

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