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ARCHAEOLOGICAL EVIDENCE FOR THE ANTIQUITY OF PSYCHOACTIVE PLANT USE IN THE CENTRAL ANDES

Abstract - CONSTANTINO MANUEL TORRES - Archaeological evidence for the antiquity of psychoactive plant use in the Central Andes.

This work presents an evaluation of the evidence for the antiquity of psychoactive plant use by the indigenous populations of the Central Andes. The first problem is to determine what constitutes clear archaeological evidence. The most direct form of evidence is the finding of plant remains in direct association with human activity. Another type of evidence is that provided by the implements used in the preparation and ingestion of psychoactive preparations. The most conclusive evidence of this type is that provided by the smoking pipes and by the snuffing paraphernalia. Psychoactive plant representations furnish a third type of evidence.

Smoking pipes from NW Argentina and associated *Anadenanthera* seeds, dated to c. 2130 B.C., and snuff trays and tubes from the central Peruvian coast (c. 1200 B.C.), represent the most ancient use of psychoactive plants in South America. Chavin (c. 1000-300 B.C.), one of the most complex cultures during the formative period in Precolumbian Peru, clearly displays imagery directly related to psychoactive plant use in public monumental stone sculpture and architecture. San Pedro de Atacama, located in the desert of northern Chile, is the region with the most intensive use. Approximately 20-22% of the male population was using snuff powders between the third and the tenth centuries A.D. The great antiquity and its presence throughout the Central Andes, suggest an important role for psychoactive plants in the development of Precolumbian Andean ideologies.

Key words: Hallucinogens; South America; Archaeology.

Riassunto - CONSTANTINO MANUEL TORRES - Evidenza archeologica dell'antichità dell'utilizzo delle piante psicoattive nelle Ande Centrali.

Il presente articolo valuta l'evidenza dell'antichità dell'utilizzo delle piante psicoattive da parte delle popolazioni indigene delle Ande Centrali. Il primo problema consiste nel determinare ciò che costituisce una chiara testimonianza archeologica. La più diretta testimonianza è il ritrovamento di rimanenze vegetali in diretta associazione con l'attività umana. Un altro tipo di

testimonianza è quella fornita dagli strumenti impiegati nella preparazione e nell'assunzione dei preparati psicoattivi. La testimonianza di questo tipo più evidente è quella fornita dalle pipe per fumare e dai parafernalia associati alle polveri da fiuto. Le rappresentazioni di piante psicoattive forniscono un terzo tipo di testimonianza.

Le pipe per fumare ritrovate nel Nord-Ovest dell'Argentina e associate ai semi di *Anadenanthera* datate al 2130 a.C., e i vassoi e i tubi inalatori originari della costa peruviana centrale (circa 1200 a.C.), evidenziano il più antico utilizzo di piante psicoattive nell'America del Sud. La cultura Chavín (circa 1000-300 a.C.), una delle più complesse culture del periodo formativo del Perù precolombiano, mostra chiaramente la creatività associata all'utilizzo delle piante psicoattive, in particolare nella scultura e nell'architettura delle pietre monumentali. San Pedro de Atacama, situato nel deserto del Cile settentrionale, è la regione caratterizzata dal più esteso utilizzo di piante psicoattive. Circa il 20-22% della popolazione maschile utilizzava polveri da fiuto nel periodo compreso fra il terzo e il decimo secolo d.C. La grande antichità e la sua presenza lungo tutte le Ande centrali suggerisce un ruolo importante delle piante psicoattive nello sviluppo delle ideologie delle popolazioni andine precolombiane.

Parole chiave: Allucinogeni; America del Sud; Archeologia.

INTRODUCTION

Psychoactive plants have been employed for millennia by the Precolumbian inhabitants of the Americas. Investigations into the use of these plants by indigenous groups in the South American continent have recently increased at a rapid rate. But evidence of their use in antiquity has not been thoroughly explored. Understanding the function and purpose of the ingestion of psychoactive substances since its formative stages could contribute to an understanding of its role in the shaping of the belief systems of prehistoric societies. In the traditional life of many pre-Hispanic cultures these substances of plant origin might have been important in efforts to establish contact with the supernatural for subsequent manipulation in order to achieve social goals. This study focuses on the Central Andes, a region extending from northern Peru to Northwest Argentina and the Atacama Desert in north Chile (see Fig. 1 - Map). This area includes Peru, Bolivia, the Atacama Desert of northern Chile, and the Argentine northwest. The Central Andes offers abundant archaeological evidence documenting the use of psychoactive plants in a variety of Precolumbian civilizations.

The products of psychoactive plants have been administered in various ways. Plants have been drunk as decoctions or infusions and have been chewed in more or less crude form. They have been smoked in pipes or as cigars, applied to the skin as an ointment, or taken as an enema. They have also been used as a very fine snuff powder which is inhaled through the nose.

Archaeological evidence for the use of psychoactive plants is defined by several factors. The most direct, although infrequent, type of evidence is the actual find-

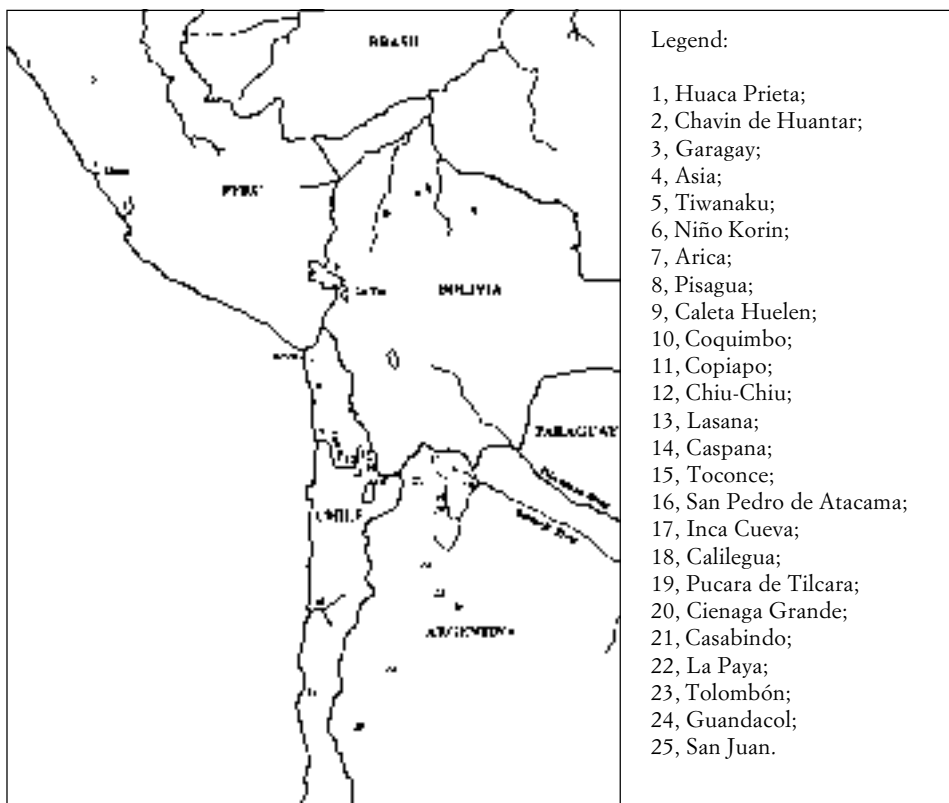


Fig. 1 - Map of the Central Andes, showing locations of the most important sites mentioned in the text.

ing of plant remains in an archaeological context. *Anadenanthera* seeds, for example, have been found in archaeological sites in Northwest Argentina and in northern Chile (see FERNANDEZ DISTEL 1980; LLAGOSTERA *et al.*, 1988). Tobacco and *Ilex guayusa* leaves were excavated at the site of Niño Korin in Bolivia (WASSEN, 1972; SCHULTES, 1972). However, these are fairly dry environments with good preservation of the archaeological remains.

The implements utilized in the preparation and ingestion of psychoactive plants provide the most frequently found category of evidence in the South Central Andes. Evidence of this type is best provided by the snuffing paraphernalia. The equipment for the inhalation of psychoactive snuff powders consists of a small rectangular tray, a snuffing tube, a spatula and one or more leather pouches containing the snuff powder (Fig. 2). The presence of these implements in an archaeological setting is a clear indication of the use of psychedelic

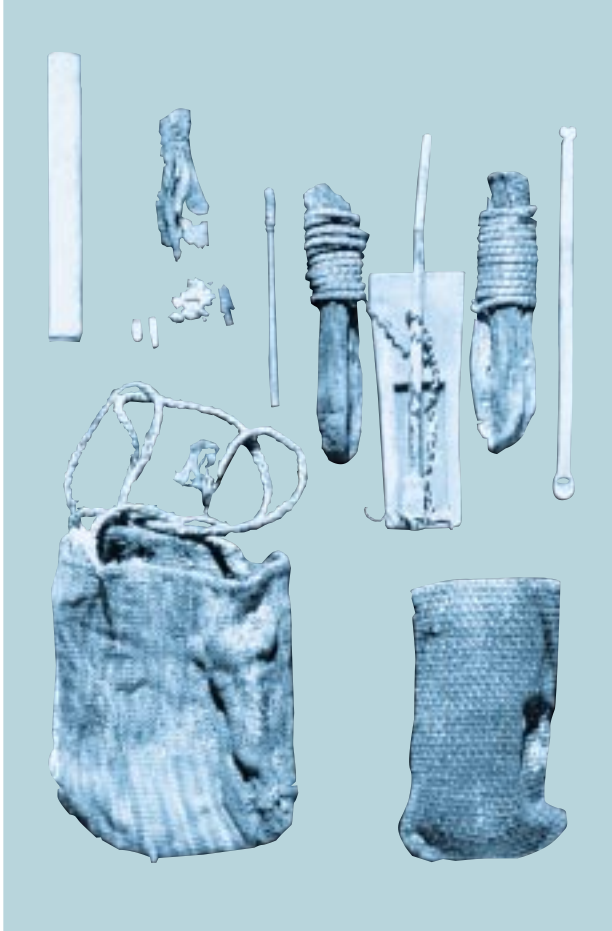


Fig. 2 - Snuffing kit from Solcor 3 archaeological site, San Pedro de Atacama, Chile. Instituto de Investigaciones Arqueológicas y Museo R. P. Le Paige, San Pedro de Atacama.

snuffs (TORRES, REPKE, *et al.*, 1991). Snuff trays and tubes are the most frequently found of the snuffing implements. Smoking pipes, made out of bone, ceramic or stone, also are a frequent occurrence in archaeological sites throughout the Central Andes.

The use of plant preparations that are drunk as decoctions, such as San Pedro cactus or Ayahuasca potions, present particular difficulties that prevent its identification in an archaeological context. The use of these plants does not require a specific paraphernalia for their ingestion that could be identified with certainty. The verification of these practices solely on the basis of elaborate drinking vessels is practically impossible.

The third type of archaeological evidence is that provided by the representation of psychoactive plants. San Pedro cacti are represented in the stone sculp-

ture and in the ceramics of the Chavin culture of the Peruvian highlands (c. 1000 - 300 B.C.; BURGER, 1992). *Anadenanthera* depictions are seen in the pottery of the Moche (ca. A. D. 100-800), a coastal culture of northern Peru (FURST, 1974: 84, Fig. 18). Probable mushroom representations are seen in Prehispanic Colombian goldwork of the Darien style (ca. A.D. 1000-1250; SCHULTES & BRIGHT 1979; cf. SAMORINI 1992). Nevertheless, psychoactive plants are rarely represented in Andean Precolumbian artifacts.

PSYCHOACTIVE PLANTS IN SOUTH AMERICAN ARCHAEOLOGY

The snuffing paraphernalia provides the most definitive evidence for the use of psychoactive plants in South American prehistory. The practice of snuffing apparently originated in the New World. This practice was introduced into Europe from the Americas together with the use of tobacco (SCHULTES, 1967: 291-292) which was probably the most widely used source of snuffing material in pre-Columbian South America. Tobacco was also chewed and smoked, but snuffing was the most widespread method of use, particularly in the tropical forest area. *Nicotiana tabacum* was the species employed in South America; while *Nicotiana rustica* is native to North America and most likely was the species used by the ancient Mexicans (SCHULTES, 1967: 292).

The snuff powder from the Greater Antilles called *coboba* by PANE (1974) and LAS CASAS (1909), as well as those known in South America as *yopo*, *vilca*, and *cebil*, are obtained from trees of the leguminous genus *Anadenanthera*. The snuff from *Anadenanthera* species is obtained from the seeds, which grow in foot-long pods each of which contains from eight to sixteen seeds 10-20 mm in diameter (REIS ALTSCHUL 1964: 30)

Several species of this genus are used as sources of the snuff powder depending on regional availability. The powder used in the Antilles and in the area of the Orinoco Basin of Colombia and Venezuela, referred to by the names of *coboba* and *yopo* respectively, is obtained from *Anadenanthera peregrina*. The source of this snuff was not correctly identified until the beginning of this century by the North American ethnobotanist WILLIAM E. SAFFORD (1916). It should be noted that this genus had been suggested previously as a probable source of a snuff powder by UHLE (1915: 119), and by ERIC BOMAN (1908, vol. II: 653). SIRI VON REIS ALTSCHUL (1964: 8, 32) has demonstrated, in her taxonomic study of the genus *Anadenanthera*, that *A. peregrina* is the most northerly of the species belonging to this genus, occurring from southeastern Brazil to the Greater Antilles.

The psychoactive powders known in Peru as *vilca* or *huilca* and in northwestern Argentina as *cebil* are obtained from *Anadenanthera colubrina*, var. *cebil*

(REIS ALTSCHUL, 1964: 6) . The use of a snuff in Argentina during pre-Hispanic times is documented in the sixteenth-century *Relaciones Geograficas* by PEDRO SOTELO DE NARVAEZ (1851: vol. 2: 142-153; also quoted in UHLE, 1898: 167). The text reads as follows: «Toman por las narices el sebil, que es una fruta como vilca; hacenla polvo y bebenla por las narices.» *A. colubrina* is the most widely distributed of the two species under discussion, occurring in Argentina, Bolivia, Brazil, N. Chile and in the eastern slopes of the Andes. It is also the most adaptable to a variety of environments, growing on river sides or dry slopes at altitudes up to 2500 meters (REIS ALTSCHUL, 1964: 10, 35).

In the northwest Amazon area of Colombia and Brazil a different snuff preparation is used. It is variously known as *ya-kee*, *ya-to*, or *parica*, although the latter is a generic term used to refer to a variety of preparations. This snuff is made from the exudate of various *Virola* species, a tree not identified as its source until 1954 (SCHULTES 1954). This type of snuff escaped notice until the field work of the German ethnologist Theodor Koch-Grunberg in the early twentieth-century, and there is no archaeological evidence for its use. Koch-Grunberg did not identify the plant, but he observed the preparation of a snuff from the bark of a tree during his stay among the Yekwana of the upper Orinoco in 1911-1913 (KOCH-GRUNBERG, 1917-28; SCHULTES, 1979: 212). The North American ethnobotanist RICHARD EVANS SCHULTES (1954: 248-249) during his extensive field work in the Northwest Amazon observed the preparation of the snuff and identified the plant. This type of snuff is prepared from several *Virola* species. The most widely used species are *Virola Theidora*, *V. calophylla*, and *V. calophylloidea*. Several plants are used as admixtures to *Virola* snuff, including *Theobroma subincanum* and *Justicia pectoralis* var. *stenophylla*. (SCHULTES, 1967: 300; 1979: 229, 233).

Trichocereus pachanoi - San Pedro, a large columnar cactus, is the basis of a hallucinogenic potion employed in the Central Andes. It is of great importance in the ritual and healing practices of curanderos (healers) in the north coast of Peru (POLIA, 1988). Mescaline is one of several psychoactive alkaloids present in the San Pedro cactus. Archaeological evidence for its use is seen in its representation in the monumental stone sculpture, and ceramics of the early Peruvian civilization known as Chavin (c. 1000 - 300 B.C.; BURGER, 1992: 96, 135, figs. 84, 125).

In summary, tobacco (*Nicotiana tabacum*) is the most common botanical source of snuff and the one with the widest geographical distribution. The snuff known as *coboba* in the Antilles and as *yopo* or *niopo*, in northwestern South America is obtained from the seeds of *Anadenanthera peregrina*. The *vilca* of southern Peru and Bolivia, and the *cebil* of northwestern Argentina is obtained from *Anadenanthera colubrina* var. *cebil*. The snuff known as *ya-kee*, *ya-to*, or *parica* is obtained from the resin of several *Virola* species. The plants most widely used in the pre-Hispanic period, as far as can be determined by the accounts in

the early documents, are *Nicotiana tabacum* and *Anadenanthera* species. *Virola*, as previously mentioned, was not observed in use until 1911 by Koch-Grunberg. Evidence for the use of San pedro cactus is seen in representations in the art of Chavin.

INDIVIDUAL CULTURE AREAS

The purpose of the next four sections is to place the evidence for psychoactive plant use within its proper cultural context. Each section deals with a geographical region or cultural unit: Peru, the archaeological sites of Tiwanaku and Niño Korin in Bolivia, the Atacama Desert of northern Chile, and northwest Argentina.

PERÙ

Examples of pre-Hispanic snuffing paraphernalia in the area of present-day Peru are rare. Nevertheless, there is evidence, aside from the snuff trays and tubes, of the use of hallucinogenic substances in pre-Hispanic Peru. YACOVLEFF and *Herrera* (1934-1935), in their work on Peruvian ethnobotany, provide a large selection of plant representations in pre-Conquest Andean art, as well as a compilation of botanical references by the early chroniclers.

These two authors are of the opinion that several species of tobacco were used by the ancient Peruvians and state that the most common method of tobacco ingestion was by inhalation through the nose (YACOVLEFF and HERRERA 1934-1935: 44). According to GARCILASO DE LA VEGA (1943, Vol. 1: 117), the tobacco plant had numerous applications: «De la yerba o planta que los espanoles llaman tabaco y los indios sairi, usaron mucho para muchas cosas. Tomaban los polvos por las narices para descargar la cabeza.»

The Spanish chronicler POLO DE ONDEGARDO, writing in the sixteenth century, mentions *Vilca* (*A. colubrina*) as an inebriant: «Los hechiceros para emborracharse usan de una yerba llamada *Vilca*, echando el zumo della en la chicha, o tomandola por otra via» (as quoted in YACOVLEFF and HERRERA 1934-1935: 43). YACOVLEFF and HERRERA (1934-1935: 43) quote from the sixteenth-century writer Santa Cruz de Pachacuti a folktale concerning the origin of the *Vilca* plant and its curative powers: «Inca Yupanqui les haze que enterrase (el capital Villca-quire, muerto por los Chancas) junto a un arbol y los cabase al tronco de la madera, para meter todo su cuerpo en ella; y les dize qua el grano que echare el arbol seria medicina llamado vilca, y que los echaria todos los malos humores y coleras de las personas». *Vilca* seeds are still used today and sold as purgatives in Peruvian markets (YACOVLEFF and HERRERA 1934-1935: 43).

Several *Anadenanthera* representations are seen in Moche pottery (ca. A. D. 100-800). This plant appears in deer-hunting scenes, and can be identified by the sets of paired leaflets and pods constricted between the seeds characteristic of these species (see DONNAN 1976: 104, fig. 88; FURST 1974: 84, Fig. 18). PETER FURST (1974: 84) first identified this plant as an *Anadenanthera* species based on a depiction on a Moche IV vessel (Fig. 3). This identification seems to be correct; if the leguminous tree represented on Moche pottery is compared with photographs and botanical drawings (SCHULTES and HOFMANN 1980: Figs. 59, 61) the similarities are obvious.



Fig. 3 - Ritual deer hunting scene with *Anadenanthera* tree representation from a Moche terracotta vessel, northern Peru (after FURST 1974: Pl. IX).

EVIDENCE FOR SNUFFING

The oldest snuff trays known from all of South America are those excavated by JUNIUS BIRD (1948) and FREDERIC ENGEL (1963) in the central Peruvian coast. In excavations conducted at the site of Huaca Prieta, Chicama Valley, as part of the Viru Valley Project of 1946, JUNIUS BIRD, (1948: 27) unearthed several whale bone snuff trays and bird bone tubes. He does not specify the number of trays found, but two of the bone tablets and a tube from this site form part of the collection of the American Museum of Natural History, New York (coll. nos. 41.2/4721, 41.2/4722, 41.2/4829; (Fig. 4). The bird bone snuff tube with a fox



Fig. 4 - Whale bone snuff tray (11.7 X 6 cm), bird and fox bone snuff tube (17.5 cm), Huaca Prieta, Chicama Valley, Peru. American Museum of Natural History, New York.

bone nosepiece is of a type common in snuffing kits from the Atacama Desert and northwest Argentina. Associated objects include tubular bird bone beads, jet mirror fragments, and traces of two textiles, both with paired weft and single warp (Junius Bird, *Huaca Prieta Field Notebook C*, p. 29). Bird, in a letter to Wassen (1967: 256), dates the tray and the tube c. 1200 B.C.

Other tablets of the same approximate date as those found by Bird were excavated by Frederic Engel in the Omas River Basin. The trays were found in the site known as Asia, in a mound referred to by Engel as Unit 1. The mound

is located on the north bank of the Omas River, a few kilometers inland (ENGEL, 1963: 13). Unit 1 shows evidence of the last phase of a pre-pottery period. It is considered a time marker for the end of the pre-ceramic horizon on the central coast of Peru (ENGEL, 1963: 12).

Unit 1 is a low mound with an adobe walled compound, 12 by 12.5 meters, built on its southern half (ENGEL 1963: 12). In his excavations at this site Engel found four snuff trays, several snuffing tubes, and two containers with snuff powder (ENGEL, 1963: 98, 114-120; figs. 146-148). Material from this mound yielded a C14 date of 1225 ± 25 B.C. (ENGEL, 1963: 12).

The next tray in the time sequence was also found by Engel (1963) at Puerto Nuevo de Paracas, and dated c. 660 ± 60 B.C. (ENGEL, 1963: 13). The tray, which is rather deteriorated, consists of a rectangular cavity surrounded by a border. A human figure, now headless, is carved perpendicular to one of the narrow sides of the cavity frame.

On the extreme southern coast of Peru, GARY S. VESCELIUS (1960) found several trays in a pre-Inca burial. He is of the opinion that the extreme southern Peruvian coast represents a cultural area different from those to the North and West, because the artifacts found in the burials there include the Atacama style vessels known as *keros*, snuff trays and top-like objects commonly found in northern Chile (VESCELIUS, 1960: 382). The trays are neither described nor illustrated by Vescelius, nor does he mention the precise location or condition of the find. Fortunately, in the previously cited letter of Junius Bird to S. HENRY WASSER (1967: 256-258) a few details about the location of the site are given. The trays were found in a Late Intermediary (1000-1476 A.D.) burial at Santa Maria Miramar, a site near Mejia, about 20 kilometers south of Mollendo. At this site there are two phases: one Inca, the other immediately pre-Inca. The trays were found in a burial belonging to the earlier pre-Inca phase.

HALLUCINOGENS AND CHAVIN IDEOLOGY

The early Peruvian culture of Chavin (1000-300 B.C.) provides additional evidence for the ritual use of psychoactive plants. The use of psychoactive inhalants and potions prepared from the mescaline-containing San Pedro cactus were an important feature of Chavin ideology. The display of imagery directly related to psychoactive plant use in public monumental stone sculpture and architectural decoration provides strong support for the importance of these plants in the ritual life of this archaeological culture. This is clearly seen in the building known as the Old Temple, one of the oldest structures in Chavin. The Old Temple consists of a U-shaped pyramidal structure enclosing a sunken circular plaza. A procession of felines carved in low relief flank the east and west stairways of the sunken plaza.

Above the row of felines is a row of anthropomorphic figures. One of these carvings represents an individual with feline characteristics and snakes for hair, holding a stalk of San Pedro cactus (Fig. 5; BURGER, 1992: 134-135, figs. 123-125). It is significant to note that earlier evidence for the use of San Pedro cactus in the area is seen in a cache of offerings deposited in the atrium of the temple at the coastal site of Garagay (1200-1000 B.C.). Two figurines included in the offering were holding San Pedro cactus spines meant to represent staffs of power (BURGER 1992: 64). San Pedro cactus representations are also seen in several Chavin ceramics (BURGER 1992: 96, fig. 84).



Fig. 5 - Fanged individual holding a San Pedro cactus staff. Circular Plaza of the Old Temple, Chavin de Huantar, Peru.

Stone heads located in the paraments of the Old Temple depict scenes of shamanic transformation. These heads document the process of humans acquiring feline and bird characteristics. A group of these heads have wide open eyes, contorted faces, and mucus profusely flowing from their nose. This is suggestive of the nasal discharges characteristic of snuff use. Elaborately carved stone mortars, ideal for preparing snuff from the seeds of *Anadenanthera peregrina*, have been found at Chavin and related sites in the area (BURGER, 1992: 157-159, figs. 144-155, 217). This early association and prominent display of snuffing practices and San Pedro cactus use in Chavin de Huantar suggests an active role for psychoactive substances in the development of Chavin ideology.

BOLIVIA

In the area of present-day Bolivia the archaeological evidence is largely limited to snuff powder implements. Snuffing paraphernalia has been found at the pre-Hispanic sites of Tiwanaku (Tiahuanaco) south of Lake Titicaca, and Niho Korin, to the east of the lake and northeast of Tiwanaku. All of the trays from this region are characterized by a flat panel with linear incisions and/or relief carvings, which extends from one of the narrow sides of the rectangular cavity. First, the trays from the site of Tiwanaku are discussed; this is followed by an analysis of the trays from the site of Niho Korin.

TIWANAKU

The site of Tiwanaku (A.D. 100-1000) is located in the Bolivian highlands, 30 kilometers south of Lake Titicaca. This ancient city has been constantly plundered for generations, and all that remains are the larger stone slabs and sculpture. At its center was a ceremonial site which consisted of several groups of edifices oriented to the cardinal points. It was surrounded by a substantial residential area over four kilometers square. The population of Tiwanaku has been estimated between 20,000 and 40,000 inhabitants during the fifth and sixth century A.D. Tiwanaku iconography is widely distributed around the Lake Titicaca Basin and throughout the South Central Andean highlands. Textiles with typical Tiwanaku motifs, such as staff-bearing figures, have been found in the extreme southern Peruvian coast. To the south, Tiwanaku objects have been found as far as San Pedro de Atacama in northern Chile.

I have been able to locate nine stone trays from the site of Tiwanaku; only three of these have been published. UHLE (1912: 530-531) makes a brief inventory of all the trays from Tiwanaku known to him and publishes photographs of two from the Roemer Museum, Hildesheim (UHLE, 1912: Figs. 15, 16). The Museo Etnografico, Buenos Aires, owns one stone tablet (Fig. 6) purchased by the Argentine archaeologist Salvador Debenedetti in La Paz in 1910. There are two fragments and a complete tray in the University Museum, Philadelphia. A seventh tray was in a private collection in Oruro at the time Uhle published his study in 1912.

Two other Tiwanaku stone snuff trays were seen by UHLE (1912: 531) in La Paz in the possession of Dr. Ernesto Mazzei. Dr. Mazzei conducted several collecting expeditions during the last quarter of the nineteenth century for the National Museum of Anthropology and Ethnology of Florence, then directed by Paolo Mantegazza (CIRUZZI, 1992). These two snuff trays are not currently included in the catalogue of the Florentine Museum.

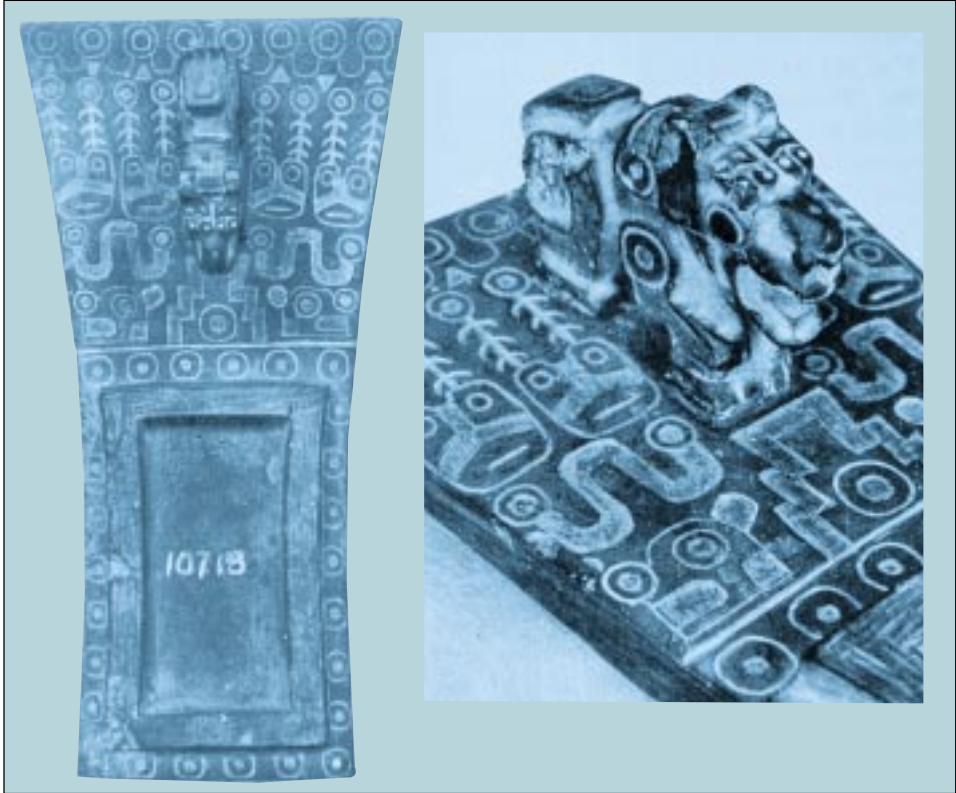


Fig. 6 - Stone snuff tray (15.5 cm), Tiwanaku, Bolivia. Museo Etnografico, Buenos Aires, Argentina (after Wassen 1967: Fig. 30).

The snuff trays from Tiwanaku share similar morphological characteristics. A rectangular cavity is surrounded by a raised border, from of its narrow sides projects a fan-like panel carved in low-relief, with designs similar to those seen in the monumental stone sculpture. The trays have a concave longitudinal profile. These artifacts have not been found on controlled excavations, therefore the conditions of the find and any ceramic or sculptural associations are not known.

According to POSNANSKY (1957: 120-121, Pl. LXXI) a bone spatula was found together with the Buenos Aires tray. This spoon, or spatula, has a standing feline figure as a handle and frontal face motifs with feather-like elements, similar to those on the tray, incised in the spatula stem. The jaguar figure carved on the handle of the spatula is reminiscent of the representations termed «*Idolos Chachapuma*» by POSNANSKY (1945, vol. II: Figs. 123, 125a, b). These idols and the figure depicted in the spatula share the same rigid stance, arms extended

along the side of the body, head position, and the band of ornamentation around the waist.

UHLE (1898) has described a bifurcated snuff tube found on the surface at the site of Tiwanaku. The tube, purchased by Uhle in 1895, is made out of the leg bone of a young camelid (UHLE 1898: 159). It is engraved in what seem to be two different styles: a superficial scratching, rather inexact, consisting of parallel zig-zag lines, and deeper, more controlled, incisions. The latter design seemingly depicts a snuff tray with its border and decorated penal.

NIÑO KORIN

Other trays in Tiwanaku style have been found near the town of Niño Korin in northeastern Bolivia. The site itself, known as Caliicho (or Qalli-ichu), is located to the east of Lake Titicaca on the eastern slopes of the Cordillera Oriental of the Andes, at an altitude of 3500 meters. It is located within the present-day province of Bautista Saavedra, Department of La Paz (WASSEN 1972: 11-13). The objects found at this site have been studied by S. HENRY WASSEN (1972) and are now part of the collection of the Gothenburg Ethnographical Museum. The find was made in June 1970 (WASSEN, 1972: 11), but apparently not as the result of controlled excavations.

According to Wassen the artifacts were found in a multiple grave, consisting of a rock passage (*chullpa*) approximately 50 meters long, separated into niches by rock walls. Each of these niches contained a corpse in a crouching position. Each body was dressed in a sleeveless tunic, a sharp pointed woven cap and sandals. Five wooden snuff trays (Fig. 7), bamboo tubes and containers, enema syringes, several spoons and spatulas, baskets, fur and skin pouches were found in the rock passage. It is not clear whether these objects were found together or were distributed among the niches. The trays, as well as other objects, are well preserved (WASSEN, 1972: 11-14). WASSEN, (1972: 29) has obtained three radio-

Fig. 7 - Wooden snuff tray (18.5 X 7 cm), Niño Korin, Bolivia. Goteborgs Etnografiska Museum, Sweden. ▷

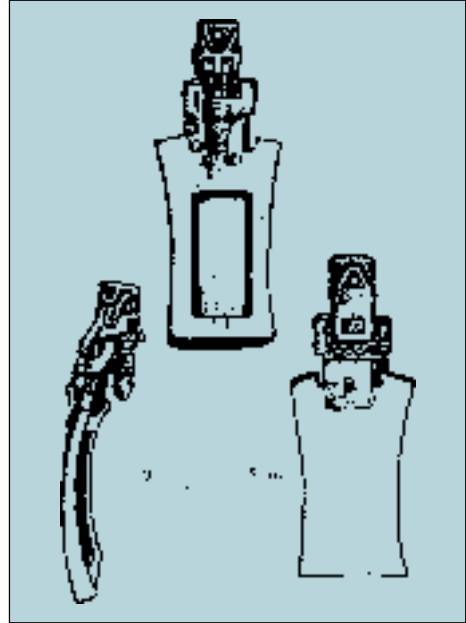
Fig. 8 - Snuff tray, wood (15 X 6 cm), individual holding axe and trophy head, Patillos-1, Tarapaca, Chile. Museo Arqueológico de Iquique, Ancker Nielsen collection, Chile (after NUNEZ 1969: Lam. 1).

Fig. 9 - Wooden snuff tray with figure playing pan-pipes (18 X 10.1 cm), Caspana, Chile. Instituto de Investigaciones Arqueológicas y Museo R. P. Le Paige, San Pedro de Atacama, Chile.

Fig. 10 - A) Wooden snuff tray, human holding objects (14.5 cm), Toconce, Chile. Museum of the American Indian, Heye Foundation, New York. B) Snuff tray with seated individual (13 cm), Lasana, Chile. Museum of the American Indian, Heye Foundation, New York.



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carbon dates from this site, these are: A.D. 355±200, A.D. 375±100, A.D. 1120±100. The motifs carved in the snuff trays are similar to those seen in stone carving from Tiwanaku, and in other snuff trays from Tiwanaku and San Pedro de Atacama.

A sixth tray from the Niño Korin area was abandoned by grave looters and recovered by Dr. Edgar Oblitas Poblete, who donated it to the Museo Tiguanaqu in La Paz (OBLITAS POBLETE, 1963: 491, Lam. 88). In addition to this tray, Oblitas found an undecorated tray, fragments of snuffing tubes, a bone spatula, one mortar, four pestles, and a gourd (OBLITAS POBLETE 1963: 491)

NORTHERN CHILE

The region of northern Chile, an arid desert area with virtually no rainfall, extends from Arica in the north, to Copiapó in the south. The term «Atacameño» has been used to describe the succession of pre-Hispanic ceramic-stage agriculturists and herders who occupied the area (e.g. BENNETT, 1946: 599) . This pre-Inca people centered their habitation sites around oases and river valleys.

Soils appropriate for cultivation are scarce; the few places suitable for agriculture are located in the area of Arica, the Middle Loa Valley, and in the vicinity of San Pedro de Atacama. The dryness accounts for the preservation of the textiles, wooden artifacts and the human burials, which become as if mummified because of the arid weather. Wood objects are so common that snuff trays and tubes, multi-chambered boxes, curved knives, toggles, and the so-called prayer books, are often seen as diagnostic of Atacameño culture (BOMAN, 1908, vol. II: Figs. 168-175; BENNETT, 1946: Pls. 131-134) . Perhaps due to the harshness of the weather and the necessity to acquire goods from outside the area, the Atacameño were forced to become great traders, covering a wide area which extended as far north as the headwaters of the Beni in northern Bolivia. Evidence of a widespread trade network is seen in such exotic materials as multi-colored feathers, an alligator skin cuirass, and coca leaves. Connections with Northwest Argentina are also evident in the presence of several Isla Polychrome vessels in burials from San Pedro de Atacama (TARRAGÓ 1977: 51) . Connection between San Pedro de Atacama and La Aguada have also been suggested (e.g. BERENQUER 1984).

Northern Chile can be divided in four geographical zones on the basis of known snuffing implements. The area centered around Arica, typified by the settlements of Quiani, Faldas del Morro, and Playa de los Gringos, is the zone where the oldest Chilean trays have been found. The second comprises the coast north of the city of Copiapó, including the area round the city of Antofagasta and the mouth of the Loa River. The third is located inland and consists of the

settlements of Calama, Chiu-Chiu, Caspana, and Toconce, among others. The fourth zone is the area around the present-day town of San Pedro de Atacama.

ARICA

The Arica archaeological region is located in extreme northern Chile. It is composed of a series of transverse valleys occupying three ecological zones, a coastal strip, the sierra, and the highlands or puna. Approximately fifty snuffing kits have been found in this area, although several did not include snuff trays. The earliest snuff trays found in northern Chile are those excavated by JUNIUS BIRD (1943) in the coast around Arica. In his excavations Bird found two trays and two tubes in a pre-ceramic context at the sites of Playa de los Gringos and Quiani (1000-800 B.C.). At Playa de los Gringos Bird excavated a cemetery in which he unearthed a tray and a tube. These objects were found inside a knotted cord bag with a design of horizontal bars. The tray is made out of a soft wood and it is smeared with red paint on both sides. The tube is made from the wing bone of a bird. It should also be mentioned that MAX UHLE (1915: 131-132) found in the site of Pisagua eleven tubes in an early context. The tubes found by Uhle are made out of bone or reeds, and lack the wooden nose-pieces characteristic of later finds. Instead, the nose-end is wrapped by wool thread; the opposite end has a slanted cut (UHLE, 1915: Lam. I, Figs. 1-6). UHLE (1915: 132), unlike Bird, reports that he did not find any trays in this early period, which leads him to suggest a later date for their development.

The Playa de los Gringos burial in which the bag containing the tray and tube was found, Grave 3, had been previously opened and the contents scattered about. In this tomb Bird also found several coca bags, wooden top-like objects smeared with red paint, gourd containers, coiled baskets, harpoons, and wooden spatulas (BIRD, 1943: 225- 226, Figs. 13a, d, e).

In the nearby cemetery known as Quiani, Bird found another tray and a tube. He places the site in a pre-pottery period and estimates that it was occupied until after the introduction of agriculture and abandoned before the use of pottery or true weaving became common (BIRD, 1943: 248). In 1940 one of Bird's workmen found the remains of an eroded grave, apparently looted, for which he could give no information as to the type of burial. However, wrapped in a leather pouch were a plain rectangular snuff tablet and a bone tube (BIRD, 1943: 248, Figs. 20a, b). Doubts could be raised concerning assigning a very early date to this tray and the one from Playa de los Gringos because both graves had been plundered prior to their discovery by Bird.

In the early 1960's a team from the Museo Regional de Arica, under the direction of Percy Dauelsberg, found several formative burials dating from the

initial phases of the ceramic period at the site of Faldas del Morro. In one of these burials was a tray of irregular shape, with a border and a shallow cavity. The tray was found with rough ceramic vessels, and hammered native copper plaques; the site has been dated c. 800 B.C. (DAUELSBERG personal communication).

Iconographically most snuff trays from Arica do not offer a great variety. Most are undecorated trays or exhibit simple anthropomorphic traits. One in the shape of a claw, from the site of Azapa 71, tomb 19, should be mentioned because of its uniqueness. Several trays from the site of Azapa 15 were fashioned out of pecten shells. This is the only site in northern Chile where this type of snuff tray has been found.

To conclude the discussion of the trays from this area, the importance of those found in an early context (before 800 B.C.) should be stressed. These early finds of snuffing paraphernalia indicate an early acceptance of inhalatory practices in the extreme northern Chilean coast.

THE NORTH CHILEAN COAST

In the coast of northern Chile snuff trays have been found as far south as the city of Coquimbo. While conducting excavations in the central plaza of the city, GASTÓN CASTILLO (1984; 1992), an archeologist from the Museo de la Serena, found one highly deteriorated snuff tray. This burial also included several camelid offerings. This find marks the southern limits of the diffusion of snuffing paraphernalia west of the Andes.

North of Coquimbo trays have been reported from Copiapó, but none seems to be extant (NÚÑEZ 1963: 162-163). A tray with a flat panel carved in low relief with a human figure was found near the city of Chanaral. The coastal area around Antofagasta has yielded several trays. In his work on the so-called «Changos», LATCHAM (1910: Fig. 8) discusses three trays and three tubes. At the site of Punta Blanca, ten kilometers to the south of the city of Tocopilla, Agustín Llagostera (personal communication) excavated a snuff tray carved with a human representation (PI. 28).

The most significant finds of snuffing paraphernalia on the Chilean coast between Copiapó and Arica have been made at the mouth of the Loa River. At this site Jean Spahni conducted excavations in which he found eleven trays (SPAHNI, 1967: PI. VII, Figs. 1-7, 10, 11). Some of the trays have a flat, panel-like extension without Tiwanaku style incisions (SPAHNI, 1967: pl. VII, Figs. 2, 3). Spahni obtained from two burials in this area two radiocarbon dates of 215±100 A.D. and 525±80 A.D. (Spahni 1967: 238, 239).

The site of Caleta Huelen 12 is one of several sites excavated by Lautaro Nunez around the same general area explored by Spahni. At this settlement on the margin of the Loa River, Nunez found thirteen snuff trays and four tubes (NUNEZ personal communication). NUNEZ (1969: 83) also reports one tray from the site of Patillos-I, near Iquique, with a human figure holding an axe and a trophy head (Fig. 8).

THE MIDDLE LOA RIVER

Several sites with a high concentration of snuffing implements are located in the middle course of the Loa River and its tributaries. Approximately 188 snuff trays have been unearthed in the settlements of Caspana, Chiu-Chiu, Toconce, Chunchuri (Dupont), and Lasana, among others (Pls. 7, 8). Most snuff receptacles from this area have a rectangular cavity with one, two, or three appendages carved in the round. Trays with a flat panel and Tiwanaku style linear incisions are virtually absent (e.g. LATCHAM, 1938: Fig. 1). The snuffing paraphernalia from this area exhibits a remarkable homogeneity in its iconography.

The site of Caspana, located about 100 kilometers to the east of the city of Calama, has the highest incidence of snuffing implements in the region. A survey of the literature (Allende 1981, Baron 1979, Le Paige 1959) and museum collections yielded a total of seventy-eight snuff trays. Emil de Bruyne, an engineer with the nearby Chuquicamata copper mine, explored the cemetery known as «Los Abuelos». In this cemetery, adjacent to the pre-Hispanic settlement of Caspana, de Bruyne excavated forty-four tombs (ALLENDE, 1981: 5, 121). He unearthed forty-five snuff trays, thirty-six of which are now in the Museo Nacional de Historia Natural, Santiago; the whereabouts of the rest is not known. GUSTAVE LE PAIGE (1959), a priest from the neighboring town of San Pedro de Atacama, also carried out a brief investigation of this site, obtaining a total of three snuff trays (Fig. 9).

The only professional excavations conducted in this cemetery are those of ANA MARIA BARON (1979) and LEANDRO BRAVO (personal communication). Since the site had been thoroughly disturbed by de Bruyne, who reportedly used dynamite to remove large boulders, Barón and Bravo's reports on the site do not contribute much to clarify its chronological position. However, five additional snuff trays are reported by these investigators (BARON 1979: 98-106).

The site of Chiu-Chiu is second in the frequency of snuff trays in the area of the middle Loa River. It is located in the confluence of the Loa and Salado Rivers. Approximately thirty-two trays have been found in this site, but in most cases ceramic and cultural associations are not known. The site of Toconce lies about fifty kilometers to the east of Chiu-Chiu. Eighteen trays have been re-

ported from this region. The Museum of the American Indian, Heye Foundation, New York, owns seven trays from caves along the Toconce River (Fig. 10). Two of these are ornamented with representations of a human playing a panpipe, a theme that is comparatively rare in Chilean trays. In northern Chile this motif is seen in one tray found by Le Paige in Caspana (Fig. 9) and another found by SPAHNI (1967: Fig. VII-10) at the mouth of the Loa River. A human figure surmounted by a feline, the so called DOUBLE, is represented on several tubes from Toconce. This motif is also seen in trays and tubes from San Pedro de Atacama, and Northwestern Argentina.

Several other sites in the middle Loa area have produced snuff trays. Among these is notable the site of Chunchuri where UHLE (1913: 454) excavated thirty trays, regrettably he gives no further information about this find. At this site, LAUTARO NUNEZ (1964) found a snuffing tube carved with the representation of an individual holding an axe and a trophy head. NUNEZ (1976: 79) obtained from this site a radiocarbon date of 1390 A.D. Other sites in the middle Loa area from which trays have been reported are Lasana, Paniri, and Turi, but the information is negligible.

SAN PEDRO DE ATACAMA

The archaeological zone of San Pedro de Atacama is located in the Atacama desert of northern Chile, at an altitude of 2450 meters. San Pedro de Atacama, one of the largest oases in the Atacama, is composed of several small communities concentrated along the lower course of the San Pedro and Vilama rivers.

The San Pedro de Atacama archaeological remains are characterized by the highest concentration of snuffing implements in Precolumbian America. The most common type of snuffing kit consists of a wool textile bag containing a rectangular wooden snuff tray, a bone or wood snuffing tube, a small spoon or spatula, and one or two leather pouches with the snuff powder (see Fig. 2). Approximately 612 snuff trays from San Pedro de Atacama are recorded in the literature (Latcham 1938: 131; LE PAIGE 1964: 61; LE PAIGE 1965: 23; NUNEZ 1963: 149; LLAGOSTERA *et al.*, 1988: 65). Forty two of the approximately 50 sites excavated in the area have yielded these kits. Investigations conducted by ANA MARIA BARON (1984) and MARIA ANTONIETTA COSTA (LLAGOSTERA *et al.*, 1988), have determined that the snuffing kits are generally found with adult males. The size and chronology of the sample indicates that approximately 20 to 22% of the adult male population was using psychoactive snuffs c. 200-900 A.D.

Two samples of archaeological snuff powders, dated c. 780 A.D., were submitted to chemical analysis (see Fig. 1a). The analysis demonstrated the presence of the psychoactive alkaloids dimethyltryptamine (DMT), 5-methoxy-

dimethyltryptamine, and 5-hydroxy-N, N-dimethyltryptamine (bufotenine) in both samples (TORRES, REPKE *et al.*, 1991: 643). The finding of bufotenine in the San Pedro de Atacama snuff suggests that the plant source of this material was a species of the genus *Anadenanthera*. This is the only genus implicated in the hallucinogenic complex that contains bufotenine. These short acting psychoactive tryptamines have a rapid and strong onset of effects, producing radical modifications of states of consciousness, as well as of cognitive and perceptual patterns.

The iconography of the snuff trays from this area comprises a large variety of themes and motifs (TORRES 1987). Two categories of representational conventions can be discerned on these objects: those bearing Tiwanaku traits, and those carved with local motifs or regional variations on a pan-Andean theme. Most of the themes represented on San Pedro de Atacama snuff trays consist of principal figures with no subsidiary attendants. Sixteen basic themes, and their respective variables, are expressed in the snuff trays from San Pedro de Atacama. Seven of these depict iconographic clusters present in Tiwanaku and, to a limited extent in the Pucara culture (ca. 500 B.C.-200 A.D.) of the northern Lake Titicaca Basin. Among these the most frequently represented are the staff-bearing personages (Fig. 11), and the profile genuflect figures (Fig. 12), and snuff tubes with anthropomorphic representations (Fig. 13). The remaining nine themes represent local iconography or regional variations of widely distributed themes such as the *alter-ego* (Fig. 14), and the Heraldic Woman (Fig. 15). Condor and camelid representations are notable because of their variety and amplitude of expression (Figs. 16, 17).

Several ceramic smoking pipes have been found in San Pedro de Atacama. These pipes have all been found in an early context (before 300 A.D.); the smoking material has not yet been determined. Smoking seems to have been gradually replaced by the practice of snuffing. Pipes disappeared from the archaeological context as snuff trays become more common (after 200 A.D.). Only five pipes are known to have been associated with the snuffing equipment.

NORTHWEST ARGENTINA

The culture area characterized as Northwest Argentina encompasses the mountainous area from Bolivia to Mendoza, and from the Chilean border to the Chaco. It occupies the present-day provinces of Jujuy, Salta, Catamarca, La Rioja and San Juan (BENNETT *et al.*, 1948: 15). BENNETT (1948) divides the area into four zones, largely for convenience in dealing with such a large geographical area, although he notes that each has a distinctive cultural history. These zones are labeled North, Center, South and East; the North and Center regions

are the most important to this investigation (BENNETT *et al.*, 1948: 2). The northern zone includes the Quebrada (canyon) de Humahuaca, formed by the Rio Grande de Jujuy, and other intersecting canyons such as the Quebrada de Yacoraite and Purmamarca. Also in the North, to the west of the Quebrada de Humahuaca, lies the Puna de Jujuy. The area of the Quebrada de Humahuaca is the best known in northwestern Argentina, having been explored by BOMAN (1908), DEBENEDETTI (1930), and SALAS (1945) among others.

The Center zone includes the provinces of Catamarca, the southern half of Salta, and the province of Tucuman (BENNETT *et al.*, 1948: 44). Within this region the most important areas are the Calchaqui Valley, with the ruins of the city of La Paya, and the Yocavil Valley. In the South very few snuff trays have been found, and it seems to mark the southern limits of the diffusion of the type of snuffing paraphernalia of concern to this study.

A chronology of this South Andean area has been proposed which consists of three culture periods. An «Early Period» (0 700 A.D.) begins with the introduction of pottery and has an agricultural- pastoral economy as its base. A «Middle Period» (700-1000 A.D.) is characterized by the arrival of indirect Tiwanaku influences, with emphasis on feline iconography. A «Late Period» (1000-1500 A.D.) extends from the cessation of Tiwanaku influences until Spanish domination.

PRECERAMIC PSYCHOACTIVE PLANT USE IN THE PUNA DE JUJUY

The earliest evidence for the use of psychoactive plants in South America is provided by the materials found at the sites of Inca Cueva (IC c7), and Huachichocana (CH III), both located in the Puna de Jujuy, NW Argentina, at

Fig. 11 - Wooden snuff tray with frontal staff-bearing personage (18.8 X 7 cm), San Pedro de Atacama, Chile. Instituto de Investigaciones Arqueológicas y Museo R. P. Le Paige, San Pedro de Atacama. ▷

Fig. 12 - Snuff tray with profile staff-bearing individual (16.1 X 7.3 cm), wooden snuff tube wrapped in gold leaf (21.5 cm), small wooden spoon (15.7 cm), San Pedro de Atacama, Chile. Instituto de Investigaciones Arqueológicas y Museo R. P. Le Paige, San Pedro de Atacama.

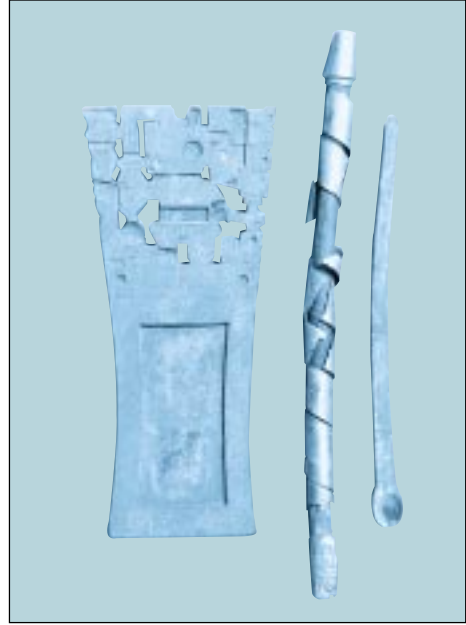
Fig. 13 - Wooden snuff tube with anthropomorphic representation (19.6 cm), San Pedro de Atacama, Chile. Instituto de Investigaciones Arqueológicas y Museo R. P. Le Paige, San Pedro de Atacama.

Fig. 14 - Wooden snuff tray with *alter-ego* representation (16.5 X 3.5 cm), San Pedro de Atacama, Chile. Instituto de Investigaciones Arqueológicas y Museo R. P. Le Paige, San Pedro de Atacama.

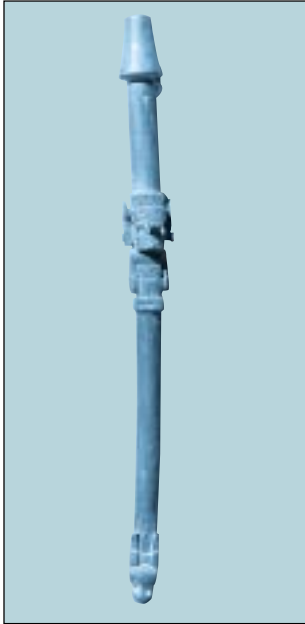
Fig. 15 - Wooden snuff tray with Heraldic Woman representation (15.8 X 6 cm), San Pedro de Atacama, Chile. Present location unknown, formerly in the collection of the Instituto de Investigaciones Arqueológicas y Museo R. P. Le Paige, San Pedro de Atacama.



11



12



13



14



15

an altitude of 3860 mts. above sea level (AGUERRE, FERNANDEZ DISTEL & ASCHERO, 1973: 199, fig. 1). Inca Cueva (IC c7) is a small cave with no stratification and no associated human remains (FERNANDEZ-DISTEL, 1980: 55). The archaeological materials were deposited on top of a straw floor in the rear of the cave. Two smoking pipes made of Feline (*Felis Concolor*) bone (AGUERRE, FERNANDEZ DISTEL & ASCHERO, 1973: 218, Fig. 18; ASCHERO and YACOBACCIO 1994; FERNANDEZ-DISTEL 1980: 57, Fig. 5), were found in association with knotted bags, gourds, spiral baskets, and *Anadenanthera* and *Prosopis* seeds (AGUERRE, FERNANDEZ DISTEL & ASCHERO, 1975: 213; FERNANDEZ DISTEL 1980: 56). Preliminary chemical analysis of the pipe material indicated the presence of dimethyltryptamine (FERNANDEZ DISTEL, 1980: 65, 75). Radiocarbon testing yielded a date of 2130 B.C. (4080±80 B.P.; AGUERRE, FERNANDEZ DISTEL & ASCHERO, 1975: 213). This is one of the earliest dates related to psychoactive plant use in South America (Fig. 18).

A nearby cave provided additional evidence for the smoking of tryptamine containing plants. The site of Huachichocana (CH III) is located in the Puna de Jujuy, NW Argentina (FERNANDEZ-DISTEL, 1980).

The Huachichocana cave exhibits clear cultural stratification.

The material related to the smoking of psychoactive plants was found in stratigraphic layer E2, dated by C14 to 3400±130 B.P. (ca. 1400 B.C.; FERNANDEZ-DISTEL, 1980: 56). A male adolescent about 15 yrs old, was found in association with four stone pipes (FERNANDEZ DISTEL, 1980: 58-60, figs 7-9). Two pipes were found near the mouth laying parallel to the body, the other two on each side of the body next to his lower legs very near to two turtle shells (*Geochelone chilensis*), two rattles with camelid kidney stone noisemakers and two staffs (probable spear-throwers) decorated with turquoise inlays (FERNANDEZ-DISTEL, 1980: 56-57). Abundant traces of red pigment remain on the surface of two pipes (FERNANDEZ-DISTEL, 1980: 58). No *Anadenanthera* seeds were found, but preliminary tests for alkaloids of the pipe residue gave positive results (FERNANDEZ DISTEL, 1980: 75, 79).

EVIDENCE FOR SNUFFING

The practice of snuffing has survived in this area up to the present-day. Among the Mataco, a native group occupying the area of the Pilcomayo and Bermejo Rivers, a powder obtained from *Anadenanthera colubrina* seeds is inhaled during shamanistic rituals (see DIJOUR, 1933; CALIFANO, 1975). Evidence for snuffing practices are lacking from the «Early Period» but appear for the first time toward the second half of the «Middle Period». The «Middle Period» is characterized by a pottery termed by Bennett (BENNETT *et al.*, 1948: 21, 39)

the Isla Polychrome style. Pottery of this type has been found in northern Chile at San Pedro de Atacama. Most of the extant snuff trays from northwestern Argentina probably belong in the «Late Period» (c. 1000-1538 AD.), in contrast with the area of northern Chile where trays are a frequent occurrence after c. 200 A.D. A majority of the trays found in northwestern Argentina are of the type with appendages carved in the round. Trays with Tiwanaku style incisions are not found in this area, although there are some instances of tablets with planiform extensions.

THE NORTH

The trays from the North section of Northwest Argentina will be dealt with first. This area could be further divided into three areas as far as the snuffing paraphernalia is concerned: the area of Calilegua, the Quebrada de Humahuaca, and the Puna de Jujuy. The site of Calilegua is located to the Northeast of the city of Jujuy, on a tributary of the Bermejo River. Calilegua is the only site in this area with an incidence of trays with planiform extensions, but these are not carved in the Bolivian highland style. The Museum of the American Indian, Heye Foundation, New York, owns nine trays from this locality.

Several of the tablets from Calilegua have a planiform fan-like extension with a rounded top (Fig. 19); others have appendages carved in the round with ophidian or avian motifs. The tray reproduced in Pl. 17 is the only one of those with a planiform extension from this site, to bear any ornamentation in the panel area. It is deeply incised with thick lines and no attempt at relief, representing the theme of the Heraldic Woman. The figure is executed with a flowing continuous line; the facial features are not represented. The same motif is seen on several trays from San Pedro de Atacama (Pl. 12). Nothing is known about this site in terms of ceramic associations or other objects that presumably may have been found with the trays and that could help in determining its chronological position. Calilegua is not included in Bennett's (1948) study of the archeology of Northwest Argentina, and the catalog of the Museum of the American Indian does not provide any information related to grave lots from this site.

The Quebrada de Humahuaca is one of the best known areas in the Argentine Northwest. Several sites in this area, Pucara de Tilcara, Angosto Chico, Los Amarillos, La Huerta, and Cienaga Grande, have yielded snuff trays that exhibit homogenous characteristics. Planiform extensions are virtually absent and all trays are ornamented by one, two, or three appendages carved in the round with anthropomorphic or zoomorphic motifs. It is difficult to form an opinion

of the exact number of trays or of the incidence of the different motifs, as the information is rather scanty.

To the West of the Quebrada de Humahuaca lie the highlands or Puna, which extend from Bolivia through Jujuy province and further south. This is a high (over 3500 meters) barren area, with little or no rainfall. Population is concentrated around small oases, surrounded by a desert that is abundant with salt flats. The «Puna Complex» is defined on the basis of its characteristic artifacts, most of which are wooden objects such as curved knives, toggles, multi-chambered boxes, snuff tablets and tubes, spoons, combs, and hoe blades (BENNETT *et al.*, 1948: 26). Influence from the Atacama area of northern Chile is obvious in the Argentine findings (BOMAN, 1908, vol. II: Pls. LXXII; BENNETT *et al.*, 1948: Pl. 2) . All the extent tablets from this area are wood and lack planiform handles. The Puna sites of Casabindo, Doncellas, Pucara de Rinconada, San Juan Mayo, and Santa Catalina show clear evidence of the use of psychedelic inhalants (AMBROSETTI, 1906: Fig. 6; BOMAN, 1908, vol. II: Fig. 130j; KRAPOVICKAS, 1958-1959: Figs. 9, 10; LEHMANN-NITSCHKE, 1902: Lam. 2, Figs. 25, 26).

Because the Puna extends into southern Bolivia, this area should also be included in a consideration of northern Argentina trays. One stone tray from Tarija, Bolivia, close to the Argentina border is ornamented by an animal astride one of the narrow sides of the cavity frame. Although its head is missing, the animal's torso and tail seem to be those of a feline. This snuff receptacle is similar to a tray from La Paya published by AMBROSETTI (1907- 1908, vol. II: Fig. 263).

THE CENTRAL SECTOR

The Central sector of Northwest Argentina includes the sites of La Paya in the Calchaqui Valley, Tolombón, and Quilmes, both situated in the Yocavil Valley. The ruins of La Paya are located on a triangular promontory at the confluence of the La Paya and the Calchaqui Rivers, in the Department of Cachi, Salta Province. Juan Ambrosetti conducted extensive excavations in the city of La Paya during 1906 and 1907. He published the result of his excavations in a two-volume work (AMBROSETTI, 1907-1908) . Ambrosetti excavated in four sections of the city, finding trays in eleven graves, three within the perimeter of the city, the rest outside the city walls, in the western sector, known as the necropolis (AMBROSETTI, 1907-1908, vol. II: 493 and map). He found a total of 24 trays and published drawings or photographs of 18 (AMBROSETTI, 1907-1908, vol. I: Figs. 5, 88, 100; vol. II: Figs. 261-270, 272-276).

Dating of the remains recovered in the ancient city of La Paya is still inconclusive, but Bennett has proposed a sequence of three grave groups. Group A

represents the period of Inca occupation (after 1480 A.D.); Group B is a transitional period; Group C is characterized by a type of ceramic style that Bennett considers representative of the Calchaqui culture (c. 700-1000 A.D.) This classification is based on a sample of 79 of a total of 202 graves excavated by AMBROSETTI (1907- 1908). In the sample selected by Bennett, Group A includes no graves where trays were found; Group B had three tombs with tablets (tombs no. 88, 2 trays; 96, 2 trays; 131, 2 trays); and Group C had two tombs (nos. 132 and 144) with one tray each.

Ambrosetti found well over a dozen snuffing tubes in the city of La Paya. The most significant among these is a group of eight tubes with a human figure astride the shaft with knees flexed (AMBROSETTI, 1907- 1908, vol. I: Figs. 5, 61, 88, 100; vol. II: Fig. 278). This type of tube, common in Northwest Argentina, is also found in northern Chile. A motif unique to La Paya, and only seen in the tubes from this region, is that of a standing figure with two mushroom-like objects projecting from the headdress (Fig. 20). The mushroom-like element, which could represent a metal ornament, is seen in two other tubes. In one of these tubes a feline figure holds a trophy head with one hand and an axe with the other. A third tube is carved with a human head, also with mushroom-like objects on the forehead, under a feline representation, in a peculiar variation of the «double» theme. Still others have a feline carved on the shaft (AMBROSETTI, 1907-1908, vol. II: Fig. 283a), a motif also seen in northern Chile.

To the south of La Paya in the northern extremity of the Yocavil Valley, is the site of Tolombon. This site has not been systematically excavated; the only ceramic types known are Santa Maria urns and La Paya polychrome (BENNETT *et al.*, 1948: 70). Santa Maria urns are placed by Bennett in the «Middle Period» (700-1000 A.D.), contemporary with Calchaqui culture or Group C graves at La Paya. La Paya polychrome is associated with Santa Maria urns at 19 sites (BENNETT *et al.*, 1948: 84, Fig. 16). The La Paya polychrome style is placed by Bennett in the «Middle» and «Late» periods, but not during the period of Inca domination. The associations of Santa Maria urns and La Paya polychrome suggest that this site could be placed in the late «Middle Period» (c. 900-1000 A.D.).

I know of only one tray from the site of Tolombón (Fig. 21); it has an hour-glass-shaped cavity area with a concave longitudinal profile. Carved on one of the narrow sides of the cavity frame are three seated figures. The central personage is a frontal human seated with flexed knees. From its head protrude two small horns. This figure is flanked by two profile feline individuals seated in the same position.

The Tropenmuseum, Amsterdam, owns a tray (LAPINER, 1976: Pl. 869) from northern Chile very similar to the one from Tolombón. The receptacle area is carved in the same hourglass shape, and the figures are also carved as if seated

on the cavity frame. The central personage is also a seated front-facing human flanked by human figures with feline attributes. But, while the central figure on the tray from Tolombón has two short horns on the forehead, the one from northern Chile wears a cleft-headress. Other differences are seen on the more angular carving of the ears, snout and arms of the flanking figures on the tray from northern Chile, as opposed to the more abstracted and flowing forms of the tray from Tolombón. Also, the central figure on the North Chilean tray holds two unidentified objects not present on the tray from Tolombón. Nevertheless, the structural and iconographic similarities are such that they seem to indicate a possible contact between the makers of these trays. It is likely that the provenance of one or both of the trays is erroneous, though the possibility that the trays were trade items cannot be discounted.

One of the first trays to be described in the archaeological literature was found at the city of Quilmes (AMBROSETTI, 1899: 42-45). The large site of Quilmes is also located in the Yocavil Valley, to the south of Tolombón, in western Tucuman province. Quilmes seems to be contemporary with Tolombón as indicated by the association of Santa Maria urns and La Paya polychrome ceramics characteristic of late «Middle Period» sites (c. 900-1000 A.D.) in the area.

Only one tray is known from this site, and this example is unusual in its variation of the «double» theme. A central feline figure supports a human personage, as opposed to the common representation of feline above human. The flanking individuals, both front-facing with hands clasped over their chests, are humans surmounted by human heads. This representation is the only case in which the figures are both humans – again, not as the usual «alter-ego» representations of feline over human.

Fig. 16 - Wooden snuff tray with condor representation (17.8 X 5.5 cm), San Pedro de Atacama, Chile. Instituto de Investigaciones Arqueológicas y Museo R. P. Le Paige, San Pedro de Atacama. ▷

Fig. 17 - Wooden snuff tray with camelid (llama) representation (18.9 X 8 cm), San Pedro de Atacama, Chile. Instituto de Investigaciones Arqueológicas y Museo R. P. Le Paige, San Pedro de Atacama.

Fig. 18 - Tubular pipes, bone (13 cm, 11.2 cm), Inca Cueva, Puna de Jujuy, Argentina (after FERNANDEZ DISTEL 1980: Fig. 5).

Fig. 19 - Wooden snuff tray with Heraldic Woman representation (15 cm), Calilegua, Jujuy, Argentina. Museum of the American Indian, Heye Foundation, New York.

Fig. 20 - Wooden snuff tube fragment, human figure with mushroom-like ornaments, La Paya, Salta, Argentina (after AMBROSETTI 1907- 1908, vol. II: Fig. 280). Museo Etnografico, Buenos Aires.

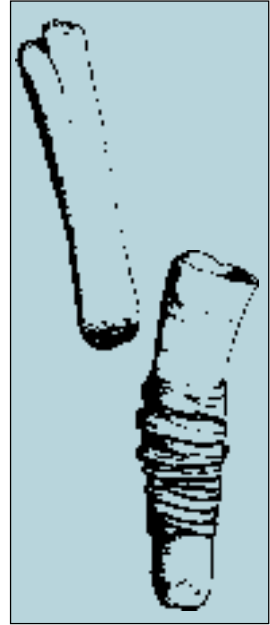
Fig. 21 - Wooden snuff tray, Tolombon, Argentina. Museum of the American Indian, Heye Foundation, New York.



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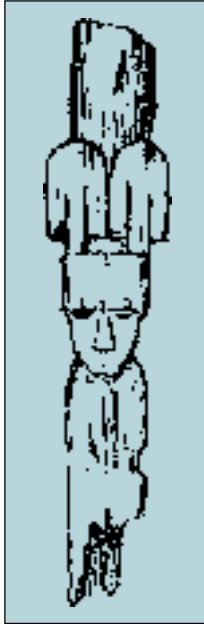
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THE SOUTH

The South section of northwest Argentina marks the southern limits of the use of trays as part of the snuffing paraphernalia. Trays have been found at Guandacol, in the province of La Rioja and at Calingasta in the province of San Juan (ALANIS, 1947: 10, 11; AMBROSETTI, 1902: Figs. 17a, b). The tray from Guandacol is stone and is decorated with a human head. Of the two trays known from the site of Calingasta, one is wood and is ornamented with two vary simply carved human heads (AMBROSETTI, 1902: Fig. 17a; illustration captions are reversed). The second is stone (AMBROSETTI, 1902: Fig. 17b), but the head forming the appendage broke during transport and is reproduced by Ambrosetti with a ceramic head taken from a broken vessel presumably from the same site (AMBROSETTI, 1902: 29).

SUMMARY AND CONCLUSIONS

The pipes from Inca Cueva and Huachichocana in Northwest Argentina and associated *Anadenanthera* seeds provide the earliest evidence for psychoactive plant use in all of South America. The archaeological context for these pipes has been dated at 2130 B.C. and 1450 B.C. respectively. The earliest evidence for snuffing is provided by the peruvian coastal sites of Huaca Prieta and Asia, both dated to approximately 1200 B.C. Further south, in the extreme north coast of Chile several sites have yielded snuffing equipment dated to ca. 1000-800 B.C. The region of most intensive use in Precolumbian times is the San Pedro de Atacama region. Approximately 20-22% of the male population was using psychoactive snuffs between the third and the tenth centuries A.D. The Loa River basin of northern Chile and the Quebrada de Humahuaca in northwest Argentina are the second and third areas with extensive and clear evidence for the use of hallucinogenic snuff powders. The plant source of the snuff used in this South Central Andean area probably was *Anadenanthera colubrina*. The probable plant source for the snuff powder used at Huaca Prieta and Asia, as well as the one used in Chavin de Huantar, was *Anadenanthera peregrina*. This species was probably obtained from the tropical forest area, one of many tropical forest goods traded into the Andean highlands and the Pacific coast. Evidence for the use of San Pedro cactus is restricted to the north sector of the Central Andes. Evidence for its use is present in an early context at the site of Garagay (ca. 1200-1000 B.C.) and at Chavin de Huantar (ca. 1000-800 B.C.). The highest concentration of archaeological evidence for the use of psychoactive plants, as well as the most ancient, is in the southern sector of the Central Andes. This area includes the Atacama Desert, the Puna de Jujuy, and the Quebrada

de Humahuaca. The iconography related to psychoactive plant use in South America exhibits constant motifs that appear in every culture, as well as variable elements that reflect the influence of the cultures within which these images were produced. Regional variations are seen in the decapitation or Sacrificer theme that appears most frequently in northern Chile, and in the staff bearing figures represented on snuff trays incised with Tiwanaku motifs. Constant elements are birds, feline and ophidian representations, images which are closely related to hallucinogenic use all over South America.

The wide spatial and temporal distribution of the evidence for the ritual use of these plants attest to their importance in the construction and subsequent maintenance and modifications of Precolumbian religious ideology. The study of the objects utilized in the ingestion of psychoactive substances could provide the opportunity to explore the relationship between hallucinogens, the construction of complex iconographic systems and state formation in the Central Andes. Throughout the Prehispanic world, hallucinogenic substances are considered intermediaries between the human and the supernatural realm; as such, they are capable of participating in the interpretation and creation of cultural elements (see FRIKEL 1961: 4; LAS CASAS 1909: 445; PANE 1974: 30, 35; REICHEL-DOLMATOFF 1971: 27-28).

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