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ETHNOBOTANICAL FOLLOW-UP OF BOLIVIAN
TIAHUANACOID TOMB MATERIAL, AND OF
PERUVIAN SHAMANISM, PSYCHOTROPIC PLANT
CONSTITUENTS, AND ESPINGO SEEDS

By

S. HENRY WASSÉN

Appendix

ANATOMICAL NOTES ON ESPINGO AND
SEEDS OF QUARARIBEA

By

WOLMAR E. BONDESON

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APPENDIX by WOLMAR E. BONDESON (pp. 48-52)

I.

All scientific authors probably after printing of a certain work ask themselves why or why not this was included, or what a shame that book didn't come in time for publishing, etc. As I begin this manuscript, I find myself in that position in regard to my published work in Gothenburg, 1972, on "A Medicine-man's Implements and Plants in a Tiahuanacoid Tomb in Highland Bolivia" (Wassén, 1972). It would have, for example, been of value when discussing the several bundles of leaves of *Ilex Guayusa* in the old archaeological material from Niño Korin in northern Bolivia to have quoted the statement of Métraux (1944, p. 322) that "the old Guarani and Caingang seem to have seen maté (*Ilex paraguarienses* St. Hil.) as a magical plant, which facilitated their associations with the supernatural." In the same way, it would have been fun to spread a little romance into a dry, scientific description by recalling a legend from Ecuador's Eastern Amazon provinces, where the use of Guayusa is very common. The legend concerns the girls of this Amazon area, as it was told to me by Dr. Wilburn H. Ferguson (*Fundación Incorporada de Investigaciones Ferguson de México, C.A.*, Torreon, Coah.) in a friendly letter of March 9, 1973. "They said that if they gave their special boy-friend Guayusa to drink, even if he came from a far land he would return and marry them." I recall what Schultes (1972, p. 115) said when describing the Guayusa leaves from the find in Niño Korin: "Several factors concerning the leaves of *Ilex Guayusa* are especially noteworthy. The leaves were prepared for the grave with great care, indicating that they had been included in the burial for a specific purpose. This purpose may now only be guessed at: was it for medicine, stimulant, food, hallucinogen or for some merely symbolic significance?" If the use of Guayusa leaves as a love charm has a long pre-Colombian tradition (something also only to be guessed at) we may



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perhaps look upon our old medicine-man or *callahuaya* from about A.D. 500 as having been a love-monger as well.

It would also in connection with the description of one of the snuff trays contained in the Niño Korin collection (70.19.1, in the Gothenburg Ethnographic Museum) been valuable to have been able to quote a report in a paper by a Swedish psychologist, Mrs. Lisbeth Ollner. Her report, however, didn't appear until Autumn, 1972, and therefore was completely unknown to me at the time of the printing of my book. I had namely written in my book (Wassén, 1972, p. 34) of the over-abundantly carved surfaces on the snuff trays alluded to as "it looks as if the Indian who once carved and incised this snuff tray had a feeling of *horror vacui* as practically the whole surface above the empty rectangular cavity was filled with symbolic carvings," something which is also true for other trays in the collection. Mrs. Ollner has namely in her referred to work on schizophrenia, model psychoses, and artistic expression by definition of style criteria as to the varying extent they appear in connection with different pathological changes, named "*pictorial over-abundance (horror vacui)*" as one of these criteria (Ollner, 1972, p. 12). After reading this, I might dare to think — in any case as a possibility — that the Indian carver and specialist, who once upon a time engraved all the figures with classic Tiahuanaco symbols on the snuff trays, might himself have stood in a dependent relationship with the snuff that was used, probably *vilca*, *Anadenanthera colubrina* (see Wassén, 1972, p. 24). "Without artistic creation in some form or other, there is no shaman" (Lommel, 1967, p. 148). I am using here for South America, as my late friend Alfred Métraux did, the term *shaman* as equivalent to the term medicine-man without making the special distinctions as Lommel, for example, does. He concedes, however, "that among primitive peoples, 'shaman' and 'medicine-man' mean very largely the same, perform the same functions and employ the same psychological technique" (Lommel, 1967, p. 9).

It would also have been of interest in connection with the findings from Niño Korin of a wooden stick crowned with a figure of a parrot (Wassén, 1972, p. 47, and fig. 31) to refer to the words of Eliade (1964, p. 481) that "the bird perched on a post" is extremely archaic, and that "Siberian, Eskimo, and North American shamans fly" (Eliade, 1964, p. 477). That is valid even for South American shamans, and I can reiterate here, "that we are entitled to consider birds as patrons for ecstatic intoxication in several Indian societies. I refer, for instance, to snuff trays with condors, bird-shaped snuffers, snuffing tubes which terminate in hollow nuts, often shaped like a bird's head, and also, to direct explanations by medicine-men

that they use feather crowns, etc. so that they may see better into the world of spirits. This connection between the shamans as users of drugs and the world of bird-spirits is a fact. The reason for it is probably to be found in the drugs" (Wassén, 1967, pp. 285-286). When writing this for the symposium Ethnopharmacologic Search for Psychoactive Drugs, in San Francisco, 1967, I added that "the sensation of being air-borne through the taking of *ayahuasca* has been described from the Záparo by Manuel Villavicencio as early as 1858 (p. 372, see Wassén, 1967, p. 286, footnote 70). Of the Moñtana Záparoan tribes, "we have only fragmentary knowledge" (Steward, 1948, p. 508), but according to Schultes (1957, p. 5), Villavicencio's report was the earliest published record of the use of any malpighiaceae narcotic of which he was aware. The most widely employed species are members of the genus *Banisteriopsis*. On the map in Plate I in his paper from 1957, Schultes has marked tribes reported to use malpighiaceae narcotics as *caapi*, *ayahuasca* and *yaje*, but west of the Colombian Andes, it was at that time a blank for Chocó. Using a report and a photograph of Dr. G. Reichel-Dolmatoff in Colombia, Schultes could, however, in a Science paper from 1969 present the use of the *dapá* plant (*Banisteriopsis* sp.) among the Noanamá or Waunana-Chocó (Schultes, 1969, fig. 5). Discussing the possible introduction of the *pakurú* arrow poison tree *Naucleopsis amara* in the Chocó by the actual so-called Chocó Indians, who, to judge from ethnographical evidence, originally came to western Colombia and Ecuador from the Amazon region in the East, I added in my paper from the symposium "Plants in the Development of Modern Medicine" (May 8-10, 1968, at Cambridge, Mass.) that "Schultes has suggested in a similar way that specimens of *Banisteriopsis caapi*, recently found in Chocó, were brought there by the Indians from the East" (Wassén, 1972, p. 25). Now Duke (1970, p. 355) has confirmed the use of *Banisteriopsis caapi* under the name *dapa* among the Noanamá and under the name *pilde* among the Emberá (Emperá). When I departed in 1934 from the Nonomá-Chocó (Waunana) at the San Juan River, one of my Indian friends told me of a plant called *tonga* or *pindé*, of which they knew to make a beverage which produced visions. As stated in my early study on the Chocó (Wassén, 1935, p. 101), "I never got any opportunity of seeing a specimen of this plant," but the late pharmacologist, Professor C. G. Santesson, M.D., Stockholm, suggested that it could have been the fruits of *Datura sanguinea* R. et P., which were used for the beverage. From what we now can judge, this was not so, and we may assume that my Waunana-Chocó Indian friend told me about *Banisteriopsis caapi*, the use of which in Chocó was at that time completely unknown to the ethno-

botanical science. I should, however, already then at that time have suspected the use of *Banisteriopsis caapi* there, as Paul Rivet writing of the Colorado of Ecuador in 1905 had referred to a "liana" as a source of *nepi* (*nepe*), and in 1907 in a glossary "identified the Colorado *nepe* and the Cayapa *pinde* as *Banisteriopsis Caapi*" (see Schultes, 1957, p. 7 and Beuchat and Rivet, 1907). In 1926, Buchwald reported without any further comments that the Colorado in Guayas of Ecuador were celebrating their feasts with *nepe* and "*las piedras sagradas*" (Buchwald, 1926, p. 181).

II.

When the early Spanish chroniclers in South America wrote about *hechiceros* and their use of drugs, etc., the best translation seems to be sorcerers. A description of the Inca sorcerers (*omo*) has been given by Rowe (1946, p. 302). Other words for *hechicero* are diviner and witch doctor. According to Rowe, "some diviners summoned the spirits by saying a spell and drawing lines on the ground, others drank themselves into insensibility and gave their answers when they recovered" (*op. cit.*, p. 302). The same author has also quoted Cobo's statement that they "put the juice of the *wil'ka*, a berry also used as a purge, into their *chicha* to give it more strength."

"Around 1571, Polo de Ondegardo reported that the witch doctors of the Incas foretold the future by speaking with the devil in some dark place by means of various ceremonies, for which office they intoxicated themselves with an herb called *Vilca*, pouring its juice into *chicha* or taking it another way. The reporter stated that, although only women were reputed to practice this craft, in fact its use was widespread but concealed among men and boys, as well" (von Reis Altschul, 1967, p. 307). As a trained botanist, Dr. von Reis Altschul also mentions other references to *vilca* as a stimulant, as a purgative, etc. Her intensive herbarium search at Harvard University, resulted in two specimens labeled *Vilca*. "Both belonged to *Anadenanthera colubrina*", one was from southern Peru, the other from east of La Paz. "These data indicate that *A. colubrina* indeed is identifiable with *Vilca*, but they do not insure that *Vilca* is referable exclusively to this plant" (*op. cit.*, p. 308).

In Ancient Peru there was another plant product used by the sorcerers as an admixture to *chicha*. I refer to *espingo*, seeds, that obviously had some effects which the chroniclers described as partly purely medicinal, and partly quite drastic, plainly psychotropic. One phrase is, e.g., "they became crazy from it." I would therefore like to present the information

which it has been possible to obtain. Before I do so, I wish, however, to present my best thanks to an Argentine-born friend and colleague, Dr. Ana Maria Mariscotti de Görlitz of Marburg, Germany. In connection with a scientific correspondence between us on the burning of *khoa* or *khoba* (*Mentha pulegium*, of the Family Labiatae) during the so-called señaladas or traditionally old offering ceremonies to Pachamama (see Wassén, 1967, pp. 276–277), she insisted in her letter of May 29, 1970, that I should not give up the track of *espingo*. Most kindly, she also gave me some first literature references, e.g., to Arriaga's *Extirpación*, where we find the following report:

“Espingo is a little, dry fruit with round kernels (*al modo de unas almendras redondillas*’), with a very intense smell, although not particularly good. One gets it from the Chachapoyas,¹ and it is said to be very medicinal for stomach pains, stool bleedings (*cámaras de sangre*) and other sicknesses, and that it is taken in powder form and is expensive to buy. It was usually sold for these purposes. In Jaen de Bracamoros² not too many years ago, the Indians paid their tribute with *espingo*. The previous archbishop forbid with risk of excommunication that it be sold to the Indians, since he knew it was a question of an extraordinary offer to *huacas*,³ especially in the flat lands, where there is no one who does not have *espingo*, since all who have been visited there have *conopas*.⁴” (Arriaga, 1920, p. 46).

The sixth archbishop of Lima, Pedro de Villagomes (1585–1671) has presented a similar but shorter information in his *Exortaciones*. He says in Chapter XLV about what the Indians offer the following: “*Espingo*, es una frutilla seca, al modo de unas almendras redondillas de muy vehemente olor, aunque no muy bueno, y no hay quien no tenga espingo teniendo *conopa*” (Villagomes, 1919, pp. 165–166). He continues (as also Arriaga did) to tell of *aut*, another small, dry fruit, not dissimilar to *espingo*. He used—according to his own explanations—Arriaga as a source as well as other chroniclers (see Urteaga's preface to the edition used here of Arriaga's *Extirpación*, p. XIV).

In the beginning of Arriaga's Chapter IV we learn that those who used *espingo* were the sorcerers. Arriaga also describes some of the effects: “On the plains from Chancay and downwards, the chicha that was presented to the *huacas* was called *yale*.⁵ It is made of *zora*⁶ mixed with chewed corn and powder of *espingo* is put into it. It (the *yale*) is made very strong and thick and then one gives of it what one considers suitable to the *huaca*, the sorcerers drink the rest and they are driven crazy” (Arriaga, 1920, p. 42).⁷

In Arriaga we also read about nocturnal sessions of “*hechiceros, chupadores*

de sangre". "During these sessions the devil appears, sometimes in the figure of a lion, other times as a tiger, and as he sits down very furiously, resting on his forearms, they worship him" (Arriaga, 1920, pp. 40-41).⁸ I find this reference to the mighty felines (puma and jaguar) in the sphere of conjuring Indian sorcerers or shamans of great interest, specially if we consider the almost pan-American distribution of jaguar figures in combination with the *alter ego* motif.⁹

Cobo is one of the chroniclers who also mentions *espingo*. He says that "the gentle Indians of the Andean provinces in Peru used to get from the peoples of their frontier some small capsules ('vainillas') as *algarrobas*, of a dark, tawny color, the curdled substance of which is like *Sangre de Drago* ("dragon's blood", *Pterocarpus draco*), however brilliant with a shade of black, and of a mild and intense smell. These 'vainillas' are produced by a tree called *Espingo*, found in those regions. The rude Indians bring forth these capsules as a precious thing to barter them for knives, scissors and other trifles which they highly value; and this they obtain easily from the Spaniards as these capsules are held to be very medicinal". Cobo also tells us how the powder, taken so or so, cures various forms of serious bleedings (Cobo, 1891, Cap. XC, pp. 95-96).

We find a few more references to *espingo* in various sources. According to Múrua (1946, p. 306) it was a *trébol* (Lat. *Trifolium*) which was called *espínco*. The Indians connected this plant with superstitions. We find the same information, but without a mentioning of *trébol* in Antonio Ricardo's Quicha vocabulary from 1586 (1951), where it is said (p. 93) that *Yspincu* is a certain plant and fruit which is fragrant and used for various bewitchments.¹⁰ Lastres (1951, p. 305) repeats *espingo* (*ispinku*) as botanically *trébol*.

Sr. Salvador Palomino Flores is a Peruvian Quichua Indian, who when this is written, is teaching and studying at the University of Copenhagen, Denmark. He tells me that the correct spelling should be *ispinku*; *espingo* could, however, be a phonetic variation of the word in the Quichua of Bolivia (letter of January 30, 1973). As meaning *trébol*, Lastres (p. 305) is also quoting the names *chullku* and *cchikmu*. *Trébol* must, however be excluded as the source for the samples of *espingo* treated in this paper, and we must draw the conclusion that the Indian word has been used for several plants, or seeds from several plants. Without giving his source, Lastres (1951, p. 250) says that chicha, prepared from Indian corn and *espingo*, was used as an offering to the huacas during the Inca ceremonial feasts *Raimi*, *Citua*, and *Aymoray*. He also mentions the medicinal use of *espingo* powder.

From the testimony of the written sources we can uptil now only find

that *espingo* was used as an admixture to chicha, perhaps for certain purposes, and that it is said to have medicinal uses. The real knowledge of *espingo* was found to be minimal, and, from a scientific point of view, non-existent. Neither La Barre (1938) nor Hartmann (1958) mention the *espingo* additive in chicha in old Peru. A Bolivian ethnobotanical specialist, Dr. Enrique Oblitas Poblete, has, however, in a work from 1969 listed "*asango-espingo*" together, explaining that the *callahuayas* receive these remedies from Cajamarca, Peru, that they are used in cases of neuralgia and muscular pains, and, taken with *agua de llantén*¹¹ and wine are used for curing *cámaras de sangre* (Oblitas Poblete, 1969, p. 80). If his information was received from modern *callahuayas*, it would mean that the tradition about *espingo* has been carried on from the time of the Spanish discovery, as we find the same information in the old literature.

Following a correspondence with Dr. Oblitas Poblete, one of my reasons for going to see him in La Paz in August 1970 was the *espingo* problem. When we met in the Bolivian capital he gave me two seeds of *asango* (possibly from the Family Rubiaceae), and two quite different seeds of *espingo*, without, however, knowing anything about the botanical names for the plants producing these seeds. We also went to Casa de Murillo in La Paz, the city's historical museum, which houses a collection of medicinal plants, seeds, etc. among the pure historical objects. Among the specimens on exhibit there were some *espingo* seeds of exactly the same type as those I already had received. When Oblitas Poblete gave me his two samples, he left a note saying: "Seeds of a small tropical plant from the Department of Loreto, Peru. It is used antiseptically (against stomach disorders) and it is taken pulverized or it has to be chewed."¹² These *espingo* samples had and still have a fragrant smell, as stated in the old sources. This curious odor has been referred to as being similar to that of fenugreek typical for all species of *Quararibea*.¹³

When passing the United States on my way home, the samples were left in the hands of Dr. Richard Evans Schultes, Botanical Museum, Harvard University, Cambridge, Mass. Later Dr. José Cuatrecasas of the Smithsonian Institution inspected the samples and suggested they might originate from the Family Lauraceae. When Professor Schultes was in Gothenburg in September, 1971, he, however, considered the *espingo* samples to represent a *Quararibea*, in such a case of the Family Bombacaceae. Dr. Benkt Sparre of the Botanical Section of the Natural History Museum, Stockholm, and Professor Gunnar Harling, Gothenburg University's Institution for Systematic Botany, Gothenburg, Sweden, have in February-March 1973 confirmed this determination.

Unfortunately only two small samples (one of the seeds weighing 0.4470 gram) constitute a too limited supply for a real investigation of the chemical compounds found in the *espingo* seeds (Coll. 71.35.2a-b in the Gothenburg Ethnographic Museum), but I have submitted the material anyway to Dr. Wolmar E. Bondeson (see Appendix), who on my request passed over the remaining material to Professor Bo Holmstedt and Dr. Jan-Erik Lindgren of the Institute of Toxicology of the Swedish Medical Research Council for an alkaloid test, which turned out to give a negative result (see footnote 14).

The Peruvian plant called *ishpingo*, has nothing to do with the plant *espingo* of a *Quararibea* sp. Thanks to Dr. Luis Iberico Mas of the Technical University of Cajamarca in Peru, I received a considerable quantity of *ishpingo* (Coll. 71.36. in the Gothenburg Ethnographic Museum). Dr. José Cuatrecasas in Washington, D.C. received samples of the sending via Dr. R. E. Schultes in Cambridge, Mass., and according to a statement of August 30, 1971, Dr. Cuatrecasas has determined the *ishpingo* material (leaves and stalks, no seeds) to *Gnaphalium dysodes* Spreng. By Valdizán and Maldonado (1922, vol. II, p. 397) *ishpingo* was listed among popular names for plants used medicinally but botanically unknown. Their reference seems to be from the region of Madre de Dios, and they present this *ishpingo* as a tree with most fragrant seeds used for curing dysentery and other diseases.

My collaborator, Dr. Wolmar E. Bondeson, has been able to send me a list of no less than 12 *Quararibea*-species, that according to MacBride (1951-56) are known from the Department of Loreto. The list has 4 additional Peruvian Q.-species (Bondeson, Letter of March 7, 1973). What we have to wait for is further botanical clarity and chemical research to find out if the old sources spoke the truth when they describe the psychotropic effect of *espingo*. Dr. Eskil Hultin, Stockholm, has pondered on some form of folk-etymological idea association, "à la *absinth* with the fragrant scented addition of *Artemisia*". Perhaps the Indians' intoxication on strong beer by the addition of *espingo* was what the Spaniards disliked? (Letter, Jan. 9, 1973).

Sr. Salvador Palomino Flores, the Peruvian Quichua Indian in Copenhagen whom I have mentioned earlier in this paper, has pointed out to me some very interesting general views on the relationship between medicinal plants from the lowland and the usage by the people in the Sierra (letter, Jan. 30, 1973). This relationship has already been pointed out by me in the quotation of the creation myth in Cristobal de Molina's (El Cusqueño) work, dated 1574 (see Wassén, 1972, pp. 17-18).¹⁵ Palomino

Flores, with his Indian knowledge, mentions that the uses of plants and fruits from the jungle in the east (*la selva peruana*) by the highland people contain a form of philosophy about the organization of the world. There is an opposition between the warm zone, and the cold highland of the Sierra. In the offer to *Wamani* (the *dioses cerros*), the fruits from the lowland's warmth have a symbolic role of fertility. In a little area such as an Andean village, this philosophy and symbolism appear very clearly. Palomino Flores himself was studying in a little village, San Miguel de Machiri, in 1969. There the people classified plants after the different altitude zones they grew in. One and the same plant, that can grow in both warm and cold zones, is given different curing and symbolical characteristics. And just so could one and the same plant from different altitude levels be said to have different gender; those that grow on the high level are "masculine gender" ('*machos*'), while those that grow in the warm region are "feminine gender" ('*hembras*'). The Indians become ill of "warm" or of "cold", and one cures with the medicinal plants which are opposite. My learned Peruvian friend in Copenhagen finished by referring to the Chinese idea of *yin* and *yang*, the positive and the negative, that are present in everything.

The *espingo* seeds come from the lowland of Peru, and we must take into account even such ancient conceptions in a total judgment of the role they are supposed to have played for the old *hechiceros*. Lévi-Strauss (1950, p. 483, and 1948, p. 368) has mentioned "the rosin of certain *Bombacaceae* as a magical poison," his examples taken from the Nambicuara (the rosin of the barrigudo tree). This last idea seems, however, not to have a direct connection with the use of *espingo* as an ingredient to beer and a means of magic in Ancient Peru.¹⁶

Acknowledgements

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My warmest thanks are also directed to my scientific friends in Stockholm, Dr. *Wolmar E. Bondeson*, Professor *Bo Holmstedt*, M.D., Dr. *Eskil Hultin*, Dr. *Jan-Erik Lindgren*, and Dr. *Benkt Sparre*, as well as to Professor *Gunnar Harling*, Gothenburg, who all have taken a vivid interest in the problems and participated scientifically. Again, I would like to express my gratitude to Dr. *Ana Maria Mariscotti de Görnitz*, Marburg, Germany,

as I have done in the text. I also sincerely thank Professor *Richard Evans Schultes*, Director of and Curator of Economic Botany in the Botanical Museum, Harvard University, Cambridge, Massachusetts, as well as Professor *José Cuatrecasas* of the Smithsonian Institution, Washington, D.C., for their interest in the botanical problems.

I am also most thankful to Mrs. Sharlie Otterström, an American living in Gothenburg, for her help with translation and text correction, and to Miss Maj-Britt Berglund, secretary, Gothenburg Ethnographic Museum, for typing an original draft of this manuscript.

Gothenburg, Sweden, April 1973

The Author

Footnotes

¹ Chachapoya would seem here to be one of the tribes from "deep in the Andean valleys of the upper Marañón River in North Central Perú", and who "apparently had diverse languages and Tropical Forest cultures" (Steward and Alfred Métraux, 1948, pp. 614-615).

² Jaén de Bracamoros was a "city" founded by Diego Palomino (in 1549?) near the junction of the Chinchipe and Marañón Rivers. (See Steward and Métraux, 1948, p. 616).

³ *Huaca*, sacred shrine.

⁴ *Conopa*, sacred image.

⁵ *Yale*, possibly from the Chancay language, "once spoken on the Chancay river, department of Lima" (Loukotka, 1968, p. 272).

⁶ *Zora*, *sora*, or *jora*. According to Friederici (1947, p. 570) "malted Indian corn used for preparing a very strong chicha, the use of which, according to Garcilaso, was forbidden by the Incas." In Garcilaso's original text (*libro octavo, cap. IX*, 1943, p. 177): "Algunos indios más apasionados de la embriaguez que la demás comunidad echan la çara en remojo, y la tienen así hasta que echa sus raíces; entonces la muelen toda como está y la cuezen en la misma agua con otras cosas, y, colada, la guardan hasta que se sazona; házese un brevaie fortissimo, que embriaga repentinamente: llámanle *uiñapu*, y en otro lenguaje *sora*. Los Incas lo prohibieron, por ser tan violento para la embriaguez; después acá, me dizen, se ha buuelto a usar por algunos viciosos."

⁷ In Spanish: "En los llanos desde Chancay a baxo la chicha que ofrecen a las Huacas se llama Yale, y se haze de Zora mezclada con maíz mascado, y la hechan polvo de Espingo, hazen la muy fuerte y espesa, y después de aver hechado sobra la Huaca lo que les parece, beven la demás los Hechiceros, y les buelve como locos."

⁸ In Spanish: "En estas juntas se les aparece el Demonio, unas vezes en figura de León, otras vezes en figura de Tigre, y poniéndose asentado, y estrivando sobre los braços muy furioso, le adoran".

⁹ Dr. Ana Maria Mariscotti de Görlitz observing this wrote to the author: "Allí tiene su alter ego!"

¹⁰ The original text (p. 93): "Yspincu, cierta yerua y fruto oloroso con que se hazen muchos hechizos".

¹¹ *Llantén, Plantago* sp.

¹² Original text: "Semilla de una planta pequeña de zona tropical, departamento Loreto, Perú. Aplicación antiséptica (para desarreglos estomacales). Se toma pulverizado o se masca".

¹³ Letter from Dr. Richard Evans Schultes, Cambridge, Mass. of March 14, 1973.

¹⁴ *Report of alkaloid analysis by Bo Holmstedt and Jan-Erik Lindgren*: "Experimental. The powdered seed material (0.210 g) was extracted with methanol. The dried extract was treated according to a procedure by Fish *et al.* (Fish, M. S., Johnson, N. M. and Horning, E. C. J. Am. Chem. Soc. 77, 5892, 1955). The residue was dissolved in methanol and chromatographed on a Silica Gel G plate using methanol-glacial acetic acid-water (70:10:15) as solvent. When iodoplatinate reagent was used for visualization, no positive spots could be detected. In all likelihood therefore the investigated material does not contain any alkaloids except possibly quaternary ones. A larger quantity would be necessary for confirmatory duplicate experiments as well as for the investigation of the aromatic components." (Received May 3, 1973).

¹⁵ For the "vertical control" see also Murra, 1972.

¹⁶ I may quote La Barre, 1972, p. 277: "Whether shaman alone, or shaman and communicants, or communicants alone imbibe or ingest *Ilex* drinks, *Datura* infusions, tobacco in whatever form, native beers and wines, peyote cactus, ololiuqui or morning-glory seeds, mushrooms, narcotic mint leaves or coca, the ayahuasca "vine of the dead spirits" (*Banisteriopsis Caapi*), or any of the vast array of Amerindian psychotropic plants, the ethnographic principle is the same. *These plants contain spirit power*".

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