

Leshoma, the visionary plant of southern Africa

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ABSTRACT

The bulbaceous plant Boophone disticha – known mainly by the term leshoma given by the Sotho ethnic group – is characterized by powerful hallucinogenic properties and is used as initiatory and divinatory plant among many southern African ethnicities. Once known as the main compound of San arrow poisons, its psychoactive properties have been recognized by Western scholars only in the last 50 years, since its ritual use was strictly kept secret by its initiates. Through the analysis of the few ancient and modern ethnographic observations that have been able to bypass the wall of secrecy that envelop the use of this plant, the Sotho male initiation rite (lebollô la banna) and the use of the plant as divinatory “bioscope” among the South African sangoma (healers) are described. As evidenced by archaeological findings, man’s relationship with this plant has lasted for at least 2000 years.

The plant

The plant of *leshoma* is botanically classified as *Boophone disticha* (L. f.) Herb., belonging to the Amaryllidaceae family¹. It is a bulbaceous plant, with the bulb partially protruding from the ground.

Each year the leafless bulb produces a beautiful fan of leaves which often are wavy in their margins at maturity. Once the vegetative stage is over, the plant loses its leaves, and the flowering stage begins. The inflorescence is characterized by hundreds of beautiful red flowers. Once the inflorescence has reached maturity producing fruits, it can break and roll on the ground thus dispersing the seeds (hence the popular names of *tumbleweed* and *wind-ball*). A resting leafless period of the plant follows which is a quite common pattern in the Amaryllidaceae family (Neuwinger, 1996) (Fig.1).

B. disticha grows in the grasslands and is distributed over a large territory of the African continent, ranging from Sudan to the southern tip of South Africa.

Given its use among numerous ethnic groups, *B. disticha* is called with a long series of popular names. Some generic names are: *gifbol* (“poisonous bulb”), *malgif* (“mad bulb”),

¹ This taxon had some transcription problems, because it was published by Herbert on several occasions as *Boophane* and *Buphane*. Since both terms are not a correct transcription of the Greek terms *boos* (cow) and *phone* (poison), *Boophone* was finally chosen (Archer et al., 2001). Anyway, *Boophane disticha* (L. f.) Herb is an accepted synonym, and some authors prefer to continue to use it.

seeroogblom, *Cape poison bulb*, *wind ball*, *tumble weed*, *candelabra flower*. One of the most common popular name is *leshoma*, originally given by the Sotho ethnic group of South Africa.²

B. disticha is a plant with visionary effects used by various ethnic groups in southern Africa for at least a few millennia. Referred to in the Western literature only since the end of the 18th century, and essentially as a poisonous plant, its hallucinogenic properties have been recognized only in the last 50 years (de Smet, 1996; Sobiecki, 2008; van Wyk et al., 2009; van Wyk & Kriel, 1985). This delay in the recognition of a powerful psychoactive plant and its widespread traditional use was due at least in part to the fact that its presence in various initiatory rites was to be kept strictly secret.

Below I expose the use of this plant as a visionary source in initiatory rites and in divination and healing practices, based on the few ancient and modern ethnographic descriptions in which the authors have managed to bypass the wall of secrecy that envelops the use of this plant.

The initiatory rite of *lebollô*

The Basothos are an ethnic group of Bantu linguistic lineage living in Lesotho. Like many South African ethnic groups, they practice a male puberty initiatory rite which includes the practice of circumcision, and which they call *lebollô la banna*. During this rite a “medicine” to the novices is administered, among which ingredients the *leshoma*’s bulb is present.

We know the details of this rite above all from the writings by the French missionary François Laydevant (Laydevant, 1932; Laydevant et al., 1951) and by Hugh Ashton (1952).

The first reference to *lebollô* is dated to 1897 and is present in an article by the missionary Édouard Jacottet. It is interesting that it is mentioned a “Mehlabelo, mysterious medicines: there are all kinds of ingredients, including parts of the bodies of enemies killed in war” (Jacottet, 1897). For a man of church which was there to bring on his missionary duty of converting people to Christianity, it seems totally normal to overlook such a complex ritual in detail, or maybe his informants didn’t want to share the secrets of their plant. In Basotho language *mehlabelo* means just “sacrifice”; in other words Jacottet was actually told nothing but that he was a perfect candidate for such sacrifice.

Before the advent of schooling and strong missionary influence, the *lebollô* played a leading role in Basotho society; a society whose structure and organization revolved around the figure of the leader and the feared secret societies. Missing to be initiated to the rite of *lebollô* would result in being banned from the social group with exclusion from all social roles and from collective meetings. There was a widespread opinion that an uninitiated boy would be destined to become impotent.

After undergoing a phase of strong social conflict, promoted by colonial and missionary institutions, *lebollô* is still practiced today, but in a transformed and / or partial way, both in terms of different ritual practices —for example, the assumption of the *leshoma*— and in terms of different individual and social values associated with it.

² Follow a non-extensive list of other vernacular names: *motlatsia* (Sesotho, Lesotho, Africa); *inkwadi*, *iswadi* (Xhosa, South Africa); *ibadui*, *inkwadi* (Nguni, South Africa); *incotbo*, *inkotha*, *bate* (Zulu, South Africa); *incumbe* (Swazi, South Africa); *kgutsana ya naba* (Tswana, South Africa); *inqumbu* (“queen termite”, isiZulu, South Africa); *isibhuko* (“mirror”, isiZulu, South Africa); *mumbandwe* (Shona, Zimbabwe); *ebikihala* (Nyanyeka, Angola); *lunteunteu* (Tabwa, Zaire); *luteoto* (Luba, Zaire); *mba dia tseke* (Jaka, Zaire); *la’ana* (Ju’hoans, Namibia) (Dold & Cocks, 1999; Gibson, 2018; Neuwinger, 1996; Thornton, 2017).

Below there is a description of the ritual, trying to adhere as much as possible to how it was practiced when the assumption of the visionary source of the *leshoma* was included.

Participation in the *lebolló* took place around 13-14 years of age. When the child reached the age of 8-10, the parents started stressing the child, provoking him with insulting and humiliating phrases for the fact that he was still “a nobody”, since he was not initiated on the *lebolló*. This was intended to induce curiosity and desire for this social institution in the child.

The *lebolló* rite lasted a total of three months and began with the practice of circumcision; it was generally held in February or March (Ellenberger, 1912: 281).

When the initiatory time approached, the head of the social group appointed some people who were going to hold important roles during the rite, including a valiant warrior (*mohlabani*) who had to exhort the boys, two guides who had to instruct and supervise them throughout the course of the *lebolló*, the person in charge of the circumcision operation (the “surgeon”), and a sorcerer who had the task of magically protecting the group from the harmful energies.

An important tool was a large horn in which the ingredients of the “initiatory medicine” were kept, including the bulb of *leshoma* and the flesh of an enemy killed during combat.³ This last ingredient betrays the original function of *lebolló* among the Basothos, namely that of forming future warriors. This is the reason why, with the arrival of Europeans and the consequent suppression of warrior activity among the different South African ethnic groups, the institution of *lebolló* has seen a strong reduction in meaning, with modification in various elements of the rite. For example, instead of the brave warrior who had to exhort young novices in the difficult moments of the rite, any other man is nowadays chosen by the leader, and human flesh, while remaining a basic ingredient of the “initiatory medicine,” no longer comes from the corpses of enemies killed in battle, but it is obtained in other ways, for example by travelers killed by brigands (Leyevant *et al.*, 1951: 224).

The young novices had to spend a period in an isolated place, where they remained in contact only with the young people already initiated, who guided them in activities such as hunting the *nakeli* (a kind of skunk) and learning secret songs. Assistants, guides, and other adult and initiated men who participated in the *lebolló* were to abstain from contact with women for several days before the time of the novice circumcision (Ellenberger, 1912: 281).

When approaching the moment of initiation, the people of the neighboring villages gathered in a public place where the novices had already converged and engaged in festive dances accompanied by copious drinks of sorghum beer, while the warriors sang war songs celebrating their bellicose deeds.

After three days it was time for the circumcision. This was preceded by the bloody sacrifice of a bull, whose shoulder was removed when he was still alive. The shoulder was rubbed with magical ingredients including human flesh, and was then roasted, while the animal moored in pain until it died. The reason for this cruelty lay in the belief that the flesh of a living being —man or animal— has greater magical power than that of a dead being. For this same reason, Basotho warriors used to detach certain parts of the body of an enemy who had fallen in battle while he was still alive (Leyevant *et al.*, 1951: 227).

3 Among the Basothos, especially before the arrival of bottles and other Western-style containers, it was customary to store medicines inside horns, both in liquid and solid form. Each group had a special tribal horn where a medicine was stored, the ingredients of which were known only to the chief, the sorcerer and a few initiates (Ellenberger, 1912: 259).

The meat from the bull's shoulder was prepared in the form of morsels to which magical ingredients were added, and they were carefully covered with spit by the elders. One at a time, the novices had to try to grasp the morsel of meat with their mouths, which was fixed on the tip of a spear that the *mohlabani* (the warrior) held suspended behind his shoulder. The young men had their hands tied behind their backs and were repeatedly whipped until they could grasp the piece of meat with their teeth. The reason for the spitting that covers the piece of meat concerned the value covered by saliva as an element containing the virtue and wisdom of the individual who emanates it; a value that is encountered in numerous ethnographic contexts all over the world (see Samorini, 2012: 13-9). When a child is born, the Basothos usually invite a person esteemed for their virtues to fill a mouthful of food with saliva which they then put in the mouth of the newborn, with the aim of making him acquire the virtues of that man (Leyevant *et al.*, 1951: 227).

The rest of the day and evening was spent by the adult population in a situation of festive revelry accompanied by abundant drinks of sorghum beer. The next day the novices were transferred to a secluded place where a hut (*mophato*) was erected and where the novices, one after the other, underwent circumcision. The moment in which the cut of the foreskin was practiced was accompanied by the songs performed by the other participants, with the aim of covering up any screams of pain of the novice, who in any case had to try as much as possible not to scream.

Immediately after the circumcision, a woman carried a large pitcher of sorghum and boiled meat into which *seboere*, an intoxicating ingredient, was introduced. Though considered a secret element of the *lebolló* rite, some 20th-century European missionaries and colonial officials had learned of some of the ingredients of *seboere*, including the hallucinogenic *B. disticha* bulb and human flesh (for the latter, Norton, 1909). Leyevant specified that for the Basothos should preferable human flesh of a European (Leyevant *et al.*, 1951: 230).

The preparations of the circumcision lodge (*mophato*) keep the clan busy for several days (Ashton, 1952: 48), and it should be possible that *B. disticha* is added to the *seboere* as disinfectant to make edible the human flesh that could be in a certain degree of decomposition, and not only for its visionary effects. In fact there is no element to suspect of a ritual hunting for human flesh right before the opening of the initiation lodge. This kind of anthropophagy pertains to the class of ritualistic exocannibalism: ritualistic because human flesh was consumed with the scope of facilitating a rite of passage, and exocannibalism because European (exogenous) victims were considered the best source. If a White man was not available, any enemy or outsider of the clan would be fine too (Laydevant, 1932).

In more recent writings on *lebolló* the form *sehwere* for *seboere* is used sometimes. Van Wyk & Kriel (1985) reported that: "This mixture of food and medicine is known as *sehwere* or *boritwe*", and they added that "the exact composition of this medicine is a well-kept secret, and it contains in addition the meat of a brave warrior (preferably a White one)". Today, in times of "peace" where there are no enemy flesh nor wars to fight, this secret recipe has probably been lost.

It is appropriate to dwell on an inconsistency in Laydevant's description of the rite which appears to be not devoid of meaning: in a previous writing he had highlighted certain functions and values given to the heady element of the *lebolló* rite —the *seboere*, with the bulb of *B. disticha*— which he later did not propose again, indeed he denied it. Below the first writing, dated to 1932:

"Initiates are told that such medicine [the sehoere] will imbue them with the qualities of

their ancestors and make them become men. When the signs of intoxication produced by the mixture become manifest, this is considered a sign that the spirit of virility has entered the boy's body. This medicine is also regarded as a cup of inspiration for the initiates in the circumcision but. During the initiatory period, each boy must compose a piece of poetry or prayer, which he will recite publicly when he is released, and the medicine he is given is believed to provide him with the gifts of poetry and eloquence" (Laydevant, 1932: 66).

From what is written it can be deduced that it was believed that the intoxication induced by *sehoere* entailed the acquisition of knowledge (of the ancestors) and of poetic inspiration; a datum in perfect harmony with the values and effects generally attributed to the modified states of consciousness induced by visionary sources. But twenty years later, Laydevant denied that the *sehoere* brought virility and energy, but rather:

"a kind of stoic brutalization as well as indifference to pain and harsh treatment. This decrease or wound made on intelligence and will seem to leave permanent marks in certain individuals" (Laydevant et al., 1951: 230).

The suspicion arises that this change in value given to the intoxication of the *sehoere*, with the introduction of a moralistic and "ugly" slant, is due to a change in the vision of Leyevant—who is still a Western religious missionary—or even of the Basotho society, in a period in which the social conflict with regard to the rite of the *lebolló* was exacerbated by the missionary pressing. The meaning of *sehoere* therefore undergoes a transformation from a visionary source of awareness to a mere narcotic medicine used to soothe the physical pain induced by the practice of circumcision.

Hugh Ashton also reported in the mid-20th century that, after circumcision, initiates were given a large bowl of medicine, consisting of:

"roasted anhydrous butterfat mixed with a potent narcotic made from the bulb of leshoma. Everyone eats a handful and within minutes falls into a deep stupor that lasts for a day or more and actually soothes all the pain. The wounds are sometimes sterilized with brandy, or protected with the fresh, smooth leaf of the leshoma" (Ashton, 1952: 49).

As mentioned, the intoxicating plant component present in the *sehoere* was kept secret, and few Westerners have managed to learn about it, as was the case with the missionary Laydevant. Another Protestant missionary originally from French-speaking Switzerland, who worked among the Basothos a few decades before Laydevant, Frédéric Ellenberger, does not seem to have been informed, since in describing the *lebolló* he only referred to the possible presence of human flesh (Ellenberger, 1912: 282).

After the circumcision, the rite of the *lebolló* continued for a few more months, during which time the novices were given new names and taught a secret language and additional songs. The novices were subjected to painful physical tests, in practice to real torture, including repeated beatings on the body and beatings on the palms of the hands. In the rite of the original *lebolló* the purpose of this severity, accompanied by humiliation and physical suffering, was to induce fear, obedience and fidelity in the new adult man of Basotho society.

During the initiation rite it happened with a certain frequency that some novices died, exhausted by physical tortures. It seems that the *lebolló* was an opportunity to eliminate young people who for some reason were not socially accepted (for example orphans) or who were destined to become scapegoats for their hesitation and revenge of the adult community (Laydevant et al., 1951: 234-5).

In the modern rite of *lebolló*, which saw the general abandonment of the *leshoma*-based potion, the practice of wrapping the penis injured by the cut of circumcision with leaves of this plant has been preserved (Van Wyk & Kriel, 1985).

The “bioscope” divination employs

Robert Thornton was able to closely observe a divination practice currently widespread among various ethnic groups and regions of South Africa in which the *leshoma* bulb is used. He drew his observations from the Swazi-speaking *sangoma* (healers⁴) in the Barberton area, in the Mpumalanga region of South Africa. The main purpose concerns the identification of sorcerers who have cast the evil eye or otherwise “bewitched” someone. Although divination techniques aimed at identifying a person guilty of evil magical acts have long been prohibited by law in South Africa (starting in 1953), they are still practiced with some frequency.

In the divination practice in which the bulb of *B. disticha* is used, this is administered to the victim of witchcraft, to set him up in a visionary cataleptic state during which he can “see” the sorcerer responsible. It is interesting to note how the identification of the sender is a task of the victim and not of the direct competence of the medicine-man, who only has a guiding role in the divination act. This divination practice is called in Zulu *lispēel*, a term that derives from Afrikaner *spieël*, “mirror;” also in the Venda idiom it is called *tshivhōne*, “mirror,” “vision,” while in English the terms “bioscope,” “traditional TV,” or “security camera” are common (Thornton, 2017: 250). Sobiecki (2008: 335) reports the Zulu term *bhayiskhobho*, which would be a deformation of the English term “bioscope.”

Victims of witchcraft usually resort to this practice as a last resort after other practices have failed. Here is the description of the technique given by Thornton:

“The patient consumes a part of the bulb by chewing or drinking a water decoction, and is then made to sit in front of a blank wall in a darkened room or hut. Hallucinations or visions begin to occur as a result of the herb and appear to be projected onto the blank wall in front of the patient. This gives the method its names. The patient is then expected to be able to ‘see’ the witch that is causing the problem. Both healers and lay people report, however, that the method is very dangerous. The patient may die of these poison-induced visions. In local belief, it is the witches and malefactors that are seen in the visions that kill, not the poison. In other words, the ‘intangible persons’ in the dream world kill, while the herbal concoction and the ‘trance’ state it induces, only makes these encounters possible. Death is attributed to the witch who, having been seen and thus found out, may take revenge by killing the patient before the patient can recover and kill the witch” (Thornton, 2017: 250).

Rather than a “revenge” on the part of the sorcerer who has been discovered, it is perhaps more correct to speak of the sorcerer’s “extreme defense”, to avoid being discovered in reality, as well as in the visionary state.

The informants speak of a very long recovery period, of several days, in some cases months or years, by the victim of witchcraft, which is necessary after carrying out this divination practice (Thornton,

⁴ The concepts of “medicine man” and “shaman” are here avoided; the former being sexist since many “medicine women” are recognized in Africa; the latter being misapplied as it is proper of language and ritual patterns of Northern Eurasian cultures, as of today it is used in a wider sense by historians of religions and anthropologists to anyone which works on the thin line which ties natural and supernatural. To avoid misapplication of terms which are latitude- and longitude-dependent, the term “healers” or, if known, any self-referential vernacular term from African ethnical groups, are preferred.

2017: 251). A case that occurred at the beginning of 2000 ended in a tragic way. A traditional healer gave a man 150 ml of a decoction of the bulb of *B. disticha* to drink, with the aim of identifying the person responsible for the witchcraft he believed he was the victim of. Shortly after drinking it, believing under the influence of hallucinations that he was being attacked by the surrounding people, the man took his gun and fired madly, killing one person and injuring several others (Du Plooy *et al.*, 2001). In this case it was not a question of toxicological complications, but of behavioral reactions induced by the profound hallucinatory state.

***Leshoma* in the *kia* ritual?**

The !Kung of the Kalahari Desert practice a collective healing ritual called *!kia*. The core of the rite is the achievement of a profound modification of the state of consciousness. The healing ritual is based on a dance that lasts all the night, where the women sit on the ground in a circle around the fire, sing and clap their hands rhythmically, while the men dance turning around the circle of women. During the night in the healers the *n/um* is gradually activated. *N/um* is considered a form of energy that heats the body until it burns painfully when it reaches a state of “boiling.” The heating of the *n/um* induces an expansion of consciousness which is called *!kia* and from which the entire ritual took its name. Healers heal other individuals by passing them their activated *n/um*. In the state of *!kia* healers contact the spirits of ancestors, acquire clairvoyant powers, and can walk unharmed on fire (Katz, 1982a). In the course of the *!kia* a number of plants are employed. Richard Katz suspected that two of these has psychoactive properties: the root of *gaise noru noru* (*Ferraria glutinosa* (Baker) Rendle, Iridaceae family) is used to “aid the activation of *n/um*,” and the root of *gwa* (species not determined), used in dance with the drums “to help induce *!kia*” (Katz, 1982b: 314-5). The fact that *!kia* falls within the rites that classically induce modified states of consciousness, and probably through the use of psychoactive sources, was recognized by Marlene Dobkin de Rios (1986; see also Winkelman & Dobkin de Rios, 1989). *Leshoma* is not present among the plants used during the *!kia* as indicated by Katz. However more recently, in his review of Khoisan materia medica, Ben-Eric van Wyk reported that his “observations in the Kalahari Desert strongly suggest that *Boophone disticha* is of importance in the trance dance or *kia* healing ritual” (van Wyk, 2008).

Van Wyk’s observation seems to be more plausible in the light of Diana Gibson’s recent ethnographical data. She studied the Ju/’hoans, a subgroup of !Kung speaking people inhabiting the Kalahari Desert in Namibia. The term they give to traditional healers in their language belonging to the San complex is *n/umkxao* (“the owner of *n/um*”). Some Gibson’s informants reported the use of *malgif* (*B. disticha*) during the trance cure rite. The following proper usage of *B. disticha* has been recorded from one of these *n/umkxao*:

“If you take the malgif for himself, in a respectful relationship, not being afraid of each other: then he can help you. The bulb is poisonous. If you use it correctly, his nature / being, he is owner of power, he becomes medicine or to help you to heal other people. The plant, plants are living beings with the knowledge / knowing of nature, the land. You must take / approach the plant for himself, from power and the knowledge / knowing of nature. Through that bulb, if you can warm its healing power, you use it for the [trance] dance, then you see what the problem is and also the spirits [//gawwasi], but only if all are together / in relation” (Gibson, 2018).

This is an account about how to get in contact to the world of spirits or [//gawwasi] using a sacred plant. A plant which bears a soul and a will, and approaching it is a matter of gaining respect. These ancestral spirits —[//gawwasi]— bear similar connotations and possible relation with another kind of spirit, the *!giten* of !Xam-ka !’ē San tribes of Northern Cape, which have been studied by Bleek and Lloyd (1924; cfr. Also Hewitt, 1986: 298). Among the Zulu, *sangoma* healers deal as well with a similar

kind of ancestral beings called *lidotli* (Hall, 1994: XI).

Also, the San⁵ of Northern Cape —which called themselves !Xam-ka !'ē and which were studied by Bleek and Lloyd at the end of the XIX century (Bleek, 1875; Bleek & Lloyd, 1924)— knew *B. disticha*, being reported their use only as arrow poison. This subgroup of San is now extincted (the last member died around 1910), and unfortunately, we'll probably never have direct evidence about how they secretly used the plant during their dances and initiations.

Archaeology of *leshoma*

Archeological records concerning *B. disticha* are scattered in South Africa, and they are of two types: findings of plant remains and iconographic documentation.

Concerning the material findings, one of the most important concerns a partially mummified body excavated in a cave from Kuoga Mountains near Joubertina, Eastern Cape. He was buried about 80 cm deep in an area close to the rear wall of the shelter. The burial site was marked with a flat stone adorned with San-style paintings on both sides (Pearce, 2003). This mummy was found completely covered with external scales and leaves of *B. disticha*. The antiseptic properties of this plant, together with the particularly dehydrated environmental conditions, have allowed the partial mummification of the body. The lower part of the body, from the pelvic region to the feet, was wrapped in a fabric constructed with *Cyperus textilis* Thunb (Cyperaceae). The anthropophysical study revealed that the body concerned a male individual of 30-40 years of age probably belonging to the Khoe-San ethnic group, and highlighted a ritual amputation of the distal phalanx of the left hand; it is a known practice among Bushmen, which occurred in early childhood and which had magical-protective purposes. Radiocarbon dating indicated a date about 2000 BP (Binneman, 1999; Steyn *et al.*, 2007).

It is uncertain if this ancient San individual was buried with the plant for a ritual reason —as suggested by Lewis-Williams & Pearce (2004) considering the visionary properties of the plant—, or whether just to preserve the body, as the usage of the plant as wrapping material for storage pits (see below) might suggest. It has also been noticed that *B. disticha* is traditionally used for stuffing mattresses and pillows to calm hysteria and to avoid sleeplessness (Neuwinger, 1996: 11), and therefore the presence of the plant in this inhumation could assume the meaning of helping the defunct to rest well in the afterlife, and in such a way his *!giten* (“spirit”) will not be angry with the clan (Thornton, 2017: 252).

A further finding, dating back to about 2000 years ago, came to light in the excavations of the Boomplaas cave, at the foot of the Swartberg mountains, in the Cape region. This cave was occupied several times over a long period of time. In the level corresponding to the Wilton Culture (about 2000 years ago), the cave was used as a warehouse and 46 storage pits were found, ranging in diameter from 20 to 80 cm. Four pits were found covered with painted stones. The walls of these pits had been covered with *B. disticha* leaves, most likely for antiseptic purposes (Deacon *et al.*, 1976). The wells were used to store the fruits of *Pappea capensis* Eckl. & Zeyh. (Sapindaceae), from which an oil was obtained for skin care and other manufacturing purposes (Deacon, 1979).

Remains of *B. disticha* have come to light in other archaeological sites: in the Kleinpoort Shelter,

⁵ San is used as a wider term to indicate any Bushman, being the latter considered offensive. It is worth noting that native people of South Africa often identify themselves in different way and with different terms respect the lessen modern literature which may result in disrespect using ancient and inappropriate colonialist words

dated to 2000 years ago (Binneman, 1998), and in the Havens cave of the Cambria Valley, dated to the 700-800 of our era, both located in the Cape Province. A storage area was excavated in the Havens cave in which numerous plant species for food and medicine were deposited; among those medicines the most abundant was *B. disticha* (Binneman, 1997).

Always concerning the material findings, the oldest one so far identified is dated to 900 BC and concerns of the plant remains in the Melkhoutboom cave in Eastern Cape (from the excavations of J. H. Deacon in the 1970s, rep. in Lombard *et al.*, 2012: 132).

Regarding the iconographic documentation, it should be reported first the identifications proposed in 1933 by Maria Wilman, —geologist and curator of the McGregor Museum in Kimberly— in what should be considered the most important monograph of engraved rock art of south Africa. Three engraved depictions of *B. disticha* were identified in her book: plate 58 features two stones, both preserved at the McGregor Museum in Kimberly, representing respectively *B. disticha* bulb and infructescence. The first one was found in Bucklands, Northern Cape along Vaal river, while the second one with the infructescence was found in Pniel, Western Cape. On plate 59 of the same book a reproduction of the plant in vegetative state with its full fan of leaves is depicted. The original, found in Newlands, Eastern Cape, at the time of the authoress was covered by water (Wilman, 1933, fig. 58–59). The stone material of the three engravings is a kind of smooth, greenish, diorite (amygdaloidal diabase) (Wilman, 1933: 28). Unfortunately, there is no dating about these findings, as well as for most of the San rock art. A possible approach to the problem could be the calibrated method based on erosion phenomena, as elaborated by the archeologist Robert Bednarik (Bednarik, 1992, 2019) (Fig. 2).

One more representation of *B. disticha* appears to be present in a painting of a rock shelter of the Thaba Bosiu mountain, in Lesotho. Dated to historical times, it was first identified (Loubser & Zietsman, 1994) as *Brunsvigia radulosa* Herb., another Amaryllidaceous plant with alleged psychoactive properties (Crouch *et al.*, 2002). More recently it has been proposed the identification as *B. disticha* (Mitchell & Hudson, 2004).

Ethnobotanical data

The first references to *B. disticha* in Western literature seem to date back to the second half of the 18th century, and essentially refer to its poisonous properties, used for the production of hunting arrows.

Lieutenant in the English navy William Paterson was the first to note that the plant was highly toxic for the cattle which is fond of it (Paterson, 1789: 169-170). It is interesting to note how Paterson seems to specify that the popular name of *mad poison* given to the plant is due to the fact that animals that are wounded with arrows containing its latex go “mad” before dying; and it would be the effect of the plant to make them run for a long time before squatting on the ground. So *mad poison* would refer to an effect on animals, and not on humans.

During a trip to the Roggeveld plateau in South Africa in 1774, the Swedish naturalist Carl Peter Thunberg observed the plants of *B. disticha* and gathered some news among the natives, including the belief that plants grown in the shade are more poisonous than those grown in the sun (Thunberg, 1795, II: 163) (Fig. 3).

The English explorer and naturalist William J. Burchell, in dealing with *Amaryllis toxicaria* (= *B. disticha*) refers to a composition of an arrow poison in which the bulb of this plant is mixed with animal poisons; a combination that will be reported on several occasions by Western observers of the nineteenth and twentieth centuries (eg Barrow, 1801: 391-2; Creighton Wellman, 1907; Schapera, 1923: 200). Burchell also mentions the use of these poisoned arrows not only for hunting game, but also as a formidable weapon of war (Burchell, 1822, I: 539).

William Leonard Hunt wrote a book in which he signed himself with the pseudonym of Guillermo Antonio Farini. He was known to the general public of the late nineteenth century as “the great Farini,” due to his feats as a tightrope walker who saw him cross rivers and waterfalls on ropes, including Niagara Falls. To his fame as a tightrope walker was added that of being the first man to cross the Kalahari Desert on foot. From the book in which he described this adventure, we read a testimony of him concerning the collection of arrow poison from the bulbs of *B. disticha*, including an interesting particular ritual associated with this operation:

“In front of them there were 30-40 bulbs, which I recognized as poisonous bulbs because of their fan-like leaves, which bear such a beautiful flower. The ends of the roots were cut off and the dry silk-like scales were removed from the outer hull of the bulb, and then a milky liquid dripped out. When the juice stopped coming out, new cuts were made about an inch deep and the juice flowed back; they did so until the whole bulb was emptied. With each new cut, the Bushmen danced in a circle, emitting a kind of grunt and tapping their heels in rhythm. In this way, 2 quarts [of a gallon, about 2 liters] of the milky exudate were collected in one of our round iron pots, which we had previously used to carry the fat for the wagon, and it was put on the fire” (Farini, 1886: 328).

Regarding the traditional nomenclature associated with *B. disticha*, in honor of *leshoma* the Basotho call the month of October *mphalane ea leshoma*, literally “the stalk of *leshoma*.” One previous translation was “month of *B. disticha*” (Sechefo, 1909: 935). Anyway, the translation by Laydevant (1932) as “stalk of *leshoma*” is more correct, also endorsed by botany because of the life cycle of the plant in such time of the year, being in October the plant fruit ready to detach as a tumbleweed.

The Zulu people use three words to refer to the plant: *incotbo*, which is also how is referred a particular head band, made with a pastry of burn scales of *B. disticha*, reserved for chiefs initiations (see below); *isibhuko*, literally “mirror,” which suggest the effects of the plant and its use in bioscophe rites; *inqumbu* (“queen termite”), because the plant is fierce like a queen termite, when the plant is in its leafless resting period it resembles a queen termite, and the bulb growths both above and below the ground like the queen’s nest (Thornton, 2017: 243).

Among these Zulu ethnical groups, it is a common habit for *sangoma* healers to plant *B. disticha* in front of their hut in small gardens confined in stone circles (Thornton, 2017: 247).

The bulb of *B. disticha* is used in traditional medicines of numerous ethnic groups in southern Africa for a long series of diseases. A widespread use throughout southern Africa is the application of the external dry scales of the bulb on the skin, on wounds, burns, boils, in areas affected by urticaria and more generally in all dermal affections (Watt & Breyer-Brandwijk, 1962: 23).

Another use concerns the treatment of mental illnesses and psychic problems. Bulb decoction is administered to violent psychotic patients as a sedative (Van Wyk *et al.*, 2009). In the Karoo, near the

River Touws, a European remedy for hysteria and insomnia is to sleep on a bulb-filled mattress, and it is believed that this mattress should be used with caution (Watt & Breyer-Brandwijk, 1962: 23). In oral intake, the bulb is administered in states of anxiety, stress, depression, senile dementia (Nair & Van Staden, 2014).

In Mozambique the plant is used to increase virile sexual potency. Some slices of the fresh bulb are placed in water and the next day are shaken and applied to the sexual organ (Verzár & Petri, 1987).

The bulb of *B. disticha* is also used to induce suicide, taken as an enema (Watt & Breyer-Brandwijk, 1962: 25), or introduced into the vagina (Juritz, 1914).

Not all the plant parts are venomous. Usage of non-toxic parts of the plant for conservation of milk has been observed among the |Xam-ka !ē and the Khoikhoi, where it is a normal habit to scoop out a bulb of *B. disticha* and warm milk in it by putting the bulb on fire. This process also makes milk thicker and creamier, probably due to some properties of the bulb scales. Warming milk with this technique is also done among the Basotho (Ashton, 1952: 319; Moteetee *et al.*, 2019).

The leaves and scales of the bulb of *B. disticha* have the curious property of not burning when placed on the fire. The scales put to heat give a plastic-like pitch, which is used to build a distinctive ring placed on the head, worn by village leaders or other prominent figures. This ring is called *incotbo* or *incoco*, which is one of the names given to *B. disticha* by the Swazi and the Zulu. This original headdress probably once held apotropaic functions (Thornton, 2017: 245-6).

Concerning the chemical active principles of the bulb, early investigations were carried on at the beginning of the XX century, with the extraction of some pure and some mixed alkaloids (Lewin, 1912; Tutin, 1911, 1912). Further studies identified eleven different alkaloids (Hauth & Stauffacher, 1961). One of these alkaloids, nerbowdine —previously called haemanthine— evidenced pharmacological effects similar to those of scopolamine (Gelfand & Mitchell, 1952).

Careless consumption of the *B. disticha* bulb, both for therapeutic and intoxicating purposes, causes more or less serious intoxication in South Africa and other southern African nations, which in some cases can lead to death. In 1979 a case was reported about three adolescents from Gadu district in Victoria admitted to the hospital being heavily intoxicated with *B. disticha*. Two of them were recovered in hallucinatory state and released in 72 and 48 hours respectively. After recover they confessed, they took a decoction from the bulb to “get high” (Laing, 1979).

Conclusions

Among the entheogenic plants of Africa another important visionary source is the perennial rainforest shrub *Tabernanthe iboga* Baill. going by the common name of *iboga*, used in the syncretic cult of Bwiti (Samorini, 1997a; Swidersky, 1965, 1970, 1981): the hallucinogenic powder obtained by grinding *iboga* roots serves as communion in most of Bwiti rituals (Samorini, 1995: 108); *iboga* and its main active alkaloid *ibogaine* have been intensively studied in the last six decades as a cure for heroin addiction (D’Arienzo & Samorini, 2019: 550-553), *iboga* lacks of any archaeological report as of today and there is no consistent ethnological data about endemic traditional uses outside the cult of Bwiti.

Another important visionary plant is found North America deserts between Mexico and the US state of Texas where the cactus *Lophophora williamsii* (Lem.) J.M.Coult. grows, vernacular Spanish name is *peyote*, and it is ritually used by several Mexican natives: among them Huichols (Diguet, 1907), Tarahumara (Schultes, 1938) can be enlisted; as of today, we can date back the ritual use of *peyote* to 3200 B.C.E. (Samorini, 2017: 11).

In the Andes of South America more cacti species share *peyote* visionary characteristics: these are the members of *Trichocereus* genus, *Trichocereus pachanoi* Britton & Rose and the closely related *Trichocereus peruvianus* Britton & Rose going under vernacular names of *San Pedro* or *huachuma* which are used by Peruvian Aymara *curanderos* (Glass-Coffin, 2010), the closely related species *Trichocereus bridgesii* Britton & Rose, is used by Bolivian Aymara people and called *achuma* (Davis, 1996: 451), archaeology of *San Pedro* dates it oldest evidence of relation between man and this visionary plant source to 8600 BCE (Samorini, 2017: 11).

Both *peyote* and *Trichocereus* species here enlisted share the same main active compound which is the hallucinogenic phenethylamine *mescaline*, isolated in 1896 by Arthur Heffter (Gurschler, 2019: 944).

Ayahuasca or *yagè* is a combination of plants containing different psychoactive alkaloids obtained by a long-lasting concoction of such ingredients, difference between the two terms can be defined as *ayahuasca* being brew of *Banisteriopsis caapi* (Spruce ex Griseb.) or *caapi* and *Psychotria viridis* Ruiz & Pav while *yagè* (also spelt *yajè*) is a brew of *B. caapi* combined with *Dyplopterys cabreana* (Cuatrec.) B. Gates. (Luna & White, 2016: IX; Samorini, 2021: 11-14), despite its traditional usage among a wide number of Amazonian cultures (Samorini 2021: 15-28) and syncretic cults like Santo Daime (Samorini 2021: 46) as for the case of *iboga* there is no archaeological data about *ayahuasca/yagè*.

B. caapi contains the alkaloids harmine and harmaline which make orally active the tryptamine alkaloid DMT, contained by *P. viridis* and *D. cabreana*, this phenomenon has been named by ethnobotanist Giorgio Samorini as “Holmstedt-Lindgren mechanism” after the two scholars which realized its functioning for the first time in 1967 (Samorini 2021: 12).

Powdered parts of visionary plants assumed by inhalation are generically called snuffs, this is a common way of visionary plant assumption in South America.

Such snuffs are made by powdered resin obtained scraping the bark of several species of genus *Virola* Aubl. called by Amazonian rainforest natives *yākoana/ebenà* (Milliken *et al.*, 1999: 35-39, Davis, 1996: 475-476) or by grinding the seeds of the species *Anadenanthera peregrina* (L.) Speg, two of its common names are *cohoba* or *yopo* (Torres & Repke, 2012: 8-9), other is the species *Anadenanthera colubrina* (Vell.) Brenan grown only south of the equator (Torres & Repke, 2012: 6), the *Anadenanthera* genus is formed only by the two said species.

A. colubrina is employed by Tupi-Guarani ethnical groups and goes by several vernacular names which two of them are *cebil* or *vilca* (Torres & Repke, 2012: 9). Concerning *cebil*, the most ancient date is 2100 BCE where at Inca Cueva in Puna de Jujuy, Argentina, excavated materials consisted in two smoking pipes made of puma (*Felis concolor*) bone, along with knotted bags, gourds, spiral baskets, and seeds of *Anadenanthera* and another plant species (Torres & Repke 2012: 30), oddly the ground seeds of *cebil* were smoked and not inhaled in this case, this is another uncommon but documented method of

assumption (Samorini 2017: 127) for such entheogens.

Ethnological elements such as ritual employment for initiation, divination, illness diagnosis and therapy are both a match for *leshoma* and above partial list of major visionary plants around the world.

Even if its secrets were cleverly hidden to anthropologists and missionaries for many years, from data assessed it is evident that *Boophone disticha* mind altering features are common knowledge among a discrete group of different South African ethnicities.

The data presented on *leshoma* can fully give this plant a place of all respect within major visionary plants of the world, given its traditional employment for initiation, divination, illness diagnosis and therapy.

Archaeological data collected about *B. disticha* does not bear any direct evidence about its consumption as a visionary plant but nevertheless archaeology of *leshoma* shows an intimate relation between South African cultures and this bulbous plant in the last two millennia.

Bibliography

- Archer, R.H., Snijman, D.A., & Brummitt, R.K. (2001). "Proposal to conserve the name *Boophone* Herbert with that spelling (Amaryllidaceae)." *Taxon* 50(2):569-571.
- Ashton, H. (1952). *The Basotho*. Oxford: University Press.
- Barrow, J. (1801). *An account of travels into the interior of Southern Africa in the years 1797 and 1798*. London: A. Strahan.
- Bednarik, R. (1992). "A New Method To Date Petroglyphs." *Archaeometry* 34(2):279-291.
- Bednarik, R. (2019). "Advances in Microerosion Analysis." *Rock Art Research* 36(1): 43.
- Binneman, J. (1997). "Results from a test excavation at the Havens Cave, Cambria Valley, South-Eastern Cape." *Southern African Field Archaeology* 6:93-105.
- Binneman, J. (1998). "Results from a test excavation at Kleinpoort Shelter in the Baviaanskloof, Eastern Cape Province." *Southern Africa Field Archaeology* 7:90-97.
- Binneman, J. (1999). "Mummified human remains from the Kouga mountains, Eastern Cape." *The Digging Stick* 16(2):1-3.
- Bleek, W.H.I. (1875). *A Brief Account of Bushman Folk-lore and Other Texts*. Cape Town: Juta.
- Bleek, W.H.I., Lloyd, L.C. & Bleek, D.F. (1924). *The Mantis and His Friends*. Cape Town: T.M. Miller.
- Burchell J.W. (1822). *Travels in the interior of Southern Africa*. vol. I, London: Longman, Hurst, Rees, Orme, and Brown.
- Creighton W.F. (1907). "Über Pfeilgifte in Westafrika und besonders eine Käferlarve als Pfeilgift in Angola." *Deutsche Entomologische Zeitschrift* :17-19.
- Crouch N.R., et al. (2002). "Bulb alkaloids of the reputedly psychoactive *Brungsvigia radulosa* (Amaryllidaceae)." *South African Journal of Botany* 68:86-89.
- de Smet, P.A.G.M. (1996). "Some ethnopharmacological notes on African hallucinogens." *Journal of Ethnopharmacology* 50(3):141-146.
- D'Arienzo, A. & Samorini, G. (2019). *Terapie psichedeliche*. Milano: Shake.
- Davis, W. (1996). *One river, explorations and discoveries in the amazon rain forest*. New York: Simon & Schuster Paperbacks.
- Deacon, H.J. (1979). "Excavations at boomplaas cave. A sequence through the upper Pleistocene and Holocene in South

- Africa." *World Archaeology* 10(3):241-257.
- Deacon, H.J., Deacon, J. & Brooker, M. (1976). "Four Painted Stones from Boomplaas Cave, Oudtshoorn District." *South African Archaeological Bulletin* 31(123/124):141.
- Diguet, L. (1907). "Le 'Peyote' et son usage rituel chez les Indiens du Nayarit". *Journal de la Société des Americanistes de Paris*, n.s., IV(1), pp. 21-29
- Dobkin de Rios, M. (1986). "Enigma of drug-induced altered states of consciousness among the !Kung bushmen of the Kalahari desert." *Journal of Ethnopharmacology* 15:297-304.
- Dold, A.P. & Cocks, M. L. (1999). "Preliminary list of Xhosa plant names from Eastern Cape, South Africa." *Bothalia* 29(2):267-292.
- du Plooy, W.J. (2001). "Poisoning with *Boophane disticha*: A forensic case." *Human and Experimental Toxicology* 20(5):277-278.
- Ellenberger D.F. (1912). *History of the Basotho ancient and modern*. London: Caxton Publ. Co.
- Farini, G.A. (William Leonard Hunt) (1886). *Durch die Kalahari-Wüste. Streif- und Jagdzüge nach dem Ngami-See in Südafrika*. Leipzig: F.A. Brockhaus.
- Gelfand, M. & Mitchell, C.S. (1952). "Buphanine poisoning in man." *South African Medical Journal (Suid-Afrikaanse Tydskrif Vir Geneeskunde)* 26(28): 573-574.
- Gibson, D. (2018). "Rethinking medicinal plants and plant medicines." *Anthropology Southern Africa* 41(1):1-14.
- Glass-Coffin B. (2010). "Shamanism and San Pedro through Time: Some Notes on the Archaeology, History, and Continued Use of an Entheogen in Northern Peru". *Anthropology of Consciousness*, vol. 21, pp. 58-82
- Gnecco, C. & Mora, S. (1997). "Late Pleistocene/early Holocene tropical forest occupations at San Isidro and Pena Roja, Colombia". *Antiquity*. Vol. 71, Iss. 273, (Sep): 683-690.
- Gurschler, Ivo (2019). "The fourfold discovery of Mescaline (1896–1919)". *Monatshefte für Chemie - Chemical Monthly* volume 150 941–947
- Hall, J. (1994). *Sangoma: My Odyssey Into the Spirit World of Africa*. New York: Putnam.
- Hauth, H. & Stauffacher, D. (1961). "Die Alkaloide von *Buphane disticha* (L. f.) Herb. 2. Mitteilung über Amaryllidaceen-Alkaloide." *Helvetica Chimica Acta* 44(2):491-502.
- Hewitt, R. (1986). *Structure, Meaning and Ritual in the Narratives of the Southern San*. Hamburg: H. Buske.
- Jacottet, E. (1897). "Moeurs, coutumes et superstitions des Ba-souto." *Bulletin de La Société Neuchâteloise de Géographie*, 9(9): 105-151.
- Juritz, C.F. (1914). "South African plant poisons and their investigation." *South African Journal of Science* 11:109-145.
- Katz, R. (1982a). "Accepting "Boiling Energy": the experience of !Kia-healing among the !Kung." *Ethos* 10:344-368.
- Katz, R. (1982b). *Boiling Energy. Community Healing among the Kalahari Kung*. Cambridge: Harvard University Press.
- Laing, R.O. (1979). "Three cases of poisoning by *Boophane disticha*." *Central African Journal of Medicine*, 25(12):265-266.
- Laydevant, F. (1932). "Religious or sacred plants of Basotholand." *Bantu Studies* 6(1):65-69.
- Laydevant, F. (1951). "Les rites de l'Initiation au Basotholand." *Anthropos* 46(1/2):221-255.
- Lewin, L. (1912). "Untersuchungen über *Buphane disticha* (*Haemanthus toxicarius*)." *Archiv Für Experimentelle Pathologie und Pharmakologie* 68(5):333-340.
- Lewis-Williams, D. & Pearce, D.G. (2004). *San spirituality. Roots, expressions and social consequences*. Cape Town: Double Storey.
- Lombard, M. et al. (2012). "South African and Lesotho Stone Age sequence updated." *South African Archaeological Bulletin* 67:120-144.
- Loubser, J. & Zietsman, P.C. (1994). "Rock painting of postulated *Brunsvigia* sp. (Amaryllidaceae) at Thaba Bosiu, western Lesotho." *Suid-Afrikaanse Tydskrif vir Wetenskap* 90:611-612.
- Luna, L. E. & White, S. F. (2016). *Ayahuasca Reader: Encounters with the Amazon's Sacred Vine*. United States: Synergetic Press.
- Milliken, W., Albert, B., & Goodwin Gomez, G. (1999). *Yanomami: A Forest People - Advances in Amazonian Ethnobotany*. Royal Botanic Gardens, Kew.
- Mitchell, P. & Hudson, A. (2004). "Psychoactive plants and southern African hunter-gatherers: a review of the evidence." *Southern African Humanities* 16:39-57.
- Moteetee, A., Moffett, R.O., & Seleteng-Kose, L. (2019). "A review of the ethnobotany of the Basotho of Lesotho and the Free State Province of South Africa (South Sotho)." *South African Journal of Botany* 122_21-56.
- Nair, J.J. & van Staden, J. (2014). "Traditional usage, phytochemistry and pharmacology of the South African medicinal plant *Boophane disticha* (L.f.) Herb. (Amaryllidaceae)." *Journal of Ethnopharmacology* 151:12-26.
- Norton, S.S.M. (1909). "Puberty rites of Basotho." *South African Journal of Science* 6(1):199-201.
- Neuwinger, H.D. (1996). *African ethnobotany. Poisons and drugs. Chemistry, pharmacology, toxicology*. St. Leon-Rot: Chapman & Hall Ltd.
- Paterson, W. (1789). *A narrative of four journeys into the country of the Hottentots, and Caffraria: In the years one thousand*

- seven hundred and seventy-seven, eight, and nine*. London: J. Johnson.
- Pearce, G.D. (2003). "The Tierkloof painted burial stones." *South African Journal of Science* 99:125-127.
- Samorini, G. (1995). "The Bwiti religion and the psychoactive plant *Tabernanthe iboga* (Equatorial Africa)". *Integration*, vol. 5, pp. 105-114.
- Samorini, G. (1997a). "Una bibliografia commentata sulla religione Buiti / An annotated bibliography on Bwiti religion", *Eleusis*, vol. 7, pp. 3-16.
- Samorini, G. (1997b). "The Initiation Rite in the Bwiti Religion (Ndea Narizangas Sect, Gabon)". *Jahrbuch für Ethnomedizin und Bewusstseinsforschung*, vol. 6-7, pp.
- Samorini, G. (2012). *Droge tribali*. Milano: Shake.
- Samorini, G. (2017). *Archeologia delle piante inebrianti*. Lecce: Youcanprint Self-Publishing.
- Samorini, G. (2021). *Ayahuasca*. Milano: Shake.
- Schapera, I. (1923). "Bushman arrow poisons." *Bantu Studies* 2: 199-214.
- Schultes, R. (1938). "The Appeal of Peyote (*Lophophora Williamsii*) as a Medicine". *American Anthropologist*, 40(4), new series, 698-715.
- Sechefo, J. (1909). "The Twelve Lunar Months among the Basotho." *Anthropos* 4(4):931-941.
- Sobiecki, J.F. (2008). "A review of plants used in divination in southern Africa and their psychoactive effects." *Southern African Humanities* 20(1):333-351.
- Steyn, M., Binneman, J. & Loots, M. (2007). "The kuga mummified human remains." *South African Archaeological Bulletin* 185(62):3-8.
- Swiderski, S. (1965). "Le Bwiti, société d'initiation chez les Apindji au Gabon". *Anthropos*, vol. 60, pp. 541-576.
- Swiderski, S. (1970). "Le Symbolisme du Poteau Central au Gabon". *Mitt. Anthropol. Gesell. in Wien*, vol. 101, pp. 299-315.
- Swiderski, S. (1981). "Les visions d'iboga". *Anthropos*, vol. 76, pp. 393-429
- Thornton, R. (2017). *Healing the Exposed Being: The Ngoma healing tradition in South Africa*. Johannesburg: Wits University Press.
- Thunberg C.P. (1795). *Travels in Europe, Africa, and Asia, made between the years 1770 and 1779*, 4 voll., London: F. & C. Rivington.
- Torres, C. M. & Repke, D. B. (2012). *Anadenanthera visionary plant of ancient south America*. New York: Routledge.
- Tutin, F. (1911). "The constituents of the bulb of *Buphane disticha*." *Journal of Chemical Society Transactions* 99:1240-1248.
- Tutin, F. (1912). "Über die Bestandteile von *Buphane disticha*." *Archiv für Experimentelle Pathologie und Pharmakologie* 69:314.
- Verzár, R. & Petri, G. (1987). "Medicinal plants in Mozambique and their popular use." *Journal of Ethnopharmacology* 19:67-80.
- Watt, J.M. & Breyer-Brandwijk, M.G. (1962). *The medicinal and poisonous plants of Southern Africa*. London: Livingstone.
- van Wyk, B.-E. (2008). "A review of Khoi-San and Cape Dutch medical ethnobotany." *Journal of Ethnopharmacology* 119(3):331-341.
- van Wyk, B.-E., van Oudtshoorn, B. & Gericke, N. (2009). *Medicinal Plants of South Africa*. Pretoria: Briza.
- van Wyk, J.J., & Kriel, J.D. (1985). "Inisiasie van Suid-Sothoseuns." *South African Journal of Ethnology* 8(September):154-166.
- Wilman, M. (1933). *The rock engravings of Griqualand West and Bechuanaland South Africa*. Cambridge: Deighton Bell & Co.
- Winkelman, M., & Dobkin De Rios, M. (1989). "Psychoactive properties of !Kung Bushman medicine plants." *Journal of Psychoactive Drugs* 21(1):51-59.

Images



Fig. 1 - Representation of *Boophone disticha* inflorescence (from "The Flowering Plants of Africa," in Watt & Breyer-Brandwijk, 1962, f. 7, p. 24)

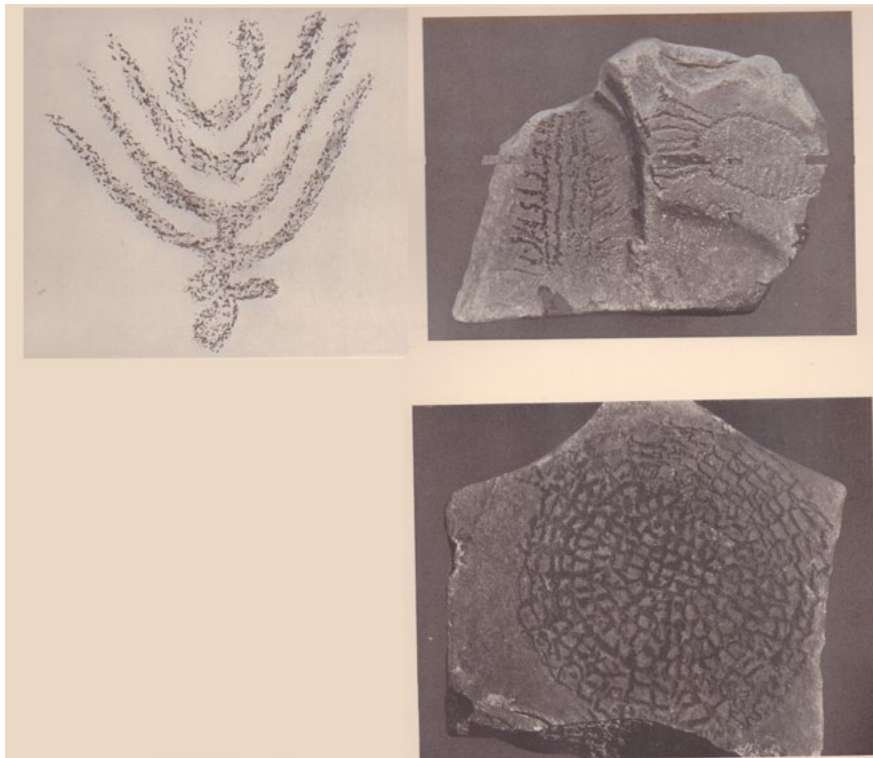


Fig. 2 - Possible petroglyphs representing *Boophone disticha*. The bottom right petroglyph possibly represents the fruit seen from above (from Wilman, 1933, tav. 58 e 59).



Fig. 3 - The very first drawing of di *Boophone disticha* (as *B. haemanthoides* F.M. Leighton), executed between 1777-1795 from dutch naturalist Robert Jacob Gordon (digitalized from original drawings, courtesy of Rijksmuseum, Amsterdam).