



SWAMI'S SACRED PLANT

A REPORT OF UNPRECEDENTED *Datura* USE IN NEPAL

by ROBERT "RIO" HAHN, FRGS, FN'86

The kingdom of Nepal is home to some of the world's richest landscapes and cultures. Contained within its 56,827 square miles are eight of the world's ten highest peaks and an incredible variety of ecosystems. Nepal is less than 560 miles long from east to west and only 94 to 125 miles wide north to south. It can be roughly divided into three geographic regions: the hot lowland Terai, the rugged deep valleys and terraced ridges of the Hills, and the towering Himalaya Mountains (MORAN 1996).

Nepal's rugged terrain has preserved a kaleidoscope of linguistic and cultural traditions that include an estimated 100 different ethnic groups, speaking some 70 different languages (MORAN 1996). The Kathmandu Valley, a fertile basin set in the heart of the Himalayan foothills, is an unparalleled living museum of ancient religious practice and extraordinary art and architecture.

Most of Nepal's estimated 22 million people practice some type of daily religious devotion at the thousands of shrines, statues, altars, and temples that adorn the cities and countryside of this magical kingdom.

Associated with many of the religious practices in Nepal and India, are a number of sacred plants. Among them are *Canabis sativa* (known as *ganja*) and *Datura*, both of which are considered sacred to SHIVA, Lord of the Yogis. In order to aid his meditation, SHIVA is reputed to consume prodigious amounts of *ganja*. On the festival of SHIVA Ratri, hundreds of Hindu *sadhu* (holy men) gather at the Pashupatinath Temple in Kathmandu to pay homage to SHIVA with prayer, singing, and austerities, all fueled by massive doses of *ganja* (MORAN 1996). Traditionally on the subcontinent, *ganja* and *Datura* are mixed together (SCHULTES & HOFMANN 1980) by the yogis and smoked in a *chillum* or clay pipe.



Also associated with many religious rituals, though rarely a focus of them, is the practice of *betel* chewing. MARCO POLO, during his travels through India in the thirteenth century, first reported to Europeans on the practice (ROONEY 1993, in BEE 2000), and the first archaeological evidence of *betel* chewing in India appears in the early Christian era. *Betel* chewing has probably been common in areas of Southeast Asia and Indonesia for thousands of years (BEE 2000), and tradition relates its beginnings to mythical origins, as is the case with many eastern religious practices. As much as ten percent of the world's population is estimated to chew *betel* for social, medicinal, and religious reasons (BEE 2000). There are several reported constituents of the *betel* chew, however *Datura* is not usually one of them, nor has it been reported as a constituent in some of the recent literature on *betel* chewing.

DATURA: A BRIEF HISTORY

Revered and feared throughout the world, *Datura* is considered one of the most mysterious and frighteningly powerful sacred plants. Traditional cultures have treated *Datura* with cautious respect, and *Datura* has often been associated with the practice of sorcery and witchcraft (DAVIS 1988). *Datura* is reputed to have been a major component of the salve European witches used to anoint their broomsticks, an effective means for women to self-administer the drug through the moist tissue of the vagina (DAVIS 1988). The popular image of the flying witch is no doubt one of mystical flight, an out-of-the-body sensation (EMBODEN 1979, 1981, in SCHULTES & REIS 1995) in which the journey is not through space but across the hallucinatory landscape of the witches' own mind (HARNER 1973; HANSEN 1978, in DAVIS 1988). Today, *Datura*'s most important psychoactive alkaloid, scopolamine, is used in modern medicine for





motion sickness, as a bronchodilator for asthma relief, and in many cold medicines to dry out the mucous membranes (McCLOY 1999).

Datura, commonly known as thorn apple, jimson weed, locoweed, and devil's weed, is a member of the Solanaceae family, which also includes well-known common plants such as tomatoes, potatoes, eggplants, peppers, and tobacco. The Solanaceae family also includes the so-called hexing herbs, including deadly nightshade (*Atropa belladonna*), mandrake (*Mandragora officinarum*), and henbane (*Hyoscyamus niger*). Belladonna, henbane and *Datura* were staples in poison potions and witches' brews (KREIG 1964).

The genus *Datura* contains 15 to 20 species, which are usually divided into four subgenera (SCHULTES & HOFMANN 1980), although there is still debate among taxonomists as to the classification of all the species. The *Daturas* are herbaceous plants, some perennial and some annual, with fragrant trumpet-shaped flowers and usually spiny seedpods.

Most species, and records of widespread use, are found in the New World, with only two species native to the Old World. *Datura metel* and *Datura ferox* have been known and used on the Indian subcontinent since ancient times (SCHULTES & HOFMANN 1979, 1980).

Knowledge of *Datura*'s intoxicating effects dates back to pre-history and accounts of its use can be found in the earliest Sanskrit and Chinese texts (SCHULTES & HOFMANN 1980). Reference to *Datura* may also have been found in Egyptian iconography in the depiction of "Lady TUTH-SHENA" on a stela standing in awe before the god HORUS (shown below). Emanating from the sun disc on HORUS's head are five "rays" of tubular flowers that strongly resemble the distinctive trumpet-shaped flowers of *Datura* (EMBODEN 1979, 1981, in SCHULTES & REIS 1995).

The name may be derived from its use in ancient India by the *dhatuereas*, bands of thieves who used the plant to drug their intended victims (FLUCKIGER & HANBURY 1879;





SAFFORD 1920, in DAVIS 1988). The formal botanical name, *Datura*, was adapted to Latin by LINNAEUS from the vernacular name *dhatura* or *dutra* in India (SCHULTES & HOFMANN 1980), which is related to the Sanskrit name *Dhustura* (BENNET et al. 1992).

Datura is highly psychoactive and has been described as an intoxicant or a hallucinogen, but calling it a deliriant is probably most accurate (BERNHARD-SMITH 1996). Ingestion of *Datura* causes symptoms of spectral illusions, delirium, dilated pupils, thirst, dryness of the mouth and muscular incoordination (BERNHARD-SMITH 1996). The pharmacological activities of the *Daturas* are due to the presence of tropane alkaloids, the most active being scopolamine (hyoscyamine). Depending on the specific species and plant part, hyoscyamine (atropine), norhyoscyamine, and tropine, among many others, may be present (McCLOY 1999).

The tropane alkaloids block neurotransmission in the parasympathetic nervous system, specifically across the muscarinic cholinergic receptors. This causes anticholinergic syndrome characterized by fever, flushing or rashes, hypertension, tachycardia, bronchodilation, delirium, hallucinations (audio, visual, and tactile), blurred vision, dizziness or vertigo, sedation, agitation, and persistent memory disturbances that can lead to amnesia. Users report that time appears to slow down and their perceptions are disoriented; effects which can be so subtle as to be difficult to notice without the assistance of a sober attendant (McCLOY 1999).

During the Sanskritic period, Indian medicine valued the Old World species of *Datura metel* for treating mental disorders, various fevers, tumors, breast inflammations, skin diseases, and diarrhea (SCHULTES & HOFMANN 1979). In 1578, the Portuguese explorer CHRISTOVAL ACOSTA noted its use as an aphrodisiac in the East Indies, stating that "...he who partakes of it is deprived of his reason for a long time, laughing or weeping or sleeping...at times he appears to be in his right mind, but really being out of it..." (SCHULTES & HOFMANN 1980). In 1797, SAMUEL COOPER wrote his dissertation on the properties and effects of *Datura stramonium* for his degree in medicine from the UNIVERSITY OF PENNSYLVANIA. From his studies of *Datura's* effects he commented, "Should we not be induced to attempt the discovery of other articles which affect the mind? May not articles exist which [are] capable of affecting all its different faculties?" (COOPER 1797).

According to the ancient Sanskrit text *Vamana Purana*, which traces the origin of plants and plant groups to different gods (BENNET et al. 1992), *Datura metel* is said to have originated from the heart of MAHESVARA—the god SHIVA in the form of the Great Lord (SENSARMA 1989, in BENNET et al. 1992). The *Purana* purports that the gods like particular flowers, and adepts gain a particular god's favor through the offering of the appropriate flower (BENNET et al. 1992). *Datura* is traditionally associated with the worship of SHIVA (MAJUPURIA, revised by JOSHI 1989), the Indian god of creation and destruction. Devotees place the flowers and fruits of *Datura* on SHIVA altars during their devotional ceremonies. Revered for their aphrodisiac properties, *Datura* flowers are usually laid upon a SHIVA-lingum—an image of the phallic incarnation of SHIVA (SCHULTES & HOFMANN 1979)—while mantras are recited.

In India and Nepal, religious plants are of such importance that several towns have been named after them (MAJUPURIA, revised by JOSHI 1989), and the literature abounds with stories of their use. ACOSTA reported that Hindu prostitutes were so skilled in the use of *Datura* seeds that they could administer doses corresponding to the number of hours they wished their victims to remain unconscious (TAYLOR 1965, in DAVIS 1988). The Thugees, forerunners of the famous Dacoit bandits of Phoolan Devi fame, used *Datura metel* to stupefy their victims before raping, robbing, and even killing them—their form of ritual worship to the goddess KALI (HANSEN 1978, in DAVIS 1988).

In the fifth century B.C. in China, where *Datura* was considered a sacred plant, legend has it that when Buddha preached, dew or raindrops fell from heaven on the plant (SCHULTES & HOFMANN 1979). The Arabian doctor AVICENNA reported use of *Datura metel* in the eleventh century under the name *Jouzmatal* ("metel nut"), and its use has also been mentioned in the writings of DIOSCORIDES (SCHULTES & HOFMANN 1979).

In many New World Amerindian cultures, *Datura* is used during puberty initiation rituals and as an aid in acquiring an ally. North American Indians who drink *toloache* (a *Datura* concoction) have an injunction against partaking of the plant more than once in a lifetime, probably due to its dangerous and unpredictable character (RIPINSKY-NAXON 1993).





SWAMI DHARMJYOTI'S USE OF *DATURA*

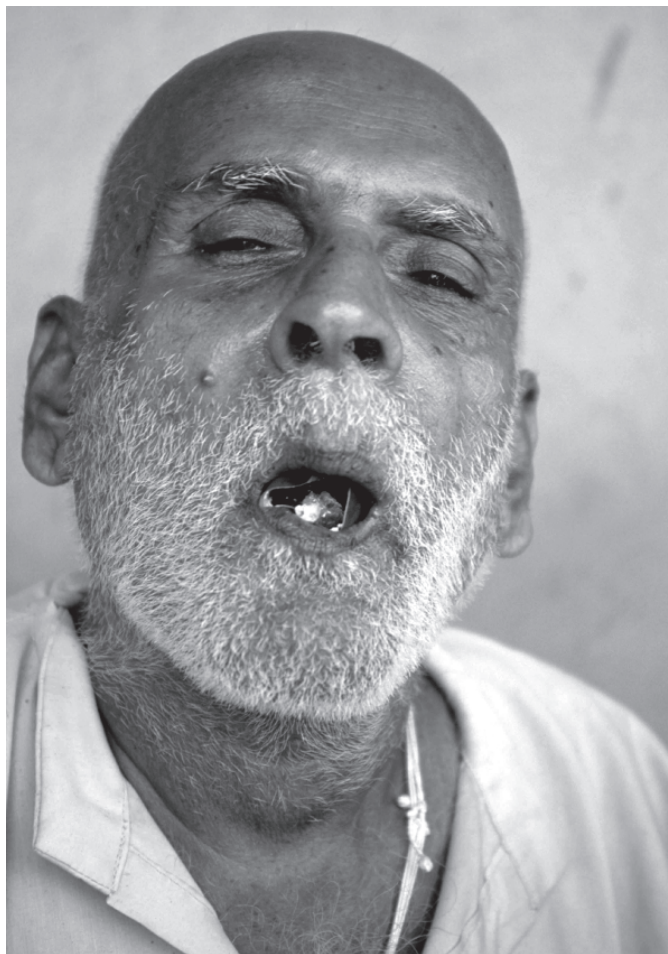
In the late 1970s, on one of my initial expeditions to Nepal, I became acquainted with SWAMI DHARMJYOTI. SWAMI, as he is affectionately known, is an 85 year-old Hindu yogi and Sanskrit scholar. As we became better acquainted, SWAMI invited me to accompany him to local religious rituals. Usually, I was the only Westerner present, and through him, I was often permitted to film the ceremonies.

We frequently met daily for long discussions on a wide range of eastern religious topics, which eventually led to discussions of his *betel* chew. In time, as his confidence in me developed, he revealed to me the nature of his *Datura* practice.

We have continued to develop our relationship, which now stretches more than two decades, on each of my visits to Kathmandu. These visits include two EXPLORER'S CLUB Flag expeditions—Flag No. 189 in 1999, and Flag No. 60 in 2001—during which, with the participation of TERESA FISKE, we were able to photograph and film in detail his *betel* chew preparation.

As a boy in his native India, yogis recognized young SWAMI as having an aptitude for yogic practice, and according to ancient tradition, his family sent him at the age of six to live with the yogis and begin his training. During the course of his yogic studies, SWAMI was slowly introduced to *Datura*, possibly enabling him to develop a tolerance for its potentially deadly effects. Finally, at the age of sixteen he was fully initiated in the daily ritual use of *Datura*. However, unlike the American Indians who use *Datura* once in a lifetime, SWAMI has continued to use *Datura* throughout his entire life.

By his own report, supported in part by my direct observation, SWAMI regularly takes at least eight daily doses of *Datura* in the form of the *betel* chew. Typically, he ingests the *betel* chew in the morning at 7:00 am, 8:00 am, and 9:00 am, then again in the afternoon at 2:00 pm and 3:00 pm (or 3:00 pm and 4:00 pm), and then at night at 7:00 pm, 8:00 pm, and 9:00 pm (or 8:00 pm, 9:00 pm, and 10:00 pm), usually taking none after 10:00 pm.



Not only does this constitute ingestion of what may be an extraordinary amount of *Datura*, it also appears to be a completely unique example of sustained daily usage of *Datura*. Based on *Datura*'s classification as a deliriant, one would expect such a dosage level to render SWAMI confused, disoriented, unable to think clearly, and incapable of remembering almost anything.

In SWAMI's case, just the opposite appears to be true. SWAMI reports that without his daily regime of *Datura*, he is unable to remember the vast number of books he has read and Sanskrit writings he has studied, nor is he able to attain the level of mentation to which he is

accustomed. Indeed, during the course of a conversation with SWAMI, he will pause to ingest his *betel* chew, and then continue to speak and act in the same manner as he did before.

SWAMI exists on a sparse diet composed mainly of rice, an effect consistent with the reduction in appetite caused by arecoline (CHARPENTIER 1977, in BEE 2000), the primary active ingredient of the areca nut (*Areca catechu*), a member of the Palmae family and one of the constituents of the *betel* chew. He reports that his *betel* chew with *Datura* produces such wonderfully sound sleep that only by pinching can he be awakened.





As with most *betel* chew preparations, SWAMI begins by choosing and cleaning a leaf of the *betel* pepper vine (*Piper betle*). The leaf, which will later be folded and rolled into a chewable quid with the other constituents inside, is rich in essential oils, especially eugenol, and has an antiseptic quality (ROONEY 1993, in BEE 2000). It comes from the Piperaceae family, which includes kava kava (*Piper methysticum*) and common table pepper (*Piper nigrum*).

Next, SWAMI applies a coating of slaked lime to the leaf, a practice that is common to almost all *betel* preparations. Slaked lime is lime (CaO) that has absorbed water to produce calcium hydroxide (Ca(OH)_2), a more alkaline form of lime. The slaked lime reacts in the quid with the chemical arecoline from the areca nut to produce arecaidine, a stimulant to the central nervous system with nicotine-like properties (RUDGLEY 1993, in BEE 2000). The slaked lime also irritates the membranes of the cheek, increasing blood flow to the area, which aids in the absorption of the tropane alkaloids contained in *Datura* (McCLOY 2002).



SWAMI slices the areca nut (*Areca catechu*) for his *betel* chew.

SWAMI next adds a mixture of tobacco and *Datura* seeds. This tobacco is much more potent and less tainted with chemical additives than tobacco found in the West. The *Datura* seeds are boiled in milk and then dried in the shade. The tobacco and *Datura* are then fried together and dried, resulting in a crystalline looking preparation. The tobacco contains nicotine, which is a stimulant and may also help to counteract the sleep-inducing aspect of the *Datura*. *Cannabis sativa*, as well as tobacco, is often used as an admixture to this preparation.

Next SWAMI adds pieces of white hard *Katha* or *Cutch* from *Acacia catechu* (McCLOY 2002), a member of the Leguminosae family. The bark of the tree is crushed and boiled producing the hard white *Katha*, which is cut into small pieces for use in the quid.

Pieces of the areca nut are then cut and added to the quid. The primary active alkaloid of the areca nut, arecoline, stimulates the parasympathetic nervous system, increasing the flow of saliva, tears, and sweat, dilating the blood vessels, and increasing the tone and contractility of smooth muscle. Overall there is an increase in breathing and perspiration while maintaining a steady heartbeat (BEE 2000).

Additionally, for taste, SWAMI may add cardamom to the quid. When chewed with the areca nut and lime, the *Piper betle* leaf produces copious amounts of red saliva, which is periodically spit on the ground or in spittoons (BEE 2000). For a more potent mixture, SWAMI adds a relatively pure extract of *Datura* seeds to the quid, prepared in the form of a black paste, which is spread on the leaf to about an inch in length by $\frac{1}{4}$ inch wide and $\frac{1}{16}$ inch thick.

DATURA: A PERSONAL EXPERIMENT

As we documented SWAMI's *Datura* quid preparation and use, he agreed to initiate me into the practice itself and let us film the process. SWAMI prepared for me a quid identical to those I have watched him prepare for himself, including the addition of the *Datura* paste. SWAMI cautioned me against swallowing the potent mixture, and constantly monitored my physical and mental state as the *Datura* took effect.

At first, I found myself entering a state of vertigo and became dizzy, which was stabilized by sitting down. I reported a feeling of lightness in the head, and a sensation like that of an electric current running throughout my body. I spit the red mixture out on the ground as its effects continued to





increase in intensity. Finally, I lay down to rest and enjoy the *Datura* experience.

After some time, SWAMI became concerned and insisted on administering his “antidote” to me. His concern appeared overstated to me, but he insisted saying he didn’t want the death of a Westerner on his hands as it would cause problems for him with the local authorities! For my part, I became interested in the nature of his antidote, never having heard of a local one. His antidote consisted of a mixture of yogurt, water, and a large quantity of sugar. The recognized medical antidote for *Datura* poisoning is physostigmine, a drug first isolated from the Calabar bean (*Physostigma venenosum*), a climbing liana that grows in the swampy coastal areas of West Africa (GOODMAN & GILMAN 1970, in DAVIS 1988). However, it is worth noting that physostigmine was unable to be demonstrated antidotal in normal humans (DRACHMAN 1977), and it was reported to show an improvement in memory in only one solitary psychotic (SITRAM et al. 1978, in PETERS & LEVIN 1977). It is unlikely that SWAMI’s antidote works through chemical counteraction of the scopolamine; its primary benefit is probably psychological. Taking the antidote did not stop the effects I was experiencing.

The effects of my *Datura* experience lasted for approximately the next 36 hours, slowly decreasing in intensity. During this time I experienced an “elevated state” of mind and exhibited, according to external observation, a euphoric disposition.

It may be difficult to extrapolate SWAMI’s regime of *Datura* use to wider application, since he began as a young boy and may have developed a tolerance for *Datura* not previously recognized. It has also been postulated that SWAMI’s insistence that he requires his daily dosage of *Datura* in order to recall his vast learning and studies is an example of the “state specific knowledge” phenomena in which material absorbed at a certain state of consciousness can only be recalled in a similar state of consciousness (TART 1972), and therefore not necessarily a specific result of his *Datura* practice.

Regardless of our theories concerning his *Datura* usage, SWAMI’s practice does stand as a unique example of *Datura* ingestion, and should provide the impetus for further study, including the search for others with a similar *Datura* practice. Unfortunately, modern custom has made it almost impossible for young persons with the potential for yogic practice to leave their families and follow the yogi path, apparently leaving SWAMI with no apprentice to follow in his footsteps. We may therefore be left with this unique report of *Datura* consumed in the way it is used by SWAMI as one of our few keys to understanding the effects of one of nature’s most fascinating and powerful sacred plants. ☉

Arecoline from areca nut is a proven cholinergic agonist in contrast to the antagonistic action of scopolamine—its action on memory is the direct reverse of scopolamine (SITARAM et al. 1978), and it has been shown in laboratory animals to specifically reverse memory deficit caused by scopolamine administration. Since scopolamine has a much longer duration, re-administration of the arecoline/nicotine chew may be requisite. — Eds.



Robert “Rio” Hahn is a practitioner of “necessary adventure.” A recognized explorer, his many expeditions include serving as scientific chief for a two-year expedition 2000 miles up the Amazon River investigating medicinal and psychoactive plants used by shaman of the northwest Amazon, and as expedition chief for a three-year around-the-world investigation of the tropic world. He has been elected a Fellow of both the Royal Geographical Society and The Explorers Club, where he currently serves as a member of the Board of Directors. Robert can be contacted at RioHahn@adventure.org.

NOTE: *Datura* can be a dangerous plant; this article should not be viewed as recommending its use.





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