What are hallucinogenic plants? How do they affect mind and body? Who uses them - and why? This unique Golden Guide surveys the role of psychoactive plants in primitive and civilized societies from early times to the present. The first nontechnical guide to both the cultural significance and physiological effects of hallucinogens, HALLUCINOGENIC PLANTS will fascinate general readers and students of anthropology and history as well as botanists and other specialists. All of the wild and cultivated species considered are illustrated in brilliant full color. ISBN-0-307-24362-1
the senses and usually produce hallucinations - experiences that depart from reality. Although most hallucinations are visual, they may also involve

In his search for food, early man tried all kinds of plants. Some nourished him, some, he found, cured his ills, and some killed him. A few, to his

Hallucinogenic plants have been used by man for thousands of years, probably since he began gathering plants for food. The hallucinogens have

Paramount among the hallucinogens of religious significance is the peyote cactus. This illustration, called "Morning Prayer in a Peyote Ceremony," is

Amanita muscaria

Hallucinogenic plants have been featured on many postage stamps: (1, 6)
Hallucinogens are limited to a small number of types of chemical compounds. All hallucinogens found in plants are organic compounds—that is, they contain carbon as an essential part of their structure and were formed in the life processes of vegetable organisms. No inorganic plant constituents, such as minerals, are known to have hallucinogenic effects.

Hallucinogenic compounds may be divided conveniently into two broad groups: those that contain nitrogen in their structure and those that do not. Those with nitrogen are far more common. The most important of those lacking nitrogen are the active principles of marihuana, terpenophenolic compounds classed as dibenzopyrans and called cannabinols—in particular, tetrahydrocannabinols. The hallucinogenic compounds with nitrogen in their structure are alkaloids or related bases.

**ALKALOIDS** are a diverse group of some 5,000 compounds with complex molecular structures. They contain nitrogen as well as carbon, oxygen, and hydrogen. All alkaloids are of plant origin, though some protoalkaloids occur in animals. All are slightly alkaline, hence their name. They are classified into series based on their structures. Many hallucinogenic alkaloids are indoles (see below) or are related to indoles, and the majority have or may have originated in the plant from the amino acid known as tryptophan.

Most medicinal and toxic plants, as well as hallucinogenic plants, owe their biological activity to alkaloids. Examples of widely valued alkaloids are morphine, quinine, nicotine, strychnine, and caffeine.

**INDOLES** are hallucinogenic alkaloids or related bases, all of them nitrogen-containing compounds. It is most surprising that of the many thousands of organic compounds that act on various parts of the body so few are hallucinogenic. The indole nucleus of the hallucinogens frequently appears in the form of tryptamine derivatives. It is composed of phenyl and pyrrol segments (see diagram following).

Tryptamines may be “simple”—that is, without substitutions—or they may have various “side chains” known as hydroxy (OH), methoxy (CH$_3$), or phosphogloxy (OPO$_3$H) groups in the phenyl ring. The indole ring (shown in red in the diagram) is evident not only in the numerous tryptamines (dimethyltryptamine, etc.) but also in the various ergoline alkaloids (ergine and others), in the ibogaine alkaloids, and in the ß-carboline alkaloids (harmine, harmaline, etc.). Lysergic acid diethylamide (LSD) has an indole nucleus. One reason for the significance of the indolic hallucinogens may be their structural similarity to the neurohumoral tryptamine serotonin (5-hydroxydimethyltryptamine), present in the nervous tissue of warm-blooded animals. Serotonin plays a major role in the biochemistry of the central nervous system. A study of the functioning of hallucinogenic tryptamine may experimentally help to explain the function of serotonin in the body.

A chemical relationship similar to that between indolic hallucinogens and serotonin exists between mescaline, an hallucinogenic phenylethylamine base in peyote, and the neurohormone norepinephrine. These chemical similarities between hallucinogenic compounds and neurohormones with roles in neurophysiology may help to explain hallucinogenic activity and even certain processes of the central nervous system. Other alkaloids—the isoquinolines, tropanes, quinolizidines, and isoxazoles—are more mildly hallucinogenic and may operate differently in the body.
It is normally dioecious—that is, the male and female parts are on different plants. The male or staminate plant is usually weaker than the female or pistillate plant.

Cannabis is the source of hemp fiber, an edible fruit, an industrial oil, a medicine, and a narcotic. Despite its great age and its economic importance, the plant is still

(Galbulimima) is an herb rich in essential oils. Natives in New Guinea eat the rhizome of the plant as an hallucinogen. It is valued locally

KWASHI (Pancratium trianthum) is considered to be psychoactive by the Bushmen in Dobe, Botswana. The bulb of this perennial is reputedly rubbed over incisions in

AGARA (Galbulimima) is a member of the ginger family, Zingiberoceae. Phytochemical studies have revealed no psychoactive principle.

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The Fly agaric mushroom is so called because of its age-old use in Europe as a fly killer. The mushrooms were left in an open dish. Flies attracted to and settling on them

derivatives. One of these is muscimole, the main pharmacologically active principle. Other compounds, such as muscazone, are found in lesser concentrations and may

such minute concentrations that it cannot act as the inebriant. It is now recognized that, in the drying or extraction of the mushrooms, ibotenic acid forms several

reference in the Vedas to ceremonial urine drinking, since the main intoxicating constituent, muscimole (known only in this mushroom), is the sole natural hallucinogenic

The use of soma eventually died out, and its identity has been an enigma for 2,000 years. During the past century, more than 100 plants have been suggested, but

India, worshiped some, drinking it in religious ceremonies. Many hymns in the Indian Rig-Veda are devoted to soma and describe the plant and its effects.

Recent studies suggest that this mushroom was the mysterious God-narcotic soma of ancient India. Thousands of years ago, Aryan conquerors, who swept across

The nature of the intoxication varies, but one or several mushrooms induce a condition marked usually by twitching, trembling, slight convulsions, numbness of the

limbs, and a feeling of ease characterized by happiness, a desire to sing and dance, colored visions, and macropsia (seeing things greatly enlarged). Violence giving way

Religious fervor often accompanies the inebriation. The nature of the intoxication varies, but one or several mushrooms induce a condition marked usually by twitching,

debriant. It is now recognized that, in the drying or extraction of the mushrooms, ibotenic acid forms several

None answers the descriptions found in the many hymns. Recent ethnobotanical detective work, leading to its identification as A. muscaria, is strengthened by the

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EFFECTS OF CANNABIS, even more than of other hallucinogens, are highly variable from person to person and from one plant strain to another. This variability comes mainly from the unstable character of the cannabis plant, which can affect the potency of the drug.

Hasheesh, the resin from the female plant, is eaten or smoked, often in water pipes, by millions in the Middle East and Africa. It is a psychoactive substance that can cause euphoria, altered perception of reality, and in some cases, hallucinations.

Moslem countries of northern Africa and western Asia. In Afghanistan and Pakistan, the resin is smoked with tobacco, consists of resin-rich dried tops from the female plant. Many of these unusually potent preparations may be derived from C. indica.

A crude woodcut illustration of cannabis from the 1517 edition of the European herbal "Ortus sanitatis de herbis et plantis".

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Cannabis preparations is both socially acceptable and legally acceptable. In predominantly Western countries, especially in urban centers, hasheesh has been known for centuries. Its long history of use in folk medicine is well-documented. The plant was used by the ancient Egyptians, Chinese, and Indians for medicinal purposes.

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The Chinese tradition puts the use of the plant back 4,800 years. Indian medical writing, compiled before 4,000 years of age. In ancient Thebes, the plant was made growing near a dwelling. Hence, the two symbols together represent a fiber plant, literally a clump of plants, even more than of other hallucinogens, are highly variable from person to person and from one plant strain to another. This variability comes mainly from the unstable character of the cannabis plant, which can affect the potency of the drug.

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The superstitious hold of this plant in Europe persisted for centuries. Unearthly shrieks could drive its collector mad. In many regions, the people claimed strong aphrodisiac object indicates its special properties. The root of mandrake was likened to the form of a man or inextricably bound up with the “Doctrine of Signatures,” an old theory holding that the appearance of an equalled by any species anywhere. Mandrake was a panacea. Its folk uses in medieval Europe were and feared for its toxicity. Its complex history as a magic hypnotic in the folklore of Europe cannot be

**MANDRAKE**

Native to Europe, northern Africa, and western and central Asia.

**Henbane**

One of 20 species of *Hyoscyamus*, members of the nightshade family, Solanaceae. They are present in significant amounts, along with several other alkaloids in smaller concentrations. To Europe, it has long been valued in medicine as a sedative and an anodyne to induce sleep. Medieval Europe to cause visual hallucinations and the sensation of flight. An annual or biennial native (**HENBANE**)

**(Hyoscyamus niger)** was often included in the witches’ brews and other toxic preparations of the 19th century, commercial collection was primarily from wild sources, but since that time cultivation has

**Belladonna**

Belongs to the nightshade family, Solanaceae. **Belladonna** (“beautiful lady” in Italian) comes from a curious custom practiced by Italian women. To enhance feminine beauty and sensuality.

**BELLADONNA**

(*Atropa belladonna*) is well known as a highly poisonous species capable of inducing vomiting and convulsions, it also produces delirium. (Jenkinson, 1735) was used to cause delirium in religious rites.

**Kanna**

The kanna family, Zygophyllaceae, to which **Syrian rue** belongs, comprises about two dozen genera and 300 species. It includes species in the genera *Peganum*, *Ammi*, and *Zygophyllum*. **Syrian rue**, *Peganum harmala*, grows from the Mediterranean to northern India, Mongolia, and Iran and Afghanistan. It is formed during extraction is not cleor. Belladonna is a commercial source of atropine, an alkaloid with a mydriatic and cardiac stimulant. The alkaloids occur throughout the plant but are concentrated especially in the leaves and roots.

**The main active principle in belladonna is the alkaloid hyoscyamine, but the more psychoactive scopolamine is also present.** Atropine has also been found, but whether it is present in the living plant or not is still debated.

**Kanna**

The name belladonna (“beautiful lady” in Italian) comes from a curious custom practiced by Italian women. To enhance feminine beauty and sensuality. In the drier parts of South Africa, there are altogether 1,000 species of *Mesembryanthemum* - many, like the ice plant, of bizarre form. About two dozen species, including the two described here, are like properties capable of producing torpor in man.

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In the drier parts of South Africa, there are altogether 1,000 species of *Mesembryanthemum* - many, like the ice plant, of bizarre form. About two dozen species, including the two described here, are like properties capable of producing torpor in man. Whether or not it produces the psychoactive effects of the whole plant is unknown. There are some 34 species of *Lagochilus* in the family, Labiatae, they are native from central Asia to the Himalayas. Atropa

**TURKESTAN MINT**

(*Lagochilus inebrians*) is a small shrub of the dry steppes of Turkestan. For centuries it has been the source of an intoxicant among the Tajik, Tartar, Turkoman, and Uzbek. In the 19th century, it was valued as a folk medicine and included in the 8th edition of the Russian pharmacopoeia, it is used to treat skin disease, to help check hemorrhages, and to provide sedation for nervous disorders. A reduction of the intense bitterness.

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**Market forms of cannabis include finely ground or “manicured” marihuana, “reefers” (smaller than a joint), and “hash” balls (pressed cannabis drains)**. Whether cannabis should be classified primarily as a stimulant or depressant or both has never been determined. The drug's activities beyond the central nervous system seem to be secondary. They consist of a rise in pulse rate and blood pressure, tremor, vertigo, difficulty in muscular coordination, increased tactile sensitivity, and dilation of the pupils.

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religious rituals, they indicate that 3,000 years ago, a sophisticated

dating buck to 1000 B.C. Consisting of a stem with a human or animal foce and surmounted by an

seems to have roots in centuries of native tradition. Mexican frescoes, going

MUSHROOM WORSHIP

America, Europe, and Asia; and Stropharia, known in North America, the West Indies, and Europe.

family Agaricaceae, are still valued in Mexican magic or eligious rites. They belong to four genera:

MUSHROOMS

of many species were used as hallucinogens by the Aztec Indians, who colled them

Although intoxicating substances have not yet been found in the puffballs, there are reports in the

PUFFBALLS (Lycoperdon mixtecorum and L. marginotum) are used by the Mixtec Indicins Of Oaxaca,

The most curious aspect of the studies, however, is why, in view of their vital importance to New World

While known New World hallucinogens are numerous, studies are still uncovering species new to the list.

appreciation of their hallucinogens. Unexpected discoveries have come from studying the hallucinogenic

No ethnological study of American Indians can be considered complete without an in-depth

tobacco and coca, the source of cocaine, have become of worldwide importance, none of the true

America and the West Indies used fewer hallucinogens, and their role often seemed secondary. Although

which acquired a deep and controlling significance in almost every aspect of life. Cultures in North

More than ninety species are employed for their intoxicating principles, compared to fewer than a dozen

In the New World—North, Central, and South America and the West Indies—the number and cultural

Central American Bwiti, which is accomplished through the use of iboga.

fancily, Apocynaceae, known to be used as an hallucinogen. The plant is of growing importance,

The plant contains highly toxic alkaloids, the principal one being scopolamine. This hallucinogen is

smoked with cannabis or tobacco in many parts of Africa and Asia.

days.

illicit use, especially by thieves for stupefying victims, who may remain seriously intoxicated for several

preached, heaven sprinkled the plant with dew.

was recorded in 1578. The plant was held sacred in China, where people believed that when Buddha

mentioned under the name jouzmathel in the 11th century. Its use as an aphrodisiac in the East Indies

identified with this species. And it is undoubtedly the plant that Avicenna, the Arabian physician,

smoke associated with the Oracle of Delphi. Early Chinese writings report an hallucinogen that has been

in other countries as well. Some writers have credited it with being responsible for the intoxicating

family, Solanaceae, have been known and valued in India since prehistory. The plant has a long history

species of Datura. The narcotic properties of this purple-flowered member of the deadly nightshade

DUTRA
The mushrooms been purposefully used for ceremonial intoxication. Another indolic compound - psilocin - which is unstable. While psilocybin has been found also in European structure, a 4-substituted tryptamine with a phosphoric acid radical, a type never before known as a hydroxydimethyltryptamine - was isolated. This indole derivative, named psilocybin, is a new type of hallucinogenic mushrooms has surprised scientists. A white CHEMICAL CONSTITUTION dissolve. After about six hours, the dream came to an end . . . I felt my return to everyday reality to be a alarming degree that I feared that I would be torn into this whirlpool of form and color and would .

The rush of interior pictures, mostly abstract motifs rapidly changing in shape and color, reached such an . . .

Aztec priest, and I would not have been astonished if he had drawn an obsidian knife . . . it amused me to .

a night, seeing infinity in a grain of sand . . . (The visions may be of) almost anything . . . except the .

the glass of simple water is infinitely better than champagne . . . the bemushroomed person is poised in .

what you are seeing takes on the modalities of music—the music of the spheres.

it listeth, in time and space, accompanied by the shaman's singing . . . What you are seeing and . . .

darkness, heavy as lead, but your spirit seems to soar . . . and with the speed of thought to travel where .

the world around him; without loss of consciousness, he becomes wholly indifferent to his surroundings, and physical depression, and alteration of time and spoce perception. The user seems to be isolated from .

include muscular relaxation or limpness, pupil enlargement,

This species is known to contain an hallucinogenic principle. Field work in modern times, however, has not .

It is possible, too, that Psilocybe species are used as inebriants outside of Mexico. P. yungensis has .

Stropharia cubensis and Psilocybe mexicana may be the most commonly employed, but half a dozen other .

THE MODERN MUSHROOM CEREMONY

Not until the 1930's were botanists able to identify specimens of mushrooms found in actual use in .

Although the Mexican flora was known to include various toxic mushrooms, it was believed that the Aztecs .

Spaniards, the mushroom cult was not encountered in Mexico for four centuries. During that time,
The ceremony takes place in a large round house. Following initial chanting by a master of ceremony, the departed are mixed into a fermented banana drink and are swallowed with the beverage. Other Indians knead the inner shavings of freshly stripped bark to squeeze out all the resin and boil it down to a thick paste, sun-dry the paste, crush it with a stone, and sift it. Ashes of several barks are added the powdered leaves of a small, sweet-scented weed, Justicia, and the ashes of amasita, the bark of a beautiful tree, Elizabetha princeps. The snuff is then ready for use.

PREPARATION OF VIROLA SNUFF

Virola trees are native to the New World tropics. They are members of the nutmeg family, Myristica fragrans, an Asiatic tree that is the source of nutmeg and mace. The same resin, applied directly to arrowheads and congealed in smoke, is one of the Waika arrow poison. This is then boiled down to get a thick paste that is sun-dried and prepared into snuff with ashes added. Still other Indians fell the tree, strip off and gently heat the bark, collect the resin in an earthenware pot, and a stimulant, may chew the rootstock as an hallucinogen. In excessive doses, it is known to induce hallucinations. There is some indirect evidence that Indians of northern Canada, who employ the plant as a medicine and treating illness.

Among numerous tribes in eastern Colombia, the use of hallucinogenic plants. These jungle trees of medium size have glossy, dark green leaves with a pungent odor and a bitter, acrid taste. They are almost wholly water and great quantities of them are needed for chemical analyses because of the Mexican mushrooms was difficult until they could be cultivated. Cultivation of edible mushrooms is an important commercial enterprise and was practiced in France and treating illness. By providing suitable conditions, scientists have learned the needs of the chemists. This accomplishment represents a phase in the study of hallucinogenic plants and a stimulant, may chew the rootstock as an hallucinogen. In excessive doses, it is known to induce hallucinations. There is some indirect evidence that Indians of northern Canada, who employ the plant as a medicine and treating illness.

Hallucinations are said to be experienced during consciousness for up to half an hour. The hallowing of the plant is exclusively by witch doctors and prepared from the bark of a beautiful tree, Elizabetha princeps. The snuff is then ready for use.

In Colombia, the species most often used for hallucinogenic purposes are Virola calophylla and V. colophylloidea, whereas in Brazil and Venezuela the Indians prefer V. theiodora, which seems to yield a more potent resin. The same resin, applied directly to arrowheads and congealed in smoke, is one of the Waika arrow poison. This is then boiled down to get a thick paste that is sun-dried and prepared into snuff with ashes added. Still other Indians fell the tree, strip off and gently heat the bark, collect the resin in an earthenware pot, and a stimulant, may chew the rootstock as an hallucinogen. In excessive doses, it is known to induce hallucinations. There is some indirect evidence that Indians of northern Canada, who employ the plant as a medicine and treating illness.

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turned upside down and that men are walking on their feet in the air (mocropsia) is common. In an early description, the Indians say that their houses seem to "... be yopo in the Orinoco 175 years ago, mistakenly stated that "... it is not to be believed that the niopo occasionally take the powder alone. The explorer Alexander von Humboldt, who encountered the use of yopo snuff, the alkaline admixture seems not to be essential. Some Indians, such as the Guahibos, may merely mechanical purpose: to keep the snuff from caking in the humid climate.

hemispheres. They are often added to betel chew, pituri, tobacco, epena snuff, coca, etc. In the case of made from a great variety of plant materials: the burned fruit of the monkey pot, the bark of many wood of pao d'arco . . . which is held between the fingers and thumb of the right hand."

means of a broad handle grasped firmly with the left hand; then crushed by a small pestle of the hard

varies somewhat from tribe to tribe. The pods, which are borne toasted. Sometimes the beans are allowed to ferment before being rolled into a paste. After the moistened and rolled into a paste, which is then roasted gently over a slow fire until it is dried out and

knowledge of the active principle of these seeds.

The hallucinogenic principles found in A. peregrina seeds include N. N-dimethyltryptamine, N-

the Caribbean area by Indian invaders from South America. Indians called it cohoba. Its use, which has died out in the West Indies, was undoubtedly introduced to snuff, now used mainly in the Orinoco basin, was first reported from Hispaniola in 1496, where the Taino bean family, Leguminosae. A potent hallucinogenic snuff is prepared from the seeds of this tree. The YOPO PARICA or JUREMA is native only to the dry regions of eastern Brazil. Many other plants are employed in South America in preparing arrow poisons, most of them members of the bean family, Leguminosae. Most of them are American, although some occur in Africa and Asia. tropical and subtropical herbs and small shrubs. The mimosas belong to the subfamily Mimosoideae of the bean family, Leguminosae. A potent hallucinogenic snuff is prepared from the seeds of this tree. The

JUREMA (Mimosa hostilis) is a poorly understood shrub, the roots of which provide the "miraculous

Jurema is native only to the dry regions of eastern Brazil. The hallucinogenic snuff made from the resin of the Virola tree is the most popular of all the hallucinogenic snuffs. It is known as the "miraculous"

Hallucinogenic constituents have not yet been found in Justicia, but if any species of the genus is been reported to be employed in that region as the sole source of a narcotic snuff.

MASHA-HARI mixed with the hallucinogenic snuff made from resin of the Virola tree. Other species of Justicia have

Venezuelan natives may smoke the bark to get the intoxicating effects. It is interesting that although the arrows are tipped while the hallucinogenic snuff is being prepared unknown.

The red resin from the bark of Virola theiodora is smeared on an arrow or dart, which is

then gently heated in the smoke of a fire (shown in the illustration below) to harden the resin. The study of curare. The red resin from the bark of Virola theiodora has up to 8 percent of tryptamines, mainly the highly active 5-methoxy-N, N-

of Virola has been shown by recent studies to be an exceptionally

forces dwelling in the Virola tree and controlling the affairs of man. During the intoxication, medicine

of increasing excitability. This is followed by a numbness of the limbs, a twitching of the face, a lack of

are felt within minutes from the time of initial use. First there is a feeling

when the resin is taken orally. Because the resin is not soluble in water, it is not ingested when

resin; they act as monoamine oxidase inhibitors and make it possible for the tryptamines to take effect

Two new alkaloids of a different type—,B-carbolines— have also been found in the of Virola theiodora has been shown by recent studies to be an exceptionally
Plants.

Amazon region wrote about the drug. It is widely known in the Amazon but the whole story of this plant event after more than a century, they gave results (p. 103) indicating the presence of alkaloids.

Material and also stems for chemical study. Interestingly, these stems were not analyzed until 1969, but the dried stem for its effects instead of preparing a drink from the bark. Spruce collected flowering EARLIEST PUBLISHED REPORTS of ayahuasca date from 1858 but in 1851 Richard Spruce, an tropics and subtropics. The seeds of some species are important in folk medicine in several countries. Some 300 species of Rhynchosia, belonging to the bean family, Leguminosae, are known from the still not been characterized.

Seeds of some species of Rhynchosia have given positive alkaloid tests, but the toxic principles have asphyxiation through its depressive action on the diaphragm. The alkaloid cytisine is present in the beans. It causes nausea, convulsions, and death from asphyxiation.

Some species of Erythrina contain alkaloids of the isoquinoline type, which elicit activity resembling known also applied to the hallucinogenic morning-glory seeds.

59), suggesting hallucinogenic use. Modern Indians in southern Mexico refer to them as piule, one of the asphyxiation through its depressive action on the diaphragm.

Mexico and in the American Southwest. Both beans are sometimes sold mixed together in herb markets, bright red beans of these plants resemble mescal beans (see p. 94), long used as a narcotic in northern (several species of Erythrina) may be used as hallucinogens in some parts of Mexico. The beans have been found at sites dating before A.D. 1000, with one site dating back to 1500 B.C.

An early Spanish explorer mentioned mescal beans as an article of trade in Texas in 1539. Mescal seeds are used as an adornment on the uniform of the leader of the peyote ceremony. Because the red bean drink was highly toxic, often resulting in death from overdoses, the arrival of a divine, divinatory, and hallucinogenic medium.

Known also as the Wichita, Deer, or Whistle Dance, the ceremony utilized the beans as an oracular, communicative, and hallucinogenic medium. Sacred elements do not often disappear completely from a culture; today because the red bean drink was highly toxic, often resulting in death from overdoses, the arrival of a divine, divinatory, and hallucinogenic medium.

Sacred elements do not often disappear completely from a culture; today known also by the name of curare or arrow poisons, but no alkaloids known to possess hallucinogenic properties have yet...
The Yuru, orb ceremony in the Colombian Amazon involves ritual ayahuasca intoxication. The Indians are blowing often sold in native markets, are sliced like loaves of bread and then boiled in water for several hours, An intoxicating drink called cimora is made from the San pedro cactus. Short lengths of the stem, several "kinds," which differ mainly in the number of ribs, the most common type having seven. This the Andes of Peru, Ecuador, and Bolivia. The natives, who also call it aguacolla, or giganton, recognize (Trichocerous pachanoi) is a large columnar cactus widely cultivated as a hallucinogen in SAN PEDRO
the effects of their purified chemical constituents. appears to be the most active, although the hallucinogenic effects following ingestion of the total plant alkaloids in Heimia salicifolia. They belong to the quinolizidine group. One, cryogenine or vertine, Presence of hallucinogenic principles was unknown in this family, but chemists have recently found six hardly distinguishable species that range in the highlands from southern United States to Argentina. Heimia belongs to the loosestrife fomily, Lythroceae, and represents an American genus of three various parts of Mexico. Other intoxicating sinicuichis are Erythrina, Rhynchosia, and Piscidia, but Heimia unpleasant after-effects are rare, but excessive drinking of the intoxicant can be quite harmful. result, with voices or sounds distorted and seeming to come from a distance. Partakers claim that 20-foot species is still poorly understood. Shanshi is one of 15 species of Coriaria, most of chemistry of this species is still poorly understood. Shanshi is one of 15 species of Coriaria, most of
 include the sensation of flight. The weird effects are due possibly to an unidentified glycoside, but the SHANSHI
preparations are made from the root bark of this plant. Coriaria is the only known genus in the family, which are shrubs. They are found in the mountains from Mexico to Chile, from the Mediterranean area chemistry of this species is still poorly understood. Shanshi is one of 15 species of Coriaria, most of

additives may also alter the effects.
It considers peyote a sacrament through which God manifests Himself to man. America. It was legally organized, partly for protection against fierce Christian - missionary persecution, how the use of peyote diffused from Mexico north, far beyond the natural range of the cactus, is not fully asserted that visions are “not good” and lack religious significance. Peyote’s reputation as a panacea and all- especially in those Indian cultures where the quest for visions has always been important, many natives Though the colored visual hallucinations undoubtedly underlie the rapid spread of the use of peyote, artificial calm and muscular sluggishness at which time the subject begins to pay less attention to his experiences, especially sexual, for it reenacts the first peyote quest of the divine ancestors. The pilgrims on the mind and body are so utterly unworldly and fantastic that it is easy to...
The effects of most of the other constituents, alone or in combination, are not well understood. Psychological research has been done on mescaline, the alkaloid responsible for the colored visions, but...
The Jívaro and Kofán Indians of Ecuador drink, as among the Kachinaua of Brazil, or as an additive to other hallucinogenic drinks, as among the evidence has pointed to the use of several species of Brunfelsia either as the source of an hallucinogenic taken in its cultivation seems to suggest a former religious or magic place in tribal life. Recently, real several species of shrubs that appear to have been important hallucinogens among some South CHIRIC-CASPI (Brunfelsia) are the most common of the native names for its potent effects. The only species of Latua known, the tree is confined to coastal mountains of central the alkaloids hyoscyamine and scopolamine have been isolated from the fruit and are responsible for by a medicine man who knows how to measure the doses properly. The natives employ the fresh fruits. medicine men of Valdivia, Chile, to cause delirium, hallucinations, and occasionally permanent insanity. ("sorcerers' tree") or latué (Latua pubiflora) is used by the Mapuche Indian hallucinogenic principles. lochroma, it belongs to the nightshade family, Solanaceae, well recognized for its toxic and Indians in the Sibundoy Valley of southern Colombia. Although no chemical studies have been made of lochromo are locally taken in hallucinatory drinks, either alone or mixed with other narcotic plants, by highlands of South America. There are suspicions and unconfirmed reports that several species of Coleus species. have been used as hallucinogens. No hallucinogenic principle hes yet been discovered in the 150 known MANY HORTICULTURAL VARIETIES (note: the flower has white end, not purple.) has hitherto been known in nature only in the primitive fungus ergot (Claviceps purpurea), a parasite on the plant and found several alkaloids closely related to that potently hallucinogenic synthetic compound. His astonishing discovery met with widespread disbelief, partly because these Iysergic-acid derivatives active principle could be found until the 1960's. At that time the chemist who discovered LSD analyzed notes on self-experimentation with Rivea seeds, showing that they brought on an intoxication colored designs in kaleidoscopic motion. Chemical studies have as yet failed to isolate any psychoactive the sacred mushrooms but less striking and of shorter duration. It is characterized by three-dimensional pipilzintzintli of the ancient Aztecs. (p. 58) or morning glory seeds (p. 128) are scarce. It is commonly believed to be the hallucinogenic the plant is not known in the wild and rarely, if ever, develops from seed. The Mazatecs plant this mint fresh, or the plant is ground on a metote, then diluted with water and filtered for drinking. Mazatec Indians of Oaxaca employ the leaves as a divinotory narcotic, (Salvia divinorum), of Mexico, is the only one of 700 species of Salvia known to be used as an hallucinogen. Mazatec Indians of Oaxaca employ the leaves as a divinotory narcotic, HOJAS DE LA PASTORA the sacred Mexican morning glorys, showing their chemical relationship to LSD. Golden Guide   pages 131 to 140
and delirium. The trees are the special property of certain medicine men who employ the drug in difficult cases. The chemical composition explains its great potency: 80 percent of the several typical tropane alkaloids in the leaves of Datura are scopolamine, hyoscine, and atropine. Detectors are said to be more potent and dangerous to use than similar preparations of Datura in having their bell-shaped corolla split nearly to the base.

Desfontainia contains one or two other Andean species and belongs to the family Desfontainiaceae. A small tree, it is known as the "grave tree," and Indians in Peru believe that it reveals treasures preserved in grave sites. The Mapuche Indians in Chile use it as a folk medicine and as a narcotic. Whether their effects are truly hallucinogenic is not yet known. So far, there have been no chemical studies made of this tree.

Only species in a rare family, Gomortegaceae, related to the nutmeg family. The Mapuche Indians of southern Chile use it as a folk medicine and as a narcotic. Whether their effects are truly hallucinogenic is not yet known. So far, there have been no chemical studies made of this tree.

TAIQUE (Gomortega keule) is a small tree restricted to about 100 square miles in central Chile. It is the only species in a rare family, Gomortegaceae, related to the nutmeg family. The Mapuche Indians of southern Chile use it as a folk medicine and as a narcotic. Whether their effects are truly hallucinogenic is not yet known. So far, there have been no chemical studies made of this tree.

The modern Tarahumares still add the roots, seeds, and leaves to their maize beer. Zunis value the hallucinogenic properties of the plant. Surprisingly, the species is reported from Mexico. It is a small shrub that is believed to have been the chief ingredient of wysoccon, an hallucinogenic beverage of the Algonquin Indians of eastern North America.

A number of minor, chemically related alkaloids may be present: atropine, norscopolamine, meteloidine. Atropine is reportedly the major constituent in the genus Datura. Hyoscine is reportedly the major constituent in the genus Bufo. Scopolamine is often the major constituent. Basically, all species of Datura have a similar chemical composition. Their active principles are mainly tropane alkaloids: hyoscine, atropine, and scopolamine.

The hallucinogenic properties of Datura are due to the presence of tropane alkaloids. The term "tropane" refers to a nitrogenous ring system that is present in several families of flowering plants. The active principles are mainly tropane alkaloids: hyoscine, atropine, and scopolamine. Basically, all species of Datura have a similar chemical composition. Their active principles are mainly tropane alkaloids: hyoscine, atropine, and scopolamine.
 hallucinations. Experimentation continues with plants—common and uncommon—known or suspected to have hallucinogenic properties. Some of these plants may have biodynamic principles that could be useful in medicine. However, no reliable studies have been made of the hallucinogenic properties of such plants. Some of these plants have long been used as healing practices in primitive cultures.

Although many modern psychiatrists are critical of chemical psychoses as tools in treating mental disorders, we see that model psychoses are not a new development. Artificially induced psychoses of hallucinogenic plants in primitive societies with the medical value claimed for them by some psychiatrists, we see that model psychoses are not a new development. Artificially induced psychoses may sometimes be of value in studying the effects of hallucinogens. Whether or not the use of hallucinogens to create such model psychoses will be of therapeutic value is still a question, but there is little doubt that hallucinogens may be of experimental help in understanding the functioning of the central nervous system. One specialist states that studies of “various aspects of the normal and abnormal” may elucidate certain areas of the “hinterland of character.”

Some psychiatrists believe that mental disorders of hallucinogens among primitive peoples are often based on the concept of a “demon” or “devil.” They think that the concept of a “demon” may be a condition of emotional “abnormality.” It may be useful to note that the concept of a “demon” is not restricted to primitive peoples. It is widely used in modern medical practice.

In addition to hallucinogenic plants, there are other psychoactive agents that have been studied by pharmacologists. These agents are derived from plants and animals. The effects of these agents depend on the specific agent and the individual who takes them. The effects of these agents are usually short-lived, lasting only as long as the agent is present in the body.

There are many psychoactive agents that are derived from plants. Some of these agents are derived from plants that are commonly used in medicine. For example, scopolamine, an alkaloid of the nightshade family, is often used as a muscle relaxant. It is also a sedative and a hypnotic. Another example is lobeline, an alkaloid of the lobelia family. It is often used as a smoking deterrent. There are 300 species of lobelia, mostly tropical and subtropical, and they are all psychoactive.

The effects of psychoactive agents result from constituents that belong to many classes of chemicals. The effects of these agents are usually short-lived, lasting only as long as the agent is present in the body. They have both physical and psychic activity. The effects of these agents are often short-lived, lasting only as long as the agent is present in the body.