



DISCLAIMER

The author and publishers of this guide do not condone or condemn those who are seeking an alternative state of consciousness. However, we feel that this information should be provided freely for those individuals who feel a need to study the various aspects of entheogenic mind-altering fungi which occur in Australia and New Zealand. It is not the intention of the writer nor the publisher that this guide is to be used for the purpose of the illicit human consumption of said described fungi.

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All photographs are by John W. Allen except Psilocybe aucklandii and Psilocybe australiana By C.J. King, Gymnopilus purpuratus by Jochen Gartz, and Psilocybe subaeruginosa by R.V. Southcott.

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INTRODUCTION

Mind-altering (psilocybine containing) mushrooms have been traditionally used in religious healing and curing ceremonies by native peoples in Mesoamerica for more than 3,000 years. Today, the recreational use of hallucinogenic fungi by Westerners is widespread, especially in various regions of the United States, Canada, Mexico, Caribbean, Great Britain, Europe (especially in the Netherlands), Scandinavia, South America, Southeast Asia, India, Bali, Samoa; Australia and New Zealand. The modern, non-traditional use of hallucinogenic mushrooms has been stimulated, by media reports in newspapers, magazines, word-of-mouth communication, the World Wide Web and Internet, and also by the scholarly and popular journal publications of the renown ethnomycologist R. Gordon Wasson, (Harvard psychologist Timothy Leary, traveler Jeremy Sanford, health guru Andrew Weil, and others (see Allen , Merlin & Jansen, 1991).

This field guide reviews the history of both the accidental and purposeful use of psychoactive mushrooms in Australia and New Zealand. Information in this guide has been gathered from personal experiences in Australia by the author and from reports in the scientific literature, news items appearing in the popular press, and personal communications with Australian and New Zealand (NZ) professionals (Unsigned 1970; O'Neill, 1986).

Furthermore, descriptions of both the physical and mental effects resulting from both the accidental and deliberate ingestion of some species of psychoactive mushrooms in Australia and New Zealand during the past 50 years is discussed.



There are more than 1 dozen species of "magic mushrooms" in Australia and New Zealand. Four of these species are dung (manure) inhabiting mushrooms. They include Psilocybe cubensis and/or Psilocybe subcubensis (known locally as "gold caps" and/or "gold tops"), Psilocybe subaeruginosa, and Copelandia cyanescens (the latter is known locally as "blue meanies"). These four species contain the mind altering alkaloids psilocybine and psilocine and are the most common hallucinogenic mushrooms in Australia. In New Zealand, the most commonly used species are Copelandia cyanescens and Psilocybe semilanceata, the latter species is recognized throughout the world as the "liberty cap"). This species only occurs in manured soil and does not grow directly from the dung of cattle, sheep or other four legged farm animals. Psilocybe cubensis the most popular of these species, is well known throughout much of the world; however, this species is not known to occur in New Zealand.

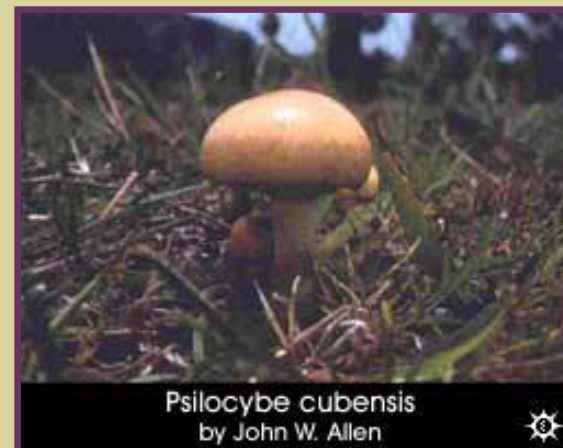
Other species described in this guide are known to occur in manured soil, in pastures, meadows, grazing lands, some lawns and in

the bark mulch and woodchips of deciduous woods.

CATTLE AS A POSSIBLE DISPERSAL MECHANISM FOR PSYCHOACTIVE DUNG FUNGI

One may ask the question, "how did these mushrooms arrive in Australia and New Zealand?" Well some species may be endemic, that is, they were already there naturally. Other species such as the above described dung-inhabiting mushrooms most likely appeared after the introduction of cattle on the subcontinent.

The first livestock to arrive in Australia were brought from the Cape of Good Hope in 1788, and included 2 bulls and 5 cows, along with other domesticated farm animals. By 1803, the government owned approximately 1800 cattle, most of which were imported from the Cape, Calcutta, and the west coast of America. It was during this period that some of the visionary mushrooms mentioned in this field guide probably first appeared in Australia (Unsigned, 1973). According to Australian mycologist John Burton Cleland (1934), "fungi growing in cow or horse-dung and confined to such habitats, must in the case of Australia, all belong to introduced species". It is believed to have been the South African dung beetle which may have actually spread the spores. According to English mycologist Roy Watling of the Royal Botanic Gardens in Glasgow, Scotland, "it must be remembered that fungi can change substrate preferences and there are coprophilous fungi on kangaroo droppings etc." Some mycologists who have studied the "magic mushrooms" in Australia and NZ claim that the "use of *P. cubensis* as a recreational drug tends to confirm the belief that [some] farmers in early times [may have] added one or two basidiomes [gilled mushrooms] to a meal to liven it up [and still do] Margot & Watling, 1981."



Psilocybe cubensis
by John W. Allen



Panaeolus subbalteatus
by John W. Allen



More than half of Australia's beef cattle can be found in the coastal areas of Queensland and New South Wales; and the 20 to 30 inch (500-750mm) rainfall belt of Queensland, New South Wales and Northern Victoria, generally provide adequate climatic environments for the growth of psilocybian mushrooms, especially after heavy rains. It has been suggested that "*Psilocybe cubensis* was introduced into Australia accidentally by early settlers along with their livestock." This same spore dispersal mechanism also probably applies to *Copelandia cyanescens*, *Panaeolus subbalteatus* and several additional species known to occur in or around the dung of other ruminants. This includes *Psilocybe semilanceata* and the non-hallucinogenic "haymaker's" mushroom *Panaeolina foenicicii*.

While cattle are raised in all Australian states, as well as in the central lowlands, recreational users have been known to export these psychoptic species to various areas in Australia from areas where they were collected.

In the case of New Zealand, hereafter referred to as NZ, cattle are the primary source for *Copelandia cyanescens*, but the "liberty cap" mushroom *Psilocybe semilanceata* only grows in the manured soil of four-legged

ruminants and not directly from manure (Jansen, Pers. Comm., 1988).

The identification section of this guide documents reported locations for more than 1 dozen species of psilocybian mushrooms in Australia and NZ which most likely have been used at one time or another for recreational purposes.

COMMON EPITHETS

Most users of the psychoactive visionary mushrooms have very little knowledge of their scientific names. Instead, they have given their favorite species local epithets which are commonly used by those who collect and ingest them. Some of these popular names are also known and applied by users outside of Australia and NZ.

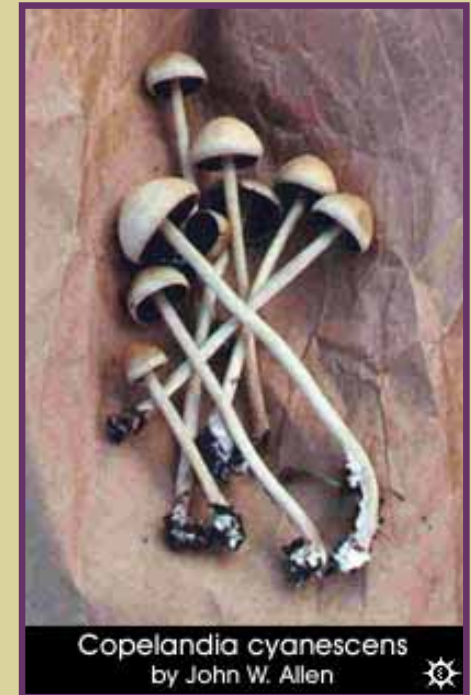
"Magic Mushrooms" is the most common term applied to any mushroom which contains psilocybine and/or psilocine. It was invented by a Life Magazine editor in 1957 (see Wasson, 1957). Psilocybe cubensis is known in Australia as "golden tops", "gold tops" or sometimes "gold caps." The Australian epithets may have been given to this species by members of a local, drug-using group of surfers which frequented the Gold Coast region of Eastern Australia; however, some of these names have apparently been used to describe several different species of Psilocybe by users in Australia (see Allen, 1997). As mentioned above, Psilocybe cubensis is not known to occur in New Zealand.



Those who ingest Copelandia cyanescens, known in Australia and New Zealand as "blue meanies", also refer to this species as "Blue Legs", "golden tops" or "gold caps". The latter two nicknames, as well as "dimple tops" and "cone heads", are common terms applied to Copelandia cyanescens in the Hawaiian Islands; and some of these same popular names have also been used by visiting surfers from both New Zealand and Australia, to describe the macroscopic characteristics of Copelandia cyanescens. These same surfers visiting Hawaii's North Shore have reportedly ingested mushrooms prior to surfing, as do many of the locally based surfers in Australia and NZ.

The epithet "blue meanies" refers to 1) the relative potency of the species and the intense blue oxidation (indicating the presence of psilocine) caused by damage to the cap and/or stem when the mushroom has been bruised by human handling, and 2) 'blue meanies' is connected with the Beatles film 'Yellow Submarine'. "gold tops" or "golden caps" often refer to the color of the pileus of both P. cubensis and C. cyanescens, which are hygrophanous (changing color when drying).

In the United States, Canada, Great Britain and Europe, Psilocybe semilanceata is often referred to as the "liberty cap" (see Allen 1997a and 1997b) and is also known to many



Europeans as "Psilos.". In New Zealand, the term 'magic mushroom' is certainly more popular than any other term used in identifying psilocybian mushrooms.

PUBLIC AWARENESS OF PSILOCYBIAN FUNGI

It has been suggested by an Australian physician that the general public in Australia, as well as members of its drug using subculture, first became aware of the visionary properties of these psychoactive mushrooms by a visiting surfer(s), who came from either New Zealand or the United States (Hawaii) and most likely provided ethnomycological information to local surfers (McCarthy, 1971). This physician reported that the use of psychoactive mushrooms, as well as 21 other drugs "was well demonstrated during a survey on drug abuse that was conducted in Southern Queensland during 1969." This survey relied on interviews of 51 people belonging to "the 'surfer' subculture local beach resorts". In this report, the doctor believed that "although the survey involved surfers and their female friends, there is no suggestion that the use of these drugs is confined to this group, which constitutes but a proportion of our (Australian) young drug taking community." It is thus likely that word-of-mouth communication made a significant contribution to the increasing use of "magic mushrooms" in Australia and NZ.

In addition, many early users of "magic mushrooms" in Australia may have first become aware of their mind-altering and visionary effects by reading the published literature or the many news items appearing in the popular Australian press during the late 1960's and early 1970's. These news items often described both accidental and deliberate intoxication's which resulted from the ingestion of several varieties of "magic mushrooms". For example, in 1972, one local newspaper report provided an account regarding the use of these mushrooms by young teenagers at a local high school in Brisbane: "...children at a suburban school are getting high on mushrooms called 'Gold Tops.' The mushrooms are common along the Brisbane River near Toowing High School, and children in search of 'kicks' have been experimenting with them (Unsigned, 1972)." It would be very obvious to anyone who read this above mentioned news item, when it appeared in print, that those searching for hallucinogenic mushrooms would be able to find them if they so desired.

There is yet another factor that may have played a significant role in promoting interest in the use of psychoactive mushrooms in Australia and NZ. Some drug users or mycophillic individuals may have read or heard of R. Gordon Wasson's personal account of his adventurous rediscovery of an hallucinogenic mushroom cult among the Mazatec Indians of Southern Mexico. Dr. Wasson reported the ceremonial use of certain mushrooms as divinatory substances among the Mazatecs and other native peoples in Oaxaca, Mexico (see Wasson, 1957). This journalistic report of Wasson's research expedition appeared in an international edition of Life Magazine in the late 1950's, providing many drug users and others with the incentive to seek out, find, and eventually experiment with these mushrooms.

The media has also played an indirect, unintentional role. For example, in the Pacific Northwest United States, local radio stations, and newspapers, often inform their listening and viewing public on the annual arrival of mushroom season; even mentioning the fruiting of psilocybian mushroom throughout several locations in the Pacific Northwest United States.

Additionally, as noted above, with the passing of the 1990's, word of the mushroom can now reach millions of viewers through the World Wide Web and the Internet.

PSYCHOACTIVE POTENCY OF AGARIC SPECIES

The majority of adverse physical effects or negative psychological reactions produced by "magic mushrooms" generally result from inappropriate set and expectation, or because of improper dosage, which may vary considerably among consumers, different mushroom species, or even within an individual species.

The question of dosage is often confused by the variation in the source of the hallucinogenic mushroom species which is consumed. For example, Psilocybe cubensis, when picked and eaten from its natural dung (manure) habitat, produces a relatively mild mind-altering experience, which is evident from the large amounts of fresh specimens needed to achieve a threshold experience. However when grown *in vitro* (indoor laboratory cultivation and/or illicit cultivation), Psilocybe cubensis apparently can produce a more potent strain capable of inducing a very intense visual, sometimes quite disturbing, experience. This dosage assumes that the consumption of 1 to 3 gm of dried material would be too low if the mushroom specimen came from a wild source.

This low potency for Psilocybe cubensis has been confirmed by research scientists Margot & Watling, (1981), who were surprised by the comparatively small amounts of psilocybin and psilocin which they extracted from wild specimens collected from five different locations in Australia. This suggests that a much larger dose would be required to produce significant hallucinations. It is possible that the chemicals most likely degenerated between the time that they were harvested and the time of analysis. However, it should be noted that a strain of Psilocybe cubensis producing different flushes (harvests) will vary somewhat in potency between flushes.

DOSAGE LEVELS

Most recreational users of Psilocybe cubensis (when grown *in vitro*) require a dosage of 1 to 2 gm of dried mushrooms to produce an altered state of consciousness; a clinical dosage for Psilocybe cubensis, on the other hand, had previously been reported as ranging from 3 to 5 gm of dried material. This dosage would be comparable to the amount of fungal material consumed for religious purposes in a Mazatec Indian healing and curing ceremony. In 1982, one research team "found that the level of psilocybin and psilocin varies over a factor of 4 among various *in vitro* cultures of Psilocybe cubensis, while specimens from outdoors varied tenfold." A fresh dosage of Psilocybe cubensis in Australia would be approximately from 1 to 2 large mushrooms weighing up to as much as one fresh ounce, or as many as from 25 to 50 small mushrooms equaling the same weight amount. Ethnopharmacologist Jonathan Ott (1976, 1993) noted that he has observed "the ingestion of from 0.5 gm to 5.9 gm dried weight (10 gm to 40 gm fresh)", of various species of Psilocybe. Dosage for Psilocybe subcubensis would be the same as for Psilocybe cubensis. Both of these latter two species are macroscopically alike.



The usual dosage for Copelandia cyanescens required to induce psychedelic visual effects ranges from 1 to 3 large specimens (cap diameter c. 5 mm), or as many as 5 to 10 medium-sized mushrooms (cap diameter c. 2.5 mm); however, personal tolerance to this species may occur with continued use, and some who consume large amounts of this mushroom have reportedly ingested as many as 50 to 200 fresh specimens of various sizes.

Dosage for Psilocybe subaeruginosa is approximately the same as that given for Psilocybe cubensis, 1 to 3 large specimens, 4 to 6 small specimens, or 1 to 2 gm dried material.

Panaeolus subbalteatus requires at least 28 gm fresh (10 to 20 or more mushrooms), or as many as 2 to 5 gm dried material.

Dosage for Psilocybe semilanceata is reported at 7 gm to 10 gm fresh (approximately 20 to 30 mushrooms), or 1 gram dried.

DOSAGE FOR WOOD CHIP SPECIES

Gymnopilus spectabilis, now considered a synonym of Gymnopilus junonius requires a dosage of 4 to 8 fresh ounces (112-224 gm fresh). According to mycologist Roy Watling, the Australian `form' is probably Subs. pampeanus. However, this mushroom is very bitter and it is most likely not consumed in Australia for recreational use.

Dosages for Psilocybe australiana Guzmán & Watling, Psilocybe eucalypta Guzmán & Watling, Psilocybe kumaenorum Heim, Psilocybe tasmaniana Guzmán & Watling and Psilocybe makarorae Johnston & Buchanan are unknown at the present time. However, according to several people who have bioassayed some of these new species, reports indicate that they are just as potent as Psilocybe cyanescens (the most potent of species commonly found in the Pacific Northwest United States; British Columbia, Canada; Great Britain and Europe) and the suspected hallucinogenic properties of Panaeolina foenisecii (a common lawn mushroom sometimes considered as hallucinogenic) remain doubtful, as does the appearance of Psilocybe collybioides in Australia.



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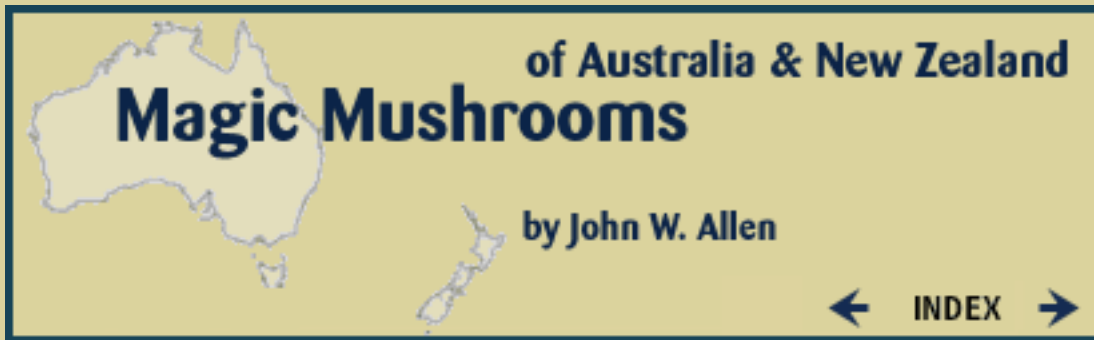


TABLE I: SUSPECTED SPECIES WHICH ARE NOT PSYCHOACTIVE

1. Panaeolina foenisecii (Pers. ex Fr.) R. Maire

Documented Locations: Campbelltown, an eastern suburb of Adelaide, South Australia, Pemberton, Western Australia; Sydney, New South Wales, and now identified from Blackbutt, Queensland. According to Dr. Gastón Guzmán, "this species is probably not hallucinogenic" (see Allen & Merlin 1992c). This has also been confirmed by Stijve (1989, Pers. Comm.), Watling (1989, Pers. Comm.), and Young (1989, Pers. Comm.). It is a common lawn inhabiting species with a cosmopolitan distribution. In New Zealand, P. foenisecii has a cosmopolitan distribution in pasture land (see Allen & Merlin 1992c).

2. Panaeolus antillarum (Fr.) Dennis

Documented Locations: Northern Rivers of New South Wales around Murwillumbah, Eudlo, Queensland; from Victoria, New South Wales, and South Australia. This dung inhabiting species which some authors have mentioned as containing psilocybine does not. However, it does resemble some species of Copelandia and has been known to fruit from the same manure heap as Copelandia sp. It is also the infamous "hysteria fungus" which was reported as a toxic fungi but is not really hallucinogenic.

3. Psilocybe collybioides Singer & Smith

Documented Locations: Queensland; Hobart, Tasmania. Although it is mentioned as occurring in Australia and Tasmania, this species only occurs in Argentina where it appears gregariously on humus or small sticks or leaves and debris on soil. The identification of this species in Australia seems to be inexact. It is possible that this species is similar to or may be one of the three new identified species Psilocybe australiana, Psilocybe eucalypta or Psilocybe tasmaniana.

4. Psilocybe coprophila (Bull. ex Fr.) Kummer

Documented Locations:
Throughout pastures in Australia, appearing infrequently in the dung of horses and cattle. This species is cosmopolitan in its distribution but does not contained any psilocybin, However, it is suspected that it most likely did contain some kind of toxic substance. In New Zealand, a species which may be P. coprophila occurs abundantly in association with rotting *Macrocarpa* tree stumps and woodpiles at the pony club adjacent to Frankley Road School, New Plymouth. According to Dr. Karl L. R. Jansen, the mushroom which occurs at this site is definitely hallucinogenic (Jansen 1989, Pers. Comm.).



TABLE II: HALLUCINOGENIC FUNGI IDENTIFIED FROM AUSTRALIA AND NEW ZEALAND

1. Amanita muscaria (L. ex Fr.)

Hooker

Documented Locations: This species is common in Australia and in New Zealand it is largely confined to stands of pine trees.

2. Copelandia cyanescens (Berk. & Br.) Singer

Documented Locations:
Darwin, Northern Territory,
New South Wales, Brisbane,
Qld; Coffs Harbour and
Sydney, New South Wales,

Tasmania; and Auckland, New Zealand. This species has a cosmopolitan distribution and occurs in the tropics and neotropics of both hemispheres. This species has 11 binomials (excluding Copelandia anomalus).

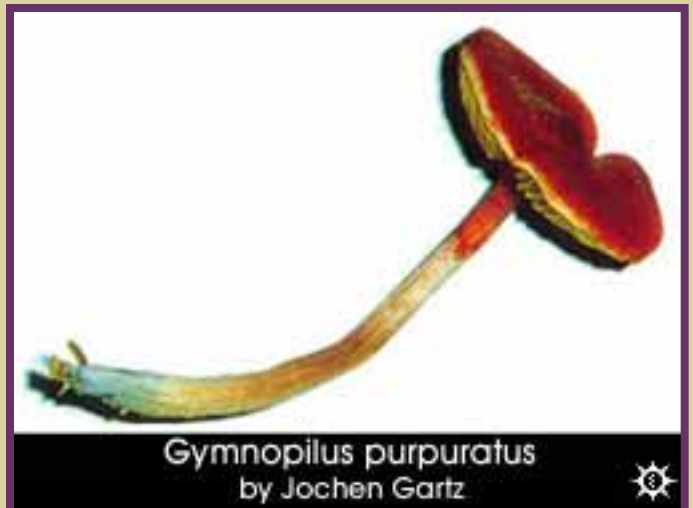
Common in the dung of cows, water buffalo and sometimes horses. In New Zealand, this species is mainly found on the west coast of the North Island in the New Plymouth area especially in the paddocks near the airport and in the dunes at Khomenii Beach. Also at Whatipu beach near Auckland and some west coast beaches near Wellington (Otaki and Foxton). They tend to occur in the lupin covered zone between pasture and sand. The New Plymouth lupins have recently been decimated by disease and the effect upon fungal growth has yet to be determined.

3. Gymnopilus spectabilis (Fr.) Smith (=G. junonius (Fr.) Orton

Documented Locations: Victoria; Australia. Because this species is very bitter and has a most foul and acrid taste, and requires an alleged dosage of at least 4 to 8 fresh ounces (112-224 gm) of mushrooms for its desired psychotropic effects, it is unlikely that this species is collected in Australia. This species can be found fruiting



Amanita muscaria
by John W. Allen



Gymnopilus purpuratus
by Jochen Gartz



Gymnopilus purpuratus
by Jochen Gartz

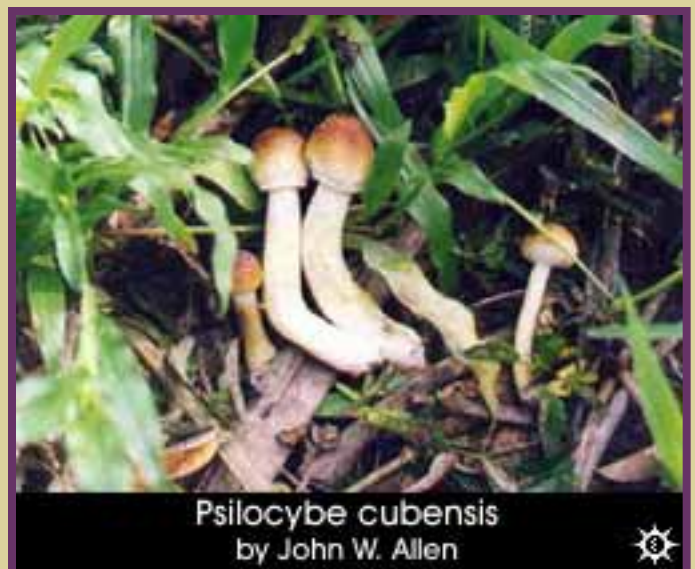


on dead tree stumps. According to several mycologists, this Australian species is probably Subs. G. pampeanus but recent classification now describes this species as G. junonius and is widespread, at least in NSW, Qld, SA, and Victoria. According to some experts, this species is not psychoactive and various other species of psychoactive Gymnopilus may have been misidentified as G. spectabilis. See next entry on Gymnopilus purpuratus.

4. Gymnopilus Purpuratus (Cooke & Masse) Singer

Documented Locations: Port Lincoln and Big Swamp, South Australia; Victoria, and Western Australia. This species was first identified from Australia by mycologist John Burton Cleland as Flammula Purpurata (derived from the Latin Purpuratus, clad in purple). Cleland described this species as being found on fallen trunks of wood.

Gymnopilus purpuratus is an agaric identified from the austral floral zone and was first collected in Chile. This species blues easily, taste very bitter and is probably hallucinogenic. 1992 chemical analysis of collections from Germany by Dr. Jochen Gartz of the University of Leipzig and others have demonstrated high levels of psilocin and low levels of



baeocystin. Dr. Gartz reported that "since 1983, this species has been observed on heaps of pig dung and woodchips in the district Rostock, Northern G. D. R. (East Germany). It seems that this species was introduced (into Germany) with grain from Argentina used for pig forage." Gartz also noted that this species stains blue when handled and was found to be exempt of other tryptamines, muscarine, and urea. Recently, this species was reported by Australian mycologists Shepherd and Totterdell (1990) as gregarious on rotted wood.

5. Panaeolus subbalteatus (Berk. & Br.) Sacc.

Documented Locations: Throughout Australia. In 1973, Shepherd and Hall reported that Panaeolus papilionaceus (which is also psilocybian) occurred in South Australia, Victoria, and Queensland, and noted that Panaeolus subbalteatus was collected in New South Wales. According to one mycologist, the presence of P. papilionaceus in Australia has not been confirmed. This species has a cosmopolitan distribution, appearing infrequently in both the northern and southern hemispheres. It is common in the dung of cattle; also fruiting abundantly in composting and rotting hay, haystacks, stable shavings at race tracks and riding stables, and is sometimes known to occur in lawns.

6. Psilocybe aucklandii Guzmán, King & Bandala.

Documented Locations: In New Zealand, 25 km north of Auckland, Wood Hill State Park. Gregarious on brown clay soil partially covered with pine needles of *Pinus radiata* D. Don, in a mixed pine and dicotyledonous native tree forest.

7. Psilocybe australiana Guzmán & Watling

Documented Locations: New South Wales: near Canberra, Cotterdam, Blue Mountains west of Sydney; Tidbinbilla Nature Reserve; near Sydney, Mt. Wilson. Gregarious on soil with wood or leafy debris, on tracks and roadsides, in *Pinus radiata* plantations, or in temperate rain forests. Known only from around New South Wales in Australia. In New Zealand, 20 km West of Auckland near Oratia. Fruits in April. This species is very similar to P. cyanescens Wakefield.

8. Psilocybe cubensis (Earle)

Documented Locations: Springbrook at 2000 feet elevation. River Brisbane at Indooroopilly, Brisbane, Carboolture, Beechmont, Queensland; and Hobart, Tasmania. Gregarious, rarely solitary or scattered, on cow dung, sometimes on rich pasture soils. Although some recreational users (1989-1989, Pers. Comm.) have reported picking this species in New Zealand, this finding has not been confirmed by others and neither the present author or his colleague Dr. Karl L. R. Jansen nor the DSIR mycology section have ever

found P. cubensis growing in New Zealand.

9. Psilocybe eucalypta Guzmán & Watling

Documented Locations: New South Wales: Near Canberra, Tidbinbilla Nature Reserve; near Queanbeyan, Talaganda Forest Reserve; near Sydney, Mt. Wilson. In New Zealand, Northwest of New Plymouth. Solitary on soil or in small groups amongst grassy woody debris, or among mosses in shallow groves of Eucalyptus forests. Fruits in April. This species is similar to P. cyanescens Wakefield.

10. Psilocybe kumaenorum Heim

Documented Locations: New Guinea. While this species is known only from New Guinea, However it is very possible that it could occur in Australia. Gregarious on soil, in small groups, in open places among grasses.

11. Psilocybe makarorae Johnston & Buchanan

Documented Locations: New Zealand at Otago Lakes: Haast Pass, vic. Makarora, Blue Pools Track on rotten Nothofagus wood. Also found at Bay Of Plenty: vic. Rotorua, Mt. Ngongotaha on fallen wood; Westland: Franz Josef Glacier moraine on fallen twigs; at Peter's Pool Track on litter and in Dunedin: vic. Dunedin City, Woodside Glen picnic ground on rotting Wood.

12. Psilocybe semilanceata (Fr. ex Secr.) Kummer

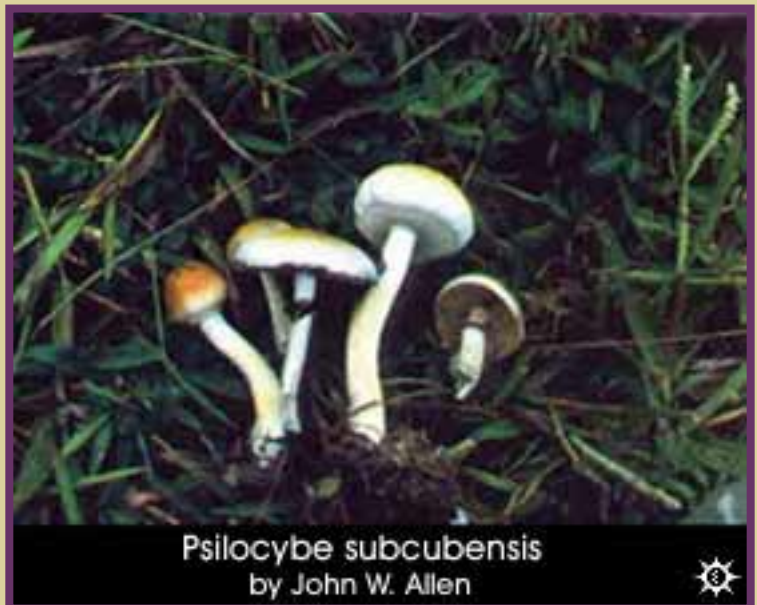
Documented Locations: Australia; Mt. Field National Park, Tasmania. This mushroom was first reported from Australia in 1892. It was next reported from New South Wales in 1895. In 1974, it was documented from Victoria, and that same year, specimens were collected in Tasmania. Although this species is very common, well known, and much prized by recreational mushroom enthusiast throughout Europe, Scandinavia, Great Britain, Canada; the Pacific Northwest region of the United States and South America, no reports of its suspected use as a recreational drug in Australia existed until only recently. It is very probable though that this species is known and used by members of the drug subculture in Australia, however, no published reports exist which indicate that this species has ever been confiscated by narcotic officers on the continent or its suspected use been brought to their attention. Very scattered to gregarious on rich soil, among grass in pastures and meadows. Single but very rarely caespitose. Frequently abundant around clumps of tall grass. Lawns, parks and playgrounds. In New Zealand, this species appears largely confined to the south of Cook Island, in particular the Otago Peninsula and Mount Cook in soil in high-altitude grasslands and has been observed in Mackenzie: vic. Mt. Cook, Otago Lakes and in the vicinity of Queenstown. Has been used recreationally since the early 1980's. There is a specimen in the DSIR collection which was found on a suburban lawn in Auckland; also collected

13. Psilocybe subaeruginosa Cleland

Documented Locations: Cleland (1927) first reported this species from South Australia, New South Wales and Victoria. Other reported locations include: Adelaide, Adelaide Hills, Mt. Lofty, South Australia; Australian Capitol Territory; National Park, Belair, Mt. Field National Park, Tasmania. On pathway to Russell Falls. Fruiting on horse dung during the summer (April-August) months. Solitary to gregarious, on rich soil among grass or horse dung, or on decaying leaves and twigs, mainly in deeply shaded places. Johnston and In 1995, this species was reported from New Zealand at Auckland, Waikato, Bay of Plenty, Taranaki, Wanganui, Nelson, Buller, Southland as being common on small pieces of buried wood on rough coastal farmlands and pastures and especially on sandy soil, and in gardens, especially on mulches of *Pinus radiata* bark. The presence of psilocybine in this species in Australia was detected in 1970 and three years later, Dr. Malcomb Hall reported its use as a recreational drug.

14. Psilocybe subcubensis Guzmán

Documented Locations: Throughout Australia. Appearing abundantly after heavy rains in Queensland, Breban, and near Loboutluse. This species is only distinguishable from Psilocybe cubensis by the size of its spores. Scattered on cow dung, more rare in rich soil, in grassy places (pastures). It is a pantropical and subtropical species. Fruiting in summer but also in other seasons.



15. Psilocybe tasmaniana Guzmán & Watling

Documented Locations: New South Wales; near Canberra, Tidbinbilla Nature Reserve. Tasmania: NE of Hobart, Nugent, Buckland, Mt. Field National Park. Solitary or in small groups on dung, or at least on debris (wood and leaves), intermixed with dung (sometimes kangaroo). Fruits in April and May. This species was also collected from Mt. Field National Park (in grassy area under trees with P. semilanceata). This species is closely related to P. subaeruginosa, but is somewhat similar to P. cyanescens. This species has also been collected in the New Plymouth area of New Zealand.

16. Unidentified Species

Documented Locations: Unidentified species have been collected from the Waitakere Ranges, growing in native forest near Auckland, and on the west coast of the South Island. Dr. Karl L. R. Jansen (1989, Pers. Comm.) reports that there are at least 5 unidentified species from New Zealand which are considered psychoactive. In 1981 there was a report of an unidentified bluing Psilocybe sp., with affinities to the North American species Psilocybe caerulipes from New Zealand. And finally, Psilocybe cyanescens Wakefield is reported from Australia by Margot and Watling (1981) and by Guzmán (1995).

TABLE III: SPECIES IN AUSTRALIA, TASMANIA, AND NEW ZEALAND

AUSTRALASIA

In Most States

Psilocybe cyanescens Wakefield.
Psilocybe cubensis (Earle) Singer.

Australian Capital Territory

Psilocybe subaeruginosa Cleland.

New South Wales

Psilocybe aucklandii Guzmán,
King & Bandala.

Psilocybe australiana Guzmán
& Watling.

Psilocybe eucalypta Guzmán &
Watling.

Psilocybe semilanceata
(Fr.:Secr.) P. Kumm.

Psilocybe subaeruginosa
Cleland

Psilocybe tasmaniana Guzmán
& Watling.

Panaeolus subbalteatus (Bk. &
Br.) Sacc.

Copelandia cyanescens (Bk. & Br.) Singer.

Gymnopilus Junonius (Fr.) Orton= syn.



Gymnopilus spectabilis (Fr.).

Northern Territory

Copelandia cyanescens (Bk. & Br.) Singer.

Queensland

Psilocybe cubensis (Earle) Singer.

Psilocybe subcubensis Guzmán.

Copelandia cyanescens (Bk. & Br.) Singer

[=Panaeolus cyanescens (Bk. & Br.) Sacc.].

Gymnopilus Junonius (Fr.) Orton= syn.

Gymnopilus spectabilis (Fr.) A. H. Sm.

South Australia

Psilocybe subaeruginosa Cleland.

Copelandia cyanescens (Bk. & Br.) Singer

Gymnopilus Junonius (Fr.) Orton=syn.

Gymnopilus spectabilis (Fr.) A. H. Sm.

Gymnopilus purpuratus (Cooke & Masse) Singer.

Victoria

Psilocybe semilanceata (Fr.:Secr.) P. Kumm.

Psilocybe subaeruginosa Cleland.

Panaeolus ater (Lange) Kuhner & Romagnesi ex Bon.

Gymnopilus purpuratus (Cooke & Masse) Singer.

Western Australia

Gymnopilus purpuratus (Cooke & Masse) Singer.

TASMANIA

Psilocybe australiana Guzmán & Watling .

Psilocybe cubensis (Earle) Singer.

Psilocybe semilanceata (Fr.:Secr.) P. Kumm.

Psilocybe subaeruginosa Cleland.

Psilocybe tasmaniana Guzmán & Watling

Copelandia cyanescens (Bk. & Br.) Singer



NEW ZEALAND

Auckland

Psilocybe aucklandii Guzmán,
King & Bandala.

Psilocybe semilanceata (Fr.:Secr.)
P. Kumm.

Copelandia cyanescens (Bk. &
Br.) Singer.

North Island

Psilocybe aucklandii Guzmán,
King & Bandala

Psilocybe australiana Guzmán &
Watling.

Psilocybe eucalypta Guzmán &
Watling

Psilocybe subaeruginosa Cleland.

Psilocybe tasmaniana Guzmán & Watling.



South Island

Psilocybe makarorae Johnston & Buchanan.

Psilocybe semilanceata (Fr.:Secr) P. Kumm.

Psilocybe subaeruginosa Cleland.

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SUGGESTED READING

Aberdeen, J. E. C. and W. Jones. 1958. A hallucinogenic toadstool. Australian Journal of Science vol. 21:149. December 21.

Allen, J. W. 1988. A Private Inquiry into the Circumstances Surrounding the 1972 Death of John Gomilla, Jr., Who Died After Allegedly Consuming 10 Magic Mushrooms While Residing in Hawaii. Journal of Psychoactive Drugs. 20(4):451-454.

Allen, J. W. 1997a. [Magic Mushrooms of the Pacific Northwest](#). Psilly Publ. and RaverBooks. Seattle.

Allen, J. W. 1997b. [Teonanácatl: Ancient and Contemporary Shamanic Mushroom Names of Mesoamerica and Other Regions of the world](#). Ethnomycological Journals Sacred Mushroom Studies. vol. IV:1-48.

Allen, J. W. and M. D. Merlin. 1992. Observations Regarding the Suspected Psychoactive Properties of *Panaeolina foenisecii* Maire. Yearbook for Ethnomedicine and the Study of Consciousness. vol 1:99-115.

Allen, J. W., Merlin, M. D. and K. L. R. Jansen. 1991. An Ethnomycological Review of Psychoactive Agarics in Australia and New Zealand. Journal of Psychoactive Drugs. vol. 23(1):39-69.

Australian Government Publishing Service. 1980. Hallucinogenic Mushrooms. Australian Royal Commission of Inquiry into Drugs. A:67, 186.

Cleland, J. B. 1934. Toadstools and Mushrooms and other Larger Fungi of South Australia:19. Adelaide, Australia.

Cribb, A. B., and J. W. Cribb. 1975. *Psilocybe cubensis*. Wild Foods of Australia:209. Adelaide, Australia.

Guzmán, G. 1983. The Genus *Psilocybe*: A Systematic Revision of the Known Species Including the History, Distribution and Chemistry of the Hallucinogenic Species. Beihefte zur Nova Hedwigia vol. 74. J. Cramer. Valduz, Germany.

Guzmán, G. 1995. Supplement to the monograph of the genus *Psilocybe*. In: O. Petrini & E. Horak, Taxonomic Monographs of Agaricales. Bibliotheca Mycologica vol. 159:91-141. Berlin-Stuttgart. Cramer.

Guzmán, G. and R. Watling. 1978. Studies in Australian Agarics and Boletes. I. Some Species of *Psilocybe*. Notes from the Royal Botanic Garden 36:179-210. Edinburgh, Scotland.

Guzmán, G., Bandala, V. M. and C. King. 1991. A new Species of *Psilocybe* of section *Zapotecorum* from New Zealand. Mycological Research. vol. 95:507-508.

Guzmán, G., Bandala, V. M. and C. King. 1993. Further Observations on the genus *Psilocybe* from New Zealand. Mycotaxon. vol. XLVI:161-170.

Guzmán, G., Allen, J.W. and J. Gartz. 1999. A Worldwide Geographical Distribution of the Neurotropic Fungi, Analysis and Discussion. And. Civ. Mus. Rovereto, (in press)

Guzmán, Gaston., Jonathan Ott, Jerry Boydston and Steven H. Pollock. 1976. Psychotropic Mycoflora of Washington, Idaho, Oregon, California, and British Columbia. Mycologia. Vol.68 (6): 1267-1271.

Hailstone, B. 1972. Many Taking a Trip on Hills Mushroom. The Advertiser. August 11. Adelaide, Australia.

Hall, M. C. 1973. Problems in Legislating Against Abuse of Hallucinogenic Fungi in Australia. U. N. Bulletin on Narcotics 25:27-36. A United Nations Publication.

Hofmann, A. 1980. LSD: My Problem Child. McGraw-Hill. New York.

Hollister, L. E., Prusmark, J. J., Paulsen, J. A., and N. Rosenquist. 1960. Comparison of Three Psychotropic Drugs, *Psilocybin*, IT-290, and JB-329. Journal

of Nervous and Mental Diseases. Vol. 131 (5):428-434.

Jansen, K. L. R. 1988. Magic Mushrooms: a Fast Growing Problem. *Journal of General Practice*. 5:7-10.

Johnston, P. R. and P. K. Buchanan. 1995. The genus Psilocybe (Agaricales) in New Zealand. *New Zealand Journal of Botany*. vol. 33(3):379-388.

----- . 1989. Personal Communication, April 26 and August 17, 1989.

Lincoff, Gary and D. H. Mitchell. 1977. Toxic and Hallucinogenic Mushroom Poisoning. Van Nostrand Reinhold, N. Y.

McCarthy, J. P. 1971. Some Less Familiar Drugs of Abuse. *Medical Journal of Australia*. 12(21):1078-1081.

McRoach, J.J. 1979. A Dozen Dopey Yarns: Tales from the Pot Prohibition. Australian Marijuana Party, Victoria, Australia, p70.

Margot, P., and R. Watling. 1981. Studies in Australian Agarics and Boletes. 2. Further Studies in Psilocybes. *Trans. of the Brit. Mycol. Soc.* 76(3):485-489.

Misuse of Drugs Act. 1975. No. 116:3. Government Printer, Wellington, NZ.

O'Neill, G. 1986. Deadly Mushrooms in Profusion After Rain. *Canberra Times*.

Ott, J. 1976, *Hallucinogenic Plants of North America*. Wingbow Press. Berkeley, Ca.

Ott, J. 1993. Pharmacotheon. Natural Products. Kenniwick, Washington.

Pegler, D.N. 1965. Studies on Australasian Agaricales. *Australian Journal of Botany*. 13(2):323-356.

Picker, J., and R. W. Rickards. 1970. The Occurrence of the Psychomimetic Agent Psilocybin in an Australian Agaric, *Psilocybe subaeruginosa*. *Australian Journal of Chemistry*. 23(4):853-855.

Perkel, M., Blackman, G. L., Ottrey, A. L. and L. K. Turner. 1980. Determination of Hallucinogenic Components of Psilocybe Mushrooms using High-Performance Liquid Chromatography *Journal of Chromatography* vol. 196(1):180-184.

Pollock, S. H. 1977-1978. Psychotropic Mushrooms and the Alteration of Consciousness. I: The Ascent of Psilocybian Mushroom Consciousness. *Journal of Altered States of Consciousness*. 3(1):15-35.

Pollock, S. H. 1980. Personal Communication.

Rumack, Barry H., and Emanuel Salzman. 1978. Mushroom Poisoning: Diagnosis and Treatment. CRC Press, Cleveland.

Shepherd, C. J., and Malcolm C. Hall. 1973. Australian Hallucinogenic Fungi-Taxonomic, Pharmacological, and Legal Aspects. Paper read to the Australian and New Zealand Association for the Advancement of Science. Section 11.5.

Shepherd, C. J. and C. J. Totterdell. 1990. Mushrooms and Toadstools of Australia. Inkata. Melbourne.

Singer, R. 1978. Hallucinogenic Mushrooms. In: Rumack and Salzman (Eds.):Mushroom Poisoning: Diagnosis and Treatment. Chap. 12:201-214. CRC Press, Cleveland.

Smith, A. H. 1978. Poisonous Mushrooms: Their Habitat, Geographical Distribution, and Physiological Variation Within Species. In: Rumack & Saltzman (Eds.): Mushroom Poisoning: Diagnosis and Treatment. CRC Press, Cleveland.

Southcott, R. V. 1974. Notes on Some Poisonings and other Clinical. Effects Following Ingestion of Australian Fungi. South Australian Clinics 6(5):442-478.

Stamets, P. 1996. [Psilocybin Mushrooms of the World](#). Ten Speed Press. Berkeley.

Stein, Sam I. 1958. An Un Usual Effect from a Species of Mexican Mushrooms, Psilocybe cubensis. Mycopathologia et Mycologia Applicata vo. 9(4):263-267.

Stocks, A. E. 1963. Mushroom Poisoning in Brisbane. Journal of the Princess Alexandra Hospital 1:21-24.

Thompson, John P., M.

Douglas Anglin., William Embodden and Dennis Gene Fisher. 1985. Mushroom Use by College Students. Journal of Drug Education Vol. 15 (2): 111-124.

Trotter, J. E. 1944. A Report of Nine Cases of Mushroom Poisoning. Medical Journal of Australia 1(18):393.



Unsigned. 1941. A Poisonous Fungi. Agricultural Gazette of New South Wales. 52(4):213. April 1.

Unsigned. 1969a. Broadcast of Psilocybian Mushroom Poisoning. Australian Broadcasting Commission News Item. 7 P. M. June 3. Sydney, New South Wales.

Unsigned. 1969b. Sydney Sunday Telegraph. 30:1. June 29.

Unsigned. 1969c. The Mushrooms Contained Drugs. Canberra Times:9. July 11.

Unsigned. 1969d. Canberra Times:2. July 12.

Unsigned. 1970. Hippies Flocking to Mexico for Mushroom Trips. New York Times: 6c. July 23.

Unsigned. 1972. High School Fungal Eaters in Brisbane. Daily Telegraph. November 14. Sydney, Australia.

Unsigned. 1973. The Pastoral Industries of Australia. (Eds): G. Alexander and O. B. Williams. Sydney University Press, University of Sydney.

Unsigned. 1982. Magic Mushroom Danger Warning. Taranaki Herald:9. Wednesday, May 21. NZ.

Unsigned. 1986. Debate Sprouts over Fungus. Herald. Oct. 9th. NZ.

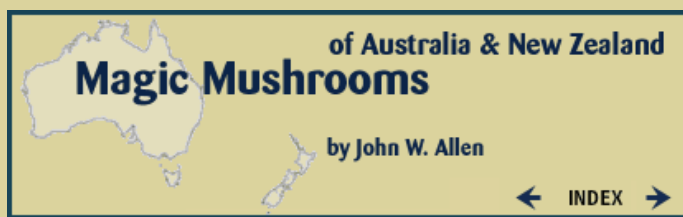
Unsigned. 1989. Drug Taken for Better Outlook. New Zealand Herald. Aug 11:10.

Wasson, R. G. 1957. Seeking the Magic Mushroom. Great Adventures in Life Part I: Mushrooms That Cause Strange Visions. May 13. Life Magazine. International Edition: June 10, 1957.

Willis, J. H. 1957. Victorian Toadstools and Mushrooms:46. 2nd. Edition. Field Naturalist Club of Victoria.

Young, A. M. 1989. Panaeolaiecaie of Australian Fungi. Journal of Australian Systematic Botany (In Ed.).

Young, R., Milropy, R. Hutchinson, S and C. Mikessen. 1982. The Rising Price of Mushrooms. Lancet no. 8265:213-215.



METHODS OF INGESTION

In 1979, J.J. McRoach, a former candidate for the Australian Marijuana Party, described one of his experiences in New South Wales: "No grease in this restaurant - instead brightly painted walls with lots of sunflowers and colorful cushions.....all very cool, very laid-back. Walking into the kitchen to suss food situation. Amiable freak cum cook loads me up with a couple of salads. "What brings you to Mullumbimby? he asks.

"The mushrooms, I've come for the mushrooms".

"Yeah? Well if you like I'll heat up a few for your salad man?"

"No, no, that's OK - I'm talking about the psychedelic stuff. Magic Mushrooms..."

"So am I - do you still want them on your salad?"

"Huh? Oh...sure. Yeah sure, pile 'em on"

Psychoactive mushrooms are either eaten fresh (which supposedly produces the most powerful and intensely visual experience) or dried and consumed at a later date. Some users freeze their mushrooms for later use; others put them in capsules for resale and some have put them in jello. Mixing the mushrooms in milkshakes (known as 'mushroom smoothies') or tea are common methods employed by some users who dislike the natural taste of the mushrooms. Cooking the mushrooms in a soup, stew or omelette has been a popular form of consumption by some users in order to alleviate the acrid taste of the mushrooms.

One reported method of consumption by users in the Southeastern United States who consume Psilocybe cubensis claims that one may "boil the mushrooms in water to remove the active ingredients (which are soluble in hot water)" and then "use the water to prepare foods such as rice or soup, and discard the remains of the mushrooms." Adding further, the author of this report claimed that "this is the basic recipe for hallucinogenic beverages such as magic Kool-aid." Chocolate and honey are also employed by recreational users for use with their mushrooms. In 1989, Roy Watling reported that during his stay in Queensland in 1974, he "saw many `foraying' groups of young people looking for Psilocybe [species] in fields, and was told by one user that Psilocybe was packed in honey to preserve, transport and export." Honey is more frequently used in New Zealand for actual storage. According to some mushroom enthusiasts, mushrooms in honey preserve their potency much better than those which are dried or frozen, especially if placed in honey just after being picked. Other consumers claim that this is not a good method because bacteria may form in this mixture with age (see Ott, 1993). It should be mentioned that both honey and chocolate were served with mushrooms during Aztec ceremonies, coronations and festivals, prior to and during the Spanish conquest of the Mesoamerica.

IDENTIFICATION OF AUSTRALIAN PSYCHOACTIVE FUNGI

In 1958, Aberdeen and Vogt documented Psilocybe cubensis as the first known psychoactive mushroom reported from Australia. This occurred when several scientists were conducting a study of the chemical properties of Panaeolus ovatus, a mushroom which was reported as being responsible for a number of accidental intoxications in Australia. These scientists who were commissioned to undertake this chemical investigation, had assumed that several mushroom poisoning incidents in Australia were not caused by Panaeolus ovatus, but instead were due to the accidental consumption of Psilocybe cubensis. They cited several reasons which led them to that conclusion. Later, however, Dr. Ronald Southcott, a physician and mycologist suggested that some species of Panaeolus were probably the cause of what became known in the newspapers as the `hysteria' outbreaks, while an American cultivator of psychoactive mushrooms Dr. Steven H. Pollock (1977-1978) believed that Copelandia cyanescens was the mushroom species responsible for at least some of the `Hysteria' intoxications which were attributed to the ingestion of Panaeolus ovatus which is a mushroom now known to be synonymous with Panaeolus antillarum. These latter species of Panaeolus resemble Copelandia cyanescens and sometimes all three of these species are known to occur in the same dung-heap of manure.

In 1970, twelve years after Psilocybe cubensis was identified on the Australian continent, two other scientists Picker and Rickards, 1970) reported that they had found psilocybine, but no psilocine, in specimens of Australian collections of P. subaeruginosa. This second record of the presence of hallucinogenic mushrooms in Australia and the development of recreational ingestion of psychoactive visionary mushrooms among drug users in Australia during the 1960's and 1970's prompted a number of scientific and governmental studies of the Australian mycoflora (Perkel *et al.*, 1970). The general objective was to identify the occurrence of other suspected psychoactive mushrooms which were indigenous or naturalized in this large country.





Psilocybe semilanceata
by John W. Allen



1974, was inexact (see Table 1). In the same year, Guzmán and Watling also suggested that the non-hallucinogenic species *P. coprophila*, a dung inhabiting fungi found in Australia, might possibly be hallucinogenic (see identification section). In addition, they verified the occurrence of *P. foenisecii* (another non-hallucinogenic species, see Allen and Merlin, 1992b), *P. semilanceata*, and *P. subaeruginosa* in Australia, and suggested that *Psilocybe kumaenorum*, a species previously recognized only from New Guinea, might also occur in Australia because of the existence of the appropriate ecological conditions along the Gold Coast area of New South Wales.

Furthermore, Guzmán and Watling (1958) also reported the discovery of three additional *Psilocybe* species and suggested that these newly described species might also be hallucinogenic. Their assumption was based on the following macroscopic characteristics which they observed in freshly collected specimens: *Psilocybe eucalypta*, which exhibits an "intense bluing at the base of the stipe;" *Psilocybe australiana*, which "when handled exhibited much bluing at the base of the stipe;" and *Psilocybe tasmaniana*, which "exhibited a blue-green tone at the base of the stipe." All three of these species are similar to *P. subaeruginosa*; however, *P. australiana* and *P. eucalypta* are very similar to each other, while *P. tasmaniana* resembles *P. coprophila* (Johnston & Buchanan, 1995). All three of these species are also closely aligned with *Psilocybe cyanescens*.

Undaunted by any taxonomic confusion and alarmed by the increasing use of naturally abundant, psilocybin mushrooms in the 1970's, a group of Australian chemists then sought to develop a more accurate and efficient method to determine the exact amounts of hallucinogenic compounds extracted from confiscated fungal specimens. Using extractions from dried specimens of *Psilocybe subaeruginosa*, these chemists eventually produced a procedure that provides excellent quantification for psilocin and psilocybin following a simple extraction involving homogenization of the dried mushroom in methanol (Perkel *et al.*, 1980).

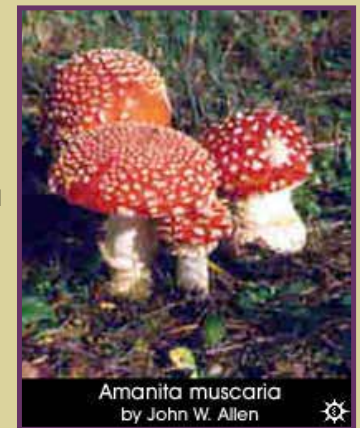


Psilocybe subaeruginosa
by R.V. Southcott



OTHER SUSPECTED AUSTRALIAN PSYCHOACTIVE FUNGI

Amanita muscaria and a related species *Amanita pantherina* are used in the United States as a recreational drug source. The former species which is used traditionally by several aborigine tribal groups in Siberia and some members of the Ojibway clan in Northern Michigan, United States and Ontario, Canada, may also be the "Soma" drug-plant of the Rig Veda (the ancient Hindu scriptures). Dr. Malcolm C. Hall, formerly of the Commonwealth Police force of Canberra, Australia, referred to a few instances of its use by members of the drug subculture in New Zealand. Both of these species contain ibotenic acid and muscimol, two psychoactive substances. Both of these *Amanita* mushrooms occur in Australia and in New Zealand, and have been used for their psychoactive effect.



Amanita muscaria
by John W. Allen



Amanita muscaria
by John W. Allen



The major limitations upon their use, particularly the use of *A. muscaria*, is the severe nausea and violent vomiting which follow ingestion. In New Zealand, attempts have been made to reduce this effect by peeling the red 'skin' from the cap, and by drying the mushrooms in the sun for several days. These preparation methods have not proven to be successful, and hence the mushroom is ingested only by the poorly informed, although it is quite wide spread in its distribution. In fact, the consequences of ingestion are so unpleasant that one is led to speculate that the *A. muscaria* employed by Siberian tribesmen contains a different balance of chemicals to that found in New Zealand, which almost no users are prepared to consume more than once. It is also worth noting that ibotenic acid is a potent neurotoxin, causing neuronal death via a mechanism known as excito-toxicity (Jansen, Per. Comm., 1989).

CHEMICAL IDENTIFICATION OF AUSTRALIAN HALLUCINOGENIC FUNGI

While concerned Australian mycologists have long been interested in the accidental ingestion of poisonous mushrooms by unsuspecting foragers, they have been well aware since the late 1930's, that some mushrooms induce strange psychological reactions in humans when eaten, and that individuals who

had consumed mushrooms but also reported queer disturbances of vision.

The earliest report of a suspected hallucinogenic intoxication from a mushroom in Australia occurred in the early 1930's, but the first mycological identification of a mind-altering fungus in the country did not occur until more than twenty years later when two mycologists first reported their description of Psilocybe cubensis collected from Springbrook, Australia.

Psychoactive mushrooms "containing psilocybine, psilocine, or related alkaloids with an indole nucleus and producing, by an oxidative process, a blue pigment," are known to occur in at least 12 different genera of fungi, primarily belonging to various species of Psilocybe and Panaeolus. Additionally, other genera also contain the alkaloids psilocine and psilocybine. The principle agents found in these fungi are indoles known as psilocybine and its dephosphorylated derivative psilocine (Singer, 1978). References to the hypothesis which suggests "that the activity of psilocybine may be associated with its structural similarity to serotonin," which is a neurotransmitter has been well documented (Hofmann, 1980).

It should also be noted that the presence of both psilocybine and psilocine may be accompanied by their monoanalogue baeocystine and its bis-demethylated analogue norbaeocystine which are both known to be psychoactive. Many of these species are also known to contain 5-hydroxytryptamine (serotonin), tryptophan, and other related indole compounds. Psilocybine is water soluble, while psilocine is not and both may be extracted from the mushrooms with methanol.

PSYCHOACTIVE EFFECTS OF PSILOCYBIAN MUSHROOMS

Symptoms produced by eating fresh hallucinogenic mushrooms begin to occur within 15 to 30 minutes after ingestion (or from 5 to 10 minutes when prepared in the form of tea or soup). Symptoms persist for up to four to six hours after ingestion. In 1960, Clinical effects for psilocybine intoxication in humans was reported as being Hollister *et al.*, 1962):

0-30 minutes - Slight nausea, giddiness (light-headed), abdominal discomfort, weakness, muscle aches and twitches, shivering, anxiety, restlessness, and a numbness of lips.

30-60 minutes - Visual effects (blurring, brighter colors, sharper outlines, longer after-images, visual patterns with closed eyes). Increased hearing, yawning, sweating, facial flushing. Decreased concentration and attention, slow thinking, feelings of unreality, depersonalization, dreamy state. Inco-ordination, tremulous speech.

60-120 minutes - Increased visual effects (colored patterns and shapes, mostly with eyes closed). Wave-motion of viewed surfaces. Impaired distant perception. Euphoria, increased perception, and a slowed passage of time.

120-240 minutes - Waning and nearly complete resolution of above effects. Returning to normal within 4-12 hours. Other effects often include: Decreased salivation and appetite; uncontrollable laughter; transient sexual feelings and synesthesias (e.g., 'seeing' sounds)."

For comparison with the clinical experience described above, the following is an excerpt from one of R. Gordon Wasson's experience with psilocybin mushrooms:

"The mushrooms take effect differently with different persons. For example, some seem to experience only a divine euphoria, which may translate itself into uncontrollable laughter. In my case I experienced hallucinations. What I was seeing was more clearly seen than anything I had seen before. At last I was seeing with the eye of the soul, not through the coarse lenses of my natural eyes. Moreover, what I was seeing was impregnated with weighty meaning: I was awe-struck."

PSILOCYBIAN MUSHROOM POISONING

Ancient or historic evidence of cerebral mycetisms induced by the accidental ingestion of hallucinogenic mushrooms has been documented in various parts of the world. Early reports of intoxication attributed to the unintentional consumption of these fungi come from China in the 3rd century A.D., Japan during the eleventh century A.D., Great Britain in both 1799 and in the early 1800's, in the United States around the early 1900's and in France in the early 1960's.

It is of interest to note a report from Japan that there were over 366 accidental ingestions of psilocybin mushrooms reported in 1929; these incidents were reported by people foraging for wild edible mushrooms.

In Africa during the 1940's a number of unintentional intoxications occurred when mind-altering mushrooms were inadvertently sold as a source of food by children in public markets.



It must be noted that outside of a few intoxications caused by *Psilocybe cubensis* (in Africa), and one caused by *Psilocybe semilanceata* (in England in the late 1700's), the majority of all intoxications which occurred prior to the recreational use of these species, were caused by various species of *Panaeolus* with the exception of Japan and the Northeastern United States, where some of the inebriations were the result of ingesting various species of *Gymnopilus*.

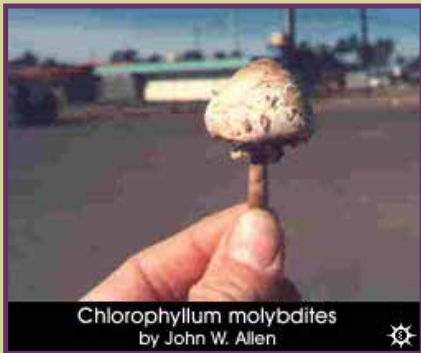
Published reports describing symptoms attributed to *Panaeolus* intoxications, were often written in a similar manner. Subjective effects included:



"...drowsiness, lightheadedness, an inability to walk, a staggering gait, giggleness, much hilarity, inappropriate speech, uncontrollable laughter, euphoria and acting as if one were on a bender." On the other hand, occasionally terrifying, visual and psychological disturbances have been known to result from accidental or deliberate ingestion of *Psilocybe cubensis* or *P. semilanceata*, which sometimes result in emergency room treatment.

In a paper published in 1958, Dr. Sam Stein briefly mentioned similar observations when *Panaeolus* and *Psilocybe* fungi were used in the treatment of a single patient. Mushroom extracts used by Dr. Stein were obtained from dried specimens of *Panaeolus venenosus* (= *Panaeolus subbalteatus*), and *Psilocybe caerulescens*. Further investigations were carried out in 1959 by Stein and some of his colleagues who revealed that the subjective effects caused by the ingestion of *Panaeolus* species were more tranquil and less hallucinogenic than the effects produced by the ingestion of certain species of *Psilocybe*.

The fear of poisoning by physically toxic mushrooms is the main cause of mycophobia (a fear of mushrooms) throughout the world. Many of the deadly poisonous species of mushrooms macroscopically resemble some of the hallucinogenic mushrooms in the genus *Psilocybe*. For example, three species of deadly poisonous *Galerina*'s, and *Conocybe filaris*, which are extremely poisonous mushrooms, are commonly found in mulched gardens in the Pacific Northwest of the United States and other regions of the world, and have been observed sharing the same habitat as *Psilocybe baeocystis*, *Psilocybe cyanescens*, and *Psilocybe stuntzii*.



Another example of misidentification involves *Chlorophyllum molybdites* also known as "green gills" or "Morgans" *Lepiota*. According to Stephen Peele, curator of the Florida Mycology Research Center, it is often picked in Florida and mistaken for *Psilocybe cubensis* (personal communication to J.W. Allen). *Chlorophyllum molybdites* is considered toxic but not deadly. This species is common in Australia and may occasionally be mistaken as *Psilocybe cubensis*. Peele also claimed that in Tampa, Florida, over 90% of all mushroom poisonings were the result of ingesting *C. molybdites*. While two children in California developed a "mydriasis-fever-convulsions" syndrome after ingesting mushrooms taken from a lawn habitat, another in the state of Washington was reported to have died due to complications following the suspected consumption of hallucinogenic mushrooms. Also, three children were reportedly mildly poisoned after accidentally grazing on lawn specimens of *Panaeolina foenicicij*, however, in a recent study of the literature, it was suggested by Allen and Merlin (1992b), that this species is not psychoactive.

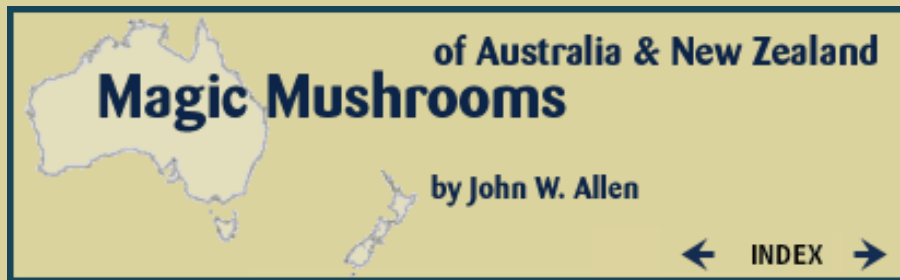
A sixteen year old girl from Whidbey Island, Washington did die in December 1981 after accidentally picking and eating several fresh specimens of *Galerina autumnalis*. She and her two teenage male companions had assumed that they ingested *Psilocybe* mushrooms. Unfortunately, the youths did not report their misguided consumption of the deadly mushroom to the proper medical authorities for two days due to their fear of prosecution.



It is thus possible that young children may be susceptible to convulsions following the consumption of some varieties of psilocybian mushrooms. However, the world renown Mazatec curandera María Sabina and her sister María Ana, made famous by the writings of the Wassons' and others, both first ate these hallucinogenic mushrooms somewhere between the ages of 7-9, and María Sabina continued to do so for over 70 years without any apparent physical illness. Also, R. Gordon Wasson and his wife Valentina, allowed their 19-year-old daughter Masha to eat mushrooms apparently without ill effect.

Even a professional mycologist must be quite careful when deciding which wild mushrooms may be safe for human consumption. For example, some mushrooms, which are common and edible in Europe, can be deadly poisonous or harmful enough to cause physical damage when collected and consumed in the United States, Canada, or even Australia. In 1978, Jonathan Ott reported that the "LD50 (lethal dosage) in mice for psilocybin has been determined to be 280 mg/kg, oral ingestion", thereby assuming that a person of average weight (i.e. 70 kg/155 lb) person, "would have to ingest 19.6 grams of [the extracted chemical] psilocybin to produce death." However, in 1989, Dr. Karl L. R. Jansen at the University of Auckland stated that he believes that "the LD50 (the dose at which 50% of a sample will die) has been determined as 280 mg/kg in mice. However, it is not valid to calculate the LD50 for humans by a simple percentage/weight

calculation. Mice and humans have very different metabolic rates and dispose of drugs in different ways. It is unlikely that even a large number of psilocybine mushrooms would not be toxic in humans, but we cannot suggest an exact figure from data based on rodent studies."



ACCIDENTAL INGESTIONS DOWN UNDER

The earliest published report of an intoxication from a suspected psilocybian mushroom in Australia occurred sometime prior to 1934. In 1934, Dr. John Burton Cleland, M.D., wrote that ".....Some kind of toadstools give rise to a kind of intoxication. A former colleague of mine told me how his parents ate once a dish of mushrooms, and, as the meal progressed, they gradually became more and more hilarious, the most simple remarks giving rise to peals of laughter. The intoxication passed off without any further unpleasant effects." Cleland further noted that the mushrooms ingested were most likely a dung inhabiting species; probably *Panaeolus*.



Between 1941 and 1945, numerous reports in the Australian journals regarding the poisoning by what mycologists believed were *Panaeolus ovatus* (the suspected "hysteria fungus") mushrooms. Since this species is not psychoactive, one must assume that the mushrooms in question were *Copelandia cyanescens* (Unsigned, 1941; Trotter, 1944).

After 1945, no cases involving the accidental ingestion of inebriating mushrooms were reported in the Australian medical journals or the press until 1957. In that year the Wassons had announced their discovery of the ceremonial use of hallucinogenic mushrooms in Mexico.



Panaeolus antillarum
by John W. Allen

James H. Willis, in his 1957 book "Victorian Toadstools and Mushrooms" published this interesting anecdote regarding the numerous reports in the scientific literature which described poisonings attributed to the suspected ingestion of *Panaeolus ovatus*: "...Rumour has it that they will cause an intoxication under which the victim suffers a strange sensation of growing taller and over-topping the objects about him: Who knows but this may (very well) be the magic mushroom of 'Alice In Wonderland' fame." Willis then goes on to say that, "*P. ovatus* has intoxicated people near Sydney." Remember that *P. ovatus* is not psychoactive and these mushroom poisonings were probably caused by the consumption of various *Copelandia* mushroom species; probably *Copelandia cyanescens*.

According to the physician Dr. A. E. Stocks (1963), between 1957 to 1963, 11 patients were admitted into the Princess Alexandra Hospital in Brisbane due to complications of poisoning from several different species of toxic and/or mind-altering fungi. Five of these cases were definitely caused by psilocybian mushrooms (*Psilocybe cubensis*); and two other patients, whose onset of disturbing symptoms began after ten minutes of consumption of the mushrooms, were also probably affected by psilocybian intoxication. Stocks failed to mention whether these

mushroom intoxications were accidental or deliberate ingestions, and he inadvertently reported that R. Gordon Wasson's personal first experience with these mushrooms had produced undesirable effects. Although Wasson's first experience had been reported as being profound and ecstatic, it is possible that Stocks was actually referring to Swiss chemists Albert Hofmann's personal account regarding his somewhat unpleasant initial experience while under the influence of *Psilocybe mexicana* (Hofmann, 1980) or Dr. Sam Stein of The University of Chicago's frightening experience while under the influence of 5 dried gm of *in vitro* grown specimens of *Psilocybe cubensis* (Stein, 1958).

Although Dr. Stocks suggested that the hallucinogenic effects of these mushrooms were more potent than either lysergic acid diethylamide (LSD) or mescaline (Peyote), it should be pointed out that many users of these drugs prefer the natural experience of the mushrooms since this has a shorter duration of 3 to 6 hours as opposed to the 8 to 12 hour experience of LSD, mescaline or MDA.

Stocks's paper on mushroom poisoning presents us with two case histories of psilocybian intoxication. The first referred to a female who: "...noted after 30 minutes of ingestion, a dark cloud passing across her eyes, then a green cloud. Her tongue felt thick and she complained of being paralyzed. There was no impairment of memory, and no hallucinations other than the colored vision; the symptoms resolved in 12 hours. This patient described her experience as distinctly unpleasant."

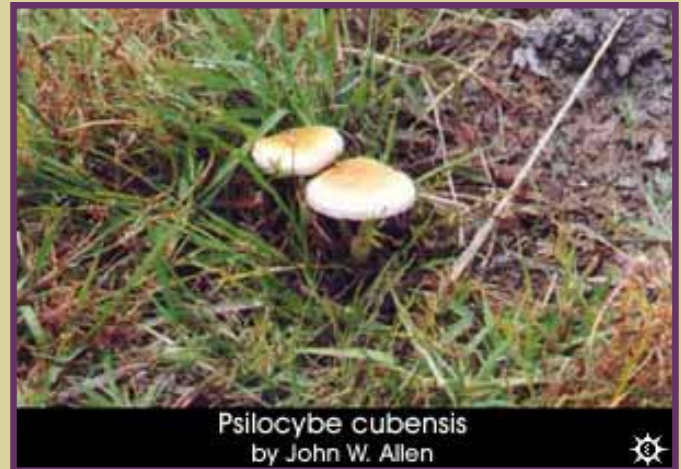
The second case Stocks described involved a male who sought medical treatment at another southeast Queensland hospital. "...After 5 minutes of ingestion, the patient reported that he felt a tingling in both of his temples, and a general feeling of strangeness. His T.V. set 'changed color' and the images on the screen became brighter and steel-blue. Vision later became blurred, and objects seemed either too large or too small, and appeared alternately to advance and recede from him. Later, sharp images of dragons appeared in a brilliantly-colored oriental setting. He had to fight to stay awake, experienced by a dry mouth and a tongue 'like leather', and regards the whole experience as definitely unpleasant."

On June 3, 1969, at 7 P.M., the Australian Broadcasting Commission, aired the following story of an intoxication which occurred near Forster along the Central Coast of New South Wales. "The New South Wales Department of Agriculture is investigating the case of a Sydney couple who had violent hallucinations after eating mushrooms which they had picked during a weekend sojourn. The couple, both professional artists, were kept under observation at the Forster Hospital, while the effects from the mushrooms wore off. For over three hours, they experienced symptoms similar to an LSD intoxication.

The couple told attending physicians that they had each eaten about a dozen bush mushrooms, and within five minutes or more were experiencing hallucinations. The woman reported that she felt as if her skin was peeling off of her hands, and she believed that she was dying. They were both terrified from their inebriation.

Samples of the mushrooms were sent to the Department of Agriculture to be analyzed for identification" (Southcott 1974). In this case, as well as many others involving use of suspected hallucinogenic fungi, very rarely is reference made as to whether or not the specimens of mushroom material, received by the toxicologists or mycologists is fresh, dried, or derived from a gastric lavage.

In 1971, a noted physician wrote that "Over the years, the Southport Hospital on the Gold Coast has had a steady flow of accidental poisonings with Psilocybe cubensis McCarthy, 1971). A good example occurred in 1969 when a whole family was affected after a picnic somewhere in the mountains." No mention is made as to the exact location where this incident took place. Symptoms from this intoxication included "...Euphoria, depression, inappropriate speech and answers, visual hallucinations, ataxia, vomiting, urinary incontinence, diarrhea, dry mouth, and dilated pupils, and a respectable family man was caused to run naked through the hospital, trying to molest the nurses who were attempting to treat his illness".



Another case of mushroom poisoning occurred in 1971 when a female drug user, aged 17, of Adelaide, who had a history of marijuana use, and on one previous occasion had used LSD, sought medical treatment after having a 'bad trip' while under the influence of Copelandia cyanescens, which was obtained in the vicinity of Adelaide. She soon became frightened, seeking immediate medical attention, because she thought that she was a banana, and that somebody was attempting to skin her (Southcott, 1974).

Following is an excerpt from a news item appearing in a local Australian paper... "A small brown mushroom that grows widely in the Adelaide Hills in July and August is providing drug addicts and thrill seekers with a potent hallucinogenic drug. The mushrooms, brown all over, contains the drug Psilocybine, which is prohibited by the Narcotics and Psychotropic Drugs Act (of South Australia). The mushroom is being passed around in fresh and dried forms. Three young people who tried the mushroom drug last year were admitted into the Royal Adelaide Hospital and treated for poisoning (Hailstone, 1972)."

An expert [no mention is presented as to who the expert is], at the Waite Agricultural Research Institute warned that even small quantities of it [psilocybine containing mushrooms] could cause serious poisoning, however, Lloyd Davis, Pharmacological Inspector for the South Australia Health Department said that "Users and those interested knew what the mushrooms looked like, where they could be found, and how to use them." Davis also "Doubted whether amateurs experimenting with them would be poisoned because there was a well organized system of communication among users and would be users". Another interesting reported case of alleged mushroom poisoning concerns a young girl in Campbelltown, a suburb of Adelaide. Clinical records from the Adelaide Children's Hospital describe this 3 year old child as being a lively spirited red-head, with an on going allergic condition. Her mental distress symptoms discussed below, may have resulted from the fact that she indulged in pica (one who eats dirt, grass, leaves and twigs). However, Dr. Ronald V. Southcott of South Australia reported that: Beginning in 1972 that "for some months she had been known to have repeated episodes of hallucinations, and each attack was marked by her person being cold and clammy, with frequent bed

urination including bedwetting. Her attacks would usually commence about six to eight hours after being allowed to play outdoors around her home, in the lawns and the garden." In fact, according to the mother, during the past 12 months her daughter had at least a dozen such attacks, which were very frightening and distressing to the child.

Symptoms reported by this little girl included: seeing colored lights on the ceiling, seeing cats that were not there, and feeling that she was bigger than she really was. An attack usually lasted no more than four hours. The first attack occurred when the child was not more than two years eight months old.

Specimens of the fungus were then obtained and photographed, both before and after drying. Dr. Ronald Southcott photographed the fungi *in situ* among the grass. In 1974, "Dr. Roy Watling of the Royal Botanic Gardens of Edinburgh, Scotland, visited Adelaide and identified the fungal specimens as being species of *Panaeolus foeniseccii*.

While the evidence in this case involving this particular species is only circumstantial, it appears to be the only justifiable explanation in attributing the girl's symptoms" .



While the symptoms and duration of affliction described in this particular incident are similar to those often attributed in the literature to psilocybin poisoning, it must be noted here that the onset of psilocybin intoxication normally occurs within 15-30 minutes after ingestion. This child's intoxications, however, always seemed to occur within 6 to 8 hours after she was allowed to play in her yard outdoors, or upon waking up after taking a nap. Besides the child's distressing habit of indulging in pica, Southcott had also noted that the child was experiencing some minor psychological difficulties with her mother. This may have contributed to the child's condition. However, based on the above observations, it is of the opinion of the author that the psychological symptoms exhibited by this child were not caused by the ingestion of *Panaeolus foeniseccii* (for a more descriptive analysis of this incident and similar alleged poisonings by *Panaeolus foeniseccii*, see Allen and Merlin, 1992).

TREATMENT FOR PSILOCYBIAN MUSHROOM POISONING

The major dangers associated with psilocybin poisonings are primarily psychological in nature. Anxiety or panic states ("bad trips"), depressive or paranoid reactions, mood changes, disorientation and an inability to distinguish between reality and fantasy may occur.

Recommended treatment for this type of poisoning should always be primarily supportive. Mycologist Dr. Joseph Ammirati of the University of Washington and his colleagues claim that "no specific treatment can be recommended for psilocybin poisoning in humans". Other doctors have "stress[ed] the importance of measures to reduce absorption of the toxins involved". This involves either, e.g., gastric lavage or emesis (Lincoff & Mitchell, 1977; Rumack & Saltzman, 1978; Smith, 1978).

1. Emesis. 15-30 cc of ipecac syrup followed by large amounts of oral liquids (500 cc).
2. Supportive treatment: i.e. the "talk-down" technique is the preferred method for handling "bad trips". It involves non-moralizing, comforting, personal support from an experienced individual. This is further aided by limiting external stimulation such as intense light or loud sounds and letting the person lie down and perhaps listen to soft music.

3. Tranquilizers need only be used in extreme situations and are generally not considered to be necessary. Diazepam, 0.1 mg/kg in children, up to 10 mg in adults, may be used to control seizures.

According to Dr. Rick Strassman of the University of New Mexico, anti-psychotics have gone out of favor for the treatment of 'bad trips'. Specifically, medicines with anti-cholinergic side effects, such as chlorpromazine, should not be given as these mushrooms can have marked anti-cholinergic effects of their own.

In 1988, Dr. Jansen noted that cases which present medically fall into several groups:

- a. Those who have taken the drug with little knowledge of hallucinogens and in the absence of sensible persons who can take care of them. These are more likely to be adolescents. They may self-present but are more often brought for medical attention by their parents.
- b. Those who fall as a result of impaired balance or muscle weakness and are knocked out or otherwise injured as a result.
- c. Those who are having a 'bad trip'. These may involve acute anxiety and panic, depression, paranoid reactions, disorientation and an inability to distinguish between reality and fantasy.
- d. Cases of idiosyncratic physical reactions such as cyanosis.
- e. Those with recurring phenomena after the mushroom effects should have passed, including prolonged psychosis.

When the history is clear and the signs are suggestive of psilocybian intoxication, it is best not to artificially empty the stomach either by emesis with ipecac or by lavage. Treatment shows that emptying the stomach had no effect on the duration or intensity of the experience once psychological manifestations had properly commenced. Dr. Jansen maintains that unless there is a reason to suspect that a more toxic fungus has been ingested, or if the patient is a young child, induced emesis is not necessary, not helpful and may make the situation much worse if the patient is already aggressive and agitated.

Other doctors have also speculated that a lavage is not merited if psilocybian mushrooms have been positively identified as the source of discomfort. It has also been suggested that "gastric intubation can be difficult in these young patients who are often already distressed and not infrequently aggressive. Furthermore the mushrooms may block the standard lavage tubes [used] for drug overdoses."

The inherent danger from the ingestion of wild mushrooms lies not so much in the consumption of an hallucinogenic variety, but rather in the picking and eating of a toxic species which might resemble an hallucinogenic variety.

Dr. Gastón Guzmán (and his colleagues) wrote that "field and laboratory studies strongly indicate that psychoactive mushroom use as it normally occurs does not constitute a drug abuse problem or a public health hazard" (Guzmán *et al.*, 1976). In addition, a recent survey conducted among college students in California, suggests that "the low frequency and few negative effects of [hallucinogenic mushroom] use indicate that abuse does not present a social problem, nor is there evidence for predicting the development of a problem" Thompson *et al.*, 1985).

FLASHBACKS

In 1973, Dr. Hall was the Principal Research Officer of the Narcotics Section of the Commonwealth Police Force in Canberra. Dr. Hall had also reported that several drug users had been experiencing recurring `flashbacks' from mushrooms that were similar to `flashbacks' which were associated with LSD consumption.

According to Dr. Karl L. R. Jansen, there is not any firm evidence that mushroom `flashbacks' can occur. Researchers in 1983, have reported that out of 318 specific cases of *Psilocybe* intoxications occurring in England between 1978-1981, 21 patients experienced `flashback phenomena of some form' for up to four months after ingestion", and also mentioned that some of these were the result of drug synergy and polydrug abuse.

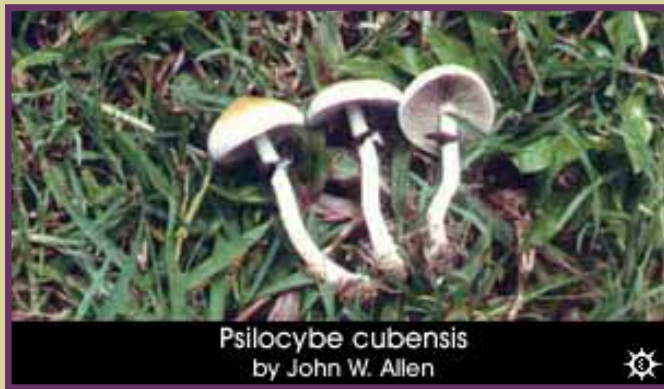
"...However, with such a controversial phenomena as `flashbacks', it is necessary to specify precisely what form these do take, so that they may be distinguished from psychological stress reactions wrongly attributed to past drug use." Dr. Hall also pointed out that "if solutions of mushroom extracts were injected intravenously, the results could be very serious." There are no known cases of such injections, and it seems extremely unlikely that anyone would attempt this.

PSILOCYBIAN FUNGI AND THE LAW

Between the years 1969 and 1975, the non-traditional use of psychoactive mushrooms does appear to have increased rapidly in Australia. During this period, heavy rains in the spring of 1969, produced bumper crops of *Psilocybe cubensis*, and large quantities of this species was consumed by hundreds of drug users, who ate them raw, with or on toast, or in soup. These youthful users who were members of Australia's counter culture described their effects from the ingestion of these mushrooms as being similar to LSD, but more natural. Government authorities soon claimed that the popularity of psychoactive mushrooms at this time [winter, 1969], diminished due to many regular users who began to experience extreme depression and lethargy; some users even reported that they had `lost their will to live'. This resulted in a number of "freakouts", and by the end of 1969, local authorities assumed that their popularity [use of mushrooms] had declined.

On Friday, July 11, 1969, four young men, aged 20-22 years, from New South Wales, were each fined \$200.00, on charges of being in possession of the drug psilocybine. "A complaint was registered by the manager of `Sippy Downs' station near Nambour, which is about sixty miles north of Brisbane, stating that the young adults had gained illegal entry onto the owner's private property. Detective-constable T. Tame and another police officer went out to the property. There they found a parked gray van alongside the road. A box containing the mushrooms was observed by the officers on the floor of the van, so the police asked the four adults to accompany them to the Nambour Police Station, which the four men consented to do. The magistrate of the court found the young men guilty and allowed them two weeks to pay their fines. If the fines were not paid on time, then they would be found in default and would have to serve a sentence of one month imprisonment" (Unsigned. 1969).

Cattle ranchers in Australia have often been referred to as irate that some mushroom pickers have little respect for their property, trespassing frequently in search of psychoactive fungi. In the United States mushroom pickers have been known to leave gates open so that the cattle wander out onto the roadways, litter the fields and paddocks with garbage such as bottles, beer cans, etc., break down fences and bring dogs into the pastures which chase the cattle.



By March of 1971, an export market was established by dealers and users, who had made Psilocybe cubensis available to users in Sydney and other larger cities throughout Australia. By 1972, Tasmanian authorities became concerned that the widespread collection and ingestion of psychoactive fungi in their state would attract interested people from the mainland (Australia) to Tasmania, who would come in search of these species. Additionally, Dr. Malcomb Hall stated in 1973, that "exportation of fungi from Tasmania to the mainland is highly likely,

as knowledge of suitable species becomes [more] widespread." Its growing popularity probably occurred because of the widespread attention given to this mind-altering activity. This included personal communication among friends, increased attention in the popular press, and articles written in scientific journals.

The written accounts referred to both the accidental and deliberate consumption of several species of mushrooms containing either psilocybin and/or psilocin. These articles and news items provided both the public and law enforcement agencies with information regarding the existence, use, and effects of these mushrooms throughout South Australia, New South Wales, Queensland, Victoria, Northern Territory, Tasmania, and the Australian Capitol Territory. However, usage of these psychoactive fungi became popular in New Zealand during the late 1970's and in 1987, a government report mentioned that "LSD and hallucinogenic mushrooms were [now] being abused by eating in New Zealand, mainly by 15-19-year-olds."

It should be noted that the growth of this illicit activity in Australia preceded the publication of several widely read, popular and scientific essays which described the recreational use of these hallucinogenic mushrooms in the United States during the middle and late 1970's. Between the years 1969-1971, the increasing use of hallucinogenic mushrooms in various areas of Australia during the late 1960's and early 1970's, attracted the attention of the Central Crime Intelligence Bureau of the Commonwealth Police Force, whose principal research officer showed concern about the increasing abuse of these fungi in his country. He stated that because of the availability of "free" hallucinogenic mushrooms, "few if any LSD sales were taking place in Hobart in 1972."

While each Australian state has enacted legislation controlling these psychoactive substances and their analogues, only one state, Queensland, has declared a specific mushroom, Psilocybe cubensis (Earle) Singer, as being a prohibited "plant" under the Queensland Health Act of 1937-1971. Intoxications from the consumption of Psilocybe cubensis were reported as early as 1958. Dr. Malcolm C. Hall, formerly of the Canberra Commonwealth Police Force, noted that psilocybine and psilocine were also listed as Schedule 3 drugs in the Tasmanian Dangerous Drugs Order of 1965. He pointed out that both of these chemicals were later designated as Schedule I drugs by the International Convention on Psychotropic Substances of 1971.

This next account is also from an unidentified South Australian drug user who wished to remain anonymous (Southcott 1974). While this person was more than willing to describe his personal usage of these mushrooms, he was extremely cautious about revealing his identity and expressed concern about who might read his story, whether they be friends or law officers. He admitted that he would deny his story if need be.

This denial of the use of hallucinogenic fungi by a member of the drug subculture can be compared, in some ways, to the secrecy by which various Indian tribes living in Mexico during the past four centuries have prevented foreigners from exploiting or persecuting their use of psychoactive fungi. In the conquest of Nueva Espana, the Spanish clergy deplored what they considered to be pagan, ritual practices, many of which utilized hallucinogenic plants and mushrooms ceremoniously. The Spaniards harassed, often

violently, those whom they caught carrying out these practices. Eventually, the Indians of Mesoamerica, out of fear of persecution, began to hide their use of these plant substances from their Spanish conquerors, and would only communicate their knowledge and use of these substances to one another in secret. Just as the early Christians once tried to hide their Christianity from their peers in ancient Rome, so did several native Mesoamerican tribal peoples hide their use of these magical plants from the Spanish clergy and the Holy Office of the Inquisition.

The following account is a good example of the psychological and physiological symptoms of psilocybian intoxication. It also provides insight into this user's own justification for his personal use of psychoactive fungi.

"The mushrooms which were prepared in a broth and boiled for about two minutes may be used to induce an extremely powerful hallucinatory trip. When eaten raw the effects can take up to two hours to come on [This time lapse only occurs when fresh food has been consumed prior to the ingestion of fungi], but taken in soup form (or as tea) it can begin to occur within five to ten minutes after being eaten.

The first noticeable effect is a tingling sensation from head to toe, followed by extreme warmth or cold all through the body. Mild hallucinations began to occur within a quarter of an hour, and become stronger as the trip reaches its peak. This peak can be a terrifying experience for the novice; he does not know what to expect, and can believe himself to have gone insane. This 'insanity' can also be pleasurable in many cases and can cause a person to lose all unnecessary fear of things which had previously seemed impossible to bear. Everything material and otherwise is laid in front of you for examination and nothing is beyond human comprehension. In my own opinion and experiences these mushrooms used by persons capable of understanding the tremendous power contained in them can only be beneficial in their effect.

I have found them growing in flat-bottomed valleys and on gentle slopes. They thrive in moist, grassy soil and can range in size from a quarter of an inch (approximately 6mm) up to two or three inches (5- 7.5cm) in diameter. [Bob Harris' book, 'Growing Wild Mushrooms', published in 1976, contains a photograph of *P. cubensis* with a cap that is over ten inches in diameter]. In regards to an overdose of these mushrooms, this user feels that: overdosage is not really an accurate term for this condition. It is more an extreme fear of certain things or people which causes 'freakouts'. I have successfully calmed down several people who thought they were on the point of dying. The trip can change from one of fear and hysteria, to one of pure ecstasy in a matter of a second if a person is treated correctly.

The police in my opinion [can] cause more bad experiences than all other reasons combined. This is because people strive to have a good trip but the thought of arrest or even jail (jail) can be drastic at the height of a trip's peak. I myself have almost lost all fear of everything I previously feared.

I intend to continue the use of these mushrooms and see where it leads me, whether it be a good (lawful) or bad thing, and I am not signing this report on the grounds that it may incriminate myself and other persons."

According to Dr. Hall, 60 people in Australia were charged with offenses involving possession or sales of psilocybian mushrooms during 1972; however, he also noted that charges against several of these individuals were later withdrawn when no known psychoactive compounds were found in the confiscated specimens of the suspected hallucinogenic mushrooms, and one year later, in a personal communication to R. V. Southcott, Dr. Hall stated that "approximately 74" persons were charged with offenses involving the illicit hallucinogenic mushrooms in Australia during 1972. This statement varied somewhat from Dr. Hall's previous claim that 60 individuals were charged with drug offenses related to the psychoactive mushroom use in that year. In any case, by 1973, Hall reported that only 27 persons were charged with psilocybian offenses.

In 1980, in a special government report on drugs and drug abusers, several prominent Australian citizens

expressed their concern about the growing problem of mushroom abuse in Australia (Aust. Govt. Publ. Serv., 1980).

"A Queensland school teacher told the commission that because LSD was difficult to obtain and was expensive, people were picking hallucinogenic mushrooms. These could easily be collected around Samford, for example. An informed witness agreed that psilocybine producing fungi were growing in and around Brisbane and mentioned Samford, Ferny Grove, Pinkenba, Dayboro, and Beenleigh. A senior Queensland Police Officer said that 'gold top' mushrooms (*P. cubensis*) were plentiful in the Gold Coast area, but there was no evidence to suggest that they were grown commercially. He said this prohibited plant thrived in the Currumbin and Tallebudgera areas in the wet season and was harvested by drug users."



There is no evidence in the literature indicating that the cultivation of hallucinogenic mushrooms (particularly *Psilocybe cubensis*), is common among Australian or New Zealand drug users. Recently the author obtained information verifying that mushroom growing kits from the mainland United States are sold through the U.S. mail to both Australian and New Zealand citizens on a monthly basis. Therefore, it may be assumed that some users in Australia and New Zealand do grow these mushrooms at home under clandestine conditions. It is obvious though, that the home cultivation of either *Psilocybe*, *Panaeolus*, or even *Copelandia* species, would not attract the attention of the public or local law enforcement agencies since their growth could be well hidden in home basements, garages, attics, or closets. and not as easily detected as a field of Cannabis.

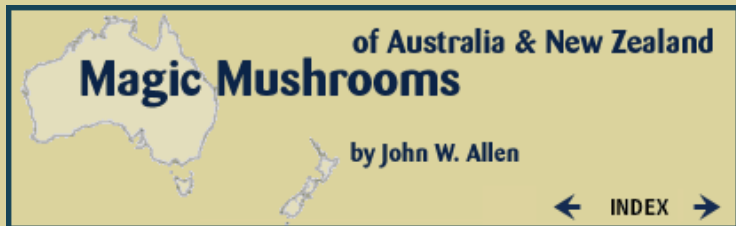
In this same 1980 governmental report, Captain B.C. Mundy, Commanding Officer of the Salvation Army in Darwin, Australia presented details concerning the availability of mushroom hallucinogens in the Northern Territory.

According to Mundy, 'gold tops' and 'blue meanie'

mushrooms grew freely in the tropical climate in animal manure and in manured gardens. He referred to an incident where a resident of the Red Shield Hostel in Darwin, who was accused of housebreaking, said he picked 'blue meanies' in the hostel garden and boiled them to make a drink. As a result he was found by the court not responsible for his actions. Captain Mundy explained that the garden had shortly before this incident been treated with fowl manure.

This is probably the first reported case of the species *C. cyanescens* (blue Meanies), being found fruiting from the manure of either chickens, geese, or ducks, rather than from the manure of ruminants (i.e., four legged mammals). It should also be noted here that the youth was not under the influence of inebriating mushrooms prior to his illegal entry at the youth hostel; technically, therefore, he was responsible for his actions.

In June of 1989, a 23 year-old man from Kelston, New Zealand, appeared in District Court and was convicted of possessing psilocybin. A police spokesman said that they had confiscated approximately 120g of "magic mushrooms" from the suspects home. Mushrooms were found packaged in plastic bags and others were in various drying stages on newspapers placed on the floor. The young man had told the arresting officers that he enjoyed the mushrooms because they "gave him a better outlook on life" (Unsigned, 1989).



PSILOCYBIAN MUSHROOMS IN NEW ZEALAND

Until the late 1970's, the fact that psilocybin containing mushrooms grew in New Zealand (NZ) was known to very few. The perception of those interested in psychedelic drugs was that 'magic mushrooms' were an Australian phenomena, and that the only mushrooms of this nature to be found in NZ had arrived via the post. Indeed, all of the analyses performed by the Department of Scientific and Industrial Research (DSIR) for the police at this time were upon *P. cubensis* which had been sent to NZ in the mail, and intercepted by customs. Not until the early 1980's did a more general awareness appear, within the psychedelic drug-using subculture, that psilocybin containing mushrooms could be found in both islands of NZ. It is likely that persons experienced with the Australian situation recognized *C. cyanescens* and *P. tasmaniana* growing in the New Plymouth sand dunes, particularly at Khomeinii beach which is popular with surfers. At about the same time, a botanist from the United Kingdom recognized *P. semilanceata* (liberty cap) growing on the Otago peninsula, near the city of Dunedin in the South Island. The botanist informed a circle of friends with an interest in psychedelics, and the knowledge spread rapidly by word of mouth.

Thus, it was not until 1982 that articles with titles such as 'Magic Mushroom Danger Warning' (Unsigned 1982) began to appear in the press, and occasional reports of prosecutions appeared. As in Australia, media reports were usually quite inaccurate in describing the effects of the mushrooms, while giving precise instructions as to where they could be found. For example, in the aforementioned 'Danger warning' (Unsigned, 1982), a New Plymouth-based alcohol and drug abuse officer is quoted as saying that "it (the mushroom effect) was like setting off a time bomb..... most common was an instant 'high' which put stress on the respiratory and heart functions....." The article goes on to say: "They were very dangerous, he warned. People had died from them." At the same time, there were reports on national television showing mushrooms being picked in the New Plymouth paddocks. Consequently, there was a sudden and dramatic increase in popular knowledge of the mushrooms, resulting in large-scale autumnal pilgrimages to this area of the country.



Copelandia cyanescens
by John W. Allen



Psilocybe semilanceata
by John W. Allen

As in the U.S.A., the New Zealand police were not vigorous in attempting to prosecute mushroom pickers, and tended to avoid involvement unless specifically called by a farmer. Attempts to prosecute cases were hampered by the wording of the Misuse of Drugs Act, 1975, which declared *Psilocybe mexicana* Heim and *P. cubensis*, neither of which have ever been found growing in NZ (although the latter has been intercepted in the incoming mail), to be prohibited plants, while psilocybin and psilocin were class A substances. Most judges, with one notable exception (Unsigned 1986) felt that a mushroom was not a substance (chemical) and thus prosecutions tended to fail. For this reason, an Amendment to the Act was passed in early 1988 which declared that all members of the genera *Psilocybe* and *Panaeolus* were prohibited plants. This has not, however, led to a marked increase in prosecutions and sentences continue to be mild.

NZ is an isolated country with a prolific native flora. While the importation of cattle may have been responsible for introducing *P. cyanescens* to NZ, there are at least five indigenous species, four of which have yet to be described in detail and named (Johnson and Buchanan 1988, D.S.I.R., Pers. Comm.). The fifth is *Psilocybe novo zealandiae*, which has been characterized by Guzmán (1983). *P. novo zealandiae* is found primarily in the native forests of the southern South Island, and as such is unlikely to have played a significant role in human ingestion. This latter species is not psychoactive.

Copelandia cyanescens ('blue meanies') predominates in the New Plymouth region, an area of intensive dairy farming. The mushrooms appear in autumn, most commonly under lupine bushes in coastal paddocks. In the lower South Island, particularly the Otago area and Dunedin city, the species consumed by users is *P. semilanceata* ('liberty cap').

In so far as epithets are concerned, the most popular term is 'magic mushrooms.' Neither the Australian term 'gold tops' nor the English and American 'liberty caps' has been widely adopted, although the term 'blue meanies' is occasionally used to refer to *P. cyanescens*. In a study involving in depth interviews (and follow up questionnaires) of 150 people, carried out between 1982 and 1989 all over NZ (Jansen, Pers. Comm. 1989) it was clear that many users knew that 'gold tops' referred to an "Australian" mushroom (*P. cubensis*) which was different from those used in NZ.

In the study referred to above, the only case requiring emergency room treatment was a musician who, due to impaired coordination, had fallen and cut his head. The hospital staff were not told of his intoxication, he was sutured without difficulty, and departed the emergency room with his companions. All persons in the study were asked if they knew of anyone who had required acute medical treatment, and except for the case discussed above there were no other instances known to those in the sample. According to Dr. K. L. R. Jansen, there are no reported case histories in the NZ medical literature. However, 3 out of the 150 cases (Approximately 2%) suffered prolonged psychological difficulties following their mushroom experiences. Two of these cases involved the precipitation of a severe paranoid psychosis, eventually requiring psychiatric treatment which was still in progress at the time of the interview. In both cases there were obvious predisposing features, but there was clearly no pre-existing psychosis while following the mushroom experiences there was frank and prolonged psychosis. These cases illustrate the point which has often been made concerning psychedelic drugs: that there are certain persons who are psychologically at serious risk from these substances, and must be urged to avoid them.



Copelandia cyanescens
by John W. Allen



Psilocybe semilanceata
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In terms of physical effects, no evidence was found to support the claims made in the 'Danger Warning' that psilocybian mushrooms placed a major stress on the heart and respiratory systems, nor is there any evidence of any deaths occurring in NZ due to psilocybian mushroom ingestion. The potentially lethal practice of driving back to Auckland city from New Plymouth while intoxicated on mushrooms has not yet resulted in a serious accident. There were several descriptions of a very rapid start to the altered state which might be described as an 'instant high', but nothing to indicate that this was a serious threat to health.

The major physical danger from ingesting psilocybin mushrooms in NZ arises from the use of fungicidal and other agricultural sprays (c.f., see Young *et al* 1982), which have been used in both the North and the South Island by farmers and enforcement authorities. Karl L. R. Jansen, (a medical doctor from the University of Auckland) has attended a person at their home suffering from marked weakness of the respiratory muscles, with attendant shortness of breath, following ingestion of sprayed mushrooms. The signs and symptoms of poisoning continued for at least 18 hours after the return of a normal mental state, indicating that the muscle weakness was unlikely to have been due to psilocybin which may sometimes cause weakness acutely. Others ingesting the mushrooms from this paddock also suffered various forms of muscle weakness (e.g. lazy eyelid, which is extremely unlikely to have a 'psychological' origin), extending in all cases for many hours beyond the end of the

change in consciousness. In several cases, strong and robust men with extensive experience of psychedelic drugs collapsed while crossing the road due to severe muscle weakness - a potentially life-threatening situation. It is thus clear that spraying mushrooms represents a greater public health threat than the mushrooms themselves, and should be discontinued.

Finally, it was suggested by several persons in the study that the Maori (the indigenous race) may have used psilocybin mushrooms. This possibility was also mentioned by R.G. Wasson on a visit to NZ, in relation to the theory which holds that concepts of divinity may have arisen in primitive peoples out of psychedelic drug experiences. In fact, there is no evidence of any sort to support the use of these mushrooms by the pre-conquest Maori. The Maori are quite distinctive for having used no consciousness altering drugs of any kind, and were highly skilled at treating food to remove toxic substances. This conclusion was supported by all of NZ's Professors of Maori studies, and many other scholars of the Maori culture, in a series of consultations carried out in 1988. It appears that the Maori culture represents at least one instance of a complex and rich theology and mythology, involving priests (tohunga's) and the frequent invocation of deities in daily life, which did not require the use of consciousness-altering chemicals.

SOME FINAL THOUGHTS

In Australia the majority of hallucinogenic fungi seem to occur in Queensland, New South Wales, Victoria, and to a lesser degree in South Australia; but several of the species, listed in [Table 1](#), have been collected in all of the Australian States including Canberra, A.C.T. Hall, 1973; Southcott, 1974; Young, 1989; Shepherd and

Totterdell, 1990; Allen, Merlin & Jansen, 1991; Stamets, 1996). Use of these fungi also occur on both the North and South Islands of New Zealand (Allen, J. W., Merlin, M. D. and K. L. R. Jansen, 1991; Stamets, 1996).

Published medical reports of cases involving psilocybian mushroom poisoning are often confusing when presented by individuals who are unaware of the particular species of mushrooms which were consumed. Most dysphoric reactions apparently are the result of (1) improper dosage (2) unfavorable set and setting or (3) emotional and recurring psychological problems often associated with a past history of poly-drug abuse. This has often hampered proper medical diagnosis, resulting in delayed treatment, especially if the doctors cannot properly identify the causative species involved.

From all the published material of the last century, we have come to the conclusion that the effects following the ingestion of *Panaeolus* spp. appear to be more tranquil and less intense than the sometimes overwhelming hallucinatory effects attributed to the consumption of certain species of *Psilocybe*, which may be frightening, sometimes causing dysphoria and confusion when taken in excessive dosages.

While arrests (Hall, 1973; Misuse of Drugs Act, 1975) for psilocybian mushrooms in Australia and New Zealand usually occur due to trespassing rather than possession of the fungi, it should be mentioned that in Florida, as in Great Britain and Holland, possession of fresh psilocybin mushrooms is currently not an illegal act (and cultivation of *Psilocybe cubensis* is legal in England and psilocybian mushrooms (fresh and dried, are now legally sold in Holland). Judges in these areas have ruled that psilocybine and psilocine are chemicals and mushrooms, regardless of any psychoactive content, are simply mushrooms. Although this is presently accepted, the law states that the chemical substances are illegal to possess. However, very few if any prosecutions take place in the United States, Great Britain, and Canada for these offense (except when arrests are made in regards to the illicit large cultivation of *P. cubensis*). This apparently is also true for both Australia and New Zealand.



While much documentation exists in regards to the users who sought medical treatment, it should be mentioned that many may be afraid to seek medical aid because of fear of prosecution. A good example of this is the teenager who died in Whidbey Island, Washington from eating a poisonous variety of fungi which she thought was a *Psilocybe* species. For more than two days she and her companions were afraid to report their illness to the proper medical authorities, which resulted in delayed treatment and death (Allen 1988). Drug educators and those who are involved in Drug Abuse programs, especially teachers in public schools, should make aware to their students or patients that doctors and hospitals will not report their activities to law enforcement agencies when treating them for their drug habits.

There is also no evidence indicating that the sale of common, commercial mushrooms (e.g., *Agaricus bisporis* and/or *A. campestris*) adulterated with LSD or PCP are sold on the continent or in New Zealand. However, in 1978, Jonathan Ott reported that this was a common situation in the mainland United States for several years and may continue today. These fake "magic mushrooms have been referred to as *Psilocybe hofmannii*.



Psilocybe cyanescens
by John W. Allen





Amanita muscaria with Snail
by John W. Allen





Psilocybe cubensis
photo by John W. Allen





Panaeolus subbalteatus
photo by John W. Allen





Copelandia cyanescens
photo by John W. Allen





Amanita muscaria
by John W. Allen





Psilocybe subcubensis
photo by John W. Allen





Psilocybe cyanescens
by John W. Allen





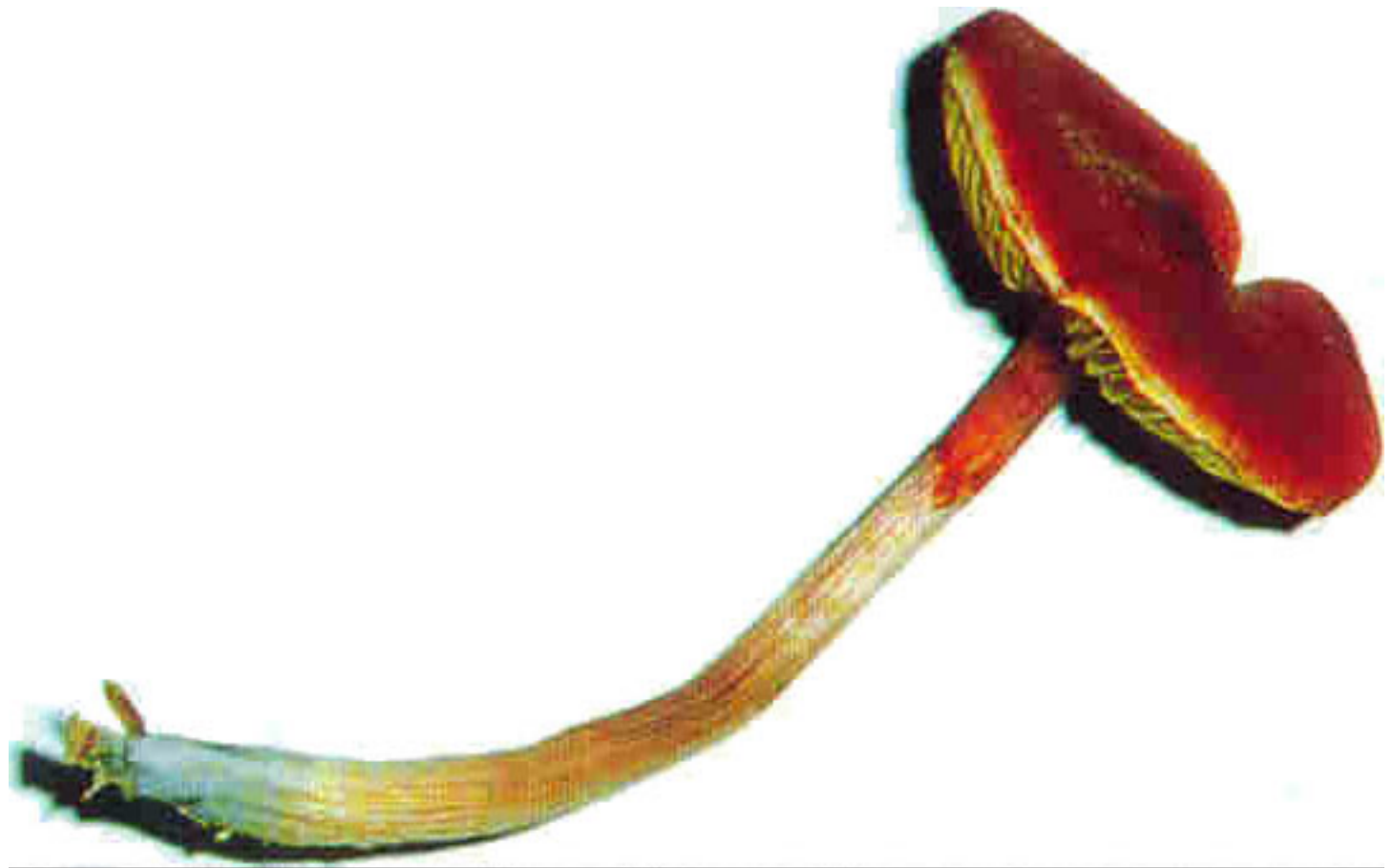
Psilococybe coprophila
by John W. Allen





Amanita muscaria
by John W. Allen





Gymnopilus purpuratus
by Jochen Gartz





Gymnopilus purpuratus
by Jochen Gartz





Panaeolus subbalteatus
photo by John W. Allen





Psilocybe aucklandii
by Chris King





Psilocybe cubensis
photo by John W. Allen





Psilocybe subcubensis
photo by John W. Allen





Amanita muscaria
by John W. Allen





Copelandia cyanescens
by John W. Allen





Psilocybe semilanceata
photo by John W. Allen





Psilocybe subaeruginosa
photo by R. V. Southcott





Amanita muscaria
by John W. Allen





Amanita muscaria
by John W. Allen





Psilocybe cyanescens
by John W. Allen





Chlorophyllum molybdites
photo by John Allen





Chlorophyllum molybdites
photo by John Allen





Chlorophyllum molybdites
photo by John Allen





Panaeolus antillarum
photo by John W. Allen





Panaeolus antillarum
photo by John W. Allen





Psilocybe cubensis
photo by John W. Allen





Panaeolina foenisecii
photo by John W. Allen





Psilocybe cubensis
photo by John W. Allen





Copelandia cyanescens
by John W. Allen





Psilocybe semilanceata
photo by John W. Allen





Psilocybe semilanceata
photo by John W. Allen





Psilocybe cubensis
photo by John W. Allen





Gymnopilus purpuratus
by Jochen Gartz

