Many kinds of mushrooms abound in Alaska. Old Timers as well as summer visitors constantly ask how to separate the edible from the poisonous species.

This bulletin will help you identify a few of the most common mushrooms, both edible and poisonous. As you become familiar with this basic group, you can add other mushrooms with reasonable safety. See the list on page 29 for other edible species which occur in Alaska.

The mushrooms described here commonly grow throughout much of Alaska. The entire group has been carefully checked by both amateur mycologists and professional botanists. If you wish to make further studies, reference material has been listed on page 32.

The glossary on page 30 and 31 will help you with difficult words.
OLD WIVES’ TALES

The common old wives’ tales, such as those about poisonous mushrooms tarnishing a silver spoon, worms avoiding poisonous species, and edible mushrooms peeling easily, have no basis in fact. The only sure way to avoid trouble is to learn to distinguish mushrooms by their botanical characters.

TEN EASY RULES

1. Never eat a mushroom that you cannot positively identify by its appearance. When trying a mushroom for the first time, eat only a very small amount until you see if it agrees with you. Some people are allergic to edible varieties.

2. Avoid mushrooms that resemble the poisonous ones until you become proficient in identifying them. Especially avoid all species of AMANITA unless you are an expert.

3. Learn the distinguishing features of a few, easy to recognize, edible mushrooms and stick with those. Don’t experiment!

4. Pick only fresh, young mushrooms for eating. Some mushrooms last in the out-of-doors for a long time and their flesh may eventually become putrid and poisonous.

5. Gather only one kind of mushroom in a basket. Never mix unknown species with edible ones. Even a very small piece of a poisonous mushroom may poison a whole dish.
6. Clean edible mushrooms as you gather them. Dirt clinging to the base of the stem should be cut off. Leaves or other debris may be gently brushed or washed off the cap. (When collecting for identification purposes, mushrooms should be carefully dug out of the ground to preserve important features which may be at the base of the stem.)

7. Be sure that puffballs are puffballs, and not early button stages of poisonous gill mushrooms. Cut them in two vertically and use only those which are solid and white all the way through.

8. Use mushrooms the day they are picked, as they spoil rapidly at room temperature. Cooked mushrooms may be kept for several days in a refrigerator. If you have a surplus, freeze, can, or dry them at once.

9. If you feel that you have eaten a poisonous mushroom, empty the stomach and intestines immediately and get a doctor as quickly as possible.

10. Extend your knowledge of mushrooms by studying the references listed on page 32. Help spread the word that there are some poisonous mushrooms in Alaska, but that many of the edible ones can be easily recognized and will add flavor and interest to the menu.

WHAT IS A MUSHROOM?

A mushroom is the fruit-body or spore-body of certain fungi which usually live on decaying wood or vegetable matter. Mushrooms reproduce by means of spores. This bulletin describes representatives of four mushroom families: 1. The gill mushrooms (AGARICACEAE); 2. The pore mushrooms (BOLETACEAE); 3. The stomach fungi (LYCOPERDACEAE); and 4. The morels (HELVELLACEAE).

Mushrooms often show variations in physical characters. When you are fairly certain of the identification of a mushroom, collect it several times and, if possible, in different locations so that you become familiar with the variations. The descriptions given here are based as closely as possible on normal and typical forms found in Alaska.

USING A KEY

Using a key is simple. With the mushroom you wish to identify in hand, read Roman numeral I and II below. Select the one that applies to your mushroom.

For example, if your mushroom has gills, take Roman numeral I (AGARICACEAE family). But if your mushroom does not have gills, take the second choice, II. Then read both A and B and select the one that applies to your mushroom. If necessary, continue making choices under 1 and 2 in the same manner. Do not guess at key characters. If your mushroom does not key out convincingly, you may assume that it is not included in this bulletin.

KEY

I. Mushrooms with gills (radiating blades of tissue on the underside of the cap)

A. Spore print white or yellowish (See "MAKING SPORE PRINTS") ................. p. 6

1. Gills free from stem; ring (annulus) on stem; base of stem with a cup (volva) or a series of cottony rings; often with pale cottony warts or spots on surface of cap ...................... AMANITA p. 8
2. Not having the characters of 1. above.
   a. Cap, gills or stem always bleeding with a white or colored fluid when broken; no ring on stem; no cup at base of stem; growing on the ground ..........LACTARIUS p. 10
   b. Same as (a) above, but lacking the fluid when broken; flesh and gills often very brittle at maturity; taste sometimes very peppery. RUSSULA p. 12

B. Spore print black; edges of cap and gills melting into an inky-black fluid with maturity .....................COPRINUS p. 14

II. Mushrooms without gills

A. With innumerable small pores on the underside of the cap. Mushroom typically large, fleshy, readily decaying, growing on ground ......................BOLETACEAE p. 20

B. Not having the characters of A. above

1. Cap conic-shaped; outer surface pitted or sponge-like with connecting ribs; cap as long or longer than the stem; both stem and cap hollow; occurring in spring. HELVELLACEAE (Morchella) p. 23

2. Mushroom ball or pear-shaped; interior solid and white when young becoming discolored and, at maturity, full of dark powdery spores. Lycoperdaceae (Puffballs) .......... p. 27

**MAKING SPORE PRINTS**

To identify some mushrooms it is necessary to make a spore print which may be white, brown, pink, purple-brown, or black. A spore print is easy to make by removing the cap of a freshly expanded mushroom close to the stem. Then lay the cap gill-side down on a piece of white paper and cover it with a bowl. Within several hours the spore print will show as a fine powder arranged in radiating lines with the same pattern as the gills. If the spores are pure white, turn the paper at an angle so the light will catch it and the chalky deposit will be easy to see. The other colors will naturally show up more clearly.

**Family Agaricaceae**

"Gill Mushrooms"

In this family the spores are produced on radiating blades of tissue on the underside of the cap. These blades are called gills. One of the most essential steps in identifying members of this family is the determination of the spore print color.

Other features to note when identifying gill mushrooms:

1. The manner in which the gills are attached to the stem.
2. The presence or absence of a veil which covers the gills when mushrooms are young, then breaks to form a ring (annulus) on the stem.
3. The presence or absence of a veil which encloses the entire mushroom at first, then breaks to form a cup (volva) or a series of rings at the base of the stem.
4. The presence, color, and taste, or the absence of a milk-like or colored fluid called latex which forms when the cap, gills or stem are broken.

![Fig. 1. Cross section of a gill mushroom indicating the various structures important to identification. Study this diagram and learn the few simple parts of a gill mushroom.](image-url)
5. The color of cap, gills, stem and flesh and any color changes which may take place when cut or rubbed.

6. The odor and taste of raw flesh of young mushrooms. Do not taste any species of AMANITA.

GENUS AMANITA

Some of the deadliest mushrooms in the world are Amanitas, but their beauty is deceiving. Young children are tempted to nibble on raw mushrooms in this genus, so be careful.

The main identifying characters of all Amanitas are:

1. White spore print.
2. The presence of a ring (annulus) on the stem.
3. The presence of a cup (volva) at the base of the stem, or a series of rings at the base of the stem indicating the former presence of a universal veil which completely encloses the mushroom in the button stage. These features may be underground and may not be noticed unless the entire mushroom is carefully dug out of the ground.
4. Gills free from the stem.

The following is a description of the species of AMANITA most commonly found in Alaska.

AMANITA MUSCARIA
“The Fly Agaric”
Poisonous
((See Plate, Page 15)

CAP: Three to eight inches broad when mature. Nearly ball-shaped at first and completely enclosed in a cottony white to yellowish covering. At this stage it may resemble a puffball. The cap soon expands to show the bright red or orange-red surface coloring with a scattering of white cottony warts. At maturity the cap is nearly flat and the color fades to dull red or orange. The surface between the warts is sticky when moist and polished or glossy when dry. The cap is rather easily removed from the stem.

FLESH: White to yellowish, fairly thin; odor not distinctive. Do not taste this mushroom!

GILLS: White to yellowish; close together; not attached to the stem (free). Covered when young by a white membranous veil.

STEM: 3 to 12 inches long. Enlarged or bulbous at the base which is usually underground, then tapering upward to the cap. White or yellowish. Surface dry, fairly smooth except just above the bulb where there is a series of cottony rings. These rings, as well as the warts on the cap, are the remains of the original cottony covering. The ring near the top of the stem is white or yellowish, membranous, and limp. This ring is the remains of the veil which at first covers the gills. The interior of the stem is white or yellowish; stuffed with cottony-like tissue, or hollow.

SPORE PRINT: White.

HABIT, HABITAT and DISTRIBUTION: This mushroom grows singly or in groups in mixed woods or under coniferous trees over most of Alaska. It is sometimes found in lawns or gardens where trees had been growing. It is very common during July, August and September.

REMARKS: During very wet or very dry weather, the characteristic “warts” on the cap may be lacking, and the ring near the top of the stem may be missing, but the white free gills, the cottony rings at the enlarged base of the stem, and the white spore print will serve to identify it.

Two other Amanitas are known to occur in Alaska.

AMANITA MUSCARIA
(Yellow Form)
Poisonous

This is identical with the red form except that the cap is light yellow, becoming grayish or brownish with age. It is not common but may be found under coniferous trees during the same season as the red form.
AMANITA PORPHYRIA

Edibility Not Established

This species is typically smaller than the species described above. The cap is lavender or brownish-gray, without the warts. The gills are white and the stem is gray. There is a definite whitish cup (volva) at the base of the stem, but this is often underground. This species is not common in Alaska, but may occasionally be found under coniferous trees during July and August.

There is a probability that some of the forms of AMANITA PHALLOIDES occur in Alaska, and since this is the deadliest of all mushrooms, the beginner should learn the characters of the genus AMANITA and avoid all such species.

GENUS LACTARIUS

This group of so-called “milk” mushrooms contains some fine edible fungi. However it also contains some which are indigestible or mildly poisonous. If one pays careful attention to the characters of this genus, they can become easy to recognize.

The main identifying features of the genus LACTARIUS are:

1. White to cream-colored spore print.
2. The central stem with neither a ring (annulus) nor cup (volva) at the base.
3. The gills are attached to the stem and often run down it for a short distance.
4. The presence of a milk-like or colored fluid (latex) which is exuded when the cap, gills, or stem are cut or broken. Test young mushrooms for this feature.

Below is a description of both the edible and non-edible LACTARIUS species which may be confused with each other in Alaska.

LACTARIUS DELICIOSUS

“Orange Delicious” or “Orange Delight”

Edible

((See Plate, Page 15)

CAP: Three to six inches across when mature. Slightly flattened on top with the edges rolled under when young. As the mushroom ages, the margins unroll and become upraised making the cap appear somewhat funnel-shaped. *Always some shade of orange*, from deeply colored to pale, usually with zones or bands of color in rings. *Often stained or streaked with green*. The surface is smooth without warts, scales or hairs, and feels slippery, sticky or dry depending upon weather conditions. Cap not easily removed from the stem.

FLESH: From pale to deep orange, usually showing greenish stains or spots and sometimes slowly becoming mottled reddish-purple after being cut. Moderately thin and brittle without distinctive odor or taste.

GILLS: Orange like the cap or paler, and becoming greenish when bruised or with age. Narrow and close together. Attached to and often running down the stem for a short distance.

STEM: Two to four inches long by up to one inch thick, never greatly enlarged at the base. Orange like the cap and often with green stains or spots. Surface moist and smooth, without a ring and without a cup at the base. Interior of stem stuffed with a whitish pith when young, becoming hollow with age.

LATEX: Bright reddish-orange fluid seeps out when the cap, gills or stem are cut or broken, most abundant in young mushrooms. Mild in taste. The latex itself does not change color but causes the green staining of the mushroom.

SPORE PRINT: Whitish or pale cream color.

HABIT, HABITAT and DISTRIBUTION: This mushroom can be found in either coniferous or mixed woods but is especially fond of damp mossy areas under spruce and hemlock trees. It fruits from late July through early September over most of Alaska.

REMARKS: This particular LACTARIUS species does not have an abundant amount of latex. So, if old dry specimens are tested the latex could be missed. In all species of LACTARIUS it is important to test young mushrooms for the latex, noting its color, color changes, and taste. The taste may be mild, peppery or bitter. See the following discussion of two mildly poisonous species which somewhat resemble LACTARIUS DELICIOSUS.
LACTARIUS TORMINOSUS  
Not Recommended

This mushroom may be distinguished from LACTARIUS DELICIOSUS by its more pinkish color, the furry-hairy edge of the young cap, the complete lack of green staining, and the white latex which is unchanging and very peppery to the taste. It grows on the ground in mixed woods, especially near birch, at the same time of the year and often in the same location as LACTARIUS DELICIOSUS.

LACTARIUS RUFUS  
Not Recommended

This mushroom may be distinguished from LACTARIUS DELICIOSUS by its reddish-brown cap (which is without bands of color), by its point-ed cap when young, and by its white unchanging latex which has a peppery burning taste. It occurs on the ground in coniferous woods and bogs at the same time of the year as LACTARIUS DELICIOSUS.

GENUS RUSSULA

The Russulas comprise one of our most brightly colored groups of mushrooms, occurring in shades of yellow, red, green, purple and brown, though sometimes the colors fade with age or in wet weather. Many species are abundant in Alaska. They have a characteristic appearance which is difficult to describe but when once learned, makes most of them easy to recognize. They most closely resemble the “milk” mushrooms (LACTARIUS), but can be easily separated by the absence of milky juice (latex). Generally, Russulas which taste mild when fresh are considered to be edible though many are of inferior quality.

The main identifying features of the genus RUSSULA are:

1. White to deep cream colored spore print.
2. Round stem without a ring or cup at the base.
4. Width of the cap is usually equal to, or greater than, the length of the stem.

Here is a description of the most common poisonous RUSSULA in Alaska.

RUSSULA EMETICA  
"The Emetic Russula"  
Poisonous  
(See Plate, Page 16)

CAP: 2½ to 4½ inches across when mature. Ball shaped at first, becoming smoothly rounded (like an inverted bowl), or slightly depressed in the center. Bright red at first, fading with age, or when rain-washed, to a pale red or pinkish. Smooth surface without warts, hairs or scales; shiny; often slimy to the touch when wet, and tacky and glossy when dry. The thin skin of the cap is easily peeled off in narrow strips. The mature cap edges are furrowed by short radiating lines.

FLESH: White tinged pinkish just under the skin of the cap, but not changing color when bruised or cut. Brittle in texture, becoming very fragile with age. Odor mild, but taste immediately very peppery, especially in young specimens. No milky fluid is exuded when broken.

GILLS: White or becoming slightly yellowed in age; moderately close together; generally broad, but very narrow where attached to the stem; brittle in texture.

STEM: Up to 3 inches long by 1 inch broad; evenly rounded or slightly larger toward the base; pure white or tinged slightly with pink or yellow. Surface dull and slightly roughened (not slimy or shining). Inside, the stem is white and stuffed with white cottony tissue when young, but may become slightly yellowed and hollow with age. Fragile in texture when mature.

SPORE PRINT: White.

HABIT, HABITAT and DISTRIBUTION: This mushroom occurs commonly on the ground, often in wet mossy areas, usually in coniferous woods. The season extends from late July through early September.

REMARKS: The color of mature caps varies because pigments in the thin cap skin are soluble in water. In rainy weather, a bright red cap may fade to nearly white.

Another RUSSULA species common to Alaska is:
RUSSULA CLAROFLAVA
Edible

This medium sized RUSSULA is characterized by its yellow cap and its flesh, gills and stem, which are white at first, slowly becoming an ashy-gray with age. They also slowly turn gray where cut or bruised. The taste is mild, and the spore print is cream colored. It occurs on the ground in mixed woods during July and August.

GENUS COPRINUS

This group of mushrooms is popularly known as “Inky Caps” because they secrete an enzyme which dissolves the gills and flesh into a black, inky fluid. This process continues after the mushrooms are picked. So, if they are collected for food, they must be cooked immediately. Most of the larger members of this genus are edible and excellent when young.

The main identifying features of the genus COPRINUS are:

1. The dark, typically black, spore print.
2. The dissolving of the maturing gills into an inky fluid.
3. The rather long barrel-shaped or egg-shaped cap.

The following is a description of a universally edible COPRINUS which is common in most areas of Alaska.

COPRINUS COMATUS
“The Shaggy Mane”
Edible
(See Plate, Page 16)

CAP: 2 to 6 inches long and 1 to 2 inches thick. Barrel-shaped at first. With age the margin may flare slightly before dissolving into a black fluid. Surface dry, whitish or pale clay-colored, soon becoming torn into rows of scattered, brown-tipped scales which may curl up at the ends to give the cap a shaggy appearance. The top of the cap usually remains smooth and somewhat darker brown in color. With age the cap dissolves into a black fluid starting from the bottom.
Plate 3.
RUSSULA EMETICA "The Emetic Russula"

Plate 4.
COPRINUS COMATUS "The Shaggy Mane"

Plate 5.
LECCINUM (BOLETUS) TESTACEOSCABRUM "Orange Bolete"

Plate 6.
MORCHELLA ANGUSTICEPS "The Conic Morel"
LYCOPERDON PERLATUM
“Gemmed Puffball”

**FLESH:** Very thin, soft. White when young, becoming flushed with pink, then blackish and dissolving into inky fluid from the bottom upward. Odor and taste are not distinctive.

**GILLS:** White at first, becoming pinkish, then black and dissolving into black fluid from the bottom upward. Long, broad and crowded. At the top of the cap there is an open space between the gills and the stem. The gills not attached to the stem.

**STEM:** 3 to 8 inches long by $\frac{1}{2}$ to 1 inch broad, with the base often slightly swollen, but without a cup, then narrowed at the very bottom to an underground point. There is a narrow, white, collar-like movable ring on the stem which often becomes torn away. The outer surface is dry and whitish. The interior is white, hollow, and has a slender white cord hanging down the central core.

**SPORE PRINT:** Black.

**HABIT, HABITAT and DISTRIBUTION:** Grows singly or in groups in hard-packed ground or gravel along roadides, in rich pastures, lawns, gardens, or in waste dumping grounds. It is most common in late summer and fall during the rainy season.

**REMARKS:** Use only fresh, young specimens for food. Cut away any parts which may have begun to blacken, and cook immediately.

Perhaps an even more common species of COPRINUS in Alaska is the original “Inky Cap.”

COPRINUS ATRAMENTARIUS
“The Inky Cap”

Edible, with Reservations

True to its name, this mushroom dissolves into an inky black fluid when it is mature, and must be cooked very soon after collecting. It can be distinguished from the “Shaggy Mane” (COPRINUS COMATUS) by its smooth silver-gray to smoke-brown egg-shaped cap which becomes somewhat
bell-shaped before dissolving into inky fluid. The cap is glossy or slightly powdered and dull, often marked by long furrows or striations. The stem has no ring, but there is an irregular zone or border which separates the slightly scaly, dark bottom part from the silky, white upper part. When mature this zone may be very low, nearly at ground level. There is no cord hanging in the hollow core of the stem.

This species has much the same habit and habitat as the “Shaggy Mane” but usually grows in more dense clusters. It is reported to be excellent in flavor, but it has caused poisoning when consumed with alcoholic beverages. A safe rule is not to drink alcoholic beverages two or three days before or after eating this mushroom.

**Family Boletaceae**

**Fleshy, Pore Mushrooms**

This family consists of large, fleshy, readily decaying mushrooms which have a cap and a stem. They resemble the gill mushrooms in shape but examination of the under surface of the cap will show a multitude of tiny holes (pores) instead of gills. These are the ends of vertical tubes, arranged side by side, and are called tube mouths or pores. The spores are produced inside the tubes. The spore prints of the different species vary somewhat in color, but this is of secondary importance in identifying mushrooms in this family. The method of making a spore print is the same as for gill mushrooms.

The stems of some species may have a ring (annulus), but there is never a cup (volva) at the base. The flesh may change color when cut or bruised but never exudes any milky fluid (latex).

**GENUS BOLETUS**

Many BOLETUS species are edible and have been prized as delicacies since very early times. In most literature, the few poisonous mushrooms in this genus are characterized by having a red pore surface or flesh which changes to blue upon being cut or bruised. Young button stages of BOLETUS are the most desirable for food. Older specimens tend to become soft and punky and are often worm-riddled. The tube layer should be removed before cooking as it has a rather gelatinous consistency and is apt to become slimy.

All species of BOLETUS are characterized by the ease with which the tubes can be separated from the cap and from each other.

Other identifying features are:

1. Surface characters of the stem.
2. Surface characters and color of the cap.
3. Color and color changes of tubes and tube mouths (pores).
4. Color of flesh, and whether or not it changes in color when cut.
5. Taste of raw flesh of young specimens.
LECCINUM (Boletus) TESTACEO-SCABRUM
   "Orange Bolete"
   Edible
   (See Plate, Page 17)

   CAP: 4 to 8 inches in diameter when mature. Nearly ball-shaped with the cap edges pressed tightly to the stem when young, but soon expanding to form a broadly rounded cap. The color is somewhat variable but is always some shade of orange, from deep orange to tannish-orange. The cap surface is dull and may look slightly velvety but never with any distinct hairs; it may feel slightly slimy in wet weather but is usually sticky or dry and may even be cracked in prolonged dry weather.

   FLESH: Thick; firm in young specimens becoming very spongy and soggy at maturity. White turning pinkish-lavender, then slaty-gray and finally nearly black when cut. Odor and taste are mild.

   TUBES: Whitish and very short in young specimens becoming dirty tannish, long, thin and soft when mature. The tubes are easily detached from the cap flesh and from each other. Tube mouths are small, round, whitish at first, becoming dirty brownish, often with an olive tint with age.

   STEM: 5 to 7 inches long when mature. Short and stout in young specimens becoming longer with age, the base remaining broad and narrowing upward. Brown or blackish in young specimens due to a dull covering of tiny close scales. As the stem elongates, they become separated into dark-tipped rough scales against the light background. When mature the stem appears as if a whitish cottony surface had been quickly scorched. The stem has no ring or cup at the base. The interior of the stem is whitish, changing color like the cap flesh; firm and solid in young specimens becoming soft and fibrous with age.

   SPORE PRINT: Dull brown with an olive cast.

   HABIT, HABITAT and DISTRIBUTION: Scattered or in groups in birch woods and along cut banks. It occurs abundantly during July and August over most of Alaska.

   REMARKS: The flesh of the "Orange Bolete," blackens in cooking and may not look too appetizing, but this does not affect its edibility. The flavor is very mild.

LECCINUM (Boletus) AURANTIACUM
   Edible

Another "Orange Bolete" almost indistinguishable from the preceding except that the stem is white when very young but becomes roughened with dark-tipped scales in age. It is common under aspen and cottonwood trees in July and August and is also edible.

LECCINUM (Boletus) SCABRUM
   Edible

This "Brown Bolete" is closely related to the "Orange Boletes," and may be mistaken for them, but all three species are edible. The "Brown Bolete" differs in its gray-brown to dark-brown cap, its whitish flesh which does not change color when cut or cooked, and its slightly smaller stature. It occurs in mixed woods during July and August.

Family Helvellaceae
   "The Morels"

These mushrooms have neither gills nor tubes under the cap. The stem does not have a ring or cup. The spores are produced on the outer surface of the cap in microscopic sacs called asci. The two main genera in this family, MORCHELLA and HELVELLA, are separated by the surface characters of the cap. The MORCHELLA is pitted, while the HELVELLA is wrinkled and brain-like. Most mushrooms in this family are fairly large. Some warrant special consideration because of their fine flavor but others should be avoided.
GENUS MORCHELLA

"True Morels"

All mushrooms in this genus are edible and superior. They generally resemble pitted sponges mounted on hollow stems. They are often called "sponge mushrooms," but the most widely accepted name is "True Morels." They are one of the first large, fleshy mushrooms to appear in the spring, and although their season is short, they usually grow abundantly enough to permit collecting and storing for future use. In Europe they are often dried by stringing and hanging in festoons in a warm dry place, the same way as apples or onions.

MORCHELLA ANGUSTICEPS

"The Conic Morel"

Edible

(See Plate, Page 17)

CAP: Cone shaped; about 2 to 4 inches tall by ¾ to 2 inches broad at the bottom tapering upward and somewhat pointed at the top. Hollow and smoky-brown. The cap appears to be an extension of the stem because the lower edges of the cap are attached, but the two parts differ in color and the cap is usually broader than the stem. The surface is marked by irregular pits or depressions which are separated by blackish ribs. The main ribs run up and down with some shorter cross ribs. Sometimes the ribs of young mushrooms have an almost velvety appearance, but this soon disappears, and the whole mushroom darkens with age. The main distinguishing features of this species of MORCHELLA are the long, blackish ribs and pointed cap.

FLESH: Watery, translucent to nearly white, thin and brittle, without special odor or taste. Flesh does not change color or exude latex when cut.

STEM: About 1 to 2 inches long, ¾ to 1½ inches thick. Hollow and joined to the cap. The outer surface is creamy-white with a granular or mealy appearance. There is no ring or cup at the base.

SPORRE PRINT: Not important for identification.

HABIT, HABITAT and DISTRIBUTION: Grows singly or in clusters in mixed woods during May and June and sometimes into early July. It is most abundant in moist places, along stream banks, among fallen leaves in open areas, at the edge of woods, and in burned-over areas.

REMARKS: The youngest mushrooms are the most mildly flavored. Those which are blackened and wrinkled are too old and strong to use for food.

MORCHELLA ESCULENZA

Edible

This species resembles the "Conic Morel" but is generally larger in size. The cap tends to be oval or rounded rather than conically pointed, and the cap is of yellow-brown shades. The cap is pitted but the depressions are irregularly arranged, and the separating ribs do not form any special pattern or darken as does the "Conic Morel." The whole mushroom tends to become more pale with age. It is found in mixed woods, but shows a preference for cottonwood trees. It occurs in the spring months, but generally a little later than the "Conic Morel."

The following two species belong to the same family (HELVELLACEAE) as the "True Morels," but the attachment of the cap in VERPA and the surface characters of the cap in HELVELLA causes them to be placed in different genera. Both are sometimes referred to as "False Morels."
VERPA BOHEMICA
Edible with Caution

This mushroom is listed in older literature as MORCHELLA BISPORA. Though somewhat like the “True Morels” in general appearance, the cap surface is composed of long irregular ridges without the pits and definite ribs that characterize the “True Morels.” The main distinctive feature is that the cap and stem are not united except at the very top. The cap sides hang free like a skirt. The cap varies from gray-brown to yellow-brown; the stem is whitish or buff and may show some orange. Older specimens may seem to be all stem and very little cap. This species occurs in the spring, before the “True Morels,” in rich, wet soil along stream edges and in rich leaf mold where water has been standing.

People who consume large quantities of this mushroom may suffer some lack of muscular coordination. Individuals may vary in their reaction, so treat it with caution.

HELVELLA ESCULENTA
(Gyromitra esculenta)
“False Morel”
Not Recommended

This species is distinguished from the “True Morel” by the cap which is irregular in shape, with the surface wrinkled or in brain-like folds rather than pitted like a sponge. The cap is at least partially attached to the stem—often at several points, and varies from red-brown to yellow-brown. The stem is hollow and creamy-white.

The “False Morel” fruits in the spring at the same time as the “True Morel.” Though it may be found in mixed woods, it is most abundant in cut-over conifer areas.

Some people eat these “False Morels” with no ill effects, but fatal poisonings have been reported from its use, so it is important to learn to recognize these mushrooms and avoid them.

Family Lycoperdaceae
“Stomach Fungi”

Spores of this family are produced and mature inside of the fruiting body, and are therefore referred to as “stomach fungi.” The spores are released by means of a small, circular opening at the top of the mushroom, or by the rupturing of the wall. This family does not have true caps or stems although some may be elongated, and then appear to have a stem-like base. This family includes those mushrooms commonly called “Puffballs.”

GENUS LYCOPERDON
“Puffballs”

Mushrooms in this genus are globular or pear-shaped fleshy balls, of various sizes and dimensions, which mature into spore filled sacs. The spores are released through a round opening which forms at the top of the ball at maturity. Size, color and surface features are also important characteristics.

LYCOPERDON PERLATUM
“The Gemmed Puffball”
Edible
(See Plate, Page 18)

Fruiting bodies vary somewhat in size and shape, but are generally about the size of a golf ball (1 to 2 inches broad). They are round to pear-shaped, often with a stem-like base which is attached to the soil or wood with one or more white, string-like roots. When young and fresh, the surface is whitish, dry, and covered with wart-like spines which are easily rubbed off leaving a shallow network of scars. At maturity a small round mouth is formed at the top of the ball, and it is through this opening that the mature spores are “puffed.”

The inside is white and firm with no special odor or taste when young, soon turning yellowish and watery-soggy. At maturity, the inside is dark olive brown, dry and powdery.
**SPORE:** Deep olive brown when mature. (A spore print need not be made from puffballs. The spore color is easily seen when the interior of the ball is dry and powdery.)

**HABIT, HABITAT and DISTRIBUTION:** Usually found in dense clusters on or around decaying wood in mixed woods and open places. It fruits from late spring until frost over most of Alaska.

**REMARKS:** Puffballs should be used for food only when the inside is pure white and firm. If any degree of yellow is present, the puffball should be discarded. This species often fruits in the same place year after year and can usually be gathered in abundance.

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**CALVATIA GIGANTEA**

*"The Giant Puffball"

**Edible**

CALVATIA is another genus of "puffballs" closely related to Lycoperdon. The main characteristic which distinguishes the two is that Calvatia has no regular round opening at the top at maturity. Spores are released by irregular ruptures near the top of the ball.

The "Giant Puffball" has been much fabled in literature. Some monstrous specimens up to five feet in diameter have been reported, but generally these mushrooms range in size from the dimensions of a baseball to that of a basketball. They are usually nearly round without a base or stem, although they are attached to the ground by a strong, whitish cord-like root. The surface of the young puffball is white, dry and smooth, with the feel and appearance of chamois. With maturity the surface becomes brownish and breaks up into geometric patterns or scales. The spores are released through the irregular ruptures which occur near the top of the ball.

The ball is pure white and firm inside when young. As the spores mature it becomes yellow and soggy. At maturity the inside is dark, olive brown and powdery. One puffball of this giant species often serves as a meal for a whole family, but should be used for food only when firm and pure white on the inside.

It grows in pastures or in light deciduous woods from late July to early September.

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**OTHER EDIBLE MUSHROOMS KNOWN TO OCCUR COMMONLY IN ALASKA**

- Agaricus arvensis
- Agaricus haemorrhoidarius
- Amanitopsis vaginata
- Armillaria mellea
- Boletus edulis
- Boletus subtomentosus
- Caloporus ovinus
- Clitopilus prunulus
- Collybia dryophila
- Collybia velutipes
- Helvella gigas
- Hericium lacinatum
- Hydnum repandum
- Hydnum imbricatium
- Hygrophorus chrysodon
- Laccaria laccata
- Mycena pura
- Naematoloma capnoides
- Pholiota mutabilis
- Pholiota squarrosa
- Pleurotus ostreatus
- Pleurotus porrigens
- Pleurotus serotinus
- Pluteus cervinus
- Polyporus sulphureus
- Rozites caperata
- Russula delicata
- Tricholoma equestre
- Tricholoma personatum

For information and description of the above species, refer to the books listed on page 32.
GLOSSARY

ANNULUS. The ring or skirt-like tissue left on the stem when the partial veil breaks.

BULB OR BULBOUS. (of the stem) Swollen or enlarged at the base.

CAP. See pileus.

CLUSTERS. Several to many individuals growing tightly together.

CONIC. Shaped like a cone.

CROWDED. (of gills) Very close together.

CUP. See Volva.

DEPRESSED. (of cap) With central part sunken below the margin.

EMETIC. Any material that will cause vomiting.

FLESH. The meaty inner portion of cap or stem.

FREE. (of gills) Not attached to the stem.


GENUS. (plural: genera) A group of species that possess common characteristics.

GILLS. Radiating blades of tissue underneath the cap of certain mushrooms.

GLOBULAR. Shaped like a globe or ball.

MARGIN. (of cap) Outer edge.

MEMBRANOUS. Like a thin skin.

MUSHROOM. Commonly referring to any of the larger, fleshy fungi.

MYCOLOGY. The study of fungi.

PARTIAL VEIL. A veil which extends from the margin of the cap to the stem and at first covers the gills.

PEPPERY. (of taste) Hot and burning like pepper.

PILEUS. The cap-like or enlarged upper portion of a mushroom.

POISONOUS. Not considered fit for food. Not necessarily violent or fatal.

PORES. The openings at the lower ends of the tubes (as in BOLETUS), seen on the under surface of the cap.

RING. See annulus.

SPECIES. A group of individuals classified below the genus level.

SPORES. The reproductive bodies of fungi; and some other lower plants.

SPORE PRINT: Made to determine color of the spores of some mushrooms. See instructions on page 6.

STIPE. Technical term for the stem of a mushroom.

TUBES. The cylindrical spore bearing structures under the cap of some mushrooms. (See BOLETUS).

UNIVERSAL VEIL. The outer veil which completely envelops the young mushroom in some genera. (See AMANITA).

VEIL. See universal and partial veil.

VOLVA. The remains of a universal veil left as a cup or fragments at the base of the stem (see AMANITA). Popularly called “poison cup” or “death cup.”

WARTS. Pieces of the universal veil found on the cap of some mushrooms. (See AMANITA).
RECOMMENDED REFERENCES


