SIX

Types of Opals

There is some easily understandable confusion in nomenclature on the part of the public in respect to what constitutes a "type" of opal. The reason for such confusion is that there are a number of adjuncts to the meaning of "type." There are, for example, types involving color (black opal, light opal, gray opal, etc.), types involving pattern (harlequin opal, broadflash opal, pinfire opal, etc.), types involving value (black opal, light opal, harlequin opal, etc.), types involving location (Lightning Ridge opal, Virgin Valley opal, Mexican opal, Hungarian opal), types involving formation (boulder opal, nobby opal, nut opal, sandstone opal, seam opal, pipe opal, matrix opal, etc.), types involving clarity (transparent opal, translucent opal, opaque opal, etc.), types involving genesis (volcanic opal, sedimentary opal, vegetable opal), types involving cuts (baroque, calibrated, freeform, etc.), and the list goes on and on with more categories and subcategories.

Indicative of the whole problem of what it is we're really talking about in regard to types of opal is the fact that even while basically, there are only two real types of opal—precious opal and common opal—precious opal itself (the opal that is so valuable as a gemstone) is very often erroneously referred to by people as fire opal. Yet true fire opal does not even have play of color (POC), or, if it does, then it must properly be called *precious* fire opal. Then there are many types of precious opal and, equally, many types of common opal. But there are two *fundamental* types of precious opal, which deal with its genesis—volcanic opal and sedimentary opal—and those headings are themselves further broken down into different types, as are other categories of opals.

Because of these ambiguities, the considerable overlapping of terms, and the confusion that occurs as a result, it is important to know what the various types of opals are and the accurate meanings of the terms insofar as it is possible to establish them. With that in mind, and in the full knowledge that there will be some overlapping, following are different types of opals.[1]

abanderos opal Also called *abanderado*. From the Spanish word *bandera,* meaning flag or banner and referring to the Mexican flag opal, which exhibits its POC of red, blue, and yellow in bands, streaks, or stripes, like a flag.

agate opal (1) A form of common opal that is banded like agate; (2) a form of agate that has bands of opal.

agaty potch A blue-gray variety of potch (common opal) that is colored in parallel bands similar to a particular species of blue-gray banded agate.

alluvial opal Also called floaters or *wasch* opal, these are pieces of relatively fair-quality precious opal that are found lying loose on the ground surface on slopes and in dry water courses where they have weathered down from the outcropping stratum in which they originally occurred and have frequently led to the discovery of hitherto undiscovered precious opal deposits.

amatite opal A variety of siliceous sinter or perlite.

amber opal A transparent to translucent common opal in which the body color of the stone is generally amber, ranging from brownish to golden.

amber potch Australian designation for a yellow to yellowish-brown variety of potch (common opal) more properly designated as Mexican fire opal.

amygdaloidal opal Alternative name for volcanic opal.

angel stone An Australian designation having two different meanings: (1) a form of hard, white, baked clay in which expansion lines have manifested themselves in a haphazard network of cracks that have become filled with precious opal that can be polished as solids or formed into doublets or triplets; (2) synonymous with the so-called steel band that overlies the opal level, which may reach a foot in thickness but is commonly thinner; the name angel stone was first used at White Cliffs, where miners felt the layer of very hard, usually pure white stone overlying the opal level was protecting it, as might a guardian angel garbed in white (although the steel band at Lightning Ridge is normally a dark gray); in some cases precious opal forms in angel stone, in cracks of the coarse, gritty sandstone that comprises the steel band, or even suffuses itself within that sandstone layer, imparting a vague blush of opal POC.

arananjado opal Spanish for orange, this is Mexican opal with base coloration of orange and ranging from transparent to slightly translucent and, unlike the amber opal variety of Mexican fire opal, exhibits POC in bright displays of red and blue and, to a lesser degree, green and yellow; it is properly called precious Mexican fire opal.

assembled opal Precious opal that has been glued together, either with common opal or another material. [See also doublet and triplet.]

azule opal or azules A Spanish term meaning "blue stones" and used to describe the transparent blue phase of the precious Mexican fire opals that exhibit an azure blue opalescent base coloration and show remarkably vivid flashes of bright hot red and intense cool green; the manner in which the POC moves through the transparent body is not seen in any other type of opal; some refer to azules as girasol opals, although girasol is more frequently used in association with the yellowish-orange to red variety of precious Mexican fire opal.

banded opal (1) a form of common opal ranging from white to gray in its base coloration, which is banded (or sometimes mottled) in black, gray, cream, pink, or peach; this material is apparently found only in an area running adjacent to the east shore of the Imperial Reservoir of the Colorado River in Yuma County, Arizona; (2) a brownish to red-orangish banded common opal, sometimes referred to as onyx opal, that is usually found in seams (although sometimes in ill-defined masses) in deposits of hard, dense porphyry indigenous to Latah, Lemhi, and Owyhee counties in Idaho.

bandfire opal A precious opal named after its POC pattern of colors, which appear in wavering, parallel bands, the colors changing from one to another swiftly as the stone is turned; similar to banner opal or flag opal, but not as predictably patterned.

bar opal A precious opal in which the POC consists of a thin bar of color running through common opal (potch).

baroque opal An opal cut to follow the natural contours of the stone to minimize loss of precious opal; also called a freeform or freeshape opal.

black crystal opal In general terms, a transparent to semitransparent black opal that exhibits exceptionally good POC; under the Lightning Ridge Miners Association Tone Scale, it is defined as a solid opal that is translucent to transparent with POC when viewed from the top and is graded as at least a Number 3 Black.

black jelly opal A transparent black opal that exhibits a reasonably good POC; the term often applied to some forms of Virgin Valley black opal.

black opal Also called dark opal; generally defined, the black opal is any transparent, translucent (Color Plate 13), or opaque precious opal whose base color ranges anywhere from jet black through dark blue, dark brown, and dark green to medium dark gray, with the POC occurring against or within the dark base color; in the black opal type occurring at Lightning Ridge the precious opal often occurs in a light crystal opal color band or bar upon a dark gray or (ideally) black potch background, which imparts a dark appearance to the light opal, and even high-quality black opals may have only a very thin color bar occurring naturally on black potch; under the guidelines of the Lightning Ridge Miners Association Tone Scale, a black opal is defined as one that is opaque, with an appropriately dark gray to blue-black to black general background coloration, and that, when viewed from the top has a POC graded at least as Number 3 Black; in the case of Virgin Valley black opals, however, the black coloration is an integral part of the transparent or translucent body of the opal; Lightning Ridge black opal most often forms in a nodule called a nobby, in which the POC can manifest itself in a wide variety of patterns and scintillating colors that are greatly enhanced by the dark or black background; the black jelly opal and the crystal black opals are considered by many to be the most beautiful, since the transparency allows the subsurface colors to become visible; where the jelly black opals are concerned, many are called sunflash opals because of their ability, under strong light, to intensify color emanating from deep within the stone; black opal is also sometimes called night stone, because high-quality black opal does not require direct sunlight or strong artificial light to show good POC, since a truly good black opal should literally sparkle with POC even in the light of only a single candle in a darkened room; lower-quality black opals generally have electric blue POC, while finer grades may be green or orange, and the best are the intense reds on black.

black potch A common black opal, which, when it forms a natural background for a precious opal color bar or band, is ideal, the potch itself having a certain value as a backing material for mounting thin slices of fragile precious opal into doublets or triplets; the black potch is believed to be stained by ferrous sulfides in the muds that originally formed the opal dirt; often found in the form of nobbies at Lightning Ridge.

blackmorite A name once seriously considered for a variety of orange translucent common opal that occurs near the summit of Mount Blackmore in Gallatin County, Montana; a name never officially adopted.

block opal A variety of precious opal named after its pattern of POC that is exhibited in large, blocky, usually irregular sections of color.

blue opal In precious opal it has a sky-blue to powder-blue base coloration, with POC normally of multicolored scattered pinfire; in common opal it is generally opaque to vaguely translucent and is usually of a medium blue hue, although one quite attractive darker blue variety has been described.

boulder black opal A natural Queensland boulder opal that, when cut, faces as a black opal as defined by the Lightning Ridge Miners Association Tone Scale (Color Plate 14).

boulder brown opal A natural Queensland boulder opal with crystal or semicrystal opal on brown ironstone background.

boulder matrix opal Another name for Queensland boulder opal, but also technically considered to be a combination of opal and ironstone, where the opal is mixed through the ironstone rather than merely appearing in seams or as coatings.

boulder opal (1) A nodule or concretion of ironstone or sandstone matrix shot through with thin veins of common or precious opal, which itself is often colorless; the concretions vary from horizontally occurring bands to boulders ranging from round to elongated ellipsoids and, with few exceptions, are found in well-defined levels within sandstone strata and have a matrix color that can range from a deep dark chocolate brown, when heavy with iron oxide, to relatively free from the iron oxide staining and, in such case, merely sandy colored and called boulder white opal; the matrix may sometimes have pockets that are filled with opal, either precious or common; the opal veining, which can be black or light, is often very thin but often with uncommonly beautiful POC and quite valuable; in those specimens referred to as solid boulder opals, the top surface is almost entirely covered with precious opal; the most valuable boulder opals are those with a dark body color and broadly exposed precious opal with a regular surface, its brilliance being the most important factor, with lower qualities mainly blue, higher qualities having green, orange, or red hues; true boulder opal occurs only in Queensland, Australia; (2) a cut opal that incorporates both ironstone matrix and precious opal. [See also boulder matrix opal, fun stone opal, and Yowah nut.]

boulder white opal A natural Queensland boulder opal with its precious opal occurring as veining or coating in a light-colored ironstone (or sometimes sandstone) background.

Brazilian opal A precious opal, usually having a pure white to cream body color but sometimes jelly or crystal opal, and normally having a pinfire pattern of POC; and a stone that, of course, originates in Brazil (Figure 30).

broadflash opal An opal named after its pattern of broadly flashing POC, which, in some cases, may even cover the entire surface of the stone, in which case it is sometimes referred to as sheen; a pattern of opal in which red is always highly desired and even more rare and valuable are purple or violet, colors that may flash across the surface of the stone in broad, parallel bands or streaks, almost as if they are flames; sometimes a stone showing bright red is referred to as a fire opal, but this is erroneous and confusing, as the true fire opal is Mexican and does not show fire in its orange transparency unless termed precious Mexican fire opal; broadflash opal is sometimes called broad flashfire opal.

brown-and-gray opal another designation for the common opal usually referred to as liver opal [q.v.]

brown crystal opal A precious opal that has a transparent brown base color.

cachalong opal Sometimes spelled cacholong; a variety of very porous common opal, which, when dry, has an opaque base color ranging from dull, pure milk white (usually) to faintly discolored and opaque blue-white, sometimes even creamy, yellowish, or reddish, and the outer texture of which may be distinctly chalky, but which becomes translucent to transparent when immersed in water, because the water quickly fills the pores of the stone, making it possible for light to pass through with less interference; cachalong is often confused with hydrophane, but there is a very important difference: as with hydrophane it is a thirsty opal—a water-hungry stone so absorbent of water that it will adhere to the tip of one's tongue; however—and this is the big difference—where hydrophane clearly exhibits POC when wet,

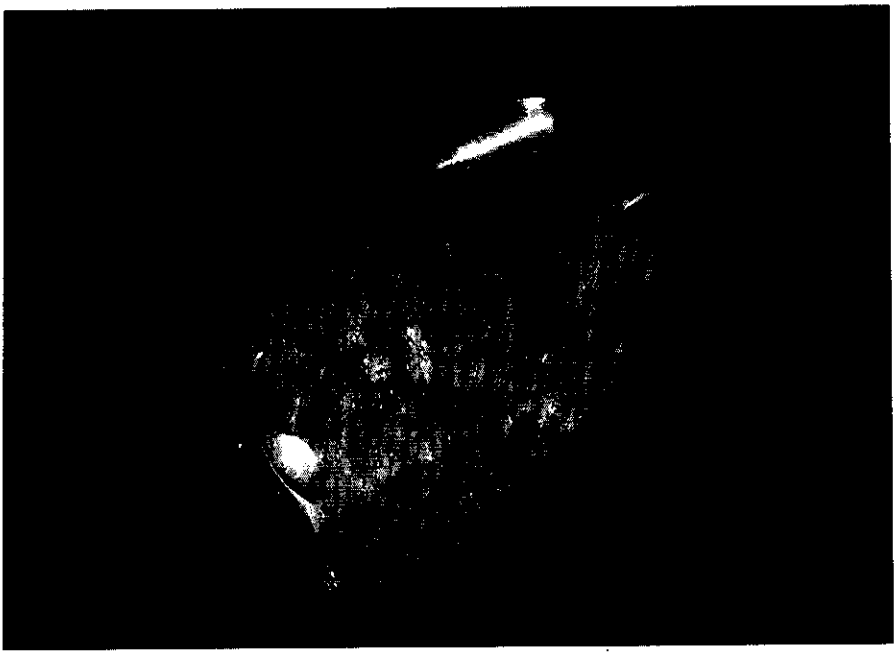

Figure 30. A 168-carat Brazilian jelly opal with columnar fire and broadflash red POC, cut by the author. (Photo by the author)

cachalong does not (some authorities have suggested that cachalong does, on occasion, exhibit color when immersed, but that is not true, for, if such were the case, it would then actually be hydrophane opal); because of this remarkable ability to change, cachalong and hydrophane alike were once believed to have magical powers, so it was commonly called the Magic Stone; cachalong was so named because it was found among the pebbles along the Cach River in Bucharia on the Caspian Sea—the name cachalong meaning "beautiful stone" and possibly derived, as well, from the Tartar *kaschts-chilon;* these stones were sometimes banded in agatelike layers and so have also been called kalmuk-agate or kalmuk-opal; when they have a gray, mother-of-pearl luster, they are termed by the Germans as being perlmutter opal, which is held in value as a material that lends itself well to the carving of cameos.

calibrated opal An opal that has been cut to a standard dimension so as to be set in standardized mountings, for example a 10 × 14-mm oval; compare with freesize or freeform opal.

candlebox opal A pejorative term for precious opal of a quality so low that in the early days of Australian opal mining it was initially stored in old wooden candleboxes and in that manner kept out of the marketplace, so it would not have a deleterious effect on the world opal market values; later, however, as the supply of quality opal diminished, this material was sold to western Germany's mass-production cutters at Idar-Oberstein, where it brought a decent price and was soon appearing in jewelry stores around the world.

celestial opal Oriental name for moonstone; see also Ceylonese opal.

ceraunium opal An ancient Latin designation meaning "thunderstone," which was applied to opal that was believed by some to fall from the sky during thunderstorms, with the lightning preserved within in the stone, a belief shared by the Bedouins of the Sahara; present use of the word refers to meteorites.

Ceylonese opal Not an opal at all, but an Oriental name for moonstone; also called celestial opal.

chaff opal An opal named after its pattern of POC, in which small blocks of color—most commonly yellow—give an appearance of scattered straw chaff.

chamälconstein opal See hydrophane opal.

cherry opal One form of the Mexican fire opal—a transparent red-orange to bright red opal, that lacks POC; most often found in Mexico but also occasionally found in Honduras and in certain southwestern United States locations; named after the body color of the stone; if POC occurs, the stone should be called precious cherry opal.

Chinese opal A name that has been used indiscriminately in the past to mean tabasheer (vegetable opal), white chalcedony, and moonstone.

Chinese writing opal An opal named after its pattern of POC, which is often green against black and in which the green POC appears to take on the distinctive configuration of Chinese characters.

chloropal A common opal similar to prase opal but with a body color that is lighter green than that of prase opal.

chrysopal A common opal basically similar to prase opal and chloropal, but with a golden-green body color.

claro opal A shortening of the Spanish *claro-o-translucente* as a designation for the Mexican opal that is exceptionally clear to slightly translucent, sometimes with pale body color (though most often colorless or vaguely misty white) and that exhibits its POC in an array of fiery red, sparkling green, intense blue, and vibrant yellow.

claro-o-translucente See claro opal.

cloudy opal A type of opal seemingly unique to the Spencer Opal Mine in Idaho, in which the transparent water-clear faintly bluish opal base color shows varying amounts of a white mistiness, giving a remarkable effect of clouds.

columnar fire opal An opal named after its patter of POC, which appears as needles of fire when the normal pinfire pattern of POC is viewed from the side rather than straight on; some stones are cut to specifically show this pattern rather than the pinfire.

common opal Also known as potch; any of a variety of opal types, forms, patterns, and colors that do not exhibit any POC, even though some may show a general or partial opalescence; included among common opals are cachalong, hyalite (Müllers glass), resin opal, wax opal and numerous others.

confetti opal An opal named after its POC pattern, which appears as colorful bits of confetti afloat in a transparent sea; this exciting, breathtaking pattern is quite rare and usually occurs in only a small portion of the gem-quality seam opal mined in Honduras.

conk opal A very stable type of wood opal sometimes found at Virgin Valley, Nevada, in which the interior of the wood cells were originally eaten away by disease and eventually refilled with opal that may or may not be precious; it is also called white speck opal because it tends sometimes to show small white specks on the surface of the rough material (Color Plate 15).

contra luz opal A type of precious opal that differs from the usual precious opal in that the POC is not visible in reflected light (usually), but becomes visible when viewed in transmitted

light; i.e., the light source behind the opal instead of behind the viewer; there are exceptions, however, where some opal will show both normal POC and contra luz; ***contra luz*** is Spanish for "against the light" and, while the base color may be almost anything, it appears most often to occur in translucent white, transparent clear, transparent orange, or a transparent deep root beer brown; contra luz is also known in some quarters as iris opal, although this is usually confused with iris quartz or iris agate; the POC exhibited is usually of pinfire pattern, although in some cases harlequin, broadflash, and other patterns are noted (Color Plate 16).

Coober Pedy opal A characteristically light opal with excellent POC and usually splendid stability, which originates from the various opal fields in the area of Coober Pedy, South Australia.

corencite opal A type of gold-green common opal similar to chloropal.

crystal opal Term used when an opal is transparent or very translucent and the clarity of color is sharp; actual hue has little to do with the terminology, since crystal opal can be clear, red, orange, black, etc.; the term crystal opal applies when the diffracted colors are visible both on the surface of the stone and from within the stone (Figure 31); a crystal opal can be a transpar-

Figure 31. This magnificent 52-carat freeform black opal—the *Desert Hope Flame*—was cut by Kevin Lane Smith of Tucson, Arizona. It is 1.83" [47 mm] high and 1.09" [28mm] wide. The stone was dug in 1992 from the opal level at the famed Bonanza Mine in Virgin Valley, Nevada, and is still in Smith's private collection. (Photo by Kevin Lane Smith)

ent to semitransparent stone, sometimes even grading into translucent, whereas a jelly opal is always transparent, although some people use the terms crystal opal and jelly opal virtually synonymously; some sources claim that crystal opal has a stronger POC than jelly opal; much confusion results from the fact that the opal that is normally termed crystal opal in Australia is normally termed jelly opal in the United States.

dark opal The terms light opal or dark opal signify, very broadly, the opal's body tonality; a dark opal is an opal that, when viewed from above, has a tonal quality (irrespective of color) that ranges from medium gray to the densest black; opals are classified into three major body-color tone types: transparent, light, and dark, and these categories, in this sense, have nothing to do with the opal's diffracted colors or its pattern; lightness or darkness in opal is caused by the degree and type of base color present in the stone, with base tones ranging from colorless and white, through the shades of gray, to black; light opal includes all those, of any color, to as dark as a medium gray tone; black opal incorporates those tones, in any color, from medium dark gray to black; dark opal can be transparent, translucent, or opaque; some opal properly termed dark actually has a light crystal color bar on dark opal potch, giving the otherwise light opal a dark appearance.

dendritic opal An opal, usually common opal and most often translucent or opaque, that can be either clear or variously colored, that displays one or more dense black spots or delicately branching stemlike inclusions (dendrites) of manganese oxide or other impurities; some dendritic opal may properly be termed moss opal, but not all; some of the dendrites may create rather spectacular scenic effects.

diatomaceous opal Also called fuller's earth, diatomaceous earth, diatom opal, diatomite, keiselguhr, tripoli, or infusorial earth; this is a mineralized white to tan to sometimes reddish siliceous powder formed of skeletal remains of minute marine plants (actually algae) called diatoms; it is very useful, in a particularly pure nature called tripoli, as an abrasive powder for metal and gemstone polishing (including opal); often mined and used in less refined form for its value as a filtration agent, as insulation, and as fertilizer.

dyed opal Opal that has been treated with chemicals (sometimes in combination with heat and/or acid) to render its body color black in order to give it an appearance similar to true black opal.

eisen opal A type of ferruginous jasp-opal.

enhydro potch A small nodule of common opal (found on rare occasions in Australian opal fields) in the center of which is a little hollow core containing a small quantity of what appears to be water but which some people claim to be silica gel not yet hardened into opal.

eye-of-the-world opal one of several superstitious designations for hydrophane opal, which is also called ***oculus mundi*** in Latin and ***weltaug*** in German. [See also cachalong opal.]

exploding flash opal An opal with a pattern of POC in which the colors appear as a broad-flash pattern in a sudden burst, as if out of nowhere, and then disappear quite as suddenly when the stone is turned.

fan harlequin opal An opal with a pattern of POC that forms in tiny adjacent colored squares that spray out across the face of the stone in a general fan shape.

fancy pattern opal Precious opal in which the POC forms patterns that are not among those most commonly seen; includes such unusual configurations in pattern as blockfire, straw, ribbon, and mackerel sky.

fanfire opal An opal pattern that sprays out from a central point in a fanlike manner. (Also called fan opal.)

fiorite opal A variety of siliceous sinter, also called geyser opal, which forms around the rims of thermal springs.

fire opal The term all too often incorrectly applied to any opal that exhibits POC, when the correct term for that is precious opal; actually, fire opal—closely associated with Mexican opal, but not exclusively such—is a type of transparent to semitransparent opal having a strong predominant base color ranging from water-clear transparency through distinct transparent bluish to transparent pale yellow through yellow-orange, light orange through yellow-orange, bright orange through red-orange to cherry-red, and from brownish-red to reddish-brown; that base color, while bright, is devoid of play of color; where POC *does* occur in such opal, however, the stone is then referred to as precious fire opal; ordinary fire opal is common to the Mexican opal mines and is also found in lesser abundance in other opal sources throughout the world, such as Australia, Nevada, California, British Columbia, Oregon, Honduras, and Guatemala; American buyers most often trade in the deeply orange or cherry red stone—the latter usually called cherry opal [q.v.]—of transparent to translucent body color and from no POC to abundant green and red fire; oddly, much of the pure orange fire opal is notably unstable and crazes within minutes of exposure to air and light; but the dark red material seems to exhibit greater stability.

flag opal see abanderos opal.

flagstone opal An opal having a pattern of POC exhibiting very distinctively defined patches of color with the appearance of flagstone paving; similar to the harlequin opal, but with the pattern not so regularly laid out.

flame opal A precious opal whose pattern of POC shows in red bands or streaks like flickering flames, especially notable when the opal is turned in the hands and much like flash opal except for the patches of fire being generally smaller.

flash opal Also called flashfire opal, this type has a POC pattern closely akin to (and sometimes synonymous with) broadflash or rolling flash, in which a large area of the opal is arranged in a brilliantly iridescent pattern that changes or "flashes" across the stone, or even abruptly disappears and reappears, as the piece is turned or moved; the flash pattern shows POC in spots of color that are larger than those appearing in pinfire and flame opal but smaller than broadflash; these colors range through the entire spectrum, from blue, which is the least valued in flash opal, through green, yellow (which is rare), and gold to red and, occasionally, to violet or purple; the flash pattern in red is considered by many to be the very finest and most attractive, and the best and most abundant stones of this type are found in Australia and Nevada.

flashfire opal See flash opal.

fossil opal This type of opal includes opalized shells, bones, and wood (or other plant matter) as well as belemnites and vertebrate animals such as tortoises and the more rare but very spectacular finds of marine dinosaur remains such as plesiosaurs.

freeform opal Also called baroque opal and freeshape opal, this is a precious opal that (usually to preserve as much value as possible) has been cut and polished in an irregular shape instead of into a calibrated opal, which may mean a cut following natural contours of the stone.

freeshape opal Another designation for freeform opal.

freesize opal Any opal that has been cut into a regular geometric shape—square, rectangle, round, triangular, and, especially, oval—but that is of a nonstandard, noncalibrated size. [Compare with calibrated opal.]

fun-stone opals This is an Australian colloquial term used to designate certain small boulder opals with abundant ironstone on the outer surface and only a small amount of precious opal visible; dubbed fun-stone opals as a result of their being used by early miners as payment to prostitutes.

gelite opal Any kind of opal (or sometimes chalcedony) that has been deposited as an accessory mineral and appears, usually, as a bonding agent in sandstone or similar material.

gem opal A term synonymous with gem-quality opal and which is most frequently applied to opal rough that can be cut into stones of gem quality.

gem-quality opal Synonymous with gem opal and signifying a precious opal that is of the highest quality—one having brilliant POC, fine body color, and an absence of imperfections.

geyser opal Also called geyserite; synonymous with siliceous sinter [q.v.].

geyserite Also called geyser opal. Synonymous with siliceous sinter [q.v].

Gilson opal A synthetic opal originally synthesized by Pierre Gilson of Paris, France, first produced in Switzerland and now produced in Japan.

girasol opal Also known as rainbow opal and hyacinth opal, this is the orangy-reddish to yellow precious fire opal, which shows its dormant colors when turned in the sunlight, or whose color appears to follow the sun as the stone is turned around; in Mexico they are called *Iluviznados;* the precious fire opal is an opal that is usually transparent to semitransparent opal and has a strong predominant base color ranging from water-clear transparency through distinct transparent bluish to bluish-white, transparent pale yellow through yellow-orange, light orange through yellow-orange, bright orange through red-orange to cherry-red, and from brownish-red to reddish-brown; the colors change as the angle of illumination changes, with red light being bent more than blue light; the base color is always bright and the stone in all cases exhibits a distinct POC, which is usually characterized by especially vivid red and green flashes; although yellow and orange flashes occur as well, they are less common; girasol means, literally, "turn-to-sun" and is used to describe a precious fire opal that shows its dormant colors when turned in the sunlight or whose color appears to follow the sun as the stone is turned around; such opals also lend themselves to being cut as faceted gemstones; almost certainly the poor reputation of girasol—the precious Mexican fire opal—results from the widespread distribution of inferior stones with little POC, or ordinary fire opal without POC, leading to an impression that precious Mexican fire opal is dull and lifeless, but that is not so; fine stones are rare and no great number are available, even on the Mexican market, but those who are familiar with the finest examples will attest they are unsurpassed in beauty and unique character. [See *azules* for the blue phase of the precious Mexican fire opal.]

glass opal See hyalite.

gold opal A decidedly gold-colored form of common opal and named after the body mass color of the stone; some gold opal will blend into an amber color.

gray opal Australian term for any opal with a base coloration varying in tonal density from light gray to medium gray, although technically it can be any precious opal with a background color varying in density from light gray to near black; the true gray opal, almost always opaque to translucent, is found on virtually all Australian opal fields, and has a grayish, sometimes smoky appearance that is easy to distinguish from all other types, as it appears to have a sort of liquid gray floating through the POC, no matter how bright; it is sometimes called semiblack opal, although the term is not all inclusive, since some semiblack opals show no trace of gray.

green opal A bright green common opal, ranging from opaque to translucent, that is said to have been colored by chromite or nickel to the point where it may well rival the superb color of top grade chrysoprase.

green-and-yellow opal A nicely colored common opal that occurs in the vicinity of Oamaru, New Zealand.

gummisteen opal See hyalite.

half-opal Alternative name, seldom used, for semi-opal.

harlequin opal An opal named after the pattern of POC that was itself named from the traditional harlequin patchwork bodysuit costume of the medieval clown or jester; it is one of the rarest and most valuable patterns of POC occurring in precious opal; a reasonably regular pattern in which clear, intense, and different individual colors are arranged in small, equally sized checkerboard squares, rectangles, diamond shapes, pentagons, or similar geometric patterns; most often the individual pieces average about a tenth of an inch square and fit together like multicolored tesserae of a mosaic and, in this respect, an opal so patterned is sometimes called mosaic opal; always a collector's piece whenever encountered. [See also fan harlequin pattern.]

heliotrope opal Another name for pyrophane; heliotrope is applied both because of its reddish-lavender to purplish color and because the word also means "turn to the sun," and when the opal is turned to the sun, the colors become most vivid; heliotrope, however, is also the name of another stone unrelated to opal—a dark green chalcedony with red spots, which is also known as bloodstone.

Honduras opal A type of volcanic precious opal that is said to have exceptional character, yet is only sporadically mined in the San Antonio Mountains of Honduras near Erandique; many of the very early Honduras opals—some of them apparently very high quality black opals—were sold on the European market but listed as Hungarian opals.

honey opal A transparent to translucent opal with a base color about the hue of honey and which may or may not exhibit POC; the opal is usually found as vein or vug material in hard, compact porphyry.

huevos opal Spanish for "egg opal" and used to designate an unusual nodule of rough opal (or a faceted or otherwise polished opal) in which the center is cloudy or hollow, an aspect taken advantage of in the cutting to create interesting or striking effects.

hummingbird stone Aztec term for opal, which appeared as *vitzitziltecpatl* in the Aztec tongue, the stone named by them after the similarly brilliant iridescence of the hummingbird's plumage.

Hungarian opal Any precious opal having been mined in the area of the present Czech Republic, Slovakia, Hungary, or adjacent areas; the name is usually applied to opals mined prior to the twentieth century and perhaps as far back in antiquity as prior to the Roman Empire (Figure 32).

hyacinth opal Another name for girasol, the orangey reddish-to-yellow precious Mexican fire opal; however, the name hyacinth is used in connection with other gemstones as well, such as a variety of zircon.

hyalite opal One of the most common nonprecious opals in the world, it is also known as Müller's Glass, glass opal, or gummisteen; formerly (and normally) considered to be a transparent, water-clear opal having no POC, which usually occurs in botryoidal incrustations on older rocks or minerals and looks like drops of molten glass; now, however, also including a form of smoky opal occurring in the vicinity of Zacatecas, Mexico, which forms in the same manner as hyalite; the smokiness, however, is in clearly transparent form, since no opal with any suggestion of milkiness or translucency can properly be considered hyalite; all hyalite fluoresces a brilliant yellow-green; the best is considered to be the pale ethereal blue transparent stone that is surprisingly stable and very well suited for faceting and carving; when faceted,

Figure 32. A piece of Hungarian opal rough from the Dubnik mines in Slovakia. The matrix material is andesite. (Photo courtesy of Dr. Petr Korbel, Prague)

it reflects yellow light off the pavilion faces, even though the stone is blue; much hyalite contains zones or layers of bright orange.

hydrophane opal A type of opal that, when dry (regardless of whether polished or rough), is opaque and usually cloudy milk-white or dull-colored but that, when immersed in water, quickly lets the water soak in and fill the pores of the stone, allowing light to pass through with less interference and causing the opal to then become translucent or even as transparent as hyalite, but displaying quite brilliant POC; when dried, it returns to its dull, opaque appearance; hydrophane opal is quite similar to cachalong opal, except that cachalong, when soaked, while it becomes translucent and sometimes even transparent, does not exhibit POC; the name hydrophane derives from the Greek words for "apparent in water," and this ability to become transparent and exhibit POC gave rise to the superstition that such a stone contained a magic "hidden eye" capable of seeing everything; for this reason, it was also called ***oculus mundi,*** from the Latin for "eye of the world"; German lapidaries, who finished especially fine examples of the stone, called it ***weltaug,*** meaning "world's eye", and sold it as a potent charm to buyers in the East Indies; it has also been referred to in past times as ***lapis mutabilis*** and ***chamälconstein*** and in some superstitious circles it is still referred to in English as Magic Stone and worn as a special magical charm; the incipient transparency can be induced for more extended periods through immersion in thin oil, but there is a risk that the oil will accumulate in the pores after a time and darken or yellow it, diminishing or even ruining its POC; another method of inducing the transparency is to soak the stone in hot clear wax; when cooled and dried in the

air, a stone so treated will be opaque, but will begin to show some degree of transparency when warmed up; hydrophane has also erroneously been called pyrophane; some of the clear hydrophane is unstable when wet, but becomes stable when it dries out; conversely, some dry, usually white, hydrophane may crack if suddenly immersed in water.

Icelandic opal A nonprecious porous opal that is a form of siliceous sinter (geyser opal) that is deposited in layers around hot springs; it is also incorrectly called Icelandic agate or layered obsidian.

imitation opal A manufactured imitation of opal, usually of plastic, glass, or resin; not the same as synthetic opal; synonymous with simulated opal.

indivisible quartz A former terminology for opal, not quartz; the "indivisible" refers to the opal being amorphous rather than crystalline and having no cleavage planes.

infusorial opal See diatomaceous opal.

iridot A name first applied about 1880 as a euphemism to precious opal, when the name opal bore connotations about bad luck; the term iridot lasted for only a little over a decade, by which time opal had regained acceptance and respectability.

iris opal see contra luz.

isopyre Some of the older mineral books refer to a mineral called isopyre, first described from a quarry near Dover in Morris County, New Jersey; a dense dark material, sometimes red-spotted, so dark green as to almost be mistaken for black; it was occasionally cut into cabochons, but after many years of designation as a mineral in its own right, closer studies finally showed it to be nothing more than a very impure form of common opal.

jasp-opal A jaspery chalcedony in which the cementing material or veining is opal, not quartz; the material has also been called jasper opal and opal jasper.

jasper opal See jasp-opal.

jelly opal Precious opal that is ordinarily quite transparent, imparting a gelatinous appearance, generally water clear but often with blue iridescence throughout, or sometimes exhibiting faint base color traces and with POC ranging from light to dark green and blue and sometimes, depending on the stone's quality, exhibiting bright red; often called water opal because of its great clarity; when colored instead of water clear, the POC it exhibits almost always evinces a vague general haziness and, as such, that POC is not so concentrated or pronounced as the POC in crystal opal; to accurately be termed jelly opal, it must be either iridescent transparent blue or exhibit POC to some degree, or both; the term jelly opal is often incorrectly applied to any transparent stone, water-clear or colored, without POC.

kalmuk agate See kalmuk opal.

kalmuk opal Also called kalmuk agate, the material is a type of banded opal that occurs at Kalmuk near Astrakhan and the Caspian Sea; both terms refer to a form of cachalong opal exhibiting layering, as in banded agate.

kaschts-chilon opal Derived from the Tartar term for cachalong opal.

keraunios See ceraunium opal.

kieselguhr opal See diatomaceous opal.

lapis mutabilis See hydrophane opal.

layered opal See Icelandic opal.

lechosos opal The Spanish term for milk (or milky) opal, the word itself from the Spanish word *leche*, meaning "milk," and used to describe a type of opal with a milky white decidedly opaque base color and relatively strong POC. [See also milk opal.]

lemon opal Named for its brilliant, transparent lemon-yellow coloration, this type of volcanic opal originally came from Kootenai County, Idaho, and ranged in size up to 100 carats or more, but more typically in the sizes between 20 and 50 carats; the stones, recovered from vugs and pockets in rhyolite, were particularly suitable for faceting and some were said to show some degree of POC, usually in faintly discernable broadflash; mining for these stones ceased about 1955 when it was deemed marginally unprofitable.

levin opal A light opal variety characterized by a POC pattern of long, thin lightning-like flashes, which caused ancient superstitious beliefs that opal was not an earthbound mineral, but one that fell from the heavens.

light crystal opal Opals in this subcategory of light opal are those that are either wholly transparent or extremely translucent, allowing diffracted colors to be detected from within the interior of the stone.

light opal One of the major types of opals where tonality is concerned, where all opals are classed as either light opals or dark opals; light opal includes any precious opal having a base coloration (body color) from clear or white or a very pale grayish tone through a medium grayish tone; actual diffracted color comprising the tonality of the stone is inconsequential, as is pattern or degree of transparency; light opal simply includes all those to medium gray, and dark opal includes all those from dark gray to black; light opal is not the same as white opal, the latter term being properly used only when the base coloration of the stone is actually white, as in milk opal.

Lightning Ridge opal Basically, it is the extremely valuable black opal that is most closely associated with Lightning Ridge, although considerable light opal comes from this field as well.

lithoxyl opal Wood opal in which the woody structure remains clearly evident.

liver opal Known also as menilite opal, liver opal is so-called due to the deep, gray-brown, liver color it exhibits; it was named menilite because it first became recognized from deposits at Menil-Montant, near Paris, France; it normally occurs in rounded lumps somewhat similar to the Yowah Nuts of Queensland, Australia, and not unlike another variety called neslite opal.

Iluviznados opal Pronounced u-vees-nah-doze, this Spanish term literally means "sun on raindrops" or, more liberally, "fire-rain"; it refers to the prized high plateau precious Mexican fire opals, also called girasol, which have a transparent body ranging in color from water clear, faintly bluish, or very pale yellow, and decidedly enlivened by narrow bands of POC in scintillating shafts that may be yellow-orange, orange, red-orange, red, red-brown and brown-red; this fire often appears boldly, but sometimes simply as tiny scattered pinfire specks glittering like stars in the bluish or topaz opalescence.

mackerel sky opal Named after the pattern of POC it exhibits that shows a repeated, wavering, ribbonlike quality, usually in vibrant electric blue against a black body color or, occasionally, some other color against a blue base coloration; similar to ribbon opal.

magic stone A superstitious name sometimes applied to cachalong opal, but more properly applied to hydrophane opal.

magpie potch A common opal exhibiting black-on-white or black-on-gray patches and which occurs with some abundance in the Sheepyard Opal Field near Lightning Ridge.

man-made opal Synonymous with synthetic opal.

matrix of opal Not the same as matrix opal, this is not a type of opal but, rather, the mother rock in which opal is found and which encloses the opal forming in it; in volcanic deposits, this matrix of opal is usually rhyolite or basalt; in sedimentary opal it is usually montmorillonite clays or sandstones.

matrix opal Matrix opal is a type of opal-bearing rock with many subvarieties, all with their own peculiarities and embracing the following: (1) a brown to brownish-gray ironstone riddled with opal-filled cracks, known as Queensland boulder opal (which includes Yowah nuts) and in which the opal-filled cracks or veins are too thin and fragile to separate from the dark brown mother stone, so matrix and opal are polished together; the precious opal in such specimens found mainly between concentric layers on the underside of the nuts, or as a network of thin veins through the ironstone concretion; more correctly, however, the opal and matrix material are mixed together like a pudding, as in (2) a very hard silicecously cemented sandstone, basalt, or rhyolite that is speckled throughout with brilliant points of precious opal, or, more simply, precious opal bits mixed throughout a parent rock, in which the silica gel has spread throughout the porous iron sandstone, basalt or rhyolite of Queensland, Andamooka, Virgin Valley, Louisiana, and other sources, hardening into myriad iridescent specks of color radiating from a darker colored background, with such material, early on, being called mother-of-opal or *prime d'opal,* terms that are no longer in vogue; (3) a very dark gray basalt from Honduras which is liberally peppered with bits of brilliant green POC; matrix opal is also (4) a term used occasionally, but inaccurately, by Lightning Ridge miners in referring to a porous white impurity in black opal.

menilite opal See liver opal.

Mexican fire opal A nonprecious but highly attractive form of opal that is usually very transparent and that occurs in a wide range of colors, some of it bluish-white but far more commonly in the range of warm colors, from pale yellow through deep yellow, yellow-orange, orange, red orange, bright cherry red, and deeper red; lends itself equally well in jewelry work to cabochons or faceted stones; not the same as precious Mexican fire opal, which is also called girasol.

milk opal Also called milky opal and *lechosos,* this type of opal is milk white in base coloration and probably owes its color to the opal having formed in a pure white clay; some references claim that POC does not occur in milk opal since, if POC is present, it is no longer properly called milk opal but, instead, referred to as white opal; that, however, flies in the face of the many authorities that state that some milk opal does have very strong POC; in this respect, the Spanish word for milk opal, *lechosos,* derives from the word *leche,* meaning milk, and *lechosus,* as already noted is a type of opal with an opaque milky white base color and relatively strong POC; milk opal, even with POC, is normally the least desirable of all forms of precious opal and typically has only scattered specks of color throughout the pure white stone; with or without POC, milk opal is one of the more common types of opal world wide.

Mintabie opal Opal from the important Mintabie opal field in South Australia, which is characterized by its light base coloration of pale green to pale blue or blue-green.

mosaic opal A name sometimes erroneously applied to precious opal that exhibits the harlequin pattern but that is actually small pieces of carefully selected precious opal fitted together to form a design or picture.

moss opal (1) A nonprecious opal that has a generally clear base color in which dendrites and/or mossy or fernlike patterns are formed from inclusions of oxides of manganese; also known as dendritic opal; (2) a specific form of common opal that resembles mocha stone or black moss agate and that occurs in Trego County, Kansas, and is sometimes referred to as Trego opal.

mother-of-opal Alternative name for *prime d'opal,* a material consisting of bright specks of opal in porous matrix.

mother-of-pearl opal Layered Kalmuk opal (or agate) much used for the carving of cameos.

mountain opal Alternative name for volcanic opal, a precious opal that is found in pockets, vugs, or cracks in rhyolite or other igneous rocks and usually very difficult to remove without damage to the opal.

Müller's Glass opal See hyalite.

multicolor opal A precious opal that exhibits no less than three distinct colors in its POC but usually with one color dominating, in which case it might be referred to as a red multicolor, a green multi-color, etc. [See also multifire opal.]

multifire opal Since most people speak about opals more often by their predominant color, it is convenient to group them accordingly; the terms red, orange, and green fire refer to the dominant color in the stone, and multifire is a precious opal that exhibits three or more colors in its POC (and usually most colors of the spectrum) without any particular color predominating in the POC display; as intensity and brilliance increase, so does quality and value.

myrickite opal See opalite.

neslite opal A type of opal quite similar to menilite but with a grayer color and which, because of its weight and peculiar grip, was once very popular as a material used for the carving of fine sword handles.

night stone opal A precious opal whose POC shows up better in conditions of low light than under the full light of bright direct sunlight or artificial light—which occurs only with truly superior stones; a phenomenon that occurs when, in full light, so much light is diffracted from the stone that one's eye cannot sort it all out and so perceives it as white light; but under low light conditions, one's eye is not overloaded and the true magnificence of the opal is perceived.

noble opal An early designation for precious opal that is still used on rare occasions today.

oculus mundi Latin name for hydrophane opal, the Latin term meaning "eye of the world."

onyx opal A common opal that is banded and somewhat resembles onyx.

opal By itself, this to the miner generally signifies common opal, as opposed to precious opal, which is referred to by that name or as "noble opal"; common opal is found in relative abundance throughout the world; it is, with but few exceptions, valueless, uninteresting, and, in Australia, referred to disparagingly as potch.

opal jasper Synonymous with jasp-opal.

opal matrix Alternative term for matrix opal.

opaline (1) A term sometimes used for matrix opal; (2) any material that is at least in part opalized; (3) an old term for Australian opal.

opalite Not a recognized variety of opal and, in fact, the very word opalite is a considerably abused term used in the United States to rather indiscriminately describe various forms of chert (chalcedony) and/or, incorrectly, common opal; (1) opalite may also be called myrickite when it shows red streaks or red areas caused by cinnabar (ore of mercury) and many other colors of opalite are found in the California deserts; (2) in Australia, opalite denotes a manufactured black glass (as opposed to obsidian) that is used for doublet backing material; (3) an Australian yellow-green potch with black dendritic inclusions is referred to by some as opalite; (4) an imitation opal created from resin and produced in Hong Kong under the trade name Opalite first became available in 1976 but was not marketed in quantity until the early 1990s—it is a well-constructed imitation, which has much the same appearance of a Mintabie opal (its POC emanating from minute styrene plastic spheres embedded in the resinous material) but an imitation that can be detected easily enough because of its feathery lightness and its inherent softness of only 2.5 on the Mohs scale.

opalized wood Alternative term for wood opal (Figure 33).

opallion (or opallios) A Greek name for opal adapted from the Roman *opalus*.

opalo The Spanish name for opal.

opalus The oldest known name for opal, which was used by the Romans in the first century B.C. There are those who believe it has its origin from the Sanskrit word, *upala*, which means a special or valuable stone of any kind and has been said to be the oldest name known to civilization for the gemstone we call opal. However, evidence now points more conclusively to the name opal being derived from Opalbanya, the Magyar Hungarian (Slovakian) name for opal mine. [See the chapter on opal History/Mythology for greater detail.]

ophthalmus lapis A term used in the Middle Ages for opal and eyed agate; the literal translation being "eye" and "stone," as opal was known then as the "eye-stone."

orange opal A nonprecious solid opal, which may be transparent but which is more often translucent to opaque and has an orange to orange-red base color; synonymous with certain Mexican fire opals, although also found in other locations, such as at Opal Mountain near Mojave, California, in Virgin Valley, Nevada, and at the Okanagan Mine in British Columbia, Canada.

Oriental opal A term used in Sri Lanka, like celestial opal, for moonstone.

orphanus opal A name meaning "the orphan" and used to denote pyrophane opal; the term refers to the stone's POC, which wanders about loose and at random; the name is sometimes improperly applied to girasol opal.

Figure 33. This excellent wood opal alive with POC is what was inside a limb removed from the montmorillonite clay opal level at the Northern Lights Mine. (Photo by Alan A. Vogel)

paederos A name given to a precious stone—almost surely opal—by the ancient poet Onomacritus, writing about 675 B.C., in his long poem concerning precious stones; paederos means "Cupid's gem," and probably referred to the rose opal (quinzite) of France, a common opal (usually) whose coloration was reminiscent of the rosy complexion of a little child; Oonomacritus could also, however, have been referring to rose quartz or pink chalcedony.

painted boulders See painted lady opal.

painted lady opal (1) A type of boulder opal exclusive to Andamooka that is composed of a thin layer of opal that occurs associated with hard sandstone, sometimes on the surface and sometimes coating a fracture line that may split readily; usually sold as specimens rather than jewelry opal; (2) tan-colored sandstone-quartzite boulders containing veins of precious opal and often painted with scenes that either utilize or attempt to enhance the opal.

palette opal An opal named after the pattern of POC it exhibits, in which the colors are so blotchy and so intense that they tend to resemble an artist's colors on his palette.

patronus furum A Middle Ages term for opal, meaning "protector of thieves," since it was carried as a talisman by pickpockets who believed that possessing it not only sharpened the owner's vision, but dulled that of others; thus, the thief could become all but invisible in a crowd and easily escape with whatever he stole; some have interpreted this to mean that opal could make its owner invisible if the stone was wrapped in a fresh bay leaf and carried in a pocket.

peacock's tail opal An opal that exhibits a POC pattern in which the colors spread across the stone in a relatively regular arrangement of scintillating greens and blues in "eyes" much like those that occur at the end of peacock's tail feathers.

pearl opal Alternative name for the vegetable opal called tabasheer.

perlite opal A variety of siliceous sinter [geyser opal] that is also called amatite or fiorite.

pebble opal A variety of rounded, pebbly-appearing nodules that occur in at least two locations in Virgin Valley, Nevada; though more uniformly round, these little nodules are similar in size to the nobbies of Lightning Ridge of New South Wales. As described by George Munzing, paleobotanist, who has studied Virgin Valley opalized wood for years, the so-called pebbles are actually "pseudomorphic opal replacements after wood—the cores of rounded pieces of wood opal that originally formed with an outer layer of white material which is nothing more nor less than oxidation"; that layer or shell was, he said, fairly thick in some, "but so fragile that, in digging them out of the bank, the rockhounds invariably lost the outer covering and all they recovered was the nicely rounded inside core, and these they called pebbles."

perlmutter opal The German term for a type of cachalong or hydrophane opal that, because its luster is similar to that of mother of pearl, is particularly desirable for the carving of cameos.

picture opal A precious opal whose POC creates a picture, sometimes in conjunction with inclusions, remindful of a particular object, as in the Chinese writing opal, or which suggests a familiar subject; those that suggest landscapes are usually termed scenic opal [q.v.].

pineapple opal Exclusive to the White Cliffs opal field in New South Wales, Australia, and always a very rare collector's item, the so-called "pineapple" is a cluster of opalized crystals that are pseudomorphic of the mineral ikaite; they are transparent to translucent opal, often with a pronounced lavender color, generally in the form of a small pineapple. [For greater details, see the section devoted to these formations in the chapter dealing with fossils and pseudomorphs.]

pinfire opal An opal named after the small pattern of POC it exhibits, which resembles intensely colored pinpoints of fire that are sparsely to densely scattered across the opal, some-

times fairly equally arranged and often differently colored, and that, as the stone is tilted or rotated, appear or disappear, glittering like tiny stars; generally the least valuable of the various patterns in precious opal, unless the points of the POC are all very small and close together and are mostly red, when, as such, it can be very valuable.

pink opal This is a lovely pink common opal that occurs in Tairua, New Zealand. [See also rose opal.]

pinpoint pattern Alternative name, used mainly in Australia, for the precious opal pattern exhibiting pinfire POC.

pipe opal Opal—much of it precious—that has formed into long (and, in cross section, slightly oval-shaped) cylinders in sandstone or volcanic clays, those holes, contrary to widespread belief, much more often horizontal than vertical; while large examples might be 6 feet long and as thick as a man's arm, the greater majority are less than half that length and usually little more than the thickness of a man's thumb; at the extremes, some of the so-called pipe opals will be as small as a sixteenth of an inch in diameter and no longer than a pencil, while the largest on record, according to Len Cram, was one that supposedly was 11 feet in length and as thick as a man's thigh. The origin of these pipes has been the subject of various theories that include steam vents through the soil, roots of trees that decayed away and left hollows that became opal-filled, prehistoric borings of snails, seaworms, or other sea creatures, and water drainage holes, but there is no evidence to support any of these claims. A certain cylindrically shaped fossil found occasionally at Lightning Ridge and White Cliffs is sometimes incorrectly termed pipe opal, when it is actually the opalized remains of the squidlike creature called a belemnite. Even though pipe opal is not noted for tapering as roots are inclined to do, some of them have been known to swell and thin or coalesce with others to form knotted masses.

pitch opal A variety of common opal that is similar to wax opal, but with somewhat more of a resemblance to pitch.

potch An Australian term, largely, signifying common opal, which may be almost any color, from black to pure white—but never, of course, with diffracted color, whichis play of coIor; when of a colored variety—usually a pastel color—potch is sometimes cut into cabochons or otherwise used in jewelry; the greens often are tinted from iron silicates, the blues from ferrous bisulfides, and the reds fromhematite; the pure white may be just as brittle and hard as fine china, and thedarker gray or black varieties, also quite hard, are often used as a backing for doublets or triplets; a clear amber form of potch has been found at Lightning Ridge; some potch may be entirely free from mud discolorations and almost transparentOcasionally the potch will be softer and so porous that it will, as cachalong does, adhere to the tip of the tongue; potch is sometimes called "snide" in Queensland.

potch-and-color Australian term for pieces of opal that are mostly potch, but have some areas exhibiting POC.

prase opal A dark green variety of common opal, usually translucent but sometimes opaque, which bears a resemblance to the prase variety of cryptocrystalline quartz; a particularly lovely green prase opal that has been colored by nickel is still mined at Silesia, Poland.

precious fire opal See girasol.

precious opal The highest quality gem-grade opal; in essence, opal in which the minute silica spheres of which it is formed are arranged and stacked in a precise latticelike formation, the placement and size of which, as well as the manner in which they and the voids associated with the spheres diffract the light, causing the stone to exhibit a scintillating, intensely colorful play-of-color in a wide variety of patterns and sizes; as the stone is turned or tilted, those colors and patterns appear and disappear or change dramatically from one pure color of the spectrum to another.

prime d'opal Also called mother-of-opal; a precious opal filling the spaces in porous sandstone or ironstone grit, and showing bright specks of color. [See matrix opal.]

pyrophane A type of precious opal in which the POC appears to wander about haphazardly and appear at random; also variously called heliotrope opal, waise opal, orphanus opal, and zeazite opal; the name pyrophane is also at times incorrectly applied to both girasol opal and hydrophane opal.

quartzite opal An attractive looking quartzite stone that, with opal infused throughout, is closely akin to matrix opal and, while it can be cut, it normally does not take on a high polish, though it lends itself to carving and also for the cutting of spheres; value is determined by the amount of POC visible.

Queensland opal An alternative terminology for boulder.

quetza-litzle-pyollili A term used by the Aztecs to designate precious opal and meaning, literally, "stone that changes color with light."

quinzite opal A very fine rose-colored opal peculiar to Quincy, France, and also known as rose opal, it is usually common opal, but on rare occasions precious opal specimens have been found.

radio opal See radiolite opal.

radiolite opal Smoky-colored opal in which the smokiness has been caused by organic inclusions and impurities, particularly radiolaria, which apparently suffused the opal gel before it hardened; also called radio opal.

rainbow opal An opal named after the pattern of POC it exhibits, in which the colors align in curved bands alongside one another, much in the manner of a rainbow. [See also girasol opal.]

randannite A diatomaceous opal similar to tripoli.

red flash opal A type of precious opal exhibiting a POC pattern of sudden brilliant red flashes that just as swiftly disappear.

red-on-black opal A type of densely black opal that exhibits a POC of nothing but brilliant red, making it extremely valuable.

red opal A form of common opal, named after its color and useful in cabochon making due to its attractive translucency; indigenous to Arizona where it is found in weathered concretions in Santa Cruz County.

resin opal A form of common opal that, because of its yellowish-brown to brownish-black resinous luster, looks very much like resin from pine trees and bears a slight resemblance to both wax opal and pitch opal (Figure 34).

ribbon opal An opal named after its pattern of POC, which appears as a repeated, sometimes wavering, ribbonlike series of scintillations that move across the surface of the stone in parallel bands, those patterns manifesting themselves in almost any color; if associated with blue, however, the POC may be termed mackerel sky opal.

rolling blue dot opal An opal named from its POC pattern in which highly iridescent blue spots seem to move across the face of the stone as the opal is tilted or rolled.

rolling flash opal Also called rolling flashfire opal, this opal exhibits a relatively unusual POC pattern consisting of large flashing areas of color that appear to roll along with the movement of the stone as it is rotated.

rolling flashfire opal See rolling flash opal.

rose opal A type of opal also known as quinzite and named rose opal after the color of the body mass of the stone; it is known from Egypt, Idaho, and Quincy, France, where it occurs in a freshwater limestone matrix; a precious variety of rose opal is discovered on rare occasions,

Figure 34. Resin opal in matrix. (Photo by the author)

a magnificent specimen of which was in the famous Green Vaults in Dresden prior to World War II.

rough opal Uncut opal in the state in which it was originally found or mined; in the case of precious opal, it is opal of gem quality that shows play of color on surfaces or in fractures but that has not been cut, carved, worked, or polished in any way.

rubbed opals Also called rubs, these are rough opals, particularly nobbies, that have had all or a portion of the rough surface rubbed—i.e., ground down on a grinding wheel—to form a "window" of sorts into the stone's interior, to expose enough of the opal hidden beneath the rough exterior to give the prospective cutter an idea of the opal's extent and quality and how best to proceed with the cutting; virtually all Lightning Ridge nobbies that are not cut into gemstones in the field are sold as rubs.

rubs See rubbed opal.

rumanite A name once in vogue for opal mined in Rumania.

sandstone opal A partially opalized montmorillonite clay called sandstone, closely related to—and normally found only in the vicinity of—such sedimentary varieties as seam opal, nodular opal, and pipe opal; it is formed by replacement of the clay "sandstone" matrix, through impregnation of that ferruginous material, usually less than a foot above the opal seam; it is extremely hard and known by most of the miners as the "band" or the "steel band."

santillite opal A silicious sinter [geyser opal] that is similar to fiorite opal.

scenic opal Opal, usually with a water-clear base color transparency, in which certain inclusions from rhyolitic matrix or other material depict forms, landscapes, seascapes, and other scenes that are often very attractive; some scenic opal may also derive from an especially attractive network of crazing or cracking and, while these tend to create a pronounced instability in the stone insofar as cutting is concerned, if the cut can successfully be made, the result can be quite spectacular (Color Plate 17); certain opals from Opal Butte, Oregon, are especially noted

for their remarkable scenic attributes; scenic opals may or may not display POC [see also picture opal]; Spencer opal from Idaho also frequently has a tendency toward scenics or pictures (Color Plate 18).

scintillation opal Opal named after its pattern of POC, which is an irregular but extremely brilliant display that tends toward very hot, shimmery patterns in reds and oranges.

sea opal A misleading term used to designate the brilliantly iridescent paua shell of New Zealand, which is frequently used in jewelry; paua (pronounced "power") is not, of course, opal in any form but rather an iridescent seashell.

seam opal (1) The most common type of opal formation in Australia, which is found at virtually all sedimentary opal fields throughout Australia; essentially, it is opal that occurs underground in a seam of varying thickness and length, that seam a thin (usually one inch or less), wide-spreading deposit running horizontally through another material, usually sandstone, clay, or altered volcanic ash; not all the opal that forms in seams becomes precious opal, and common opal frequently makes up a portion of the deposit; the extent of the precious opal may vary from a small placement to a rather extensive length; while the seam is usually horizontal or parallel to the surface, it may abruptly change direction and move straight up or straight down toward another level, in which case the opal is sometimes termed vertical opal; seam opal is the most common type of precious opal and its brightest POC occurs in planes vertical to the plane of the seam itself; thus the pieces of rough that are mined most often are flat segments of varying thickness; (2) a form of opal in Queensland that is found in thin ironstone seams or bands called casings, which are up to 5 cm (1.97") thick; these casings are found at the contact between sandstone and underlying fine-grained sediment, and in some places the upper surface of the seam has rounded, botryoidal protrusions up to about an inch across; both the seam and these protrusions commonly contain thin, horizontal veins and random flecks of brilliantly colored precious opal; opal dirt is commonly found immediately above the seam.

semi black opal A precious opal that has a base coloration lighter than a black opal but darker than a light opal; in some instances it is referred to as gray opal.

semicrystal opal An opal that exhibits enough translucency so as not to be as transparent as crystal opal, but that shows more transparency than a wholly translucent opal.

semi-opal Also called half-opal; these designations have been carelessly applied not only to common opal as a whole but to various types of common opal such as wax opal, resin opal, and other nonprecious types of opal, in most cases where the opal in question is found in matrix in conjunction with some other mineral.

siliceous sinter A form of opal without POC that manifests itself as encrustations and fibrous growths of a porous white to gray amorphous silica deposited in the throats and around the mouths of deep-seated hot springs and geysers, as well as on the basins and terraces created by those springs and geysers; synonymous with geyserite and geyser opal.

simulated opal Also called a simulant; synonymous with imitation opal; it has no connection with true opal whatsoever, common or precious, except that it may bear a certain visual similarity.

Slocum opal More commonly referred to as Slocum Stone, this is an imitation opal created by John Slocum of Rochester, Michigan.

snakeskin opal An opal, precious or common, that, due to its pattern or to a gridwork of crazings, takes on the scaly appearance of a snake's skin.

snakestone Alternative name for tabasheer [q.v.].

solid opal (1) A pure natural opal in one piece and without the presence of any other type of stone; (2) precious opal that has been formed into a cut piece that is solid opal; a piece of

gem-quality opal that, apart from being cut and polished, has in no way been backed, capped, or otherwise treated.

speck opal Shortened form for white speck opal, meaning conk opal.

straw opal An opal that exhibits the relatively rare POC pattern in which the colors in the opal resemble straws that often overlap or overlie one another.

sun opal A flexible term that can signify honey opal, Mexican fire opal, or a type of amber common opal that occasionally shows flashing color.

sun stone A precious opal that exhibits its POC only in bright sunlight.

sunflash opal (1) An opal named after its POC pattern in which the colors flash with especial brilliance when the stone is rotated in direct sunlight; (2) a term used at Lightning Ridge to refer to a dark jelly opal, which, under strong light, seems to have its internal POC considerably intensified; (3) a term sometimes incorrectly used to refer to black opal.

synthetic opal An opal synthesized under controlled conditions, usually in a laboratory; not the same as imitation or simulated opal.

tabasheer opal This is the only known vegetable opal, sometimes called pearl opal, which forms only in the injured joints of a certain bamboo species occurring in Burma, South America, and India; the injury to the bamboo joint causes the plant to secrete a clear liquid containing silica, which, upon drying in small nodules, becomes translucent to opaque bluish, imparting a somewhat nacreous appearance, hence the alternative name of pearl; because of its high degree of porosity (so pronounced that it will stick firmly to the tongue until saturated), it has also become known as snakestone as a result of its use during the Middle Ages when applied to a snake bite to pull out the venom; it had a similar curative use in South America when applied to a wound to suck out arrow poison.

thunderegg opal Opal, both precious and common, that is found in the interior of the nodules commonly called thundereggs, prevalent in Oregon and other western locations.

thunderstone opal See ceraunium.

translucent opal Opal of any body color that allows light to pass through it, but is not transparent; in precious opal, translucency allows diffracted colors to be visible both on the surface of the stone and from within the stone.

transparent opal Opal of any body color that can be seen through clearly and, if precious opal, whose diffracted colors are visible through the stone from all sides.

treated opal Any opal whose appearance or structure has been altered or in any manner artificially enhanced by the introduction of chemicals, dyes, acids, or heat.

Trego opal A dendritic form of common opal that occurs in Trego County, Kansas. [See also moss opal.]

tripoli A fine powder manufactured from tripolite [q.v.], which is a diatomaceous earth and which, in refined state, is used in the polishing of metals and gemstones. see diatomaceous opal.

turtle opal See turtleflash opal.

turtleflash opal Also referred to as turtle opal; an opal whose pattern of POC seems unique to the Spencer Opal Mine in Idaho, one in which the POC is irregularly shaped in small pentagonal flakes that align themselves much like the scale pattern on a turtle's shell and impart a distinct domelike appearance.

twinkle opal an opal exhibiting a POC pattern that is similar to pinfire, but with the points of light somewhat larger and relatively evenly scattered throughout the stone.

vein opal Opal, precious or common, that occurs in veinings of any matrix material, but especially in thin veins in the sandstone above the seam or in the mudstone below.

vermilite opal A type of common opal characterized by a vermilion body color.

vertical opal A form of seam opal rather than pipe opal, since this is opal that originally filled seam fissures running horizontally but in which the lead changed direction to run vertically for a time, occasionally moving upward many feet from one opal level to another; this form of opal is often banded due to layering that occurred during deposition of the silica gel; also called vertical seam opal.

vertical seam opal See vertical opal.

Virgin Valley fire opal A misnomer for Virgin Valley precious opal, which should never be referred to as fire opal, since the term "fire" refers only to the POC locked within it; the true fire opal is a reddish, translucent opal that most often does not have the opalescent play of color and that is most commonly seen in the Mexican fire opal.

Virgin Valley opal Usually referring to the precious opal that is, in most cases, wood opal of volcanic origin that has formed in the layers of montmorillonite clay indigenous to the region.

vitzitziltecpatl Aztec name for opal, the word meaning hummingbird stone and so named after the iridescent brilliance of the hummingbird's plumage.

volcanic opal Opal that has formed in and lies embedded in rock of volcanic origin—igneous rocks—or in a matrix material, such as montmorillonite, that is of volcanic origin, such as pseudomorphs of wood in the clay; when the matrix material is basalt or rhyolite or other similar hard rock materials in which opal has formed as nodules in vugs or gas pockets, those opal nodules are then referred to as mountain opal or amygdaloidal opal; such opal ranging from water-clear to translucent, rarely opaque, and exhibiting a high degree of POC, but also notoriously unstable when exposed to light and when incipient pressure is released and moisture allowed to escape, any one of which (or all three in combination) engenders a particular vulnerability to cracking and crazing that is sometimes so pronounced that the stone will actually self-destruct.

waise opal A German name, meaning "waif" or "stray" that is applied to the opal called pyrophane [q.v.], because its POC seems to wander about loose and at random.

wasch opal Synonymous with floaters or alluvial opal.

water opal An alternative term for jelly opal.

wax opal A form of common opal referred to as semi-opal, which has a distinctively waxlike surface.

weltaug opal A German designation for hydrophane opal, the term meaning "eye of the world" or, more literally, "world's eye."

White Cliffs opal A generally light opal of high quality that was among the first deposits of precious opal mined in Australia, the quality and abundance of which was so superior to Hungarian opal that the European opal sources could not compete and ultimately failed.

white opal The lightest base color of a precious opal; in most cases synonymous with milk opal [q.v.], with a background (or base) coloration that is usually pure white but which can also be an off-white; this opal has a translucent to semitranslucent white body color, which differs from milk opal in that milk opal exhibits no POC, while white opal always exhibits some degree of POC, most often a display in strong light of deep green points of color scattered throughout the stone; such POC may become diminished with prolonged soaking but will return when the specimen is dried; white opal is the least valuable of all the precious grades of light opal. [See also milk opal.]

white speck opal Alternate name for conk.

wood opal Opal in which the structure and appearance of wood has been replaced with opal or in which the opal is closely aligned with, surrounded by or intermingled in fossil wood of

varying degrees of hardness; such opal forms in the ash-origin clays, in the so-called opal dirt or in the mudstone underlying a seam; the opal may or may not exhibit POC, but if it does, it is correctly referred to as precious wood opal; commonly called opalized wood, wood opal is petrified wood with the structure of opal and easily identified by its vitreous luster on a fracture surface, as opposed to the more dull, waxy luster that occurs on ordinary petrified wood (cryptocrystalline quartz); when it clearly shows the woody structure, this opal is also called lithoxyl.

yellow opal An opal, precious or common, which may be transparent, translucent, or opaque, whose base color ranges anywhere from the faintest yellowish tint to the darkest yellow shade; most yellow opal is common opal, but that which occurs in transparent aspect is especially favored for faceting.

Yowah nuts Technically termed to be ironstone concretions that are small (usually walnut-sized), round to egg-shaped boulder opals, rarely as large as a lemon and bearing a superficial resemblance to nuts, these Yowah nut concretions are found massed in foot-thick clay seams only at Yowah, northwest of Eulo, Queensland, Australia; these deposits of concretions form what are termed nut bands, which are commonly associated with layers of mudstone (clay) clasts occurring in a ferruginous sandstone matrix called opal dirt; the mudstone clasts, which are actually clay pellets, have in some areas been replaced by iron oxides to some degree and this iron nut band usually is found in the lowest portion of the opal dirt level, which is itself likely to be located immediately above a contact between sandstone and underlying mudstone, or sometimes within that sandstone, and may have been deposited in what geologists term an intraformational breccia or conglomerate; some 7–10% of these little dark brown boulder opals, when opened, are found to contain kernels or swirls or lines of mainly transparent precious opal, some with amazingly beautiful POC, often between concentric layers on the underside of the nuts, or as a network of thin veins throughout the concretion; the ironstone matrix, which is not normally removed from the opal, is itself an attractive chestnut red to red-brown color, very hard, and polishes to a high gloss, providing a pleasing setting for the precious opal contained within it; Yowah nut opal has become more favored in recent years and its popularity is greatly on the upswing.

zeazite opal Another name for pyrophane, but also a term that has sometimes been mistakenly ascribed to girasol.