Semiprecious Stones: Birthstones a place to start

Garnet (January)

- Garnet is a group of related minerals
- All garnets have some use in Jewelry
- Most are relatively inexpensive
- The group has good hardness and good optical properties
- There are a lot of colors available and the clarity is often very good

Varieties of Garnet

Listed by decreasing value

Demantoid Garnet-green

Spessartite Garnet-orange to orange-brown

Rhodolite Garnet-wine red

Pyrope Garnet-rich bright red

Almandine Garnet-brownish red

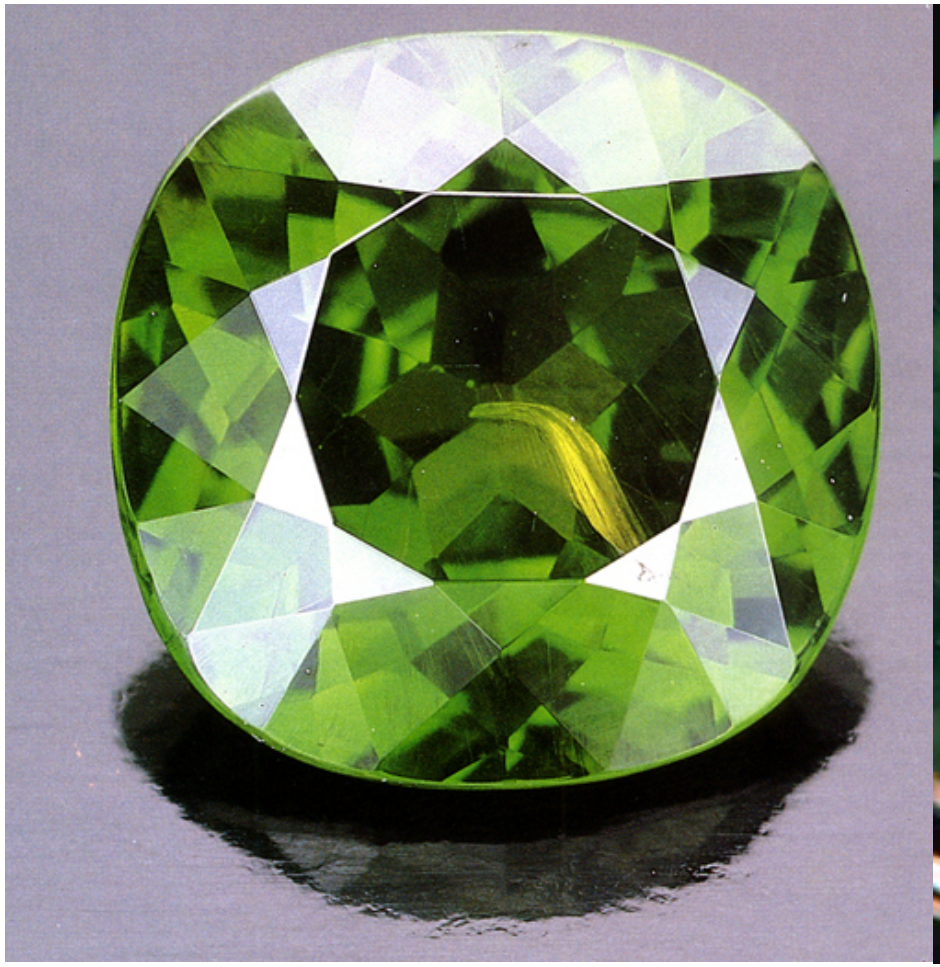
Grossular-green to red (variable)

Demantoid Garnet

Demantoid Cont…

- Most prized of the Garnets
- It has a high dispersion similar to diamond so that it has a lot of fire for a colored stone
- Characteristic inclusions are horsetails of fibrous asbestos minerals

Horsetail inclusions



Pyrope

- A beautiful red, sometimes called Cape ruby. It comes from kimberlites in S. Africa
- Cr-rich minerals are indicators of diamonds

- Can be faceted or cabochon

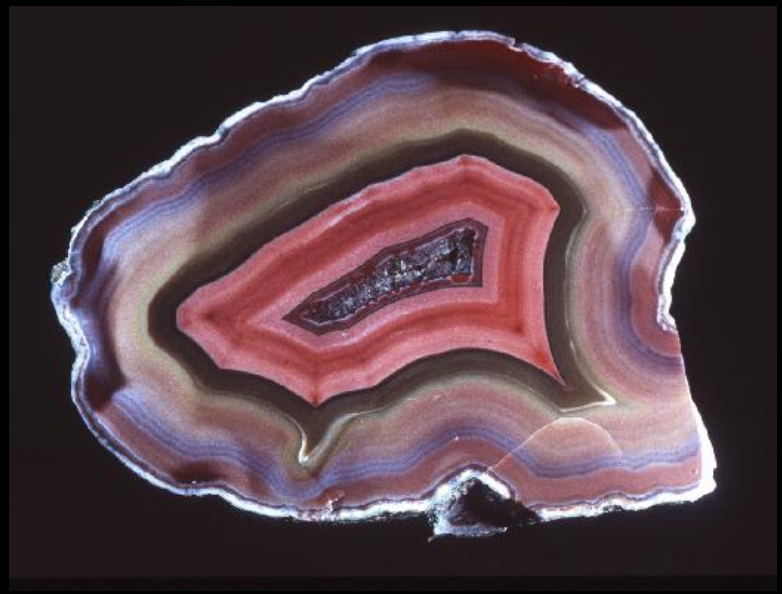
Chromium rich minerals

Pyrope

February--Amethyst

- Amethyst is a variety of quartz
- Quartz makes up about 12 percent of the earth’s crust
- Hence varieties of quartz are only semiprecious
- There are a lot of varieties and quartz crystals are also very collectible

Quartz



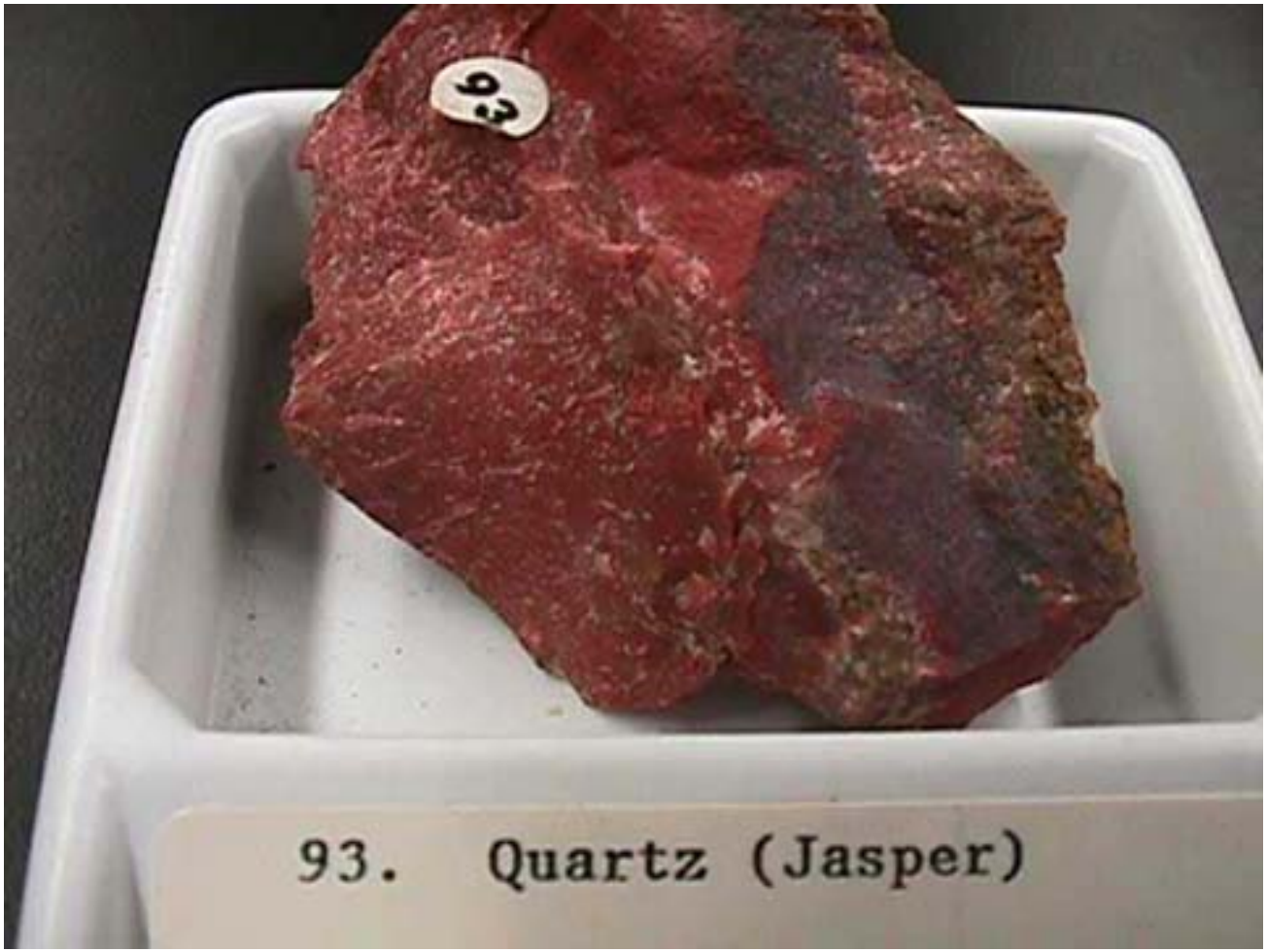
Quartz

- Quartz is just hard enough to resist scratching
- It has good tenacity and can be used in rings
- Quartz colors are from impurities or inclusions
- Quartz gets different names based on color

Carnelian is orange

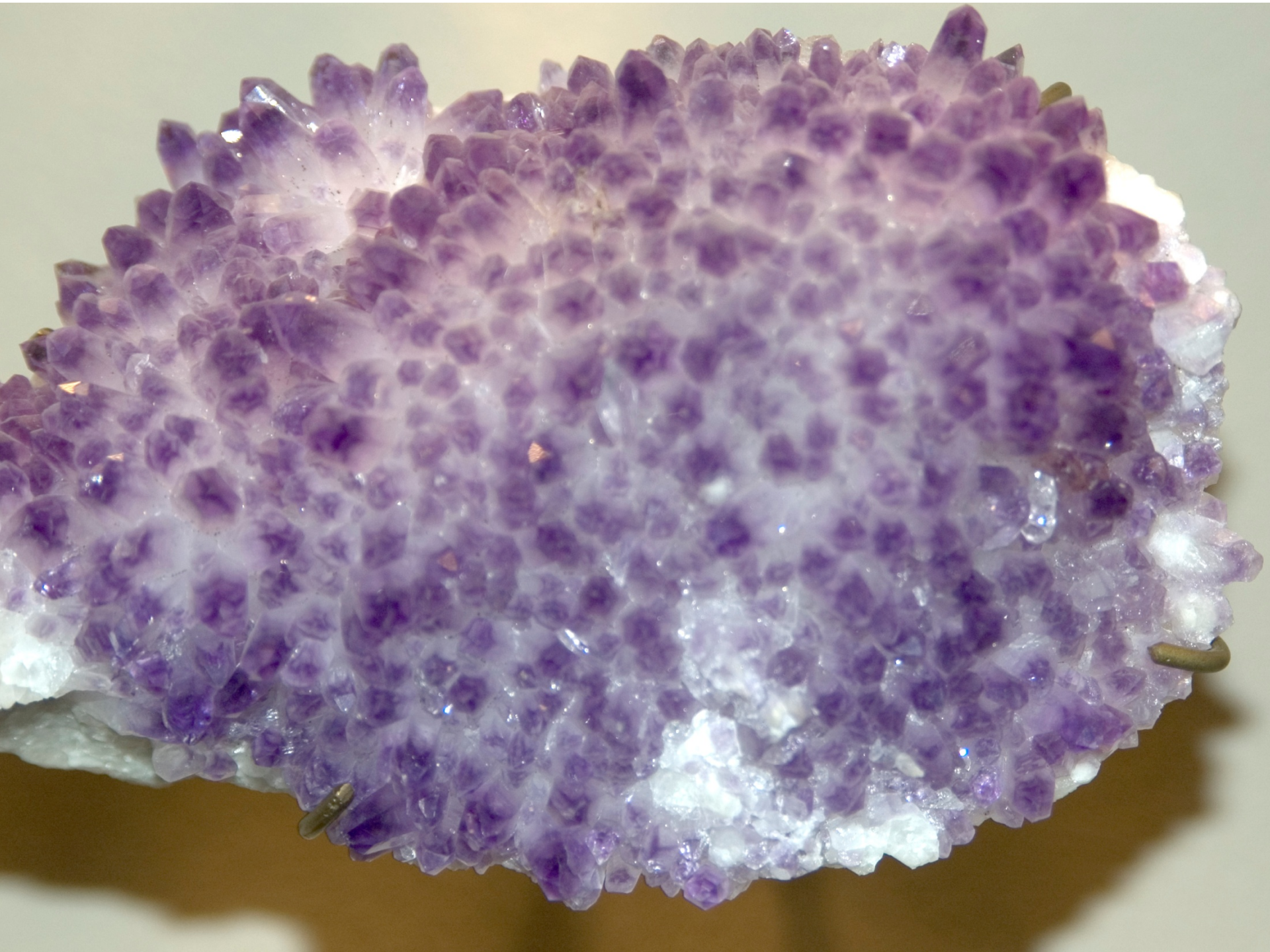
Citrine is yellow

Jasper is red



Onyx is black

Amethyst is purple



Ametrine is citrine and amethyst

Smokey Quartz

Rock crystal is colorless

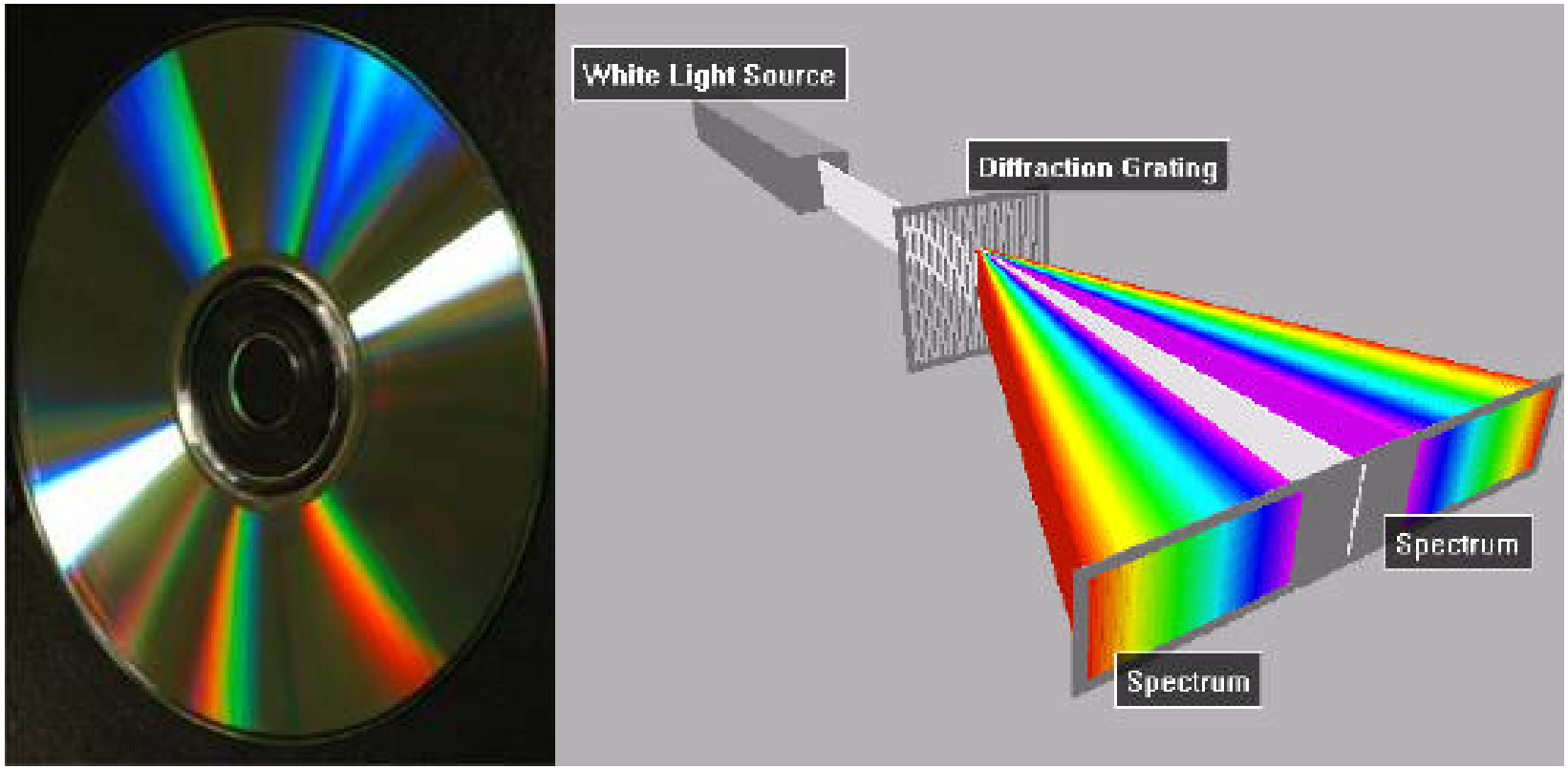
Opal

Opal

- 3 common varieties
- 1) black opal—the most precious
- 2) white opal—the runner up
- 3) fire opal—a distant cousin in price and rarity
- Opal is mostly cut using cabochons
- All opal is $SiO_2 \cdot H_2O$
- The opal forms microscopic sphere that refract light causing a “play of colors”

Play of Color

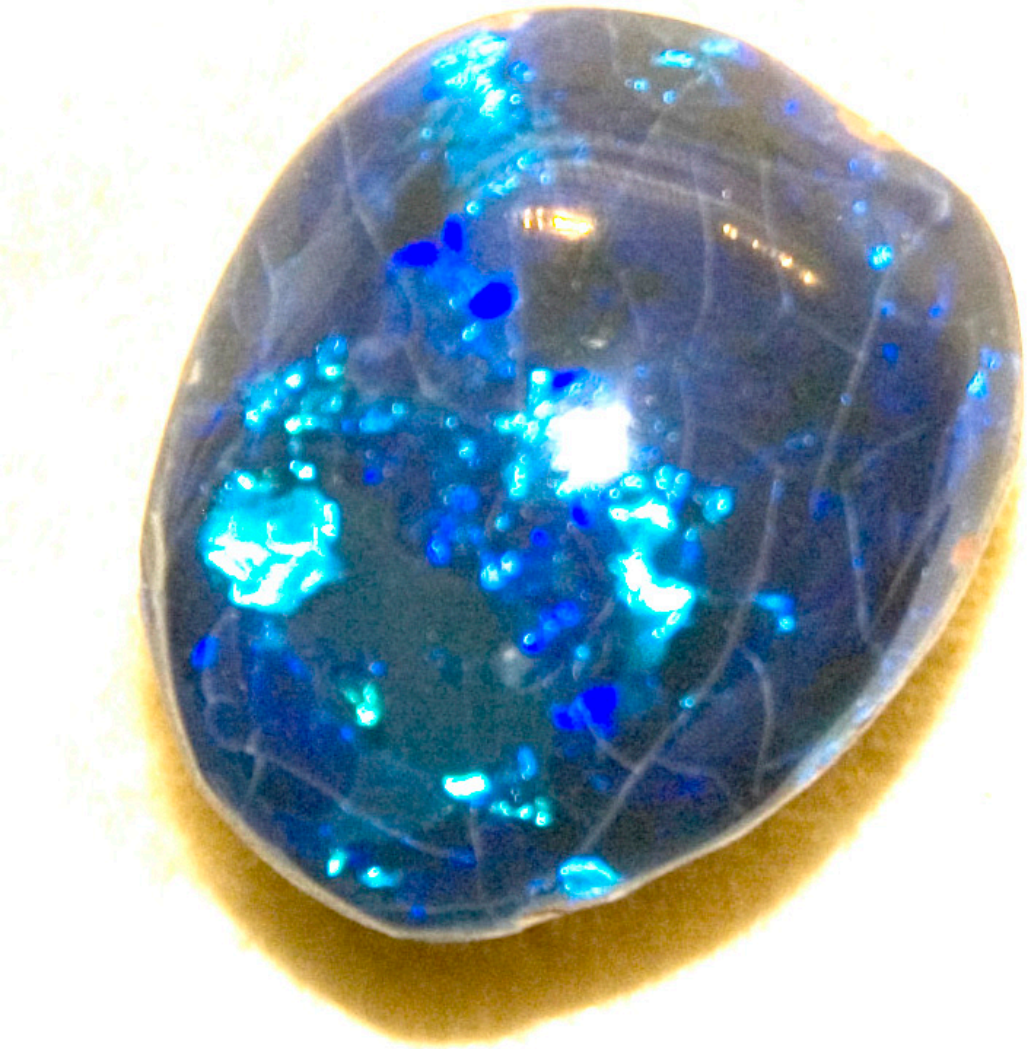
- Caused by diffraction of light by opal spheres



Opal (cont…)

- Opal is relatively soft and easily fractures
- It should not be worn in rings
- It also dehydrates and cracks, so opal should be soaked in water to prolong its life
- Opal also absorbs grease and dirt
- It is heat sensitive and can not stand ultrasonic cleaning

Opal with Cracks



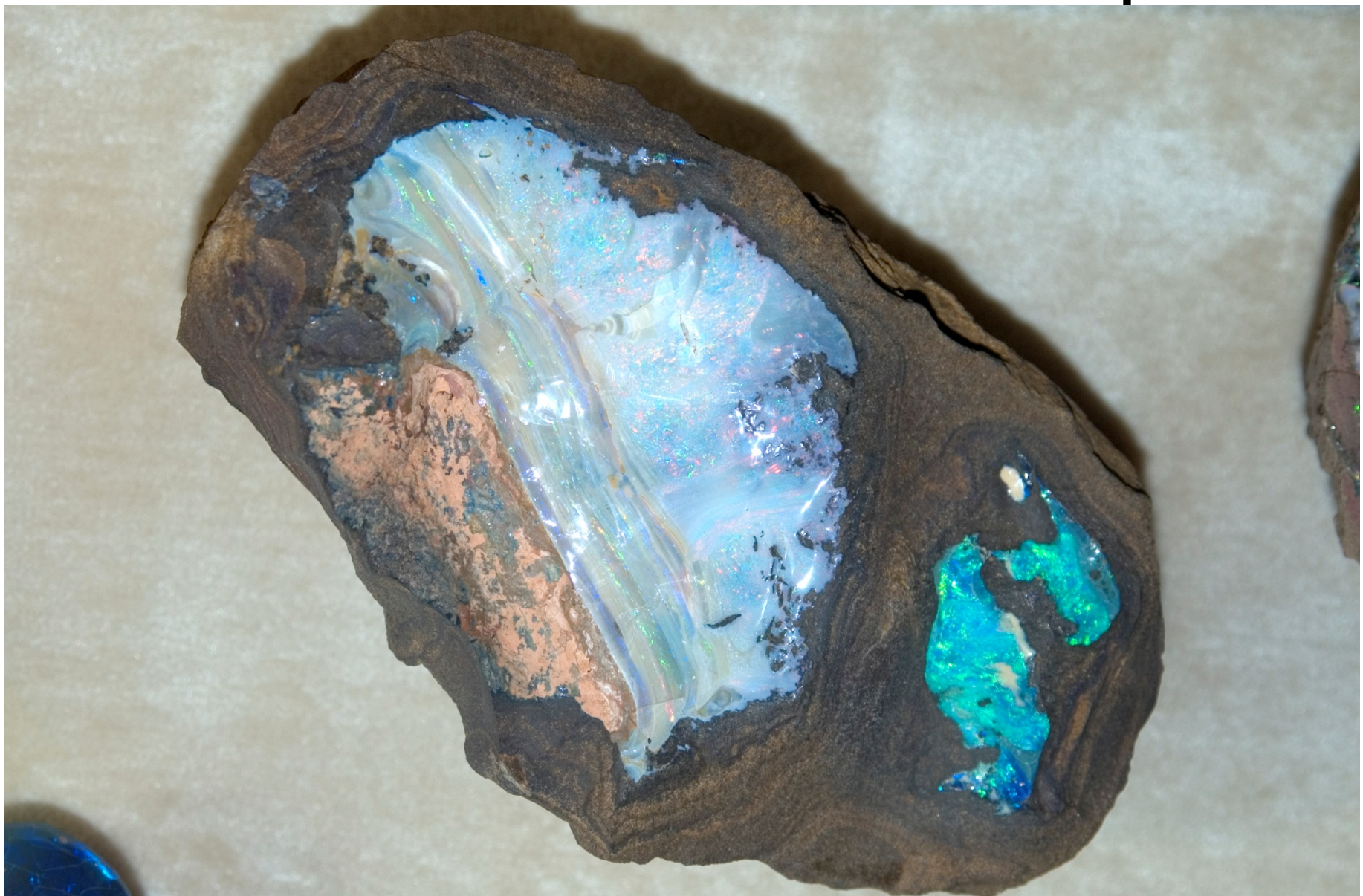
Black Opal

- Black opal (usually a dark blue) is the most valuable
- Opal shows a play of colors and black opal shows it the best
- The best examples are from Australia

White opal

- White opal has the play of colors but is less dramatic than black opal
- Sadly, white opal is sometimes treated to give it a black color. One method uses sugar and acid to affect the change.

White and black boulder opal



Fire Opal

- Fire opal is yellow to orange
- It has little play of color
- It is often faceted
- It is the least expensive of the opal types