The Mystery of Fenton Yellow Carnival Glass

By Jerry Kudlac

"– red glass that did not strike red due to the way it was handled - possibly in the early days when Fenton was perfecting their line of red Carnival Glass. "

In 1998, Glen and Stephen Thistlewood published their book "Carnival Glass – The Magic and the Mystery". On page seven of Chapter one is a sentence that describes Carnival Glass as: "Riddles to be reasoned, mysteries to be solved". That is just one reason I have an interest in Carnival Glass and one of the mysteries I have tried to solve is Fenton yellow Carnival Glass.

The color of most Carnival Glass is described by the various shades of colors seen in the non-iridized base of the glass. One color that seems to be a very rare is yellow; very few Fenton patterns have been reported in this color. Fenton was the only company to make large amounts of red Carnival Glass, (about 40 patterns). The shades of red that are generally used to describe red Carnival Glass are: Amberina, Reverse Amberina, "Cherry Red", Red Opalescent, Brick Red and Red Slag; but the color "yellow" has not been associated with the description of red glass.


Yellow base glass

While attending the Air Capital Carnival Glass Convention 2010, I noticed a Fenton Acorn bowl listed as amber in the Convention auction. When I examined the bowl, I found that the bowl was not amber or amberina; but a yellow color that gave an orange glow under a black light. Fortunately, no one else was interested in this bowl, so, when it came up for sale, I bought it. With the purchase of this unusual yellow bowl, I was determined to find out more about the origin of yellow Carnival Glass. That is when I found that yellow is an unintentional color of red glass.


Orange fluorescence

In checking the auction sales of yellow Carnival Glass in "Carnival Glass Auction Prices" by Tom and Sharon Mordini, I found only six Fenton patterns listed in yellow Carnival Glass that have sold in the last 20 years. Most were single examples except for the Dragon & Lotus pattern (four) for a total of only 13 items. The Fenton Acorns bowl was not listed in yellow and represents the seventh pattern (mine plus two additional ones known) for a total of 16 items found in Fenton yellow Carnival Glass. Below is a list of the items. The prices range from $100 for the Fine Rib vase sold in 2001, to $6100 for a Holly Plate sold in 2007.

Date	Fenton Pattern	Seller
1990	Orange Tree Plate (Chip)	Consignment
1994	Holly compote	Britt
1998	Dragon & Lotus IC (YO*)	Britt /ICGA
2000	Leaf Chain Plate	Germann/ICGA
	Dragon & Lotus IC	Benedict/Air Capital
	Peacock & Dahlia Bowl	Consignment
2001	Fine Rib Vase (7 inch)	Consignment
	Dragon & Lotus IC	Consignment
2004	Holly Bowl 3N1	Consignment
2006	Fine Rib Vase 13"	Cline/SD&S Cal
2007	Holly Plate	Consignment
	Dragon & Lotus IC	Jones/Keystone
2008	Orange Tree Plate	Maxwell/HOACGA

*YO – Yellow opal

Why are there so few pieces of Yellow Carnival Glass? Obviously, yellow was not a regular production color. There were several clues that helped me in solving the mystery: (1) all the reported pieces of yellow Carnival Glass were Fenton patterns; (2) the same patterns had also been made in red Carnival Glass; (3) a check in Glen and Stephen Thislewood's book "Carnival Glass – The Magic and the Mystery", stated that Selenium red glass when pressed in a mold would be yellow when removed; and from another source (4) selenium red glass when yellow would fluoresce orange under a black light. *Cont. P 10*

Starting with this information, I soon found additional resources that would not only explain the yellow color; but also, other colors of red glass. For many years selenium had been used in coloring glass in the United States and Europe, but the methods had been kept secret and only a few manufacturers were successful in producing red glass of satisfactory quality - mainly because it was a heat sensitive glass. Reliable information on the conditions of making red glass was scarce.

Kirkpatrick and Roberts working in the Pittsburgh Laboratory of the Bureau of Standards found that the production of selenium red glass of consistent quality was a difficult process that required an experienced glass maker, knowledgeable in the glass batch composition, with the ability to control the melting conditions of the glass and how it was worked out in making various glass articles.

They conducted a time and temperature controlled study of making red glass by three methods (1) pressing in a mold; (2) blowing in a mold; (3) blowing and working off-hand and determined the manipulations necessary for bringing out (striking) the red color in each method. The study was published November, 1919, in the "American Journal of the Ceramic Society". It was believed that the information would be of interest to glass manufacturers.

Below is a summary of the Bureau of Standards article and information from several other resources related to selenium red glass (see end of article). Since the information is very technical, only general information specific to pressed glass is listed.

Yellow glass: Selenium red glass requires the addition of Cadmium sulfide which imparts the initial yellow color to the molten glass.

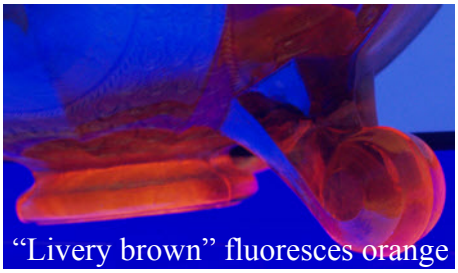
Orange fluorescence: Cadmium sulfide also imparts the orange to orange-red fluorescence seen in yellow, amberia and "livery brown" glass.

Cooling of the selenium red glass: Pressed yellow glass must have sufficient time to cool (below the softening point of the glass) before reheating to strike the red color - or the glass will remain yellow.

Striking temperature: Optimal striking temperature was 1650 °F. A lower striking temperature resulted in an orange color and a higher striking temperature resulted in a deeper red color.

How long the glass was held at the striking temperature: Reheating the cooled yellow glass for 1-5 minutes was required to strike the red color and additional heating resulted in a deeper red color. A longer time period resulted in an opaque red and excessive heating resulted in a "livery brown" colored glass.


"Livery brown color"


"Livery brown" fluoresces orange

Note: Some livery brown or amber glass may not fluoresce do to continued over heating of the glass.

Annealing Temperature: A high annealing temperature continued the darkening of the red color.

The color of the selenium red glass was dependent on the skill of the glass maker. The timing in handling the glass during cooling and reheating was critical in obtaining a satisfactory cherry red color, as well as, the temperature of the glory hole used to reheat the glass and of the annealing oven for the final cooling down of the glass; otherwise, variability in the color would result. Since each glass pattern was different in shape and thickness, it is possible that the yellow glass were trial pieces to determine its striking properties before starting production. Cont. P 12

If the piece was processed and iridized without sufficient cooling, it would remain yellow and have an orange fluorescence. If the piece was processed slowly, it would turn a dark red. If the striking temperature was too low, the color would be orange or some degree of amberina. Extreme overheating would result in the glass becoming livery brown. If all the conditions were just right, then a cherry red glass would result. So, depending on the glass maker's skill, timing and control of the temperatures, the color of selenium red glass can range from yellow to orange to cherry red to dark red to livery brown. Apparently the yellow glass (trial pieces) were not destroyed; got out of the factory and ended up in collections and only recently have some of them been discovered.

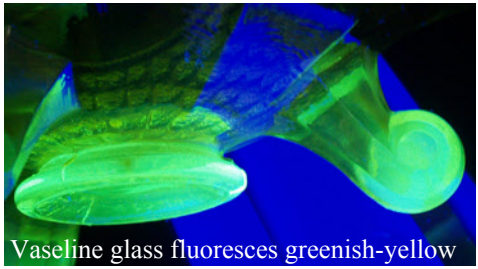
Spectrum of colors that occur in production of Selenium Red Glass

Yellow *Orange* *Cherry Red* *Dark Red* *Livery Brown*

Do all the reported pieces of yellow Fenton Carnival Glass fluoresce orange under a black light? I cannot answer that for all the pieces, but in a personal communication from Ardonna Bucher, known as the "Dragon Lady" because of her extensive collection of Dragon and Lotus: Ardonna stated that her yellow Dragon and Lotus bowl does fluoresce orange under a black light. A second communication from Jim and Darlene Grogan confirmed that their yellow Acorns bowl (a second) also fluoresced orange and they knew of at least one more yellow Acorn bowl (a third) for a total three known. A review of the "David Doty's – New Field Guide to Carnival Glass for 2008" show each of these patterns are listed in three to four color variations of red. Yellow and Yellow Opal are also listed for the Dragon & Lotus pattern. So, to answer the question: There is a good possibility that all the known yellow pieces are the same type of glass – red glass that did not strike red due to the way it was handled - possibly in the early days when Fenton was perfecting their line of red Carnival Glass.

I am sure there are more pieces of Fenton yellow Carnival Glass

to be discovered. The yellow pieces in the above list were "knowingly" sold as yellow Carnival Glass, but some pieces may have been "unknowingly" listed as another color such as Vaseline; especially, if they had not been checked with a black light. Vaseline glass will fluoresce greenish-yellow whereas selenium red glass, when yellow, will fluoresce orange.


Vaseline glass fluoresces greenish-yellow

For me, the mystery of the Fenton yellow Carnival Glass is solved. It has been known that yellow is the initial color that occurs in the production of red selenium glass. The connection that hasn't been made is - yellow glass, even though not intentional, was iridized and occasionally shows up in auctions. The second mystery, and related to the first mystery, that has also been solved is Fenton "Livery Brown" Carnival Glass. "Livery brown" glass has also been known as the result of red glass being over heated; but again, the connection that has not been made is - livery brown, another unintentional color, was also iridized and shows up in auctions possibly as "amber" or an "odd base color". "Yellow" and "livery brown/amber" are actually two colors representing the beginning and the ending spectrum of colors that occurred in the manufacture of Fenton red Carnival Glass.

There are still many "Riddles to be reasoned, mysteries to be solved" in Carnival Glass. You never know where one of those mysteries might show up - I know I was surprised to find that the amber Acorn bowl in the Air Capital auction was actually iridized yellow glass or - Fenton red glass that did not strike red.

Additional resources: U.S. Patents: 479689, 518336, 576312, 1864858, 1983151 and "Coloured Glasses" by W.A. Weyl, 1959.◊