
CARVING GEM-QUALITY OPAL

By Theodore Grussing

Gem-quality opal poses special problems for the carver that are not encountered when working with low-quality material. Herein the author uses three examples to explore these differences and the implications for success or failure in the final piece.

Traditionally, opal carvings have been created from low-quality, commercial-grade opal that has little or no play of color and is relatively inexpensive. Consequently, neither orientation to maximize the play of color nor weight loss is a source of concern. In the carving of low-grade opal, the primary objective is to display the artist's skill; all other considerations are secondary. Indeed, some carvers prefer to work on low-grade opal because they feel that a substantial play of color tends to obscure the details of the carving, which is a hallmark of their skill.

Opal dealers also have generally shied away from having their gem-quality rough carved. To begin with, gem-quality opal represents a very small percentage of all opal mined, and large pieces (generally 30 grams and up) are rare. The gemstone market usually snaps these pieces up quickly because they yield large stones and matching sets of gemstones for jewelry. Few gem materials are as difficult to match stones in as opal because of the highly distinctive colors, which vary in intensity and pattern from stone to stone. The larger piece of gem rough will usually yield matching stones, and will frequently give a higher percentage of recovery than small pieces. By contrast, there is often no ready market for large pieces of low-grade opal, and carvings have been one of the best utilizations of this type of material.

In recent years, a number of collectors have begun to seek gem-quality opal carvings in their desire to have a prized work of art that is also a fine gemstone. The carving of gem-quality opal, however, has special problems that are usually not encountered with the lower-quality material. Several of these are examined below together with

a description of three examples of success—and failure—in sculpting this material.

KEY CONSIDERATIONS BEFORE CARVING BEGINS

Once the decision has been reached to carve a large piece of gem-quality opal, several problems not normally associated with the carving of opal arise. First, the subject matter must be oriented in the material to maximize the play of color and yet not unduly detract from the detail of the carving. Second, the carving should be designed in such a way that it will retain the maximum amount of this valuable material. Selection of a highly skilled gem carver is also of paramount importance, particularly one with whom you can effectively communicate, given the seriousness of the project. The author has worked closely with carver Shan Gimn Wang on a number of pieces; Mr. Wang shared many of the details of carving opal described below.

THE CARVING PROCESS

In carving opal, most carvers, including Mr. Wang, employ a variety of sintered and plated diamond tools in a flex shaft or permanently mounted arbor to rough out the shape of the carving. The piece is kept cool with water, as overheating of opal at any stage can be disastrous given the risk of vaporizing the natural water content of the

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*Figure 1. One side of the Royal Peacocks.
The carving weighs 504 ct and measures
86 × 34 × 57 mm. Photo by Tino
Hammid.*

material, causing it to crack or pop. After the carving has been roughed out, with particular attention paid to the orientation of the color in the subject matter, the carver begins the polishing process. Some carvers prefer to use diamond paste for the entire procedure; others use a variety of Cratex wheels and water for coolant, and then finish with a slurry of cerium oxide on felt and loose cloth wheels. Fine results may be obtained with either method, but more care must be taken when diamond paste is used, again because of the risk of overheating the material. Cerium oxide tends to erode detail in the carving, so not infrequently the carver must go back and redo small detail areas when cerium oxide is used as the polishing agent.

Generally speaking, the greatest amount of time spent on a gem-opal carving is in prelim-

inary study of the material and in roughing out the carving. In the first instance, the carver must attempt to "read" the rough material to determine where the color bars go, whether the material is clean, and, if not, where faults and/or imperfections in the stone are located. After the stone has been charted, a subject must be chosen that will best fit the material, take optimum advantage of the play of color anticipated, and remove flawed areas. After an acceptable subject is sketched both on paper and on the opal rough, the diamond bits are used to begin the carving. As the stone is opened up, the carver must be prepared to alter design and orientation depending on what he actually finds inside. Once the actual carving is completed, the final step is simply a matter of polishing. In a carving like "The Royal Peacocks" (figure 1), fully 75% of the approxi-



Figure 2. Gem-quality opal rough from which the Royal Peacocks was carved. Photo by Tino Hammid.



Figure 3. Design sketched on partially carved opal rough of the Royal Peacocks. Photo by Tino Hammid.

mately 100 hours that went into this piece was spent on charting the stone and roughing out the subject.

The balance of this article will deal with three carvings: The Royal Peacocks, by Shan Gimn Wang, who carves for Lapidary International, Inc., of Anaheim, California; a black opal snuff bottle, by Hing Wa Lee of Whittier, California; and one that will be referred to here as the "Disaster," by an unnamed but hopefully wiser carver. Each example illustrates a different aspect of carving gem opal.

THE ROYAL PEACOCKS

This very fine piece, shown in figure 1, weighs 504 ct and measures $86 \times 34 \times 57$ mm. The piece of rough from which it was created weighed slightly more than 700 ct and is shown in figure 2. The opal was mined in 1978 by Paul "Gopher" Fraser and Ian "Gunna" Fraser from the Black Flag field in Coober Pedy, South Australia. The Black Flag field encompasses an area of approxi-

mately $365 \text{ m} \times 914 \text{ m}$ (400 yards \times 1000 yards) and is bisected by the road to Adelaide. Until about 1972, the field was little more than an auto dump. Because of its close proximity to the city (about 1 km from the saloon) and its location along the major road into town, the city fathers had the area cleaned up. The rough that was eventually transformed into the Royal Peacocks was found in a freak pocket at about the 1.25-m level on top of the Hard Band level (a layer composed of jasper and gypsum that is difficult to penetrate; the opal levels are generally below this layer).

The rough was purchased by the author in the summer of 1981 as a high-risk piece: although the opal showed numerous, potentially beautiful thick red bars, there were indications that the bars might be sandshot (i.e., granules of sand or dirt would be lodged in the silica gel of which opal is comprised). No amount of "candling" with a strong light behind the stone helped, and the only way to know for sure was to cut into the material.

Because of the doubt about the cleanliness of

the red bars, the author sold the piece to a friend who was willing to take the risk. Shortly thereafter, the decision was made to carve the material.

Shan Gimn Wang was commissioned to do the carving, through Lapidary International. After studying the opal for several weeks, Mr. Wang proposed several viable plans based on his knowledge that the central area, as previously mentioned, was comprised of numerous thick, straight red bars and the sides of the piece were potch (common opal, no play of color) with several undulating bars and swirls of intense blue and green in them. The idea that appeared most promising was to use both outer sides in a heavy relief carving, and to cautiously expose the underlying red bars; if the finished carving was to reach its maximum potential, these bars would have to be exposed substantially and they would have to be good, clean material, not sandshot. Peacocks were selected as the subject matter of the relief carving. Mr. Wang determined that peacocks would give him the greatest artistic freedom to use the undulating color bars and, too, that the colors in this area of the opal were very similar to those found in the live birds. Also of great importance was the ability to adjust the positioning of the peacocks depending on the colors and their orientation. Figure 3 shows the design on the opal shortly after the rough carving process had been started.

Soon after work began, the choice was confirmed, and it also became apparent that the red bars were clean, not sandshot. One major surprise was the uncovering of a thin, but extremely intense, lime-green color bar, which serves as the background for the peacock on the other side of this piece.

This carving illustrates the extraordinary skill required in carving gem opal, an intertwining of the sculptor's art and the very strong play of color of the stone. The weight retention was nearly 72%. This carving is currently on loan to the Los Angeles County Museum of Natural History.

BLACK-OPAL SNUFF BOTTLE

Some time ago, a friend of the author purchased a snuff bottle of black opal that was so poorly carved and polished that almost no play of color was present on its face. There was, however, a strong, reasonably thick color bar of blue, green, and some red on the sides running under the face of the bottle. It did not appear that the bar had

been exposed, but it was obvious that the original carver had at least partially hollowed it out. Two questions arose: (1) Would there be sufficient thickness left when the piece was recarved to expose the color bar? and (2) Would the bar display strong play of color? After examining the piece, skilled carver Hing Wa Lee reported that there was a reasonable possibility of salvaging it and exposing the beauty of the hidden color bar. The result of his reworking of this piece is pictured in figure 4. The color bar is now exposed and the bottle takes on new life: strong electric blues and greens roll across the surface, with some reds as well. It has been estimated that the value of the carving was increased by a factor of seven even with a weight loss of over 25%. This black-opal carving, weighing just over 100 ct, is currently on loan to the Los Angeles County Museum of Natural History.

Figure 4. Black opal snuff bottle after being recarved, 100 ct. Photo by Tino Hammid.





Figure 5. Although the actual workmanship on this piece is good, the carver has eliminated the play of color and thus destroyed the impact of the opal. Photo by Tino Hammid.



Figure 6. In this opal carving, the carver has fully utilized the play of color in the stone to highlight the subject matter; 34 × 31 × 14 mm, 130 ct. Photo by Tino Hammid.

THE "DISASTER"

The play of color in opal is the primary source of its value as a gem material; this factor is further refined into intensity of color, number of colors, which colors, color patterns, percentage of coverage in color, trueness of color, whether or not the color is directional, and so on, but in the end it all boils down to color.

In the previous two examples, Messrs. Wang and Lee optimized the value of the opal entrusted to them by using their highly refined skills to work *with* the opal. This last example shows how a person, though skilled in the art of gem carving, proved inept in dealing with the play of color in fine opal and caused irreparable harm to a collector's piece.

The anonymous carver was given a fine piece of Olympic material (Olympic field, Coober Pedy, South Australia) to work with. The rough opal weighed approximately 800 ct and was a solid chunky piece with numerous strong color bars in it. It was anticipated that a magnificent carving would emerge, displaying strong and uniform play of color. The result was, literally, a disaster: the

collector who owned the piece received a very fine carving, from the point of cleanliness and detail, but the stone had virtually no play of color. Indeed, it appeared that the carver had set out to destroy color wherever it surfaced and left it buried under potch wherever he was unable to drill it out. The weight loss of over 65% was greater than would have occurred if the stone had been cut into cabochons. The result (shown in figure 5) is a nicely carved piece of opal that shows very little play of color and is worth a fraction of what it could have been. Figure 6 illustrates the results in similar material when the carver (in this case, Mr. Wang) makes full utilization of the play of color.

CONCLUSION

The carving of gem-quality opal requires a highly skilled artisan who knows how to utilize the play of color in his art. In the final analysis, it is the play of color in opal that determines its value, and one who is skilled in bringing this color out and properly orienting it in his carving will greatly enhance the value of the finished piece.