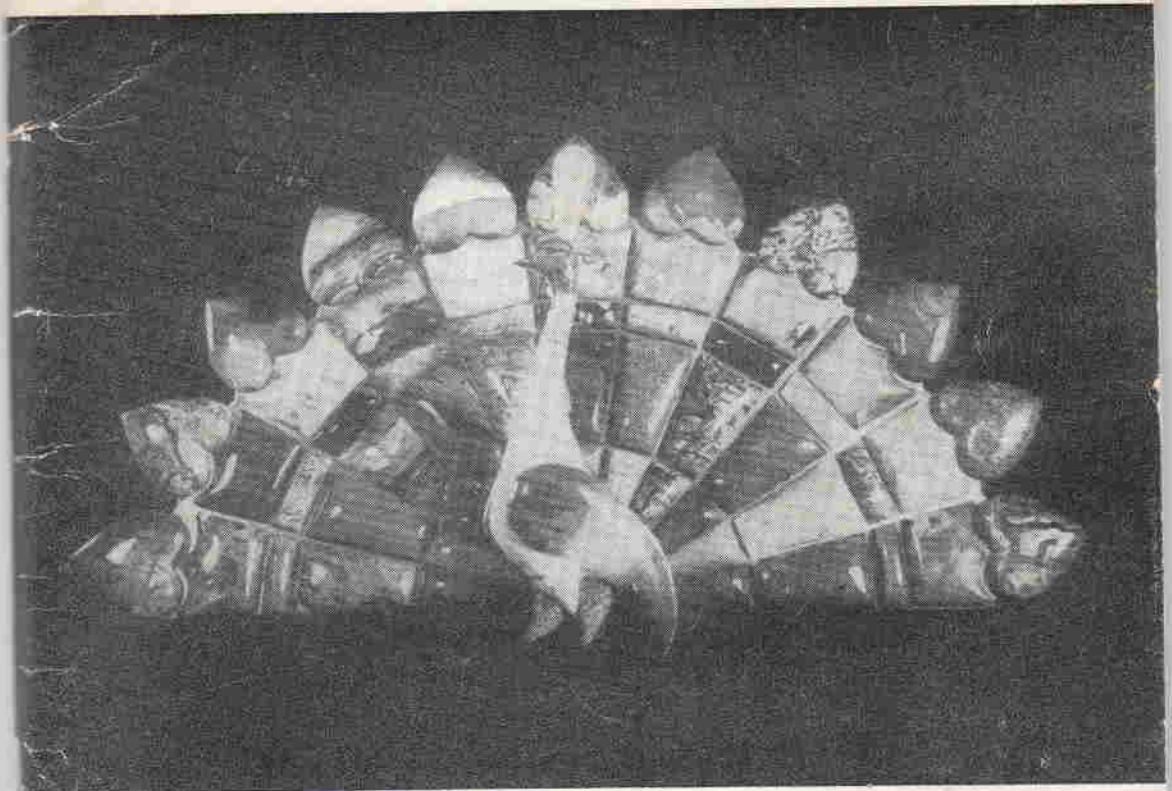


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Chatham's Cultured Emeralds; An American Achievement

By Frederick H. Pough

Author of "The Field Guide to Rocks and Minerals"

This interesting discussion of the controversial term "cultured" as it applies to man-grown natural materials makes its point, we feel. We have called Chatham emeralds both "cultured" and "synthetic," largely because we accepted author's terms. As far as we know, no one has yet definitely settled on the proper term and made it "official." We are inclined to the "cultured" school for the reasons stated by Dr. Pough. Left to ourselves, this is the term we will use. Ed.

The protective secrecy that has cloaked Carroll Chatham's method of growing emerald crystals in his San Francisco laboratory has also prevented full scientific appreciation of the accomplishment, so he has not received the recognition to which he is entitled. Had emerald crystals been of defensive value, or something more spectacular like General Electric's diamonds (with a publicity staff to beat the drums), Chatham's fame would have long since rung round the world. As it is we have a remarkable situation.

The French mineralogical society this winter felt it worthwhile to publish a short description of a method, adapted from the work of Hautefeuille and Perrey back in the 1890's, that is producing microscopic emerald crystals. Not only is the product minute—the authors concede that their attempts to grow them larger have not been successful. So a method, a secret though it is, that can grow emerald crystals to the size of the one that Chatham displayed at the 1955 International Exposition in California (1275 ct.) is certainly worthy of more appreciation than it seems to have received abroad, and from scientists everywhere, since the French, with their great chemical tradition, consider their paper worth publishing.

Part of the difficulty with wider acceptance of Chatham emeralds is to be attributed to our uncertainty about what to call them. An analysis of the applications and implications of "synthesis" show that is not a descriptive term for crystals that have grown themselves in hot solutions under pressure (in the

natural crystal growing environment, actually), nor is its use advisable from a merchandising and acceptance standpoint. A jeweler can hardly sell a customer for \$200.00 a carat, a stone under the name "synthetic emerald" when that customer has long since seen other stores selling glass-tinted triplets of rock crystal under the same name at a third of that price for the whole ring. That such usage is a complete misnomer, an out and out swindle, is little help to the jeweler with the fine Chatham gems to sell.

It is now generally agreed that our vocabulary needs to be expanded to agree upon terms for all the single crystal growth methods, and particularly to



An interesting specimen of Chatham cultured emerald that shows the varied growth pattern developed by the natural heat and pressure method used to grow these man-made gems.



A Chatham cultured emerald crystal.

(Advertisement)



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distinguish between those that are grown by natural processes, in which an environment is established and Nature is allowed to dictate the time, the speed and the shape of the ensuing growth; and those forced manufactures of mineral materials by quick and efficient methods that shortcut Nature and produce approximations of the natural stones without the finer details that give the individuality and beauty to the slowly crystallized gems.

For this reason, the term "cultured" that was proposed is not entirely without merit. An amusing controversy arose in England when it was suggested there that Chatham's stones should also be dignified with the name cultured. Short memories have given the term for Japanese cultivated pearls a type of respectability that British conservatives were unwilling to broaden to include the rationalized skills of man as the equals of a thin-shelled, tumor-ridden oyster. Logic is also against the British stand, though an American can hardly become very excited about the rights of an oyster to exclusivity in culturing, as he nurses a pearl in what must pass for his bosom. It would certainly be news to the manufacturers of vaccines and serums!

Aside from this nonsense, one should be practical, too. The amateur cutter is as much concerned as the jeweler with the acceptance of Chatham emeralds as true gems. He too is interested in gaining acceptance for his products, and every amateur would like to cut a fine emerald. Very few displays at gem and mineral shows include much cut glass or common synthetics, for the amateur values his skill too highly to be willing to spend very much time on unworthy materials.

Neither glass nor the common synthetics (and by them it has been generally agreed we mean the Verneuil flame-fusion grown boules) presents much of a challenge to the cutter. Who wants to put \$100.00 worth of time into a bit of broken beer bottle? Good emerald rough, on which an amateur can practice, is unobtainable. The only solution for the cutter who wants this fun and this experience is to cut some Chatham crystals. If he foolishly then

calls them "synthetic" and displays them side by side with ruby and "alexandrite" synthetics (that can be bought, all cut, from Germany for under \$1.00 a carat), he should have his head examined!

Chatham's process yields material of several qualities; as many as Nature's! The advantage of this to the amateur (and we won't attempt to discuss the even greater advantages to the jeweler here) is that much of the harvest is what is considered of low quality, which is sold for perhaps \$1.00 a carat. It is not true that good stones cannot be obtained from such rough; good small ones can be, but it takes the skill, the interest and the patience of a good lapidary to work them out. Commercial cutters haven't the time or interest in such stones, and therefore pay more for larger, clearer pieces of rough that don't require so much skill and planning. It's

their money that keeps Chatham going. Actually, to the amateur, the challenge presented by some of the less expensive crystals is half the fun of it. Getting a stone that a jeweler would pay \$50.00 a carat for from a crystal that might have cost only \$5.00 can give the amateur cutter a real thrill.

Don't underestimate the beauty and the value of Chatham's stones, and while you are cutting one, give due credit to the creator of this new gem material, for he has done something no one else had done; working all alone in his laboratory with none of the money, intellectual teamwork, and resources of a great company. This too is something in which Americans can take a little pride. In the future, cultured emeralds will occupy an increasingly important niche in the trade, and the amateur should not fail to have his share of the fun early in the game.

Our Cover . . .

Over 150 hours of cutting and polishing went into making the gorgeous gem stone peacock that graces our cover this month. It is the work of Mr. and Mrs. Ronald Gall of the Slover Gem and Mineral Society, Colton, Calif. The Galls have only been working with rocks for about two years but they already have over 400 cabochons to their credit, besides the peacock. The colorful stone bird was first shown at the Slover Society's first show this year. It was also one of the attractive exhibits at the San Bernardino Gem and Mineral Fiesta. The peacock contains 62 cabochons of 40 different materials, reading like a list of the quartz family minerals plus several others. The fan-like tail is mounted on stainless steel and the body and head are in a silver bezel. It is 14 inches across and eight inches high. The riot of color truly rivals the coloring in the live prototype. The photo was made by Yvonne Gall and Bill Weischedel of Colton.

Bags for Your Loot

The habit of using burlap bags on an extended collection trip is quite practical but for utmost utility they should be filled only to their easiest handling and storing capacity. Such practice is facilitated by starting out with a good supply of clear plastic bags to hold not only extra special specimens but also the numerous small pieces that may be collected at different locations. By leaving a little slack in the plastic bag you insure pliability and should be able to store any number of them easily, as though the rocks had been tossed loosely into the burlap bag.

The plastic bags, when filled, may be tied, but sealing the open ends with a strip of good adhesive marking or masking tape is a better idea. You will also find yourself well supplied with good identification stickers at the same time . . . right off the roll of tape. Many sizes of these clear plastic bags are to be obtained free along with fruits or vegetables at your nearby market. — *Braggin' Rock.*

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