

FORTUNE

August 1950

Emeralds in the back room

THE SYNTHETIC GEM CRYSTAL that seems to sell with least difficulty is Carroll Chatham's emerald. Considering the magnitude of his achievement he is practically unknown, even in his home town, San Francisco. While Chatham goes out of his way to be ethical, gemmologists have no doubt that his emeralds are often passed for the real thing.

The crystals, which duplicate a gem as valuable as a diamond, are made in Chatham's two-room laboratory in San Francisco's seedy Mission district. Chatham commutes to work from his small rented house in a 1940 Oldsmobile. When he arrives at his laboratory, he locks himself in a back room that no one but his wife has ever entered.

Carroll Chatham had a boyhood flair for chemistry. By 1930, when he was only sixteen, he had produced colorless bits of emerald's basic crystal, beryllium aluminum silicate. He then took time out to study chemistry at California Institute of Technology. In 1935 he grew his first true emerald, a crystal weighing one carat, now in the Smithsonian Institution. Chatham's triumph was somewhat spoiled when he learned that I. G. Farben had that same year produced emeralds large enough to be cut into gems. In the next ten years, however, he learned to grow larger and better crystals than the Germans ever did.

Within the last year Chatham has stepped up his production and is currently growing about 2,000 carats a month, of which nearly half are of gem quality. The biggest demand is for one and one-and-a-half-carat stones, which retail at \$120 a carat, but some three-carat stones have been cut, and one as large as six carats. (His largest rough crystal weighed 640 carats, but had no gem value.) All told, Chatham has turned out nearly 10,000 carats of good-quality emerald in fifteen years and he has a backlog of \$100,000 in orders.

All Chatham will say about his process is that forty-five steps are involved, and that a batch of crystals takes about ten months to mature. ("It's always something of a gamble how many good ones will come out.") Crystal experts feel sure that Chatham must use a bomb technique like that used for quartz (see diagram, page 99). "Someday somebody's sure to find out the secret," says Chatham, "but I wouldn't sell it for a million bucks."



Carroll F. Chatham