

Largest Manufactured Diamond Made Here

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The largest known manufactured diamond in the world—a 20-carat cylinder larger than a toothpaste cap—has been produced by a team of Utah scientists after years of in-

tensive research in a secluded Provo laboratory.

Dr. Harvey Fletcher, former director of the Bell Research Laboratory, called the achievement one of "far-

reaching significance," and Governor Calvin L. Rampton issued the following statement:

"The creation of a multi-carat diamond by man is, without question, a technological

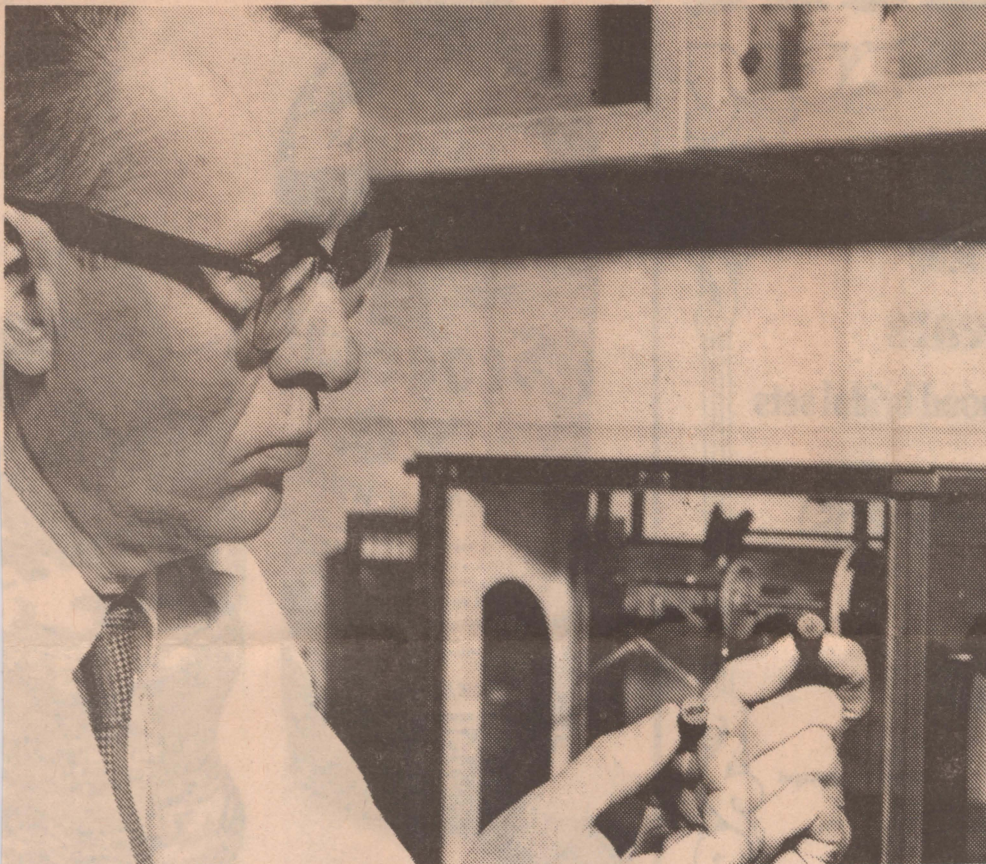
breakthrough of the highest order. We are justly proud that this event has been achieved in Utah—proud of our Utah industry and proud of the extraordinary talent that chooses Utah as a place for man, for industry, for movement forward. Utah salutes Dr. Tracy Hall and Megadiamond Corporation."

Dr. H. Tracy Hall, who in 1954 became the first man to accomplish a confirmed synthesis of diamond, unveiled the unpolished grey-black stone at his tree-cloistered Megadiamond Corporation laboratory on the outskirts of Provo this morning.

Dr. Hall is president of Megadiamond and is a distinguished professor at Brigham Young University. Dr. Hall said the process breakthrough that made possible creation of the stone, called Megadiamond T, is more significant than his initial discovery of how to make diamond. "It is the harbinger," Dr. Hall said, "of an exciting new era in industrial diamond technology."

Dr. Hall explained that the application of this industrial diamond is expected to revolutionize the diamond die and tool industry. Megadiamond is now producing diamond dies, lathe cutting tools and a Megadresser. The dresser is a gem-quality application and Dr. Hall expects to take over the tungsten

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DR. H. TRACY HALL holds 20-carat Megadiamond T cylinder—world's largest known man-produced diamond. The material, expected to find widespread use throughout

industry, was made possible by a first-of-its kind process perfected by Dr. Hall and his associates at the Megadiamond Corporation laboratory in Provo.

Hall Reveals Largest Manufactured Diamond

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carbide wire-drawing guide market. This is about a \$20 million industry per year in the carbide market alone, Dr. Hall explained.

At the press conference Thursday morning, Dr. Hall displayed the wire-drawing guide die, which had previously been limited to two-carat diamonds. They are valued at \$600 each, and Megadiamond is producing one that is one-eighth center hole with a 4½ carat Megadiamond. He said there would be a substantial reduction in price.

Patent on the press is owned by Research Corporation and royalties on the patent are divided 42½ percent to Research Corp., 42½ percent to BYU, and 15 percent to Dr. Hall. Patents have been filed by Megadiamond throughout the world.

The commercial production of Megadiamond T can begin immediately, according to Dr. Hall, who said Megadiamond T of 100 carats is within the firm's capability.

The 20-carat stone is the result of a first-of-its kind process for bonding diamond particles into large, useable polycrystalline diamonds, Dr. Hall said.

Many Advantages

"The closest thing in nature to Megadiamond T is carbonado, a polycrystalline diamond mined chiefly in Brazil," he said. "Carbonado is extremely tough, but because of its many-crystalled structure it is not easily shaped. You can't cleave it accurately — you have to grind it to the shape you want. Since only diamond will cut diamond, this is an expensive process ... analogous to cutting a board with a wooden saw."

Megadiamond T can be formed directly in virtually any desired shape—wedges, points, flat plates, pierced parts, rollers, spirals. This eliminates time consuming grinding processes and opens up limitless possibilities, particularly in view of the fact that industrial diamond use is increasing 10 percent a year. This is twice the

annual industrial growth rate.

Immediate applications the firm sees for Megadiamond T are wire-drawing dies, drills, chisels, thread guides, saws, blades, specialized machining tools, and grinding wheels and grinding wheel dressers.

Dr. Bill J. Pope, who collaborated on the project with Dr. Hall and with Dr. M. Duane Horton, said Megadiamond T has far greater strength than existing industrial diamond materials, which are held together with plastic or metal bonding agents. "That's another reason we are confident we are going to have real impact on the country's \$100 million-plus annual diamond tool industry," said Pope.

New Phenomenon

Commenting on the appearance of the Megadiamond, Dr. Horton, vice-president and secretary-treasurer, said, "Something happens in the bonding process—we're not certain just what—that absorbs all light in the diamond material. We are conducting further research on this phenomenon."

Some 80 percent of the diamond market is industrial, according to Horton, making Megadiamond a top contender in an area of first priority.

The manufacturing process consists of subjecting natural or synthetic diamond particles to ultra-high pressure and temperature in Megadiamond's six-ram, high pressure press. Dr. Horton notes the press rams have enough thrust to lift 36, 100-ton locomotives off the ground simultaneously. As for temperature, Norton says it is higher than that required to melt steel.

Megadiamond Corporation was organized in 1966 by Hall, Pope and Horton. The corporation is housed in a 2,000 square foot block building in north Provo.