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 - Apartments
 - Marketplace
 - Create an Ad
 - Find an Ad
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- Local
 - Nation
 - World
 - Obituaries
 - Weather
 - Traffic
 - Photos/Wallpaper
 - Politics
 - Weird News
 - Lottery
 - Latest updates
 - Columnists
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- Entertainment**
- Business**
- PhillyWomen**
- Home & Design**
- Health**
- Travel**
- Education**

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- Traffic reports
 - Weather
 - Past articles
 - Maps & directions
 - Newsletters
 - Yellow Pages
 - Discussion boards
 - Freebies
 - Celebrations/
Weddings/engaged
 - Special sections
 - View print ads

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 - Advertise
 - Buy photos
 - Online store
 - RSS

- Partners**
- PHILLYfunguide.com
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video
 - Bucks Midweek
 - Montco Midweek
 - Northeast Times
 - Taste of Phila.
 - Beach and Bay Homes
 - Active Adult 55+
Housing
 - New
Homes/Communities

Back to Home > News > Friday, Mar 02, 2007

Nation

Posted on Fri, Feb. 16, 2007

Professor: Ancient diamonds fell from space

By Noah Bierman
McClatchy Newspapers
(MCT)

MIAMI - Professor Stephen Haggerty retrieves a 730-carat black diamond - the size of an apple - from his desk. It's nearly impossible to cut, potentially billions of years old and, he believes, a product of outer space.

Haggerty, 68, is a man driven by diamonds to far and dangerous places - Siberia, where he met his wife; the Ivory Coast; Sierra Leone; Liberia. But he is entranced neither by diamonds' beauty nor their cash value. He gives his wife emeralds.

Diamonds, for him, are a "window" into the earth's core and its history, "natural antiques." To him, the diamonds are less valuable than the geology lessons they contain.

"They're a time capsule," he said. "They're consistently the oldest objects on the earth."

A Florida International University geologist since 2002, Haggerty is a top expert in the science of diamonds. In December, he, a graduate student and a team from Case Western University published a study that he says provides the strongest evidence yet that the black carbonado diamonds on his desk were formed in outer space, perhaps more than four billion years ago, arriving to earth as meteorites.

In other words, these cold, hard pieces of cosmic dust may have taken their form before the planet Earth existed, and before the solar system was formed.

Haggerty is widely respected among scientists, but his extra-terrestrial diamond theory is meeting some skepticism.

Conventional diamonds come from both outer space and deep beneath the earth's crust - where they are pushed up from 120-mile depths by volcanic eruptions.

Carbonados have long been considered one of the great mysteries of the diamond world - more porous than regular diamonds and found in isolated, far-flung places.

They are not used in jewelry. The diamonds are just as hard as conventional clear diamonds, but they possess even more toughness - the scientific measure of how hard they are to break or to cut. Haggerty once tried cutting one with a saw. After a week, the saw burned out. His student tried for a month, to no avail.

But the carbonado can be used in industry, though they are not currently mined. French colonialists mined them in Brazil in the late 19th century for use in polishing hard woods, Haggerty said. In the early 20th century, builders used them as drill bits on the Panama Canal project.

Outside of Brazil, they are found only in the Central African Republic.

"In Africa, the country's almost paved with them," said Patrick Taylor, a geophysicist at NASA/Goddard Space Flight Center in Greenbelt, Md., and one of the few people who have studied the diamonds.

The carbonado diamonds are much bigger than their clear cousins. The biggest reported is the size of a cantaloupe - 3,167 carats - a full 61 carats heavier than the Cullinan diamond, the record-size conventional diamond held among the British Crown jewels, Haggerty said.

Haggerty has been theorizing about the carbonado's extra terrestrial origins for a decade. His latest research, published in The Astrophysical Journal, relied on colleagues measuring carbonados' energy waves at the Brookhaven National Laboratory in Long Island and comparing them to known extraterrestrial diamonds. They needed a 20-ton hydraulic press to break one.

"He always has interesting notions, but I don't believe it," said Paul DeCarli, a senior research scientist emeritus at SRI International in Menlo Park, Calif., who believes the diamonds were formed on Earth, transformed deep underground and then regurgitated.

Peter Heaney, a mineral science expert at Pennsylvania State University, calls Haggerty one of the diamond world's most vibrant thinkers but says his latest paper is not the "smoking gun" that solves the Carbonado mystery.

"It's not really to say that he's necessarily wrong," Heaney said. "Everything's on the table now."

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