New Orleans Chapter Newsletter
Society of Independent Professional Earth Scientists
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OPEN MIKE

Chairman's Column

Last month approximately 20 of our members attended the joint API luncheon downtown at the Roosevelt Hotel. Tommy Beaudreau, Director of BOEM and Don Briggs, President of the LA Oil and Gas Association, jointly addressed the group. Without going into details, Briggs' talk was far and away the most interesting and informative. A bizarre twist to the end of the meeting was when a group of anti oil and gas protestors entered the rear of the meeting room and began to chant their usual "clap trap". Hopefully they all got back to their bikes and pedaled safely back to wherever they came from!

This month is our annual "no speaker" meeting, back at Andrea's on Tuesday, December 18. Bring your jokes, gripes, suggestions, etc.

The meeting dates for next year are: January 15, February 19, March 19, April 16 and May 21 (evening)
We will adjust dates if there is a conflict with any other significant events. All of the meetings will be at Andrea's.
We have submitted a membership application for L. W. "Dick" Paxton for approval.

Reese recently sent out e-mail notices to members with unpaid dues; while the response has been good a few are still outstanding. Check to make sure you are not delinquent!
Since this is our last newsletter for this year, I want to take this opportunity, on behalf of your officers and committee chairmen, to wish everyone a Merry Christmas and Happy New Year!

Louis E. Lemarié
Chairman

Tuesday, December 18th
Andrea's - Metairie

Registration & Networking - 11:30 AM Sound Off - Noon
Reservations and guests: Carol St. Germain - 504-267-3466

What is the Wetumpka Impact Crater?

Wetumpka, Alabama, sits right on the bull's eye of the greatest natural disaster in Alabama's history. The hills just east of Downtown are the eroded remains of a five mile wide meteor Crater that was blasted into the bedrock of Elmore County. The mighty blast occurred near the end of the Age of the Dinosaurs, about 83 million years ago. All around the circular pattern of hills that make up the remaining rim of the crater, the hard rocks of the Piedmont are bent sharply up and pointing toward the center of the impact. The normally horizontal layers of more recent surface rocks are mixed in and around the crater suggesting an incredible explosion that would have destroyed all life for a radius of about forty miles.

How was it discovered?

Geologically speaking, something is wrong with the vaguely circular patch of hills located immediately south and east of Wetumpka. Normally in this area, the soft sedimentary rocks of the Costal Plain smoothly overlap the harder and older metamorphic rocks of the Piedmont, but at Wetumpka, this is not the case. In the crater area, rocks of more than two hundred million years difference in age are intermixed. At Bald Knob, where communication towers overlook Wetumpka, a curved ridge of very old metamorphic rock protrudes seven hundred feet above its normal level through jumbled layers of much younger rocks. Below the surface, the entire area is surrounded by concentric rings of fractures and zones of shattered rock. Nowhere else along the 2,250 mile border of the Piedmont does anything similar exist.

In 1891, State Geologist Eugene Allen Smith noted the unusual nature of the Wetumpka area, and for many years the area was marked on geological maps as "structurally disturbed".

In 1972, Geological Survey of Alabama Geologist Tony Neathery was heading a team that was making detailed geologic maps of Elmore County. They had been mapping for several months, but as they approached Wetumpka, they started finding rock layers that were bent at dramatically different angles and directions than other rocks in the area. As they measured and mapped, it became clear that all these features were pointing toward the hills east of Wetumpka. When they looked at these hills, the rocks in the center seemed chaotically disturbed and intermixed, very unlike the evenly horizontal rocks surrounding the area.

In 1976, they published their finding, calling the feature an Astrobleme, literally, a "star wound". For a number of years, this conclusion was greeted with skepticism by most geologist. During 1998 two wells were drilled into the bedrock and core samples were extracted for testing. Geologist hoped to find materials proving the "star wound" theory. The research team was headed by Dr. David T. King Jr. Professor of Geology, Auburn University. The researchers indeed found the core contained shocked quartz, which can only be formed by an enormous explosion such as a large meteor impact would cause. Dr. Peter Schultz , a Brown University authority on impact craters visited the site in 1999 and affirmed the previous findings. Christian Koeberl Institute of Geochemistry, University of Vienna, an international expert on impact craters also examined the evidence and confirmed the presence of shocked quartz and other minerals that would definitely confirm the site as an impact crater. In the fall of 2002 the scientist published the evidence and established the site as an internationally recognized impact crater. It is believed that at the time of the impact the area was covered by a shallow sea of up to 100 feet in depth, making this the best preserved marine impact crater in the world.

How big was it?

As a rule of thumb, a hypervelocity projectile causes a crater of about twenty times it's diameter. Given the diameter of the Wetumpka crater and using this formula, the meteorite is estimated to have had a diameter of about 1000 feet. Since no fragments of the meteorite have been recovered (most of it probably vaporized upon impact), the composition of the object is not known, but since stony meteorites are far more common than iron meteorites, the former would seem to be the best guess. To give one some idea of how large this object was, the Wetumpka meteorite is said to have been large enough to fill the entire bowl of Jordan-Hare Stadium at Auburn University.

The enormity of the Wetumpka explosion is hard to comprehend. The impact of a large object traveling at 40,000 miles per hour would cause an explosion that would dwarf even the largest thermonuclear weapons.

Excerpted from the City of Wetumpka webpage http://www.cityofwetumpka.com/Default.asp?ID=145

See accompanying brief article on the economic impact of impacts on page 4 of this issue.

Meteor craters may hold untapped wealth

SYDNEY: Meteorite impacts not only alter life on Earth, they alter the rocks in ways that can create valuable mining resources. Finding them could speed up the process of locating mineral wealth, says an Australian expert.

"... an estimated 25 per cent of the world's impact structures are associated in some way with economic or sub-economic mineral and petroleum resources," said Peter Haines with the Geological Survey of Western Australia. These include gold, platinum, diamond, nickel and petroleum. While many mineral deposits have been recently recognised as having their origin in meteorite or comet impacts, locating the impact first and then looking for mineral wealth could speed up the process, he said.

Many impact-related deposits are known around the world and are of substantial size. Examples include the Vredefort crater in South Africa – the biggest and oldest impact crater on Earth and home of some of the world's richest gold deposits. The Sudbury Structure in Ontario, Canada, is the world's second-largest impact crater and hosts the world's largest deposit of nickel–platinum ore.

"Many geologists are not familiar with impact structures. They see impact structures as something of academic interest and of no great economic significance, but the case overseas clearly demonstrates that they can be of considerable economic importance," said Haines. Mineral resources can form immediately or some time after the impact, he said.

For example: a shower of comets smashing into Siberia 36 million years ago formed the Popagai crater and transformed the carbon-rich rocks into impact diamonds. Minerals can also form from melted crust; the 10-kilometre-wide meteorite that formed the Sudbury Structure in Canada created a pool of molten magma in which the heavy minerals nickel and platinum sunk and concentrated in a layer.

Buried impact structures, such as those found in the GoM, form favourable sites for oil, gas and petroleum reserves.

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Mark Your Calendars!
New Orleans Chapter

2012 Luncheon Meetings

November 15 - Joint API
December 18

Visit our SIPES New Orleans Chapter Website
http://www.sipesneworleans.org/

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Merry Christmas,
Seasons Greetings and
a Happy New Year
from the Officers and Staff of
your New Orleans Chapter of
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