UNWRAPPING A GIFT FROM THE HEAVENS:

The best things in life aren't things at all. They are ideas, feelings and perceptions that can change our lives for the better. Today, I offer a simple gift. It's a Christmas story for people of all faiths that's every bit as homemade as a holiday cookie, and every bit as true as an op-ed column should be. Here goes.

"Star of wonder, star of night, star with royal beauty bright."

So begins the chorus of the familiar carol "We Three Kings." Modern-day interpretations of the mythical star of Bethlehem are contradictory. Was it a miracle? Was it an exploding star, a supernova? Was it an unusually luminous planetary alignment? Or was it a comet streaking its way toward earth in the direction of Bethlehem? True believers will keep on believing the magic. Scientists will keep on being frustrated by the lack of hard data on which to test different hypotheses.

I have nothing new to add to this familiar story. Instead, I confess to using one of the oldest marketing techniques in the book: bait and switch. Now that I've caught your holiday-season attention, I wish to guide it toward a fairly new story about one of the greatest gifts ever given to America. It, too, concerns a bright star of wondrous beauty and extraordinary might. But this star gleamed on this side of the Atlantic, and much earlier than its New Testament counterpart.

The American event was a massive shooting star that streaked through the atmosphere at tens of thousands of miles per hour. It slammed into eastern North America in one of the largest collisions known, producing an impact crater 60 miles in diameter and at least a half a mile deep. All this happened about 35 million years ago, during Earth's Eocene epoch, a time when monkeys began evolving and when whales still had legs.

The consequences of this long-ago event continue to influence recent American history, by which, as a geologist, I mean the last 400 years. It concerns Chesapeake Bay, the largest estuary in the United States and the focus of the first permanent English settlement in North America, beginning in 1607. Ground zero for the impact lay at the southern tip of what is now the Delmarva Peninsula near Cape Charles, Va. Surrounding the central crater on all sides is a doughnut-shaped trough. The opening to Chesapeake Bay coincides exactly with the southern part of the crater's doughnut-shaped trough. The locations of the most successful English plantations -- near the mouths of the James, York, Potomac and Rappahannock rivers - - coincide with the western rim of the trough. The point at which the bay widens dramatically to the north coincides with the northern rim. The eastern rim is the open Atlantic. Though geologists continue to work out the details, the bay itself seems to be a gift of the "star" that slammed into Earth so long ago.

The crater is no longer visible, having long since been buried by more than 1,500 feet of sandy mud. The scientific hypothesis is that the crater created a topographic low spot where the bay opening is now (and a slightly higher spot just to the north), which gradually led to the present landscape, which led to the most successful English colonial settlement, which eventually led to the United States of America. The opening to Chesapeake Bay and its western rim are but ghosts of the more dramatic differences beneath the coastal plain at depth.

The best gifts are often those that we don't recognize as gifts when we receive them. The gift of safe harbors for early English colonists has been known for more than four centuries. But the gift of the Chesapeake Bay impact structure has been known for scarcely more than a decade. Who would have thought that such a mighty "star" could one day precipitate a chain of events leading to the founding of a New World nation?
The message? The best gifts are all around us, waiting to reveal themselves when we are ready to understand.