SOUTHERN MARYLAND IN DEEP TIME

A Brief History of Our Geology, Part III: “A Tale of Two Impacts”

By Peter R. Vogt

(Editor’s Note: This is the third in a series of articles describing the geology of our area of the Chesapeake Bay. Dr. Vogt is a geophysicist at the Naval Research Laboratory in Washington and a long-time resident of Calvert County.)

Two major impacts from outer space affected our local geology: the great Chicxulub (65.0 Ma) and the Chesapeake (35.5 Ma), as shown on the maps accompanying this article. (Ma, or Mega-annum, is shorthand for million years ago). No sediments from the time of these impacts are known to have been preserved in Southern Maryland, but there is a good chance that small secondary craters from the Chesapeake impact might be hidden under the cover of younger layers. With a “ground zero” near Cape Charles on the lower Eastern Shore, the Chesapeake impact was only eighty miles from Solomons. The buried, and thus well-preserved fifty-five-mile-diameter crater, discovered in 1993 by C. Wylie Poag, is the biggest known in the United States. Megatsunamis hundreds of feet high washed over our area, leaving devastation in their wakes. But as great as this impact was, few species became extinct.

The Chicxulub impact was another story entirely. Boreholes elsewhere notably on the submarine “Blake Nose” site (see map) and in Bass River State Park in New Jersey have recovered the “boundary clay” (stuff thrown out of the crater) and sediments laid down in the first millenniums after the impact. From these and other samples, plus much research in the past twenty years, we can say a lot about what must have happened 65.0 Ma. (The zero after the decimal indicates that the age of this fateful collision is known to within one part in a thousand, making it by far the most accurately dated event that far back in “deep time.”) The bones of the very last dinosaurs and ichthyosaurs living in what is now Southern Maryland are long gone - they MIGHT even have included the infamous T. rex, who evolved in the western United States but could have broadened its horizons if it migrated our way during the few million years before the Chicxulub impact, as the shallow sea that had long separated us from the west slowly withdrew. Even without their bones, we can surmise how our last giant reptiles perished.

The kamikaze asteroid, which ended the world of dinosaurs and so much more, landed at ten to twenty thousand miles per hour near the modern village of Chicxulub Puerto, on the coast of Yucatan. This is about 1,400 miles from Maryland, about the same distance as Denver. The resulting 110-mile-diameter Chicxulub crater is the largest impact crater preserved on Earth. The responsible asteroid was about six miles in diameter and contained some thirty-five cubic miles of rock. The energy released is hard to grasp: some HUNDRED THOUSAND times the energy released if all the world’s nuclear arsenals, taken to be 20,000 Megatons TNT equivalent, were detonated at one place and time! In the early 1970s I published a paper attributing the extinction of dinosaurs to massive volcanism, but no volcanic event can match the impact of a sizeable comet or asteroid in energy.

The Chicxulub impact created a holocaust for life on Earth but, compared to Earth itself, was just a pin prick! One day (or night), perhaps in June, the dinosaurs of eastern South America saw a brilliant object high overhead, sliding silently northwest. For all the creatures of the earth except those on the deep ocean floors, this would be the worst day in at least a quarter billion years! Five or ten minutes after the asteroid passed high over South America, the fateful impact occurred. Within seconds the space rock had gouged a five-mile-deep cavity and blasted itself, plus many more Earth rocks, into smithereens. (By far the LARGEST piece of asteroid recovered is just a tiny pebble).

What happened in the following minutes and into millenniums later was overkill. The impact triggered so many different killing mechanisms that science will probably never know which combination of them wiped out any particular species. The impact caused an earthquake of magnitude twelve or thirteen (the largest historical shock was about nine). A little more than four minutes after impact, the first seismic waves arrived in the Maryland area, followed by larger tremors which probably snapped off our trees and bowled over dinosaurs. Recent drilling in the nearby Atlantic Ocean (Site 1049) shows that great masses of mud were dislodged (Continued on Page 6)
WM. B. TENNISON CENTENNIAL – 1899 TO 1999

Nineteen ninety-nine marks the centennial of the launching of the bugeye WM. B. Tennison. Built in 1899 at Crabb Island, near Orio in Somerset County on the Eastern Shore, she served first as an oyster dredgeboat and later as an engine-powered oyster buyboat. From 1945 until 1978 the Tennison was owned by the J. C. Lore & Sons company of Solomons. The following year she was purchased by Calvert County to become a floating exhibit and excursion vessel at the Calvert Marine Museum.

To mark the Tennison’s first century, several special events are planned. The beginning of the 1999 cruise season on Saturday, May 1, coincides with Patuxent Family Discovery Day at CMM, during which there will be four cruises (regular fares apply), with a birthday cake, balloons, and other events. In addition to the regular hour-long cruises at 2:00 p.m., Wednesdays through Sundays, there will be special evening cruises on May 9 (Mother’s Day Dinner Cruise), June 27 (100th Birthday Party Cruise), July 4 (Fireworks Cruise), September 12 (Centennial Dinner Cruise), and October 31 (Monster Mash Cruise for Kids and Their Parents). There will be a separate announcement for these cruises giving times, prices, and other details. Members may want to consider sunset charters as described in “Special Interest to Members” on page 3.

Regular 2:00 p.m. Tennison cruises (Wednesdays through Sundays weather permitting) are on a first come basis - tickets at the admissions desk. Prices are: adults, $5.00; children 5-12, $3.00 (under 5 free with paying adult). There is no minimum in the number of passengers required for a cruise, but no more than forty-five passengers can be accommodated. Extra cruises are scheduled during summer weekends at 12:30 and 3:00 p.m. Charters are available at $150.00 an hour (discount for members). Call Melissa McCormick on 410-326-2042, ext. 41.

On a sad note, the centennial year also marks the retirement of the Tennison’s long-time captain, Rudy Bennett, who has served faithfully since February 1985. Captain Bennett will now be able to enjoy his summer weekends and holidays at his home in Solomons. It is hoped to have a new captain by the end of March. (Richard Dodds)

CMM LOSES RESEARCH ASSOCIATE

Dr. David C. Holly, who has been associated with research at CMM for over twelve years, died in Annapolis on February 12. Dr. Holly had a life-long interest in Chesapeake Bay steamboats from growing up and attending schools in the Baltimore area. Following a distinguished career as a naval officer, he undertook a second career through teaching government and international relations at the American University in Washington and at Hampton-Sydney College in Virginia.

His first book was Exodus 1947, published in 1969 and republished in 1995, detailing the history of the Old Bay Line’s President Warfield as bay steamer, World War II warship, and finally as a vessel transporting Jewish refugees through the British blockade to Palestine. Three other books followed: Steamboat on the Chesapeake: Emma Giles and the Tolchester Line, 1987; Tidewater by Steamboat: A Saga of the Chesapeake, 1991; and Chesapeake Steamboats: Vanished Fleet, 1994. Tidewater by Steamboat was published jointly by the museum and Johns Hopkins University Press, an effort for which Dr. Holly was recognized in 1989 for over sixteen hundred volunteer hours for CMM. David Holly also contributed to The American Neptune and other maritime journals.

In the early 1990s he advised the Army Corps of Engineers on the raising of the crosshead engine from the steamboat Columbus that sank at the mouth of the Potomac River in 1850. That engine is now being conserved by the Maryland Archaeological Conservation Laboratory at Jefferson Patterson Park and Museum.

Of particular importance to the museum are Dr. Holly’s research notes, papers, and photographs that he donated to our archives. He was also generous in advising CMM on matters relating to Chesapeake Bay steamboats and maritime history.

ANOTHER BAY ART SHOW AT CMM

An art exhibit, “For the Love of the Land: An Artist's Vision,” will be on display in the museum’s lower gallery during June and July. This exhibit is hosted by the museum and the American Chestnut Land Trust, as was a similar exhibit in late 1997, and will focus on land preservation in Calvert County.

Artists from the tri-county area have been invited to visit the following sites in Calvert County: Warrior's Rest (at the mouth of Parkers Creek), Battle Creek Cypress Swamp, Flag Ponds Park, and Jefferson Patterson Park and Museum. They will then express their impressions of the natural beauty of these areas through painting, sculpture, ceramics, photography, glass, and jewelry. Land is preserved for the benefit of the public by the county and state, and by private land trusts such as the American Chestnut Land Trust (ACLT). If you would like information about this exhibit or ACLT and its hiking trails, please call 410-587-1570.
Welcome New Members! We have 90 new members in the Society! Our new premium members: Contributing: John & Phoebe White, Barbara & Harold Pevey, Stephen J. Keane Sustaining: Andrew D. Kaufmann, David L. Moore, Garth & Jackie VanSickle, David & Valerie Redden Patron: Gary & Patricia Coe. We would also like to send a special welcome to our new corporate Bugeye Society members Barbara and Harold Gill of Chessie Lists, Inc.

Taking Membership to a Higher Level are members who upgraded recently: John & Linda Murphy, Mr. & Mrs. Leonard Zuza, Alice Lani Langley, Mr. Spike Parrish, Mrs. Curt Hamilton, Paul & Margery Hoffman, Mark Smith, Denis Breitburg, Mr. & Mrs. August Euler, Lynn Duff, Carol Martell, Mr. & Mrs. Roger Mellem, Mr. & Mrs. Donald Thorstensen, Bruno & Dorothy Vasta, Ken & Elnora Wease, Hans & Elizabeth Wolf, Mr. & Mrs. Phillip Walls and John & Linda Murphy.

~Our Condolences~

We recently lost two valuable members and volunteers who will be missed, Carolyn Ireland and David C. Holly. We send our condolences to the families and thank them for having memorial donations sent to the museum to help carry on the programs both members cared for and worked so closely with.

Sunset Cruises now Available!

During the Wm. B. Tennison’s anniversary year, consider holding your next business meeting, birthday party, rehearsal dinner, or other special event aboard the bay’s oldest working Coast Guard-commissioned passenger vessel, and experience the beauty of Back Creek and Solomons Island, as well as the Patuxent River. Sunset charter cruises will be available this year for the first time, and may be reserved May 2 through October 30, Wednesdays through Sundays, for up to 47 people. The basic fee for Society members is $135 per hour.

To add that special touch, the Membership Coordinator will assist members in getting your charter catered and/or hiring entertainment. Additional fees for catering and entertainment will vary based on your selections. All charters must be reserved and paid for in advance. Please call 410-326-2042 for more information and to reserve your date.

Bugeye Ball Sponsorship

Since 1990, the Bugeye Ball has provided over $90,000 in support of special projects, education, and development for programs at the museum. This year, proceeds from the ball will go directly toward the care and maintenance of the Wm. B. Tennison, turning 100 years old in 1999.

Keeping this national historic landmark available to the public requires funding for a regular upkeep schedule. With that in mind, the museum has established a Tennison Endowment to cover these ongoing costs well into the new millennium.

As always, Bugeye Ball underwriters will be recognized in the invitations which are mailed to the entire membership, as well as in the Bugeye Ball program distributed to all attendees. Please consider pledging your gift by returning the form below by May 1, 1999.

Donations are deductible at the rate of the gift amount less the cost of the reservation (approximately $25 each).

Underwriting Categories:

- Benefit $1,000 (4 complimentary tickets to the Ball)
- Sponsor $500 (2 complimentary tickets to the Ball)
- Patron $250 (1 complimentary ticket to the Ball)

Name: __________________________
Address: ________________________
Phone: _________________________

Please make your check payable to CMMS, P.O. Box 97, Solomons, MD 20688. Formal invitations will be mailed in August.

Y2K-MIA Annual Reports!

Yes, it’s true, the membership software is suffering from the Y2K Bug and has thrown lots of glitches into this year’s mailing of the annual report. Members who have renewed their memberships into the year 2000 could not be selected for our list of annual report recipients because the computer doesn’t understand the year 2000. If you find that you have not received an annual report, and would like a copy, please call the museum at 410-326-2042; we will send a copy right out. Sorry for the inconvenience; my computer guru tells me it should be fixed by the end of March.

It’s Not Too Late!

It’s not too late to do your part in making this year’s annual appeal a great success. The 1998-1999 Year End Appeal campaign ends April 30, and your support is still needed.

Our goal of $15,000 will supplement funds which provide for the museum’s operational budget and support educational activities, building projects, as well as many other preservation efforts. We have already received over 140 gifts from supporters, but with over 2,200 members many more of you can strongly influence the success of this year’s campaign. We hope you will choose to support the preservation of the area’s only maritime history museum with your tax deductible gift!
The wheelmen of the Antique Highwheel Bicycle Tour posed in front of CMM's Small Craft Shed during a February visit as part of their advance planning for their annual race to be held here in October.
CMM photo by Bob Hall

A Valentine's concert at CMM on February 14 featured award-winning Bill Kirchen (right) and Too Much Fun.
CMM photo by Bob Hall

COMBINED ADMISSION TICKETS

A combined, one-time-use admission ticket for selected Southern Maryland museums will be available again this summer. For $16.00 for adults and $10.00 for children, you will have admission to CMM, Historic St. Mary's City, Sotterley Plantation, and St. Clement's Island Potomac River Museum. While in Southern Maryland, you will also want to visit other museums and parks where no admission is charged. For further information, call CMM at 410-326-2042.

Lucian Niemeyer (left), author of books on the Chesapeake Bay area, lectured at CMM on February 16 and signed copies of his books.
CMM photo by Debra Yorty
A number of the descendants of Commodore Joshua Barney (1759-1818) visited Southern Maryland on March 1 to look at sites where Barney fought and to examine artifacts at Jefferson Patterson Park and Museum and at CMM. Back row, left to right: Michele Barney, Jennie Mangun, Jackie Barney, Charlotte Barney, Nick Barney, Julie Ruble. Front row, left to right: Andrew Barney, Eva Mangun.

CMM photo by Richard Dodds

A new addition to the exhibits in the Maritime History Hall was hoisted into place by CMM staff members in February. In the upper left is the 1949-era Jacoby Flyaway M racing hydroplane, donated to the museum by Mark Hughes of Lusby.

CMM photo by Bob Hall

“PEPPER” LANGLEY’S BOOK AND WORK TO BE FEATURED ON MAY 1

As part of Patuxent River Family Discovery Day on May 1, LeRoy “Pepper” Langley will sign copies of his book I Remember and will talk informally with visitors in the Exhibition Building lobby. I Remember was first published in 1990 and just recently republished, and copies are sold in the Museum Store for $9.95. On display in the lobby will be examples of “Pepper”’s carvings and models that are not normally displayed. (Maureen Baughman)
on the ocean floor. Giant tsunamis, perhaps six hundred feet high, raced miles inland; their jumbled deposits exposed today near the Brazos River in Texas. Losing a bit of their punch as they washed over the shallow sea covering what is now Florida, the megatsunamis inundated coastal Maryland a couple of hours after the impact. By that time, however, our local dinosaurs already lay dead or dying amidst raging fires. The animals were literally broiled alive by heat from the superhot dust and molten rock blasted out of the crater and beginning to rain down over our continent within minutes of impact. Computer simulations suggest Maryland briefly experienced at least 10,000 kW heat radiated onto every square meter of ground. The survivors of this brief inferno were those immersed in water or, as our little furry ancestors, hiding in burrows. Carnivores and carrion eaters later emerged to enjoy a gigantic smorgasbord of dead and dying: not everyone was a loser.

The “ejecta layer” would have been about one inch thick in our area, and thickening toward the impact site — for example, to one and one-half feet thick in Haiti. This layer is confined to the Americas and whatever seafloor was then nearby. Originally composed of small spheres of glassy, once-molten rock, the layer has since mostly weathered to clay. Some ejecta must have fallen in westernmost Europe and Africa (considerably closer then, due to plate tectonics to be covered in a later installment), but some dinosaurs on distant continents were probably spared this first wave of death. Had those species survived, they could have repopulated the Americas, but they did not escape in the end.

Just above the ejecta layer is the thin (one-eighth inch thick) “fireball layer” found all over the world where the “boundary clay” is preserved. It was the anomalously high concentration of the rare element Iridium — known to be much more abundant in meteorites than in the earth’s modern crust — that first tipped off scientists in 1979 about the impact. (The buried Chicxulub crater was only found ten years later.) The fireball layer is all that remains of some 150 to 200 cubic miles of the asteroid and the shattered, molten, and vaporized Earth rocks that were launched as fine powder into Earth’s stratosphere, shrouding the entire planet after a few weeks. Computer models show that this dust, which included much soot from the fires described above, remained in suspension for a few months, turning days cold and dark. The occurrence of frost in tropical locales must have extinguished much life, but the shutdown of photosynthesis was probably worse, and explains why herbivores were among the least likely to survive. Giant trees and tiny ocean plankton disappeared, as did the animals dependent on them.

Chemists have also shown that the impact ejecta would have caused oxidation of nitrogen gas, resulting in nitric acid and acid rain. Making the calamity still worse was the target rocks — limestones and gypsum that happened to be present in the Chicxulub crater area. The vaporized gypsum produced sulfuric acid. After the fires had cooled, the dust had settled out, and the acid rained out of the air, the asteroid still was not finished: the limestone vaporized by the impact liberated copious carbon dioxide — we now appreciate its role as a greenhouse gas — which would stay in the atmosphere thousands of years, warming our climate by perhaps thirty degrees Fahrenheit. The sediments deposited on top of the fireball layer in the oceans record a strange and nearly lifeless sea some scientists have dubbed the “Strangelove Ocean.” Eventually the surviving life — but no dinosaurs — would return to normal.

Of many lesser projectiles from outer space that would land on the earth since Chicxulub, the Chesapeake event, probably a comet, is a close second, behind one which landed in Popigai, Russia, at about the same time. The 1993 discovery of the Chesapeake crater solved a long-standing mystery — the origin of the so-called “North American strewn field.” For at least two hundred years, scientists have been puzzled by a vast region (“field”) of widely scattered glassy, sand-to-pebble-sized objects, called “tektites,” with interesting shapes resembling buttons, teardrops, spheres, pine cones, and dumbbells. Through the years, several tens of thousands of tektites have been found in a broad belt from Texas and Georgia north to Massachusetts, and in western Atlantic boreholes, in all cases confined to sediments of thirty-five million year age. (A few other such “fields” are known from other times and other continents.)

Once thought to be directly of extraterrestrial origin, the North American tektites have now been conclusively linked, by their chemistry and age, to the Chesapeake impact crater. Coastal plain sediments at “ground zero” were instantaneously heated to four thousand degrees Fahrenheit, melted, blasted out of the crater, rapidly chilled to glass, and showered over an area thousands of miles across. So, next time you are in Texas, visit an outcrop of thirty-five-million-year-old sediments and try to find a little souvenir of the Chesapeake Bay area.

Identifiable impact craters are quite rare on Earth, despite what is observed on Mars, Venus, the Moon, Mercury, and most moons of the “gas bag” planets. The Chicxulub and Chesapeake craters are among the very largest known, but they would be unremarkable on our sister planets. This is not a mystery: on Earth, craters are eroded or buried, those in the ocean basins are lost to plate subduction into the mantle, and the ones surviving on land are squashed into oblivion by plate collisions. There is every reason to believe, however, that impacts were frequent and massive during the first half billion years of the solar system. This probably lifeless part of Earth history has been called the time of the “Great Bombardment.” No rock formations from the first six hundred million years of Earth history (from 4.6 to about 4.0 billion years ago) have been found, despite careful searches.

Known earth craters would look unimpressive on the Moon, which has about fifty craters larger than the Chicxulub (dinosaur-destroying) crater and more than 125 times larger than our Chesapeake crater, the largest in the United States. Obviously, this does not tell the whole story — enormous numbers of older lunar craters must have been obliterated by younger ones during the Great Bombardment. If the much larger Earth had similarly been preserved as a “fossil planet,” we would be peppered with more than 1,600 craters larger than our Chesapeake crater, and more than six hundred
larger than Chicxulub! Of course, on a waterless planet lacking plate tectonics we wouldn’t have evolved to appreciate this landscape.

On Earth, there was the Mother of All Impacts, which left no crater whatsoever. When the earth was very young, perhaps only a few million years old — so the theory goes — a Mars-sized planet plunged into the earth, melting our outer one hundred miles and ejecting an enormous mass of rock from the impacting planet and the earth. Some of the stuff blasted out of the earth must have escaped the earth’s gravity, and bits may still be orbiting the sun. Computer models show that most of the ejected debris would have formed a Saturn-like ring around the earth and then coalesced to form our moon. Of the various theories for the origin of our silvery companion, this is now the leading candidate, and the only theory consistent with all the available evidence, but it is too early to elevate this idea from theory to fact.

The next time you see our moon rise over the Chesapeake Bay, reflect on the violent bombardment that gave birth to the planets and their moons. Luckily for life on Earth, we long ago swept up most of the rocky debris in our orbit around the sun. There are, however, still a number of potentially catastrophic impactors, mainly those asteroids called “Apollo Objects” whose orbits intersect ours. Once in one hundred million years, on average, “Spaceship Earth” can be expected to collide with a Chicxulub-sized (six-mile diameter) rock as we cruise endlessly through the cosmic night. Smaller ones collide progressively more often, on average. Even one just a tenth as large as that which formed the Chesapeake crater could flood Southern Maryland with tidal waves if it landed out in the Atlantic. The museum’s members, however, need not lose sleep: an impact dangerous to our civilization might occur just once in five hundred thousand years somewhere on Earth. The chance of an impact blasting a crater at least six miles in diameter somewhere in Southern Maryland in any given year is about one in four hundred billion. I do not doubt, however, that mankind will someday develop a kind of interplanetary “iceberg patrol” to map all dangerously large objects (comets or asteroids) in near-Earth intersecting orbits, and practice “orbit management” to steer them safely by. After all, the earth does not carry lifeboats for its six billion human passengers.

We might consider ourselves lucky that dinosaurs did not evolve our kind of intelligence (the fictional velociraptors in “Jurassic Park” were dangerously close!). An intelligent species of dinosaur might have deflected the fateful asteroid sixty-five million years ago, and our little mammalian ancestors would not have gotten far, in terms of evolution, if the preceding 160 million years of fossil record are any indication. The Chicxulub asteroid that blazed across the South American sky on that fateful June day brought a holocaust for life on Earth, but it’s hard to imagine how we could be here otherwise. Let it not be said of our species that we learned to deflect the “Angels of Death” from outer space, only to bring on mass extinction ourselves. Our own “impact” on the biosphere is accelerating by the day.

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GEOLOGIC TIME SCALE

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<th>Period</th>
<th>Time Span</th>
<th>Events/Notable Features</th>
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<tr>
<td>EOCENE</td>
<td>23.8 Ma</td>
<td>Piney Point Formation (Aquifer)</td>
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<td>Separation of primate line to humans (Africa)</td>
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<td>PLEISTOCENE</td>
<td>5.32</td>
<td>Upland Formation (includes sand and gravel)</td>
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<td>Chesapeake Group (exposed in Calvert Cliffs)</td>
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<td>PLEISTOCENE</td>
<td>33.7</td>
<td>35.5 Chesapeake impact crater</td>
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<td>OLIGOCENE</td>
<td>54.5</td>
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<td>MIocene</td>
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<td>Nanjemoy Formation</td>
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<td>Chinculub (Yucatan) Impact causes mass extinctions, including all dinosaurs</td>
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<td>Severn and Magdoly Formations (Aquifer)</td>
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<td>CENOZOIC ERA</td>
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<td>Flowing plants first widespread/diverse</td>
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<td>Cretaceous Period</td>
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<td>First birds</td>
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<td>Age of igneous rock cored 1/2 mile belowLexington Park</td>
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<td>First break-up Africa/North America—birth of modern Atlantic Ocean</td>
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<td>East coast dinosaur footprints</td>
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<td>PERMIAN PERIOD</td>
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<td>First dinosaurs</td>
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<td>Development of conifers</td>
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<td>Greatest mass extinctions</td>
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<tr>
<td>EOCENE</td>
<td>250</td>
<td>Proliferation of reptiles</td>
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<td>End of Appalachian mountain building and final closure of earlier Atlantic (Iapetus Ocean)</td>
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Note: expanded scale for most recent 10 million years.
VOLUNTEER SPOTLIGHT —
Estuarine Biology Volunteers
By Margaret Stamper, Volunteer Council Liaison

"The Estuarine Biology department is responsible for developing and maintaining exhibits and programs about regional aquatic life. Volunteers are needed to help maintain the aquarium systems, to host visitors, and to staff the Touch Tank, containing live animals, during public tours."

That's how the Volunteer Handbook describes the duties of the volunteers in this department. What REALLY happens is much more interesting! Volunteers test the aquariums to maintain the proper temperature, salinity, and general health of the inhabitants. Others guide tours, especially school groups, around the museum complex. Some of the school groups, especially the sixth graders, are completing a required portion of the school curriculum called CHESPAX. CMM volunteers are responsible for getting across a large amount of information in a very short period of time.

The Touch Tank volunteers probably have the most fun! They get to introduce the horseshoe crabs, "Horace" and "Henrietta," and the babies to the public. Adults are interested in the practical medical uses of these critters, but the children just love being able to touch something that can trace its lineage back to prehistoric times. While the children are fascinated, the adult visitors sometimes have to be prodded and coaxed by their offspring to actually touching "that thing." Just about everybody likes the terrapins — "Fiddle," "Deborah," "Kathleen," "Barbara," "Clarence," "Louis L.," and "Yertle." They are delightful representatives of our state and are really docile and put up with no end of petting. Each has a definite personality.

The volunteers who staff the Touch Tank also answer many questions about the animals of the aquariums that make up the Estuarium, particularly the seahorses and jellyfish. During the summer months, visitors have lots of questions about the area, so we're an active source of information for Southern Maryland!

The river otter exhibit is a certain favorite of museum visitors, and the original pair, "Bubbles" and "Squeak," grew up from youngsters with the visitors and staff. Also part of the Estuarine Biology department is the nearby marsh walk, where plaques on the bollards describe some of the things that can be seen. Depending on the time of year, there may be three to four days during the week. This dedication has meant that a person has been available to answer questions about the inhabitants of the aquariums as well as the Touch Tank. We have all learned, and been able to disseminate a great deal of information about the wildlife around us. Meeting visitors and testing the aquariums could not be done by staff alone. Volunteers make it possible!

My predecessor, Ginny Thayer, through her training skills and support, has made it easier for me to take over as the Volunteer Council liaison, and I want to thank her. I'd also like to thank the following volunteers for their help, laughter, diligence, and enthusiasm: Niki Basham, Mary Burton, Katie Byroads, Lori Cole, Linda Desmore, Jackie Donaldson, Ron Elwell, Kristine Falco, Shannon Flangin, Dan Grosso, Daryl Hansen, June Keen, Ann and Bill Lake, Christina Martin, Michelle Nestlerode, Eleanor Prince, Chris Riley, Sandy Roberts, Fred Ruark, Margaret Saville, Ruth Showalter, Ginny Thayer, Elaine Vaughn, Bev Walker.

I very much enjoy being part of this group. The Calvert Marine Museum is able to be both entertaining and educational at the same time. I'm very proud to be part of its activities.

If this kind of activity is your cup of tea, please contact Leslie Scher Brown at 410-326-2042 and join our fun.

EDITING, ANYONE?
CMM is still looking for an editor for the Bugeye Times.
Call Leslie Scher Brown (410-326-2042) for details.