PALOMAR GEM & MINERAL CLUB

VOLUME 61 - ISSUE #8
AUGUST 2020

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Librarian Calendar	Chris Toft VACANT

CONTENTS:

HAPPY BIRTHDAY

AUGUST

birthday people!!!

From all of us to all of you:

Please stay safe, wear a mask!

WASH YOUR HANDS OFTEN!!!

The board is preparing for the re-opening of the workshop by installing plexiglass shields at main workbench. Hand sanitizer, face shields will be available. Nobody sick will be admitted. Temps will be taken.

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Garth A. Bricker

December 28, 1931 - June 13, 2020

FALLBROOK, CA — Garth A. Bricker, longtime resident and veteran teacher, passed away peacefully the age of 88, at the Fallbrook Gardens Residential Care Facility. Those who knew him, will remember a man that always had a smile on his face and a quirky- happy and pleasant innocence about him. He was a gentle giant of a man.

Many longtime residents knew him as "Mr. Bricker", as they, or their children had him as their 4th or 5th grade teacher. His fascination and passion for earth sciences and his devotion to the field of rock, gem, and mineral collecting was a driving influence in his teaching. His students were regularly treated to a myriad of science projects and discovery. A highlight for many was the day the class was treated to fried rattlesnake! To this day Mr. Bricker's former students still cast fond memories of the learning and adventure in his classrooms.

Garth was an avid rock hound and some would say it was his life's blood. Being a schoolteacher, he would use his holiday's and summer vacations to take his family on rock hunting centric "vacations" all over California and neighboring states. His every free moment was devoted to gem and mineral study and collecting. He had a sixth sense about locating the right spot to dig and could dig for hours. He would move mountains of dirt and rock in his quest for a certain mineral, whether it was a huge specimen or the smallest crystal that could only be seen through a microscope. His children remember many occasions where he would come back to camp after a day of digging and all that could be seen were the whites of his eyes and his white teeth, through that permanent smile! He seemed to almost always find his quarry, returning with boxes of excellent mineral specimens, very carefully wrapped in miles of toilet tissue. This was his happy place. His children are forever grateful for being exposed to these experiences and for his instilling in them a passion for the outdoors, camping, nature, and discovery.

Garth was born December 28, 1931 to Arnold and Ruth Bricker (Gates) in Washington DC. His Mother was a teacher. Her ancestor's traveled to California by covered wagon and settled in Modesto. His Father was a Pharmacist Mate with the Navy. Their home base was Berkeley, CA, but as a Navy family, they lived in Washington, DC, Brooklyn, NY, Hawaii, and ultimately Fallbrook, where they settled. Garth met his wife, Janice, in 1948, and their first date was a drive to a local rock collecting location! Garth attended San Diego State for two years and they married in 1952. He and Janice then moved to Los Angeles where he attended UCLA, graduating with a BS in education and a Minor in Geology. In 1954 Garth joined the army, returning to Hawaii, where he was stationed until 1956. After his service, he was hired by the Poway Unified School District as a provisional 4th grade teacher and then accepted a teaching position at Fallbrook Union School District beginning in 1959. He earned his Masters in Education from San Diego State, while teaching in Fallbrook.

His love of rock hunting, along with his geology education, led him to become the Curator of the Fallbrook Gem and Mineral Museum for many years, which he thoroughly enjoyed.

Garth is survived by his wife of 67 years, Janice Bricker of Fallbrook, his daughter Michele Murphy of Fallbrook, his two sons, Kent Bricker of Carlsbad, and David Bricker of Janesville. His beloved six grandchildren, and nine great-grandchildren.

Garth's legacy will live on in his students and in the tireless contributions that he made to the rock, gem, and mineral collecting community. Donations are being accepted in his honor to the Fallbrook Gem and Mineral Society.

Please sign the Guest Book online obituaries.sandiegouniontribune.com

HOW AMERICANS USED GEOLOGY TO WIN THE REVOLUTION (part 2)

By: Gene Ciancanelli

Part 1 of this story discussed how geomorphology controlled and had a decisive impact on the outcome of several critical battles and strategic planning in the Revolutionary War. Geomorphology is the branch of geology that deals with the earth's landforms and terrain as well as the processes that control and shape the earth's surface features. Part 2 will discuss the influence of geomorphology on the war in the southern colonies and the final victory at Yorktown.

France entered the war as a result of the American victory at Saratoga, New York and the surrender of Burgoyne's Army after he was surrounded and his escape back to Canada blocked when the American's destroyed the bridge across the Hudson River. This forced the British to rethink their strategy. The New England colonies had been the primary breeding ground of colonial discontent. The British believed loyalist American sentiment to be stronger in the southern colonies, which was true in the larger coastal cities. The British objective was to occupy the south and with the aid of a large loyalist militia then defeat the weakened northern colonies. The flaws in this plan were several. (1) The British overestimated the south's loyalist sentiment. (2) The British did not understand that brutality toward rebellious colonists strengthened anti-British sentiment, particularly the actions of Sir Banastre "the Butcher" Tarleton, who ordered his troops to bayonet southern prisoners. (3) British underestimation of the military skills of General Nathaniel Greene and Francis "The Swamp Fox" Marion, who led the British on a hit and run guerilla campaign across the Carolinas.

The British captured Savannah, Georgia in late 1778 and then moved inland. Although there was strong loyalist sentiment among the coastal colonists, the British found the same was not true as they moved inland. Here they encountered a guerilla army led by Francis Marion. Marion hid his army in the impenetrable swamps of the Carolinas, which earned Marion the name The Swamp Fox. Swamp warfare was entirely unknown in Europe; placing the British at a disadvantage. Furthermore, Marion's forces did not fight in the conventional 18th Century manner of armies lined up in close ranks firing massive volleys against the opposite force. Using the cover of swamps and hit and run tactics, American sharpshooters, armed with more accurate rifles and not muskets, were picking off British soldiers with special effort to kill officers. With no knowledge of the geography and how to conduct swamp operations, the British were unable to effectively fight Marion's swamp army.

In April 1780, 14,000 British troops and 90 ships laid siege to Charleston, South Carolina. After a month, the British defeated the defending American force of 5,500 men and occupied the city. Congress then placed the cowardly and inept General Horatio "granny" Gates in command of the southern American army.

Battle of Camden

In August 1780, Gates led the American forces to face the British army led by General Lord Charles Cornwallis, which had advanced to Camden, South Carolina. In the Battle of Camden, Gates's American army was routed, with the capture of 1,000 men, plus the army's baggage train and artillery. As he had done when he hid in his tent at the Battle of Saratoga, Gates's principal accomplishment was to jump on his horse, abandon his army, and ride alone 170 miles in three days fleeing the battlefield. This ruined his reputation and he never again held command. Inadvertently, this lost battle greatly benefitted the American cause because Congress replaced the cowardly and incompetent Gates with General Nathaniel Greene.

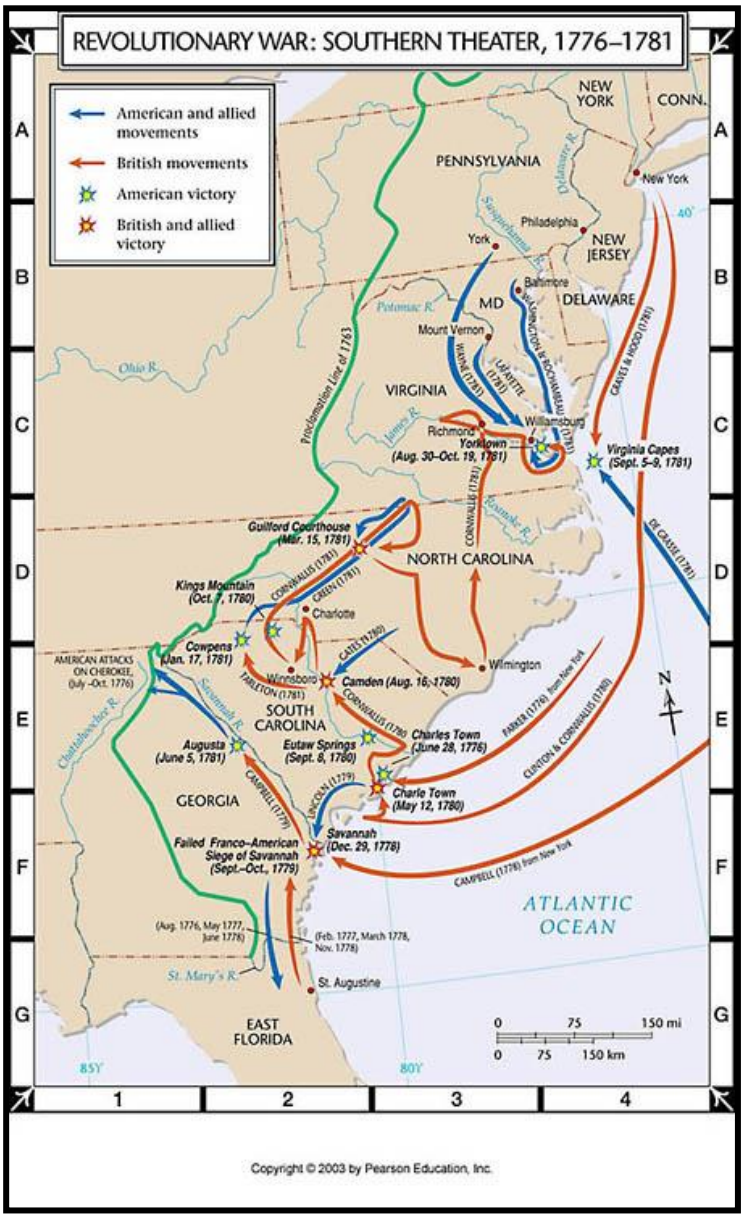


Fig. 8. Map of battles and movements of the British army (red) and the American forces (blue) in the southern colonies during the Revolutionary War.

Washington now sent General Nathaniel Greene to lead the American militia force. Washington thought so highly of Greene's character and abilities that he left instructions that Greene was to replace him in the event of Washington's death or capture. Greene understood that his army was no match for the British in a conventional fight. He also knew the British were unfamiliar with the geography, terrain, and rural conditions of the southern colonies and this was his advantage. Greene led the British far from their base of supply in Savannah out into the very dense forests and swamps. Always staying one jump ahead of the British, the American's stripped the country of supplies leaving the British foragers little to sustain their army. Throughout this chase, there were a series of small battles and skirmishes that the British usually won, but these were pyrrhic victories. The British suffered casualties they could not replace, while the American army remained largely intact using guerilla tactics. Greene could replenish his forces in both men and supplies provided by the local people now thoroughly in opposition to British oppression.

Battle of Kings Mountain

British Major Patrick Ferguson was dispatched to the Carolina back country to protect the main British army's left flank. Ferguson threatened to lay waste with fire and sword any country where he was opposed. This, as was usual with British threats, strengthened the patriot's resolve and in early October 1780, a large colonial force converged on Ferguson from many directions, forcing him to withdraw back toward Cornwallis's main army. During the withdrawal, Ferguson's force, comprised largely of loyalist Americans, camped at the top of a steep rocky mountain known as King's Mountain. Ordinarily this would be a secure position and a wise use of terrain defense. He was soon to learn the American's had a unique way to defeat his European trained and led troops. In late afternoon, the Americans stealthily attacked catching the loyalist forces unaware and occupying an unfortified camp. As Americans hiding behind trees and rocks fired upon them, Ferguson ordered a bayonet charge. The American forces fled downhill where they regrouped when the British returned to their mountain top camp. A series of American advancements and withdrawals, under repeated bayonet charge, now played out. The Americans use of terrain concealment and the British employment of massed bayonet charges led to considerable British casualties. Ferguson was killed as he tried to rally his forces. There then followed a bloodbath where the enraged American's took revenge for Sir Banastre "the Butcher" Tarleton's policy of killing prisoners by bayonet and sword.

The convincing victory at Kings Mountain was a boost to American morale following a series of disasters and humiliations in the Carolinas. The loyalists of the interior Carolina back country were now thoroughly defeated. Cornwallis was forced to cancel plans to invade North Carolina and instead retreated to South Carolina with a plan to pacify South Carolina and Georgia. Greene would later return American control of these colonies as Cornwallis short on supplies and men was forced to flee to Virginia and his ultimate defeat at Yorktown.

The Battle of Cowpens

In January 1781, a small American force under General Daniel Morgan marched to the west of the Catawba River to forage for supplies. Cornwallis considered Morgan's deadly backwoods sharpshooters a threat and dispatched Sir Banastre "the Butcher" Tarleton's cavalry force to defeat Morgan. No man was more hated in America than Tarleton. Morgan selected a position on two low hills in an open woodland that had very soft ground unsuitable for cavalry. Morgan's clever use of terrain and ground conditions removed Tarleton's advantage. Morgan hoped that the headstrong over confident Tarleton would make an unplanned headlong charge over unsuitable ground. To strengthen the resolve of his own, mostly poorly trained, men, Morgan's choice of battlefield included a river behind his own men to strengthen their resolve to stand and fight rather than flee and be slaughtered in a river crossing.

Morgan deployed the patriot army in three main lines. The British had made an exhaustive march to reach Morgan and they were tired and malnourished. Tarleton immediately attacked falling into Morgan's trap. The poorly trained volunteers in the American army were lined up in two front ranks and instructed to fire two volleys and then retreat. Morgan's third line were trained experienced men, whom he knew would stand and hold. The two American front lines fired two volleys and fled into the woods. The third American line pretended to join the retreat and with the British in pursuit, the third line turned on command and fired into the disorganized British forces. Morgan ordered a bayonet charge and the British army began to collapse. Morgan then sprung the final element of his trap as the American cavalry enveloped the British right flank and the apparently "fleeing" two front American lines enveloped the British left flank. Most of Tarleton's men, were wiped out or captured, while Tarleton and a small mounted force fled.

In March 1781 Cornwallis defeated an American army lead by Nathaniel Greene at the Battle of Guilford Court House. Prior to the battle, Cornwallis had destroyed his baggage supplies to make the British army more mobile. Although a British victory, Cornwallis lost supplies and about one-quarter of his men, which he could not replace. Having gained the tactical advantage, Greene withdrew his army essentially intact to South Carolina and Georgia

where he unraveled British control. Too weak to pursue Greene, Cornwallis moved his army northward to Virginia to link up with British forces and replenish supplies.

The Battle of Yorktown and Victory

In May 1781, Cornwallis arrived in Virginia and assumed command of local forces with additional troops moved down from New York. There then began a series of inconclusive maneuvers with the Americans led by Lafayette, who eventually joined forces with Baron von Steuben and Anthony Wayne. Cornwallis was ordered to Yorktown to build fortifications for a deep-water port. Meanwhile, Washington was in command of American troops north of New York City and he joined forces with Lieutenant-General de Rochambeau commanding the French army.

Washington and de Rochambeau received a message that French Admiral Comte de Grasse was moving a fleet of 29 warships to Chesapeake Bay where he would remain until mid-October. Following the suggestion of de Grasse that they join forces and conduct operations in Virginia, Washington and de Rochambeau moved their combined French and American army south.

In August 1781, Admiral Sir Thomas Graves led a British fleet from New York to attack de Grasse's French fleet. The British fleet was defeated by the French fleet and withdrew back to New York. In mid-September, The American and French army arrived in Virginia to join forces with French soldiers in de Grasse's fleet. The combined French and American army now numbered 19,000 men. Washington, as supreme commander, moved the army to surround Cornwallis trapping him with his back to the mouth of the York River, where the river flowed into Chesapeake Bay and the sea. The French fleet controlled the entrance to Chesapeake Bay thus preventing Cornwallis receiving relief from the British navy (see Fig. 10). The geographic locality at Yorktown completely favored the Americans and had doomed the weak undersupplied and now trapped British to ultimate defeat. Cornwallis fortified Yorktown and constructed an outer defense of forward redoubts with interconnected earthworks. The Battle of Yorktown began on September 29th as the two sides began to exchange fire. The American and French forces dug a series of parallel trenches closer to the British lines and on October 9, Washington began a week long day and night artillery bombardment to prevent the British from repairing their defenses.

On October 11, Washington ordered that new parallel trenches be dug 400 yards closer to the British lines. To accomplish this, the British Redoubts 9 and 10 would need to be taken by force. On the evening of October 14, a heavy artillery bombardment occurred and then American and French forces attacked the redoubts (see Fig. 9). With fixed bayonets and unloaded muskets, 400 men, commanded by Alexander Hamilton, attacked Redoubt 10. The surprised British were quickly overwhelmed in vicious hand-to-hand fighting. Simultaneously, the French, led by the Vicomte de Viomenil, captured Redoubt #9. The Americans and French occupied and fortified the redoubts with cannon now able to bring Yorktown under accurate artillery bombardment. On October 15th, the British counterattacked and were repulsed. On October 17th, Cornwallis began surrender negotiations and on October 19, 1781, 8,000 British soldiers laid down their arms. Although this wasn't the entire British army in the colonies, it did cause the British, especially in England, to start thinking they couldn't win the war and to continue wasn't worth the cost to keep the colonies. This led to the Treaty of Paris in 1783, which established the United States as an independent nation and the first republic with individual liberty in 2,000 years.

In the southern campaign, the Americans wise use of terrain allowed them to lead the British on a wild goose chase that weakened the British army in both men and supplies. Repeated skirmishes resulted in high British casualties. The Americans would then vanish into the forests and swamps to regroup and lead the British on a series of exhausting chases with brief skirmishes, where concealed Americans picked off the British standing in European style formation. There are a lot of rivers in the southern colonies and the Americans would arrive at a river first where they commandeered all the boats and crossed the river. The boats were then destroyed and the American army could rest, while the exhausted British had to build rafts to ferry themselves across. Greene gradually wore down the exhausted, under supplied and under fed British army.

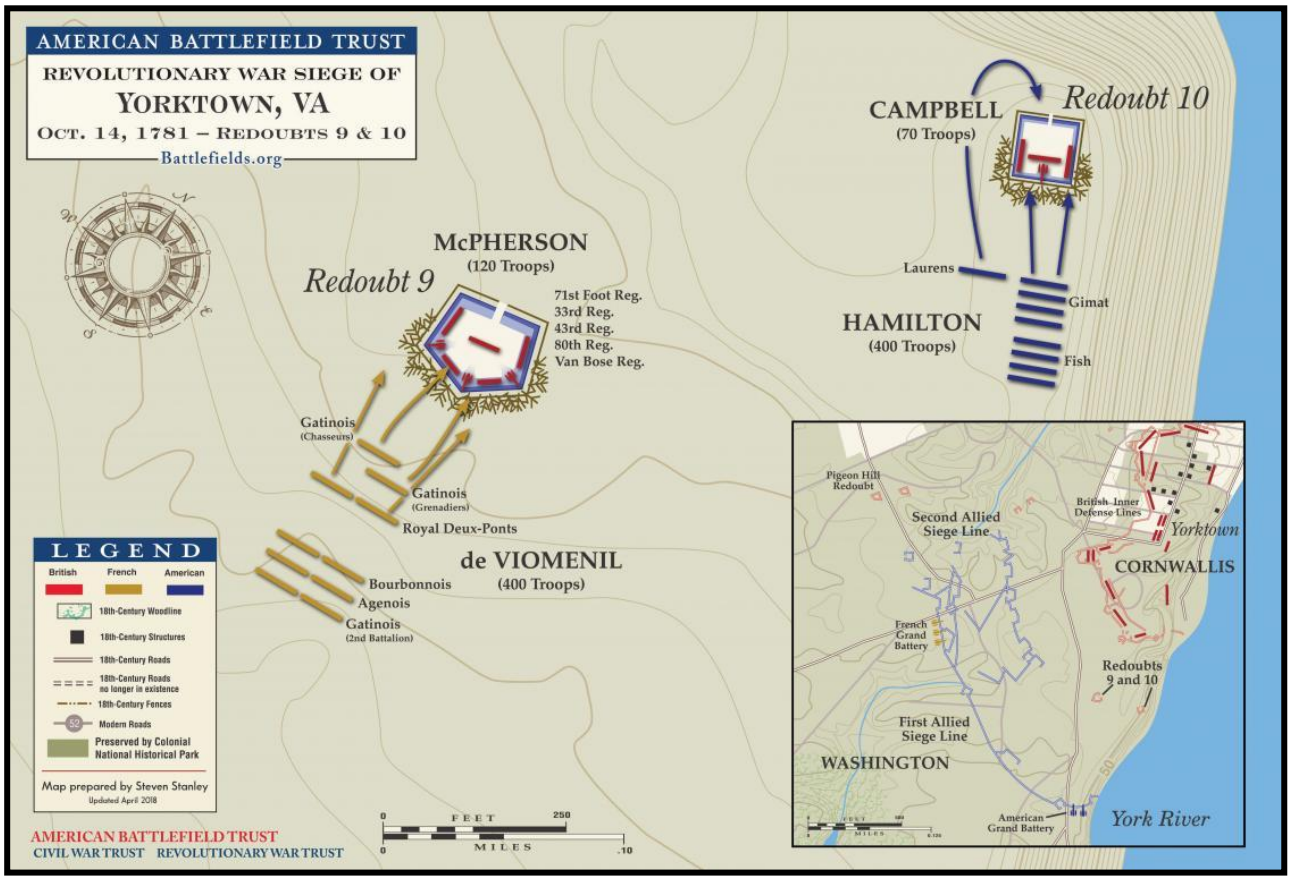


Fig. 9. The final defeat of the British began when French and American forces captured of the outer fortifications at Redoubts 9 and 10. This allowed Washington to place fortified trenches immediately in front of the British main defense line around Yorktown; thus, placing the town under direct accurate fire.

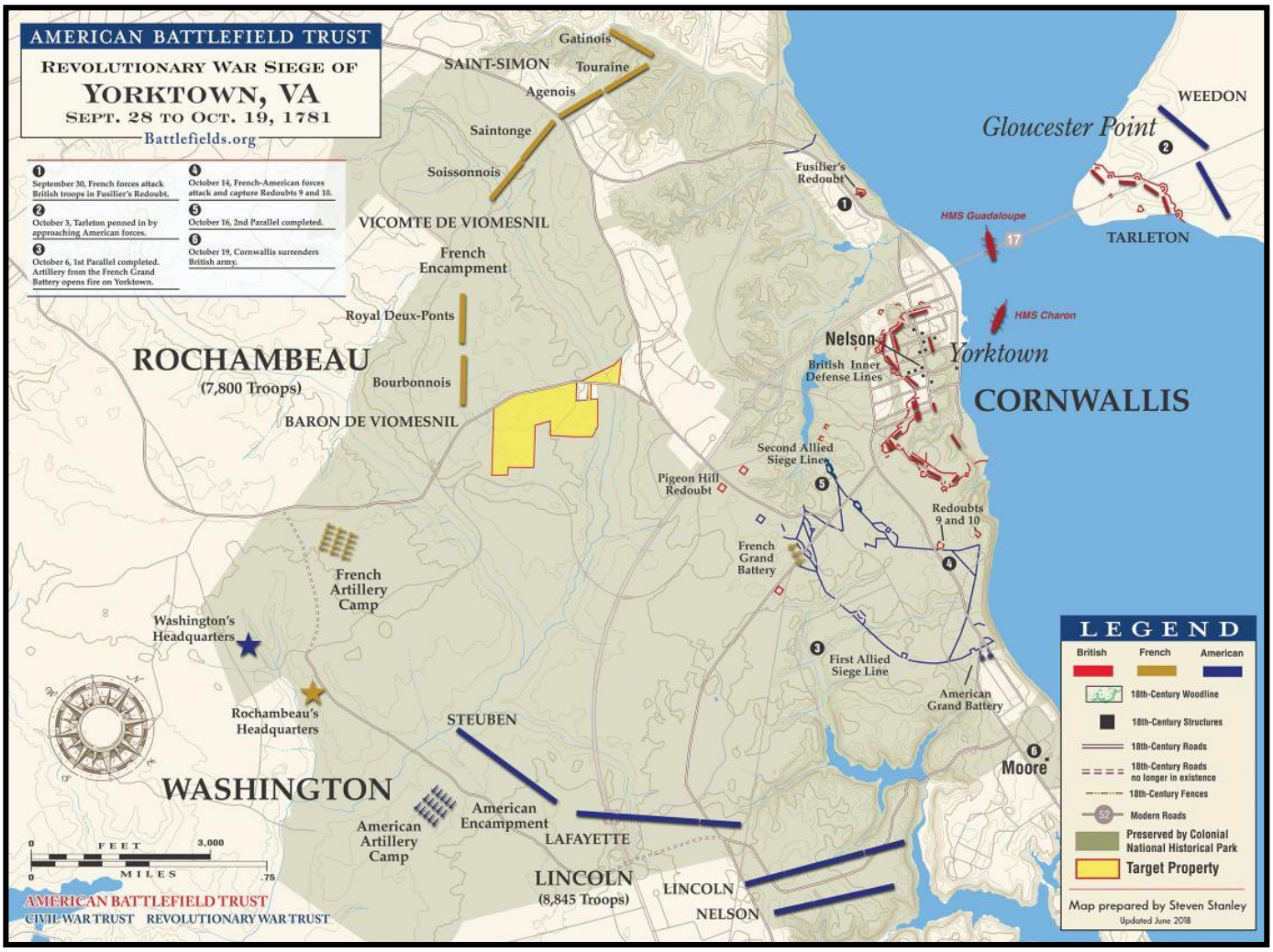


Fig. 10. The Yorktown battlefield, American forces in blue to the south and French forces in gold to the north surround the British army trapped in Yorktown with their backs to the mouth of the York River and Chesapeake Bay. The British navy's two ships are trapped by the French fleet of 29 ships blockading the mouth of Chesapeake Bay. Locality #4 is the location of Redoubts 9 and 10, whose capture allowed the construction of the close in parallel trenches shown as a thin blue line between locations #4 and #5.

In the entire history of human conflict, there is only one battle where the terrain was the result of a meteor impact crater (see Figs. 11 & 12). In 1999, it was determined that the mouth of Chesapeake Bay formed 35.5 million years ago when a very large meteor struck the North American coastline. This impact crater formed the local geography that the American and French armies used to trap Cornwallis and end the Revolutionary War. One meteor killed the dinosaurs and another gave birth to America when a single massive bombardment formed the trap that ended the British control over the colonies.

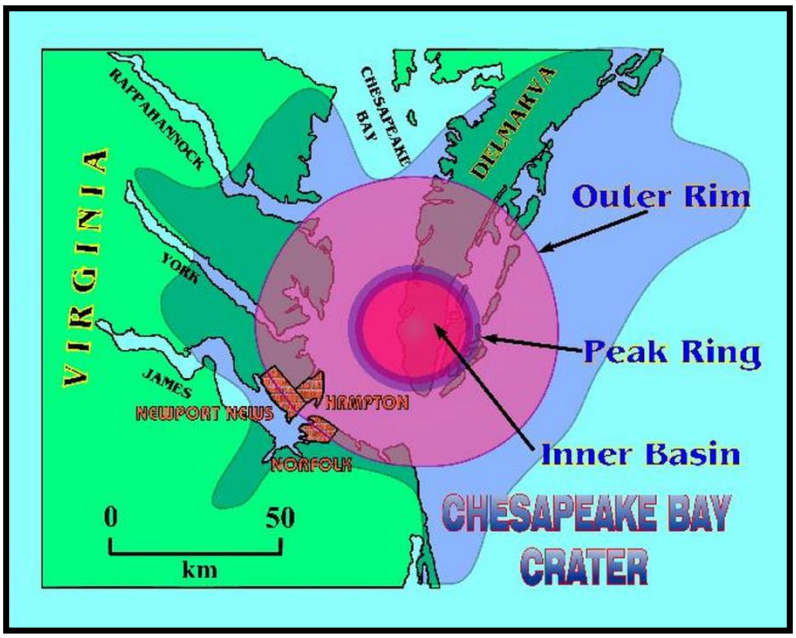


Fig. 11. The red circle is the 35.5-million-year-old meteor impact crater at the entrance to Chesapeake Bay. The York River is the middle river on the left "green" half of the map. The York River makes a sharp "V" shaped bend as it enters Chesapeake Bay. Yorktown is located on the lower south side of the York River at the point of the "V" shaped bend.

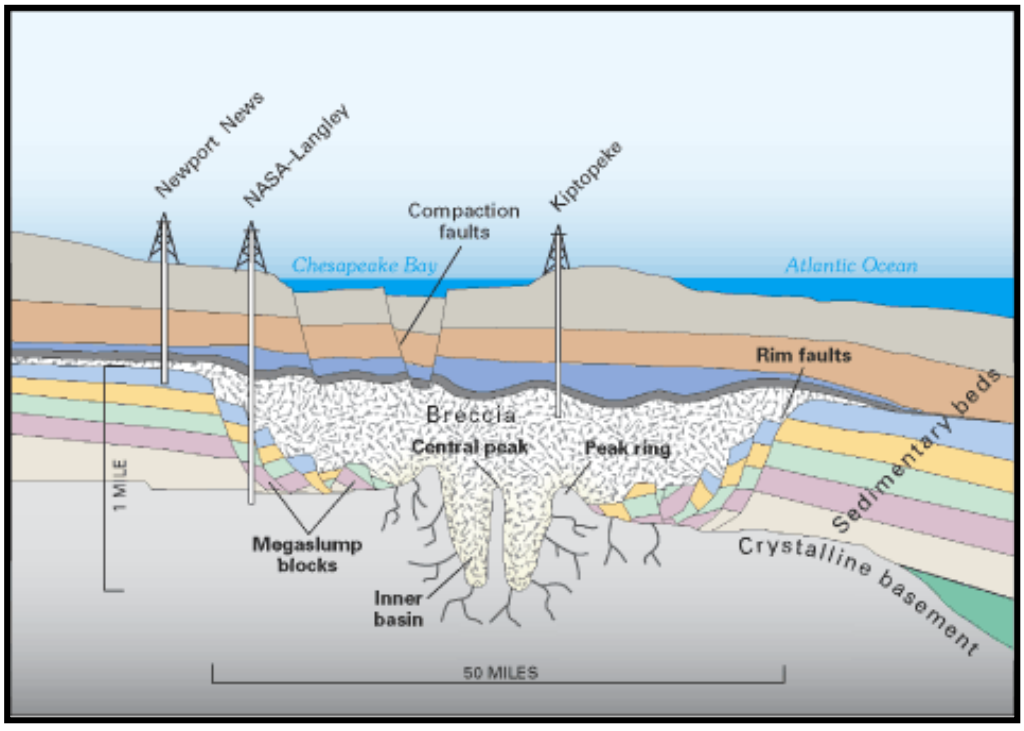


Fig. 12. Geologic cross section of the earth's crust at the entrance to Chesapeake Bay. The meteor punched through the earth's crust creating a large crater filled with broken crustal rock fragments, which are called breccia. The outer crater walls collapsed inward along a nested series of ring fracture faults. These faults and the impact crater lowered the earth's crust creating Chesapeake Bay. Yorktown is located a few miles inland (north) from the well labeled NASA-Langley. Yorktown's subsurface geology is a similar crater edge fractured and down stepping fault blocks. This illustration has greatly exaggerated scales, which distort the true relationships and can lead to confusion. To be in true scale, the horizontal distance would have to be about 25 times longer to match the vertical distance. Unfortunately, such distortions even sometimes lead geologists to draw erroneous geologic conclusions.

Giant dinosaurs may have evolved from tiny insect eaters

By David Szondy

July 07, 2020

Life restoration of *Kongonaphon kely*, a reptile near the ancestry of dinosaurs and pterosaurs with human hands shown for scale

Frank Ippolito/American Museum of Natural History

View 3 Images

Research led by scientists associated with the American Museum of Natural History suggests that the giant reptiles of the age of the dinosaurs were descendants of a very tiny ancestor, shedding light on how the characteristics of dinosaurs and flying pterosaurs evolved.

About 237 million years ago, during the Middle Triassic period, a 4-inch-tall (10-cm) insect-eating reptile lived in the primordial jungles of what is now Madagascar. Called *Kongonaphon kely* (tiny bug slayer), this animal sits near

the root of Ornithodira, which is the part of the class Reptilia that includes the common ancestors of dinosaurs and pterosaurs.

The first *Kongonaphon* fossils were discovered in 1998 by a team of researchers led by the American Museum's Frick Curator of Fossil Mammals, John Flynn. Until recently, such small reptiles were thought to be outliers, with the ancestors of dinosaurs being of a similar size to other archosaurs, the large reptile group that includes birds, crocodilians, non-avian dinosaurs, and pterosaurs, and that these later grew to gigantic proportions as the more familiar dinosaurs evolved. However, as more fossils were found and analyzed, Flynn says that another picture emerged.

"This fossil site in southwestern Madagascar from a poorly known time interval globally has produced some amazing fossils, and this tiny specimen was jumbled in among the hundreds we've collected from the site over the years," says Flynn. "It took some time before we could focus on these bones, but once we did, it was clear we had something unique and worth a closer look. This is a great case for why field discoveries – combined with modern technology to analyze the fossils recovered – are still so important."

Kongonaphon kely in what would have been its natural environment about 237 million years ago

Alex Boersma

Part of this analysis involved a study of tooth wear of *Kongonaphon*, which indicates that it ate insects. This shift in diet would cause its ancestors to miniaturize, but also increase its survival chances by filling an ecological niche not exploited by its carnivorous relatives. In addition, such small bodies would have a very large surface to volume ratio, meaning that they would get cold fast, Since the late Middle Triassic was a time of climate extremes, this suggests that they developed the fuzzy skin coverings found on many dinosaurs and pterosaurs, which later evolved into feathers.

"Discovery of this tiny relative of dinosaurs and pterosaurs emphasizes the importance of Madagascar's fossil record for improving knowledge of vertebrate history during times that are poorly known in other places," says project co-leader Lovasoa Ranivoharimanana of the University of Antananarivo in Madagascar. "Discoveries like this helps people in Madagascar and around the world better appreciate the exceptional record of ancient life preserved in the rocks of our country."

The research was published in *Proceedings of the National Academy of Sciences*.

Submitted by: Eugene Ciancanelli

Please note: Vista Gem and Mineral Club announcement next 2 pages, NOT PGMC!!

EXCITING NEWS!!
WE HAVE FOUND A NEW LOCATION!!

WE ARE PLEASED TO ANNOUNCE WE WILL BE MOVING TO A NEW LOCATION IN VISTA OVER THE NEXT SEVERAL WEEKS.

WE HOPE THAT WE WILL BE ABLE TO OFFER OPEN SHOP HOURS (with limited capacity) LATER IN AUGUST.

As we discussed in at the February meeting, we had been asked by the Antique Steam & Gas Engine Museum to vacate our current space at the museum before the end of 2020. Despite the limitations of the current health emergency, we have continued to search for a safe, affordable, and appropriately sized location for classes and meetings, and we successfully found a great space in a business park in Vista near interstate 78. We are currently completing the paperwork and plan to start moving in the next week or so. We hope to be open for limited activities such as open shop hours in our classroom in a few weeks, still following the county and state guidelines for limited capacity, mask wearing, and social distanced work stations. We will continue to communicate with you by email blasts and on Instagram and Facebook when we know for sure when we can get some equipment set up and start holding open shop hours.

Classes: These are not starting yet. We are currently working on a plan for getting classes started again, hopefully in September. We will send out announcements and contacting people on the beginner class waiting list as soon as these plans have been finalized.

October Show: At this time, we do plan to hold the October Show the weekend of October 2-4, 2020 on the Antique Gas and Steam Engine Museum grounds. This, of course, is pending any future closures of the museum grounds or additional restrictions by the county. The situation, as I'm sure you are all aware, is still dynamic and difficult to predict, but for now we are keeping our fingers crossed that the show will go on as planned.

We thank you all so much for your patience and support for the last few months. Our priority is the safety and health of our members and their families, so as we carry out our move over the next several weeks we will continue to follow the direction and guidance of federal, state, county, and municipal agencies. The duration of risk to public health due to COVID-19 cannot be estimated at this time, but will likely last awhile longer. We are excited about being able to have a little more independence as regards to when we can be open and what activities can take place at our new location off of county park grounds, but activities will still be limited

for the near future.

We will try to keep up and notify all members, students, and vendors of any changes as soon as we know what they are. We will post on Facebook, Instagram, and by email all status updates. Please be patient if you do contact us -- many of us have day jobs also and are dealing with changes there, too. We will respond to you as soon as we can.

If you are a student and have any questions, please email to us at vistarocksgms@gmail.com (or link below), with "ATTN: STUDENT CLASS INQUIRY" in the subject line.

If you are a vendor and have any questions, please contact Ray Pearce, our show coordinator, by email at vistarocksgms@gmail.com (or link below) with "ATTN: RAY; SHOW VENDOR " in the subject line.

STAY TUNED BY EMAIL, INSTAGRAM, AND FACEBOOK FOR UPDATES, PICTURES, AND MORE INFORMATION ABOUT THE NEW LOCATION AND UPCOMING ACTIVITIES

Thank you for your patience as we navigate so many exciting changes during this difficult time. We value all our members and friends and look forward to seeing you all soon in our new space!

Stay safe and be well....

NOTE: VISTA GEM CLUB NEWS, NOT PGMC!!!

Member request, please help if you can:

Could you help me spread the word regarding this request for a copy of the "Las Choyas Geodes" article in the magazine LAPIS 2006 #11?
I don't have a facebook account, so I am of little help in this matter.
Any help would be much appreciated by me and Beth Heesacker.

Thanks in advance,
Bob Verish

July 26, 2020

The History And Meaning Behind August's Birthstone

Megan Britt

Celebrate the August birthday in your life with the gift of peridot birthstone jewelry!

Known as a symbol of opportunity and prosperity, this vibrant yellow-green gemstone is beloved by many. Read on to learn more about what makes peridots so enchanting!

Peridot Gemology

Peridot is a rare gemstone that only occurs naturally in one color. It is a form of Olivine (think olive green), a mineral composed of magnesium and iron. With the inclusion of outside elements, certain gemstones can occur in every color of the rainbow. The August birthstone, however, only comes in subtle shades of green. It will never be blue, red, purple, orange, or anything else! It is unique in its specificity.

All peridots came to exist on Earth in one of two ways: they either formed deep underground at high temperatures or caught a ride on flaming meteorites (called pallasite meteorites). Peridot from asteroids is extremely rare and valuable, but lucky for us, the United States has a steady supply of peridots made underground. Brilliant Earth sources our stunning peridots from the San Carlos Reservation in Arizona, where Native American community members revere the land and use low-impact mining techniques. These gemstones provide Native Americans with safe, secure livelihoods in an otherwise isolated area.

Peridot Birthstone History And Meaning

Peridots have been steeped in myth for thousands of years. Pliny the Elder (23-79 AD), an ancient naturalist, first recorded the existence of peridot on a small island off the coast of Egypt. He originally called the stone “topazios” and described it as a gem that was commonly green but also occurred with yellowish tones. He named that island Topazios, after the gem, but it was later renamed St. John’s Island or Zabargad. This island was closely guarded by the ancient Egyptians because it was thought to be the site of priceless treasures. It is widely believed that some of Cleopatra’s famous emeralds were actually peridots!

The Egyptians called peridot the “gem of the sun,” and some thought that it protected against nightmares. It was also believed to bring the wearer confidence, power, and general good luck and health. Peridots are also closely connected to the Hawaiian culture—they are thought to be the tears of the volcano goddess Pele. The sand on the Big Island’s Papakolea Beach is a rare and beautiful green hue due to a high content of crushed olivine.

August Birthstone Jewelry

Peridot ranges in color from yellowish lime green to deep, earthy olive tones, making them a very sought after jewelry choice. These gemstones are a wonderful option for those who love green gemstones but are looking for an option at a lower price point than emeralds. Certain shades of peridot can easily be confused with emeralds! When set against lustrous sterling silver, peridots can show off their fresh, vibrant sparkle.

If you are looking for a piece of unique jewelry for someone born in August (even if that's you!) consider our Silver Peridot Twist Pendant or our Silver Peridot Stud Earrings. One famous fan of peridot earrings is the Duchess of Cambridge, or Princess Kate, who has frequently been seen in a pair of peridot, blue topaz, and diamond earrings.

Vintage Peridot Jewelry

Vintage peridot jewelry is frequently found from the Victorian, Edwardian, and Art Nouveau eras. King Edward VII (for whom the Edwardian era is named) declared it his favorite gemstone, which made it a popular choice for his subjects. Art Nouveau era jewelers favored colorful, semi-precious stones like peridot.

Caring For Peridot

Peridot is durable enough for everyday wear in jewelry, but should be treated with care to avoid scratching. Clean your peridot with mild soap and warm water.

Final Thoughts

Happy birthday August babies! Cheers to you and your green, ancient, cosmic, birthstone!

COURTESY:DR. EDUARD J. GÜBELIN COLLECTION (LEFT SPINEL), WILD & PETSCH LAPIDARIES (PERIDOTS), GIFT OF

Peridot, spinel and sardonyx are the three birthstones for August. The peridot birthstone is known for being for
birthstone was underappreciated until recently, as today's consumers look for an alternative to ruby, a gem wi
bir

JUMP TO:

PERIDOT SPINEL SARDONYX

PERIDOT BIRTHSTONE

PERIDOT BIRTHSTONE MEANING & HISTORY

Peridot is the yellowish green to greenish yellow gem variety of the mineral olivine. Throughout history, peridot ha
the Three Holy Kings in Germany's Cologne Cathedral is decorated with 200 carats of gems that were believed to

The word "peridot" comes from the Arabic *faridat*, meaning gem. This August birthstone was valued in many anci
been used for centuries as a protective talisman, shielding the owner from evil spirits and "terrors of the night."

Peridot is the gem given to celebrate a 16th wedding anniversary.

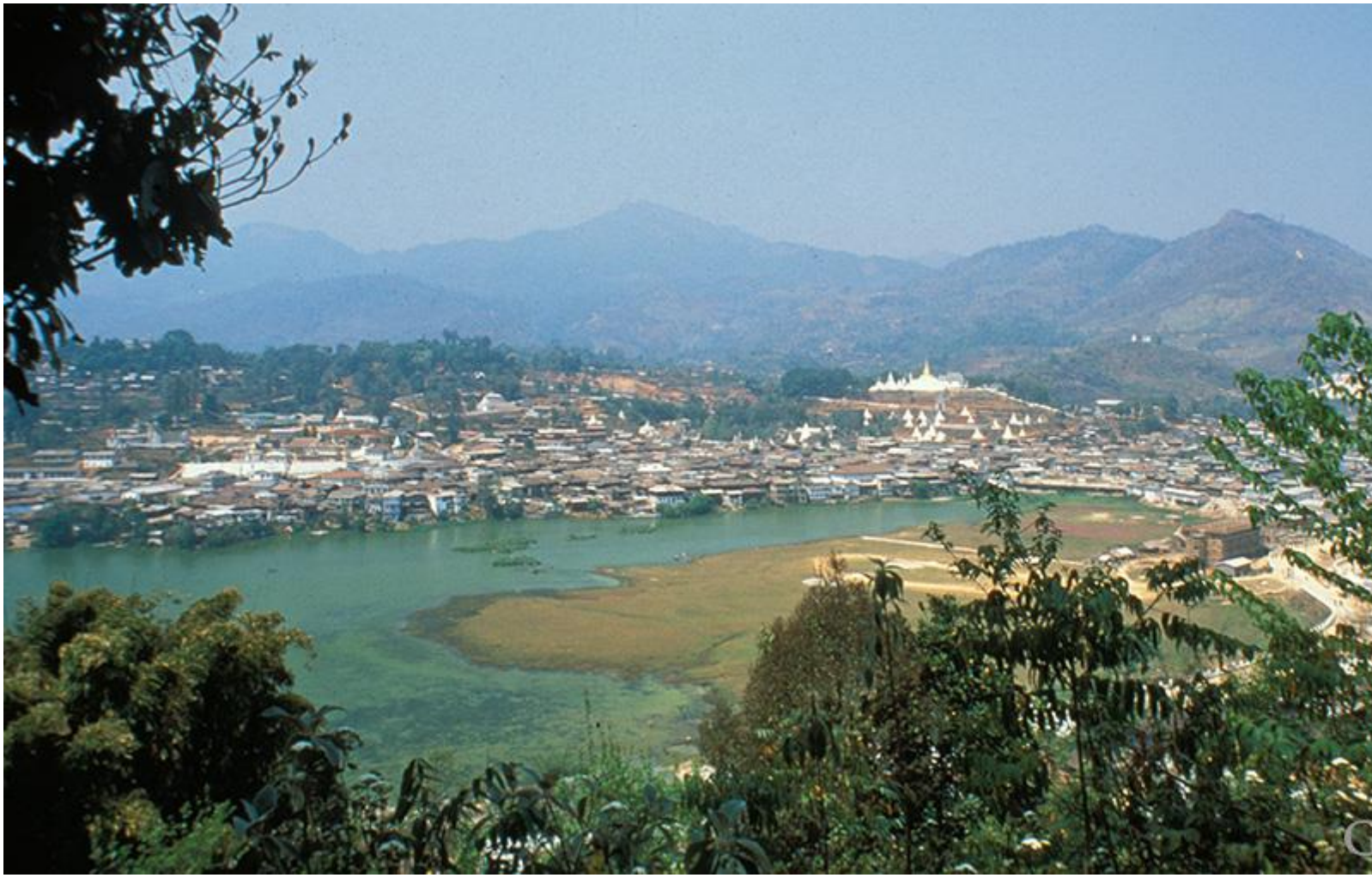
The preferred color for peridot is a pure “grass” green without any hint of yellow or brown. The large (364 ct) crystal is from

WHERE IS PERIDOT FOUND?

Peridot, the August birthstone, has an amazing story. Although most of the peridot seen in jewelry today comes fr
Beach, Hawaii, where the sands shimmer a luminous green.

The Egyptian island of Zabargad (the name now given to Topazios) is the oldest recorded source of this August b
Ophiodes ("snake island"). Peridot from Zabargad has been prized for centuries and is still highly desirable. The f

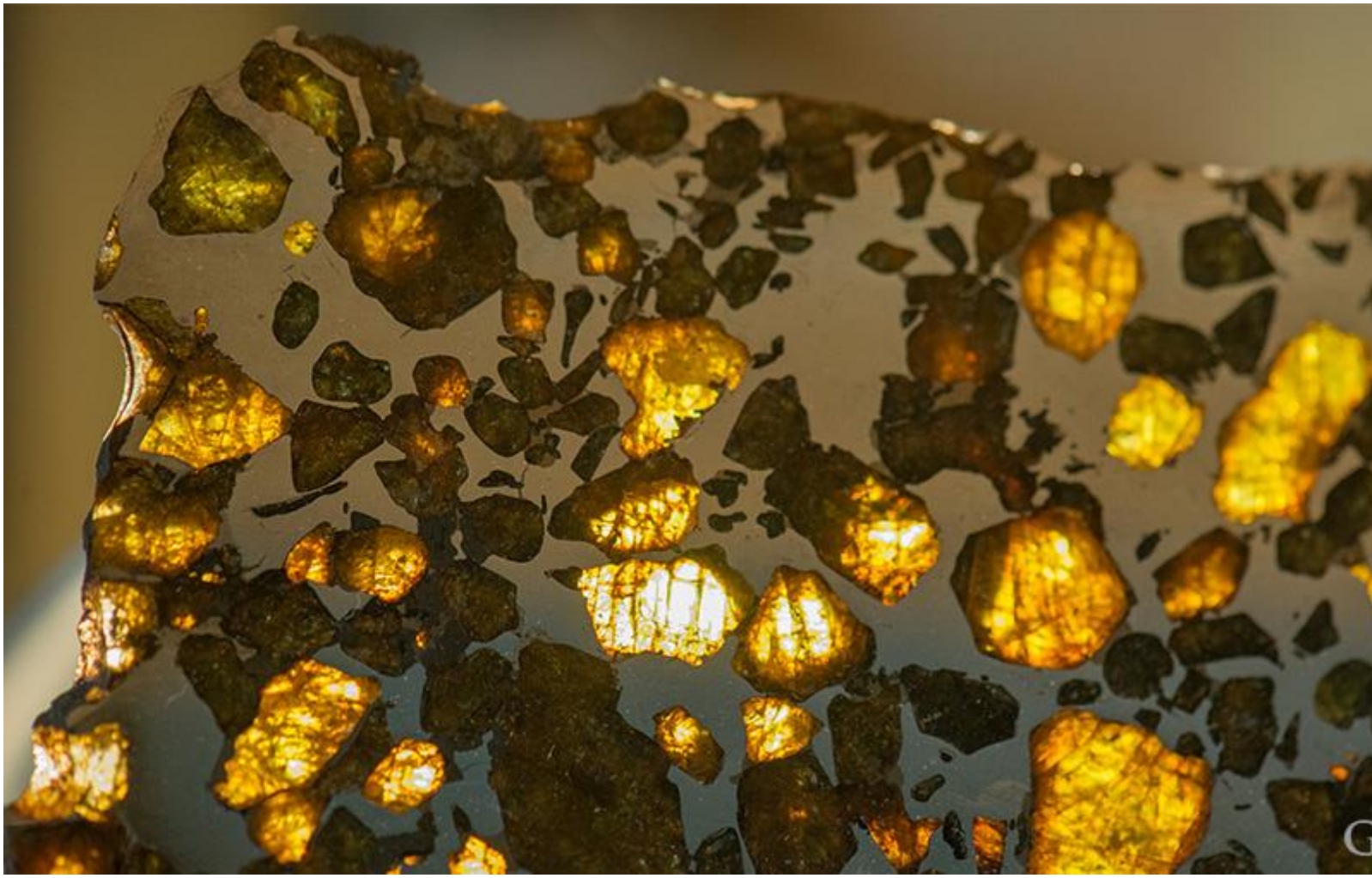
Myanmar (formerly Burma) is another important source of the peridot birthstone. On the northern slope of Kyaukp
transparency.



A panoramic view of Mogok evokes the mythical city of Shangri La. Photo: Robert E. Kane

Arizona is the main source of this August birthstone in the United States. Massive volcanic eruptions many thous
mines for decades.

This August birthstone has also come to Earth via pallasite (made of nickel-iron and olivine) meteorites. Thousan



Transparent peridots can be seen scattered throughout this pallasite meteorite. Photo: Eric Welch/GIA. Courtesy: Magic Mo

PERIDOT BIRTHSTONE CARE & CLEANING

With a hardness of 6.5 to 7 on the Mohs scale of harness, peridot is softer than many gems and cannot take harc
peridot is a delicate process. Never use a steam or ultrasonic cleaner, as your peridot birthstone is vulnerable to

The 10.89 ct peridot in this platinum ring is surrounded by a halo of diamonds. Photo: Robert Weldon/GIA. Courtesy: Richa

SPINEL BIRTHSTONE

SPINEL BIRTHSTONE MEANING & HISTORY

The name “spinel” comes from the Latin word *spina*, which means thorn, in reference to the shape of spinel cryst

For centuries, spinel was mistaken for other gemstones. Some of history’s most famous “rubies” have actually tu
Wales (also known as the Black Prince) received the stone in 1367 as payment for winning a battle on behalf of P

State Crown, just above the 317.40 ct Cullinan II diamond.

The 170 ct red spinel in the Imperial State Crown is set with more than 3,000 diamonds, sapphires, emeralds and pearls, in

Red spinel, along with other red gems, was thought to be a remedy for all types of blood loss and inflammatory di

WHERE IS SPINEL FOUND?

Today, spinel is found in several locations. Major sources include Tajikistan, Myanmar, Sri Lanka, Vietnam, Tanz

These spinels represent several different hues and countries. From left to right: a 10.92 ct oval red spinel from Mogok, a 20

Sri Lanka is a veritable Treasure Island of different gem species and varieties, including sapphire, ruby and garne Ratnapura District have been rich sources for centuries.

Myanmar’s Mogok Stone Tract is another prolific source, one where ruby, sapphire and other gem minerals are fo

These hot pink spinel crystals came from Man Sin, in Myanmar’s Mogok Stone Tract. Photo: Vincent Pardieu

The Luc Yen region in northern Vietnam has produced this August birthstone in deep red, purple, pink, violet and biking for several more hours.

In this scene from Vietnam's Luc Yen region, a ruby and spinel mining operation can be seen in the foreground, with rice pa

A 2007 discovery in Tanzania of pinkish and orangy red spinel captivated gem collectors. Mines there also produ

SPINEL BIRTHSTONE CARE & CLEANING

Spinel is 8 on the Mohs scale of hardness, so it is typically a durable gem for rings and other jewelry. Ultrasonic a

Spinel is stable when exposed to light and chemicals. High heat can cause some colors of this August birthstone

A 3.55 ct princess cut spinel dazzles the eye with its lively color and cut. Two trapezoid diamonds with a total carat weight c

SARDONYX BIRTHSTONE

SARDONYX BIRTHSTONE MEANING & HISTORY

The most ancient of the August birthstones, sardonyx is a combination of two types of chalcedony (cryptocrystalli
Roman seals and signet rings, as hot wax would not stick to it. For millennia, the bands of color in this August birt

An early 19th century Italian sardonyx cameo mounted in gold as a pendant, by Giuseppe Girometti. Courtesy: The Metrop

Sardonyx is believed to be one of the stones in the High Priest's breastplate, as referred to in the Old Testament,

associated with courage, happiness and clear communication, bringing stability to marriage and partnerships.

WHERE IS SARDONYX FOUND?

This August birthstone has many sources. India is notable for producing sardonyx with good contrast between the

A flat oval polished sardonyx tablet showing varying orange and white banding. Photo: Robert Weldon/GIA. Courtesy: Gift o

SARDONYX BIRTHSTONE CARE & CLEANING

This August birthstone is 6.5 to 7 on the Mohs scale. As with peridot, care should be taken when wearing it, espe
sardonyx.

This sardonyx picture brooch with gold and platinum has a single diamond on top. Photo: Robert Weldon/GIA

Ultrasonic and steam cleaners should be used with caution. Again, warm soapy water applied with a soft-bristle b