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Librarian	Chris Toft
Calendar	VACANT

JULY (Coronavirus) NL CONTENTS:

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none scheduled yet

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**HAPPY BIRTHDAY to
JULY 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.

Submitted by: Chris Toft

An Obituary printed in the London Times.....Absolutely Dead Brilliant!!t

Today we mourn the passing of a beloved old friend, Common Sense, who has been with us for many years.

No one knows for sure how old he was, since his birth records were long ago lost in bureaucratic red tape. He will be remembered as having cultivated such valuable lessons as:

- Knowing when to come in out of the rain;-
Why the early bird gets the worm; - Life isn't always fair; - And maybe it was my fault.

Common Sense lived by simple, sound financial policies (don't spend more than you can earn) and reliable strategies (adults, not children, are in charge).

His health began to deteriorate rapidly when well-intentioned but overbearing regulations were set in place. Reports of a 6-year-old boy charged with sexual harassment for kissing a classmate; teens suspended from school for using

mouthwash after lunch; and a teacher fired for reprimanding an unruly student, only worsened his condition.

Common Sense lost ground when parents attacked teachers for doing the job that they themselves had failed to do in disciplining their unruly children.

It declined even further when schools were required to get parental consent to administer sun lotion or an aspirin to a student; but could not inform parents when a student became pregnant and wanted to have an abortion.

Common Sense lost the will to live as the churches became businesses; and criminals received better treatment than their victims.

Common Sense took a beating when you couldn't defend yourself from a burglar in your own home and the burglar could sue you for assault.

Common Sense finally gave up the will to live, after a woman failed to realize that a steaming cup of coffee was hot. She spilled a little in her lap, and was promptly

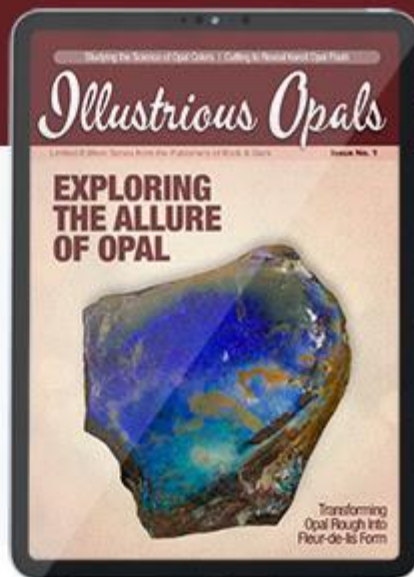
awarded a huge settlement.

Common Sense was preceded in death, -
by his parents, Truth and Trust, -by his
wife, Discretion, -by his daughter,
Responsibility, -and by his son, Reason.

He is survived by his 5 stepchildren; - I
Know My Rights - I Want It Now -
Someone Else Is To Blame - I'm A Victim -
Pay me for Doing Nothing

Not many attended his funeral because so
few realized he was gone. If you still
remember him, pass this on. If not, join the
majority and do nothing

Rock&Gem



Our Rock & Gem team is excited to announce the launch of the new limited-edition Illustrious Opals series. Think of it as a BONUS, because we love our readers, and we know you can't get enough of everything related to rocks, gems, minerals, lapidary and fossils.

Each issue of Illustrious Opals features unique columns, articles, and special elements. The Rock & Gem Illustrious Opals digital issue is available for FREE, but only for a limited-time.

Click on the link below and register to receive the Illustrious Opals digital issue for FREE.

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In the first issue you'll find:

- Articles about cause of color in opals and carving an opal fleur-de-lis
- Columns about opal terminology and additional opal references
- Profiles of businesses serving those with an interest in opals
- Showcase of unique opal specimens

Enjoy and be well,

The Rock & Gem Team

HOW AMERICANS USED GEOLOGY TO WIN THE REVOLUTION (part1)

By: Gene Ciancanelli

When you read the history books about the Revolutionary War, the stories center around the people and events that led up to and shaped the war and its final outcome. There is never a mention of geology and the critical role it played in our victory. It was through Washington's and several other officer's innate understanding of geology, specifically the terrain of battle, that we gained an edge over the British superiority in weapons, food, logistics, mobility, etc. Of course, the words geology and geomorphology had not yet been invented and the Americans were not even aware they were using geology to defeat the British.

Geomorphology is the branch of geology that deals with landforms and their relationship to geologic structure and processes. Everyone has an understanding of geomorphology because it is such an integral part of our daily lives that we usually don't even think about it unless it is necessary to do so and then virtually no one, including geologists, realizes they are employing geomorphology science. Landforms are the features of the earth that include mountains, valleys, stream courses, swamps, plateaus, deserts, shorelines, hillsides, plains, mesas, volcanoes, lava flows, canyons, etc. that form the earth's surface, which is called terrain. The processes that form landforms include erosion, rivers and streams, oceans, rain and snow, freezing and thawing, glaciers, wind, earthquakes (faulting), animal (including human) and plant activity, chemical breakdown of rock, volcanic eruption, floods, landslides, etc. Geomorphology enters into our lives in countless ways. Here are just a few examples. When we travel across the earth's surface, we usually don't travel in a direct straight line because it is easier to travel by avoiding obstacles and with as little uphill movement as possible. Thus walkways, roads, and railroads tend to follow valleys and gaps between hills and mountains. We do this because it is easier and less expensive to do so. We also consider terrain in construction projects of all types, farming activities, recreation, art, mining, air travel, water rights, government policies, where people congregate, etc. Geomorphology is also a critical factor in planning and carrying out warfare. Here are few examples. In the war in the Pacific and the landings at North Africa, Sicily, and Normandy planning had to consider beach conditions, type of sand or gravel, coral reefs, tides, cliffs, mountains and swamps, etc. In WW II, the Germans and Japanese made masterful use of terrain to set up defensive lines that drastically slowed and often halted the allied advance. Geology was the key element in the success of many ancient battles that shaped history. One of the most famous of these was Hannibal's defeat of a much larger Roman army at the Battle of Cannae in the Second Punic War. Hannibal won because he used terrain to constrain the Romans. At the Battle of Thermopylae King Leonidas positioned his 300 Spartans and 700 Thespians to block the narrow pass at Thermopylae and delay the advance of a Persian army of over 100,000 men. Although they were eventually defeated, the delay gave the Greek navy, under command of Themistocles, time to position the Greek fleet in the narrow straits of Salamis. The much larger Persian navy could not maneuver in the narrow straits and they were defeated by the smaller but nimble Greek forces. This battle resulted in the birth of Western Civilization and the idea of democracy.

In this account, I will present just a few of many examples of how poorly equipped and virtually untrained colonial American's used geomorphology and their superior knowledge of the local terrain to win critical battles that resulted in a handful of poorly equipped peasants defeating the greatest super power of the 18th Century.

The Battle of Boston

Even before the Revolutionary War began, the British had occupied Boston to stamp out that hotbed of political unrest before the impending spirit for independence spread to the rest of their colonies. In April of 1775, rebel colonists occupied and fortified a series of hills around Boston overlooking the British position in Boston and its harbor. From this position, the rebels cut off the British from moving out of Boston to surrounding towns. The British control of Boston Harbor still allowed them to bring in additional soldiers and supplies by ship.

In June 1775, the colonists learned the British had plans to send troops to occupy the hills surrounding Boston. American Colonel William Prescott ordered his men to build fortifications on top of Breed's Hill. The original plan was to construct fortifications atop Bunker Hill, but the militiamen chose Breed's Hill, which was closer to Boston. Immediately, British troops attacked the Americans on Breed's Hill and won the so-called Battle of Bunker Hill. Although the Americans lost the battle, they inflicted very heavy casualties on the British and this boosted their confidence. The Siege of Boston now turned into a stalemate until late January 1776.

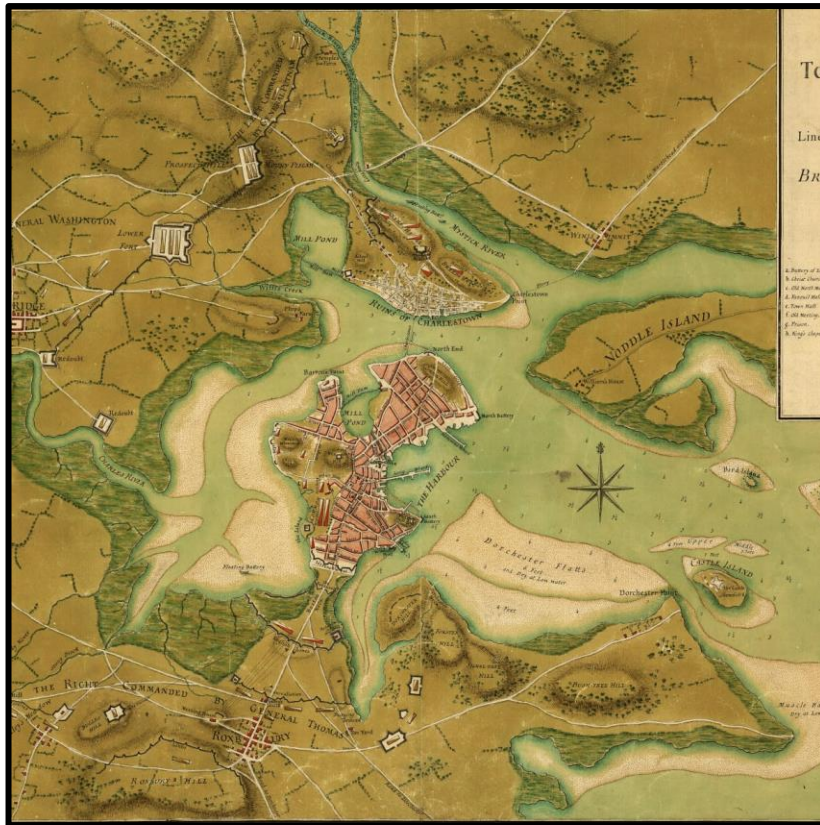


Fig. 1. Colonial era map of Boston shows the city occupying a peninsula in the center of Boston Harbor. Fortified American positions occupy the hills and higher ground surrounding the city. Heavy cannon from these positions were able to fire down upon the city and ships in the harbor.

In July 1775, Washington arrived to take command of the Continental Army. He found the poorly equipped colonial militiamen armed with their “squirrel” hunting rifles and virtually no ammunition or cannons. To fool the British, the militiamen used tree trunks as decoy cannon, which from Boston appeared to the British to be the real thing, which led to the stalemate period. Meanwhile, Washington ordered a portly young officer and former bookseller named Henry Knox to go to the recently captured Fort Ticonderoga at the south end of Lake Champlain in upstate New York. Knox was to transport 56 large cannon and mortars, plus ammunition, from Fort Ticonderoga to the heights above Boston. Knox arrived at Fort Ticonderoga in mid-December 1775. In those days, winters in the northeastern United States were much colder than they are today. In fact, they were still colder in the 1940’s and 1950’s when I lived there compared to the present day.

Knox and his men built a series of large wooden sledges onto which they loaded the ordnance. In the dead of winter, they used oxen teams to drag, over snow and ice, the heavily loaded sledges a distance of 300 miles in 56 days to Boston. The route is across a terrain of sparsely inhabited mountains, hills, and valleys all of which determined the route along which Knox dragged the cannon. In late January 1776, the heavy cannon, now mounted on the hills above Boston, were able to fire down upon the British and their ships in the harbor. The

lighter British cannons could not reach the militiamen's position on the heights and by mid-March 1776, the British were driven from Boston. This first victory inspired people throughout the colonies that the British could be defeated. The seeds for the revolutionary War had now been sown and in just a few months the Declaration of Independence would be sent to King George III.

The British Plan to Split the Colonies – The Northern Campaign

A main British objective in the Revolutionary War was to split the colonies in half by capturing and controlling the Hudson Valley and Lake Champlain corridor up to the St. Lawrence River.

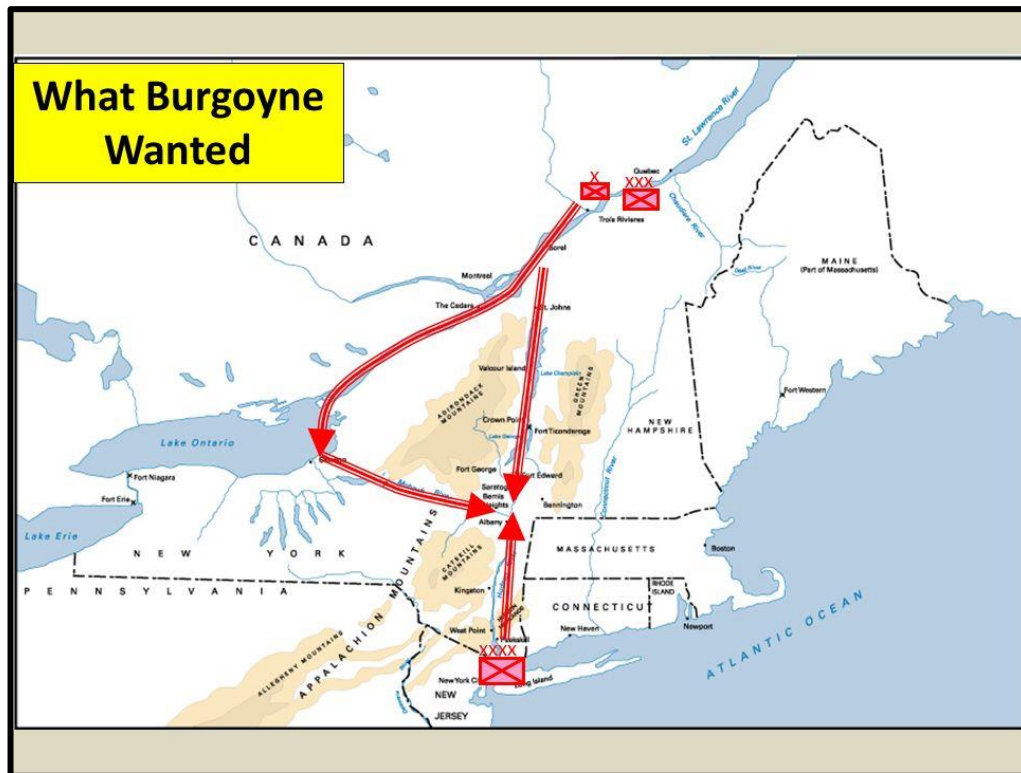


Fig. 2. General Burgoyne's plan was to have three armies move along the main topographic travel corridors bisecting the state. Burgoyne would lead an army from Montreal, south on Lake Champlain to capture Fort Ticonderoga then continue south to capture Albany. There Burgoyne would rendezvous with a diversionary force under Colonel Barry St. Leger fighting its way east along the Mohawk Valley. A third force, under General William Howe, would move north up the Hudson Valley from New York City to Albany. New England would be isolated and the rebellion crushed.

This plan was hatched by General John Burgoyne in January 1777. Just north of New York City, a branch of the Appalachian Mountains, known as the Hudson Highlands, forces the Hudson River to flow 15 miles through a steep narrow gorge. Farther north the river flows through a broader rolling countryside of hills and valleys to Albany located 140 miles upriver from New York City. At Albany the Mohawk River flows into the Hudson from the west. North of Albany, the Hudson River gradually becomes smaller but the valley itself, now much narrower, continues northward through two large lakes, Lake George and the 120 mile long Lake Champlain.

Burgoyne's army of 8,000 British and Hessian troops, accompanied by hundreds of Indian "allies", began to advance south on Lake Champlain in June 1777. Burgoyne's plan included the unleashing of the Indian's to bring death and havoc upon the settlers and thus destroy their morale. This had the opposite effect and strengthened the colonist army's will. The two armies first met at Fort Ticonderoga, where the Americans had stretched a heavy chain across the southern part of Lake Champlain to prevent the British flotilla's southward advance.



Fig.3. Map of Burgoyne's southern thrust along the Lake Champlain corridor.

Fort Ticonderoga was under the command of General Arthur St. Clair, who only had 2,500 troops to oppose Burgoyne's army. The British laid siege to Fort Ticonderoga and occupied and fortified higher ground at Mount Defiance, which the Americans had failed to occupy. British cannon on Mount Defiance were now in position to fire down upon the fort. Seeing his position indefensible, St. Clair ordered a nighttime retreat to the south using existing roads and waterways. There now ensued a series of running battles and skirmishes with both sides taking advantage of terrain and waterways to gain advantage. Burgoyne had to move his army along a 16 mile stretch of swamps and creeks on a single narrow roadway that the Americans made impassable by felling trees and diverting streams across the road. American snipers and insects, combined with oppressive heat and wool uniforms, made the British army's journey extremely slow and miserable.

When Burgoyne finally arrived at Fort Edward, his army was severely weakened from both fighting and the American's use of the land and its resources to hinder the British advance. More bad news now arrived from General Howe, who had abandoned his advance up the Hudson River and was now marching to Pennsylvania. Burgoyne, low on supplies, now dispatched a large force of German Hessians to Bennington, Vermont to capture supplies and horses. The Americans raised a large volunteer force under General John Stark and surrounded the Hessians. As the frontal assault began, General Stark shouted, "We'll beat them before night, or Molly Stark will be a widow". After a day of several decisive battles, General Burgoyne had lost one seventh of his army. Now his Indian allies deserted loaded down with captured plunder. With supplies running low, Burgoyne decided to fight his way to Albany and there wait for resupply from New York City.

In August, American General Horatio "Granny" Gates arrived at the confluence of the Mohawk and Hudson Rivers. There a large American force was assembled with additional troops under Benedict Arnold and Daniel Morgan with his tough company of frontier sharpshooters armed with long rifles. The American army moved north and fortified Bemis Heights, which commanded the only road along the narrow corridor leading south to Albany. From this fortified position, the Americans awaited Burgoyne's army. Meanwhile, Burgoyne learned St. Leger's force moving

down the Mohawk Valley had been defeated. Burgoyne moved his army from the east side of the Hudson River to the west side, where he would have to fight his way through the American army at Bemis Heights. As soon as the British army crossed the Hudson, the bridge was destroyed behind him thus cutting Burgoyne off from retreat and communication with Canada.

The two armies first engaged in what is known as the Battle of Freeman's Farm. Inept cowardly General Gates basically hid in his tent, while Benedict Arnold and Daniel Morgan led their forces in a wide-ranging day long battle. The British technically won the day, but it was a Pyrrhic victory as the British lost 600 men. Burgoyne now withdrew to a fortified position to lick his wounds. In early October, the British again began to advance south and when they stopped to harvest wheat to replenish supplies, the American forces engaged them from two sides. Earlier, Gates and Arnold got into a heated argument and Arnold was removed from his command. As the battle raged, Arnold defied orders and took command of his troops as the coward Gates hid from the battle. Once again, Arnold and Morgan led the Americans in a series of engagements, which at day's end showed British losses of 900 men to the American loss of 150 men. Arnold was shot in his leg. At nightfall the British retreated but the next day Gates refused to press the attack even though the colonists had a much larger and stronger force than Burgoyne.

The British now began a disorganized retreat back north to Ticonderoga, The British were encamped at Saratoga, while they attempted to build a new bridge across the Hudson River to follow the road north. The Americans encircled the British and Burgoyne was ultimately forced to surrender his army of 5,000 men. This was a great victory for the colonists and more importantly it convinced France to enter the war on the American side.

The Hudson Valley and Lake Champlain corridor is a glacial carved valley. Initially the British used the terrain to their advantage moving their army by sailing down Lake Champlain and capturing Fort Ticonderoga by fortifying Mount Defiance. The advantage then shifted to the Americans, whose better knowledge of the terrain allowed them to hinder, harass, and slow the British southward advance. At Bennington and subsequent battles, the American's used the terrain to gain advantage. By destroying the bridge across the Hudson, Burgoyne's army was prevented from retreating northward and thus trapped he was forced to surrender.

The British Plan to Split the Colonies – Defense of the Lower Hudson River

At the beginning of the war, Washington recognized West Point as the most critically important military locality in the colonies. West Point sits within the narrow 15-mile-long Hudson Gorge at a place where the river narrows and makes a sharp bend amid the canyon's steep sidewalls. The current flows faster where a river narrows and with the added sharp bend, passage upriver for sailing ships is impossible except when the tide is running upriver. The Hudson is a tidal river and ocean tides extend 90 miles upriver. The Hudson River's channel is not a river channel carved in the usual sense by the movement of the river. The Hudson is in fact a narrow fiord carved out by glaciers during the last ice age, when New York State was buried under a two-mile-thick layer of ice and the region resembled today's Antarctica. About 18,000 years ago the ice began to retreat and meltwater streams modified the glacial carved landscape following channels and depositing sediments. I am familiar with this area, because I grew up on the northern side of the Hudson Highlands Gorge and the first geologic map that I ever made was in the Hudson Highlands.

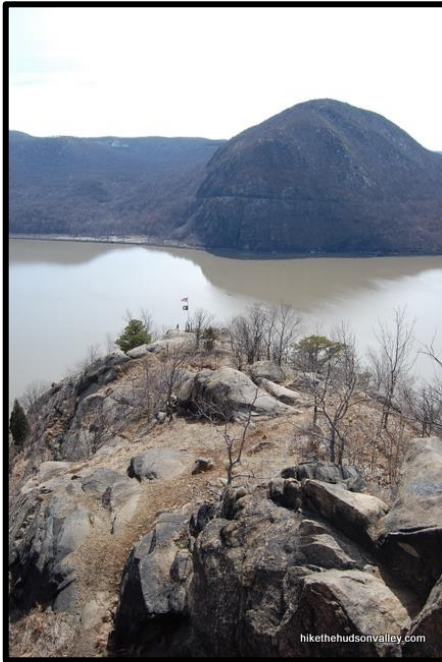


Fig. 4. (left) The north entrance to the Hudson Highlands. Looking west across the river toward Storm King Mountain. About five miles upriver (to the right) is the city of Newburgh where Washington maintained his headquarters during the last half of the war. (right) Looking south along the river from almost the same place as the previous photograph. West Point is in the far distance left of center.

Initial American efforts to fortify the Highlands began in 1775 and continued into 1777, but were plagued by incompetent military decisions, incredible bureaucratic and political stupidity (some things never change), and a failure to carry out Washington's instructions to fortify the West Point high point commanding the river bend. The Highlands area was and remains a steep and rugged topography of extremely hard metamorphic gneiss rock outcrops. Although on the outskirts of New York City, most of the region has never been occupied because of steep terrain. It remains largely as it was when Henry Hudson first sailed up the river in the 16th Century.

In the fall of 1777, General Sir Henry Clinton led a British force up from New York City to seize the Highlands. In a matter of days, he succeeded in capturing and destroying all the American fortifications. Thus, Clinton accomplished his assignment in Burgoyne's plan to split the Colonies. The British now controlled the lower Hudson River, the Highlands, and the vital river crossings in the region. Simultaneously, the American victory at Saratoga and subsequent British surrender meant that Clinton's army was isolated in the Highlands, and he abandoned the area. This short-lived British victory clarified West Point's importance and tactical value. Washington ordered the construction of new defensive works directing that a strong fort be erected at West Point. Still the politics and military incompetence continued to

Fig. 5. As the Hudson River passes through the Highlands, the river makes a series of sharp bends. The Americans eventually established a series of forts and redoubts at river bends and strong points designed mainly to prevent the British from sailing upriver. The most difficult sailing point, due to river currents, tidal forces, and changing wind direction occurred at the West Point bend.

At the map's north end is Newburgh, where Washington maintained his headquarters. Across the river from Newburgh is Fishkill, where I grew up. Fishkill, which is Dutch for fish creek, was renamed Beacon in 1913. Beacon sits at the base of a high mountain called Mount Beacon. It is possible to see down river all the way to New York City from the top of Mount Beacon. If the British attempted to sail up river, signal fires would be lit on Mount Beacon to warn Washington across the river.



In March 1778, Colonel Thaddeus Kosciuszko, a Polish engineer, was appointed by Washington to fortify the Highlands. Under Kosciuszko's supervision, an integrated system of fortifications began to take shape. A conventional fort was not realistic at West Point. Kosciuszko developed a plan linking an integrated system of smaller forts sited on commanding terrain. A similar system would be employed by the Americans to achieve the war's final victory at Yorktown. The main Fort Clinton, named after an American Colonel, was sited overlooking the river on the tip of West Point and combined with four river side batteries. This fortified position overlooked the Great Chain, which was emplaced to physically close the river between West Point and Constitution Island. The chain weighed about 150 tons and was mounted on log booms. Each spring, the chain was stretched across the Hudson and taken up before the river froze. Thus, fortifications at West Point and on Constitution Island plus the floating boom-and-chain apparatus, offered a means to control the Hudson River.



Fig. 6. Kosciuszko's fortification of the Hudson River at West Point includes the main battery at Fort Clinton and a series of batteries and redoubts on Constitution Island and at high points along both sides of the river.



Fig. 7. A section of the Great Chain that stretched across the Hudson River at West Point. Each link is about 2 feet long and as big around as a man's arm. To break through the chain, the British would have had to expose their ships under the surrounding cannon batteries while trying to cut through the chain. All the while they would also have to deal with the river's swift current, tides, and shifting winds. The British never tried to surmount this geomorphic and man-made defense.

POSTSCRIPT

Previously, I wrote about Denning's Point, where Alexander Hamilton began, in his spare time, to write the first draft of the American Constitution. During the 19th and into the 20th Century, the area north of the Hudson Highlands became a large center of brick manufacture using the vast clay deposits that formed at the end of the Ice Age. There were over 120 brick manufacturing companies and these supplied the bricks that built most of the buildings in New York City and surrounding towns and cities between the early 19th Century up until about 1960. Each brick manufacturer stamped its bricks with the company's name or initials. There was a large clay mine and brick manufacturing plant at Denning's Point and they stamped their bricks with the initials DPBW for Denning's Point Brick Works. In brick manufacturing there are always few misshapen or broken bricks which can't be sold and these culls were free to people willing to cart them off. Thus, when I was growing up there were these free bricks used everywhere to build sidewalks, driveways, barbecues, fire places, walls, etc. The first work I ever did as a small kid was to hand bricks to my dad as he laid them for our driveway.

During one point in my career, I was consulting for Canadian clients in Toronto, Vancouver, and Calgary. Professional people and other Canadian big shots sign letters, documents and reports with titles, if they have one, and a series of initials following their name to make themselves appear important. These initials stand for honors, professional designations, college and university degrees, professional societies, etc. Thus, you will see a person's name followed by CRA, QC, PE, PG, UTMS, RS, etc. The more initials you can add to your name the more important you apparently are. For example, one fellow I knew was an accountant and a lawyer and he signed his name followed by CPA, QC. plus some university degrees and other nonsense. These initials stood for CPA = Chartered Professional Accountant and QC = Queen's Council. I even encountered a couple of Lord's and Sir's, which we got rid of thanks to the Revolutionary War. All this seemed like a bunch of nonsense to me and some of these puffed up pseudo important guys were real idiots. So, I decided to play a game and I began to sign reports and correspondence with my name followed by the initials DPBW for Denning's Point Brick Works. Of course, no one knew what DPBW stood for, but after all it must be something important. Soon I found myself being introduced as Gene Ciancanelli DPBW. This made a big impression on a lot of people and I got to enjoy the prank on many occasions. Never once did anyone ask or question what DPBW stood for, probably they didn't want to appear ignorant.

One day the UPS truck drives up to our house and delivers a small but heavy box with my niece Maria's name on the address label. Inside there was no letter, just a brick stamped DPBW. I had told Maria of the prank and even though the Denning's Point Brick Works had been out of business for decades, she found one of their bricks in a building being demolished. Today that brick sits on my bookshelf to remind me that I'm an important kid who earned a DPBW helping his dad doing honest labor.



Fig. 8 If you want to add a title to the end of your name, just get yourself one of these. There are a lot to choose from and you will be a brick solid person of some great importance and repute. In my opinion you will certainly be the equal, if not superior to, most college graduates, titled nobility, politicians, and lawyers, but not brick layers.



Ruby The July Birthstone

Let's face it. We are living in a superstitious world where everything that happens has a supernatural force behind it. Some people may call it fate, while others describe it as destiny. Whatever the case, humanity has always had strong connections to the spiritual world, as suggested by the birthstones worn by our ancestors since time immemorial.

Just like the twelve zodiac signs, each of these precious stones represents the twelve months of the year.

All birthstones have a unique meaning depending on your birth month and the color of the stone.

Here is a detailed description of July's birthstone, and a rundown on what you should expect from this powerful gemstone.

The birthstone of July is ruby and the secondary is onyx or turquoise

The stone is widely regarded as one of the most esteemed gemstones, thanks to its aesthetic appeal, exquisite shape, and exotic color. Moreover, it is renowned for its rarity, and hardness, second only to diamond (see our article on [Mohs hardness](#)). It comes in a crystal, flat tabular hexagonal shape that makes it suitable for various ornamental cuts. It is therefore not surprising that rubies command the highest value for any colored birthstones.

Known since ancient times as the King of Gemstones, ruby, from the corundum family, is widely regarded as the July birthstone, though this has not always been the case. Prior to 1912, when the Jewelers of America officially adopted ruby as the July birthstone, both onyx and turquoise were considered appropriate gemstones for this month. Before gemological instrumentation made the accurate identification of gemstones possible, spinel and rhodolite garnets, both of which also exhibit reddish hues, were mistaken for rubies. Today we have sophisticated methods of identifying true rubies, mainly due to their characteristic rutile needle inclusions, which can, in rare cases, form a spectacular six-pointed star called an asterism, clearly visible to the naked eye. Imagine the look on the birthday girl's face when she opens a gem box to find such a treasure inside!

[Read more details about Gemstone identification here.](#)

What is the significance of ruby as the July birthstone?

In ancient Asia, the natives described the stone as the 'King of Precious Stones' because of its unique features which led people to believe that the stone carried mystical powers. So strong was this belief that Burmese warriors claimed that wearing a ruby necklace into battle made one invincible. The ancient Hindus observed a spiritual connection between rubies and the root chakra, or Muladhara (represented by a deep red color) and believed that the gemstone could ward off negative energy, fight evil, enhance sexual drive, and treat inflammation. In practice, men and women would rub the July birthstone on their skin to improve physical and mental health.

In some parts of the world, the ruby signified peace, harmony, and power; while in others, rubies were a sign of good health, wealth, wisdom, and a happy love life. In the modern age, rubies are strongly associated with vitality, energy and physical strength.

Many people believe that if you wear the most prominent July birthstone, you are likely to restore some passion into your life.

What is the July birthstone's color?

July's birthstone, the ruby, derives its name from the Latin word *ruber*, which translates to red – the color of love and passion. Most rubies are dark red in color, with some variations ranging

from pink to purple. Ruby is a crystalline variation of the mineral aluminium oxide found in the corundum family, along with sapphire and emerald. The July birthstone is endowed with its deep red color from the element chromium; the more chromium that is present, the deeper the tone of red.

Interestingly, the color of a particular ruby plays a significant role in determining its value.

In essence, the highest quality rubies have a vivid color saturation and boast of a deep red, slightly purplish shade, popularly known as 'pigeon's blood'. Rubies with this coveted color profile have been found mainly in Myanmar and Thailand. The shade of the ruby must be neither too dark, nor too light to maintain its high quality. As the color changes in shade, the quality and the value of the ruby moves down the scale.

As siblings often do, rubies and sapphires can resemble each other; it is very easy to confuse pink sapphires for rubies. However, sapphires are cheaper and more easily available than rubies. Incidentally, the July birthstone is a lighter shade of red than garnet, the January birthstone.

Perhaps one of the most fascinating aspects about rubies is their ability to absorb natural light and re-emit it after some time, causing a lustrous fluorescence that adds to the supernatural quality of the July birthstone.

Legend has it that the light was a sign of impending danger or bad luck, giving the wearer ample time to prepare for any eventuality. Most wearers of ruby ornaments today consider the glowing light from a ruby birthstone to signify the essence of life. It acts as a reminder to the bearer that they are full of energy and that they still have a lot to offer to the world around them.

How much does a July Birthstone cost?

In order to give you a good answer we categorized the rubies as listed below;

1. Fracture filled rubies
2. Heated only rubies
3. Untreated rubies

The first category is the most affordable one and ranges from \$20 - \$60 per carat.

The second category consist of rubies which have been heat treated in a traditional way, that means no foreign substance has been added to the heating process or gemstone. This category cost between \$700 and \$8,000 per carat

The third category is the untreated one and as the name suggest, no treatment has been applied to the ruby at all. These are rare gemstones and often used as investment or collector items. The prices can range from \$7,000 to \$18,000 per carat

The prices above 2ct will grow exponentially. That means the ct price will easily double, triple or even more.

What is the best size for my July birthstone?

For an oval shaped ruby we would suggest a size range from 6.5-7 x 5-5.5mm which is around 1ct weight. The round shaped ruby should have about 6mm in diameter, this is also in the 1ct weight range. For the pear shaped ruby you can go for the 7 x 5mm range. The weight is again in the 1ct range.

Taking care of your July's ruby birthstone

As you already know, a July birthstone ruby is a priceless, precious gemstone of greater significance to you than all the other eleven birthstones. With this in mind, it is imperative to take care of your July birthstone so that it may offer you the energy, protection, love and passion you need to celebrate your birth month.

The good news is that the superficial, daily care of cleaning your July birthstone at home is a relatively simple process that involves immersion of the gemstone in warm, soapy water, then lightly scrubbing it with a soft brush, such as a toothbrush. If your July birthstone has had a particularly tough life and you want to give a spa treatment, ultrasonic and steam cleaners are usually safe for untreated, heat-treated, and lattice diffusion treated stones. Warning: you should only use a damp cloth to clean fracture-filled, cavity-filled, and dyed gemstones!

Are there any secondary July birthstones?

Yes, prior to 1912, onyx and turquoise were considered birthstones for July, but there is no reason not to use them as secondary July birthstones today. Astrologically, onyx is the gemstone paired with the zodiac sign Leo (July 23 – August 23), while emerald, pearl, moonstone and ruby represent Cancer (June 22 – July 22). Why not honor a loved one's birthday- or your own – by paying tribute to the universe with a piece of jewelry that features more than one July birthstone? The gift of a ruby and onyx bracelet, or a ruby and moonstone pendant would make anyone feel appreciated on their special day.

Final Thoughts

Since ancient times, rubies - thought to contain passion and energy – adorned the crowns of kings and queens, the breastplates and sword pommel's of brave warriors and were, of course, featured in rings, pendants and earrings of all those who sought to amplify energy, heighten awareness, promote courage and bring success in wealth, love and battle. Rubies were even laid beneath the foundations of new buildings in ancient China in the belief that it would bring good luck and fortune.

Jewelry enthusiasts still trust that wearing July's birthstone bestows good fortune to the wearer.

