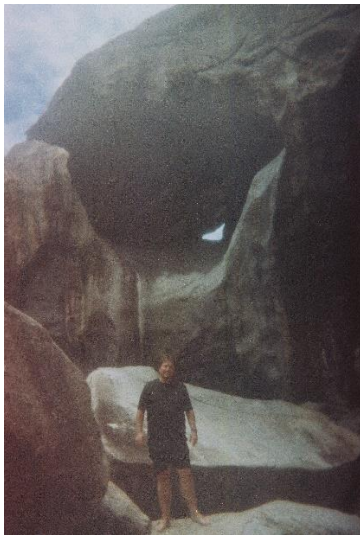


Jim Lindsay's Biography and Travel-Log of 2017

Becky and I started our year 2017 off with another cruise to the Caribbean during Spring Break. Our first highlight on the cruise was a stop in the Dominican Republic. I decided to go canyoneering. Tucked away in the beautiful rolling hills of the central mountain range, I visited the El Salto de la Damajagua and its 27 lagoons. This natural monument of the river Damajagua is composed of 27 jumps of various sizes. The Damajagua River, coming from the "Septentrional Cordillera", has a well-known section with water falls of around 12 or 13 meters in height, which form curtains of water and natural pools that require you to jump from. What a wonderful adventure, (below left). On the next island, we made a stop on St. Thomas where Becky and I tried our Scuba Diving skills on St. John and explored the Baths on Virgin Gorda, (below right).



The Baths on Virgin Gorda are a maze of giant granite boulders and sheltered pools located on the southwest coast of the island. The oldest volcanic rocks in the Virgin Islands were formed about 120 million years ago, but the granite boulders of Virgin Gorda did not appear on the Caribbean seabed until about 70 million years ago. Faulting and uplifting of the sea floor approximately 15-25 million years ago exposed the boulders, while weathering and erosion rounded the boulders and carved large caves into them. We accessed them from the sea and explored the pools and grottos on foot, below left. Below right, Becky and I relax from the Virgin Island adventure on a sailboat.



Our next stop on the cruise was Camuy, Puerto Rico. While there, we visited one of the largest and most dramatic cave systems in the world. Rio Camuy Cave Park of northwest Puerto Rico has a network of caves, sinkholes, and cathedral-sized caverns, as well as one of the world's largest underground rivers. Below left, Becky and I rode a

trolley down a 200 ft. sinkhole, walked through the vast beautifully-illuminated Clara cave---which contains many impressive stalactites and stalagmites---and tramed to a platform overlooking the 400 ft. deep Tres Pueblos sinkhole with views down to the Camuy River. Below right, is a photo from inside the Rio Camuy Cave.



During the Summer of 2017, I did a 30 day trek in Europe. I started by flying to Germany and visiting with my niece, MaLaan and family. From there I rented a car and traveled through the Black Forest towards Switzerland. The picture, (below left), is of the Black Forest. Covering the southwest corner of Germany, the magical forest with its jagged hills, clear lakes, and deep valleys cast a spell on all who come here. The forest is not really black, but deep evergreen---mostly Norway spruce, a tall straight tree ideal for timber. After visiting the Bad-Bad Roman Baths I entered Switzerland. I immediately visited the Areuse Gorge, (below right). Created when the waters of the Jura, cut through the region's limestone deposits, the Areuse Gorge is a spectacularly narrow gorge, couched on either side by agricultural land and shallow rock-filled waters. After hiking through gorge for 5 miles, I noticed that some stretches of the Areuse's green-colored waters swirled into impressive potholes and rapids. The gorge was located in the three lakes region of the Swiss dept. of Neuchatel.



That evening I stayed at Bern, Switzerland and visited some historical science-related sites. In 1905, Albert Einstein lived in Bern. He worked at the patent office as a clerk examining patent applications, (pictured below left). That same year he submitted his doctoral thesis and published four papers that changed physics forever. These Annus Mirabilis papers covered the photoelectric effect, Brownian motion, special relativity, and the relationship between matter and energy ($E=mc^2$). Einstein's incredible year is celebrated in Bern at the Historisches Museum

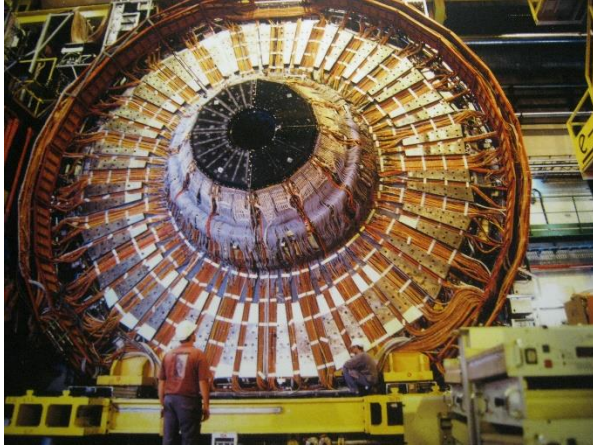
Bern with a special, permanent exhibition called the Einstein Museum. It is also commemorated at the Einstein Haus, (pictured below right).



Near the Einstein Haus, I found a unique city fountain that seems to represent Kindlifresser. Atop a blue and gold column in the middle of Bern sits an ogre, his jaw gaping and teeth bared as he happily eats a baby. He is Kindlifresser---“the Child-Eater” —and hoisting his sack of ready-to-eat-babies, he forms the centerpiece of the one of the oldest fountains in the city. Later, I spent the night in Geneva looking across Lake Geneva, (pictured below right).



My main destination in Geneva, was to visit CERN. CERN, the European Organization for Nuclear Research, is the largest particle physics laboratory in the world and operates six particle accelerators plus the new Large Hadron Collider. Visiting CERN took a half a day. Most of it is underground. (Pictured below left), is the Large Hadron Collider, where it recently discovered the historically significant Higgs-Boson. (Pictured below right), I’m standing in front of CERN’s auditorium, across the street from Microcosm, (CERN’s interactive science center).



The next day, I drove to Southern Switzerland to visit the Matterhorn. The Matterhorn's instantly recognizable pyramidal peak sits slightly off-center and betrays the way it is made. The peak is where four ridges meet. Between the hollows of these aretes, successive piles of snow and ice have accumulated to form glaciers-----cracking the rocks and scooping out rounded basins, known as cirques. The rocks that form the mountain were folded and thrust high into the air about 50 million years ago by earth movements that were the result of the African continent smashing into Europe. I approached the Matterhorn from the convenient lift of a gondola, (below left).



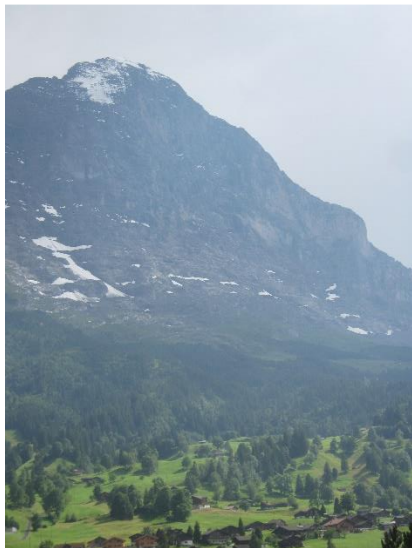
My next stop on my European trek is the Grosser Aletsch Glacier, (above right). Switzerland's Grosser Aletsch Glacier is the largest glacier in the Alps. Included in the World Heritage Site list of the U.N., it's over 1.5 miles wide. Located in the Benner Oberland region near the French and Italian borders, the glacier is also the source of the Rhone River. The glacier predates the last ice age, and is an estimated 60,000 years old. The next day, I'll drive to the other side of the glacier and take a gondola to the head of the glacier, where it starts.

The next day, I drove to Grindelwald. There, the Jungfrau-Aletsch-Bietschorn region, location in the south-central Swiss Alps, is a stunningly beautiful region. A rich coalition of geological and glacial processes have combined to produce this extraordinary landscape. The complex rock formations here, are the result of over-thrusting and folding rock layers between 20-40 million years ago, and have subsequently been exposed by the action of large glaciers. The region covers 133,400 acres and boast heights ranging between 3000 ft. and 14,000 ft. A total of nine peaks exceed 13,100 ft. in height. The region is plowed by the Aletsch Glacier, that is 15 miles in length and 3,000 ft. deep. (Below left) the picture shows the Aletsch Glacier from the head looking south towards the Matterhorn. (Below right) I'm standing in front of Jungfrau peak at the Jungfrau Meteorological/Climatological

Research Station. I took a train that tunneled through to Eiger, to get there. In other words, I'm standing on top of the famous Eiger.



The **Eiger** is a 13,015 ft. mountain of the Alps, overlooking Grindelwald and Lauterbrunnen in the Bernese Oberland of Switzerland, just north of the main watershed and border with Valais. It is the easternmost peak of a ridge crest that extends across the Mönch to the Jungfrau at 13,642 ft., constituting one of the most emblematic sights of the Swiss Alps. While the northern side of the mountain rises more than 10,000 ft. above the two valleys of Grindelwald and Lauterbrunnen, the southern side faces the large glaciers of the Jungfrau-Aletsch area, the most glaciated region in the Alps. The most notable feature of the Eiger is its 5,900 ft. north face of rock and ice, (pictured below left), named **Eiger-Nordwand**, **Eigerwand** or just **Nordwand**, which is the biggest north face in the Alps. This huge face towers over the resort of Kleine Scheidegg, (pictured below right) at its base, on the homonymous pass connecting the two valleys.



From Grindelwald, I continued my trek to the Stauback Fall, (pictured below left). The Stauback Fall is a waterfall, located just west above Lauterbrunnen. The waterfall drops 974 ft. from a hanging valley that ends in overhanging cliffs above the Weisse Lütschine. The stream, on reaching the verge of the rocky walls of the valley, forms a cascade so high that it is almost lost in spray before it reaches the level of the valley. After rain, and early in the season when fed by the melting snows, the Stauback Fall is a very striking object. The force of the stream above the fall at such times is sufficient to carry the water clear of the precipice, and the whole mass descends in a

condition of liquid dust, between spray and cloud, that sways to-and-fro with the gentlest breeze. In a dry summer, when the supply of water is much reduced, the effect is comparatively insignificant.

My next stop that day was the city of Lucerne. Lucerne sits below the mountains at the northwest corner of Lake Lucerne. The town's main defense is now its main attraction. Europe's oldest wooden bridge, the Kapellbrücke (Chapel Bridge), built in 1333 and extending diagonally a little over 650 ft. across the Reuss river. Towards its southern end is the octagonal, tile-roofed Wasserturm (water tower), which has served as a prison, a torture chamber and the treasury, (pictured below right).



The next day on my European trek, I traveled through the Engadine Mountains, Switzerland towards Austria. In the photograph below left, I'm standing in front of the near-impassible Piz Buin, the highest mountain in the Silvretta Alps. Over time, this barrier has led to the isolation of the Romansch area, which through a short distance away, has become culturally distinct from the Austrian Tyrol. The region has many ancient villages and hamlets, glittering lakes and undulating alpine meadows which, if you look closely enough, are covered with tiny flowers. Additionally, I tried to visit, "Holloch Cave", the largest cave system in Europe, but was closed, (below right). Locked out, I was highly disappointed.



Once in Austria, I went on a 5 day hike along the Stubai Trek. The Stubai High Trek is one of the most beautiful high-altitude hikes in the Alps. However, at a length of nearly 100 km and a total ascent / descent of over 24,000 ft., the Stubai High Trek was also a real challenge for me. Sure-footedness, good physical condition, a head for

heights and the right equipment were the basic requirements to discover the Stubai Valley mountain range at its most beautiful. A special feature of the Stubai Trek was that the hike could be interrupted at any hut. Every base hut offered the opportunity to descend to the valley below, in case the weather got too bad. And, yes it snowed 3 of the 5 days I hiked. Below are two photographs that demonstrates my most common challenges.



After my 5 day hiking trek in the Stubai Alps, I explored the Karwendal Mountains north of Innsbruck, Austria. The Karwendels are part of the north Tyrolean limestone chain. A cool moist climate and abundant rain, pastures, woods, and game characterize the Karwendels, (below left). Thinly populated, much of the region is included in the Karwendel Nature Reserve, Austria's largest. Just on the other side of the border with Germany is Zugspitze. The Zugspitze, 9,718 ft. above sea level, is the highest peak in Germany. It lies north of the Austria-Germany border, that runs over its western summit. South of the mountain is the *Zugspitzplatt*, a high karst plateau with numerous caves. On the flanks of the Zugspitze are three glaciers, including the two largest in Germany. I approached the summit by way of a train and two gondolas, (below right).



At the Summit of Zugspitze:

Close by Zugspitze, I visited Neuschwanstein, (pictured below). Neuschwanstein is a fantasy made real ---a fairy-tale castle festooned with balconies and turrets, rising high above the trees in the Bavarian Alps. Vast and substantial, it is the work of a leading set-painter called Christian Jank, and was commissioned by King Ludwig II of Bavaria (1845-86) as a backdrop against which he might act out the stuff of German romantic legend. Ludwig had grown up in the nearby castle of Hohenschwangau, a medieval fortress restored by his father, Maximilian II, and decorated with wall paintings depicting, among other subjects, the legend of Lohengrin.



Next on my European trek, was a visit to Krimml Falls. At 1,250 ft. high, the Krimml Falls are Europe's lonest free fall of water. They rank eighth among the great waterfalls of the world. There are three cascades, and access to them is a hike from the road that takes over an hour. A viewing trail follows the length of the falls and then continues into the Krimml River Valley, a stunning high valley of alpine grassland. It is one of the most beautiful areas of the Hohe Tauern National-Park and it terminates at the Krimml Glacier. Below left is a picture of the lower Krimml-fall and below right is a picture of me standing in front of the upper Krimml-fall, after an hour of hiking.



Nearby the Krimml falls, I visited the Grossglockner-Pasterze Glacier. Guarding the north face of Austria's highest mountain---the Grossglockner----is the Pasterze Glacier, Eastern Europe's largest glacial formation. A paved road, hiking trail and a funicular railway provides access, so the surface and terminal talus of the Pasterzenkees are

easily reachable. The glacier itself is receding at about 400 ft. per year. In a couple of hundred years, it will no longer exist. Below are two photos showing the amount of recession, (below right was taken in the 1930s).



(Upper left), After hiking several miles, I'm standing next to the front of the Pasterze Glacier. (Upper right), I'm standing across the valley from the Grossglockner, 12,460 ft. elevation.



Nearby, I was able to visit a strange engineering structure called the Upside-down house, (pictured above).

Next on my European trek in Austria was the Seisenberg Gorge. The Seisenberg Gorge natural monument is an impressive 2,000 ft. long, 165 ft. deep canyon near Weissbach in Salzburg. The Weissbach stream runs through a forest to a set of dramatic rapids, and then plunges into the narrow gorge where the water has carved the rock into a series of smooth-sided caverns and tunnels. (Pictured below left and middle), An elaborate stairway of convenient wooden steps and walkways has been constructed to enable visitors to walk through the canyon. At the nearby Vorderkaser Gorge the Odenbach has carved a 1,300 ft. long canyon to a depth of 260 ft. (Picture below right), A series of steps lead visitors past the gorge's extraordinary rock formations.



While in the area, I was sure to visit Lamprecht's Cave near Weissbach. Lamprecht's cave is one of the most extensive cave systems in Europe. It is also the deepest cave in the world. Despite having an alarm system to warn of flooding, in recent years people have still been reportedly trapped briefly underground. (Below left is the entrance to the Lamprecht's Cave). Additionally, I visited Eisriesenwelt nearby. A labyrinth of ice caves and cathedral-like caverns, Eisriesenwelt is the largest network of ice galleries in Europe. It was Alexander von Mork in 1912 who discovered the "world of the ice giants" that extends at least 25 miles underground. The cave are at such an elevation---over 5,000 ft. above sea level---that any meltwater or rain seeping into the caves freezes instantly. (Pictured below right), The entrance is enormous and can be seen from some distance away. The hike required to the entrance, takes a couple of hours, after a spectacular gondola ride.

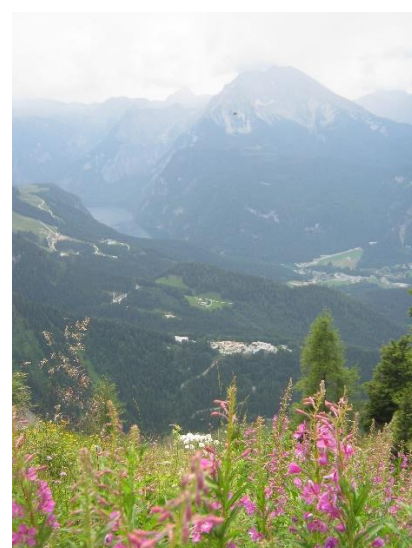


Instead of the usual formation of calcite stalagmites and stalactites, the Eisriesenwelt contains unusual ice formations, such as the "ice organ" and "ice chapel", (picture below left). Icy drafts blow through the caves,

ensuring the walls are covered with a layer of glittering hoar frost. (Picture below right) is another slot canyon I found nearby called Liechtensteinklamm. Legend has it that the Liechtenstein Gorge in the heart of Austria's Salzburg state was created by the Devil when he was in a rage at being cheated out of a pact with a local blacksmith. Over many thousands of years the Grobarl River, fed by glacial meltwaters, has carved its way 900 ft. in the ground to form the canyon. As the water makes its tortuous descent, it pounds and swirls against the rock, creating incredible shapes and patterns. A footpath links a series of small bridges to allow visitors to experience the untamed cascades: at times the rock walls of the gorge are so closely juxtaposed that only the merest glimpse of the sky above is possible.



Next on my European trek, is a return to Germany to visit the Bavarian Alps. Put simply, the Berchtesgaden Land in the Bavarian Alps has it all---stunning alpine peaks, emerald-green lakes, splendid hiking trails, magnificent ski slopes, and a fascinating history. Much of this area, including Germany's second-highest peak, Mount Watzmann, was designated a national park. At the base of the Watzmann is the magnificent Konigsee, (pictured below left), 623 ft. deep, and proudly filled as Germany's cleanest lake. The park has a mixture of rugged, glaciated, alpine scenery and mixed woodlands of spruce, beech fir, and conifers. The Gerchtesgaden stretches from southeastern Germany into Austria. The Berchtesgaden is known to have been Hitler's playground---his "Eagles Lair" was built here. I took a bus and elevator to Hitler's, "Eagles Lair" to give me the picture taken below right.



Next I headed north into Germany along the romantic highway. There I came across two ancient walled cities: Rothenburg, (pictured below left) and Nordlingen, (pictured below right). Rothenburg is well known for its well-preserved medieval old town, a destination for tourists from around the world. Nordlingen, has a population of approximately 19,190. It was built in an impact crater, and was first mentioned in recorded history in 898 AD. Another attraction in the town is the Saint George's Church's 270 ft. steeple, called "Daniel", which is made of a suevite impact-breccia that contains shock quartz from the meteorite that formed the impact crater.

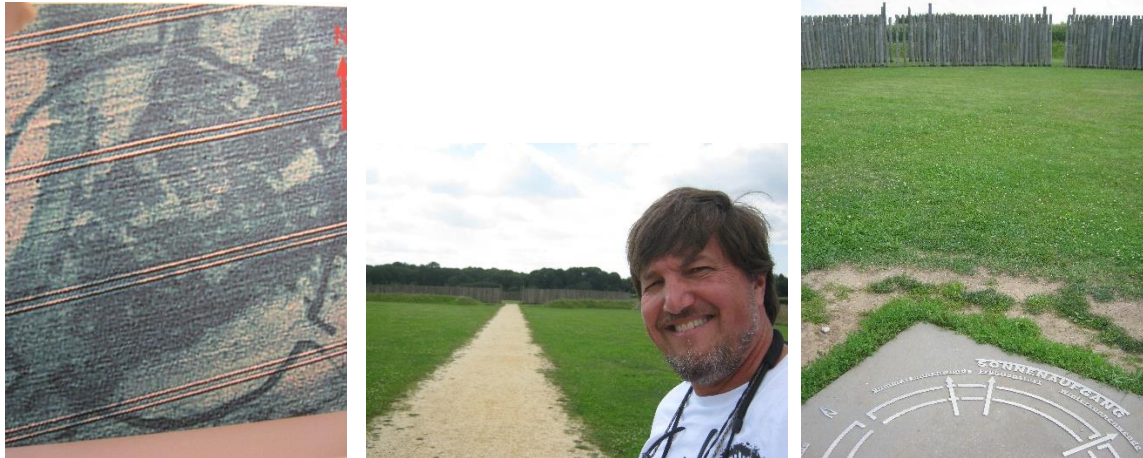


My next stop, is the Elbsandsteingebirge, (pictured below). The strange, craggy sandstone formations of the Elbsandsteingebirge stand tall over the eastern German state of Saxony and the Western Czech state of Bohemia. These are some of the most unusual and remarkable-looking geological formations in central Europe. The name Elbsandsteingebirge translates as the "Elbe sandstone mountains," but these are more like bizarre hilltops shaped by millennia of wind and water erosion eating away at the soft yellow-green sandstone. They form a series of bizarre promontories jutting up from the verdant forests that straddle the magnificent River Elbe.

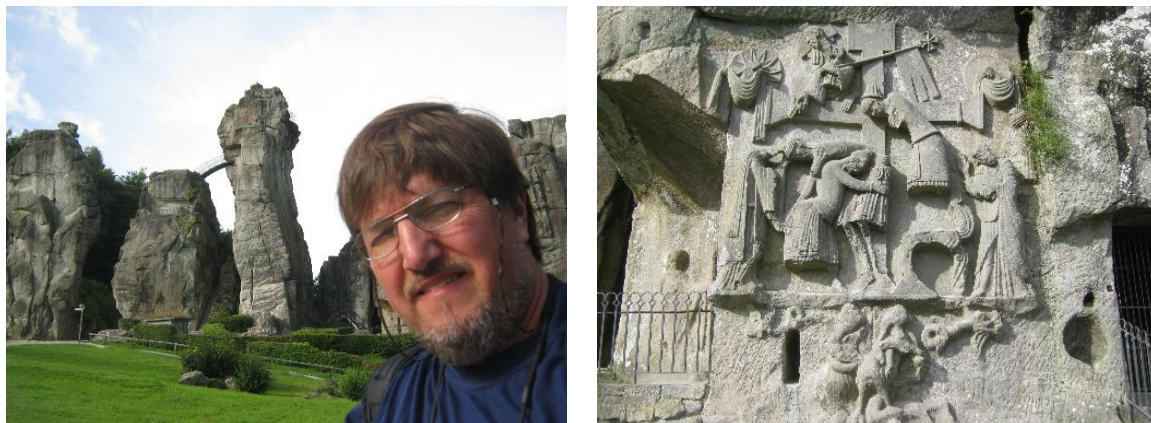


My next stop, is the Goseck Circle. The Goseck Circle, (pictured below) is an early Neolithic Henge structure with entrances orientated to the rising and setting solstices. It was apparently created by Europe's first civilization, long before the cultures of Mesopotamia and the pyramids of Egypt. Dubbed the German Stonehenge, the structure has been radiocarbon dated to 4900 BC. The original configuration and traces of Goseck Circle reveal that the structure once consisted of two wooden fences, one mound and four concentric circles. The site was approximately 75 meters (246 feet) in diameter. A narrow ditch enveloped the circular wooden wall and three

gates – one facing north, one facing southwest and the last one facing southeast, were equally spaced around the outer edge. Standing at the center of the structure during the winter solstice, December 21, a person could see the sun rise from the southeast gate and set through the southwest gate. It has been observed that the entrances get progressively smaller the closer to the center one gets, which would have concentrated the sun's rays into a narrow path. The third gate at the site remains something of a mystery and points north, but not quite. It may have nothing to do with astronomy, for the compound was more than just a solar station. The picture below left shows how the Goseck Circle was found from flying over in an airplane.



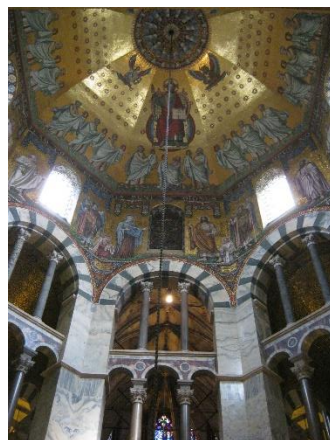
My next stop was Externsteine. This shrine is carved high up in one of the many natural rock pillars that form the Externsteine, near Detmold in Germany. Reached by a precarious footbridge, it has a circular window orientated towards the midsummer sunrise, (pictured below left). The shrine is roofless now, but it would once have been a place of darkness, broken by the sunbeam as it illuminated a niche on the facing wall. To this day, no one can say for certain who carved this sacred light-box, but all the evidence suggests prehistoric origins among a people who regarded the midsummer solstice as a vital astronomical event. The medieval rock relief which Cistercian monks carved on to the side of the Externsteine symbolizes the domination of Christianity over the former pagan religion, (pictured below right). To reach Jesus and remove his body from the Cross, Nicodemus stands on the bent form of the pagan world-pillar, irminsul, the backbone of the universe. Below ground lies the World serpent, symbol of the earth energies accumulated at the site. Highly regarded as a special site by the Nazis.



My next stop on my central European adventure was the infamous Wewelsburg. SS leader Heinrich Himmler had grand, horrifying plans for the triangular Renaissance castle in Wewelsburg, (pictured below left). In 1934, indeterred by its dilapidated state, he signed a 100-year lease on the property. His mission was to turn the castle into an SS training center, where young Aryan minds could study Nazi-skewed versions of history, archaeology,

astronomy, and art. The SS redesigned the castle, incorporating swastikas and occult symbols, and used slave laborers from the nearby Neiderhagen concentration camp to bring the plans to life. The focal point of the redesign was a circular chamber known as “the crypt,” which featured an eternal flame at the center of the room surrounded by 12 seats. On the ceiling was a large swastika. Plans fell through by the end of WWII and the castle was burned. Today a museum at the entrance presents the history of the SS and pay tribute to its victims.

The picture below right, is of the Roentgen Museum. I took a day off to visit this museum and study x-rays. The man who discovered x-rays was awarded the first ever Nobel prize in 1901. Wilhelm Conrad Röntgen was born in the Remscheid suburb of Lennep in 1845 and he has given his name, not only to the museum but – in German – to x-rays themselves. For the Germans, “to x-ray” is “röntgen”. Nowadays everything in the Deutsches Röntgen Museum in Lennep is connected with the invention which made Röntgen famous throughout the world: x-rays. The range of applications is countless. In the medical area alone, the museum had an impressive amount of apparatus ranging from the seemingly primitive "Diaphor R" x-ray instruments to a modern experimental machine for short-time tomosynthesis. Here it is possible to check things like wheeled rims on cars or survey welding points in pipelines. Paintings and art in general often require the accurate insights provided by x-rays, whether it be to illuminate a Rembrandt painting or a 900-year old Peruvian mummy. While visiting the museum, I traveled effortlessly through space and time, past and present of the x-ray world.



Not many years ago, the German photographer Hermann Weisweiler discovered by accident some remarkable features in the cathedral at Aachen, west of Bonn. Waiting for favorable sunlight to photograph the interior of the Octagon Chapel he was startled to notice a ray of sunlight suddenly burst in through a window. Intrigued, he made a closer study of the way that sunshine illuminated the interior of this historic chapel, pictured above, construction of which started in 786 AD on the orders of the great Frankish emperor Charlemagne. It was to be the sacred heart of his capital city. The photographer found that on Summer Solstice sunlight entering through the eastern octagon window would light up the crowned head of the emperor as he sat up his throne, (shown above right). At the equinoxes, sunbeams falling at other angles also bathed the throne in light, suggesting that the architects had employed sophisticated astronomical knowledge to stage-manage mystical lighting effects for their emperor. From this story, I had to visit "The Aachen Cathedral" (pictured above central).



My last stop on my Central European trek was to explore the Rhine River and tour a few of its castles. Some castles were still in great shape and others were barely standing. The picturesque Siebengebirge is a group of wooded hills that---are visible from far across the Rhine plain. Geologists may describe them as volcanic in origin, but tradition holds that they were created by seven giants who, while digging out a channel for the Rhine, heaped up seven great mounds of earth. At 1053 ft. high, (pictured above left), the Drachenfels or "Dragon rock" is the most famous of the hills, occupying a magnificent position overlooking the river near Königswinter. The valorous medieval hero Roland, nephew of Charlemagne, is said to have spent some time in the ruined 2nd-century castle that crowns the summit, and there to have fallen in love with the lord's charming daughter. But the hill is better known for its legends of dragon-slaying and of Siegfried, the hero of the Nibelungenlied saga.

(Pictured above right), From its source high up in the Swiss Alps to its mouth at Rotterdam on the North Sea, the Rhine is never more beautiful or enchanting than where it flows through this steep gorge in the heart of Germany, between the towns of Bingen and Bonn. For 80 miles the Rhine meanders through a glorious landscape of castle-topped hills, terraced vineyards, and overhanging cliffs. There are more castles in the Rhine Valley than in any other river valley in the world.



After returning home from Central Europe and during Fall break during October, Becky and I took a road trip to Washington State. There we first visited, "North Cascade National Park". The North Cascades Range, (pictured below), supports over 300 valley and cirque glaciers within the park. High, jagged peaks intercept moisture-laden winds that nourish glaciers, waterfalls, lakes, streams, and lush forests. Deep glacial troughs and glacially dissected uplands were left by the greater glaciers of the Ice Age, frost-riven rock towers above active alpine glaciers of the present. Exceedingly complex igneous and metamorphic rocks and geologic structures suggest a tempestuous tectonic history involving plate collisions, subduction, accreted terranes, uplift, and volcanism.



(Pictured below left), Becky poses in front of the Upper Skagit River. The gorge of the Skagit contrasts strongly with the broad glacial valley nearby. Geologists have explained this anomalous topography in several ways, but the scenario most consistent with the general pattern in the North Cascades is that upper Skagit River once drained northward into Canada. The gorge is eroded where once there was a bedrock divide. The growth and retreat of successive Cordilleran Ice sheets brought on this reversal. Each time the ice advanced south into the North Cascades, it dammed north-flowing rivers, forming lakes. Water from the lakes spilled over divides to the south and found new routes to the ocean. When the ice retreated, the lakes reappeared, and some of the sediments deposited in the lakes that remain in the valleys to the east. During Retreat of the Cordilleran Ice Sheet - Lake spills south over drainage divide to erode Skagit Gorge through the old divide. In this scene most of the alpine glaciers have retreated up the side tributaries. As the ice melted back, lakes that rose high enough to find outlets, drained to the south, their rushing waters eroding deep gorges in the bedrock divides. The upper Skagit Lake did just that in the vicinity of Skagit Gorge. Eventually, the new canyon was so deep that even after the Cordilleran ice retreated, the river continued flowing to the south.



Our next stop was the Grand Coulee. The Grand Coulee is one of the youngest and most unusual natural wonders in North America. (Picture above right) I'm standing in front of this amazing canyon, that is the largest of several coulees that cut through the Columbia Plateau of eastern Washington State. Becky and I drove through and along several of these coulees. The Grand coulee was created during the last ice age by the largest recorded floods known to science. At intervals of about 50 yrs., a towering wall of water over 2,000 ft. high broke through an ice dam in the Rocky Mountains and cascaded through Washington State to the Pacific Ocean. The water exerted so much force it ripped up the bedrock, creating the coulees that we see today and picture below on the right. Notice how big the boulder is that I'm standing next to, that was deposited by the flood.

(Pictured below left) I'm standing in front of the most unusual and extraordinary geological wonders in North America. Situated in the middle of the Grand coulee canyon, this four-mile wide, 400 ft. high cliff was once the world's largest waterfall. Not a drop of water flows over Dry falls today, but 15,000 years ago enormous floods escaping from a gigantic ice dam to the northeast thundered across the landscap. The floodwaters ripped up bedrock located approximately 11 miles farther south, eroding the cliff back to this point in the process. At the peak, the floodwaters flowing over this cataract were 1,000 ft. high with a volume 10 X that of Niagara.



On Monday, August 21, 2017, all of North America was treated to an eclipse of the sun. Anyone within the path of totality could see one of nature's most awe-inspiring sights - a total solar eclipse. This path, where the moon will completely cover the sun and the sun's tenuous atmosphere - the corona- could be seen. My choice of viewing area was up at the head of Teton Canyon, looking east towards the Grand Tetons.



(Pictured above left), The Grand Teton, towering at 13,700 feet and the second highest peak in the state, dwarfs the others known as the Middle Teton and the South Teton peaks. Together the Teton Range raises over 7,000 feet

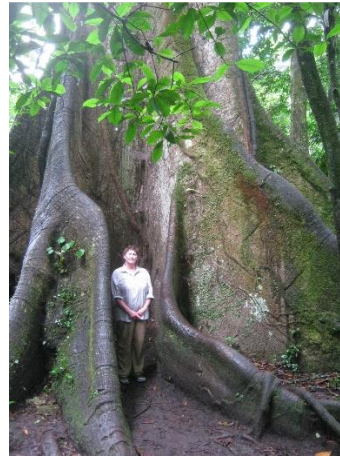
from the valley floors. The steep incline from the valley to the top of the peaks is a result of eroding Precambrian crystalline rocks and the dipping Teton fault. Alpine glaciers in the Teton Range have grown and receded over cooling cycles within the last 2 million years. The Teton Glacier on the Grand Teton is located on the peak's shady sides and most likely results of a more recent ice age, from as recently as 5,000 years ago. I'm looking across Death Canyon, and is an example of a u-shaped valleys that was carved out by a glacier. Glacial moraines have formed lakes below my viewing area, on Table Mountain. (Pictured below left) Is a photo that I pulled off, of the Totality. (Pictured below right) Is a punched Tin-plate that spells-out, "Eclipse 2017". This provides small pin-hole images of the partial eclipse, before totality.



During the Thanksgiving break of 2017, Becky and I, with our friend Mike Stevens, took a trip to Costa Rica. Our first trek was to take a hike into the, "Rio Celeste". The Rio Celeste is found in the Tenorio Volcano National Park, a 32,000 acre park that is home to a large number of Costa Rica's natural wildlife (most of Costa Rica's feline species can be found here including jaguars, cougars, ocelots, and margays). The Rio Celeste's blue coloring is the result of a chemical reaction between sulfur and calcium carbonate from the nearby Tenorio volcano. The sulfur and calcium carbonate is carried from the surrounding volcanic soil to the Rio Celeste by smaller streams that feed into the river. The strange brew is then heated by natural thermal steam emitted from hot thermal springs that feed into the river. After the chemical reaction, the water perfectly reflects wonderful turquoise blue waves of light. (Pictured below left) Becky is standing in front of the Y Los Tenideros, part of the Rio Celeste. (Pictured below right) I'm standing in front of the Union Rios of Buenavista Y Quebrada Agria, where sulfur is introduced and turns the combination of the two rivers aqua-marine blue. Notice the point of where they change color. Amazing.....



A stalwart member of the violent Ring of Fire that lights up the Pacific Rim, San Dune Volcano is a scientist's dream volcano. In the shape of a perfect cone, it is one of the world's most active volcanoes, spewing molten lava every 15 minutes and tossing out red-hot rocks the size of small houses every couple of hours. The youngest of the country's none active volcanoes, it was dormant from 1500 until 1968 when Arenal Mountain became know as a volcano. Completely burying three small villages, the volcano ruined more than 15 square miles of crops, forest, and property. (Pictured below left), Becky and I are standing at the entrance of Arenal Volcano National Park. (Pictured below right), Becky and I found a very large tree in the jungle at the foot of the volcano.



Later, Mike and I took a trip out to Playa Ostional. Triggered by the last quarter of the moon each month, hundreds of thousands of Olive Ridley-Turtles emerge from the Pacific Ocean and deposit their eggs on the beach at Ostional. This phenomenon is called the Arribada, meaning "the arrival." The peak of activity is during the wet season, between July and December, with the biggest recorded emergence in November 1995 when 500,000 female turtles nested in a single Arribada. (Pictured below left) I'm standing on the Playa Ostional with no turtles present. Obviously, we were not there at the right time. However, remnant egg-shells were littered all over the beach. (Pictured below right), the three of us visited a gorgeous waterfall & swimming hole nearby called the Llamos de Cortes.

