The **Lewis and Clark Expedition** (1804–1806) was the first transcontinental expedition to the Pacific Coast by the United States. Commissioned by President Thomas Jefferson and led by two Virginia-born veterans of Indian wars in the Ohio Valley, Meriwether Lewis and William Clark, the expedition had several goals. Their objects were both scientific and commercial – to study the area's plants, animal life, and geography, and to discover how the region could be exploited economically. According to Jefferson himself, one goal was to find a "direct & practicable water communication across this continent, for the purposes of commerce with Asia" (the Northwest Passage). Jefferson also placed special importance on declaring U.S. sovereignty over the Native American tribes along the Missouri River, and getting an accurate sense of the resources in the recently-completed Louisiana Purchase. They were accompanied by a fifteen-year-old Shoshone Indian woman, Sacagawea, the wife of a French-Canadian fur trader. After crossing the Rocky Mountains, the expedition reached the Pacific Ocean in the area of present-day Oregon (which lay beyond the nation's new boundaries) in November 1805. They returned in 1806, bringing with them an immense amount of information about the region as well as numerous plant and animal specimens. Reports about geography, plant and animal life, and Indian cultures filled their daily journals. Although Lewis and Clark failed to find a commercial route to Asia, they demonstrated the possibility of overland travel to the Pacific coast. They found Native Americans in the trans-Mississippi West accustomed to dealing with European traders and already connected to global markets. The success of their journey helped to strengthen the idea that United States territory was destined to reach all the way to the Pacific. Although the expedition did make notable achievements in science, scientific research itself was not the main goal behind the mission.

References to Lewis and Clark scarcely appeared in history books even during the United States Centennial in 1876 and the expedition was largely forgotten despite having had a significant impact on increasing American owned land. Lewis and Clark began to gain new attention at the turn of the 20th century. Both the 1904 Louisiana Purchase Exposition, in St. Louis, and the 1905 Lewis and Clark Centennial Exposition, in Portland, Oregon, showcased Lewis and Clark as American pioneers. However, the story remained a relatively shallow tale—a celebration of US conquest and personal adventures—until the mid-century, since which time the history has been more thoroughly researched and retold in many forms to a growing and appreciative audience. In addition, a complete and reliable set of the expedition's journals was finally compiled by Gary E. Moulton. In the 2000s the bicentennial of the expedition further elevated popular interest in Lewis and Clark. Today, no US exploration party is more famous, and no American expedition leaders are more instantly recognizable by name.

Finally we drove the remaining 70 miles to Helena through the expansive crop and cattle farmland with the mountains to the west, and arrived at our hotel around 5:30. Tonight we ate downtown at the Silver Star steakhouse and had an excellent meal.

Tuesday September 13

We spent the entire day in Helena, capital city of Montana despite its less than 30,000 population. Our first stop was at the Capitol but at this point we only had time for a quick look at the exterior since we were taking the tour "train" for a one hour narrated drive around the city.

The train driver and narrator was quite amusing and we learned quite a bit about the city and its history. It was the discovery of gold in "Last Chance Gulch" in 1864 that started Helena and was responsible for it being considered the wealthiest city per capita in the world in the late 1800s. At one point the Helena Club had a membership of about 130 – and it was open only to millionaires!

Another consequence of the gold rush and the money it brought to the city is the number of mansion houses in a large area of Helena, particularly in the vicinity of the Capitol. Many of these mansions have over 4000 square feet of floor space and several have twice that amount and all are different – both in style, construction materials and color. It seems that most of these remain as single family dwellings so the money has obviously stayed in the city to a large extent well after the golden era ended. Now, 80% of the workers are state government employees so perhaps this is the place to be in politics.

Following the tour (and a coffee stop) we went inside the Capitol building and then walked along the downtown pedestrian shopping area which is part of Last Chance Gulch. Many of these commercial buildings are as impressive as the residences and the absence of traffic makes it a very pleasant area in which to walk.

Fine Buildings in Downtown Helena.

(Can anyone spot a member of our party?)

At the far end of this walking mall is Reeder's Alley, a row of brick and stone cottages that were built to house the miners. Reeder was a Pennsylvania brick and stone mason who came to Helena for the opportunities beyond prospecting and soon owned a good deal of property in the town. Today the Alley is a National Historic Site as are the two log cabins built by the pioneers in the same area. One is the oldest standing building in the city, dating from 1864. As in many of the gold rush towns of the mid-1800s, it was those who provided for the miners, rather than the prospectors themselves, who benefited most from the discoveries.

Oldest Building in Helena and Reeder's Alley

Our final stop was at the magnificent Roman Catholic Cathedral of Saint Helena, which stands in a very prominent position on a hill about ½ mile from downtown. Its external appearance is reminiscent of the great European cathedrals in both style and size and the internal decorations and stained glass windows are as colorful and magnificent as many in the Old World. Certainly it must be one of the most spectacular cathedrals in the United States.

So, today we saw extremes in architecture, we walked the historic streets dating from the Gold Rush days and we learned a little more of the Lewis and Clark Expedition which had also passed through this area. For its size, Helena must be one of the more interesting and diverse cities in the country and its history is strongly linked to the westward expansion of the United States.

We had enjoyed our dinner so much last evening that we returned to the Silver Star tonight to try other items on the menu – but not until we had enjoyed a walk along the very pleasant mall area.

Wednesday September 14

We left Helena and headed west on Route 12 through the city and climbed steadily to our first crossing of the Continental Divide (today) at MacDonald Pass (6362 feet). The route was mostly farmland despite the elevation and the largest crop appeared to be hay. In fact we saw many "old-fashioned" and very large haystacks that apparently are quite common still in Montana and are built using a strange contraption that looks a little like a short wooden ski slope. The machine is actually

called a beaver slide and is a cross between a catapult and a cage and acts like a little of both. It was invented in the early 1900s and apparently revolutionized this aspect of farming. In addition to hay, the other major farming was that of ranch cattle.

We turned off Route 12 and went south for about 30 miles on Interstate 90 (first Interstate since leaving Salt Lake City) to the old west town of Anaconda. This had started as a copper smelting town in 1883 for the copper mined a little further east, but the last of the smelters closed in 1980. Today a large reclamation process is underway to cover the giant slag heaps from the tons of coal used in the smelting process as well as to clean up the contaminated soil after years of copper, gold and silver mining. This work is being conducted by BP, the facility's current owner.

While in Anaconda we stopped at the Classic Café for a light lunch. This is a converted double door service garage and features all kinds of motoring memorabilia – including two 1950s Bettle VWs which are used as tables in the diner. We also crossed the Continental Divide again (West to East) just south of Anaconda.

What are you doing, Keith??

Our final stop of the day was at the Big Hole National Battlefield, site of a bloody 1887 battle between the US Military and the "Non-Treaty" Nez Perce Indians. The treaty that had given the Nez Perce their land as a reservation had been severely modified by a minority of the Tribe not affected by the 90% reduction in the size of the reservation. The "Non-Treaty" Nez Perce

fought the new rulings but were continually forced east by the pursuing US Army. Several battles occurred along the trek but the one at Big Hole was perhaps the bloodiest and is certainly the best documented. The site is now classified as a cemetery by the Nez Perce because many bodies were left or hurriedly buried here as they were once again forced to move east. A reconstruction of many of the teepees (without the outer skins) in recent years helps to identify the various positions where the fighting took place and an annual pilgrimage is made by the remaining members of the tribe to commemorate the slaughter.

The survivors of this battle continued east and then north in the hope of finding freedom in Canada but were forced to surrender 40 miles south of the border in bitterly cold weather. It was here that Chief Joseph called for "No More War".

From Big Hole it was a pleasant drive across more open farmland before a steep rise to our final crossing of the Continental Divide at Chief Joseph Pass just before we reached US Route 93 and the Idaho border. We would now remain west of the Divide for the balance of our trip.

Route 93 descended steeply for a number of miles before becoming a more or less flat road between high cliffs on one side and the Salmon River on the other. We followed the Salmon River, with many historical markers depicting life along the route as well as more information on the Nez Perce and the Lewis and Clark Expedition.

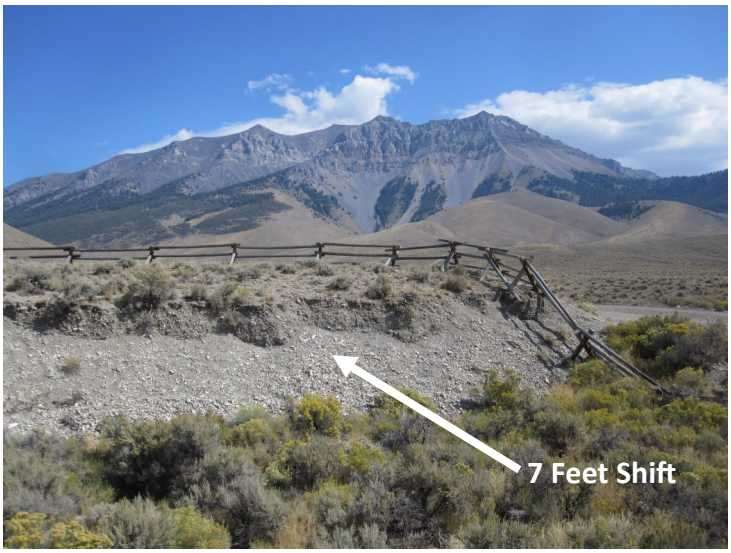
We arrived at our hotel in Salmon around 5:45 and checked into our very nice rooms overlooking the rapidly flowing Salmon River. Zena and Keith took a walk along the river while Molly and I relaxed until dinner time. For this, we had about a two hundred yard walk to the Shady Nook restaurant which had good food and service in the rustic ambiance typical of this part of the world.

Thursday September 15

Keith took an early morning walk before breakfast and got some close up photographs of deer along his route. After breakfast and checking out, we had a brief visit to a small but attractive local park commemorating Sacagawea's journey with the Lewis and Clark Expedition before we left Salmon and headed south along its eastern bank.

There were high mountains to our left (east) and more rounded but still spectacular hills to our right. The valley varied in dimensions from time to time: at one point supporting several acres of farmland on either side (cattle and grain), in other areas being barely wide enough for the road and the river itself. There was considerable haze early in the drive from nearby forest fires but in general we had clear views and it was a very pleasant drive.

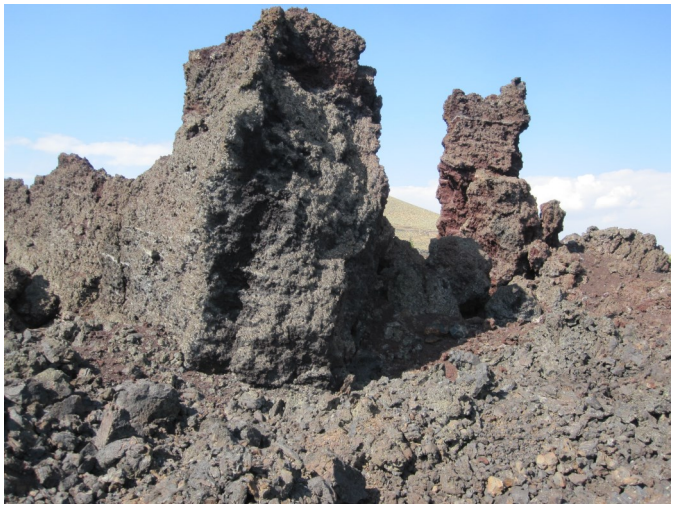
At the town of Challis, the Salmon River left us and we were now in the Lost River Valley, so called because it often seeps into the lava rock and essentially disappears from sight. This valley was several miles wide and once again was primarily farm land, still being irrigated and harvested simultaneously.



South of Challis we took a two mile detour to see a rift created by a 1983 earthquake (7.8 on the Richter Scale) which had caused a seven foot drop in the hillside that was 21 miles long. It also had caused an upward shift of about one foot for a significant portion of the mountainside above the rift. Molly and I recalled a similar separation that we had seen in Anchorage, Alaska caused by a 1960s earthquake. The one we were witnessing today had not affected as large a populated area but it had caused boulders to shower on the town of Challis some thirty miles away.

From here we continued to the town of Mackay which was the first one marked on the map after we had turned westward and onto the huge Snake River Valley Plain. Here we stopped for lunch at a rather down-market café but it provided us with a filling lunch and another exposure to the Americana of the West.

It was then another 40 miles or so to the Craters of The Moon National Park where the flow from a two thousand year old eruption had poured lava and ash over a several square mile area. The interesting part of this park – in addition to its overall desolation and appearance of being barren – is that, since the volcano eruption occurred so recently it is in the very early stages of recovery and regeneration. Thus we saw large areas of lava (both rocky and cinder-like) that were completely devoid of any form of vegetation or other signs of life. But there were also patches on which green, yellow and red lichen were taking hold, these being the first micro-organisms that would ultimately result in more substantial flora.



Three tourists pretending to understand the information board

Lichen eats its way into rock via acidic dissolution and it is in these crevices that wind-blown soil and other organic matter can get trapped and accept perhaps a seed or other precursor of growth. With a little rain water and a lot of luck, these may grow into beautiful flowers, a tiny sapling or ultimately into a recognizable tree. In this particular area, after two thousand years of effort and, in some cases despite the best–intended efforts of man, we could see every phase from a small patch of lichen (just a few centimeters across) to a pine tree of perhaps fifteen feet. The degree to which an area had developed was a function of so many factors that absolutely unadorned lava was present right next to a three feet tall sapling.

The lava itself took on many forms: from obviously flowing rivers to irregularly shaped rocks of all sizes, to mountains of ash (see photograph above) It also appeared in a number of colors, although black and red predominated, interspersed with some

almost iridescent blue patches.

Perhaps one of the more interesting areas of the park was the "tunnels" or caves that had been formed as a result of tunneling lava flow. In many cases, liquid lava flowed beneath an already solidified area for many miles just like an underground river. At times, the flow would cease and a void would form underneath the already solidified areas resulting in underground tunnels. Often the "roof" of these tunnels would collapse under their own weight and, depending on the temperature and fluidity of this roof, it would either fall as chunks of rock as though from broken peanut brittle or gently settle as in a cooling soufflé. It was fascinating to see examples of each side by side.

Sometimes the tunnels would be large and form significant caves which were used as homes by the Shoshone Indians. Keith and I entered one such cave, about 20 to 30 feet deep, fifty feet wide and over three hundred feet long. Great holes in the "ceiling" provided further evidence of the collapsing process and it was easy to wonder whether another collapse was imminent. We were fortunate to join a small party who were being led by a Ranger and he provided additional interesting information. For example, a liter of water dropped on the cave floor disappeared in about 30 seconds, having seeped through the lava. Apparently the whole of the Snake River Plain is lava covered and water easily drains into a giant aquifer the size of Lake Erie. This provides not only the water for the famous Idaho potato but also the household water for 20% of Idaho. Water seeping through the cave here would stay underground for as much as 150 years before emerging to daylight (in the Pacific Ocean) – unless it was pumped up to sprinkle the potato crop or piped into the homes across the region. A fascinating geological and natural phenomenon.

We completed the final leg of our journey today to Sun Valley by continuing west along the edge of the lava fields before turning north and climbing into the Sawtooth mountain range. Now the major peaks were on our left side and the more rounded hills on the right were half covered in shadow as the sun was setting which made for an interesting contrast with the burnt sand color of the sun-baked hills.

We arrived in Ketchum (Sun Valley) about 7 pm which just gave us sufficient time to get cleaned up for a very nice Italian dinner a few blocks from the hotel at the Il Naso restaurant that Molly and I had enjoyed on our visit here just over a year ago.

Friday September 16

There had been rain overnight and for the first time on this trip we awoke to dull skies and a mist that obscured the mountain

peaks near the hotel. However, we had planned for this to be a "recovery" day after two fairly long driving days so we weren't too worried.

We spent the morning strolling around the rather nice main streets of Ketchum and did a little essential shopping. We had lunch at Starbucks and then returned to the hotel – through a brief shower – about 1 pm.

Zena acting as tour guide in Ketchum. In fact, the flags are an aid to crossing the street and she should have returned it after a safe crossing rather than taking it home as a souvenir.

Keith and I had decided to take a walk along the nearby river valley and, despite a sudden clap of thunder just before we left the hotel, we chose to continue and took the appropriate rain gear. By the time we reached the trail head (only 10 minutes away by car) we were comfortable enough that the majority of the rain was over so we started our walk in shirt sleeves.

The trail map we had been given was not particularly helpful and we had great difficulty deciding which of the dozens of trails we were on. We had hoped to complete a five mile loop trail but it soon became evident that the beginning of it was perhaps two miles from our starting point so we essentially followed our noses and climbed steadily. We stopped to discuss the trails with several joggers, walkers and mountain bikers but each seemed to have a different opinion as to where we were and furthermore didn't seem to care that much. They were out for the afternoon and were more interested in what they had come to see and the challenges that the trails held rather than worrying too much about their exact location. So we followed their lead and continued our climb.

After 2.5 miles and a vertical climb of 900 feet we were at a very pleasant overlook with beautiful views over Sun Valley and the Sawtooth Mountains. By now the weather was perfect and we could see all the peaks and valleys with no low cloud or mist to obscure the view.
The fact that we now had to follow the same path back (all alternatives would have been too time consuming) didn't even bother us and the walk down was generally easier than the one up although the steeper portions were a little hard on the knees.

We both had wondered how we would fare climbing relatively steeply from 6000 feet but after some initial stretches where we were breathing hard we seemed to get a second breath and thereafter it didn't seem too bad even as we neared 7000 feet. We agreed that this high altitude training would make us so much more effective when we returned to our respective homes and did walks at the 500 feet level!

We made it!

The temperature remained mild (mid sixties) and turned out to be a perfect day for a walk that contained so many points of interest and some spectacular views.

Tonight we dined in town again, this time at the Roosevelt Grill on Main Street and enjoyed another good meal and conversation. It was mild enough that we were able to sit on the upstairs balcony, although our "tough" Yorkshire colleagues felt the need to wear jackets!

Saturday September 17

We left Ketchum and drove north along the eastern edge of the Sawtooth Mountains. The route we had selected to get to our next destination in Oregon would take us first north and then a short distance west to then drive down the western side of the same mountains. It was a very clear morning with beautiful blue skies but there was a chill in the air. In fact, at our first stop at a viewpoint on the first pass we crossed, the temperature was 42F.

Smiley Creek Teepee Hotel

The Sawtooth Mountains live up to their name with many 10, 000 feet and above peaks with very jagged and irregular faces of gray above the densely forested lower elevations. We stopped briefly at Smiley Creek where there is a diner, a shop and a motel – with tepees for three of the rooms. Molly and I were convinced that there were more than three when we had visited here with Cousin Roy in 2004 but we would need his expert memory to confirm that.

Our first rest stop was in the town of ***Stanley*** which is on the northern edge of the mountain range and is about 3 blocks by three. However, after a visit to what appeared to be the only eating spot in town – which did not serve coffee – we were directed to the bakery "just round the corner". Indeed this busy café served coffee and a large selection of pastries as well as sandwiches, etc and there were perhaps a dozen cars outside. It was now warm enough to sit outside in the sun and enjoy our late morning coffee and enjoy not only the mountains around us but the rough and ready streets of the cowboy town.

After Stanley it was about another 80 miles to Idaho City at which we had expected we would be able to make our lunch stop. It was a beautiful drive, once again climbing to several passes (none much more than 6000 feet altitude) with views of the mountains to the east and river valleys to our right.

At one point, the river suddenly became very calm and formed a series of pools in which we thought we saw bathers enjoying the water. We thought that they must be very tough to brave these icy cold mountain-fed waters until we realized that these pools were being fed from hot springs further up the hillside. We could actually see steam rising from the ground as well as these hot springs—reminding us that we were still very much in volcano country.

Idaho City turned out to be little more than a few block square antiques (read junk) town with nothing more to appeal to us than the store fronts themselves, which all had the flavor of the Old West. One in particular was a two or three storey building that was piled high with memorabilia and junk – from gas station pumps to watering cans and road signs to teapots. The building was closed (and looked as though it had been for a while) but it was fascinating to just gaze on this huge collection that someone had obviously spent a lot of time on and which, perhaps, contained a few gems amongst the vast majority of useless "stuff".

From Idaho City (which we later learned had at one point been the largest city in the Pacific Northwest as gold was discovered there in 1862 and it caused the biggest gold rush since that of California 13 years earlier) we continued the remaining thirty miles or so to Interstate 84 where we turned west towards Oregon. But first we had a very late lunch at a local Perkins next to the Interstate and filled the gas tank once more.

The remaining 100 miles to Baker City, OR was through the undulating desert hills of western Idaho and eastern Oregon. The golden dry hills and sage brush formed a stark contrast with the lush valley we had followed on both the eastern and western sides of Sawtooth Mountains and only the occasional stretch alongside the Snake River provided any real glimpse of green as a few fields of corn were irrigated. Somewhat surprisingly we also saw a few (very few) vineyards and orchards but for the most part we were now well and truly in the Western Desert.

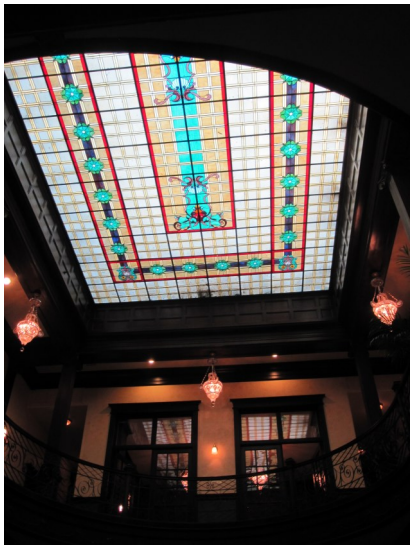
We were now traveling at relatively low elevation (probably no more than 3000-4000 feet maximum and a lot lower than we had been since leaving Salt Lake City two weeks ago) but there were still several spots on the highway where chains were required in winter as a reminder that we were very much in the foothills of the mountain ranges to the west that receive enormous snowfalls in season and of course are the reason for the desert we were now traveling through.

In Baker City (which seemed to have a good deal of interesting architecture as we drove through) we had to use the GPS to find our hotel, but once checked in we stayed there for the evening and ate in the adjoining restaurant before retiring at the (now Pacific) time of 10:00.

Sunday September 18

Today was to be essentially a driving day to our next stop at Hood River along the Columbia River. However, we had two places we wanted to visit before getting on the road. The first was the ***Geiser Grand Hotel*** in downtown Baker City. This had been a hotel almost continuously since 1889 when the gold rush here caused a significant expansion in the city and a corresponding influx of wealthy citizens who wanted a classy place to stay. It was said to be the finest hotel between Salt Lake City and Seattle, coincidentally our starting and ending points on this trip.

The lobby and dining room are filled with dark woods, a chandelier and classic overhead lighting. There is also a huge skylight in the lobby with very colorful glass paneling. The whole place certainly gave an air of opulence.



Guess who just bought a new hat!

We had breakfast in the dining room and were very pleasantly surprised at the prices – no more than we might pay at home for breakfast out. We also asked about the room rates for the hotel itself and again these were very reasonable: the standard room was $99 ($10 more for two people) and the best suite was only $229 per night. We have come close to that at far less attractive places on this trip!

Our next stop, and the reason for staying in Baker City, was at the National Oregon Trail Interpretive Center, about 7 miles east of town on a high ridge above the Baker Plain. The Center is a large new building with videos and exhibits covering the 2000 mile trek that so many took between Independence, Missouri and the Willamette Valley in Oregon between 1820 and 1850. It is estimated that over 300,000 people headed west on this, the California Trail and the Mormon Trail. These three trails followed similar paths for much of the journey but it was interesting to learn that the Mormons took the north bank of the Platt River whereas the other trails followed the south bank. It was suggested that the Mormons knew those to the south were non-believers and therefore not to be joined – even when heading in exactly the same direction!

The Center painted a picture of a journey that was filled with hope and anticipation of a new life but one that was difficult and filled with personal hardships and, in many cases, death. It is estimated that 1 in 10 died along the route and that there was a grave on average every eighty yards for the entire 2000 mile stretch. The journey (which cost a significant amount of money to provision for and was therefore not simply for the poor) generally took about six months and had to be timed to avoid the muddy tracks of spring as well as the first snows of fall. Obviously there were whole parties that never made it, the most well known of which was the Donner party who fell victim to the heavy snows of western Nevada.

We were able to see some of the ruts from the wagon trains near the center and actually walked along a few yards of the trail as it headed across the vast plain towards the Blue Mountains, the final major obstacle before the coast. Just viewing the expanse of land from the vantage point of the Center and later traveling across it by car gave us a sense of awe that men, women and children of all ages were able to make this passage and we admired the tenacity and bravery that they showed.

The **Oregon Trail** is a 2,000-mile historic east-west wagon route that connected the Missouri River to valleys in Oregon and locations in between. It flourished from the 1840s until the coming of the railroad at the end of the 1860s. The trip on foot took four to six months. It was the oldest of the northern commercial and emigrant trails and was originally discovered and used by fur trappers and traders in the fur trade from about 1811 to 1840. In its earliest days much of the future Oregon Trail was not passable to wagons but only to men walking or riding horses and leading mule trains. By 1836, when the first Oregon wagon trains were organized at Independence, Missouri, the trail had been improved so much that it was possible to take wagons to Fort Hall, Idaho. By 1843 a rough wagon trail had been cleared to The Dalles, Oregon, and by 1846 all the way around Mount Hood to the Willamette Valley in the state of Oregon. What became called the Oregon Trail was complete even as improved roads, "cutouts", ferries and bridges made the trip faster and safer almost every year.

After 1840 steam-powered riverboats and steamboats traversing up and down the Ohio, Mississippi and Missouri rivers sped settlement and development in the flat region from the Appalachian mountains to the American Rocky Mountains. The boats serviced the jumping off points for wagon trains that crossed the mountains headed to rich farmlands in Oregon and California. With disputes with Spain and Britain settled by 1848, the new lands proved highly attractive. Getting there by sea meant either a very long trip around South America or through Panama—both were expensive and dangerous and took longer than walking.

The eastern part of the Oregon Trail spanned part of the future state of Kansas and nearly all of what are now the states of Nebraska and Wyoming. The western half of the trail spanned most of the future states of Idaho and Oregon. From various "jumping off points" in Missouri, Iowa or Nebraska, the routes converged along the lower Platte River Valley, near Fort Kearny, Nebraska Territory. Small steamboats carrying fur traders navigated the Missouri River up to the Yellowstone River in Montana as early as 1832. Larger steamboats traveling much above St. Joseph were blocked until dredging opened a bigger channel in 1852.

To complete the journey in one traveling season most travelers left in April or May—as soon as there was enough grass for forage for the animals and the trails dried out. To meet the constant need for water, grass, and fuel for campfires the trail followed various rivers and streams across the continent. People using the trail traveled in wagons, pack trains, on horseback, on foot, and sometimes by raft or boat to establish new farms, lives, and businesses in the Oregon Country.

Leaving the Center around 3 pm, all we could do for the remainder of the day was drive west on the Interstate Highway with just one coffee stop at La Grange. The drive across the undulating hills of the eastern Oregon desert was interesting nevertheless and the final 100 miles or so alongside the huge Columbia River was spectacular. I think everyone was relieved, however, when we pulled into the Hood River Hotel and were able to stretch our legs and look forward to a good dinner and a night's rest.

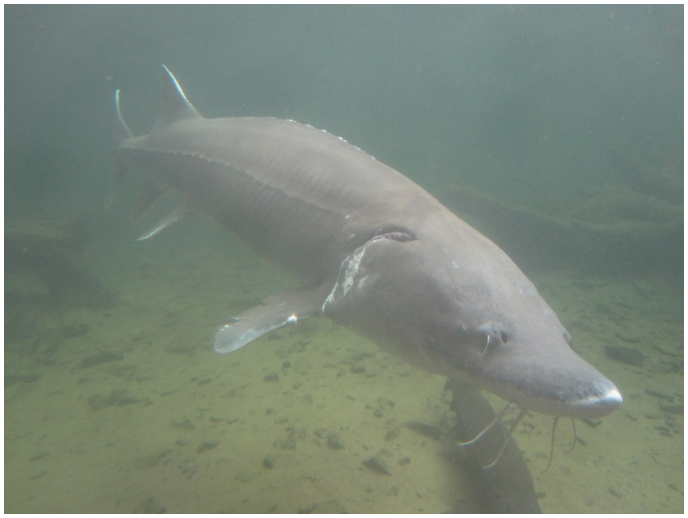
Tonight we ate in the hotel restaurant which had views directly on to the Columbia River and the hills of Washington State opposite.

Monday September 19

We had a leisurely breakfast before setting out for our day in the Columbia River Gorge. The plan was to spend most of the time admiring the waterfalls along the gorge and perhaps do a few of the shorter hiking trails but first we wanted to visit a fish hatchery and one of the dams along the river.

So, our first stop was at the Bonneville Dam and the adjoining fish hatchery. This latter turned out to have much more of interest than anticipated and we spent about two hours walking slowly through the facility. Since the building of the dam in 1933, the natural return to the salmon spawning grounds has been interrupted and this hatchery and the ladders around the dam have provided not only an alternative route but, in the case of the hatchery, a whole new industry. The collection of eggs and milt from the salmon that have returned to these "forced" spawning grounds was graphically explained both in video and "up close and personal" through viewing windows overlooking this "factory". The major spawning time is a little later in the year but salmon that have already arrived here are sorted and are either put back into large holding tanks until ready or (as seemed to be the majority today) prepared for commercial sale. Fish had been tagged prior to leaving this area perhaps three years ago and those are separated presumably for additional monitoring and examination.

The whole enterprise is semi-mechanized but there was a crew of about a dozen working in the sorting and preparation area during our visit. We all found it fascinating and had difficulty dragging ourselves away to move on and see the rest of the hatchery area. In addition to the huge tanks in which the millions of fish are fed and nurtured for over a year before being returned to the river, there were several ponds specifically designed to entertain and inform visitors. The most significant of these contained large numbers of rainbow trout and a good sized collection of sturgeon. The largest ("Herman") is now ten feet long and over seventy years old. He and his companions could be viewed from above or through a glass side in the pond as they slid silently by underwater.



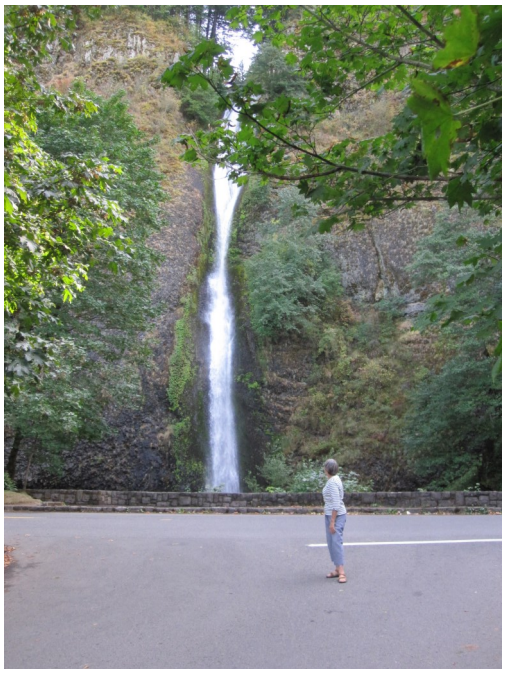
We visited the dam and saw an informative video on its construction and the efforts to minimize the environmental impact of such a huge construction project. We were able to see one of these – the fish ladder – from the visitor center, once again viewing from above or below water level. An interesting aspect of the ladder as seen underwater was that an employee actually counts the number of each species that pass up the ladder in a day and records are kept for comparison with previous days and previous years.

The Bonneville Dam's first powerhouse, spillway and original navigation lock were completed in 1938 to improve navigation on Columbia River and provide hydropower to the Pacific Northwest. A second powerhouse was completed in 1981, and a larger navigation lock in 1993. A Public Works Administration project of President Franklin D. Roosevelt's New Deal, portions of Bonneville Lock and Dam Project were declared a National Historic Landmark in 1987

Afternoon coffee with a view of the Columbia River

When we finally left the dam area it was almost 3 pm so we had a coffee in Cascade Locks before driving along Old US 30 – The Columbia River Gorge. We stopped at three or four enormous waterfalls along the route, each falling several hundred feet from the vertical cliff sides of the gorge. None were particularly wide (perhaps no more than 20 feet) but the depth from which they fell to the attractive pools below made them very impressive. One of these falls (Multnomah) required a ½ mile walk for a closer viewing.

The Columbia River Gorge



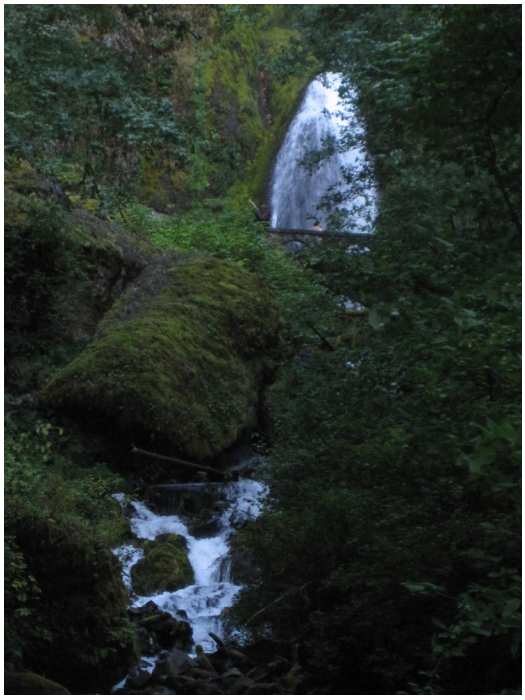

MULTNOMAH
FALLS
COLUMBIA RIVER GORGE
NATIONAL SCENIC AREA

The Formation of the Columbia River Gorge

Although the Columbia River has slowly eroded the land over the millenia, the most drastic changes took place at the end of the last Ice Age when the Missoula Floods cut the steep, dramatic walls that exist today, flooding the river as high up as Crown Point, the Vista Point at the end of the road through the gorge.This quick erosion left many layers of volcanic rock exposed.

The **Missoula Floods** (also known as the **Spokane Floods** or the **Bretz Floods**) refer to the cataclysmic floods that swept periodically across eastern Washington and the Columbia River Gorge at the end of the last ice age.The glacial flood events have been researched since the 1920s and it has been determined that these glacial lake outburst floods were the result of periodic sudden ruptures of the ice dam on the Clark For River that created Glacial Lake Missoula.This Lake, which Molly and I have seen in its present-day dried up form, is north of the city of Missoula in Montana, not far from the Canadian Border. So, it is a long way from the gorge – perhaps as much as 1000 river miles.

After each ice dam rupture, the waters of the lake would rush down the Clark Fork and the Columbia River, inundating much of eastern Washington and the Willamette Valley in western Oregon.After the rupture, the ice would reform, recreating Glacial Lake Missoula once again. Geologists estimate that the cycle of flooding and reformation of the lake lasted an average of 55 years and that the floods occurred several times over the 2,000 year period between 15,000 and 13,000 years ago.



We continued along the drive to the high viewpoint at Vista Point from which we had fantastic views of the Columbia River to the east. We could clearly see the Bonneville Dam over 25 miles away and far across the river into Washington State. This viewpoint is at a height of almost 750 feet above the river but it is only one fourth the height of many stretches of the gorge walls themselves.

From Vista Point we returned to the hotel via Interstate 84 and then relaxed before meeting again for dinner in the restaurant at 8 pm. We had a good meal and finished the evening with a nightcap in the lounge.