American National Parks
Grand Canyon

Englischer Filmkommentar

An enormous gap in the earth's crust one kilometer deep – the deepest river valley on the planet – and one of the natural wonders of the world – the Grand Canyon!

5 Million tourists per year visit the Grand Canyon. They come here to the northwest of Arizona to hike, camp, raft and to witness the overwhelming drama of nature.

The Grand Canyon has many trails. The Bright Angel is probably the most heavily hiked in the entire country. But visitors can still enjoy this national park's solitude and pristine beauty.

For geologists, each layer of stone is a step back in time. It was the Colorado River that exposed them – taking us as far back as 1 point 7 billion years. One third of the earth's history lies before our eyes.

How did this enormous canyon come to be?

Two billion years ago, all of the western United States was covered by ocean. Deep layers of sediment formed on its floor.

Long afterwards, these layers were pushed up out of the water and became land. The Colorado Plateau was born.

Then, some 4 to 5 million years ago, a river began carving its way through the plateau – layer by layer – the Colorado River.

As the plateau continued to grow, the river and its branches cut deeper and deeper through slate, limestone and sandstone.

Not even masses of volcanic lava could withstand the river's erosive power.

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The canyon is 447 kilometers long and, in parts, up to 1,800 meters deep. It can even be seen from space.

This section of the Colorado was declared a national park in 1919 – an area twice the size of Germany's Saarland.

For geologists, the Grand Canyon is a unique object of study. Nowhere else can the origin of the American continent be traced more easily.

Let's accompany the daring scientists into the canyon's depths where they read layer upon layer of the earth's earliest history.

David Elliott:
"Five hundred and thirty million years ago, this was at the bottom of a shallow ocean. These sediments were muds forming on the bottom and large numbers of organisms lived in those muds. Although we very rarely see the remains of those organisms, in terms of body fossils, we quite frequently find their traces. This slab shows the trace left by a trilobite as it moved across the bottom and disturbed the mud as it searched for food in it."

David Elliot is especially interested in a more recent layer – higher up – a layer that arose from sand dunes.

"Two hundred and seventy million years ago, a spider walked up the face of this sand dune. We think it was probably something like a modern wolf spider and you can see the tracks here left by the legs as the animal moved upwards. Above this area, you can see that they wash out towards the top as the wind probably blew them out. Subsequently, the surface would have been consolidated by a mist and then the tracks preserved as more sand came in over them."

"Here we can see the footprints of a large reptile that was moving up the face of a sand dune. Here's one print, here's the next print, and you can see that as the animal moved up, it pushed backwards and a lobe of sand was formed behind the footprint. Also, this animal was dragging its tail and there's a sinuous trace here between the footprints which was left by the tail as it dragged."

The river's erosive force exposed the Grand Canyon's multilayered walls. Fossils found here today carry information about the diversity of life in past epochs of the earth's history.

A rich variety of life can still be found in the Grand Canyon's chasms and gorges. More than 2,000 different animal and plant species flourish here – adapted to extremely different canyon environments.

Birds have the easiest time finding a suitable place in the canyon's labyrinth – birds of every kind – from rough and tumble birds of prey to delicate tropical humming birds.

There are more rare peregrine falcons here than anywhere else in America.

The canyon's cliffs and terraces provide habitats for a wide variety of animals – from bighorn sheep to scorpions. Each species has found its own unique niche.

The canyon's habitats for flora and fauna range span alpine heights of over 2700 meters to the hot desert of the canyon floor 2000 meters below.

The chasm cut by the river had a deep impact on the way life developed here. The Kaibab squirrel, recognized by its light colored tail and black underbelly, is found only in a relatively isolated area on the canyon's north rim.

Its long-lost relative, the Abert squirrel, has a white tail and underbelly. It lives on the other side of the canyon – on the southern rim.

Scientists suspect that both types of squirrels evolved from common ancestors. Their populations were separated by the canyon some 10,000 years ago.

The first humans discovered the canyon at least 10, 000 years ago. Cliff drawings tell us how they lived. Since that time America's native peoples, the Indians, have lived on the canyon's rims continuously – although tribal affiliation and names often changed.

The first native American peoples to enter the canyon did so somewhere near the year 850 A.D.

David Kashinski:

"I'm standing here on the Unkar Delta, the largest known inhabitation site of the Anasazi Indians in the Grand Canyon. Between the years of 850 and 1200 AD, the Anasazi Indians inhabited this whole area behind me. Right here is one of their dwelling sites."

"Approximately four families would have lived in a dwelling of this size. This particular dwelling was inhabited between 1050 and 1180 AD. Something that's fairly interesting about the Anasazi Indians, it's not that they just inhabited the Unkar Delta here in Grand Canyon, but they also inhabited twenty seven hundred other sites throughout the Grand Canyon. Anywhere where there was fresh water or where there was access up to the North Rim or the South Rim, the Anasazi Indians left evidence for us that we could find today."

The Anasazi dug caves in the cliffsides high above the river where they stored food.
They hunted bighorn sheep, rabbit and deer. In the spring they planted corn, squash and beans on the moist terraces. In summer they cultivated the sandbars and dunes of the river valley far below. They domesticated sheep, dogs and goats and skilfully wove baskets and sandals out of yucca fiber.

The Anasazi era ended mysteriously somewhere around 1200 A.D. Nevertheless, members of smaller native American tribes were still living in the canyon in 1850 when the first white men explored the canyon.

In the summer of 1869, John Wesley Powell, who lost an arm in the Civil War, became the first white man to explore the entire Colorado river – then one of America's last and largest uncharted areas.

Powell was witness to rockfalls, flash floods and mudslides on his expedition. He estimated that it must have taken at least 50 million years for the canyon to reach its depth.

But today we know that the Colorado needed only about 5 million years to cut through the plateau … and it's a process that continues today. Every day the river washes out thousands of tons of material and sends it off downstream.

Powell kept a journal of his one-hundred-day journey.

Powell:

"The sound grows louder and louder as we run and the rushing waters break into great waves on the rocks and lash themselves into a mad white foam. It is nearly a thousand feet to the top of the granite, so it will be impossible to carry our boats around. We must run the rapid or abandon the river."

After two months on the Colorado River, the expedition's supplies ran out and its wooden boats were badly damaged. But the worst was yet to come: a series of terrifying rapids.

Powell's men were on the brink of exhaustion – three members of the expedition simply refused to continue. They left the group and tried climbing out of the canyon. They were never heard from again.

But Powell managed to navigate the entire canyon – becoming the first to conquer its powerful currents and dangerous rapids.

Then came the Kolb brothers from Pennsylvania. Their photographs and films brought the Grand Canyon's striking landscape to the attention of the entire country.

In 1904, the Kolbs opened a 5-story building with an auditorium, photographic studio and souvenir shop atop one of the canyon's most spectacular vistas.

They took photographs of tourist groups from their studio window and sold them to them upon their returns from the canyon.

The Kolbs' talents for dramatic shots played a major role in promoting Grand Canyon tourism. The most prominent visitor of the time came to the canyon in 1903: President Theodore Roosevelt. The president was so moved by what he saw and experienced that he gave a firey speech in the interest of preserving and protecting the Grand Canyon:

Roosevelt:

"I have come here to see the Grand Canyon. I shall not attempt to describe it because I cannot. I could not choose words that would convey or that could convey to any outsider what that canyon is. I want to ask you to do one thing in connection with it, in your own interest and in the interest of the country. Keep this great wonder of nature as it now is. I hope that you will not have a building of any kind, not a summer cottage, a hotel or anything else to mar the wonderful grandeur. Keep this wonder of nature as it now is."

President Roosevelt's words did not go unheard. The Grand Canyon, which had been set aside as a forest preserve in 1893, was declared a national park in 1919. 60 years later, in 1979, it was entered into UNESCO's list of natural monuments of the world.

The Grand Canyon's unique beauty attracted more and more people. They came in droves – not only to the Grand Canyon, but also to the cities then newly springing up in the American Southwest.

The booming population of the Southwest tapped the Colorado River for electrical power.

In the early 1960s, the enormous Glen Canyon Dam was built where the Colorado flows into the gorge at the canyon's eastern entrance. Today it provides the entire Southwest of The United States with electrical power while guaranteeing a constant flow of water through the canyon – even in periods of drought.
This 3rd-largest dam in the United States holds back the giant lake created in its construction – 250 meters deep, with nearly 3000 kilometers of shoreline: Lake Powell.

But the water streaming out of Lake Powell into the canyon is a constant 9 degrees Celsius. Many biologists feared that the Grand Canyon's ecosystem would be destroyed. Especially the impact on fish and amphibians was cause for alarm.

Making things even worse, it soon became clear that the dam also endangered the sandbars along the river's shore – important habitats for many types of plants and animals.

While sandbars were often washed away by floods before the dam was built, new wash material carried in by flood waters always created new sandbars. The amount of sand and

other material carried downstream by the river decreased by 90 percent after the dam was built.

Today scientists are looking for ways to restore and protect the sandbars. In March of 1996 they tried an unusual experiment. For an entire week they sent nearly 900 million cubic meters of water through the canyon in a controlled flood in an attempt to normalize sedimentation.

Matt Kaplinski:
Our project, that's been going on since 1990, involves repeated surveys of these sandbars to detect the change that's happening, whether they're building up or whether they're eroding. And in fact, we did see a significant increase in the amount of sand stored on the sandbars. They increased by about 176 percent from before to after the flood.
Right now, about a year and a half later, there's still about 80 percent left of what was deposited during the flood.

Today people are still struggling to make amends for the damage done to the Colorado River's ecosystem.

But despite everything that's happened to it, the Colorado is still a grand river.

Daredevil tourists out for the thrills of the river's rapids can experience its awesome power from a front-row seat. A power which cut through layers of stone nearly 2 kilometers deep – and which continues to do so today. The most breathtaking canyon of the world: The Grand Canyon.