

<SSH 米国海外研修報告> 実施日 12月2日(日)~7日(金)(4泊6日)
参加生徒 普通科 橋爪 駿亮、風間 駿佑、宮坂 夏生、柳澤 玲那、原田 能亜、手塚 晴菜
理数科 石田 要、小林 虹介、小林 信房、近藤 理彦、福井 裕奈、村岡 柊哉

We took a study trip to the USA. We'd like to report what we experienced and felt.

Yosemite National Park

This is the one of the American national parks that was registered in 1984. The area of this park is about 3080km², 1.4 times as large as that of Tokyo. We feildworked in this majestic nature for 2 days.

We had thought that we wouldn't find animals in winter, but fortunately, we could find lots of animals like, squirrels, woodpeckers, Deer, Coyotes and so on. The woodpecker that we found was called "White-headed woodpecker", and we could watch the woodpecker pecking. We wondered what they eat in winter without eating insects. To our surprise, they eat nuts. We met three little coyotes. From far away, we realized the creatures were coyotes because of their characteristic voices. Fortunately, we could find bear's foot-sprints in winter.

The most impressive story that we heard from our guide was that the only animal which have killed humans is deer, not bears or coyotes wild animals keep personal space, so they never attack humans if we don't invade. Today's Yosemite forest is rough because whenever a fire broke out, American people tried to put out the fire. For forests, the fire is like cleaning, so it's an important natural phenomenon. It seems that damage of the fire in California last year had expanded because trees were so dense. We learned distances between nature and human is important. It made us think how we are concerned with nature.

Yosemite is very famous for its characteristic vegetation. It is divided into five vegetation zones between 600m and 4,000m in altitude, and there are various kinds of plants. It was regrettable that it was impossible to see colorful plants because the season was winter, but we could see what we cannot see in Japan. There is a pine named "Sugar Pine" in Yosemite. The height of the tree was about 40m to 60m, so we were surprised at that size. A further noticeable thing is a part of cones of sugar pine. We were impressed with the size because we could not hold it in our hand. Giant Sequoia was also a shock. A cross section of the tree trunk about 3 m in diameter was displayed outside of the museum in Yosemite National Park.



We were surprised at the difference in the scale between US and Japan. There are lots of trees that would be treated as a sacred tree in Japan. It is impressive that big trees are standing not only in national parks but also anywhere in the US.

We saw a majestic U-shaped valley sharpened by the glacier. Surprisingly, we observe the traces after falling due to rock weathering. We could also see a huge granitic rock that was about twice as large as classroom. We felt a threat in the beauty of nature because some people were killed by falling rocks. Rocks collapse not only by weathering but also by the fact fungi called "lichens" living in rocks enter the gaps and crack from there and water enters the gaps, the water freezes and the cracks grow larger, and finally rocks break from there.

SLAC National Accelerator Laboratory

SLAC National Accelerator Laboratory is a facility founded by Stanford University in 1962. Elementary particles and X-rays generated by a linear accelerator and circular accelerators are used for various research such as particle physics, biology, and so on. We were astonished by the three-kilometers-long linear accelerator, the feature of this laboratory.

We saw cutting-edge research and technology of biology and physics. We heard that researchers at first examined elementary particles generated by collisions between atoms in the linear accelerator. However, they happened to find X-rays created during this research and the circular accelerators were built for research using X-rays. Now, they observe chemical reactions and motions of atoms and molecules, and so on, using X-rays released by the circular accelerator.

They're always seeking for new subjects of their research and it was a great surprise to us. We were very excited to visit such an excellent laboratory.



[Inside of linear accelerator]

Toshiba Memory America, Inc.

We went to Toshiba Memory America in Silicon Valley. This office mainly checks storages for smartphone and PC and sells them. We watched inspecting durability by changing temperature and pressure. This company is world-leading manufacturer of components of PC.

Though it is a Japanese company, the office is in America. So, there are many differences between in America and in Japan. The first difference is their desks. There are partitions between desks and they were working in personal spaces. Some people were sitting and others stood working, changing the height of the desks. The second point is about rest area. There are a table tennis tables and barbecue stoves. In sunny days, some can eat lunch outside. Besides staffs can use the gym with plentiful equipment during their work. The third is the difference of working time. Many staffs work until midnight in Japan. In contrast, Americans go home early. If they were not able to finish their work during working hours, they would do their job in their house. Many Americans consider someone who can't finish their work within working

time as incapable. As we went there at about 5 o'clock, there were few workers.

We can see the difference between Japan and America clearly. We thought it difficult to succeed in America.

Intel museum

Intel is also world-leading manufacturer of CPU. We can learn the history and what is microprocessor is. There are many old models of microprocessors. Some are very big and others are downsized. We were surprised to know that how small parts control PC and smartphone.

Although we stayed there only 15 minutes, we realize how great Intel was.

California Academy of Sciences

California Academy of Sciences is a complex museum founded in 1853. It has various fields such as an aquarium, the tropical zone or ancient fossil zone. When we entered the museum, fossil *Tyrannosaurus rex* welcomes us. We were excited at the powerful *T. rex*. We mainly visited the aquarium. The most famous creature in this museum is an albino crocodile. It is a crocodile which has little melanin pigment. Thus, the body is white. In addition, there is no way it can survive in the natural world. The crocodile was taken care of so that the crocodile was not stressed. We were moved by the affection. Another display was overwhelming.

We took part in behind the scenes tour. According to our guide, a water tank of coral reefs is the biggest tank in the artificial nurturing factory. We were really surprised at careful considerations about water temperature adjustment device, cleaning device for aquarium tanks, and water concentration adjustment device. In the display of aquatic life, many kinds of jellyfish, tropical fish and sea anemone made high fantastic atmosphere. Their feed is well thought out. The food suitable for each individual is selected. It seemed that the breeders paid attention to the amount of the feed in order not to be eaten by the other animals.

We were surprised at how big the museum was. There were a lot of exhibits that we couldn't walk around there in a day.



[albino crocodile]

De Anza High School

De Anza High School is a leading high school which has produced highly talented people in both academy and sports fields.

We made a presentation about Yashiro High School, Japanese traditional culture and study. Then we interacted with students in De Anza. When we entered the classroom, they welcomed us cheerful and friendly atmosphere. They seemed very surprised at our performance of cheer practice. There were some differences between De Anza and Yashiro high school. The contents of the study that we introduced was to examine physically about super hero of American comic

and Japanese anime "Wanpanman" Japanese anime is so popular in America too. We felt happy because we find the spread of Japanese culture. We introduced Japanese traditional toy and clothes, that is, "Origami", "Kendama", "top", "calligraphy" and "Yukata". Origami was so famous in America that they were excited when we showed a rose and a crane made by Origami. At first, we were so nervous that it was difficult to perform Kendama, but the cheers from students made us relaxed. The top was unknown to them. However, when we told that it was a model of "Beyblade", they looked so excited. We thought it was difficult for them to experience the calligraphy, but they wrote beautiful letters. When girls wearing Yukata appeared in front of them, they were saying "cute" or "beautiful". Some students tried on Yukata. What we were surprised was the boys wanted to wear cute Yukata whose color was pink. "Cute culture" crossed over the boundaries among gender. We spend free time chatting and demonstrating Japanese culture.

We had a wonderful time speaking English and learned the importance of communication.



[With De Anza HS students]

University of California, Berkeley

This university has the longest history of California universities. It is located near the Silicon Valley. Thus, a lot of companies, like IT and computer, invest money to study for Berkeley. Up to date, more than 100 graduates got Nobel prize. You can understand how a prestige school is.

Researcher Vicente introduced by professor Kondolf gave us a lecture about the dam's construction. He is the world's expert on researching dams. Dam generates electricity to turn the turbine by force of river. However, there was a problem that the turbine had broken, because river carried soil and rock together with water. Then they separated the road of throwing water from that of soil and rocks. And finally they could solve the problem. He said that his team tried to make better dams.

This stoic attitude was very cool to us. We felt his lecture difficult because he has a strange accent. However, professor explained to us in simple English so that we could understand the lecture easily.



[Listening to a lecture]

We learned a lot of differences between the USA and Japan. We'll make use of this experience in the future.

2月5日(火)のサイエンスフォーラムでも報告します