

1 BIOLOGY

In the reading material for today, we learned that Francis Crick used to joke that Sydney Brenner liked working with worms, because they wriggle and you can watch them wriggling. Brenner himself says that the contact with the animal is very important for biologists, because a lot of experimental research is remote. So we decided to make today's topic a bit less remote by taking a look for ourselves at some wriggling worms.

Luckily for us, on the Hongo campus, a research team led by Professor Yuichi Iino of the school of science is working with the same tiny animal that was made famous by Sydney Brenner, John Sulston, and Robert Horvitz, the nematode *C.elegans*. Professor Iino explained to us that the average life span of *C.elegans* is only 16 to 17 days, even when they are kept at the optimal temperature of 20 degrees centigrade. So the worms we encountered in Professor Iino's lab, were not literally the same worms studied by Brenner, Sulston, and Horvitz, but it was still very exciting to see some of the descendants of those original worms. When Professor Iino kindly gave us a guided tour of his lab.

First, in order to get a clear view of the body of a nematode, we started with a diagram and then moved on to the highly magnified screen image of an actual living worm. This worm isn't wriggling, because it's been temporarily anesthetized. We could see for ourselves that one of the key reasons why *C.elegans* make such a good research subject, is that it's not only extremely simple, with only 959 cells in total, but also transparent. We really could see everything, outside and inside: a mouth, something like teeth, a throat, intestines, even eggs.

Because the nematode *C.elegans* is so simple, extremely complex processes can be studied and understood very clearly. Researchers can trace in detail how an egg becomes a worm, and watch as a tiny worm emerges from what was only 13 hours previously nothing but an egg. Here, in this anesthetized worm, each egg already has about 10 cells present. These 10 cells will develop into a fully-formed worm in a process of cell division that we were able to watch on high-speed film. In real time, it takes about 1 hour for the first 4 cells to a pair. But at this speed, it seemed almost magical to watch an egg turn into a worm. As we watched speeded-up film, we saw cells splitting, intestines taking shape, muscles forming. the worm visibly curling into 2 and then 3 folds, and then, the finale, a worm wriggling off into its life of adventure.

Finally, we were able to see some very lively worms on a computer screen connected to another electronic microscope. One of the more amazing things we learned about Professor Iino's

tiny worms is that even at only 1 millimeter long, they have clear preferences, are able to learn from experience, and can detect the presence of others. They like salty things for example, and will move toward salt. Here, we can see the worms expressing a fluorescent protein. The worms are also all secreting pheromones which allow them to detect each other's presence through their chemo-receptors.

Of course, thanks to Professor Iino's high-powered equipment, we humans did not have to rely on the detection of pheromones to study the nematodes. We were lucky enough to be able to see them!

2 FOOD

In the reading for today's session, we learned about Nobu Matsuhisa, a Japanese chef whose restaurants are a big success in London, Los Angeles, New York and around the world. But now, I'd like to introduce you to a favorite restaurant of mine, that's right here on the Komaba campus. Lever son Verre, located behind Building 900, is a restaurant specializing in European and especially French style cuisine. It might look small from the outside, but it's able to seat around 140 people: downstairs, there are 78 seats inside and 24 on the terrace. Upstairs, there are 18 seats at tables indoors, 9 at the counter, and 9 more on the balcony. At lunch time, on an average day, the restaurant serves around a hundred meals. On busy days, that can rise to more than a hundred fifty. So I waited until the lunch time rush had calmed down before I asked the chef and the waiters if they would be kind enough to appear in this Eigo-Ichi video. They said yes, and generously took time out from their afternoon break to talk to me about their work.

First, Chef Akinori Takeda invited me into the kitchen and showed me where the food is prepared. It was easy to imagine how hot and busy it must get in here at peak times, with only three or four kitchen staff dealing with all the incoming orders. Chef Takeda is in charge of the whole operation. He decides on the menus, makes sure the kitchen has all the ingredients it needs, and oversees the cooking. He even goes to Tsukiji twice a week himself to select the best kind of fresh seafood. Being a chef is a hard work and involves long hours of standing and cooking, but Chef Takeda told me that he really loves his job, particularly when he feels he's able to satisfy the individual tastes and needs of customers. Our university often hosts people with different kinds of dietary habits, people who do not eat pork or beef for religious reasons, for example. Mr. Takeda told me that he actually enjoys the challenge that presents.

While the chef provides creative energy at the heart of the restaurant, the waiters and managers are absolutely vital, too. They set the atmosphere, make everyone feel comfortable, and provide the vital link between the customers and the kitchen. And of course, they have their own professional expertise too. For example, three of the waiters at Lever son Verre are certified sommeliers. They have passed an extremely difficult national exam that tests their knowledge of wine and liquors. Mr. Moriyama told us that he has recipes for around 300 cocktails in his head. You can recognize the sommeliers by the golden grapes badge they wear on their lapels. I asked the dining room staff why they decided to work in the restaurant business. Mr. Sasaki jokingly said it was the lure of the free food. He was looking for to the left-overs. But it was Miss Sakashita who revealed their true motivation. She admitted that it was the pleasure of taking care of people, and making them happy that had drawn them to their work as professional waiters.

I asked the waits staff if they had any special message for Komaba students. They asked me to tell you that they would like you to think of the restaurant as a “home”, where you will always be welcomed, even after you graduate. Miss Matsunaga reminded me that the restaurant is a great place to have a wedding reception. Perhaps, one day, some of you will celebrate weddings here. But of course, you don't need to wait until then to try the Komaba cuisine, Chef Takeda style.

3 NATIONALITY

As immigrants spread to other countries and contents, especially in this global world, I think that [the] notion of national culture becomes ambiguous and transformed. And, so, my question is what do you think the role of immigrants in confronting global challenges?

For the first time in one hundred and fifty years, our population is growing in Ireland. And the reason for that is very simple. We have reversed the trend of immigration. For a hundred and fifty years, we produced a large population, but it left. They went to America, they went to Canada, to New Zealand. A small number came here to Japan. They went all around the world, because there was no opportunity for them at home.

So we have always seen ourselves as an emigrating people. And in some ways, we historically looked at that emigration as a tragedy, because it drained our brain power, our young people. But in more recent years we look at it differently. Those people now are third, fourth, fifth, sixth generation in America in Canada and in Australia and they are now part of the political establishment, the commercial establishment, the economic establishment, the artistic, the world politics, the world education. And we have seen what they have been able to accomplish when they

brought with them, their music their poetry, their dance. How these things helped to enrich their new homelands. But also, how their experience of other cultures helped in turn to enrich and widen and deepen Irish culture. Because we have kept very strongly in contact with our global Irish family, right around the world.

I believe that our immigrants, who are coming to our country, I hope that their cultures will remain strong in Ireland, that they will not be overwhelmed by Irish culture. But they will integrate, and they are also assimilated, into Irish life bringing with them the riches of their own culture. And contributing, I mean, Irish culture will grow, it will widen, and it will deepen, I think. And I believe as a result of having people from Sub-Sahara Africa, from Romania, from Russia, from the Ukraine, from Poland, all now living in Ireland, living as part of the lived experience of our children.

I think that makes of us a global family, that's a wonderful thing. To feel part of a global family to learn respect for other religions, other colours, other creeds, to learn love for them, because you live beside them, and grow, I think this is a wonderful thing. It breaks down the barriers of fear and ignorance that distance and history and geography and language can sometimes make very difficult for us. I think if we use these opportunities well, we have the capacity to create a much, much happier world.

4 BABIES

This is a lab located on the Komaba Campus of the University of Tokyo. A baby held by his mother gazes at his own image projected onto the screen. At times, he moves his neck restlessly. Is this baby recognizing the "self" projected onto the screen as himself?

Professor Kazuo Hiraki and his team of researchers have conducted numerous experiments like this. And they have discovered that 6 months old babies can recognize their own images on the screen and understand that it's their own legs that are moving.

Professor Hiraki showed babies ranging from 4 to 10 months old images of their own legs on two separate screens: one showed the "real time" movement of their legs, and the other had a two second delay. Babies less than 6 months old just looked from one screen to another, spending an equal amount of time on each. In contrast, babies 6 months old or more tended to look at the delayed screen more. Professor Hiraki believes that 4 to 5 months old babies cannot really tell which screen is showing their own legs. But babies 6 months or older will recognize the leg appearing in the "real

time” screen as their own legs, and the probable reason that they spend more time looking at the delayed screen is that they think the delay is strange. It takes even longer for the babies to recognize that the legs in the delayed screen are actually theirs.

Similar experiments with 2 to 4 year olds have produced similarly interesting results. In this type of experiment, the children are shown their own images on two screens. One shows the “real time” image and the other again has a two second delay.

Researchers have quietly and surreptitiously put a sticker on the child’s head. Then they check whether the child is able to remove the sticker while they look at the images on the two screens. The 2 year olds could not take the sticker off at all. The 4 year olds were able to take it off by looking at either screen. The 3 year olds tended to have trouble taking the sticker off when looking at the screen with a two second delay. Professor Hiraki says that “3 year olds can understand that they are the figure on the screen by looking at their own images and their body movements.” So they are able to try to take the sticker off. But if they use the two second delay screen, they cannot do it well despite trying their best, and soon give up. Some children seem to believe that the image on the screen is not them after all and instead claimed “That’s my friend!”

This experiment is about recognition of self. It suggests babies recognize things and actions by integrating several different senses. In this case, for example, the sense of oneself is intimately tied to the sense of movement.

The bigger question is how babies develop the various cognitive abilities we see at work in these experiments. “This is a very profound issues”, says Professor Hiraki, “and it requires a lot more research in the future.”

6 LIFE

The text for today’s session challenges us to reconsider our common sense definition of “life” by thinking about Artificial Life, or “Alife.” Professor Takeshi Ikegami, the physicist who wrote the introduction to this text has been investigating Alife for many years. We visited his office on Komaba campus and asked him to show us some examples of Alife. He kindly turned on his computers and introduced us to some of the “lives” that were going on inside.

One of the things Professor Ikegami showed us was how the Game of Life works. The

Game of Life is one of the programs discussed in Jeff Elman's text. It is one of the earliest and best known examples of Alife studies.

Originally developed by John Conway in 1970, this cellular automation shows us what life "could be" by presenting an alternative model of life inside a computer.

Let's review the rules of the game;

1. Any live cell with fewer than two neighbors dies.
2. Any live cell with more than three neighbors dies.
3. Any live cell with two or three neighbors lives.
4. Any dead cell with exactly three neighbors comes to life.

That's all- so it is very simple, isn't it? And once this "game" begins, there are no human players involved. Only the initial state needs to be set up, and from then on the game will simply proceed according to its very basic rules. Despite the simplicity of the rules and the lack of intervention, the game doesn't just produce a single pattern. As the game proceeds, all kinds of different patterns emerge.

These patterns have names such as "block", "blinker", "toad", "boat", and "puffers." The text for today's session mentions a pattern called a "glider", so called because this one gradually glides downwards and to the right of the grid.

According to Professor Ikegami results from the Game of Life raise many important issues for Alife research. Two of these are particularly significant.

First, the forms generated by the Game of Life have the ability to self-reproduce. For example, a glider is an important pattern in the Game of Life, because a certain set of gliders will become a "fetus", of other gliders. Once the fetus pattern occurs, gliders will be reproduced continuously.

Second, the forms evolve into increasingly complex patterns. The initial pattern seen in the Game of Life is simple, yet, in time very complex forms are often produced-results that could not have been predicted at the beginning of the game,. The initial phase of the game and its rules include an unknown mechanism that eventually generates complexity.

Since the invention of the Game of Life, self-reproduction and the evolution of complex

patterns have taken hold as the two basic goals of many researchers working in Alife studies. How is it possible to make these things happen? What property is it that results in the evolution of complex forms? Just as Charles Darwin once explored the Galapagos Islands, in an attempt to understand the meaning of evolution, Alife researchers are exploring the virtual touring inside the computer in order to understand the meaning of life.

It may sound strange to treat the patterns you see in the Game of Life, as an example, of life. This artificial life does not have DNA and lacks many properties generally considered indispensable to life. “How can such things be life?” you may ask, but what is life and what is evolution? Professor Ikegami urges us to suspend our fixed notions of life, for a moment and just look carefully at these patterns. His question is different- how can this not be life?

7 LISTENING

So far today, we’ve learned that the way we usually define “hearing” is rather limited, in fact, human specific. Elephants hear differently from human beings, not simply because they’ve got such big ears, because their ears detect some sounds more efficiently than us, but also because they can hear using their feet. And it’s not just hearing that varies from species to species. Research shows that experiences of smelling, seeing, and even tasting vary quite dramatically among different animals, too.

On the Komaba campus, you probably wouldn’t expect to see an elephant, but cats are fairly common. They experience their Komaba surroundings very differently to the way we do. For example, cats have a wider field of vision than us, probably around 200 degrees compared to our 180. And they can see better in the dark. Researchers think they can see 5 to 7 times better than human beings in dim light, although, contrary to popular belief, they cannot see in total darkness. Cats taste things differently too. In July 2005, a group of researchers from the United States and Britain published their findings about the feline sense of taste in a science journal called “Genetics.”

These researchers had become curious about why cats were not attracted to sweet foods, and they wondered if it was possible that cats are simply unable to detect sweet-tasting things. So the researchers took saliva and blood samples from 6 cats and investigated their sweet receptors. The sweet receptor is located on your tongue and it sends sugar signals to your brain when it detects something sweet. It is made of two proteins called T1R2 and T1R3. These two proteins are manufactured under the direction of two genes.

After investigating cat DNA, the researchers discovered that in cats, one of the genes has ceased to function properly, thereby making it impossible for them to have a proper T1R2. Because of this, cats do not possess a working sweet receptor. Similar results were obtained from cheetahs and hyenas, both of which are members of the cat family. So it seems that cats cannot enjoy the pleasure of chocolate unlike most humans. Sweet things are not sweet to cats, and they don't find them attractive at all.

However, after the publication of their results, researchers received a lot of complaints from people insisting that their cats could, and did enjoy eating sweet things. Many cat lovers produced photographic evidence of their cats happily eating things like melon and ice cream. In fact, it turned out that one of the researchers actually owned a cat who loved eating marshmallows. So were there any exceptional cats, able to taste sugar? - Probably not. The DNA sample of the marshmallow-loving cat turned out to be just the same as all the other cats. The researchers guess that the cat was attracted to something other than the sweetness of marshmallow, perhaps its fat content.

No matter how much we may wish to make our feline friends happy with something sweet, we're really just projecting our human ways of experiencing things onto the cat. So, don't feel guilty about eating some chocolate in front of a hungry-looking cat on campus. What he's really after, is your tuna sandwich.

8 BASEBALL

I should start by saying I am not a native of Colorado, but I moved there in 1990, and, always a baseball fan, I was thrilled when it turned out that Denver would get one of the two expansion teams, the two new teams, in the league, the other one being the Florida Marlins.

The article you have read is very interesting, and of course scientists, especially physicists, have started to study Coors Field and high altitude. The Colorado Rockies became, I believe, the first team to have 4 players on their team hit 40 home runs or more in a season.

Pitchers, good pitchers, who would come to join the Rockies would stay for a year or two and then flee- they would run, they would go anywhere in the country, even Cleveland! ...I guess that I shouldn't say that, but, OK, Cincinnati.

Does the high altitude matter? Well, I think the conclusions you see in your article are that “maybe a bit but not so much.” For the last 10 years this has just been a team that was not very good.

It’s been great to go to games here. There’s a discussion among Americans here, especially: Is Japanese baseball different than American baseball? What is so different is the intensity of the fans. The cheering. My son and I have been to one game in Yokohama where we could only get seats in the Seibu section. And we almost went deaf.

I don’t know if baseball is the kind of sport that is so exciting, all the time...but you don’t see that in America. Especially, the farther you go west in America. Yeah, Los Angeles, for example, is famous for the fans coming in in the second or third inning, they come late, they leave early, they eat sushi, they drink beer, they talk to their neighbors- then they might look at the game and say, “Oh, yeah, what’s happening, what’s the score? In Japan it seems like there is at least a large group of fans that focus on the game, that knows what’s going on.

I’ve been to Jingu stadium and the Tokyo Dome and the stadium in Yokohama. Jingu stadium is a very special place because it’s a nice small stadium. I was there, actually, for a Todai game against Keio in September of 2004. Um, and there I first, my first encounter with Japanese baseball, with cheerleaders! Men and women on both sides cheering and cheering. In the sixth or seventh inning it was 0 to 0, I said “are we lucky!” By the seventh inning it was 1-0 Keio. And by the eighth inning, it was 17 to 1, Keio. But the fans for Todai kept cheering, and the cheerleaders kept cheering, and at the bottom of the ninth inning with 2 outs, 18 to 1, Keio ahead of Todai, Todai’s last batter up, the fans and the cheerleaders for Todai were cheering as loud as if it was the first inning! I was stunned, my son and I were stunned with some other friends, we were stunned. And when the last batter hit the ball and it popped out slowly, the ball came down, the Todai cheerleaders went like this: “uhhh”- as if they really had a chance, if that guy’d gotten on hit, they really would’ve had a chance to win the game.

Um, here, if a player has trouble, the pitcher is getting in trouble, you might hear some grumbling, but there are those Seibu fans, still cheering on their pitcher-who is now yanked from the game after giving up 5 runs and only 2 outs, and is terrible! I’m sitting there saying “Get this guy out of there!” but the Japanese fans are very courteous. Boy, if that guy was pitching in the United States, he would hear the boos! He would be called a bum! People would boo and yell at the manager “What are you doing! The guy’s a bum! He’s terrible! He always does this!”- even if the guy, the day before, had pitched great... The poor guy. You’d just hope that his mother is not watching.

9 SOUND

The Loess Plateau is located in the mid to upper region of the Yellow River in China. The Yellow River really does turn yellow as it flows through this region, mainly because this area has very little vegetation-few trees and not much grass either-and so there is extreme soil erosion. This photo of the Loess Plateau was taken from an airplane. It's hard to imagine that this area was entirely green 2000 years ago or so. But some recent research in historical geography has shown that in fact the Loess Plateau was once an area of gentle rolling hills covered with grasses and forests. At that time, the steep valleys and the soil erosion we can see here hardly existed. No doubt it was human activity that deprived this area of its greenery and triggered the soil erosion.

But the human activity in the area is creative as well as destructive. There is some marvelous life and culture in this dry yellow land today. For example, this is a cave dwelling typical of this region, a Yaodong. The labor required for building these houses is known as “本月果多”, and there is a system of exchanging labor among the residents of the local community. The community is also distinguished by its traditional flute music. Live performance of this improvisational music is particularly important at weddings and funerals. In 楊家溝村, a village of about 1200 people where I conducted some research, there are about 10 semi-professional flute players. These musicians can inhale from their nose and exhale from their mouth at the same time; a highly skilled technique that enables them to produce sounds continuously for a long time.

In terms of average income, this area is considered to be the poorest in northern China. But at the same time, the life of the people here has its own richness, visible in its colorful life and culture. It is true, though, that the kind of “modernization” which does not value this dimension of people's cultural life is also moving into the area. As modern elements are introduced into the area, the deterioration of ecological-environment and the loss of unique cultural resources are picking up speed.

I am involved in a group project that is attempting to recover and preserve the ecology and culture of the Loess Plateau. This project is based in 榆林学院, a local university and relies on fieldwork in the local villages. The project is trying to identify a new way of living for the people here that could combine their traditional lifestyle with up-to-date environmental technology. Specifically, we are trying to introduce an efficient production system that uses organic fertilizer, encourages the community shrine organizations to plant more trees, and reevaluates the area's

cultural resources.

This photo commemorates a memorable event in the life and work of the project. In January 2004, a wedding ceremony was conducted in the village for a Japanese couple, using the traditional style of the pre-revolutionary period. For me, the 4 handsome villagers carrying the bride's chair here express the quintessence of the Loess Plateau farming culture. We are participating here with the villagers in the process of redirecting the local perspective back towards their own cultural heritage and to their connections with each other. By so doing, we are also exploring the significance of utilizing and activating the social and cultural resources that have built up over time in this dry but fully vital land.

10 EMPIRE

In the reading material for today, the geographer Yi Fu Tuan introduced us to some interesting connections linking Victorian England and the Sherlock Holmes stories. Perhaps it's not surprising that Conan Doyle's London became a part of the fictional world of Sherlock Holmes. What probably is surprising, though, is that eventually the fictional home of the fictional Sherlock Holmes ended up becoming a part of the real London. As any fan of the Sherlock Holmes stories will be able to tell you, from 1881 to 1904 the great detective was supposed to be living and working at 221B Baker Street, even though in the real London of the time, there was no such address. 221B Baker Street did not exist. Over the years, however, the non-existent address became so familiar to so many thousands of readers that it started to take on a kind of reality. Even today, as many as fifty letters a week are sent to "Mr. Sherlock Holmes" at "221B Baker Street." And those letters eventually get delivered here, to the Sherlock Holmes Museum.

One of the many roles a museum is expected to play today is as a source of true and authentic information. Generally speaking, people take it for granted that a museum is a place where "real" things are stored and displayed, whether those things are artworks or historical artifacts or scientific specimens. People go to an art museum and queue for hours to see an authentic Picasso. They'd feel very upset if they found out that they'd stood in line to see a Picasso that was just a reproduction or even a fake.

Although it's devoted to a fictional character, the Sherlock Holmes museum does present its visitors with many "real" items. On the second floor, visitors can step into a study and see many genuinely old and interesting items: an armchair, a magnifying glass, a calabash pipe, a violin, and

various pieces of laboratory equipment.

So in this way the museum offers its visitors a lot of “real” objects that readers of the Sherlock Holmes’ stories would readily recognize. At the same time, the reason that the objects are in the museum is that they allow visitors to imagine they were once used and owned by fictional characters. In this sense, the objects on display cannot possibly be real or authentic. Holmes never sat in this armchair. He didn’t smoke this pipe or play this violin. And these handwritten notes were definitely not written by Dr. Watson. Everything in the museum is an illustration or an enactment of something from the text.

The exhibit at the Sherlock Holmes Museum, then, is simultaneously authentic and inauthentic, real and unreal, true and untrue. Most visitors probably realize this and are not at all confused. They enjoy seeing the various objects and the “Victorian” policeman at the door. They even get the chance to imagine that they are the “real” Holmes by sitting in his armchair and pretending to smoke his pipe. All of this provides the visitors with a momentary illusion of authenticity – the feeling that they are finally experiencing the world of Sherlock Holmes, “for real”.

11 ART

The French artist Marcel Duchamp is widely considered to have been one of the most important figures of the twentieth-century art world. One of his unique creations is the work known as “The Large Glass,” or “The Bride Stripped Bare by Her Bachelors, Even.” The ideas embodied in this work were conceived in 1913. The actual creation of the piece began in 1915 and continued until 1923. “The Large Glass” is basically an oil painting made on two panes of glass, but it also incorporates materials such as lead foil, fuse wire and dust, and has a silver coating.

You might think that to see “The Large Glass” for yourself you would have to make a special trip to Paris, or New York. But actually, all you have to do is walk across campus to the Komaba museum, located next door to the administration building. The version on display at the Komaba museum is not the original “Large Glass” made by Duchamp. But it is a very faithful reproduction of the original, based on Duchamp’s extensive notes about the work. In fact, the “Large Glass” at Komaba is in some ways the closest we can get to the original today, as Duchamp’s 1923 creation, now stored in the Philadelphia Museum of Art in the United States, has had both panes of glass broken. How did this faithful reproduction come about? Well, in the 1970s, some artists and scholars in Tokyo decided to recreate Duchamp’s work. Among them was Tetsuo Iwasa, who at the

time was a graduate student and is now a professor of French language and representational studies at Komaba. This team of scholars and artists carefully studied all the available information. It was a huge challenge to try to recreate the 1923 original. There was only one photograph available to them that showed what the work had looked like before it was damaged.

From 1978 to 1979 they studied the work intensively. They carried out intensive research, drafted the design, and spoke with many people who were familiar with the original. They took great care to get exactly the right colors and to attach the wires to the glass in precisely the same way that Duchamp had done. It was a very time-consuming process that required, close attention to minute details.

Finally, Duchamp's "Large Glass" was successfully recreated, thanks to the passion and energy of a group of young artist and scholars. Not surprisingly, it came to be regarded as an extremely important work in the contemporary art world, because such a faithful recreation of Duchamp's work required not only considerable technical expertise but also a thorough understanding of his complex and difficult philosophy. Today, with the recreated "Large Glass" a permanent part of the Komaba museum collection, the museum is well-known among Duchamp fans all over the world.

Situated in the center of the museum, "The Large Glass" is usually surrounded by whatever special exhibit the museum may be showing. This happens because the glass is a permanent fixture of the museum and cannot be easily moved. It makes a rather odd and yet fascinating arrangement, as the work is more often than not combined or juxtaposed with things that seem hardly relevant to Duchamp. But this kind of juxtaposition is also rather exciting, making it possible for visitors to gain a new and different understanding of "The Large Glass" each time they visit a special exhibit.

So, after today's class, why don't you make a visit to the Komaba museum? Take a look for yourself!

12 SCULPTURE

Not so long ago, this was a huge garbage dump. Today, it's a park, 40 times the size of Tokyo Dome. In today's Eigo I video, we're visiting Moere Numa Park in Sapporo, Hokkaido.

Moere Numa Park was created by the famous American sculptor, Isamu Noguchi. Born in the United States in 1904 to a Japanese father and an American mother, Isamu Noguchi grew up to

become one of the most prolific and best-known American sculptors of the 20th century. Here in the Isamu Noguchi Garden Museum in Queens, New York, we can see some of his work with wood, stone, and steel. His sculptures are displayed in such a way as to create a calm and serene atmosphere, even in the middle of this industrial neighborhood.

Isamu Noguchi wanted art to be an integral part of daily life. Many of his works were designed to be placed in office buildings, airports, and other public spaces. He also created play-sculptures such as slides because he wanted to give children the chance to experience art with their bodies-not just as something to look at, but as something 3-dimensional that they could run around, and play on.

Of course, it's not only children who have fun interacting with Noguchi sculptures. Here are some Todai professors enjoying Noguchi's "black slide mantra", which is located in Odori Park in central Sapporo.

Moere Numa Park, too, is an embodiment of Noguchi's interest in gardens and in public art. Noguchi chose this former waste disposal site for the park because he said he wanted to bring back to life a piece of land that had been damaged by human beings. At the center of the site he placed a very tall mound 62 meters high, known today as Moere Yama. Across from Moere Yama there's a 30 meter-high play mountain, a pyramid-shaped mound with stone steps running all the way up one side. The park also contains several other pyramid-shaped structures. Here's one. And here's another. This one is made of glass and houses a small gallery and a restaurant. These triangular structures seem to interact with each other in a kind of dialog. In the summer, the sculptures and structures contrast beautifully with Sapporo's blue sky and green grass, and in winter, they are wrapped in a deep white snow.

Moere Numa Park was Isamu Noguchi's final project. It's very popular, attracting visitors not just from Sapporo, or even Hokkaido, but from all over the world. Still, the park is so spacious, that it's hardly ever crowded. Even on weekends, there's still a plenty of room for everybody. Children run up the Moere Yama to run, roll, or tumble down its sides. Or grown-ups jog, stroll, or just lie on the grass and take a nap beneath the trees. In the course of enjoying their day out in the park, everyone naturally sees, touches, and enjoys dozens of Noguchi artworks of all different sizes. In that sense, Moere Numa Park embodies Noguchi's desire to integrate art and nature in the creation of welcoming public space.