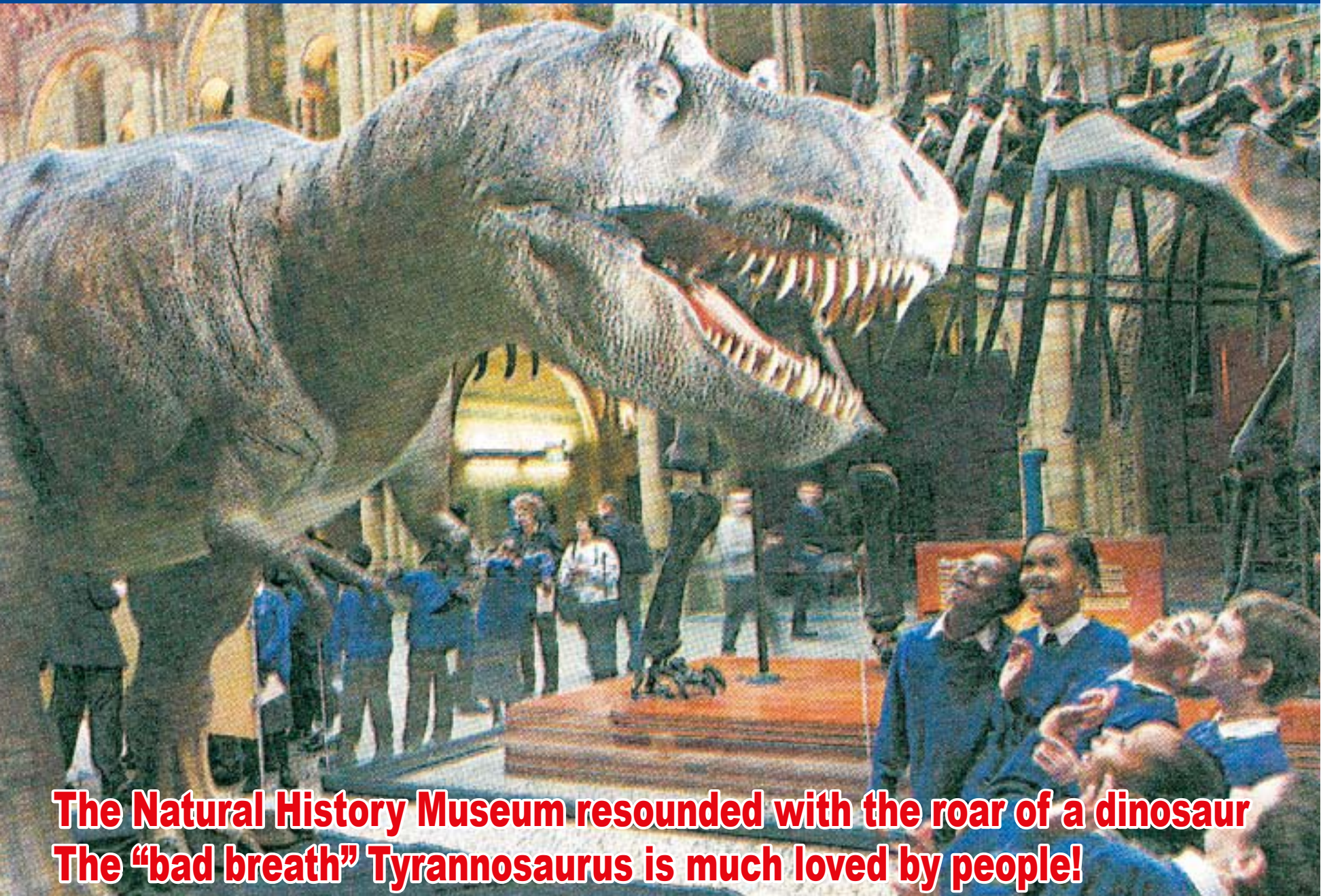


KOKORO NEWS

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**The Natural History Museum resounded with the roar of a dinosaur
The "bad breath" Tyrannosaurus is much loved by people!**

A giant dinosaur appeared on the front page of various newspapers in the U.K. on February 7, 2001. The dinosaur which captured the hearts of visitors to the museum was Kokoro's animatronic Tyrannosaurus, one of the top stars among our products.

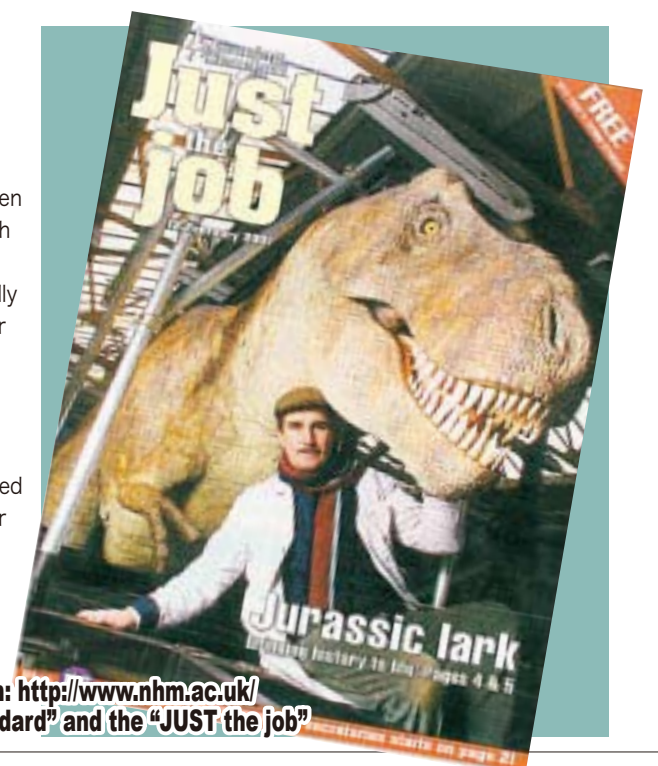
The NHM has been exhibiting a lot of Kokoro's animatronics so far as our agent in Europe. Dinosaurs are the most popular among them and approximately 100 animatronics are exhibited in Europe.

The Tyrannosaurus in the photos is the latest dinosaur robot with a body length of 6.5m which has been scaled up equipped with the air servo system developed by Kokoro. In addition to the towering giant body and more powerful movements than ever, "dinosaur's bad breath" developed by the NHM was added to the dinosaur robot. With its overwhelming punch, this "giant and smelly" Tyrannosaurus satisfies even discriminating dinosaur fans who have seen a lot of dinosaur robots in many scenes. Its dynamism can be seen even from the photos, like roaring at visitors with its mouth wide open and letting out its bad breath when visitors approach it.

At first, it was exhibited in the entrance hall of the NHM for only a limited time in 2000. However, it gained unexpectedly so much popularity that the NHM had a flood of inquiries asking "Where has the dinosaur gone?" when the dinosaur robot was removed for the next exhibition. Therefore, they decided to exhibit it again in the hall of the NHM after the exhibition was over and it returned to the NHM.

As soon as the "Return of Tyrannosaurus" was broadcast, the hall got flooded with a lot of visitors. They cautiously approached the dinosaur, and then screamed and pinched their nose when it roared at them. It caused an unusual situation where as many as 140 thousand people rushed to the NHM and there formed a huge crowd which extended to the nearest subway station. This fuss also made the news and was covered by the media. After that, the dinosaur robot was moved to the dinosaur exhibition room in the NHM and has been and is playing an active role there.

The faces of visitors who are looking up to see the Tyrannosaurus are filled with surprise and laughter. Kokoro's exhibit can move the heart of children. Kokoro keeps trying to make an impression on people in various forms.



Website of the Natural History Museum: <http://www.nhm.ac.uk/>
The photos are from the "Evening Standard" and the "JUST the job"

Science exhibitions appearing in domestic cultural facilities one after another

Though child, it's giant! "Brachiosaurus" towering in the hall Saku Children's Science Dome for the Future (in Nagano Prefecture)

Brachiosaurus which towers in the stairwell is a very tall dinosaur. Visitors can see its face only from the second floor. It's still a child in spite of its giant body.

Brachiosaurus standing magnificently in the fractal tower area, which is the center part of the Saku Children's Science Dome for the Future, is so tall that visitors cannot see its face very well even if they look up. It's 6m high. It's still a child in spite of its giant body.

It's surprising that you can approach it and touch its legs and tail, but even more surprisingly, it is equipped with a realistic device by which you can hear heart sounds of the dinosaur. If you go up to the second floor, you can see the dinosaur up close and also hear the roar of it.

The facility aims to make everyone realize the wonder and importance of life, featuring the basic theme of "Creation for the Future" ~ Evolving Universe, Earth and Life ~. Brachiosaurus was introduced into the facility as an exhibit to represent the greatness of life by its giant body and the life force by its breathing and heartbeat.

Children throw their arms around its leg and look up trying to see its face. They seem to be receiving a message which cannot be conveyed by words through this simulated experience in which they can directly touch the dinosaur and hear its heartbeat.

For further information, please visit the website of the Saku Children's Science Dome for the Future (in Japanese only)
<http://www.kodomomiraikan.city.saku.nagano.jp>



Exhibit construction by Total Media Development Institute Co., Ltd.

Realistic movements and unique talks Talkative Tyrannosaurus appeared! Kyoto Municipal Science Center for Youth (in Kyoto)

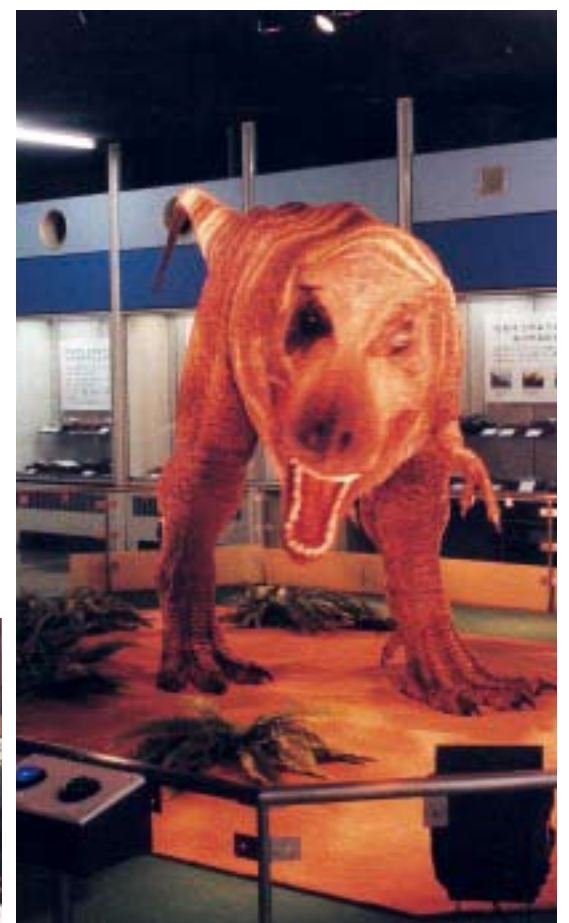
A meat-eating dinosaur "Tyrannosaurus" came to life in the Kyoto Municipal Science Center for Youth. It is gaining high popularity not only as a dinosaur which can make realistic movements but also as a unique "talking dinosaur" which can give commentary by voice.

The Tyrannosaurus which is playing an active role in the center of the first exhibition room in the Kyoto Municipal Science Center for Youth is a realistic animatronic dinosaur which the latest features are incorporated in. It was set up in the science center as an easy-to-understand permanent exhibition of ecological restoration. As it was built under the supervision of Professor Takeshi Setoguchi of Kyoto University, its appearance and movements were re-created almost exactly based on academic information.

This animatronic dinosaur has another original performance. That is, the Tyrannosaurus itself gives commentary to visitors, talking about ecology of dinosaurs. Visitors can choose between "Chat Version" and "Real Version" by pressing either of the two buttons.

After experiencing the overwhelming threat of the dinosaur, visitors can learn about dinosaurs by listening to the dinosaur's talk. Thus, this dinosaur exhibition is playing a diverse role.

Kokoro has created a lot of dinosaurs so far, but surprisingly, a talking dinosaur with life-like appearance was the first attempt for us. Also, the delicate movements, seeming to express its feeling, were brought to realization by our air servo system which can control minute movements.



For further information, please visit the website of the Kyoto Municipal Science Center for Youth (in Japanese only)
<http://www.edu.city.kyoto.jp/science/>

The “dinosaur” - witness of the historical earth The grand monuments representing the blessing of heaven and earth Hikaru Memorial Museum (in Gifu Prefecture)

Kagasaurus, which swaggers about on the ground, and Sugiyamasaurus, which eats plants elegantly, are two representative Japanese dinosaurs.

They stand on the ground of Hida Takayama as witnesses of the history of the Japanese archipelago.

Hida, where the oldest fossils and rocks in Japan were found, is believed to be the birthplace of Japan. It can be said that the history of Japan is concentrated in this area. “Kagasaurus” and “Sugiyamasaurus” were selected as witnesses of the history to stand in this area.

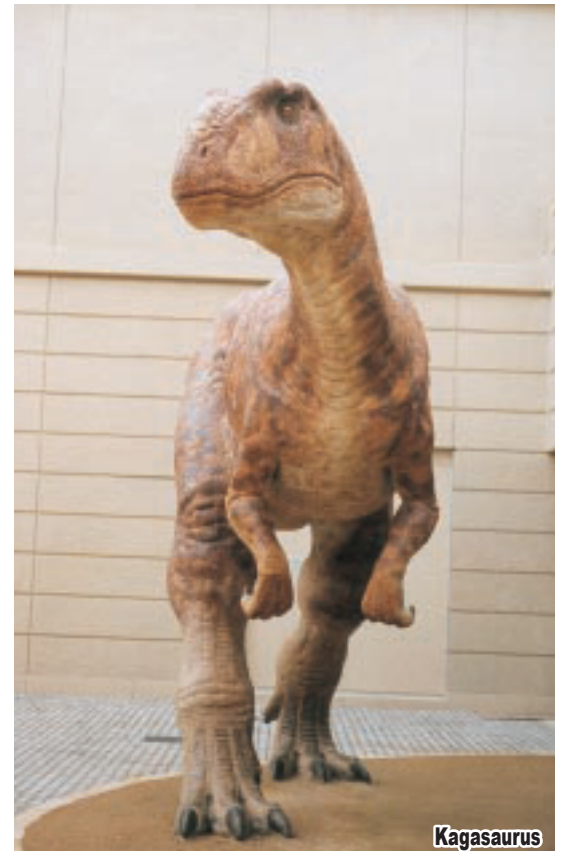
The Hikaru Memorial Museum suggests the principle of “The origin of the earth is one, the origin of the world is one, the origin of all mankind is one and the origin of all the religions is one”.

The two life-size dinosaur statues were placed in the outdoor exhibition area of the museum to introduce the history of life in Hida. They tell the history, feeling nature of Hida in the rain and under the sunlight.

For further information, please visit the website of the Hikaru Memorial Museum (in Japanese only)
<http://h-am.jp/index.html>



Sugiyamasaurus



Kagasaurus

Academic consultant: Takashi Hamada (Professor at the Open University of Japan / Director of the Fukui Prefectural Dinosaur Museum / Professor Emeritus at Tokyo University)
Delivered to Takenaka Corporation and TANSEISHA Co., Ltd. (in charge of exhibit production)

Easy-to-understand exhibits to show complicated mechanisms of whales' jaws Structure models of jaws of a minke whale and a killer whale National Museum of Nature and Science (in Tokyo)

Jaws of a minke whale make complicated 3-D movements. We succeeded in creating an easy-to-understand exhibit to show the complicated mechanisms of jaws by actually moving a skull of a whale.

A skull of a minke whale looks very slim and simple for its appearance, but its jaws make really complicated movements. During part of the open/close process, it shows complex changes such as twisting its lower jaw outward and the supporting point of jaws moving back and forth. Though it's very difficult to explain the mechanisms, they are definitely very interesting events.

This exhibit was created based on the concept that we can make the exhibit the most easy-to-understand and attract the most interest of visitors by actually moving a skull of a minke whale. The production staff of Kokoro, who were permitted to observe the actual cutting-up work of a whale and received an explanation about it, tried their best to understand and re-create the complicated mechanisms of jaws.

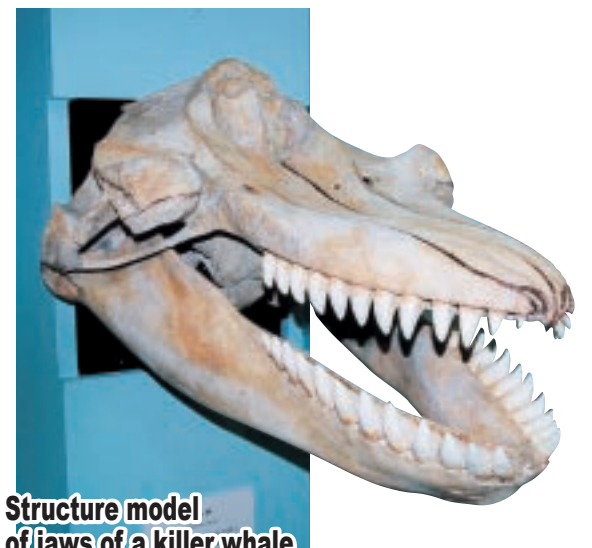
You can see this minke whale in the area displaying sea creatures on the 1st floor of the new annex of the National Museum of Nature and Science. As an exhibit for comparison, a structure model of jaws of a killer whale (which eats whales) is also displayed in the same area.



Movements of jaws of a minke whale



Structure model of jaws of a minke whale



Structure model of jaws of a killer whale

For further information, please visit the website of the National Museum of Nature and Science
<http://www.kahaku.go.jp/english/>

Special topics on humanoid robots



Kokoro has built a lot of humanoid robots so far. Most of those were custom-made products. The secret of popularity of humanoid robots is the user-friendliness. Some real-life examples of use of such robots are introduced here.

Story tellers in the image theater

"Image theaters" are adopted by various facilities as basic exhibits. In these theaters, images are projected on large screens. "Humanoid robot" story tellers help to add entertainment elements to images which play a role of giving commentary to the audience. Normally, the audience tend to feel the distance between the images and themselves. But the robot story tellers assume the role to interface the images with them and bring them smoothly into the world of images.

"Theater of Tottori Nijisseiki Pear Story"

in the Tottori Nijisseiki Pear Museum (in Tottori Prefecture)

A friendly couple of farmers add realistic sensation to reminiscence scenes.

The audience enter the room which is re-creating a peer farmhouse in the early Showa period with a great deal of atmosphere and sit on seats in the earth floor. There they trace the history of Tottori pears together with the couple of farmers who are continuing their work.

The show revolves around the recorded images projected on the large screen. The farmhouse has been always the center of the history. The couple who are residents of the farmhouse talk during reminiscence scenes, which gives realistic sensation to the story.

Delivered to TANSEISHA Co., Ltd. (in charge of exhibit production)



For further information, please visit the website of the Tottori Nijisseiki Pear Museum (in Japanese only) <http://1174.sanin.jp/>

Characters in the realistic diorama

A "diorama" is an exhibit to re-create a specific scene or a landscape. With life-size characters moving, the authentic-looking effect can be added to it. Such diorama has realistic sensation which can attract the audience. It's exactly a virtual space.

Fascinating dialect words soft on the ear.

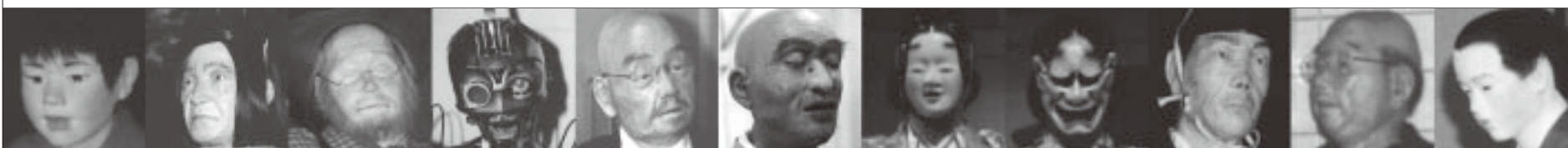
"Story-telling Old Man and Woman"

in the Sado History and Traditional Museum (in Niigata Prefecture)

A buzzed old man and a dozy old woman with a cat on her knees are having an idle talk as usual sitting near the irori fireplace. They tell an old tale in the fascinating Sado dialect in a relaxed mood. It's the heartwarming diorama with a great deal of atmosphere. The calm old man and woman remind us of old days when we heard old tales from our grandparents in the country.



For further information, please visit the website of Sado History and Traditional Museum (in Japanese only) <http://www3.ocn.ne.jp/~srdk/>





Re-creation of actual persons

There are few methods to re-create the figure of an actual person of the past especially when there is little remaining data about the person. It would be really nice if we could see well-known persons of the past acting in famous scenes before our eyes for real as if getting a glimpse of a page of history. Kokoro's "look-alike robots" which resemble actual persons are widening their sphere of activity based on clients' request.

The atelier of Monet, the impressionist-maestro ————— Takuboku Ishikawa Museum (in Hokkaido)

The "Takuboku Nostalgic Theater" is re-creating the scene in which Takuboku was teaching in his classroom at Yayoi Elementary School in 1907. You may feel like as if you were sitting in the back of the classroom when you listen to his talk about poems and Hakodate, the town which he loved most. The life-like robot reminiscent of the young Takuboku is attracting attention by its sophistication as well.

For further information, please visit the website of the Takuboku Ishikawa Museum (in Japanese only) <http://www.romankan.com/takuboku/>



The atelier of Monet, the impressionist-maestro ————— Garden Museum Hiei (in Kyoto)

The "Garden Museum Hiei" opened at the top of Mt. Hiei in April, 2001. It is a garden museum with a motif of French impressionist works. In the guidance room, the atelier of Claude Monet, the impressionist maestro, is re-created with a humanoid robot of Monet which talks about his past in front of the canvas. With flashback-like projected images and the melody of an automatic playing piano, fascinating time is created in which visitors are encouraged to give more than a passing thought to past impressionist artists with Monet.



For further information, please visit the website of Garden Museum Hiei (in Japanese only) <http://www.garden-museum-hiei.co.jp/>



Harmony of music and robots

Music is one of the important elements of a show. Kokoro gave the talent to play music to robots. Kokoro's robot musicians are playing active roles with their performance combined with music.

Automaton conductor who can manage water

"Carillon telling the hour", Kawaguchiko Music Forest Ukai Museum (in Yamanashi Prefecture)



An antique hall stands by a lake. When a uniformed officer doll appears from the terrace, the fountain show which tells the hour starts. The bell is beaten, music is heard and the water goes up in accordance with the doll conductor. Visitors can enjoy such dreamy time every hour.

For further information, please visit the websites of the Kawaguchiko Music Forest Ukai Museum (in Japanese only)
<http://www.fujigoko.co.jp/kawaguchiko/ukai.html>
<http://www.kawaguchikomusicforest.jp/>

"Play and sing" by a lily robot pianist

Showroom in the factory of Tamanoi Vinegar Co., Ltd. (in Nara Prefecture)

In the showroom of Tamanoi Vinegar Co., Ltd., product introductions, which tend to be stereotypical, are made sophisticatedly with "play and sing" on the piano.

A female-type robot is used to serve as a tough pianist who gives many performances a day despite her lily appearance.



For further information, please visit the website of Tamanoi Vinegar Co., Ltd.
<http://www.tamanoi.co.jp/english/index.htm>

Robot entertainer

In the show stages, the showy and amusing makeup, including rhythmical narration and artful performance, attracts the audience's attention. The robot entertainer "S-doll" helps the stages as a versatile partner.

Sing and dance! The rap robot!

NEC booth at SVIAZ/EXPO COMM (in Moscow)

S-doll appeared in the NEC booth at SVIAZ/EXPO COMM held in Moscow in May 2001 as a "Rap DJ robot". It exhibited its rhythmical DJ talk and cool dancing and was introduced as a unique robot.



Let's talk with a robot!

(Joint project with CyberAgent Investment, Inc.)

Kokoro and CyberAgent Investment jointly released voice interaction robots "S-doll" and "Allosaurus" in February 2001. They have been attracting a lot of media attention and receiving numerous inquiries so far. At the press launch, S-doll acted as a hotel staff member dressed in a black tuxedo. Equipped with a voice interaction system "Voice Talk" developed by CyberAgent Investment, it demonstrated voice interaction with the audience.

Voice Talk is under further development as a more humanlike and emotional voice interaction system.



For further information, please visit the website of CyberAgent Investment, Inc.
<http://www.cai.co.jp/english/>

Also good at playing a comedy! S-doll as an actress!

"Banyu 21st Museum of the Wonder of Bones" in the "Exhibition of Dream Technologies for the 21st Century" ("Yume Tech")

S-doll helped the stage show at the booth of Banyu Pharmaceutical Co., Ltd. in "Yume Tech" held in the summer of 2000. In the comical show with large-screen images, it acted with an absent-minded doctor and an assistant (human actors) playing a character of a reliable female-type assistant robot.



Exhibit construction by DENTSU TEC INC.

Introduction of new overseas planning exhibitions

Great white shark



Experience the horror biology of predators!

“Predators”

from UK

The giant spider attacks a girl!? The special exhibition was held from July 2001 to May 2002 in which visitors were able to experience the horror biology of creatures in a life-or-death battle.

Special exhibitions held by the NHM are gaining worldwide attention every year. Among them, the blockbuster exhibition “Predators” was held from July 2001 to May 2002 featuring three new animatronics as main exhibits.

The new animatronics were equipped with interactive functions which are popular with children to experientially tell the contents such as surprising attack by predators and clever defense by the prey. The main focuses of interest were the giant spider in the nest which sensed the visitors and made a threatening action to them, the giant chameleon which were able to operate the eye movement and the shark which swam eerily.

Upper right/ Animatronic Jackson's Chameleon (from the Independent)
 Lower right/ Animatronic Sydney funnel-web spider (from the Independent)
 Lower left/ The giant spider and a girl (from the Times)



The latest dinosaur exhibition themed on talked-about “bird-type dinosaurs”

“DINOSAURS TAKE WING”

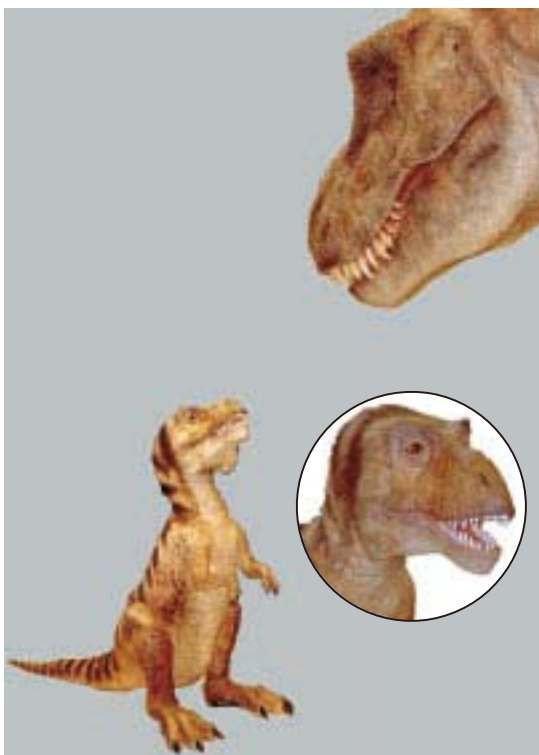
We re-created the feathered Velociraptor in the form of animatronics! “DINOSAURS TAKE WING” is a planning exhibition by Dr. Kenneth Carpenter at the Denver Museum of Nature and Science.

from USA

The doctrine that dinosaurs were the ancestors of birds has become standard in the field of paleontology but it is still unfamiliar to common people and thus the novel theme to be taken up. In the exhibition, the feathered appearance of the dinosaurs which were supposed to be the ancestors of birds was very sensational.



Velociraptor covered with feathers



Baby Tyrannosaurus feathered like a baby bird



Oviraptor incubating like a bird