

GENERAL SCIENCE

New Life for Museums

With new materials, museums and zoos are now creating wondrous exhibits of plants and animals, men and machines, atoms and the universe.

By BARBARA TUFTY

► WITH A REVOLUTION that is quietly sweeping the world, scientists are blowing off dusty cobwebs, removing rusty show-boxes and lighting dark corners in spectacular renovations that are brightening up some of the deadest and most depressing places in the world—zoos and museums.

Scientists and administrators of some of the oldest institutions on earth are fired with new energy and funds to change their treasure houses from repositories of unused dust-drenched collections into fascinating expositions of entertaining education, truth and beauty. Here people can learn about everything from sex to rock crystallization, from the roar of the orangutan to the unheard squeak of the bat, from ancient man's crude clay pots to gleaming Mercury capsules.

More important, attention is also being focused on strengthening vital basic research behind the scenes of the more glamorous expositions.

A significant example of the growing interest in this field is the proposed National Museum Act of 1965, now before Congress, authorizing the U.S. National Museum of the Smithsonian Institution in Washington, D.C., to coordinate programs of training, research and publications of museums throughout the United States.

"This bill," said Dr. S. Dillon Ripley, Secretary of the Smithsonian who is urging its passage, "will give legislative recognition to the cultural, educational and scientific significance of the nation's museums."

The word museum came originally from the Greek word, *mouseion*, which meant a sanctuary dedicated to the Muses of Greek mythology, a place of inspiration or learning. One of the earliest medical museums existed in 330 B.C. in Alexandria, city port of ancient Egypt.

Early Curio Cabinets

Museums as we know them in the Western world today began in Italy during the 16th century Renaissance, when affluent noblemen first brought their paintings, stuffed birds, rare dried plants, old coins and other curiosities out of family vaults into more accessible curio cabinets. It took the upheaval of the French Revolution to propel odd family collections out of the homes of the rich and into public houses where the populace could stare at them.

Museums were long considered in the United States as "depositories of curiosities to amuse an idle hour." They often were gloomy affairs, lined with cases of stiff stuffed animals that would repel almost any

person with a love for life and the natural beauty of living creatures. Only the dedicated scholar or the brave, curious soul would remain in these twilight mausoleums to examine silent collections of dusty meteorites, rodents with stuffed eyes, yellow elephant tusks or impaled beetles.

Wonderland of Senses

All this has slowly been changing into a wonderland of touch, sight and sound created by top talent of electronic engineers, sculptors and designers, plus the steady authenticity and careful persistence of scientists and scholars.

Buckets of bright paint, molds of life-like plastics, bold techniques of modeling and architecture have brought new life to old institutions. With the use of animated cartoons, blinking lights and revolving parts, with lucite, plastic and wire for models, with carefully assembled animals in natural habitat, the imagination and curiosity of the public today is captured as never before.

For the first time, museums and zoos now compete successfully with baseball, football, movies and television. The world's most heavily attended museum, the Chicago Museum of Science and Industry, last year counted 2.9 million visitors—two-thirds of whom were adults. This figure topped the

combined figures for Chicago's two baseball clubs, pro football and hockey clubs.

Today people can stroll along tree-shaded lanes outside New York City and suddenly find themselves staring into the yellow eyes of a real live lion only a few yards away, unimpeded by bars or cages and separated only by a moat or ditch that keeps each to his own territory.

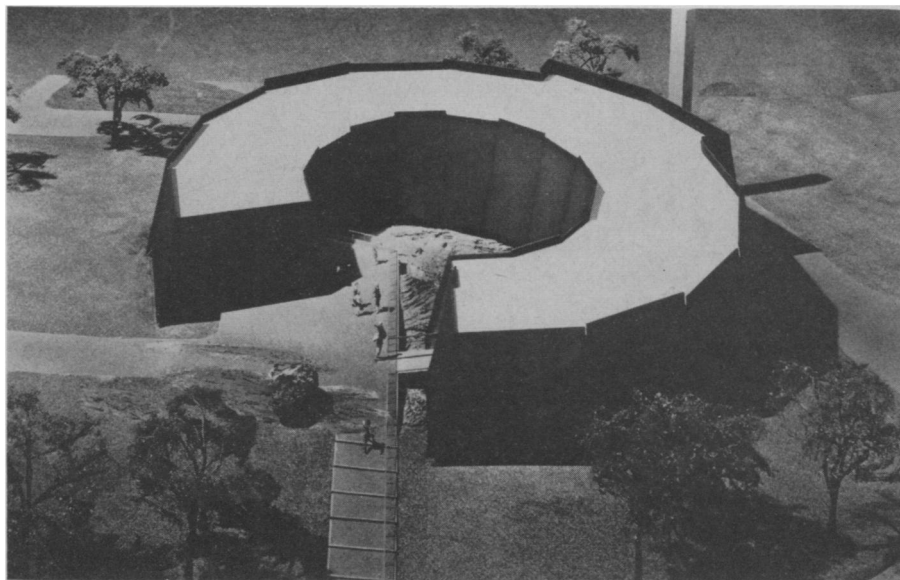
Or in Washington, D.C., they can walk into a soaring high-arched aviary covered with vinyl mesh—an enchanted world of plants, waterfalls and free-winging birds such as flamingos, ospreys and bright-feathered ducks.

At a new aquarium near Niagara Falls, N.Y., rare and fragile marine animals and plants thrive in a balanced system of prepared ocean water, in sparkling contrast to the dismal, murky green tanks one used to see in conventional zoos.

In New York City, a huge, softly glowing three-dimensional glass fiber model reproduces the cell, basic element of life. Here one can see, magnified 40,000 times, the nucleus with its chromosomes, mitochondria, which are the "power plants" of the cell, and the bead-like ribosomes that are sites of protein synthesis.

See Front Cover

Visitors to the Los Angeles County Museum in Exposition Park also have a new experience in store for them. Installed at the entrance is the thigh bone (seen on this week's front cover) of a giant dinosaur. It serves as a "touch bone" to satisfy the urge to feel a prehistoric monster. The youngsters in the photo are typical of thousands who



WORLD OF DARKNESS—This is a drawing of the Bronx Zoo's World of Darkness, designed by Morris Ketchum Jr. and Associates. This windowless, horseshoe-shaped building will be the first-major exhibit anywhere in the world for nocturnal animals.

have taken advantage of the unusual chance.

In other cities—St. Louis, Cleveland, Dallas, Buffalo, Honolulu and many more—people can watch vital human processes such as blood circulation, nervous system and reproduction cycles in transparent plastic models of a man and a woman. Children can feel the replica of an ear, walk through an immense model of a heart, watch the pulse of an idea in an electrified human brain.

They can push a button to demonstrate the principle of nuclear energy, can walk among simulated planets or touch two-man mobile seacraft that are used in exploring the depths of the ocean.

For the first time in history, at the New York World's Fair, people can watch a small-scale but actual demonstration of thermonuclear fusion, the violent process that lights the sun and stars.

Much force for this new impetus to brighten museums and zoos and to create spectacular exhibits comes from a healthy growing interest which people, especially the young in spirit, are taking in the world and universe around them. Not only are young persons able to obtain fuller reading material from libraries and better information at schools but they are being encouraged to do things for themselves, to use their hands and heads in individual projects such as identifying fossil bones, building a musical computer or analyzing what makes roses red and violets blue.

During the last 30 years, science fairs and youth exhibits have mushroomed in all soils and climates until today children in many schools, counties, states and nations take part in creating scientific projects and finishing them for exhibition. Last spring, the National Science Fair-International in St. Louis, sponsored by SCIENCE SERVICE, had 418 exhibitors from 5 nations besides the United States—Japan, Sweden, Israel, El Salvador and Canada.

Wildlife Protected

Another new role museums and zoos all over the world have acquired is that of protecting animals from becoming as extinct as the dinosaurs. As man's civilization spreads and vast wildernesses are conquered with cities and tractors, many wild animals are heedlessly slaughtered or die from lack of food and uprooting of their natural homes.

Today international organizations recognize this wildlife crisis and are undertaking to assemble and manage herds and flocks of vanishing species for reproduction and preservation. They are establishing an "animal bank" system for keeping and transferring animals between zoos of different nations. They are encouraging local zoo keepers and naturalists to set up "modern arks" of game farms and land tracts, often far away from the general exhibition area, to preserve living creatures for future generations.

Already many shy wild animals that otherwise would be becoming extinct are thriving in these open-air museums—the Arabian oryx, Pere David's deer, the okapi and the Indian rhinoceros, among others.

• Science News Letter, 88:122 August 21, 1965

CONSERVATION

Plastic Seaweed Helps Build Up Beach Sand

► FLOATING PLASTIC "seaweed" is helping to build up beaches and check erosion along the south coast of England.

The synthetic seaweed, made from strong polypropylene fibers, produces the same effect as natural seaweed in absorbing wave energy.

Strands of it have been anchored to long lines in recent experiments and placed offshore to trap incoming sand from the ocean bottom so that it settles on the beaches.

Using artificial seaweed to stop beach erosion was the suggestion of a Danish fisherman.

During full-scale trials in sheltered Danish waters it was found that sand piled up about a yard in 18 months.

If the new seaweed proves successful, it may one day replace present wooden groynes, the rigid structures built out at an angle from shore to protect it from currents, tides and waves, or to trap sand for making a beach. The groynes, however, trap only sand carried along the coast by currents, thereby robbing beaches farther along.

Tests with artificial seaweed were reported in the New Scientist 27:269, 1965.

• Science News Letter, 88:123 August 21, 1965

PALEONTOLOGY

Sharks Once Roamed Rugged Israeli Desert

► ONE HUNDRED and thirty million years ago sharks may have infested what is now a sweltering desert.

Fossils of four species of sharks, including many teeth from a shark known as *Lamna*, have been found at Arad in the heart of Israel's rugged desert of the Negev. This genus of shark can be found today in tropical and temperate seas.

The discovery of these fossils indicates that this part of the Negev was once covered with a warm sea, reported Dr. M. Raab of the Geological Survey of Israel.

• Science News Letter, 88:123 August 21, 1965

Do You Know?

A puppy taken from the litter after eight weeks of age may be overly attached to his own species and therefore difficult to domesticate and train.

The worst *dam disaster* in history took some 2,600 lives in Italy in 1963.

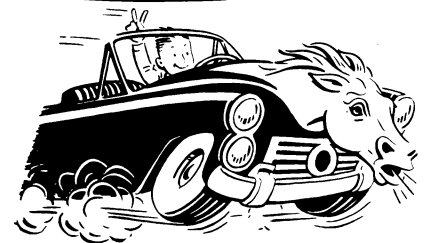
The giant *kelp* is the fastest-growing plant in the world.

The structure of certain *protein* molecules in egg whites, blood and milk are used to indicate evolutionary links among living creatures.

• Science News Letter, 88:123 August 21, 1965

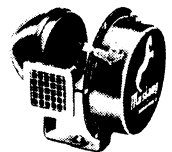
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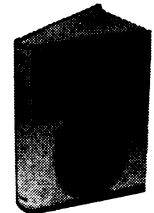
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