ZOOLOGY

Flipper's Diving Safe

Neither dolphins nor hippos are harmed by deep diving, even though heart rates slow down

➤ KIDS, all that diving Flipper does is not hurting him.

Two adult dolphins tested by electrocardiograms showed that although their heart rate while under water was normally about half that on the surface, blood flow in the brain and heart muscle appeared to be sustained.

Slowing up of the heart, called bradycardia, produces vastly lessened blood flow in the internal organs and skeletal muscles in various animals and birds. Two California studies reported in Nature, 212:407,1966, show that neither the dolphin nor the hippopotamus is apparently harmed by diving. Their responses to diving are similar to that of other aquatic animals.

Three researchers from San Diego used a rubber ball attached to an eight-foot pole as a target for the two dolphins, *Tursiops gilli,* studied.

The dolphins, trained by the conventional reward method, were maintained in a round 55,000-gallon tank of filtered seawater, 35 feet in diameter and eight feet deep.

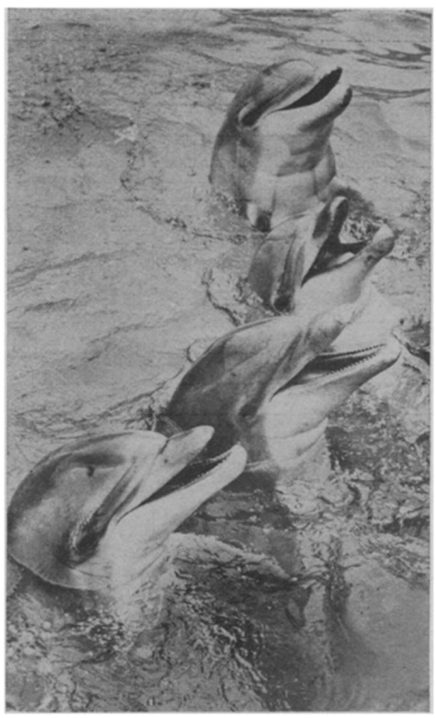
The dolphins were trained to wear a rubber belt containing electrodes for an electrocardiograph. These were attached by shielded wires to an electrocardiograph at poolside. During experiments in which electrocardiograms were obtained, the animals dived on command to a target in six to seven feet of water.

The U.S. Public Health Service supported, in part, the experiments on the dolphins and hippo.

After 10 days of training, a six-month-old male hippo weighing a mere 200 pounds wandered in and out of his pool at the San Diego Zoo with electrodes embedded in rubber disks cemented to his back.

The electrodes worked for about six minutes, but that was enough time for six dives to indicate "profound" bradycardia such as that previously seen in harbor seals.

Dr. Robert Elsner of the Scripps Institution of Oceanography, reported the hippo experiment. He was assisted by Drs. David W. Kenney and Kent Burgess in the dolphin tests, for which the Sea World Oceanarium of San Diego also gave assistance and support.



Life

FROLIC OF A MAMMAL—Bottlenosed dolphins, considered the most intelligent of all primates, with heads perked high above the water, grin happily in anticipation of a fish handout.

TECHNOLOGY

Neutrons Beat X-Rays

➤ DEFENSE scientists in Britain have started work on a new radiation device, using neutrons, which may be more effective than X-rays in the treatment of many forms of cancer.

"We cannot say definitely yet whether it will be a cure, but it looks like a 50-50 bet," said project head James Wood of the Royal Naval Scientific Service, Baldock, England. "It will take about three years to develop a neutron-generating tube with the high power output that is required."

The researchers first produced the simple L-tube, a compact cylinder that produces some 10 billion fast neutrons every second, and lasts for about 100 hours. Now in commercial production the L-tube is being used principally so far to monitor nuclear reactors, but it is also of use to the mining industry for the rapid analysis of ores and metals.

It can analyze the oxygen in steel to a sensitivity of 10 parts per million in less than a minute.

Next came the P-tube, which produces 100 billion neutrons per second. It was developed in cooperation with the Christie Hospital in Manchester for possible therapy for malignant tumors.

The third stage is a still more powerful neutron tube giving 1,000 billion neutrons per second. The Baldock scientists have developed a technique whereby these otherwise dangerous tools can be used safely in industry and surgery.

Describing the neutron tubes as "civilian fallout from defense research," he said the third tube is expected to be compact enough to be installed in an ordinary radiotherapy treatment room.

The neutron generator will be encased in 14 inches of steel with a small aperture for the neutron beam.

Mr. Wood added that high power output was needed so that treatment time could be cut down to a few minutes.

This was the maximum time tolerable to a conscious patient.

Several weeks ago a tube of high power was installed for clinical trials, but it still falls short of the required power output for routine patient treatment. It is being used for studies of cell damage and "depth dose" characteristics.

ZOOLOGY

'Extinct' Parrot Found Living in Australia

➤ A RARE parrot, believed to have been extinct, has been rediscovered on Cape York Peninsula, North Queensland.

A Gould League expedition found the bird, the Paradise Parrot, but is keeping the location secret for fear bird trappers will move in and destroy it.

The red, blue and green Paradise Parrot, *Psephotus pulcherrimus,* is about 12 inches long and nests in termite mounds. Older descriptions of this bird remark that it has a "sweet voice," and flies in a swift and slightly undulating manner. The birds were never numerous, even before the white man arrived in Australia and began to hunt birds for their beautiful feathers. Feeding on seeds of grass and herbs, the birds used to move about in pairs or in small flocks.

The first photograph of these parrots was taken in 1921 in southeastern Queensland. After that the bird was presumed to be extinct, but later, in 1936, a Paradise Parrot was reported seen in a different locality. This was the last hint of the bird's existence until the recent sighting was made in the north.