

University of Washington, discovered when he analyzed high-speed motion pictures taken for him by Dr. A. A. Allen of Cornell University.

A running man swings his legs straight back and forth, but the running basilisk flings his legs out sidewise in a wide arc, more like some of the fancy steps seen in a ballet or in figure-skating, Dr. Allen found. This relatively less efficient type of motion, apparently dictated by the lizard's anatomical structure, makes its high speed all the more remarkable—for the basilisk moves like the proverbial blue streak when it feels the urge for speed.

When it is walking at leisure the basilisk goes on all fours, using its shorter and comparatively feeble forelegs. Sometimes it squats, kangaroo-fashion, on its hindlegs and long tail. But on a split second's notice it can break from a dead standing start into its lightning-like two-legged run.

ENGINEERING

New "Electronic Brain"

► FINAL wraps were removed by the Eckert-Mauchly Corporation from what is said to be the world's second all-electronic automatic computing machine. The new device is smaller in size in comparison with its 30-ton parent, but faster in operation. Its speed and accuracy, 12,000 times faster than a human being, was demonstrated in Philadelphia to a group of scientists and representatives of the press.

The new calculator stands five feet high, four feet long and one foot wide. With its accessories, however, it requires a much larger space. It has been named BINAC, because it uses a binary system. The only other all-electronic computer is the ENIAC, short for Electronic Numerical Integrator and Computer. BINAC was built by the same men who designed and constructed its predecessor for the U. S. Army in 1946. This first BINAC was built for Northrop Aircraft, Inc., Hawthorne, Calif., which will be the first private concern to acquire an "electronic brain." A crew from the California company is now in Philadelphia to learn how to operate the device and keep it in working condition.

Actually twin computers, BINAC has duplicate arithmetic channels so it can check itself at every step. It has also two mercury tube "memories." These hold electric pulses until needed. Each twin of the BINAC has only 700 vacuum tubes, while the ENIAC has 18,000.

At the demonstration there, numbers were selected at random. These were typed on a small keyboard having only eight keys. The BINAC used coded instructions from a magnetic tape to deal with these numbers. Square and cube roots are calculated by it in a fraction of a second.

A human being with pad and pencil can find a square root correct for eight or nine

When it reaches top speed, it is clear of the ground for a short part of each stride, thrusting itself into the air with the final push of its toes and catching its weight on the partly flexed opposite hindleg as it comes down.

The basilisk's long, heavy tail is an important organ in its running, Dr. Snyder discovered. Normally, as it picks up speed, it lifts its tail high, balancing its forward-thrust body.

The balancing function of the tail was strikingly demonstrated when a third of its length was surgically removed from one of the animals. The luckless lizard tried to break into its normal two-legged run, but after only one or two strides had to flop forward. When two-thirds of the tail was removed the performance was even poorer. A full-length tail therefore seems indispensable to the running basilisk.

Science News Letter, August 27, 1949

of International Business Machines Corp., and the Bell Telephone Laboratories relay computer, might be mentioned. There are now other all-electronic computers under development, particularly at Harvard, Massachusetts Institute of Technology, Princeton and the University of Pennsylvania. First place, however, is claimed for ENIAC and BINAC.

Science News Letter, August 27, 1949

ENGINEERING

"Daily Diary in Dust" Written by New Device

► A SIMPLE device developed at the atomic energy project on the Los Angeles campus of the University of California writes a "daily diary in dust."

The instrument is used to determine air-borne contaminants and to what extent air in a given area is contaminated. Based on a continuous jet impaction method, it utilizes a jet tapering to a fine slit, through which air samples are drawn. Particles in the air sample are deposited on a revolving glass disk. The disk can be calibrated to collect samples continuously over any desired period of minutes, hours or even up to a week.

The device is so sensitive that it will collect ash deposits from burning buildings within a five-mile radius, detect evidence of personnel in the area from the slight amount of dust stirred up, note meteorological changes and record many other events which agitate particles in the air.

All these occurrences are so precisely recorded that the time they happened can be accurately determined from the deposits on the disk.

Dr. Benedict Cassen, Dr. F. A. Bryan, Leonard Baurmash and Lawrence Curtis of the U.C.L.A. medical school atomic energy project developed the new device.

Science News Letter, August 27, 1949

GENERAL SCIENCE

UNESCO To Promote World Exchange of Publications

► INTERNATIONAL exchange of publications will be aided by the publication in Paris this year of a manual on the subject, prepared by the United Nations Educational, Scientific and Cultural Organization.

Included will be a list of institutions throughout the world which are willing to exchange publications, and UNESCO officials are appealing to all institutions for information which can be used in the list. The institutions will include libraries, universities, scientific institutions and learned societies.

Information on institutions and publications available for international exchange is desired by the UNESCO Clearing House for Publications in Paris.

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