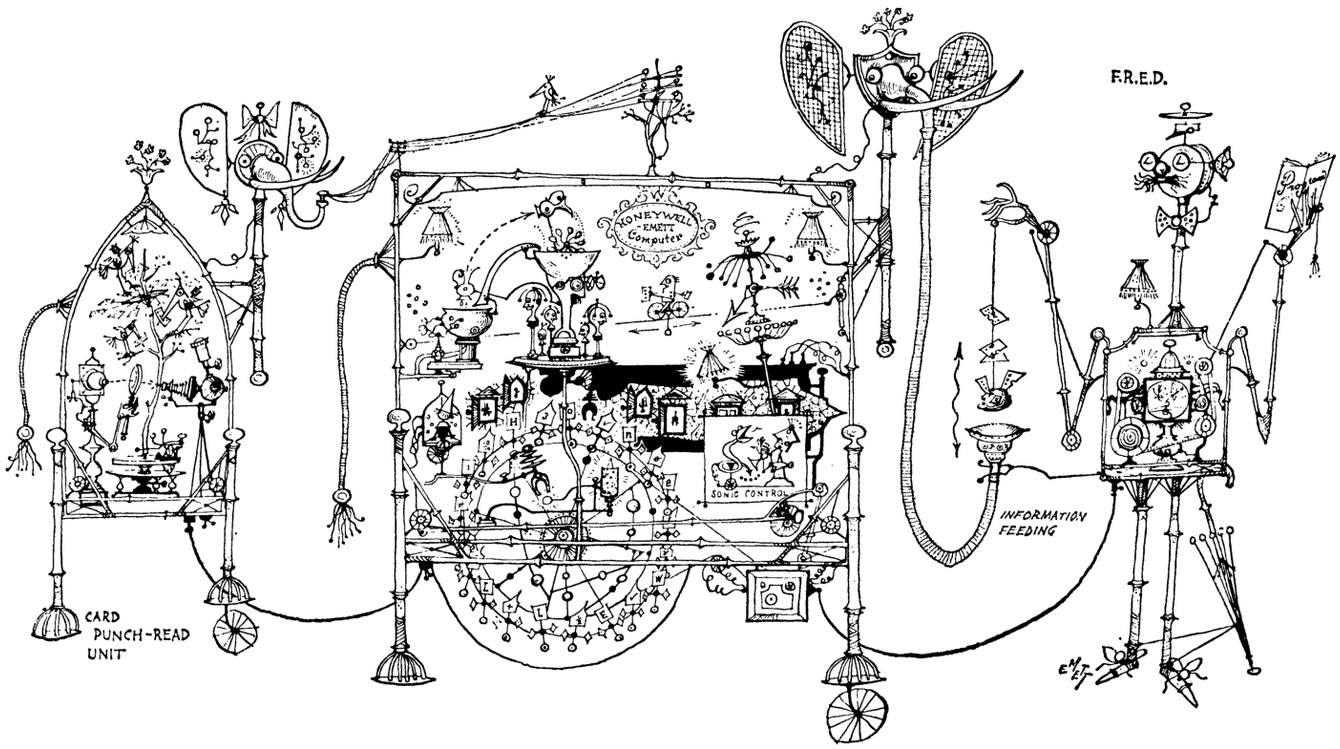


Honeywell

COMPUTER FANTASIA—Rowland Emett's diagram of his ultimate computer, the Honeywell-Emett Forget-Me-Not draws the line between this machine and any predecessor. The sketch points up the machine's three major units: FRED, a Fantastically Rapid Evaluator and Dispenser; Forget-Me-Not Sr., the central processor; and Forget-Me-Not Jr., the card reader-punch unit.

Forget-Me-Not

➤ A HALTING STEP forward (would you believe sideways?) in computer technology was revealed in Chicago at a business equipment exhibition—which may never be the same.

Called the Forget-Me-Not, the blinking, noise-making creation of bamboo, door knobs, lamp shades, birds, playing cards and measuring tapes was designed for Honeywell by Roland Emett, British computerizer (?) and cartoonist already known as developer of the world's first Gothick railway—The Far Tottering and Oyster Creek—and the Hogmuddle Rotatory Niggler and Fidgeter (not even Emett is sure what that is).

"We know there are machines in the world," he explained at a press conference, "but we try to keep them in their place. After all, I'm the boss over the machines I build . . . well, only just barely."

Emett, trying to clear up any remaining confusion as to his reasons for creating the ultimate computer, said, "The Honeywell-Emett Forget-Me-Not —which comes in three parts, like Henry IV—is built in strict accordance with Livingstone's Law (or was it Stanley's?) that 'Memory may hold the door, but an elephant never forgets!' "

"My unsinkable conviction," he added, "is that everything invented or otherwise created since the passing of Queen Victoria lacks grace. Thus, we delicately constructed the Forget-Me-Not of bamboo, which allows the computer to be placed in any executive suite without offense."

The Forget-Me-Not's central processor —in which most of the work is done —is a stylized seven-foot-high elephant known as a Peripheral Pachyderm (because elephants never forget). Its multiplicity of tiny minds think in a clockwise direction, influenced by still tinier minds which only oscillate. This memory, in turn, is influenced by a main brain, which is activated by a closed circuit of specially lightened heavy water.

"The effect of all that water on the brain," Emett said, "is to flush any wrong numbers or unworthy thoughts down the brain drain."

The Forget-Me-Not's memory cycle time—a critical measurement of the internal speed of all computers—is the Billicycle. The million-cycle-a-second operating speeds of conventional "third-generation" computers would not be practical in the Forget-Me-Not, Emett believes, "because having things dashing around inside of something made of bamboo would definitely cause trouble."

He defined the Billicycle, therefore, as the unit of time it takes little Billy, sitting on his bicycle, to ferry a message from one end of the computer to the other.

Considered by Emett to be "the most moving fitment in the entire computer" is memory lane, which offers a collation of Forget-Me-Not's especially treasured remembrances, all intermittently in view behind doors which discreetly open and close "to keep the memories green."

Included is a sweet old thermionic valve named Mother; First Love, where positive meets negative; First Success (two plus two equals six—no, dammit, four); and "1066" (the Battle of Hastings, which is an important date in the minds of all British computers).

To the left of the computer's main elephant—known as the main frame in computerese—is FRED. FRED is a Fantastically Rapid Evaluator and Dispenser who leans nonchalantly on his static discharge umbrella (which, among other things, protects him from lightning), scans his program (any real computer has to have a program) and teases Forget-Me-Not with a "bun" (British for "punched cards") pre-loaded with all kinds of important information.

He also has a set of magnetic butterflies built into his mid-section to prove he is almost human and concentrating intently.

SPACE

'Libration Point' Useful

A pause in flight may be possible at five points on a trip to the moon

➤ IT MAY BE possible to pause in a flight to the moon after 85% of the distance has been covered and then go on from there to land on any portion of the moon, not just near its equator as planned in the Apollo program.

The uses of such a stopping point in space where the gravitational attraction of the moon exactly balances that of the earth—a "libration point"—were explained to a world audience of space experts at the 17th Congress of the International Astronautical Federation in Madrid by Dr. Leo Steg of General Electric's Valley Forge Space Technology Center.

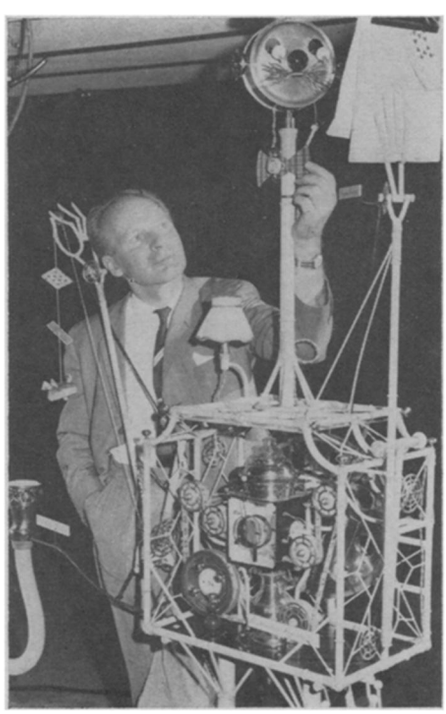
Dr. Steg stated that there are five such libration points in space where a spacecraft would remain stationary with respect to the position of the combined earth-moon system. In effect, these libration points are places in space where the gravity fields of our planet and its satellite cancel each other.

The classical libration points long recognized by astronomers lie in the moon's orbital path in positions 60 degrees ahead of and behind the position of the moon. Another point lies some 40,500 miles directly behind the moon, while a fourth is directly between the earth and the moon about 35,700 miles from the moon. The earth lies in a direct line between the fifth point and the moon, with that libration point some 214,200 miles from earth.

The classical libration points in the moon's orbit would be very useful for gravity studies and for accurate measurement of the moon's mass, Dr. Steg reported.

The libration point on the other side of the moon would be shielded from the earth by the mass of the moon and would therefore offer excellent conditions for radio astronomy. All of the libration points, Dr. Steg said, are outside of the earth's magnetic field making them attractive places for long-term observations of interplanetary radiation and solar flares.

Dr. Steg also pointed out that a communication satellite located at one of the libration points near the moon could solve the knotty problem of astronauts communicating with each other on the surface of the moon. Because of the moon's smaller diameter, the horizon is closer and radio transmissions depending upon line-of-sight would cover a distance of only 15 miles if an antenna 150 feet high were used. A communications satellite located at one of the four libration points around the moon within line of sight of both astronauts would permit them to communicate with each other.



Honeywell

FRED—British cartoonist and way-out inventor Rowland Emett fixes the tie on his friend FRED.
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TECHNOLOGY

Ordinary Aluminum Foil Tests Leaks in Rocket

➤ ORDINARY aluminum foil, the kind housewives use every day, is utilized to test for leaks in the thousands of feet of welds in the gigantic Sl-C booster the first stage of the Saturn V-Apollo lunar landing space vehicle.

Charles W. Musser, supervising engineer at Boeing Company's launch systems branch in New Orleans, reported the system to the Society for Nondestructive Testing in Chicago.

He said strips of water-soluble paper are placed along all welded areas and sealing surface interfaces of the booster tank. A narrower strip of aluminum foil is placed atop the paper.

When a leak occurs, Mr. Musser said, demineralized water in the tank will wet the water-soluble paper. The water becomes an electrolyte causing an effective short between the foil and the tank, thus allowing current to flow through a leak-indicating lamp.

METEOROLOGY

Lightning Greater Hazard Than Believed

See Front Cover

➤ AFTER STUDYING almost 300 lightning bolts since 1960, three engineers have concluded that lightning is a much greater hazard to transmission and power lines than was previously believed.

The electric fields in the vicinity of lightning strokes are much stronger than was thought, according to Edward Beck, S. B. Griscom and D. F. Shankle of Westinghouse.

This means that high voltages can be induced in open-wire conductors even if a stroke does not hit them, the engineers said.

This hazard to "transmission and distribution systems" has been neglected as harmless for many years, the engineers reported.

Most investigators agree that lightning strokes develop from cloud to earth except for high pointed objects, and that the stroke consists essentially of two parts: a "leader," which bridges the gap from cloud to ground and establishes an ionized path; and a return stroke, which reilluminates the leader path with all its zigs and zags, starting at the struck point and traveling upward to the cloud at velocities as high as 0.3 times the speed of light.

The leader is rather weak (500 amperes average) compared to the return stroke, which may have a peak of 10,000 to 250,000 amperes.

The difference between the old and new theories of lightning lies in the physical mechanism by which the stroke gets down to the ground.

Previously, a lightning bolt was thought to progress as a column of uniformly distributed charge. Instead, the engineers said, it actually moves as a succession of large corona bursts, each of which charges an air space perhaps 100 feet in diameter, with most of the charge in its outer boundary.

To find this out, they used an instrument called a klydonograph, in which an electric charge striking a photographic plate produces a permanent image (see cover) whose radius is directly proportional to the voltage of the charge.

During the investigation, 88 klydonographs were mounted on transmission towers and building roofs in Pennsylvania, Illinois, New York and Ohio.

In addition, buried ground wires recorded as high as one million volts from strokes that did not even hit them, but only "landed" nearby. Voltages such as these, "once believed innocuous," need further study, the engineers concluded.

(Cover photograph by Westinghouse.)