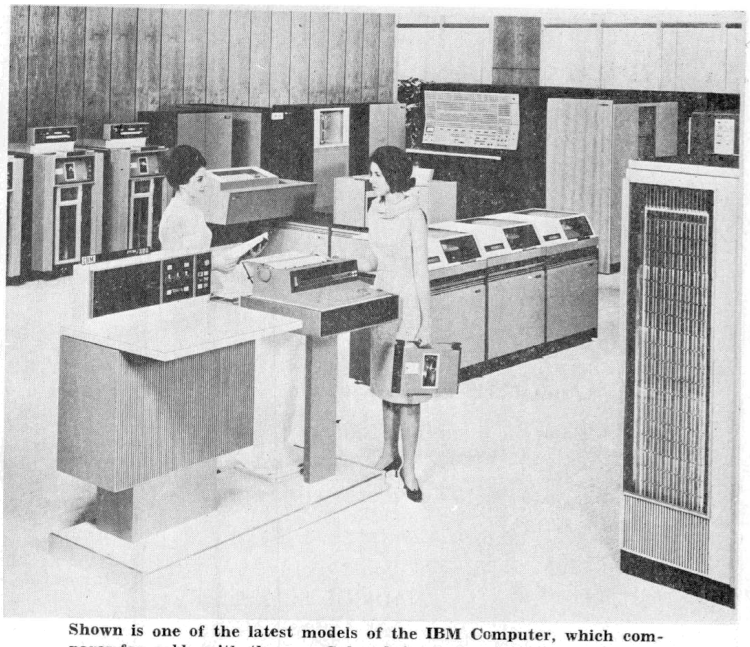
How Will The New 'Golem' Help Israel?



Shown is one of the latest models of the IBM Computer, which compares favorably with the new Golem being built at the Weizmann Institute of Science in Rehovoth, Israel.

Giant Computer With Legendary Name Being Built At Weizmann Institute

SCIENCE and legend, deriving from 16th Century Jewish folklore, are combining today at the Weizmann Institute of Science at Rehovoth Israel, to produce the most modern computer based on ultra high speed electronics.

The new computer being constructed, the fourth in the 20-year history of the Institute, is expected to produce a ten-fold improvement in speed over the latest model, already among the world's fastest. It is a demonstration of the effectiveness of Israel Science and a tribute to the late Theodore Von Karman, physicist and aeronautics engineer, who pioneered the Jet Age.

Named Golem II, the computer memorializes Dr. Von Karman's ancestor, the famed Rabbi Judah Low of Prague, as does Golem I, its predecessor. Dr. Von Karman, who became a Fellow of the Weizmann Institute of Science in 1960, was deeply impressed with the plans then emerging for an Institute - built computer. He asked that the computer be called The Golem in memory of Rabbi Low. Dr. Von Karman did not live to see Golem I become fully operative in November, 1964.

Golem I, more precise than computers currently available, such as IBM-7094, Philco-212, CDC-3600, which approach it in speed, was designed and constructed by scientists and engineers of the Weizmann Institute, at one-third their cost. Two other computers, much larger and costing six times as much, the Ferranti Atlas and the CDC-6600, are faster.

Golem I followed the design of the University of Illinois Illiac II, studied by a senior engineer of the Institute while it was being built, but improved by newer technology and hardware, based on Institute research. A year's research by the Institute of high speed computer circuiting and packaging techniques enabled it to produce adaptations and to build a computer of expanded number length to achieve higher precision, with a tenfold reduction in size and power consumption, fourfold improvement in transistor count, reliability and cost, and a small improvement in speed. Design and construction of Golem I by the Mathematics Department of the Weizmann Institute were begun in April 1962; first operations initiated in 1963; full operation in November, 1964.

Believing that ultimately a 100 speed improvement can be achieved by means of micro-miniaturization, research has begun by Institute scientists on new hardware development. Golem II is conceived as being able to produce a 10 speed improvement when completed.

The new computer is now being built at Rehovoth with the help of Norman Zimbel, an engineer from Newton, Mass., who has taken a year's leave of absence from the Mitre Corporation of Bedford, Mass., to participate in the work.

Zimbel is spending a year at the Weizmann Institute on a Louis Lipsky Fellowship. Together with the Applied Mathematics Department of the Institute, he is helping to build Golem II, utilizing his specialization — the application of ultra high speed electronics to computer designs.

The Institute scientists responsible for computer building are Dr. C. L. Pekeris, head of the Department of Applied Mathematics, Professor G. Estrin, Professor S. Ruhman, and Engineer Z. Reisel.

Zimbel is in Israel with his wife Adelle and his three children, Ellen, Steven, and Marcy. Marcy attends public school in Rehovoth while her older sister and brother are enrolled in the American International School.

Zimbel states that he is impressed with the dedication and ingenuity of the scientific community of Israel as he has seen it in relationship to electronic and computer activity. There are, at present, some 20 computers in Israel and about an equal number on order of various varieties, purposes and speeds.

The Golem of Prague, from which the Weizmann Institute computers derive their name, was created at a time of great peril for the Jews by Rabbi Low, a legendary figure in Jewish history of the Middle Ages. According to legend, Rabbi Low was inspired to build and provide the animation for the Golem by a divine voice which allegedly revealed the formula to him in a dream. With the help of his two sons-in-law, pious and learned men, he built the Robot. The Golem executed the commands of Rabbi Low, performing all kinds of services for him for the benefit of the Jewish community.

Among the feats attributed to the Golem was his exposure of the falsity of the accusation of ritual murder against the Jews and of those who had spread the libel, leading to their apprehension.

Every Friday, on the eve of Sabbath, the life-giving formula was removed from the Golem, to prevent the accidental profanation of the Sabbath.

One Friday evening, so goes the legend, Rabbi Low forgot to withdraw the life-giving formula from the Robot, and the Robot ran amok. Fearful of an impending Sabbath desecration and possible menace to the city, the Rabbi pursued the Robot, but caught up with him only outside the synagog. There the Robot fell apart. The remains of the Golem are believed to be buried among the debris of the ancient synagog of Prague.

Dr. Von Karman, a direct linear descendent of Rabbi Low, was born in Budapest, Hungary in 1881 and became a naturalized citizen of the United States.

A physicist and aeronautical engineer, he was one of the most highly decorated men in the scientific world, contributing to the development of the Jet Age by research findings on the Theory of Elasticity; strength of materials; hydrodynamics; supersonic sound tunnels; and mathematical methods in engineering. During his long life he served as the head of various aeronautical institutions in the United States and abroad, and as consultant to the U.S. Army, the U.S. Air Force, and NATO.

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