

## A 66-inch Slide-rule for your pocket

**T**HE Otis King Calculator carries 66-inch spiral scales yet measures only ten inches fully extended and six inches when closed. Four to five figure accuracy can be relied on. It is indispensable to the scientist, research worker and student. Administrative staff and business men will find it of tremendous value for a host of estimating and checking calculations, and quite simple to use. Of non-warping, metal construction, with plastic-coated scales, it will give years of service. Model K solves multiplication, division, percentage calculations, etc.; Model L gives logarithms as well.

Model L or K shipped post paid for only \$19.95 (add 3% city sales tax in NYC). Use the OTIS KING Calculator for a week and if you are not satisfied repack and mail it back.

### What typical users say about the OTIS KING

"May I congratulate you on such an instrument at so modest a price, combining engineering and mathematical skill, simplicity of operation in such a small space. It does all you claim—four or five figure accuracy without eyestrain or magnifiers. Half an hour's study is ample for its use." (A.E.B.—M.Sc., M.R.S.T.)

"I have tested the Otis King in my office and find it much superior in clearness and accuracy to ordinary slide rules." (F. H. G. B.—, E. Croydon.)

"We could not contemplate being without the Otis King." (T. & C. Ltd., Manufacturing Chemists, Liverpool.)

"I use the Otis King calculator for all my slide-rule work, and need the extra digit which normal slide-rules cannot give. I had to get one of my customers an Otis King last month, after using mine in his office." (E. & G. H., Textile Manufacturers, Blackburn.)

## THE OTIS KING Pocket Calculator

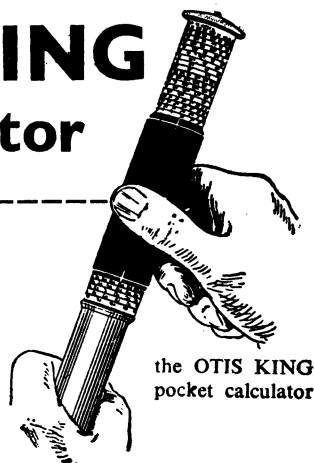
Send this form today

OLIVER GARFIELD CO., Dept. SL-97-C  
126 Lexington Avenue, New York 16, N. Y.

Please send me one Otis King Calculator on your guarantee that if I return it within 7 days, you will refund the money in full. I have enclosed \$19.95 in check or money order (plus sales tax where necessary.)

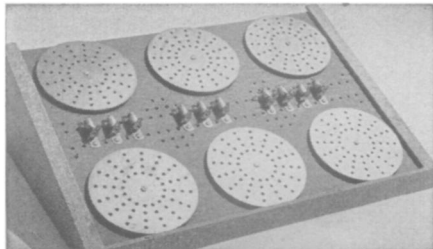
Name \_\_\_\_\_  
(BLOCK LETTERS, PLEASE)

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the OTIS KING pocket calculator

### Kit Builds 33 Computer Circuits



Control Panel of GENIAC set up to do a problem in check valve research.

GENIAC, the first electrical brain construction kit, is equipped to play tic-tac-toe, cipher and encipher

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codes, convert from binary to decimal, reason in syllogisms, as well as add, subtract, multiply and divide. Specific problems in a variety of fields—actuarial, policy claim settlement, physics, etc.—can be set up and solved with the components. Connections are solderless and are completely explained with templates in the manual. This covers 33 circuits and shows how new ones can be designed.

You will find building and using GENIAC a wonderful experience; one kit user wrote us: "this kit has opened up a new world of thinking to me. You actually see how computing, problem solving, and game play (Tic-tac-toe, nim, etc.) can be analyzed with Boolean Algebra and the algebraic solutions transformed directly into current diagrams. You create from over 400 specially designed and manufactured components a machine that solves problems faster than you can express them."

SEND for your GENIAC kit now. Only \$19.95 with over four hundred components and parts, fully illustrated manual and wiring diagrams. We guarantee that if you do not want to keep GENIAC after one week you can return it for full refund plus shipping costs.

### VIROLOGY

## Take First U. S. Photo Of Cattle Disease Virus

See Front Cover

► SCIENTISTS at the U. S. Department of Agriculture's Animal Disease Laboratory, Plum Island, N. Y., have photographed the dread foot-and-mouth disease virus. It is the smallest virus known to affect animals.

The electron micrograph of the virus, the first published in the United States, shows it to be round and approximately one-millionth of an inch in diameter—smaller than the polio virus.

The photograph on the cover of this week's SCIENCE NEWS LETTER shows the submicroscopic bead-like virus greatly magnified.

These findings on the physical make-up of the virus are expected to speed research on new and effective means of combating the highly contagious disease.

So far vaccination and the old method of killing infected animals and burying the carcasses are used to fight outbreaks. During the last ten years the disease has cost the U. S. Government about \$135,000,000 in preventive measures and in research.

Although it is primarily a disease of cattle, the virus also attacks hogs, goats and sheep and can be transmitted to man. It is believed that if the virus became established in this country, it could mean the loss of one-fourth of our entire meat-milk production.

This development in animal disease research is the result of studies conducted by Dr. H. L. Bachrach and S. S. Breese Jr. and other scientists at the Plum Island laboratory. The laboratory, located off Orient Point, Long Island, N. Y., is the only place in the nation where research on the highly contagious disease is permitted.

Science News Letter, September 21, 1957

### ENGINEERING

## Huge Hydraulic Jacks Hoist Canadian Bridge

► ONE of the biggest lifting jobs ever undertaken, and also one of the most spectacular and most complicated, is going on in Montreal, Canada.

Thirty huge hydraulic jacks are being used to raise entire spans of the southern end of the Jacques Cartier bridge, as part of the St. Lawrence seaway project. The spans must be lifted from 60 feet above the water to 120 feet so ships, in a brand-new channel, can pass beneath the bridge.

The jacks, two at each end of a 120- to 250-foot-long bridge span, raise the span six inches. Then concrete blocks are inserted to keep the span at its new height. The jacks then are made ready for the next lift of six inches.

At intervals of two feet, concrete courses are poured on the piers supporting the spans.

The lifts take place periodically, and the job of raising the bridge to its new height will require about two years. Traffic will be kept moving across the bridge the whole time with almost no interruption.

Science News Letter, September 21, 1957