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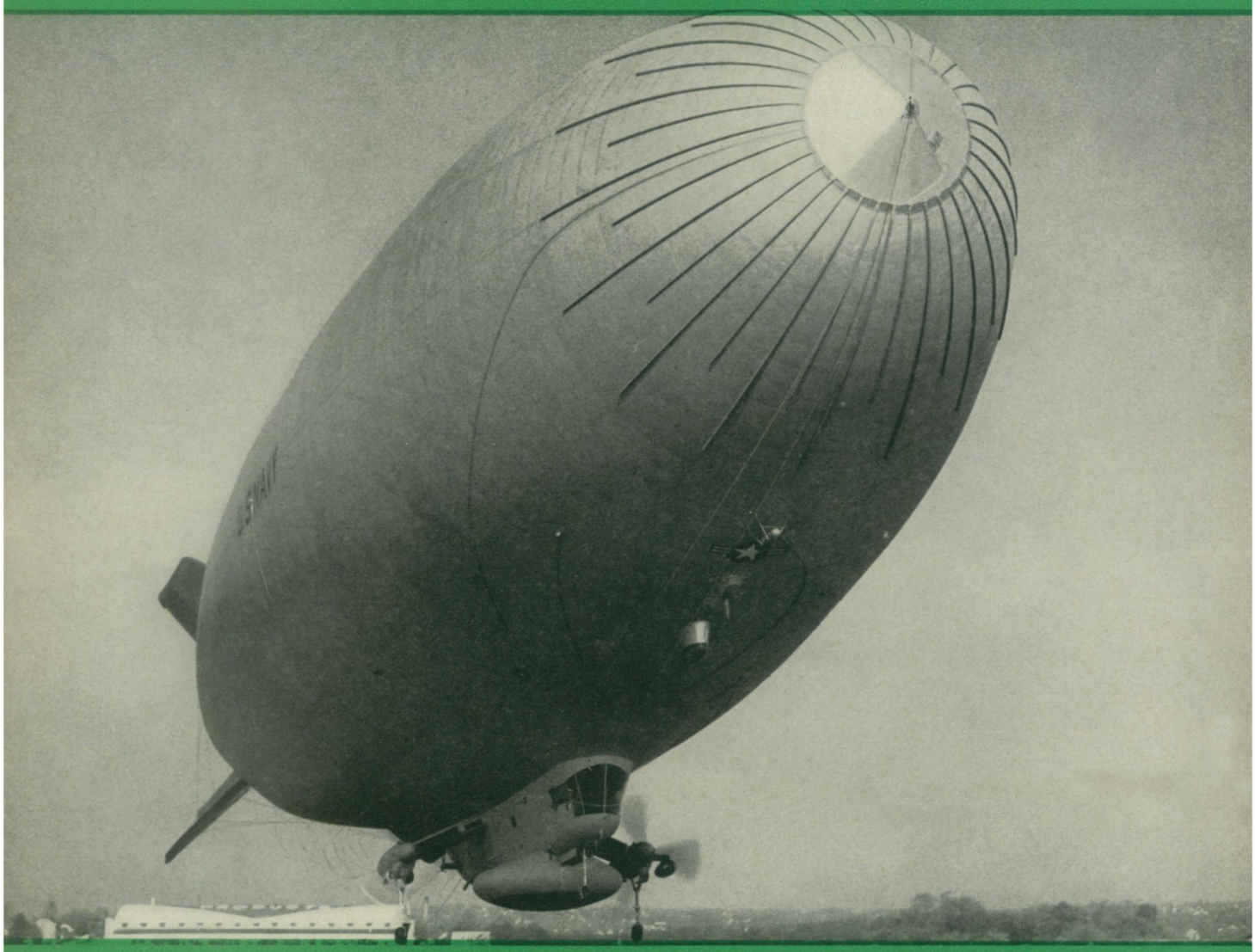
SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Radar Picket Blimp

See Page 152

A SCIENCE SERVICE PUBLICATION

After initial adjustments are made, as in photograph, "Mr. Meticulous" automatically performs critical operations in making junction tetrode transistors —tiny experimental devices which may find important uses in the telephone system.

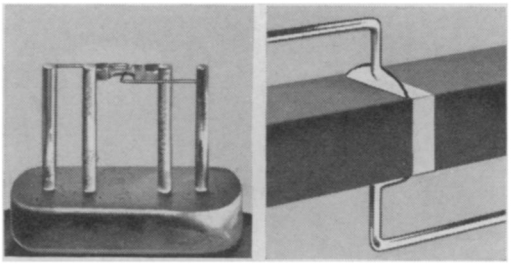
The machine we call "Mr. Meticulous"

Bell Laboratories scientists, who invented the junction transistor, have now created an automatic device which performs the intricate operations required for the laboratory production of experimental model transistors.

It takes a bar of germanium little thicker than a hair and tests its electrical characteristics. Then, in steps of 1/20,000 of an inch, it automatically moves a fine wire along the bar in search of an invisible layer of positive germanium to which the wire must be connected. This layer may be as thin as 1/10.000 of an inch!

When the machine finds the layer, it orders a surge of current which bonds the wire to the bar. Then it welds the wire's other end to a binding post. Afterward, it flips the bar over and does the same job with another wire on the opposite side!

Once only the most skilled technicians could do this work, and even their practiced hands became fatigued. This development demonstrates again how Bell Telephone Laboratories scientists work in every area of telephony to make service better.



Transistor made by new machine is shown in sketch at left, magnified 6 times. At right is sketch of area where wires are bonded. The wires are 2/1000 inch in diameter, with ends crimped to reduce thickness.

BELL TELEPHONE LABORATORIES

Improving telephone service for America provides careers for creative men in mechanical engineering.