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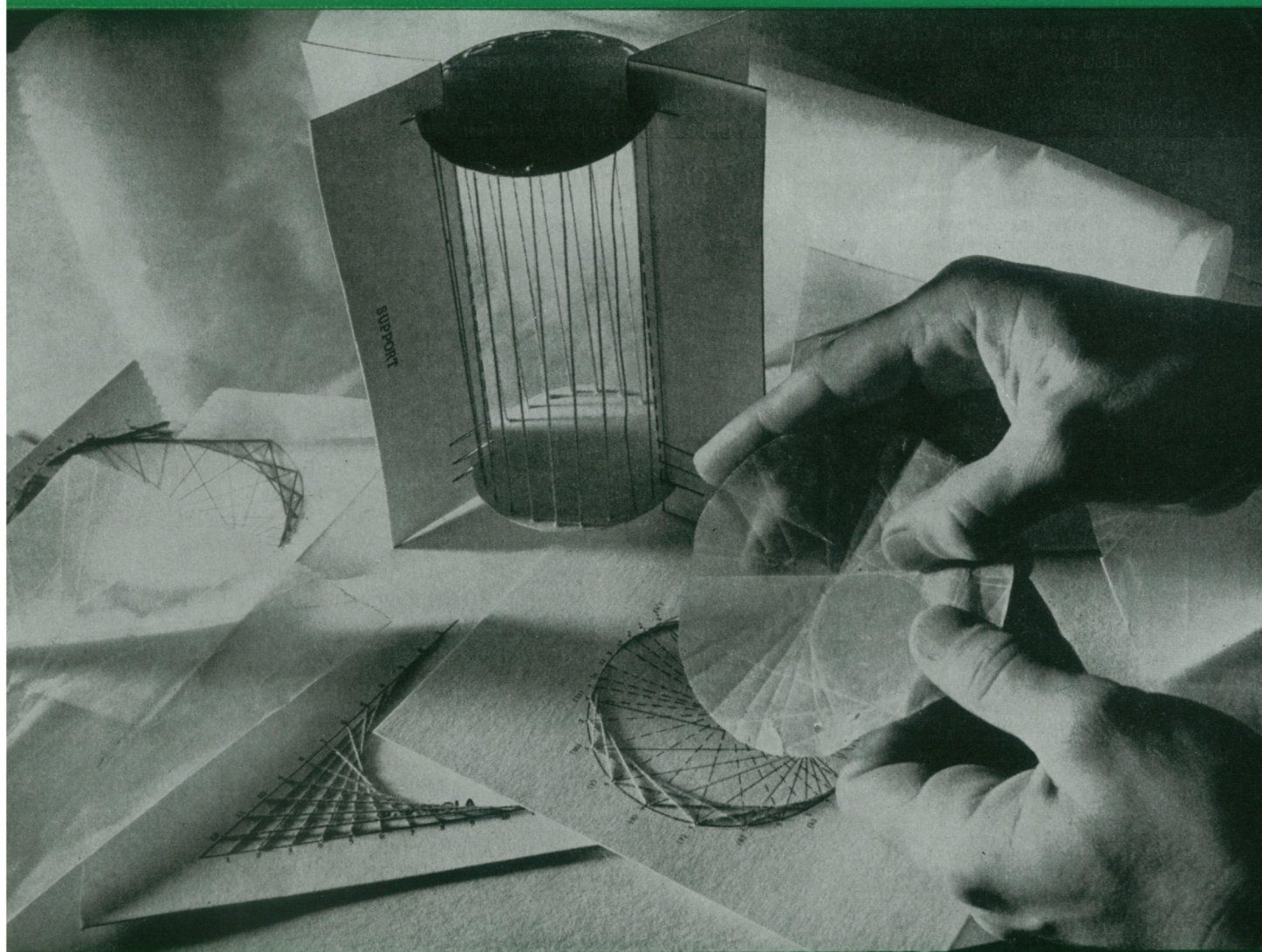
JUNE 7, 1952

# SCIENCE NEWS LETTER



®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



## Paperfolding Curves

See Page 362

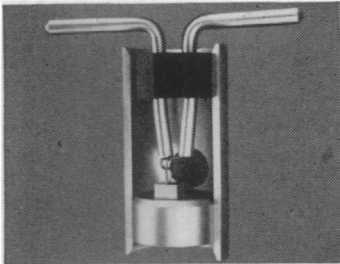
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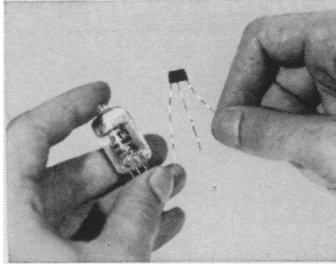
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# THE TRANSISTOR

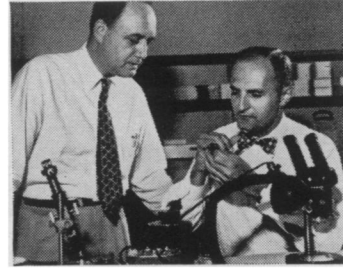
## A picture report of progress



**FIRST TRANSISTORS** were of this point contact type (picture about twice life size). Current is amplified as it flows between wires through a wafer of germanium metal. These transistors are now being made at the Allentown plant of Western Electric, manufacturing unit of the Bell System. They will be used in a new selector which finds the best routes for calls in Long Distance dialing.



**NEW JUNCTION TRANSISTORS**, still experimental, also use germanium but have no point contacts. Current is amplified as it flows through germanium "sandwich"—an electron-poor layer of the metal between two electron-rich ends. This new transistor runs on as little as *one-millionth* of the power of small vacuum tubes.



**MUCH HAD TO BE LEARNED**, especially about the surface of germanium and the effect of one part in a million of alloying materials. Transistors promise many uses—as amplifiers, oscillators, modulators . . . for Local and Long Distance switching . . . to count electrical pulses.



**ASSEMBLY PROBLEMS**, such as fixing hair-thin wires to barely visible germanium wafers, are solved by new tools and mechanized techniques. Finished transistors withstand great vibration and shock. Engineers see many opportunities for these rugged devices in national defense.



**MOIST PAPER AND COIN** generate enough current to drive audio oscillator using junction transistors. Half as big as a penny matchbox, an experimental two-stage transistor amplifier does the work of miniature-tube amplifiers ten times larger.

**A** tiny amplifying device first announced by Bell Telephone Laboratories in 1948 is about to appear as a versatile element in telephony.

Each step in the work on the transistor . . . from original theory to initial production technique . . . has been carried on within the Laboratories.

Thus, Bell scientists demonstrate again how their skills in many fields, from theoretical physics to production engineering, help improve telephone service.

## BELL TELEPHONE LABORATORIES

*Improving telephone service for America provides careers for creative men in scientific and technical fields.*





## Use the RCA MAGNETIC Recorder-Projector

Now, make your entire film library work *harder*, train *faster*, explain *more clearly* . . . let every 16mm film you own tell a brand-new story with the new RCA magnetic recorder-projector that puts sound on film in an instant.

### Look at these 5 Important, New Training Aids



#### 1. Make your own sound films

Now you can actually make your own sound films—without studio facilities—at amazingly low cost. Shoot film with your present camera. Add sound to developed print with the new RCA recorder-projector.

#### 2. Add sound to silent films

Give films the immediacy and impact of sound and voice. Record a fresh message minutes before a lecture. Or organize a project to prepare complete, professional scripts.



#### 3. Make sound films tell a new story

Revamp distracting, out-of-date commentary. Interpret films in terms of current trends. Revive expensive films that are gathering dust on your shelves. Get sound quality you never dreamed possible on 16mm film.

#### 4. Make your message specific

Record a narrative on any 16mm film to place it exactly on your audience's level—make it directly applicable to those it addresses—bring it into the scope of your discussion.



#### 5. Let films speak two languages

Your present optical sound track plus new magnetic track do double duty, give films two tongues. For example: English and Spanish, technical and non-technical, elementary and advanced . . . *both on the same film!*

**HERE'S ALL YOU DO.** Have a narrow magnetic stripe added to your 16- or 24-frame sound or silent 16mm film. Laboratory services

are set up to do this quickly and expertly—without destroying your present optical sound track—for a few cents a foot. (Films with perforations on both edges must be duplicated on single-perforation stock.)

Project film in your RCA recorder-projector, and speak into the microphone as you watch the film. Play back instantly. Keep it as long as you want it. Erase and re-record at any time. (Here's sound on film for 11% of the cost of optical sound!) It's simple as that.

**It's three equipments in one.** (1) It's an excellent instrument for projecting and reproducing 16mm sound motion picture film—recorded both optically and magnetically. It has all the operating conveniences of the RCA "400" line including the famous "thread-easy" feature.

(2) It's an unequalled device for recording your own sound track on 16mm film.

(3) It can serve as a public address system.

#### — LISTEN BEFORE YOU BUY —

Before you buy any type of sound projector, listen to the superb magnetic reproduction of the RCA recorder-projector. There's nothing like it anywhere on 16mm film. Listen . . . and compare . . . before you buy.

Visual Products, Dept. 174F, RCA, Camden, N. J.

Without obligation, please send me the full story on new RCA Magnetic Recorder-Projector that puts *my own* sound track on 16mm movie film.

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