

15¢

\$5.50 A YEAR

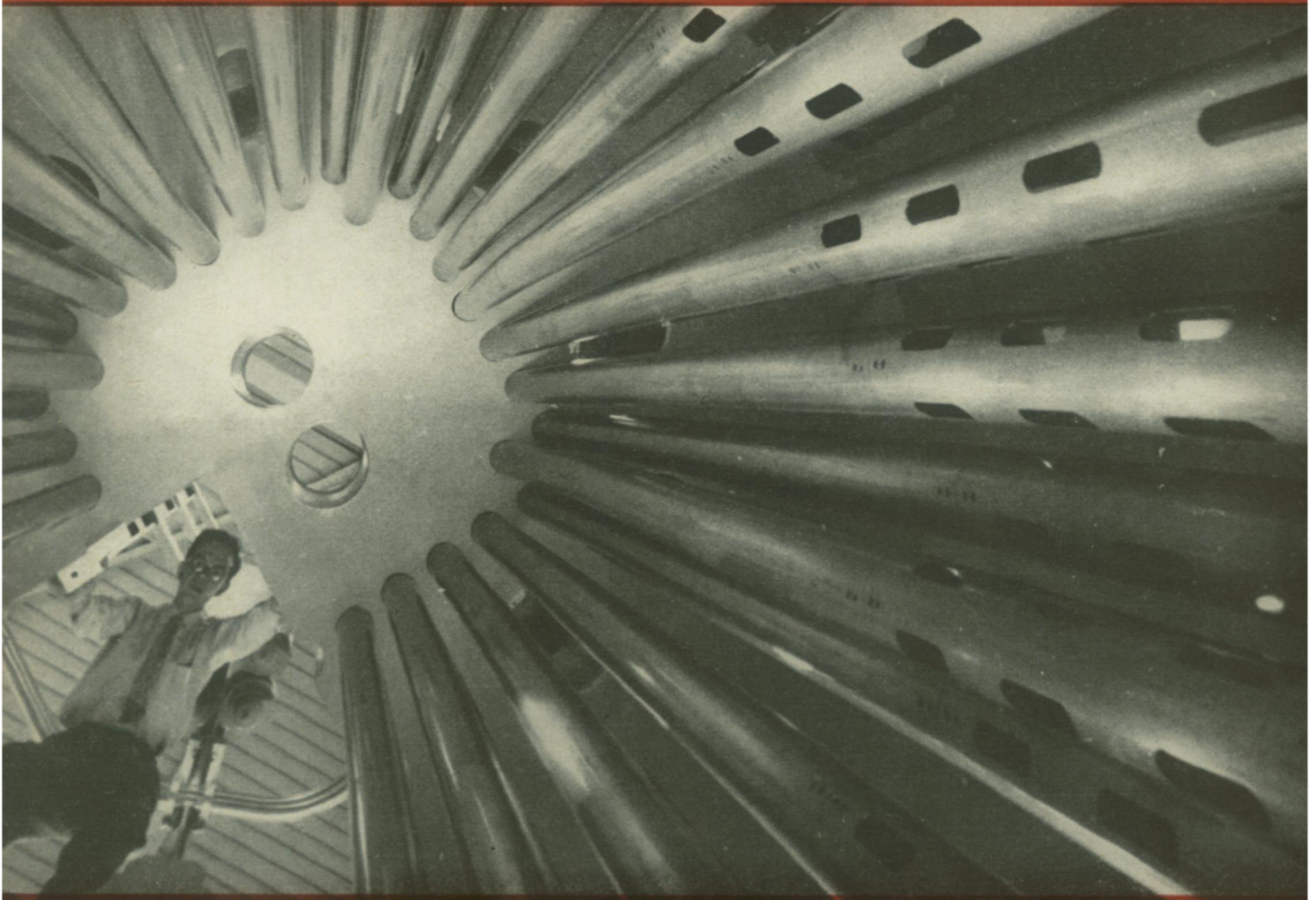
September 14, 1957

VOL. 72, NO. 11 PAGES 161-176

# SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



**Tubes of Power**

See Page 172

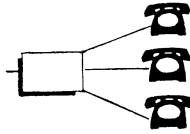
A SCIENCE SERVICE PUBLICATION

# Pacemakers in the technology of our electronic age

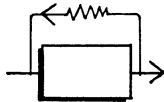
Certain discoveries, inventions and developments of Bell Telephone Laboratories have been truly epochal in their effect upon the technology of our time. Each has come out of a single quest—a search for ways to make telephony ever better. But many have opened the way to exciting advances in TV, movies, radio, horology, astronomy. Here are ten of Bell Laboratories' contributions to the modern world.



**Electronic amplifier.** First high-vacuum electronic amplifier. Made possible long distance telephony and then opened the way to radio broadcasting.



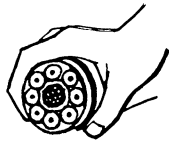
**Wave filter.** Precisely separates bands of frequencies. Provided major key to economical sharing of the same wires by many voices or radio programs. Indispensable control tool in radio, television and radar.



**Negative feedback amplifier.** Provides distortionless and stable amplification. Made possible the enormous, precisely controlled amplification needed in long distance telephone calls. The principle is now basic in high-quality amplifiers for radio, TV and high-fidelity reproduction.



**Quartz crystal.** Standard super-accurate quartz crystal oscillator developed for frequency controls in radio telephony. Has also become the standard control for clocks in world's astronomical laboratories.



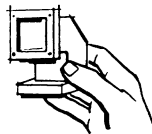
**Coaxial cable system.** Hollow tube with a central conductor was developed to transmit hundreds of voices simultaneously. Now also provides long distance carrier for TV in partnership with microwave beams.



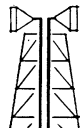
**Transistor.** Tiny solid-state device uses extremely small amounts of power to amplify signals. Makes possible electronic telephone switching and much smaller hearing aids, radios, TV sets and electronic computers.



**Dial system "brain and memory."** Takes over your call and sees that you are connected in the best and quickest way. Newest example: Direct Distance Dialing from home telephones to any part of the nation.



**Waveguide.** Hollow conductor transmits high-frequency waves. From this came the "pipe" circuits that are essential to radar and very short-wave radio communications.



**Microwaves.** Bell Laboratories developed long distance microwave transmission. It operates by focusing radio beams from station to station, carries cross-country telephony and TV.



**Radio astronomy.** This great new science began in the study of radio interference at Bell Laboratories . . . with the tremendous discovery that radio waves emanate from the stars.

**BELL TELEPHONE LABORATORIES**  
WORLD CENTER OF COMMUNICATIONS RESEARCH AND DEVELOPMENT



# Special Tool Bargains—Save Up to 50%

## Swivel Seat SHELL BOX MAKES YOU A BETTER DUCK HUNTER

Swings into any position wanted instantly for a better shot. It's compact, and the new rounded design fits your boat comfortably and it's easy to carry. Built to duck hunters' specifications. Holds 6 to 8 boxes of shells. Made of heavy gauge steel. All joints seam-welded. Positively water-tight and rust-proof. Size closed 13"x8"x10". Finished in non-reflecting, dull finish olive green baked enamel. Heavy leather handle for easy carrying which lies flat when used as a seat. Price



Swings Into Position Instantly

**\$9.98**

## Automatic Siphon Pump

sensational low price **\$1.98** ppd.

Now—siphon any liquid automatically safely, WITHOUT putting tube to mouth! Squeeze bulb, liquid starts to flow immediately! Transparent sections let you see liquid flowing! Siphons, pumps gasoline, water, any liquid. Even acids, corrosives! For cars, boats, power mowers, campers, plumbers, doctors, chemists, factories; Acid resistant. Over 7 ft. long.



### 60 Pc. Set Wire Gauge

**Chrome Vanadium Drills**  
Top quality high test Chrome Vanadium Drills designed for speed drilling through toughest steels, woods, plastic, iron and aluminum. Precision ground, long-lasting cutting edges. Guaranteed to give years of satisfaction. A full 60 pc. set

nos. 1 through 60. A \$14.95 Value—**\$5.40** NOW ONLY

Same set above available with Huron Index container—**ONLY \$6.65**

Also available 61-80 set of high quality drills, in plastic kit with marked pocket for each drill. **\$2.50**

All above drill sets plus 35¢ pp. & hdg.

### 2½ AMP. HEAVY DUTY ¼" THOR SPEEDRILL

with Geared Chuck

AC-DC  
2400 RPM  
Reg. \$39.95

OUR PRICE  
**\$14.95**

plus 50¢ pp. and hdg.

If your work calls for a "rugged" drill with POWER to SPARE, insist on a 2½ Amp. job . . . and make sure it's THOR! No finer drill made. Solid steel, heat-treated helical gears; thrust taken on hardened steel ball and plate; gears permanently packed and sealed in LIFETIME grease! Switch, trigger and lock assembly simplifies locking and releasing trigger. You'll be wise to buy 2 at this price. Supplies limited.

### 12 Pc. Needle & Warding



medium coarse, coarse. Comes with polished wood handle and new type steel grip chuck.

### FILE SET

ONLY (plus 25¢ hdg. & pstg.)  
**\$2.49** 25¢ ppd. & hdg.

Made from the best quality tool steel, to fit the exacting requirements of mechanics, watch and jewelry craftsmen, hobbyists. Attractive kit contains the following 5 ½" long needle and warding files with high test cutting qualities: round, flat knife, square, triangular. In all textures; fine. Comes with polished wood handle and new type steel grip chuck.

## TINY BABE and MIDGET HOISTS

Easily Lifts Up To 2000 Lbs.



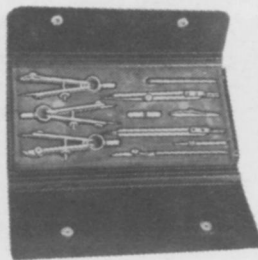
This amazing block and tackle is portable . . . weighs only 13 ounces. Fits in your pocket, in glove compartment of your car. Carry it anywhere. A one hand operation that is easy to use. Powerful, lifts up to 2000 pounds.

### LITTLE GIANTS THAT WEIGH LESS THAN A POUND

Because of their great strength and small sizes these hoists have a multitude of uses: in your car for emergencies; in your home and work shop; on the farm, stretching fences; on vacation; sportsmen, loading deer and elk; or for loading boats or other heavy articles. Handy around industrial plants, too. The finest engineered hoists made anywhere. Best grade aluminum, with steel axles. Pre-lubricated for life. Hoists have two lifting slings, one at the top and one at the bottom with heavy welded steel rings. Slings can be doubled for added strength. Nylon cord tests 550 lbs. per strand. These Tiny Hoists will lift from 1000 to 2000 pounds. MIDGET BABE comes with 70 ft. nylon cord, 5 to 1 ratio—1000 pound test. Weight: 13 ounces. Price \$9.95. TINY BABE has 100 ft. nylon cord, 7 to 1 ratio—2000 pound test. Weight: 15 ounces. Price: \$12.95. Furnished with orange colored carrying bag. You can put it in your pocket. These hoists are unconditionally guaranteed for one year. Sold with a money back guarantee.

MIDGET BABE **\$9.95** TINY BABE **\$12.95**

### 11-PIECE DRAFTING SET \$3.00



Entire set has high luster chrome plated instruments of high-quality that compares with much higher priced drafting sets. You get plain and ring head bow dividers, compasses for use with ink or pencil. Ruling pens and all necessary parts. Precision made instruments packed in an attractive simulated leather velvet lined case. 11 pieces, case and all. \$3.00 plus 30¢ for handling and postage. COD plus charges.

## Prices SLASHED 50% on Polyethylene PLASTIC ROLLS

Made by Famous Kopper Bros. WATERPROOF, RESISTANT TO DUST, AIR, GREASE. UNAFFECTED BY HEAT, COLD.



Tack It, Staple It, Heat Seal It, Tape It! Protect Newly Seeded Lawns, Shrubs, Plants!

Protects from dust, dirt, moisture, rust, moths, heat, cold, etc. Transparent! Stains wipe off! Lightweight, strong, inexpensive!

**For HOME**—Cover auto seats, furniture, mattresses, lamps, rugs, appliances, luggage, silver to prevent tarnish, air conditioners. Use as shower curtains, storm windows. Keep paint off furniture, floors, etc. Wrap food, mothproof wrap clothes.

**For OUTDOORS**—Cover boats, sports and fishing equipment, tennis courts, cars. Make children's play tents.

**For GARDENS**—Protect outdoor furniture and equipment, shrubs, plants, newly seeded lawns. Build greenhouses. Cover lawn mowers.

**For INDUSTRY**—Cover equipment and machinery. Fumigation, oxygen tents. Painter's drop cloth. Floor covers for car trunks, trucks. Chases moisture vapor from crawl spaces, etc. Curing concrete. Keep rain away from outdoor work areas.

36" x 100 ft. . . . . \$6.95  
54" x 100 ft. . . . . 10.95  
84" x 100 ft. . . . . 15.95  
120" x 100 ft. . . . . 22.95

Add 50¢ to all prices for pp. & hdg.

## Bigger Drills at LOW, LOW PRICES! 4 Pc. HIGH CHROME SPEED SET



Reg. \$42.50

**\$9.95**

plus 50¢ pp., hdg.

Extra Special! 11 Pc. Set, Reg. \$99.50, NOW ONLY \$29.95 plus \$1 pp., hdg. Same features as 4-pc. set. Sizes 9/16", 5/8", 1 1/16", 5/8", 13/16", 3/4", 15/16", 1", 1 1/8", 1 3/16", 1 1/4".

Another of Scott-Mitchell's famous tool bargains! The original \$42.50 price is right on the package, but you pay only \$9.95! A wonderful buy for advanced hobbyists, carpenters, construction workers, factories, machine shops! Made of high quality, specially hardened steel, with turned down shanks to fit all 1/2" electric drills. Zip through hardwoods, aluminum, iron, plastics, even the toughest steel! Sizes 3/8", 1/2", 5/8", 3/4", 1". Come in numbered pocket, snap closure tool roll.



### ONLY 75c each FINEST QUALITY Imported Precision Pliers

Flat Nose, Round Nose, Diagonal, End Cutting Nippers, 1 Side Flat—1 Side Round, Snipe, Combination for Jewelers, Optical Workers, Hobbyists. These German instruments are of deep-forged, heat-treated high quality tool steel, fabricated to most exacting specifications. All-over ground, polished to smooth hard surfaces. Smooth working joints with right tension. Jaws meet perfectly to securely hold the most delicate objects in hard-to-reach corners and angles. Each plier is 4" long.

75¢ Each. All 7 for \$5.00 ppd.

**IMPORTANT!** Order Today and Save. Minimum order \$1.00. Send Check or M.O. C.O.D. orders plus fee. Money Back Guarantee. Protects you against risk.

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