

15¢

APRIL 9, 1949

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Courtship Dance

See Page 228

A SCIENCE SERVICE PUBLICATION

\$5.50 A YEAR

VOL. 55 NO. 15

Vibration Control



Columbian Humming Birds, one of the famous drawings from nature by John James Audubon.

Wing vibration, nimbly controlled, keeps the humming bird in flight, enables it to feed without alighting.

Electric vibration is the essence of telephone transmission. Voice, music, pictures, teletype — no matter what type of signal — the story is told by the frequency and strength of not one, but many vibrations.

Learning how to control electric vibrations to pin-point accuracy has been one of the basic jobs of Bell Laboratories scientists in their development of the “carrier” art which enables the sending of many more conversations over existing wires. Among their inven-

tions have been oscillators, modulators, filters, coaxials, wave-guides, and radio lenses.

Constantly Bell Laboratories scientists discover new and better ways to control and adapt electric vibrations by wire or radio to the needs of the telephone user. Their pioneer work in this field is one important reason behind today’s clear, dependable and economical telephone service.

BELL TELEPHONE LABORATORIES



Exploring and inventing, devising and perfecting, for continued improvements and economies in telephone service.



"Madame X" was the code name, during research and development, for an entirely new system of recorded music . . . perfected by RCA.

The remarkable background of "Madame X"

Now the identity of "Madame X," the *unknown* in a long search for tone perfection, has been revealed. From this quest emerges a completely integrated record-playing system—records and automatic player—the first to be entirely free of distortion to the trained musical ear . . .

The research began 11 years ago at RCA Laboratories. First, basic factors were determined—minimum diameters, at different speeds, of the groove spiral in the record—beyond which distortion would occur; size of stylus to be used;

desired length of playing time. From these came the mathematical answer to the record's *speed*—45 turns a minute—and to the record's size, only 6 $\frac{3}{8}$ inches in diameter.

With this speed and size, engineers could guarantee 5 $\frac{1}{2}$ minutes of distortion-free performance, and the finest quality record in RCA Victor history!

The record itself is non-breakable vinyl plastic, wafer-thin. *Yet it plays as long as a conventional 12-inch record.* The new RCA Victor automatic record changer accommodates up to 10 of the new records—1 hour and 40 minutes of

playing time—and can be attached to almost any radio, phonograph, or television combination.

Not only records are free of surface noise and distortion—the record player eliminates faulty operation, noise, and cumbersome size. Records are changed quickly, quietly . . . RCA Victor will continue to supply 78 rpm instruments and records.

This far-reaching advance is one of hundreds which have grown from RCA research. Such leadership adds *value beyond price* to any product or service of RCA and RCA Victor.



RADIO CORPORATION of AMERICA

World Leader in Radio — First in Television