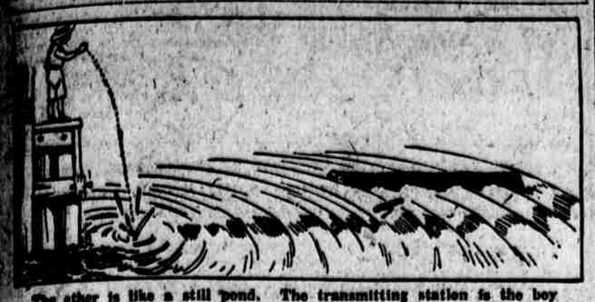
RADIO IN THE HOME

By HENRY M. NEELY



The other is like a still pond. The transmitting station is the boy throwing a stone into it. The waves go out in all directions. They will rock the small stick of wood but not the big log. But the log would rock if the waves were the size of the ocean waves. Here the stick is "tuned" to this wave length, but the log isn't. Same way with radio receiving sets

No. 3. Don't the Signals Get All Mixed Up?

Talk to almost any non-radio man about these broadcast concerts and entertainments, and among the first half-dozen questions he will ask will be, "But don't the different stations get all mixed up? Don't they interfere with each other and make just a jumble? I don't see how you can keep them from doing it."

The answer is—on a well-designed set, they do not interfere. With proper adjustment of the knobs, one station can be "tuned out" and another "tuned in," or the first can be heard and the second silenced.

"But I don't see how that is possible." You said that yourself, didn't you?

All right. Let's forget radio for a moment and talk about something so simple that you have noticed it yourself a dozen times.

Let's suppose we are on opposite sides of a pond. On your side there is a fair-sized log floating. On my side there is a little chip.

You throw a stone into the water. It makes a splash and sends out little waves which spread out in circles all over the pond. Those waves pass the log but do not rock it enough to be perceptible. The log is too big. But when the waves reach my chip, they bob it up and down as long as the waves last.

Suppose I chop down a tree on my side and it falls squarely into the water. It will make a tremendous splash and will send out waves so big that your log will rock up and down on them.

That's how radio works. You hear radio carelessly spoken of as "air waves." It isn't. Sound travels on air waves. But the air, or atmosphere, as we know it extends only some hundred miles above the surface of the earth. Beyond that is utter silence so far as human ears are concerned. There is no air to carry an audible sound wave.

But all that vast expanse of space between us and the sun and planets and stars is filled with an extremely tenuous, intangible something to which scientists have given the name of ether.

It is in this ether that radio waves are made. And the ether is everywhere—between the atoms of bricks and stones and wood and mortar and glass, and that is why we can set up aerials inside our tightly closed houses and receive wireless signals. They travel on the ether that is distributed all through these materials.

The sending station sends out a signal—which is the stone that makes the splash in this ether. The waves travel everywhere at the tremendous rate of more than 180,000 miles a second—nearly eight times around the earth while your watch ticks four times.

Our receiving sets are "tuned" to receive only the waves of the station we want to hear. You see in every wireless program the announcement of the "wave length" on which it is to be sent. If we only spoke of this length in feet and inches it wouldn't sound so mysterious. But it means the same thing.

You will hear of ocean waves which are thirty-three feet from crest to crest. That is ten meters. Our radio waves are much bigger than that. We can produce them that small, but they are not of much use. Amateurs use 200 meters—about 6600 feet. The concerts are broadcast on 360 meters. That is, the waves made in the ether are about 1200 feet from crest to crest. And so we go on up to 25,000 or 30,000 meters for some of the biggest trans-oceanic stations.

Now, with all the concerts being sent on 360-meter waves, you will say that the illustration of the waves in the pond and the log is bad, for the log would respond to all waves of the same length.

Did you ever notice the difference in the shapes of the waves on water? With a high wind blowing you will find the waves almost straight up and down, or even concave on the wind side, and rounded on the other. You will see some waves with sharp peaks and others with easy curves on the crests. The waves breaking on the beach are different from the rollers out at sea. It all depends on what makes the waves.

So it is in the ether. And we have sufficiently developed the art of radio that our sending instruments can be made to send out waves of a particular shaped and our receiving instruments can be tuned to receive waves of any length and any shape, and do it so sharply that they will give greatest response only to the shape we want to hear and almost ignore the others, even though they be of exactly the same length.

It is adjusting the receiving set to get the waves we want that we call tuning, and by being able to do that we are able, under ordinary circumstances and with good instruments, to prevent what would otherwise be simply an unintelligible jumble of conflicting sounds in the phones.

Today's Programs

Philadelphia Station (WFI)
(Strawbridge & Clothier)

1:16 P. M.—Late news items from the PUBLIC LEDGER.
4:00—Strawbridge & Clothier Male Quartet.
4:10—Soprano solo, Lillie Holmstrand Frasier.
4:15—Tenor solo.....Edwyted Lewis
4:20—Bass solo.....John Vanderloot
4:25—Soprano solo, Lillie Holcstrand Frasier.
4:30—Strawbridge & Clothier Male Quartet.
4:35—Tenor solo.....Edwyted Lewis
4:40—Bass solo.....John Vanderloot
4:45—Strawbridge & Clothier Male Quartet.
7:30—Soprano solos (a) "Songs My Mother Taught Me" (Dvorak); (b) "'Twas April" (Nevin). Kathrine Grey.
7:40—Piano solo.....Mabel Fogg
7:46—Baritone solo.....Paul Keast
7:50—Soprano solo; (a) "Just A'wearyin' for You"; (b) "Roses of Picardy," Kathrine Grey.
8:00—Piano solo.....Mabel Fogg
8:10—Baritone solo.....Paul Keast
8:15—Soprano solo, "Good Night, Little Girl." Kathrine Grey.

Newark, N. J., Station (WJZ)
(Westinghouse)

7:00 P. M.—"Animal Stories," by Florence Smith Vincent, New York Evening Times.
7:30—"History of Tobacco and Smoking," by G. R. Wilson.
8:00 P. M.—Recital by Miss Edith Bennett, celebrated American soprano. Miss Maria Peyer, the noted Swiss pianiste, will be the accompanist. Program—"Aria de Peppes," Handel; "Fior di Dolcezza," Valle de Paz; "Dauxa Dauxa," Durante; "Aria"—Bird Song from the Opera "Pagliacci," Leoncavallo; "Apies un reve," Faure; "Aminte," Weckerlin; "Elegie," Massenet; "Smilin' Through," Penn; "Joy in Summer," Holmes-Tidy; "Love's Old Sweet Song," Malloy; "The Awakening," Spross, by Miss E. Bennett; "Randa Capriccioso," Mendelssohn; "Three Waltzes," Brahms; "Abrabesque," Debussy; "Minuet," Paderewski; "Valse," Chopin, by Miss Peyer.
9 P. M.—Recital by Austin Shindell, of Arlington, N. J. Program—"Waltz E Flat," Chopin; "Waltz G Flat," Chopin; "Polonaise A Major," Chopin; "Drifting," Frimi; "Juba," Dett; "March Wind," McDowell; "Eventide," Sartorio; "Polichinelle," Rachmaninoff.
9:30 P. M.—Second recital by Milton J. Gross, tenor ballad singer, New York City; program, "Ave Maria," Schubert; "Thank God for a Garden," Teresa del Riego; "Give a Man a Horse He Can Ride," O'Hara; "Little Mother of Mine," Burleigh; "The Rosary," Nevin; "The Living God," O'Hara; "Like Stars Above," Squire; "Little Boy Blue," Nevin; "O Sole Mio" (in Italian), di capua; "Morning," Speaks; "Duna," McGill; "Sally in Our Alley," Carey; "Love's Rhapsody," D'Hardelot; "Somewhere a Voice Is Calling," Tate; "Mother Machree," Ball; "The Song That Reached My Heart," Jordan; "Evensong," Blumenthal. Miss Lillian Ellegood Fowler, of the Gullmont Organ School at the piano.

Pittsburgh Station (KDKA)
(Westinghouse)

3:30 P. M. and at fifteen-minute intervals thereafter, baseball scores.
7:30—"Mr. Bass's Boy Is a Good Fisherman," a bedtime story for the children.
7:45—Government market reports and a report of the New York Stock Exchange.
8:00—"Safety on the Streets," by G. A. Barnes, safety director, Pullman Taxi Service Company, Pittsburgh. "Pittsburgh—What Its Government Could Do for the City," by A. Leo Weil, attorney.
8:30—Music. Elmer H. Stoltz, baritone soloist; Miss Julia Jackson, accompanist; Miss Cecilia Slomberg, violinist; Miss Dorothy Slomberg, pianiste. Selections: 1—"A la Bien Aimee," Miss Dorothy Slomberg; 2—"I'll Forget You," Elmer H. Stoltz; 3—"Meditation," from "Thais," Miss Cecilia Slomberg; 4—Valse, Impromptu in D, Miss Dorothy Slomberg; 5—"Beautiful Garden of Roses," Elmer H. Stoltz; 6—"Orientale," Miss Cecilia Slomberg; 7—"Mother of Pearl," Elmer H. Stoltz; 8—Fantasia in C minor, Miss Dorothy Slomberg; 9—Second Concert Solo, Op. 77, Miss Cecilia Slomberg; 10—"Just A Little Love Song," Elmer H. Stoltz; 11—Mazurka, Miss Dorothy Slomberg; 12—"Why," Elmer H. Stoltz; 13—"Ave Maria," Miss Cecilia Slomberg.

SEE WHAT "THE OBSERVER" SAYS
THE OBSERVER is farseeing when it comes to Sports, and has a way of putting 'em over every time will appreciate. Start reading "How Does It Strike You?" by THE OBSERVER which appears every day on the Sports Pages of the EVENING PUBLIC LEDGER. "Make It a Habit."—Adv.

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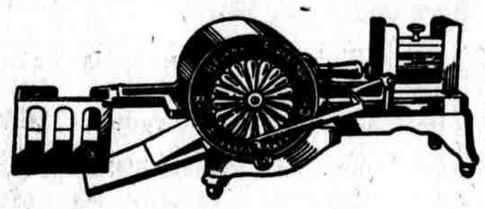

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YOU are paying for it not once, but many times over, in leaks and losses due to old-fashioned bungling methods in handling lists and names.

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But we *know* you are paying for one of them—literally, truly. We are just as sure of it, as we are certain that there is a way to check this waste.

How to effect this important saving is not such a long story, but we prefer to make it pertinent to your business rather than general.

So, if you request it, we will ask one of our expert Service Men to call and explain the newest, most efficient and economical systems of handling and listing names for all sorts of addressing; and the heading of statements, pay sheets, route lists, shipping forms, etc.

Important: We will arrange to have this Belknap Service Man call entirely at your convenience; but when he does call please remember he is a Specialist not a Salesman. His mission is to help you, not to sell you. Listen to him attentively; answer his questions frankly; volunteer any information you think he ought to have. In other words help him to help you, if you really want help.

Meantime, if you wish it, we will gladly send for your careful consideration, an interesting booklet about Belknap Systems of Addressing. It is well worth reading. You are paying for the addressing efficiency it tells about, so why not have it?

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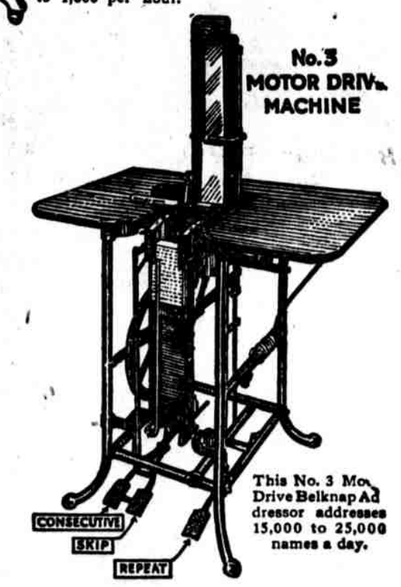

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STRAWBRIDGE & CLOTHIER

Sale of Women's Sample Coats and Suits
Savings Average Fully One-third

All the Fox Scarfs Were Not in the Easter Promenade

—Although it did look like it, to be sure. Some beautiful pieces among these:

AMERICAN FOX—in the choker style; in brown, walnut, taupe and black—$20.00 to $45.00.

CANADIAN FOX—richly blended skins; animal style—$18.00 to $40.00.

SOUTH AMERICAN FOX—Animal Scarfs, fur on both sides; brown, black, gray, taupe, battleship gray—$10.00 to $35.00.

ALASKA FOX — Animal Scarfs, lined or with fur on both sides; in all fashionable shades from walnut to platinum gray—$35.00 to $95.00.

Strawbridge & Clothier—Second Floor, Filbert Street

99 Suits, now $15.00
46 Suits, now $18.75
39 Suits, now $22.50

At $15.00 Worsted Jersey Suits in plain blue and brown and in heather-mixed green, blue and brown. Belted models with mannish collar or Tuxedo fronts.

At $18.75 Homespun and tweeds, including heliotrope, gray, rose and tan. Belted and unbelted styles. Also one-piece Dresses with smart Capes to match.

At $22.50 Cassavant twills, herringbone effects, Dent, Skibo and Rainbow tweeds, in beautifully tailored models, belted and unbelted, and with many fine points of tailored distinction. Some Suits of circular cape and two-piece skirt. Gray, blue, rose and tan in the lot.

Strawbridge & Clothier—Second Floor, Centre

Women's Smart Suit Cases

In anticipation of the vacation season women are selecting new luggage. These are the best Suit Cases available at these prices. Of surface stock cowhide, in black cobra grain, over wooden frame, with French edges and lined with moire. Strong, practical and smart looking as a woman requires.

Suit Cases, 20-inch size, $13.00 22-inch, $13.50; 24-inch, $14.00

Strawbridge & Clothier—Aisle 8, Centre

Capes, Coats and Cape-Sleeve Coats
$18.00 to $60.00

One hundred and fifty of the most fashionable Coats, Capes and Cape-sleeve Coats of the season. Loose, roomy garments, some hanging free from the shoulder, others loosely belted. Of mixed cloths, tan cloakings and high-grade cloths in plain shades, beautifully lined. Sample size 36 only, but because of the graceful, easy lines of all Wraps this season, many women requiring much larger sizes can be fitted. All one-third and more under price.

Remarkable values at $18.00, $22.50, $25.00, $30.00, $35.00, $40.00, $50.00, $60.00.

Strawbridge & Clothier—Second Floor, Centre

1000 Men's Suits Reduced

An assembling and clearance of the many groups, incomplete in range of sizes, that remain after the remarkable selling activity of the past few weeks. These Suits are all from regular stock and include Spring and California-weight Suits. Prices have been greatly reduced to insure speedy clearance.

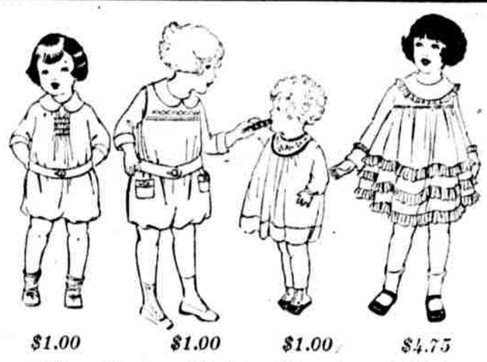
Smart New Suits Reduced to $18.00
Former prices averaged one-half more. Many styles, many fabrics.

Alco, Wickham and Other Suits—$28.00
A good selection of sizes and patterns. Former prices were much more.

Wickham and Other Suits, $23
Wickham make, at half price. Others are one-fourth to one-third under price.

Stein-Bloch, Hart, Schaffner & Marx, Alco and Wickham Suits—now $36.50
Not every size in any one style, but all sizes in the lot. Sharply reduced.

Strawbridge & Clothier—Second Floor, East



$1.00 $1.00 $1.00 $4.75

Outfit Small Folk for Warm Weather at Little Expense

This is the way to do it—select practical Rompers and Dresses from these exceptional groups, and see how little the cost of many of the necessary summer garments for wee folk:

White Dresses 2- to 6-year Sizes Now $1.75 to $7.95
Similar Dresses have been sold for one-half more—but these have become slightly soiled or rumpled and are reduced for a quick clearance. Of lawn, voile or organdie. One model, shown at right, $4.75.

Infants' Slips Special, $1.50
Hand-made, of nainsook in bishop style.

Babies' Dresses Unusual Value—$1.00
Nainsook Dresses in yoke or bishop style. Long Dresses for infants, or short for tots of 6 months to 2 years. One style sketched at right centre.

Poplin Rompers Away Under Price—$1
Several models of pink or blue poplin, some smocked. Two are shown at the left. 3 to 5 years.

Strawbridge & Clothier—Third Floor, West

New Hammock Couches Ready

Many new arrivals! New styles for porch, lawn or open-air sleeping room, with every modern, up-to-the-minute device for greater comfort and appearance. Khaki, French gray and painted-stripe canvas or floral cretonnes and applique effects in great variety. Adjustable back-rest, that serves as a wind-shield; head-rest, front valance, soft cushion mattress and dependable springs. Solid comfort, in other words, without loss of good appearance — $10.00 to $40.00.

Pipe and angle Iron Stands, enameled in gray, tan or green —$4.25, $6.00 and $7.50.

Strawbridge & Clothier—Third Floor, Centre

Beautiful Pearl Bead Necklaces Under Price

One never tires of a Pearl Bead Necklace. These will be lovely with summer frocks and blouses. And prices are notably low. Of indestructible pearls in graduated sizes, with solid gold clasp.

18-inch—now $4.00
24- and 27-inch—$4.50
30-inch—now $5.00

Strawbridge & Clothier—Aisle 9, Market Street

Ten-yard Pieces of Long Cloth, $1.85

Our own S. & C. quality so popular with women who like to make their own lingerie and that of the family. A lot of 900 pieces at this attractive price—$1.85.

Strawbridge & Clothier—Aisle 18, Centre

A Special Lot of 9x12 Axminster Rugs
$19.75, $22.75, $29.75

If it were not for very slight imperfections, chiefly in the matching, we would mention the manufacturer's name, and have you more fully realize the exceptional values presented. Attractive patterns and colorings, all 9x12 feet, in three price-groups—$19.75, $22.75 and $29.75.

Rugs of the same sort, 11.3x12 feet—$29.75. A most unusual opportunity in the Department of Lower-Priced Floor Coverings.

Strawbridge & Clothier—Floor 4½, Filbert Street

A New Toilet Soap Perfect, 10c; $1 doz.

And the cakes are very large, nearly half-pound weight. Witch Hazel or Buttermilk Soap, special at 10c a cake, or $1.00 a dozen.

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