

RADIO LORE FOR NOVICE AND EXPERIENCED FAN

RADIO PROGRAMS

WEAN will commence its week of programs at 11 a. m. with the service from Mathewson Street Methodist Church. At 2 p. m. will be heard the Dudley radio carolers, at 3:15 p. m. a concert by the Providence Symphony Society, at 6:30 p. m. an organ recital and at 7 p. m. the Asia Serenaders. At 8 p. m. will be broadcast a concert by Square and Compass Band. The Columbia Chain programs will be on the air at 9 p. m., 9:30 p. m., 10 p. m. and 10:15 p. m. Tomorrow at 6 p. m. will be heard code instructions by radio through the courtesy of the American Radio Relay League, Inc. Norma Senay, soprano, and Alice Roy, pianist, will be on the air at 6:15 p. m. on Tuesday, Wednesday and Thursday the usual programs will be observed. Uncle Red will be on the air Friday at 6 p. m. A program arranged by David Blair McCloskey will be heard on Saturday at 8:01 p. m.

WJAR starts broadcasting at 3 p. m. with the Young People's radio conference. At 4 p. m. will be heard the Men's Conference direct from the Bedford Branch Y. M. C. A. The Capitol Theatre program will be on the air at 7:20 p. m.; a talk by David Lawrence entitled "Our Government" at 9 p. m., and at 9:15 the Robert W. Powers's orchestra. The station will broadcast baseball scores at 7:30 p. m. tomorrow. Tuesday at 8 p. m. the Providence Safety Council will give a safety talk. Irving Spector, violinist, will be on the air at 1:35 p. m. on Wednesday. At 9:05 p. m. on Thursday will be broadcast a musical program by Vaughn A. Kazarian, baritone, and May Hughes, soprano. Friday night at 7:45 p. m. Wasili Leps, director of the Providence College of Music, will talk on the subject "Understanding Music." He will discuss some phase of the subject at the same hour each Friday night thereafter. Saturday at 7:50 p. m. a talk will be given by the Rhode Island Humane Educational Society.

WLSI begins to broadcast for the week at 10:30 a. m. with the service from the First Church of Christ, Scientist. At 5:30 p. m. the International Bible students program will be on the air. At 8 p. m. will be heard the service from Church of the Seventh Day Adventist. Tomorrow the usual program will be heard. Al Billinkoff and his orchestra will be on the air Tuesday at 6 p. m. At 8:45 p. m. on Wednesday the reception and banquet to Rt. Rev. William A. Hickey, D. D., Bishop of Providence, will be broadcast direct from the Biltmore Hotel. Uncle Dave will be on the air at 7 p. m. Thursday. At 8 p. m. on Friday the Steinert's duo-art program will be broadcast from the station. Saturday the customary program will be heard. WFCI starts broadcasting at 10:45 a. m. with the service from Central Falls Congregational Church. The Family Hour will be broadcast from the station at 6 p. m. tomorrow. Tuesday the usual program will be heard. Uncle Dave's radio pals will be on the air at 7 p. m. on Wednesday. Thursday the usual program will be broadcast. The Pawtucket Senior High School "Fretted Instrument Club" will be broadcast at 8 p. m. on Friday. Saturday the Virginia Troubadours will be heard at 2 p. m.

WEAN—THE SHEPARD STORES—275.

Today.

11:00 a. m.—Service from Mathewson Street Methodist Episcopal Church.

2:00 p. m.—Dudley radio carolers.

3:15 p. m.—Concert by the Providence Symphony Society.

6:30 p. m.—Organ recital.

7:00 p. m.—Asia Serenaders.

8:00 p. m.—Concert by Square and Compass Band.

9:00 p. m.—"Opera in Miniature," Columbia Broadcasting System. The first performance of a new series of programs.

9:30 p. m.—La Palma hour, Columbia Chain program. La Palma and her troupe.

10:00 p. m.—American Singers, Columbia Chain program. "Softly in the Evening," Abt. "On the Sea," Buck.

"Sweet Miss Mary," Neidlinger; "Drink to Me Only with Thine Eyes," arrangement by Burton; "Tell Me Not of a Lovely Lass," Forsyth.

10:15 p. m.—Concert by the Providence Chain program. "Light Cavalry," (Overture), Von Suppe. "El Dorado," (march), Herbert. "Aubade," Masse.

Monday.

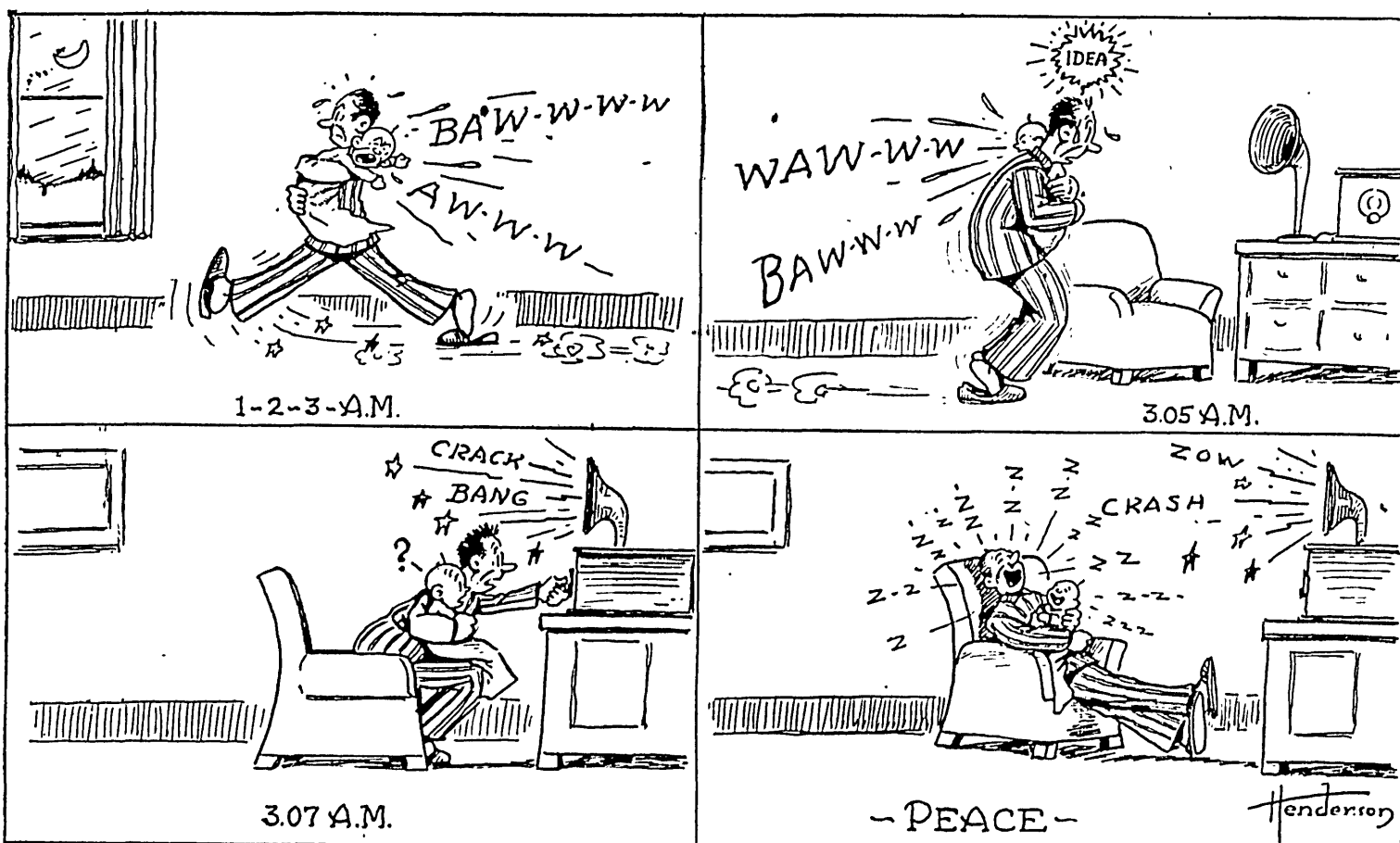
9:45 a. m.—Women's Institute, conducted by June Abbott.

10:30 a. m.—"Good Groceries," by Sally Sawyer.

11:00 a. m.—Symphony orchestra.

11:30 a. m.—Musical program.

SHORT CIRCUITS



Chain Broadcasting Requires Closest Attention to Detail

Telephone Circuits Employed Between Stations Tested Regularly and Watched Constantly.—Small Army of Experts Sees That Programs "Click" Everywhere.

BY AUSTIN C. LESCARBOULTA
Chain broadcasting is made possible by means of the long-distance telephone lines in this country. The telephone circuits used for transmitting program to radio broadcasting stations, however, differ from ordinary local and long-distance lines, in that the transmission takes place only in one direction, namely, from the microphone to the different radio stations. Requirements for the transmission of program material are much more severe than for the transmission of ordinary speech such as is required for the local long-distance call. In the case of program transmission, circuits capable of transmitting satisfactorily a wide band of frequencies, that is, a wide pitch range, such as from 100 to over 4000 cycles per second, are usually considered necessary. In addition, the normal range of volume so that when the volume is low, the program will not be marred by the presence of extraneous noise. Of course, all special circuits used for radio broadcasting must also function harmoniously with the other circuits of the telephone plant.

Most of the broadcasting chains now operating throughout the country were constructed to meet these requirements. When a regular telephone circuit is to be used for program transmission, it is necessary to remove part of the equipment and apparatus normally connected with the circuit to install special equipment instead. For example, the equipment removed includes that normally required to permit the simultaneous operation of telegraph and telephone service on the same wires. If this is not done, the very low pitches such as 100 cycles per second would not be transmitted satisfactorily.

Special electrical arrangements which are called "equalizers" are used to make the lengths of cable equally efficient throughout the frequency band. The equalizers are employed to keep constant transmission over the wide range of low, medium and high pitches is secured. On long circuits, vacuum tube amplifiers are necessary at intervals, and serve the same purpose as the repeaters that are used in ordinary long-distance telephone connections.

All circuits thus employed must be tested regularly and observed continuously. Special measuring equipment is provided for such testing and observation, and during operation high-quality speakers are connected so that any fault in the transmission can be instantly detected. Thus at the control rooms in New York and Chicago, for example, and at other testing points when many stations are linked together in chain broadcasting, the loudspeakers are employed to keep constant check on the quality of the transmission. There is one of these for each broadcasting chain whose program is being transmitted.

All toll circuits throughout the telephone system are tested thoroughly and carefully at frequent intervals, as part of their regular maintenance. Before an important broadcast, however, these lines may be checked or patrolled, as an added precaution and any necessary adjustment made. Linemen in this way make sure that there is no incipient trouble which is likely to interfere with the sending of the program. Linemen, of course, are always located at strategic points, ready to make quick repairs in case of emergency.

In cases where a national hook-up is being handled from points widely separated, as for example in January of this year when a program was sent from five widely separated points, the entertainment being furnished from California, Chicago, New York, Detroit and New Orleans, accurate co-ordination between telephone men at these points becomes absolutely necessary. The success of such a hook-up depends upon the clock-work precision and precision of operation which only training and knowledge will insure. It is no small task for these men, located at strategic points from the Atlantic to the Pacific to keep all these highways clear and each ready to function when the proper moment arrives.

On each occasion a speaker may use one particular circuit for a few minutes and then the program is diverted to another speaker on another circuit. Soon, however, the first speaker may be called upon to resume, but if anything should happen to the telephone circuit during these few minutes, the program would then be disrupted and perhaps entirely ruined. It is one of the duties of the men in charge of these circuits to see that at all times they are ready for service, to watch out for nothing has happened to interfere with the transmission of the program or that the line has not suddenly gone dead, and to test these lines continually while they are being held for service.

Hundreds of telephone men, telegraph operators and radio men, working in shifts, to watch out for nothing has happened to interfere with the transmission of the program or that the line has not suddenly gone dead, and to test these lines continually while they are being held for service.

The large nation-wide hook-ups involve the use of many thousands of miles of telephone wire. The Tunnely Dempsey prize fight of last September was broadcast by 69 radio stations over a network of 14,200 miles of telephone lines, reaching all parts of the country. There are now four regular networks of broadcasting stations operating every day in the United States, using a total of over 14,000 miles of telephone circuits. All of which involves an army of men to supervise the wires of wireless, aside from the wireless personnel in the various broadcasting stations.

Radio Raiment.
Russell Pratt, Ransom Sherman and Joe Rudolph, fun-makers of station WMAQ, Chicago, now wear special suits of exotic blue when they broadcast their daily feature, a musical "pot-pourri." The suits were donated by a fan family, living in Kenosha, Wis.

RECEIVER'S DIALS DESERVE THOUGHT

Devices Really Comprise "Face" of Radio Apparatus

Essential Features Include Legibility, Lighting and Ease of Control.—To Attach Verniers to Older Sets Simple Matter and Well Worth Trouble

The radio dial is really the "face" of the radio receiving set. We look at the dial more than at anything else, unless it be the loud speaker. With the dials we can keep the distances between us and far-off cities, and change from city to city at our wish.

Dials ought to be "right." There are a good many important points that could be suggested and herewith are pointed out some of them. The first two essentials would seem to be readability and ease of control. The degrees forming the dial's "scale" should be plainly and clearly marked, either in white lines on a dark surface or dark lines on a light surface.

The control feature is, of course, paramount importance. The need for careful control for faint stations only, it is of little importance whether we can adjust the dial to the "hair's breadth" or not. But, for weak broadcasters, an accurate adjustment is of paramount importance. The need for careful control for faint stations only, it is of little importance whether we can adjust the dial to the "hair's breadth" or not. But, for weak broadcasters, an accurate adjustment is of paramount importance.

Where the set is of older style and has ordinary dials without the vernier feature, it is a simple matter to replace the old-fashioned dials with modern vernier dials. The ratio of control in vernier dials varies from 3 to 1 all the way to 25 to 1 or more. A ratio of around 10 to 1 is really sufficient for most purposes. A variable ratio is offered in some dials and this is a good extra feature.

Care should be taken in buying a vernier dial to select one with a very good scale record and reputation or one made by a well-known manufacturer. Many have bought vernier dials at too low a price or of unknown construction.

Weekly Radio Test

1. How does the annual cost of operating a radio broadcasting station compare with the original investment?
2. Can a dry battery be wired to and operated in series with a "B" eliminator?
3. Is there such a thing as an alternating current tube tester?
4. About what percentage of the broadcast hours are paid for by the broadcasters?
5. Are trickle chargers for "A" batteries and "B" eliminators made as a combination unit?

(Answers to these questions will be found elsewhere in the Radio section.)
(Copyright, 1928.)

tion and have had the working parts wear out through excess friction. An important point that is very often overlooked is the "parallax" effect. Notice whether the indicator line or mark is so far away from the dial markings that moving your head will change the reading. The dials troubled least by this difficulty are usually those where the numbers are seen through a window of glass or celluloid, and on this transparent material the indicator "hair-line" appears.

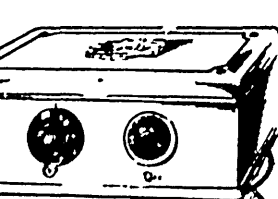
In tuning in, it is necessary to bear in mind the approximate relationships between the several dials of the set. It is useless to swing one dial back and forth over wide spaces and keep the others still. The accurate spot for a faint station is quickly found when the station is once heard, even very faintly, by moving the dial rather rapidly back and forth over only a very few degrees distance. The swing is narrowed until the right spot is found. This is better than attempting to move the dial with microscopic slowness, for you then have difficulty in noting whether the motion causes any change in volume.

Avoid Dampness.
Some loud-speakers are quite susceptible to dampness, the vibrating surface absorbing moisture and becoming soggy. This is especially noticeable in the case of the balsa wood type, because of the many pores and air cells. Hence, if the weather is damp, it is a good stunt to dry out the loud-speaker before an electric heater or coal fire.

Marshall & Co.
Authorized Radio Service
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R-A-D-I-O Exclusively
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Opp. Narragansett Hotel

\$25 Allowance

ATWATER KENTAC RADIO



Just plug in

Model 37... 6 tubes, One Dial A.C. radio completely shielded by satin finished cabinet. Works from house current. Very powerful. Less tubes, \$28

on your present Radio or Phonograph regardless of its condition towards the famous All Electric—Model 37 ATWATER KENT

Operates direct from light socket
HERE IS WHAT YOU GET:
Atwater Kent A. C. 37 \$284.00
7 A. C. Tubes \$26.50
Bosch Cone Speaker
(Latest Model) \$25.00
Allowance for \$130.00
Your Old Set. . . . \$25.00
NET PRICE... \$114.50
\$10 Down
52 Weeks to Pay the Balance.

One Year Guarantee
One Year Free Service
On Year TUBE Guarantee
This is the first time that any radio store has ever given an unconditional guarantee of ONE YEAR on the A. C. Tubes.

UNITED MUSIC CO.
New England's Largest Radio Retailer

233 Weybosset St. Providence, R. I.

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The Last Word in All-Electric Radio

THE traditions of the man who built the first Grebe radio are especially typified in the Grebe Synchronphase A-C Six. The nineteen-year-old Grebe policy not to be hurried into premature production because sets of a similar type had been put upon the market, has now placed at your pleasure an Alternating Current radio of superb tonal quality—incomparable range and selectivity—and unbelievable simplicity of operation.

Price \$254.00—Complete with Tubes
Ask for Demonstration in Your Own Home Without Obligation
LATEST SPEAKERS AND PARTS ALWAYS IN STOCK
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DAY-FAN

A. C. RADIO RECEIVER

Complete with Tubes and Speaker, regularly \$166.50

SPECIAL (Complete) to the extent of our stock

\$99.50

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Step into our store and listen to its beautiful tone. You will find that the tone quality is distinctly Day-Fan, which means—

The voice of the speaker—the sound of the musical instrument "Like opening the door of the studio while the broadcasting is going on."

ALL ELECTRIC NO BATTERIES Never Runs Down

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HARDWARE CO.
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make it more livable, by beautiful
ly reasonable cost.

I look over our complete stock
of Trees and Perennials.

WILLIS NURSERY

LANSTON, R. I. Tel. Broad

1073 RESERVOIR AVE., CRANSTON, R. I. Tel. Broad 2174

In furniture and department stores, Simmons Beautyrest Mattress \$39.50; Simmons Ace Spring \$19.75. Simmons Beds \$10 to \$60; No. 1850, \$37.50. Look for the name "Simmons." The Simmons Company, New York, Chicago, Atlanta, San Francisco.

{ B U I L T F O R S L E E P }.

KDKA—PITTSBURGH—316
10:45 a. m.—Correct time.
11:00 a. m.—Church service.
1.00 p. m.—Golden strand program.
2.00 p. m.—Roxy and his gang.
4.00 p. m.—Correct time.
4.40 p. m.—Organ recital.
4.45 p. m.—Vesper service from Shady

Simmons Ace Spring: The outstanding modern coil spring—light-weight buoyant enduring. The

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

Short Waves Coming Into Own as Channels of DX Reception

Surprising Distances Covered with Simple Regenerative Circuit, Using Interchangeable Coils.—Local Set-Builder Describes His Hook-Up

BY C. NEWTON KRAUS
(President, Brown University Radio Club)

Short waves are coming into their own as channels for DX reception. Due to present conditions, there is little DX possible on the broadcast wave lengths. Most listeners may sometimes bring in stations on the Pacific coast, but they cannot receive outside of North America unless they have exceptional locations. However, signals are better on either side of the 200-metre wave, those beneath it being best for DX purposes.

At 100 metres, conditions are so much better that one may consistently receive European stations on any fairly good night, code signals, of course, predominating.

At 80 metres, daylight reception is consistent up to 500 miles. Reception on any good night will cover the entire world.

At 40 metres, daylight reception is consistent up to 1000 miles. European stations, when conditions are right, come through before dark, and in the morning, just after daylight. Australia and New Zealand are sometimes heard.

The 20-metre band is a little tricky, or, at least, it seems so to the average radio fan who does not understand the theory of short wave transmission and reception. During the daytime, including the noon hour, European stations often come through on 20 metres. The West Coast of the United States can not be heard so well at noon, its short wave transmissions being heard more frequently between 2 p. m. and 5 p. m., Eastern Standard time. After 9 p. m., little is heard on 20 metres, with the possible exception of stations in the Antipodes, as the signals travel so far they literally miss the earth. This is known as "skip distance."

The accompanying diagram is that of an efficient short wave set which the writer has been using with excellent results for some time. Tuning is accomplished with low-loss short wave coils, of which there are several good makes on the market.

L-1 in the accompanying diagram is the antenna coupling coil, which re-

main in the coil mounting at all times. L-2, the secondary, and L-3, the tickler, wound on a common form, are demountable, permitting the operator to use the proper secondary-tickler combination for any wave band he chooses to cover. The antenna coil is placed in close relation to the demountable coil, so that the inductance can be varied when necessary. With each demountable coil (L-2) used, a slight change in the position of the antenna coupling coil (L-1) is necessary for maximum results.

For the benefit of those fans who may desire to construct sets of short wave coils, the following specifications are given for each coil necessary:

Antenna coupling coil—diameter of form on which coil is wound, 2 1/2 inches; 10 turns of No. 22 d. c. c. wire, close wound.

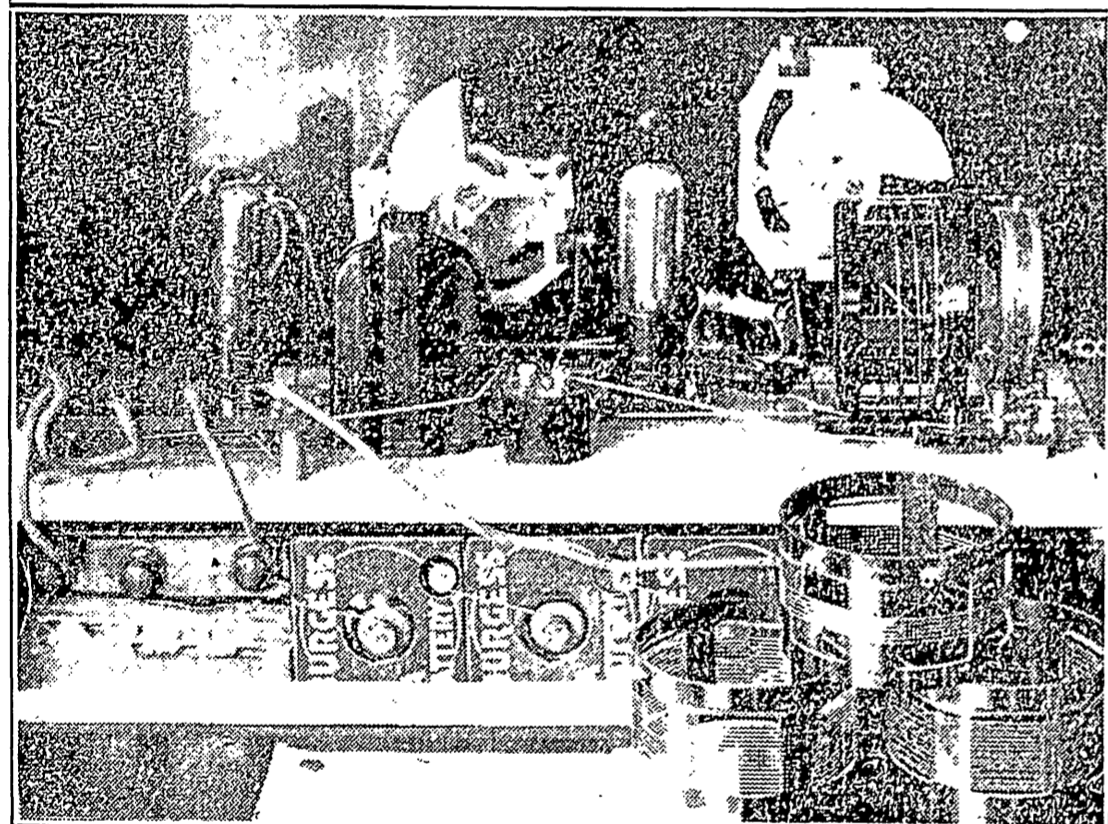
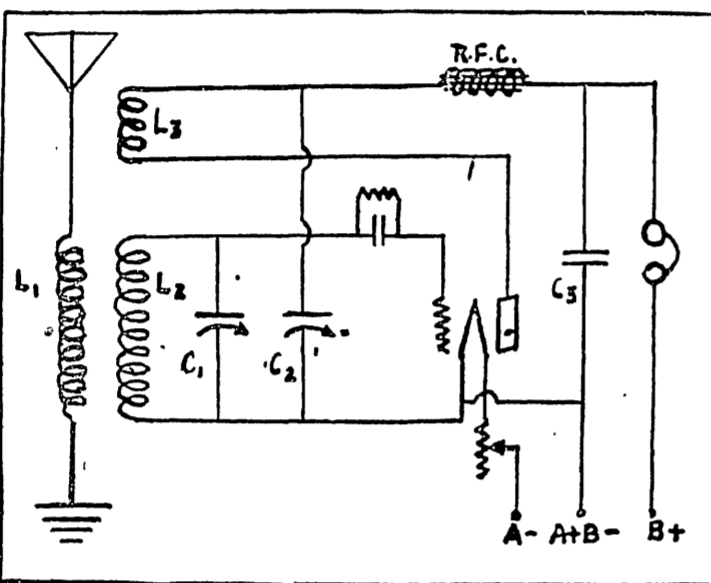
100-metre coil (range, 100 to 200 metres)—diameter of form, 3 inches; secondary, 30 turns of No. 22 d. c. c. wire, turns spaced the width of the wire apart, or slightly more; tickler, 1/2 of an inch away from secondary, 10 turns of No. 24 d. c. c. wire, close or bank wound.

20-metre coil (range, 12 to 22 metres)—diameter of form, 3 inches; secondary, 2 turns of No. 18 copper wire, turns spaced 1/4 of 3 turns of No. 24 d. c. c. wire, close or bank wound.

C-1, shown in the accompanying diagram, is a 7-plate variable condenser, while C-2 is a 13-plate variable condenser. These should be of the straight line wave length type. C-3 is a .0005 by-pass condenser. The grid condenser is of .00025 mfd. capacity. The type of grid leak used depends upon the tube. The writer uses 190 non-microphonic tubes, with a grid leak of 7 to 8 megohms, sealed in a vacuum. R. F. C. in the diagram designates an 85-millihenry radio frequency choke.

At least one stage of audio frequency amplification is recommended for this set. With one stage, the set brings in foreign DX clearly and audibly when headphones are used.

Hook-Up of Short Wave Receiver, Described in the Article



Photograph shows the arrangement of the parts, as well as the relation of the antenna coupling coil (extreme right) to the demountable form on which secondary and tickler are wound. In the foreground are shown 100, 80 and 40-metre coils. The one mounted in the set is the 20-metre coil.

RADIO PROGRAMS

Continued from Page Thirteen.

- 1:00 p. m.—Organ recital.
- 2:00 p. m.—Catholic service.
- 10:15 p. m.—Back home gospel melody hour from the studio.
- 5:00 p. m.—WVLT—NEW YORK—370.
- 5:00 p. m.—Columbus Council, E. C. of C. forum.
- 8:00 p. m.—Services from First Church.
- WNYC—NEW YORK—320.
- 10:15 a. m.—New York Fire Department, Branch No. 131, Holy Name Society, communion breakfast at Hotel Astor.
- WOO—PHILADELPHIA—319.
- 2:30 p. m.—Sunday school.
- 6:00 p. m.—Organ recital.
- 7:30 p. m.—Services from Bethany Presbyterian Church.
- WOR—NEWARK—122.
- 3:00 p. m.—Symphonic hour.
- 4:00 p. m.—Catholic service.
- 5:00 p. m.—H. S. Orloff, garden talk.
- 7:45 p. m.—Sunday evening musical.
- 8:45 p. m.—Kendall Hargrave, song discourse.
- 9:00 p. m.—Operetta in miniature.
- 10:00 p. m.—La Palina.
- 10:15 p. m.—American singers.
- 10:15 p. m.—United Military Band.
- WPAP—PALM BEACH—305.
- 9:00 a. m.—Children's hour.
- WPG—ATLANTIC CITY—213.
- 3:15 p. m.—Organ recital.
- 4:15 p. m.—Community local and instrumental recital.
- 9:00 p. m.—New flashes and baseball scores.
- 9:10 p. m.—Concert orchestra.
- 10:03 p. m.—Sunday evening musical.
- WQO—NEW YORK—291.
- 11:03 a. m.—Catholic morning services.
- 9:00 p. m.—Illustrator Port.
- 7:30 p. m.—Catholic evening services.
- WRC—WASHINGTON—310.
- 11:03 a. m.—Church service.
- 1:00 p. m.—Chamber music.
- 2:00 p. m.—Boy and his gang.
- 3:00 p. m.—Interdenominational Church service.
- 4:00 p. m.—Service from Washington Cathedral.
- 5:30 p. m.—Acoustic hour.
- 6:00 p. m.—National symphony orchestra.
- 6:30 p. m.—Cook's travelogue.
- 7:00 p. m.—Capitol Theatre program.
- 9:03 p. m.—"Our Government," by David Lawrence.
- 9:15 p. m.—Correct time.
- 9:15 p. m.—Atrium K. K. hour.
- 10:15 p. m.—Biblical drama.
- WBNY—NEW YORK—1.
- 8:00 p. m.—Florence Emerick, vocal.

The Dial's Diary

By the Trouble-Shooter

While I'm not primarily in the selling game, I come across many matters in connection with purchasing that I feel point to important lessons of their own. I notice, for instance, that if a radio owner doesn't have luck with a certain plan he tends to want to scrap the whole scheme rather than to see whether he can overcome some of the objections through a compromise.

I remember one radioist who complained because he couldn't get proper reception in his location on the loop aerial with which his set was designed to operate. I looked the situation over and told him that it simply was a matter of his not having the right location for loop success, and before I could get back to him with the necessary equipment to change over to an outdoor aerial he had switched to another make of set, taking quite a bit of unnecessary loss in making a deal with the man who sold him the original equipment.

This was an extreme case. But the thing works out many times in a more modified way. People do not need to scrap good ideas; they only have to tone them down a little. If they can't see the value in going all the way with an idea they should try going part way.

If complete electrification of a set might have its objectives, the logical step is to try using a "B" eliminator. Even after an owner has gone the limit he can go back part way rather inexpensively and without sacrificing advantage which would be lost altogether if he were to stop backward completely. This is well illustrated in the case of an annoyance known as "motor beating," which is due to "B" eliminator characteristics in combination with certain types of circuits.

There are many complicated ways to eliminate this trouble, but in using a "B" battery for the detector plate circuit alone it does not develop. Here is an instance where it is possible to enjoy many of the advantages of "B" elimination while at the same time using battery current for part of the supply.

In Parisian broadcasting, it is not the custom to announce the names of the artists furnishing the entertainment, and, obviously, the announcer himself remains in the background. Just why this should be so is difficult to understand, for France has its idols and the personality of its stage and concert artists carries the same weight as that of comparable artists does with us. Can it be that Parisian artists are not convinced of the value of ethereal appearance? If this is the reason, or any part of it, there are many in this country who feel the same way about it. Tempting prices for radio work, however, are changing the picture considerably.

Brides of Today—And of Yesterday

Many a bride of yesterday recalls with pleasure the time when she bought her wedding gown at The Shepard Stores.

—And many a bride of other days advises her daughter to buy her trousseau, wedding clothes and furnishings for her new home at The Shepard Stores where she bought her own. Many a bride of years ago is still using the linens, silverware and furniture which she purchased at that time.

We Can Offer No Better Suggestion To The Bride Of Today Than That She Follow In The Footsteps Of So Many Other Brides, To

The Shepard Fashion Shops

The smart bride of 1928 chooses a wedding gown as she chooses her other gowns—to suit her type. There are scores of wedding gowns to be seen at The Shepard Fashion Shops—from the creation of heavy satin which is illustrated to one mostly of misty tulle. She chooses taffeta for her bridesmaids because it is chic and becoming. But should she prefer chiffon or lace, The Shepard Fashion Shops are equally ready to supply her demands.

The Bride's Gown Illustrated Below

was inspired by Lelong. It is of ivory bridal satin combined with Chantilly lace. There are scores of other bridal gowns just as beautiful on display \$25 to \$110.

Bridesmaid Frocks

Many smart bridesmaids are wearing taffeta. We are showing frocks that were chosen with a view to carrying out the bride's ideas as to color and style. Their prices range from \$25 to \$75.

There are hats to match many of these frocks or they may be made to order in the millinery Salon, \$25 to \$75.

Flower Girl Frocks

Dainty flower girl frocks are often of georgette pleated or shirred over silk slips. You will find them in sizes for 3 to 6 year olds in the Little Folks' Store, 12.95 to 22.50.

Her Travel Coat

Soft deep pile llama cloth, imported plaids and other soft warm materials make steamer and travel coats that any bride will be proud to wear on her honeymoon. You will find them in the Misses' and Women's Coat Shop.

\$35 to \$135

Her Ensemble

The smart bride will wear an ensemble when she goes away. In our Fashion Shops, she will find ensembles of coat, skirt and blouse and ensembles of frock and coat in pleasing variety.

29.50 to \$295

Her Gloves

They should be chosen as these were to accompany a particular costume. These are egg-shell color suede to match the ensemble. There are gloves for every occasion in every smart style in The Shepard Glove Store.

3.50 to 4.50

—And Hose

Here are the bride's own hose, sheer chiffon to match her wedding gown too. The bridesmaid's hose may be bought here or may be dyed to order to match their frocks.

1.95 to 3.50

Charming Slippers

Poor Cinderella had to wear glass slippers. The bride of 1928 wears slippers of softest white kid. They are usually in opera style, very plain but very smart.

\$10

Her Travel Frock

Frocks chosen for travel are usually dark in color and simple of line. There are many delightful frocks for this purpose in The Shepard Fashion Shops. The one illustrated is of beige flat crepe.

16.50 to \$65

Her Bridal Set

Brides will love the new lingerie that we are showing for them. An ensemble of gown and three quarter coat is of sheer white georgette trimmed with Margot lace. It is charming and chic—Second Floor.

\$25

Her Hand Bag

This smart bag is of brown antelope with a jeweled clasp of marcasite. We are showing many other bags suitable to carry on the honeymoon and afterward.

\$10 to \$35

Her Perfume

Gardenia de Chanel is one of those perfumes that one likes for its fragrance and also for its exclusiveness. Brides will find that it may be purchased only at The Shepard Toilet Goods Store.

1 1/2 ounce bottle
13.50

Her Kerchiefs

Tiny squares of linen decorated with Appenzell embroidery or trimmed with lace—handkerchiefs for the bride to carry on the great occasion and afterwards. Bridal handkerchiefs.

\$2 to \$5

The Shepard Stores