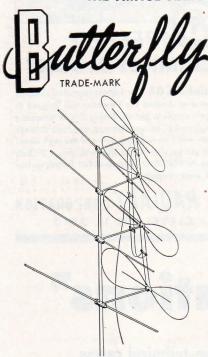
# 10-DAY TRIAL

OF THE BEST-PERFORMING LOW-PRICED, ALL CHANNEL ANTENNA ON THE MARKET!

THE FRINGE AREA



You can enjoy perfect long-range television reception for 10 days with a Fringe Area Butterfly — and it won't cost you a cent for its use.

To acquaint you with this outstanding new all-channel antenna, Tel-a-Ray will send you a Fringe Area Butterfly you can use for 10 days.

If you want to keep the Butterfly after 10 days, you may do so at a price of only \$29.95 (list price) for the four-bay array shown above. If not, send it right back.

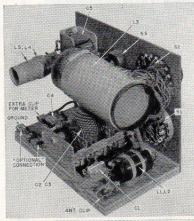
Your only cost for using this matchless, long-range, all-channel antenna for 10 days is the shipping charge.

Give your family or customer TV reception at its best. Try a Butterfly! It's a Tel-a-Ray exclusive.

#### TEL-A-RAY

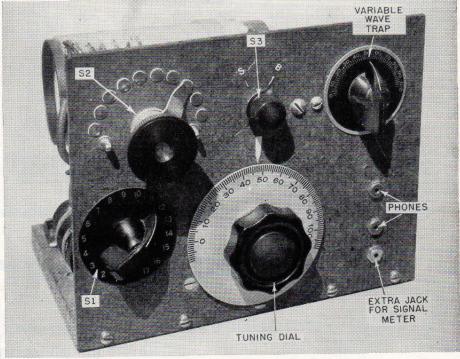
ENTERPRISES, INC.
HENDERSON, KY.

### DX CRYSTAL



## RADIO RECEIVER

By JOSEPH AMAROSE



RYSTAL radio fans follow a pattern. They search everlastingly for a newer, better circuit that will excel their previous best effort. They want better volume, greater selectivity, higher sensitivity. Everlastingly, too, they must compromise, for no such optimum state can be achieved. Occasionally, an experimenter does find a circuit that is outstanding. Such is the hookup shown. No novelty is claimed, however; basically the circuit is old—only a few embellishments have been added. Nor must the reader expect that this receiver combines all the desired characteristics. What the writer (who has spent some 30 years testing and building the latest crystal "super-doopers") does promise is an unusual, versatile receiver that has consistently given fine results.

All last winter (in Virginia) this receiver tuned in stations from Canada to Cuba and from the Atlantic to the state of Utah, sometimes as early as 8 pm. Transmitters in Atlanta, Louisville, Chicago, Detroit, New York, New

Orleans and Cleveland were most frequently logged. Even on the hottest summer nights, dx came in with impressive regularity.

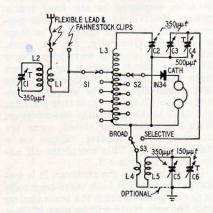
No less impressive is the selectivity of this rig. All six of the Richmond locals are received clearly with no annoying hash or cross-talk. And three of these stations are only 40 kc apart! Worse still, one is a weak sister between two strong ones. Yet this set gets all with ease. With proper co-ordination of controls all locals (from 910 to 1480 kc) can be tuned in with just the one main tuning dial. Tested in Baltimore by M. M. Schuman, another old-timer (who built this set), the receiver tuned in all eight locals clearly there, plus the more distant WTOP in Washington, D. C.

Volume on the locals is high. Richmond's WRNL, 5,000-watt transmitter, five miles away, operates a magnetic speaker loud enough to be heard clearly 15 feet from the reproducer. It doesn't shake the rafters but every word of speech is intelligible at that distance.

RADIO-ELECTRONICS

How are these results achieved? First and foremost, for good dx, the antenna system should be of the best. A 125-foot aerial was used, 31 feet high, with the lead-in taken from the far end; this proved better than the usual "L" type. Total antenna wire to the set was 260 feet. Shorter aerials are O.K., if high.

The fixed antenna wave trap, L1, L2 and C1, is to be used only when two strong stations interfere. Set C1 so it confines the most troublesome station. For dx work, eliminate this trap entirely! Sensitivity is higher.



PARTS LIST

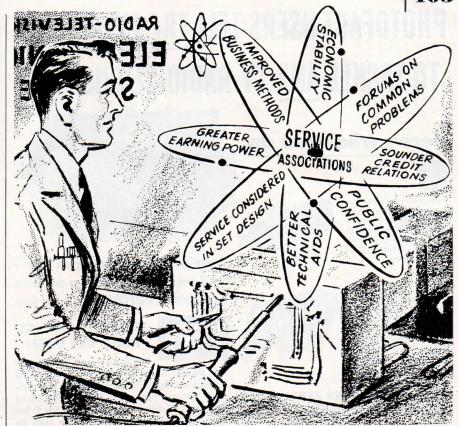
C1—350-μμf trimmer.
C2, C3—2-gang 350-μμf variable capacitors.
C4—500-μμf trimmer.
C5—350-μμf variable capacitor.
C6—150-μμf trimmer.
S1—17-point switch.
S2—10-point switch, or 10 switch points and lever.
S3—S.p.d.t. panel switch.
Other materials needed are coils as given in the table, a crystal, a pair of sensitive phones and the necessary panel, breadboard, hardware, etc.

The main tuning coil, L3, is an MRL (Modern Radio Laboratories, 1131 Valota Drive, Redwood City, Calif.) "low-loss" type. The constructor can make his own by winding 90 turns of No. 22 double-cotton-covered wire on a 2-inch plastic coil form 4 inches long (actual winding is 3 inches). Brush on a layer of very thin coil cement to make it stick to the coil and tap both antenna and secondary sides. Tap the antenna side every three turns from the 3rd to the 51st, and tap the secondary every five turns from the 5th to the 50th. Lift the turns with an ice pick to solder.

A standard 2-gang capacitor is used for C2 and C3, with a 500-uuf trimmer across the second section, for bandspreading on high frequency end. Adjust this trimmer, C4, for best volume on a 1000 kc station.

Switch 1 selects the proper antenna primary-coil tap. Switch 2 is used to match the impedance of the crystal. Tune in all locals, select the setting that gives best selectivity with good volume, and leave set. From ground end switch 3 provides a choice between peak sensitivity and high selectivity.

In the variable trap, L4, L5 and C5, a Carron S-645 coil is used. The primary, secondary and variable capacitor are series hooked. An "optional connection" is shown. If used, it makes a conventional wave trap of the section. Not used, another tunable circuit is provided, acting like a series-tuned loading coil and capacitor. With this arrangement, tuning is better.



### THE MODERN ELECTRONIC TECHNICIAN HAS A NEW VIEWPOINT!

A changing attitude on the part of the radio and television service technician is the thing that is pulling the electronic service profession out of the doldrums. He is learning that he cannot call himself a success, as an individual, until he can look around and see other technicians who have assets he can admire or compare with his own. As long as there are too many in his profession operating without scruples, and trying to get along under a "hand to mouth" economic operation without adequate testing instruments and other technical aids, there is not much to measure one's success by.

His interest and attendance at the local service association meeting shows that the modern Electronic Technician is beginning to look beyond the "tip of his soldering iron." Through these associations, he is rapidly gaining recognition, not only in his own community, but also in the vast electronic industry, as being an essential link between the manufacturer and consumer.

In addition to getting valuable technical "know-how" from noncommercial sponsored lectures and demonstrations, he is finding out how to make his business bring a fair return on his rather large investment in training, experience, and testing instruments. He is also learning how to be fair to both his customers and himself by keeping his "know-how" and test equipment up-to-date and not resorting to price cutting for his service in diagnosing trouble.

As technicians gain that feeling of mutual respect and esteem among themselves by regarding each other as business associates instead of raw competition, their most valuable asset-technical "know-how"-will no longer be obscured. The technician's interest in matters which affect his economic welfare will lead him and the entire service industry to greater economic stability.

The time and money you devote to your service organization is not an expense—it is an investment in your future that will be paid back many, many times.

Our 25th Year



"SUPREME BY COMPARISON"

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