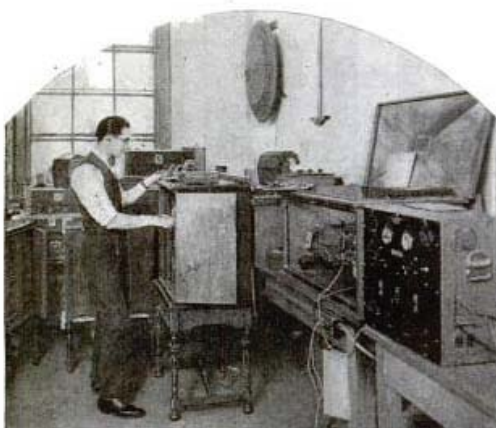


Where the New 1931 Sets Differ



Sets that pass these tests at the Institute Laboratory may be bought with confidence.

THERE have been no principal circuit changes in radio receiving sets for the new season; the improvements are all in refinements.

Radio receivers for 1931 are slightly more selective and the selectivity is more nearly uniform than in last year's sets. In this particular feature, however, there is still some room for improvement.

The sensitivity of the new sets, or their ability to bring in distance reception, is more even and uniform than previously. The old sets frequently were sensitive over one section of the dial, but on the longer wave lengths the sensitivity usually dropped considerably. The new receivers, on the other hand, have a more even sensitivity over the entire wave band.

Now, more than ever before, there is no need of waiting for perfection. The fidelity of reproduction made available this year—and this is the feature that ninety percent of the radio buyers consider most important—has not exceeded the high degree of perfection attained last year. In fact, sets now are so faithful in their reproduction that manufacturers have had to put on a "tone control" to make them sound better to the average human ear which is not able to appreciate or care for a reproduction too nearly perfect. These tone controls, which are being used in more than fifty percent of the new sets, permit the user with an untrained ear to distort the tone quality to the point where it sounds best to him.

IN addition to these tone controls, there are many other accessories to be found on a number of the new receivers. Automatic volume control, a feature by which volume may be adjusted once and will remain constant or practically constant all the time, is found not only on many of the higher priced sets but also on a good many of those more moderately priced. Remote control is another feature that will be afforded by a number of sets, usually as an optional accessory.

*Refinements Are Available
This Season in Both High
and Moderate Priced Radio
Receivers—Cabinets Better*

*By F. G. PRYOR
Secretary, Popular Science Institute*



Cross-modulation, a defect that caused the POPULAR SCIENCE INSTITUTE to refuse approval to several radio sets two years ago and to quite a few last season, appears to be satisfactorily handled this year by various methods, a process called "pre-selection" being most frequently used to take care of this.

A thing that will prove striking to the public is that, before the season is out, the super-heterodyne type of set will be available from several manufacturers, whereas previously such sets were to be had from only one large company.

Also, by the time the season gets under

way, there are a number of manufacturers who will put out some extremely compact receivers. These small receivers are designed to fill a special need rather than replace the average set. In putting such sets on the market, manufacturers expect that their sale will be in households where it is desirable to have a second radio set in another part of the house to supplement the regular family receiver installed in the living room. These small sets are not up to the larger and more expensive ones in efficiency, of course, but they provide satisfactory reception and many people will want them installed upstairs, in the kitchen, or in some other part of the house where the regular set is not audible.

As a general thing, there has been no attempt to cut down the size of the radio receivers made for ordinary purposes. Better cabinets are used today, there being a definite improvement in this respect. Cabinets seem to be one extreme or the other this year, the majority being made along very plain lines, though a few are a trifle ornate in appearance.

ON the whole, the radio receiving sets today are sturdier, need less servicing, and represent better value than ever before. While the average price level will remain the same as in the middle of last season (about \$140), the buyer with only a small amount to spend can get a set this year that will suit normal requirements, while others, with more to invest, will get greater returns for their money than was possible any season previous to this. Never before would an investment in a radio receiving set bring so much as it will at the present time.

POPULAR SCIENCE INSTITUTE has tested many of the new sets and will gladly supply readers with a list of those found up to 1931 standards of efficiency and value. The Institute's tests are made in its well equipped laboratory at New York University, and the performance of the various sets is carefully measured. For the approved radio list, address POPULAR SCIENCE INSTITUTE, 381 Fourth Ave., New York, N. Y.

INSTITUTE BULLETINS

Refrigeration for the Home*

House Heating and Ventilating*

Insulation in Building Construction*

List of Approved Tools

List of Approved Radio Equipment

List of Approved Oil Burners

Advice on Installing Oil Heat

*Starred bulletins 25 cents

Find the Five Mistakes in Each Photo

In each photo George is doing something wrong. Also in each photo there are four errors deliberately put there by trick photography. Find what George is doing wrong and the four errors made by our trick camera. Send us your answers and you may win one of the many cash prizes. Read the rules and list of prizes on the preceding page.

Friendly George volunteers to fix a puncture on his friend's car. He takes the flat off and immediately attacks it with a tire iron while his friend bewails the lack of a spare tire. Is he right or wrong?



If someone asked George Knowitall to make a radio play the music faster or slower, he would tackle the job. So when he finds his neighbor's synchronous electric clock is several minutes slower than his watch, he offers to make it go faster. He is sure the "last-show" lever is somewhere inside and that all he has to do is take the face of the clock off to get at it.

Now—Radiophoto Storm Charts Sent to Ships at Sea



1 Radio operator on board ship sends out his report. From each radio-equipped vessel goes daily information of weather conditions as entered in the log. These records, all pouring into the office on shore, are sorted and sent to the Weather Bureau.



2 In the land office operators receive the weather reports. These data come not only from ships, but also from more than thirty foreign countries.

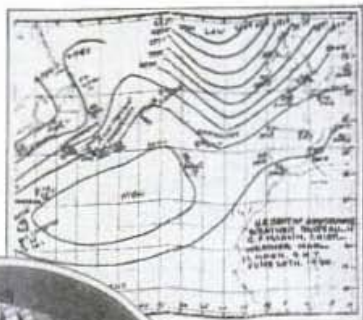
FOR the first time in history, a weather map was sent by radiophoto from shore, a few weeks ago, to a transatlantic steamer at sea.

Such service is now broadcast as a regular feature of the Photo Radio News which is transmitted daily to ships for experimental purposes by the Radio Corporation of America. Cooperation between this company and Dr. James H. Kimball, famous authority on ocean weather, of the New York office of the U. S. Weather Bureau, resulted in this latest step in protecting vessels at sea.

The original map is prepared by Dr. Kimball from data sent in from ships at sea and from American and European weather stations.

The codes used in transmitting weather information are so simple that just a few code words are needed to give all essential facts. For instance, "Exbrook, handy, dice, signal, tense, Gemsbok," when decoded at the Weather Bureau office, means: "Steamer Exbrook, 7 p. m. July 20. Latitude twenty-six degrees, twenty-four minutes north. Longitude, eighty-seven degrees, six minutes west. Barometer 28.94. Temperature, 84. Southeast wind, eighteen miles an hour. Sky overcast."

As such reports reach Dr. Kimball's New York office, the information is used to make a map of the Atlantic area. As soon as it is completed, the map is rushed to station W2XAO at New Brunswick, N. J., and then transmitted.



Above is a small reproduction of the first weather map transmitted by radiophoto to ships in mid-ocean.



3 At the Government's Weather Bureau the map is made. As fast as the messages are decoded, their facts go on the map which is then sent to the land station for finishing.

4 Photo transmitting apparatus in the land station sends the map by wire to the radio station in New Jersey, after the weather man's pencil lines are inked in.



Captain and chief officer study the map.



5 The transmitting station at New Brunswick, N. J., puts the finished map on the air. Thus radiophoto enables ship captains, thousands of miles away, to see exactly what kind of weather lies before them, and they can then by a course that is free from storms.

6 The map is received on board ship. Vessels using this service have installed picture-receiving equipment which records the map in clear, accurate facsimile.