Radio News
March, 1937

Italy's Progress
in the
VIDEO ART

With radio's future so definitely tied up with television development it is only fitting that progress in this art all over the world should be of foremost interest to the wideawake radioman. This short article tells of the progress Italian engineers are making with cathode-ray television and it is significant that in most countries this method is proving the one through which the best results are being obtained.

By the Television Reporter

CONSIDERABLE activity and development improvement in Italy, in the "video" art, is now apparent to your reporter after an examination of their latest television instruments. The SAFAR organization, which is the only manufacturer in that country producing this kind of equipment, has recently demonstrated a new 15-tube television receiver using a huge cathode-ray tube that gives high-definition television reception in actual black-and-white images. The system used is that of Arturo Castellani, head of the Italian Laboratory for Television Researches. The development of this new receiver and of the transmitting apparatus, which uses wavelengths between 5 and 7 meters, follows a course somewhat parallel with those of Farnsworth, RCA and Philco in America, and Baird in England, Telefunken in Germany and other developments in France, Russia and Japan. The apparatus, however, has been worked out with such regard to fidelity in reception and fineness of manufacture that it should be brought to the attention of television enthusiasm everywhere. This is evident from the illustrations accompanying this article.

Steady Progress

SAFAR first started its television activities in 1930 and its first successful tests were carried out at Milan at the National Radio Show of that year. The first transmissions and receptions employed Nipkow disks with a synchronization system using impulses transmitted along with the signal. These first images were of 60 lines and 25 frames per second.

In 1931 the company instigated the establishment of experimental laboratories for the development of luminous gas lamps and other types of tubes for television. In 1932 a new disk receiver with a mercury-vapor lamp was demonstrated and a rather successful experimental service through the period the show was held. This included an ultra-short-wave television transmitter working on 7 meters with 100 watts power.

After that a 1 kw. transmitter was developed and installed and tests were made with various early types of cathode-ray tubes, including a whole series of experiments with different kinds of fluorescent substances. The first public demonstration of cathode-ray television in Italy was made with 130 and 240 line transmissions utilizing frequencies from 25 to 1,000,000 cycles wide. During 1933 and 1934 the researches were advanced and a 13-tube system was developed utilizing the SAFAR "Televisor" cathode-ray tube, with an image of 180 by 210 millimeters. In 1935 the development progressed to a point utilizing similar but improved equipment, with 240 lines and 25 frames per second.

(Turn to page 575)
TRIAD radio tube FREE! List Value $1.25
A DARING NEW PLAN!
Try TRIAD Tubes... and we know you'll be convinced of their superior quality. To illustrate... we make this free offer: Send us your name and address on coupon below and we'll send you a TRIAD T-10 Tube absolutely FREE. We will even pay the postage! Plus a Fill-in-the-blank: If you are not completely satisfied with the TRIAD T-10 tubes in every respect, return them to us at our expense. We'll refund your money! And you pay nothing! No purchase necessary. Try TRIAD Tubes today! Write today for FREE COPY and learn how you can save up to $1.25 on a tube that yields maximum performance. Write today. TRIAD MANUFACTURING CO., INC., PAVTUCKIE, B. I.

LEARN CODE—
And now! Always Tops
Complete, unviwed in all departments. For easy reference: when you order, for instructions...

Radio engineering
Read Classified Advertising—It Pays
Advertisements in this section contain a word for each insertion. Name and address must be included at the same rate. Cash should accompany all classified advertisements. We will not be responsible for loss or damage. No testimonials for less than $10 words accepted. Objectionable or misleading advertisements not accepted. Advertising for those columns should reach us not later than third of 80 months preceding issue.

Italian Television
(Continued from page 519)

This development was continued through 1930 and resulted in the present apparatus which transmits and receives scenes, in artificial or ordinary day light and gives a three dimensional picture of 740 by 280 millimeters using 75 black and 25 frames per second in a perfectly black-and-white picture. The system transmits and receives both television signals on 7 meters with the sound accompaniment on 6.7 meters. In the newest receivers the large cathode-ray tube is mounted, so that it can be seen through the illustrations, on a rigid metal frame (duralumin) into which it fits, with the fluorescent screen at the top. A 45-degree mirror projects the image so that it can be seen through an opening in the upper front portion of the cabinet. There are three controls used in this system, which are shown in the illustrations. The loudspeaker is also mounted on this frame. The receiver itself is made in two parts, which are hinged so as to be easily moved, each part folding down into one-half of the receiver chassis proper. One portion contains the power apparatus and the sweep circuits, etc., and the other contains very closely all for these receivers. The value of this little chart to owners is that they can determine, in terms of relative voltage inputs, improvements brought about by changes in antennas; or they can make up "R" scales according to their own inspections, but based on actual readings. The degree of fading of any given signal can also be recorded (a record greatly appreciated by broadcast stations when receiving reports from DX listeners).

The band-spread system, which is automatically cut in on the three high-frequency ranges, is invaluable to the operator. So effectively does it spread the stations that tuning in the short-wave ranges is no more critical than in the regular broadcast range. With the main dial set at 50 megacycles, in the 50-100 meter range, for instance, the 100-degree band-spread

"BuLLeT" DYNAMIC MICROPHONES

AT LAST an ALL-PURPOSE Microphone...
T. R. 2—Standard model "Buliet"... the ultimate in dynamic microphones... List price $39.50.
T. R. 3—New model "Buliet"... smaller than T. R. 2 but with relatively the same characteristics... List price $34.50.

Consider these outstanding "BULLE" features combined in one microphone...
- Maximum sensitivity
- Remarkable tone quality
- Effective at long distance from amplifier
- Attractive, modern appearance
- Uniform, Calif. for severe outdoor work

Send for circular and technical data.

Radio engineering
RCA Institutes offer intensive courses of high standard embracing all phases of radio. Prerequisite: High School Course and College experience in Mathematics and Science. Send application to RCA INSTITUTES, Inc., 33 West 42nd St., New York City.

RCA INSTITUTES, Inc.
71 Varick St., New York 124 Merchandise Mart, Chicago

Read Classified Advertising—It Pays
Advertisements in this section contain a word for each insertion. Name and address must be included at the same rate. Cash should accompany all classified advertisements. We will not be responsible for loss or damage. No testimonials for less than $10 words accepted. Objectionable or misleading advertisements not accepted. Advertising for those columns should reach us not later than third of 80 months preceding issue.

Italian Television
(Continued from page 519)

This development was continued through 1930 and resulted in the present apparatus which transmits and receives scenes, in artificial or ordinary day light and gives a three dimensional picture of 740 by 280 millimeters using 75 black and 25 frames per second in a perfectly black-and-white picture. The system transmits and receives both television signals on 7 meters with the sound accompaniment on 6.7 meters. In the newest receivers the large cathode-ray tube is mounted, so that it can be seen through the illustrations, on a rigid metal frame (duralumin) into which it fits, with the fluorescent screen at the top. A 45-degree mirror projects the image so that it can be seen through an opening in the upper front portion of the cabinet. There are three controls used in this system, which are shown in the illustrations. The loudspeaker is also mounted on this frame. The receiver itself is made in two parts, which are hinged so as to be easily moved, each part folding down into one-half of the receiver chassis proper. One portion contains the power apparatus and the sweep circuits, etc., and the other contains very closely all for these receivers. The value of this little chart to owners is that they can determine, in terms of relative voltage inputs, improvements brought about by changes in antennas; or they can make up "R" scales according to their own inspections, but based on actual readings. The degree of fading of any given signal can also be recorded (a record greatly appreciated by broadcast stations when receiving reports from DX listeners).

The band-spread system, which is automatically cut in on the three high-frequency ranges, is invaluable to the operator. So effectively does it spread the stations that tuning in the short-wave ranges is no more critical than in the regular broadcast range. With the main dial set at 50 megacycles, in the 50-100 meter range, for instance, the 100-degree band-spread system 

"Buliet" DYNAMIC MICROPHONES

AT LAST an ALL-PURPOSE Microphone...
T. R. 2—Standard model "Buliet"... the ultimate in dynamic microphones... List price $39.50.
T. R. 3—New model "Buliet"... smaller than T. R. 2 but with relatively the same characteristics... List price $34.50.

Consider these outstanding "BULLE" features combined in one microphone...
- Maximum sensitivity
- Remarkable tone quality
- Effective at long distance from amplifier
- Attractive, modern appearance
- Uniform, Calif. for severe outdoor work

Send for circular and technical data.

Radio engineering
RCA Institutes offer intensive courses of high standard embracing all phases of radio. Prerequisite: High School Course and College experience in Mathematics and Science. Send application to RCA INSTITUTES, Inc., 33 West 42nd St., New York City.
TELEVISION RECEIVER PROPER

This is the receiver unit which tunes in both sight and sound programs. The r.f. amplifiers are on a hinged chassis which may be tipped up for easy servicing.

The Radio Beginner

(Continued from page 563)

leads pass through holes. You should be able to receive all the local stations and many distant ones. The original model brought in stations in Philadelphia in the daytime without any difficulty and that was in a noisy downtown location.

<table>
<thead>
<tr>
<th>Parts List</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1-Electro, type 266, potentiometer, 25,000 ohms</td>
</tr>
<tr>
<td>R2, 3-500 ohms</td>
</tr>
<tr>
<td>R3-100,000 ohms, I.R.C. carbon resistors, 10 ohms, 1-1000 ohms</td>
</tr>
<tr>
<td>R4, 1-200 ohms, 1-600 ohms</td>
</tr>
<tr>
<td>R5-100,000 ohms</td>
</tr>
<tr>
<td>R6-100 ohms</td>
</tr>
<tr>
<td>R7-100 ohms</td>
</tr>
<tr>
<td>R8-100 ohms</td>
</tr>
<tr>
<td>R9-100 ohms</td>
</tr>
<tr>
<td>C1-1-220,000 mfd, 250,000 mfd</td>
</tr>
<tr>
<td>C2-400,000 mfd, 250,000 mfd</td>
</tr>
<tr>
<td>C3-400,000 mfd, 250,000 mfd</td>
</tr>
<tr>
<td>C4-400,000 mfd, 250,000 mfd</td>
</tr>
<tr>
<td>C5-400,000 mfd, 250,000 mfd</td>
</tr>
<tr>
<td>C6-400,000 mfd, 250,000 mfd</td>
</tr>
<tr>
<td>L1-Messier, type 1085 low impedance anten</td>
</tr>
<tr>
<td>L2, L3-Messier, type 1084 low impedance r.f. coil</td>
</tr>
<tr>
<td>L4-National, type C, dial-range, variable-coil r.f. coil</td>
</tr>
<tr>
<td>L5, L6-National, type C, dial-range, variable-coil r.f. coil</td>
</tr>
<tr>
<td>L7, L8-National, type C, dial-range, variable-coil r.f. coil</td>
</tr>
</tbody>
</table>

TUNG-SOL

Jone-flow radio Tubes
TUNG-SOL LAMP WORKS, INC.
Radio Tube Division
NEWARK, N. J.