

◊ * ◦ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

one of 15 watts. But if we compare two 100-watt lamps, one a few feet away and the other at a distance of a mile, the latter looks fainter because it is so much farther away. The same thing is true of the stars. The sun is a star, similar to those we see at night, but it seems so bright because it is not far away, only about 93,000,000 miles, which is right on our door-step, astronomically speaking. Sirius is at a distance of about 52,000,000,000,000 miles, and looks about one ten-billionth as bright. However, the sun itself at the same distance would look still fainter, for Sirius is actually about 27 times the sun's luminosity. Since it is only about 80% larger than the sun in diameter, its surface area is about ten times as great. Therefore, each square inch of the surface of Sirius must emit more light than a square inch on the sun, which means that its surface temperature must be higher. Astronomical studies show that it is—nearly twice as hot as the sun, which is around 11,000 degrees Fahrenheit.

Rigel Is Luminous

Of the conspicuous stars, one of the most luminous is Rigel, in Orion. As we see them in the sky, Rigel looks about a sixth as bright as Sirius, yet measures of its distance show it to be at 540 light years, or about 63 times as far. Its luminosity is about 18,000 times as much as the sun's. It is a little hotter than Sirius, but far bigger, with a diameter about 42 times

that of the sun. Thus, there is much more of Rigel to shine, and that is why it is so brilliant. Even this does not hold the record, but a comparison of the sun, Sirius and Rigel does give us some idea of the great range that exists among the stars in their physical characteristics.

Time Table for February

Feb.	EST.	
2	5:16 p. m.	Full moon
3	3:00 p. m.	Jupiter in same direction as sun
5	1:55 a. m.	Algol at minimum
	4:47 a. m.	Moon passes Saturn
6	7:00 p. m.	Moon nearest, distance 228,850 miles
	9:10 p. m.	Moon passes Mars
7	10:42 p. m.	Algol at minimum
9	1:32 p. m.	Moon at last quarter
10	10:00 a. m.	Mercury farthest west of sun
	7:30 p. m.	Algol at minimum
13	4:25 p. m.	Algol at minimum
14	1:01 p. m.	Moon passes Mercury
	3:33 p. m.	Moon passes Venus
16	5:53 p. m.	New moon
22	1:00 p. m.	Moon farthest, distance 251,520 miles
24	8:52 p. m.	Moon in first quarter
25	3:40 a. m.	Algol at minimum
28	12:30 a. m.	Algol at minimum

Subtract one hour for CST, two hours for MST, and three for PST.

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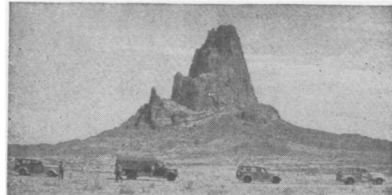
linking of the eastern and midwestern coaxial cable systems, bringing 14 metropolitan areas into the coaxial cable and microwave relay chain, the Commission declares. Simultaneous networking of programs could make possible the viewing of a program by about one-third of the population of the country.

When the Commission came into being in 1934, standard broadcast was the only form of radio program service, and non-broadcast stations were few in number. Today the radio spectrum is crowded with about 50 different classes of stations engaged in radio communication. They represent more than 700,000 radio licenses and other authorizations, not including 200,000 associated mobile units. Even with the advent of FM (frequency modulation) and television broadcasting, non-broadcast stations outnumber program stations by about 36 to one.

FM service, the static-free type of ordinary radio programs, is available over almost all of the eastern half of the United States, over most of the west coast area, and in a number of cities and adjacent rural areas in the West. More than 100,000,000 people are now within range of FM stations. The past year was the first in which facsimile was operated on a commercial basis, FM stations being used.

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RADIO

Video Growth Reported

➤ OVER 3,000,000 television receivers are now in use, and 71 television stations are serving 42 cities and metropolitan districts, the Federal Communications Commission states in its annual report. TV network facilities link 24 cities.

In addition to these 71 stations, more than 200 television stations are in experimental operation. At the end of the fiscal year covered by the report, June 30, 1949, there were 175 experimental TV stations

licensed by the Commission and 30 outstanding construction permits.

Included in these figures were 136 relay stations operating in the microwave region and used primarily as television pick-up, television studio-transmitter link, and interim television intercity relay stations. Thanks to these relays, television is no longer limited by the horizon.

The principal development in the expansion of TV network facilities was the

