Billings, D. E. New determination of coronal temperature from emission lines.

When the temperature of the solar corona is determined from the emission lines it is usually done by measuring the Doppler profile of the lines and assuming the broadening to be thermal, or it is done by measuring the ratio of the intensities of two lines representing different degrees of ionization of iron. The two methods have always led to widely different results, the former giving temperatures of about 2,000,000°, the latter temperatures of approximately 700,000°.

Spectra from the new Climax spectrograph are of a sufficiently high dispersion that line widths may be determined from them with a considerable degree of precision. I have traced profiles of a large number of red, $\lambda 6374$, and green, $\lambda 5303$, coronal lines from this spectrograph, and from the profiles have computed the temperature by both the methods discussed above. The temperatures computed by the two methods, though very different, show a marked correlation, indicating that the broadening of the coronal lines is primarily thermal. If this is the case, the temperatures must be in the 2,000,000° range, since there are no uncertain parameters in the line-width method of computation. Hence the atomic parameters that have been used for the computation of temperature from the ratio of the line intensities should be re-examined. It appears that the uncertainty in the collision cross-section for ionization of the already highly-ionized iron atoms may be sufficiently great to account for the discrepancy between temperatures computed by the two methods.

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*High Altitude Observatory,
Boulder, Colo.*

Billings, D. E., Lee, R. and Newkirk, G. A television device for detecting solar flares.

A system has been devised to allow the direct viewing of solar flares and plagues in the light of the K line of calcium. The light is restricted to a narrow, 3.7Å, band pass at the center of the K line by means of a two-element, quartz, birefringent filter. Undesired maxima of the filter transmission are eliminated by means of a Baird multilayer filter. A grating prevents the light from any subsidiary transmission bands from reaching the detector.

The monochromatic image of the sun falls on

the photosensitive surface of a vidicon tube and a closed-circuit television system reproduces the image on the picture tube, where the plagues and flares are monitored.

The optical system is mounted on a biaxial pointing control so that the instrument may be conveniently operated on shipboard. The system is to be part of the equipment carried by a ship which will fire atmospheric sounding rockets during the times of solar flares.

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*High Altitude Observatory,
Boulder, Colo.*

Bok, Bart J., Ewen, Harold I. and Heeschen, David S. The George R. Agassiz radio telescope of Harvard Observatory.

The new 60-foot paraboloidal radio telescope at Agassiz Station is mounted equatorially. Since the April 28 dedication of the instrument, the adjustment of the polar axis of the equatorial mounting has been completed to within an accuracy of two minutes of arc. Final precise alignment of the declination axis is in progress and the position indicators and tracking system are being checked. The sag of the feed support amounts to at most a few minutes of arc and efforts were in progress during the summer to eliminate most of this sag.

The new electronic equipment is undergoing final tests and adjustments. The 20-channel system should shortly be ready for testing on discrete radio sources, but some delay is expected before the complete typewriter unit will be in operation. We are aiming at a resolution in frequency at 1420 mc/sec of 5 kc/sec, equivalent to a resolution in radial velocity of about 1 km/sec.

The research program of the 60-foot George R. Agassiz radio telescope will be concerned initially with problems relating to the 21-cm line of neutral atomic hydrogen. The search for and study of small-scale concentrations of $H\text{I}$ is one of the major items of the program. Through studies with the new instrument, we hope to contribute effectively to our knowledge of the fine structure of the interstellar gaseous medium. Correlations between $H\text{I}$ features and cosmic dust clouds and between $H\text{I}$ features and optical interstellar-absorption features will be studied with the new equipment. Special attention will be paid to neutral atomic hydrogen in clusters, associations