by the noise tube was measured by four different calibration methods in order to avoid possible systematic errors associated with any single method. The methods employed were: a comparison between the effective temperature of a room temperature resistor and a helium cooled waveguide termination; the direct connection of the noise tube through precision attenuators; the increment in effective temperature produced by a variable attenuator mounted in front of a helium cooled termination; and the increment produced by warming a room temperature termination. The resulting probable error in the calibration is approximately 0.5%.

The radiometer employs a travelling wave maser and a low-loss comparison switch. The system temperature is 19°K for zenith orientation. The system gain was found to change less than 1% per hour during a forty minute observation period, and was thus sufficiently stable to permit all observations to be made with the radiometer operating in an unswitched mode.

The gain of the horn-reflector antenna used was obtained by comparison with that of a small standard horn mounted beside its aperture, while the whole assembly was pointed at a helicopter-borne source. The gain of the standard horn was subsequently measured in the laboratory. From these measurements we were able to obtain the gain of the antenna with probable error of approximately 2%.

Combining the results obtained above and making a correction for atmospheric absorption based on our measured value of the sky temperature at this frequency (2.3°K) we arrive at a flux density of $1.09 \times 10^{-23} \text{ Wm}^{-2}(\text{c/sec})^{-1}$ with a total probable error of 2%.

Balmer Line Strengths in Peculiar A Stars. II. H. JOHN WOOD, *Leander McCormick Observatory*.— H_β -type photometry of H_β , H_γ , and H_δ in the Ap stars ϵ UMa and HD 224801 confirms the variability of the lines in these magnetic stars. Calibration of the narrow-band data in terms of equivalent widths is presented.

Quantitative verification of the spectrophotometric results reported earlier (Wood, H. J., *Publ. Astron.*

Soc. Pacific, 76, 158, 1964) for ϵ Ursae Majoris is now available. Rapid changes in the effective equivalent width of H_β of more than $1 \text{ \AA} \pm 0.1 \text{ \AA}$ (p.e.) were found within a 2-min interval on 29 December 1963. Satisfactory time resolution is available through the use of the narrow-band technique.

The quasi-periodic 35-min oscillation of H_β , H_γ , and H_δ in HD 224801 described at the 116th AAS meeting is confirmed by further observations.

Narrow-band observations of the Balmer lines in RR Lyrae at rising light are presented. Calibration of the narrow-band data in the (θ_c -log g) plane is possible through comparison with known variables such as RR Lyrae and δ Cephei. Calibrations using the theoretical equivalent widths of Mihalas (Mihalas, D., *Astrophys. J. Suppl.*, IX, No. 92, 1964) show that the effective log g changes by nearly 0.1 for a change of 1 $\text{\AA}$ in the equivalent width of H_β .

Low-Frequency Observations of Jupiter. F. R. ZABRISKIE, W. A. SOLOMON, AND J. P. HAGEN, JR., *Wesleyan University*.—The present minimum in solar activity permits radio observations of Jupiter to be made at frequencies lower than those used heretofore. For this purpose an interferometer has been constructed south of Middletown, Connecticut, with the hope that objective identification of Jupiter might be made, following the philosophy of Douglas and Smith (*Astron. J.* 68, 163, 1963). The instrument uses a base line of either 800 or 2000 m; the phase switch is broad band permitting a number of channels to be located anywhere in the range from 2–8 Mc. Usually five frequencies are used: 3.5, 4.1, 4.7, 5.5 and 6.6 Mc/sec.

Preliminary analysis of the data recorded since June 1964 suggests that Jupiter does emit at these low frequencies, but such events are not common (occurrence probability approximately 0.03). Storms tend to last one to two hours, and they tend to begin when the radio longitude, λ_{III} , facing the earth is between 0° and 90°. About half the storms emit more or less continuously, rather than in bursts. However, one must be aware of selection effects, since the earth's ionosphere makes the records difficult to interpret, and further observations will be helpful.