pounded by the "age effect." In spite of this complication, however, the well-defined tendency for the stars with large $v \sin i$ values to lie higher in the diagram than stars of low rotation emerges.

It is clear from these results that rotational velocity as well as age effects can contribute to the scatter in the $(U - B)_0$–β diagram, and can complicate the problem of determining ages of stars from their position in such a diagram.

Several suggestions related to the intrinsic properties of the stars themselves have already been advanced to explain this effect.[5] We must not, however, overlook the possibility that the observing technique could be at least in part responsible. The β index is determined from the ratio of the radiation transmitted by narrow and broad-band filters. The transmission profiles of the narrow-band filters used to measure the β index are not square and the half-widths are approximately 30Å—not much greater than the total width of the Hβ line. Thus it appears that the spreading-out of the Hβ line as a result of high rotation could lead to a slight decrease in the β intensity of a star of high rotation compared to a star of slow rotation in which the hydrogen line strengths are in reality identical. Calculations designed to see if this effect is actually significant should prove useful.

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[1] B. Strömgren, in *Stellar Populations,* D. J. K. O'Connell, S.J., ed. (Amsterdam: North Holland, 1958), p. 385.

[2] D. L. Crawford, *Ap.J.,* **128,** 195, 1958.

[3] D. L. Crawford, *Ap.J.,* **137,** 523, 1963.

[4] *Ibid.,* p. 530.

[5] D. H. McNamara, *Pub., A.S.P.,* **74,** 416, 1962.

[6] A. Slettebak, *Ap.J.,* **119,** 146, 1954.

[7] A. Slettebak and R. F. Howard, *Ap.J.,* **121,** 102, 1955.

AN UPPER LIMIT TO THE 8000 MC/S FLUX DENSITY OF NOVA HERCULIS 1963

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Although Nova Herculis 1963 was discovered in Sweden by Dalgren on February 6, 1963, and independently by Peltier in Ohio on February 7, a search by the Baker-Nunn satellite tracking station group at the Tokyo Observatory revealed that the nova had reached magnitude 8 on its rise to maximum as early as January 26.775 UT and had attained a magnitude of approximately 3 by January 30.735 UT.[1] On the morning of February 9 it was confirmed optically at Michigan and its position was communicated to us by Dr. D. B. McLaughlin. The magnitude was about 4.0 on this date. Between 1530 and 1730 hours UT an attempt was made to detect this nova at 8000 Mc/s using the Michigan 85-ft. radio telescope having a bandwidth of 1000 Mc/s and an over-all system temperature of about 1400 °K

Drift curves were taken over a region extending 4^m in right ascension and 17′ in declination centered on: $\alpha = 18^h12^m40^s$, $\delta = +41°53'$ (1950). (The position determined at Harvard College Observatory by G. H. Newsom and C. Chester is $\alpha = 18^h12^m46\overset{s}{.}4$, $\delta = +41°50'21''$.)[2] Declination spacings of the drift curves of 1′ and 3′ were employed. The antenna pencil beamwidth is approximately 6′.

The sky was uniformly overcast; the mean peak-to-peak fluctuation at an output time constant of 12.5 sec averaged over each drift curve was $0\overset{\circ}{.}17$K. Calibration of the flux density and pointing accuracy were made on the radio source Cygnus A, which is located 20° from the nova.

If we assume that the source would have been detected if its output deflection equaled the mean peak-to-peak fluctuation, we conclude that the flux density from Nova Herculis was no greater than 3×10^{-26} watts m^{-2} $(c/s)^{-1}$ at 8000 Mc/s. This upper limit to the 8000 Mc/s flux density was confirmed by similar observations on three subsequent days, February 12, 14, and 16.

We note that at this early stage in the development of the nova, before the appearance of the red coronal line, thermal radiation detectable at 8000 Mc/s from an extensive envelope, such as suggested by Wallerstein,[3] would not be expected.

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[1] *Harvard College Obs. Announcement Card* No. 1591, March 22, 1963.
[2] *Ibid.* No. 1595, April 10, 1963.
[3] G. Wallerstein, *Pub. A.S.P.*, **73**, 153, 1961.