SUMMARY OF RESULTS

	M 17	M 8	M 20
Cont. Rad.*	2.1×10^{-4}	2.0×10^{-4}	7.7×10^{-4}
$\lambda 6584 [NII]$	0.0	0.12	0.55
$H\alpha$			
$\bar{S}_{H\alpha}$ erg cm ⁻² sec ⁻¹	17×10^{-4}	8.9×10^{-4}	2.8×10^{-4}
T°K	~450,000	26,000	160,000

* Per A/H α , at H α .

1. *Ap. J.* **108**, 413, 1948.
2. Pettit, *Ap. J.* **91**, 413, 1948.
3. Haddock, Mayer, and Sloanaker, *Ap. J.* **119**, 456, 1954.

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Bok, Bart J. and Harold I. Ewen. Research of the 21 cm radiation at Agassiz Station.

The present paper by A. E. Lilley and D. S. Heesch reports on the progress made to date on the Radio Astronomy Project at Agassiz Station. A 24-foot parabolic antenna operating in conjunction with a comparison radiometer has been used to record the profiles of the 21 cm line of neutral hydrogen.

The electronic equipment is essentially a double conversion superheterodyne microwave receiver. The comparison radiometer feature is accomplished by separately detecting two portions of the received spectrum after separation by a double band pass filter network. By continuously comparing these two rectified noise powers in a balanced recorder, the inherent gain fluctuations of the overall equipment are minimized to a level well below the detectable difference produced by the presence of a hydrogen signal in one.

To date, the Agassiz Station Project has concentrated its efforts upon analyses of regional surveys of 21 cm profiles along the Milky Way.

Two projects have already been completed, the first that of Lilley, who has been primarily concerned with the study of interstellar hydrogen associated with cosmic dust in the dark nebulae complex in Taurus, and the second that of Heesch, who has studied certain astrophysical problems related to the line profiles for the section of the galactic center. The total number of centers for these two projects combined is about two hundred; for each center a minimum of four scans was considered necessary.

Several programs are now under way at Agassiz Station. Thomas A. Matthews is studying the sections of the Milky Way near $l = 80^\circ$ and $l = 115^\circ$, with several connecting strips and extensions at galactic latitudes $b = -15^\circ$, 0° and

$+15^\circ$, and with, for each section, one strip running from $b = -60^\circ$ to $+60^\circ$. This section was selected because of the interesting feature that the separation between the two principal spiral arms is very marked in the profiles.

Three other sections of the Milky Way are under investigation. David S. Heesch has already obtained profiles for a number of centers in Cygnus and will complete this program in collaboration with Campbell M. Wade. Wade is investigating the variation in the line profiles at $b = +15^\circ$ for the connection between the Ophiuchus and Cygnus centers. Finally, T. K. Menon is concentrating on the section from Gemini, through Orion and Monoceros to Canis Major, with special emphasis on the region of the Orion Nebula.

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Burbidge, G. R. and E. Margaret Burbidge. A spectrophotometric study of α^2 Canum Venaticorum.

Calibrated coudé spectrograms of α^2 CVn were obtained at the McDonald Observatory, at phases 0.055, 0.141, 0.227, 0.445, 0.534, 0.702, 0.773, 0.819, 0.969 (when superposed) through the 5.47-day cycle of spectrum and magnetic variations. Approximately 6000 equivalent widths were measured; 486 lines for which five or more measures were made have been studied in detail. From these lines the elements showing maxima or minima at mid-phase, or no variation, are grouped as follows:

Maxima, *Cr II*, *Cr I*, *Fe II*, *Fe I*, *Si II*, *Mg II*, *P II*;
Minima, *Ca II*, *Ti II*, *Zr II*, *Mo II*, *La II*, *Ce II*,
Pr II, *Nd II*, *Sm II*, *Eu II*, *Gd II*, *Dy II*, *Dy III*,
Mn I, *Mn II*, *Ni I*, *Sc I*;
Constant, *Al II*, *V II*, *Ho II*.

Frequently elements which show maxima or minima also have lines which appear to remain constant. For the varying lines, curves were plotted from which the amplification factors through the cycle were estimated. The mean factors for *Fe II*, *Cr II* and *Ti II* are, respectively, 1.7, 2.1 and 2.4. There is a fair correlation between amplification and mean equivalent width, the weaker lines tend to have bigger factors.