at 18:44 UT and its end at 23:00 UT was approximately 2×10^{22} ergs.

1. *The Observatory* **69**, 228 (1949).
2. *Pub. A. S. P.* **62**, 18 (1950).
3. F. E. Fowler, D. S. Johnson and D. E. Billings, *J. Opt. Soc. Amer.* (in press).

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Bok, Bart J., Michiel J. Bester and Campbell M. Wade. A search for southern $H\alpha$ emission regions.

Following discovery by Morgan, Sharpless and Osterbrock (see *Astronomical Journal* **57**, 3, 1952) of two sections of spiral arms in the northern Milky Way, observations to detect similar structure in the southern Milky Way were begun at

A LIST OF 16 $H\alpha$ EMISSION REGIONS BETWEEN GALACTIC LONGITUDES 265° AND 355°

Object	l	b	Remarks
NGC 6193 IC 4628	300.8	$+1.5$	Small faint nebula with 4 Bo stars involved.
	304.5	-2.6	Over 2° diameter with central portion very intense in $H\alpha$.
	312.6	$+0.4$	Involved with cluster H 12. Surrounded by a large filamentary loop of nebulosity.
NGC 6281	315.5	$+0.8$	McD 70. Excited by HD 153919, sp. Od. Apparently spherical.
NGC 6302	316.3	-1.0	Appears like a bright star on our $H\alpha$ plates.
NGC 6334	318.8	-0.8	5 small, very intense nebulae with 1 larger faint nebula.
NGC 6357	320.9	$+0.3$	Contains Wolf-Rayet star HD 157504; small and bright.
NGC 6383	323.3	-1.3	Large faint spherical region with O8 star HD 159176 at center.
	323.4	-0.5	Small faint spherical region adjacent to NGC 6383.
	334	-3	Large field of connected nebulosity with brightest portions M8, M20, and NGC 6559.
IC 1284 complex	339.3	-3.3	Includes NGC 6589, 6590, 6595, and IC 1283. Small bright region.
	341	-3	Small Sagittarius Cloud. Contains numerous OB stars.
	342.5	$+1.9$	Small, faint ring.
M17	342.8	-2.2	Very intense emission.
M16	344.7	-0.6	Very strong in $H\alpha$.
NGC 6604	346.1	-0.2	Large, faint nebula.

the Boyden Station of Harvard Observatory. The principal instrument used in the southern survey is a camera with a 3-inch Zeiss Sonnar lens ($f/1.5$), on loan from Mr. Richard S. Perkin, fitted with a Corning 2403 red filter and a Baird $H\alpha$ interference filter.

In the present paper we report on the distribution of $H\alpha$ emission regions between galactic longitudes 265° and 355° . Dr. Dorrit Hoffleit is reporting elsewhere on the remarkable concentration of $H\alpha$ emission regions between galactic longitudes 250° and 265° . The photography for the section between 180° and 250° is still in progress.

We list in the accompanying table, the 16 regions of $H\alpha$ emission that seem to be well established. We are still checking on an additional group of ten uncertain regions and some further doubtful patches. A list of associated O and B stars has been prepared and these are now on the Boyden Station spectral and photo-electric programs for further study to determine their distances.

The most noteworthy result of our study is probably the absence of any but the very weakest $H\alpha$ emission between galactic longitudes 265° and 300° . There is obviously a gap or break in

the southern spiral structure between the conspicuous section at galactic longitude 250° to 265° and the structure between galactic longitudes 300° and 350° . We note further that the regions listed in our table are all within 4° of the galactic equator and that they fall along the equator rather than along the highest parts of the central section of the Milky Way.

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DeMarcus, Wendell C. Model atmospheres of hydrogen planets.

PVT data for hydrogen gas are available for densities up to $.045 \text{ g/cm}^3$ at temperatures less than 600°K .¹ These data have been extrapolated to the melting curve and the validity of the extrapolation checked by comparing the extrapolated density of the vapor with the calculated density of the solid at the same pressure. The density of the solid was calculated using a law of force between two hydrogen molecules, separated by a distance R , of the form

$$\varphi(R) = -\frac{A}{R^6} + \frac{B}{R^9}$$

with A and B determined from the second virial