

Chapter 14, The Million Degree Solar Corona, 1945-1946

Joe Pawsey and the Founding of Australian Radio Astronomy- Early Discoveries, from the Sun to the Cosmos

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ESM_14.2.pdf: The final data from RPL, 1945 to 1947

This data is shown in figs. 14.2.1 and 14.2.2. The ogive plot axes are reversed compared to fig. 0.2.5 in ESM_1.1.pdf (Additional Details). In an ogive chart the x-axis is the log of percent of the observations equal to or less than the value plotted; the y-axis is the intensity in db. Fig. 14.2.1 refers to the Collaroy data of 1945 October to 1946 March and fig. 14.2.2 refers to the Dover Heights data of 1947 March to 1947 May. The latter data was obtained with a larger aerial with higher gain, leading to improved detections (uncertainty at Dover Heights of 1 db compared to 2-3 db for the Collaroy data) of the quiet sun. The Dover Heights data shows a sharper cut-off and a lower dispersion, indicating that the larger dispersion for the Collaroy data was caused by less favourable signal-to-noise ratio.

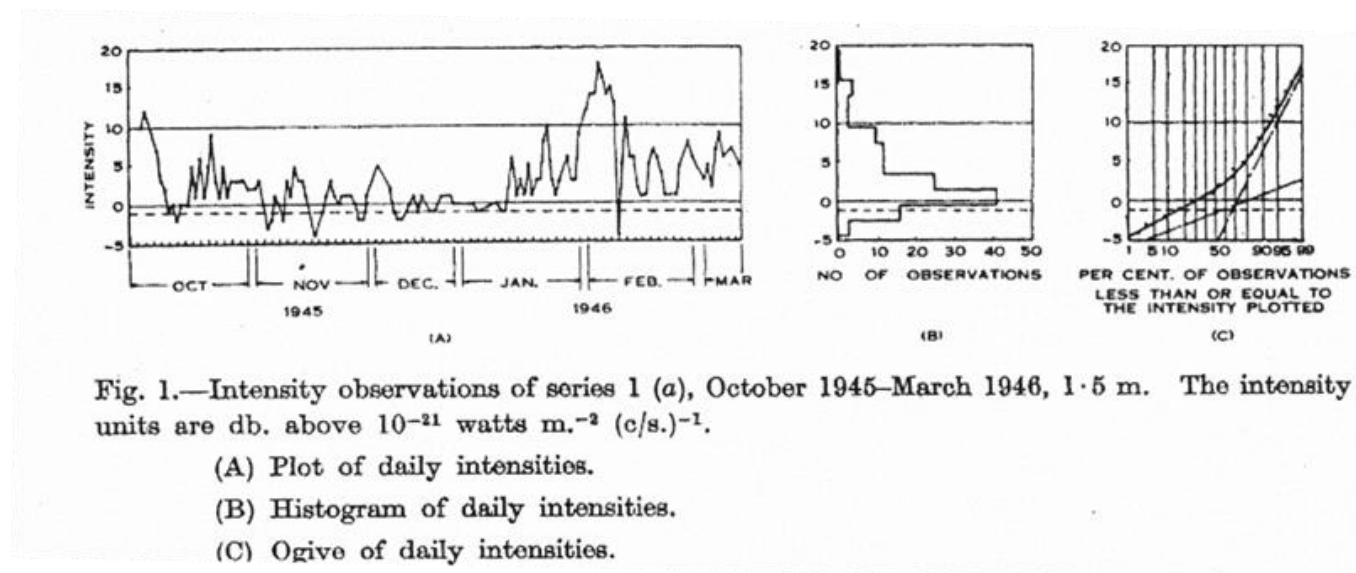


Fig 14.2.1 This is fig. 1 from Pawsey and Yabsley in 1949, "Solar Radio-Frequency Radiation of Thermal Origin". Publication of CSIRO from 1945 to 1947, also included Ryle and Vonburg data (1947) as well as Reber (1946, p 945). This plot shows the Collaroy data from 1945-1946. The third panel (right) is the ogive of daily intensities. Credit: Pawsey, J. L., and Yabsley, D. E. (1949). "Solar Radio-Frequency Radiation of Thermal Origin." *Australian Journal of Scientific Research A Physical Sciences* 2: 198

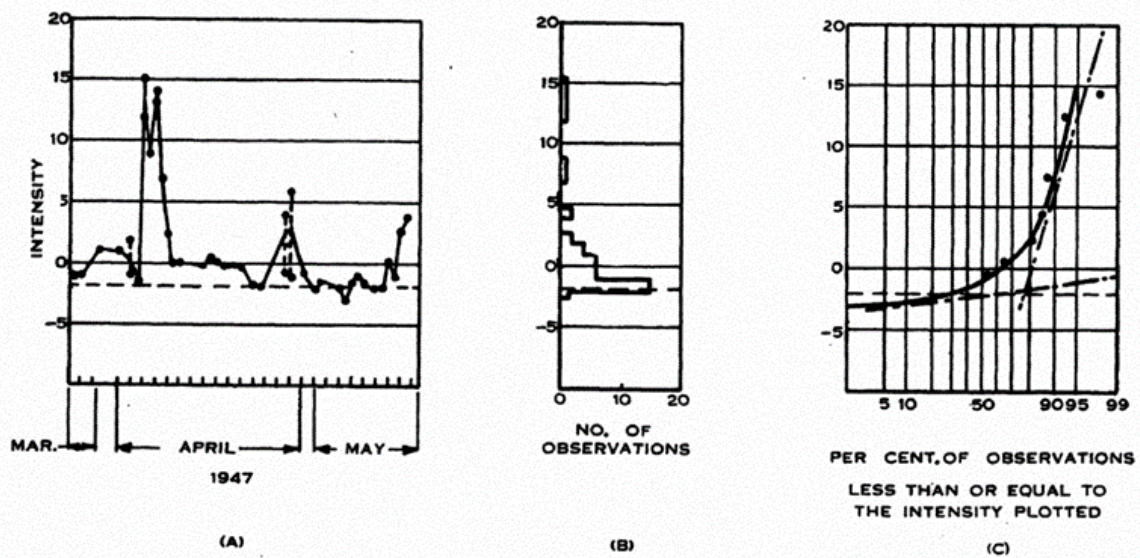


Fig. 4.—Intensity observations of series 2, 1.5 m., March–May 1947. The intensity units are db. above 10^{-21} watts $m.^{-2}$ (c/s.) $^{-1}$.

Fig. 14.2.2 This is fig. 4 from Pawsey and Yabsley (same format as the figure above), for Dover Heights observations. With the larger aerial, a pronounced improvement in signal to noise in determining the quiescent level was achieved. Credit: Pawsey, J. L., and Yabsley, D. E. (1949). "Solar Radio-Frequency Radiation of Thermal Origin." *Australian Journal of Scientific Research A Physical Sciences* 2: 198