located at a distance of 2.2 ± 0.4 Mpc. A value $D \approx 2$ Mpc is not inconsistent with the distance estimate $0.5 \leq D$ (Mpc) ≤ 2.0 that Spinrad *et al.*[2] obtained for Maffei 1. It should, however, be emphasized that a distance of about 2 Mpc would place the Maffei objects somewhat beyond the generally accepted limits of the Local Group[9,10].

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Radio Continuum Observations of Maffei 2

WE have mapped the area containing the suspected galaxies Maffei 1 and 2 at a wavelength of 11 cm with half-power beam-width 5′.0 using the 300 foot transit telescope of the National Radio Astronomy Observatory at Green Bank, West Virginia, from January 28 to 31, 1971. A three-feed system with four receivers was used; the centre feed provided independent right- and left-hand circularly polarized beams at the same point in the sky, and two outrigger beams (2′ north and 2′ south of the centre beam) each received right hand circularly polarized radiation. Several transits with the telescope set at different declinations provided full mapping of an area between right ascensions 02 h 25 m and 02 h 43 m (1950.0) and between declinations +59° 15′ and 59° 33′ (1950.0). The output of the radiometers was recorded every 4 s. With the parametric amplifiers used, the lower flux density limit was set by confusion rather than by system noise. We estimate that the lower flux density limit for detection of a point source is 0.06 f.u.

No emission was detected from the suspected position of Maffei 1, which agrees with the findings of Bell *et al.*[1] and of Oort[2].

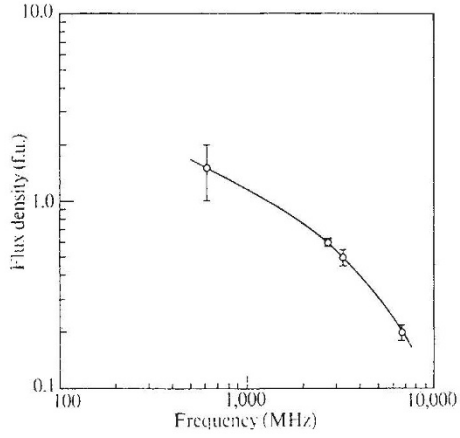

Fig. 1 The spectrum of the small-diameter radio source associated with Maffei 2 between 4.5 and 49 cm wavelength.

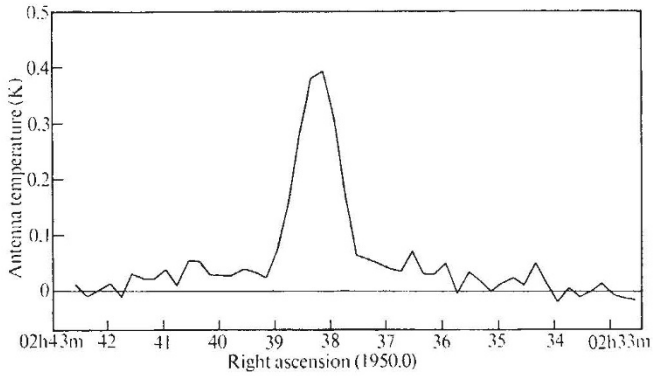

Fig. 2 A drift scan across Maffei 2 at $\delta = +59° 24′ 35″$ and at 11 cm wavelength.

At the position $\alpha = 02$ h 38 m 12.3 s ± 1 s, $\delta = +59° 23′ 03″ \pm 30″$, we have detected the small diameter source found by Bell *et al.* We found that it was unresolved with our beam, and had flux density 0.60 ± 0.03 f.u. This is consistent with the findings of Bell *et al.* at 9.26 and 4.5 cm. We found that the spectrum from these three points is adequately described by a straight line in a log S_ν–log ν plot, with spectral index $= -1.21 \pm 0.12$. We have also examined records at a wavelength of 49 cm from the 400-foot telescope of the Vermilion River Observatory of the University of Illinois. This region of the galactic plane has already been mapped at this wavelength[3]; the area around Maffei 2 appears as a slight increase in antenna temperature on their contour map. We found that there is a source possibly larger than 16′ of arc in right ascension at the position of Maffei 2, with a flux density of 1.5 ± 0.5 f.u. This indicates a spectrum which decreases at short wavelengths, as shown in Fig. 1, which is not unusual for ordinary extra-galactic sources.

As well as the small-diameter source, we have detected at 11 cm a very weak, extended source surrounding it. Fig. 2 shows the average of the two central beams at a declination of +59° 24′ 35″, slightly north of the centre of the source. The data have been smoothed to an effective integration time of 12 s per point. The area between about 02 h 35 m and 02 h 42 m is higher than the background by about 0.05 K of antenna temperature (the scale for point sources at this declination being 1 K = 1.00 f.u.). This extended region also appears on tracings at adjacent declinations, and may extend about 8′ in declination and 30′ in right ascension. The integrated flux density of the extended region is thus approximately 0.5 f.u.

Because this region is in the plane of our galaxy, the extended component may merely be an increase in the background radiation, or some weak source within the galaxy. But our map of the larger surrounding area shows no other extended region of comparable size and antenna temperature, and we believe that there is a significant chance that the extended region is associated with Maffei 2. At a nominal distance of 1 Mpc, the linear dimensions of the extended source would be about 2,300 by 8,800 Mpc, not unreasonable numbers for the denser inner regions of a spiral galaxy, tilted by about 75°.

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