

particular example described here is somewhat inefficient in this respect.

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## Linear Polarization of Pulsar PSR 2218 + 47

OBSERVATIONS of pulsar PSR 2218+47 at frequencies near 100 MHz, using the broad-band cross radio telescope at Pushchino, have shown a strong linear polarization. The plane of polarization depends on frequency; this is due to Faraday rotation in the interstellar medium.

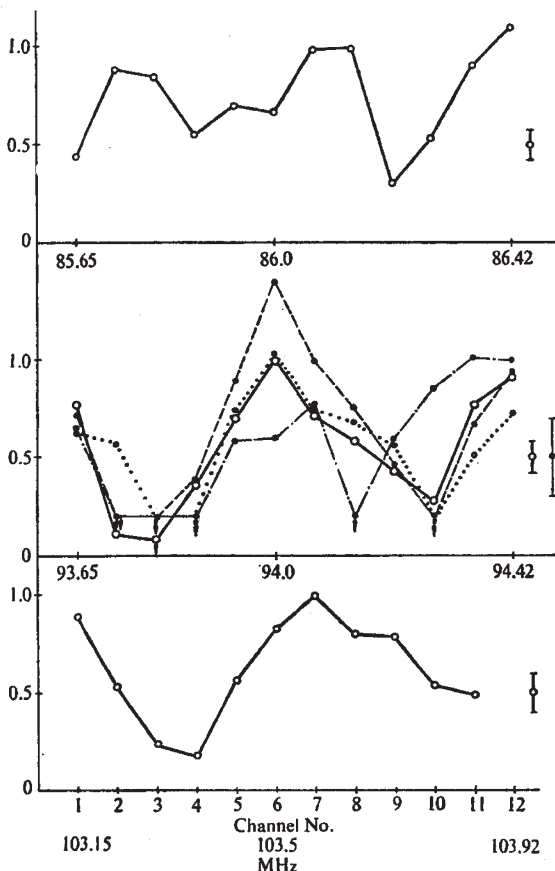


Fig. 1 Dependence of the averaged amplitudes of the pulses of pulsar PSR 2218+47 on frequency (number of channel) in ranges of frequencies near 86.0 MHz (July 9, 1970), 94 MHz (July 17, 1970) and 103.5 MHz (June 29, 1970). The dotted curves correspond to individual pulses.

The east-west arm of the telescope was used to measure one linearly polarized component, as in previous observations of pulsar MP 0628 (ref. 1). The receiver had twelve channels, each 70 kHz wide, covering a band of 840 kHz.

Early observations of the pulsar at 86 MHz showed a fine structure in the spectrum. In June and July 1970 the measurements were extended to 86, 94 and 103.5 MHz. Fig. 1 shows pulse amplitudes, averaged over about ten pulses, for the twelve channels at these three frequencies. The spacing of the maxima (or minima) of intensity increases with frequency according to the cube law characteristic of Faraday rotation. The spacing is too large to be caused by interstellar scintillation<sup>2,3</sup>.

The degree of linear polarization can be obtained from the depth of modulation in Fig. 1. At 94 MHz the degree of linear polarization is evidently greater than 75%. Fig. 1 also shows the spectra of individual pulses at 94 MHz. The variation shows that the plane of polarization may change from pulse to pulse within the range  $\pm 30^\circ$ . This would partially depolarize the average pulse.

The rotation measure  $M_R$  of the plane of polarization is  $33 \pm 3$  rad  $m^{-2}$ . The dispersion measure for this pulsar is  $43.53$  pc  $cm^{-3}$  (ref. 4), so the mean value of the longitudinal magnetic field towards pulsar PSR 2218+47 is  $0.95 \pm 0.07$   $\mu G$ .

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## Supposed Corals from the Dalradian of Scotland

ONE of us (G. B.) recently collected a series of nodules of organic aspect from the Tayvallich Pillow Lavas. As the specimens showed a superficial resemblance to tabulate corals, they were sent to C. T. S. for examination. At this stage, a request for information concerning the material was received. Because the reply has been subsequently misrepresented in the press by Dewey and Pankhurst<sup>1</sup>, and used to imply an Ordovician age for this Upper Dalradian group, we feel that a note clarifying the situation is necessary.

Individual nodules are usually compressed, sub-circular domes, rarely more than  $16 \times 12 \times 4$  cm in size. Each is composed of polygonal columns which radiate from one or more centres of growth to form fascicles, fan-shaped in longitudinal section. They seem to show a broadly related orientation, so that the columns diverge from centres at the base towards the irregular upper surface of the nodule. Individual columns are usually pentagonal, hexagonal or heptagonal. They increase in diameter away from the centres of growth but never appear to exceed 2 mm in diameter. At or near this critical diameter, the columns branch and new columns are formed within the structure. Thus, on cross-sectional surfaces, the columns show little variation in size, nearly all being 1 to 2 mm in diameter. In gross appearance, therefore, the nodules look remarkably like poorly preserved specimens of a primitive, cerioid tabulate coral such as *Lichenaria* (see Fig. 1).

The nodules were found in a volcanic breccia which is exposed on the western shore of the Rubha na Cille promontory [NR 686803] at the southern end of the Tayvallich penin-