NEWCOMER'S

Circular polarisation reaches the parts other polarisations cannot reach...

The subject this month is the use of circular polarisation at VHF/UHF, particularly 2m prompted by several new licencees interested in my own resurrected use of this method at the new QTH.

Most of you will have read of the need for this type of polarisation for satellite communications, where the polarisation is constantly changing, partly due to spin and changing satellite attitude, and partly to Faraday Rotation imparted by the ionosphere as the signal passes through it. If you have tried receiving one of the OSCAR series of satellites using your normal beam or HF antenna, you will have noticed that the signal regularly peaks as the received signal first matches the polarisation of your antenna, then fades as the opposite occurs.

It is not only when using satellites that the advantages of circular polarisation show up as I hope to demonstrate, without too much recourse to complicated theory. Normal communications on 2m or 70cm can reap the benefits, sometimes in a quite spectacular manner. How many of you out there have a crossed Yagi, but only use it for either vertical or horizontal polarisation? With a bit of switching, you can have four types of polarisation available with much better chances of QSO's at distance.

The normal vertical or horizontally mounted antenna radiates linearly polarised signals in the direction of its main lobe ie, the electrical field is vertically or horizontally polarised in space, and will maintain this polarisation as long as it meets no obstructions, or is not being reflected off the ionosphere. However, the fun starts when, as inevitably it will, the signal meets an obstruction.

There are two effects from such an obstruction. One, there will be a loss of signal strength, depending both on the frequency of the signal (more loss at 70cm than 2m) and the polarisation of the obstruction relative to the signal polarisation. As one would expect, a vertically polarised signal meeting a tall clump of trees, would suffer more loss than if the signal were horizontally polarised.

Two, the obstruction will reflect the signal, and in so doing part of the radiated wave will change polar-

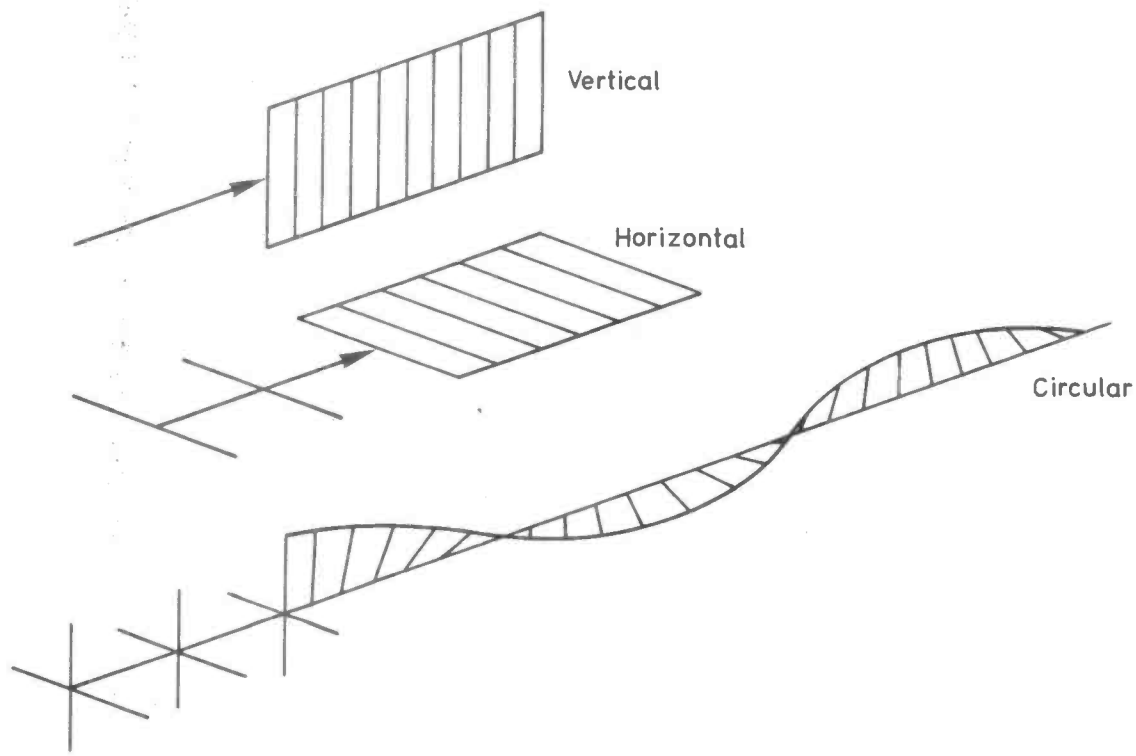

FIG.1. Representations of varying polarisations