

Metre Wave

Try to imagine a 2m band devoid of repeaters, and occupied by a few hundred fixed stations plus no more than a scattering of mobiles all with horizontally polarized halo antennas,

hands of technically well versed groups like the Pye one), or were to be administered inefficiently (equally unlikely: this is via the RSGB VHF Committee to the MPT exactly as the beacons are,

the common one internationally for the benefit of VHF users travelling in countries other than their own?

The chances were indeed favourable. Earlier in that same year of 1972 when the 'PI experiment took place, an international conference of the radio societies of Europe and adjoining territories had been held in Holland. It represented about 250,000 licensed amateurs. During its deliberations it naturally gave its attention to as many aspects of ham radio as it could, but it turned special concentration on the 'how and why' of repeaters. It started a revolution in metre-wave operating.

For one thing, the planning of the metre-waves geographically was on its way out after many useful years of service. Planning by mode was on its way in. Thanks to the delegates of that Netherlands conference those dozen-plus years ago, and to their 'technical bods' who did the behind-the-scenes calculations, the framework established then came out right first time. And in the particular context of repeater operation the suggestions and recommendations made then are what we have today — and they have worked very well.

They envisaged dividing up the 2MHz available on the 2m band into, broadly, 'DX at the bottom, and local working (including repeater working) at the top'. At 70cm a slightly modified version of this arrangement was recommended in order to take care of a flourishing amateur television community at the top end of 'Seventy'.

Ensuing experience showed the need to shape minor mods into these overall concepts, but — again in the particular context of repeater operation — the arrival of 'channelisation' assisted the emergence of bands planned by mode, as we have them today.

The self-help ethic

It was one thing to propose

The 'why' and 'how' of repeaters By Jack Hum G5UM

fed for the most part with a few watts of amplitude modulated phone. Imagine also single sideband as being "far too difficult", an exotic, almost esoteric mode practised by so few that a special contest had to be arranged for them (their calling frequency was 145.41MHz!). Imagine 'Two' band-planned geographically and not by mode as it is today.

This was the condition of the 144-146MHz allocation less than a dozen years ago in the United Kingdom.

Then an event occurred that was to change the face of metre-wave ham radio in Britain in so dramatic a manner that only the most prescient could have envisaged it. Perhaps a few did. It may well be described if only cursorily by the following extract from a G5UM diary entry for one Saturday in June of 1972:

"Today was the day of the demonstration of the new GB3PI 2m repeater. G3USB, G3GGK and I cruised around the city of Cambridge talking to others through it. Then 'USB took me out to Balsham. I operated en route to G3SXX, one of the young engineers behind the '3PI project, and ended the trip convinced of its value".

One amplified these observations in an extended comment in *Radcom* a little while later which described how 'sold' one was for the repeater concept but adding:

"... we would rapidly become unsold again if this aid to communication were to become abused by inane use (not likely from the generality of commonsensical VHF folk) or were to function unreliably (not likely in the

and the Society pays the £3 licence, just as it does for the beacons)".

From the modest experimental beginning has developed the chain of almost 150 repeater stations which today cover most of the populated areas of the British Isles in the 433MHz and 145MHz segments of the metre-wave spectrum.

Meanwhile, in other places...

Although in 1972 the repeater concept was a newcomer to the British ham radio scene it was slightly less new to metre-wave aficionados in other countries. The Americans had commissioned several examples. Nearer to home the German repeater chain of some fifty stations excited great interest in the UK during a VHF propagation lift when some of them could be heard back in Britain — their output ends at any rate, and more rarely their vehicle-borne input ends. At that time, in an understandable attempt to keep input well away from output, the German chain used 1.6MHz separation of transmit from receive. The input would be around, say, 144.2MHz and output around 145.8MHz.

It is a commentary on the rapidly developing techniques of the time that the GB3PI experiment aimed to reduce this gap to the 600kHz separation of input from output which is today's norm.

Establishing standards

But how and when did 600kHz spacing become that norm? And what were the chances of establishing it as