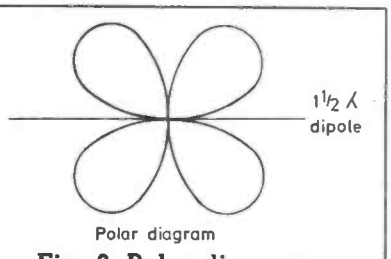
The set up in **Fig. 1** was arranged. 'A' is a fir tree and 'B' is a 35ft aluminium pole. 'C' is the pole which supports the TV aerial and is 35ft to the top of the pole. Each support has an endless nylon rope from the top of each support to ground level. The advantage of this arrangement is that two or more aerials can be supported at any one time — for example a trapped dipole between A and B and a reference dipole between B and C. Then it is easy to compare the performance of the various aerials to be tested. It is also good practice to interchange the position of the two aerials under test, to reduce the possibility of errors due purely to the location.

**Table 1** lists some of the results obtained over the period 1965 to 1971 using the methods described.

It is interesting to note from **Table 1** the TVI/BCI problems cause with coax feeding a balanced



Polar diagram

**Fig. 3. Polar diagram**

aerial system with coax without the use of a balun transformer. This, it was felt, was due to a combination of radiation from the coax feeder, caused by feeding a balanced load with an unbalanced line and getting RF into the mains wiring at points near to the feed point in the shack. The chassis of the rig was in fact 'hot' to RF on some bands: Tests using coax feeders were not persisted with due to the obvious social problems encountered. It is also interesting to note that a dipole cut to 1½ wavelengths long and centre fed seemed to perform very well when working DX. It also was a fair match to 75 ohm twin feeder and fed either with a balun transformer (1:1) or via an ATU, it seemed to have no nasty vices. The radiation pattern appeared pretty much as the text book polar diagrams, having four major lobes like a four leaf clover pattern with the wire of the dipole pssing through two of the nulls. This of course is much the same as the much used full sized G5RV on 20 metres. See **Fig. 3** for polar diagram.

**Table 1**

| AERIAL BEING TRIED AGAINST REF DIPOLE | BAND | COMMENTS |
|---|---|---|
| Trapped Dipole Similar to W3DZZ Fed with coax. | 160 | Feeders strapped. Tuned against counterpoise. 3-4 S points down on ref. dipole around UK. |
| | 80 | Fed as a dipole but **note** use of coax feed. ½-1 S point down on ref dipole, both EU and DX. Fed a dipole coax fed. |
| | 40 | No difference to ref dipole noted |
| | 20 | 1-1½ S points up on EU. 1-2 S points *down* on DX. |
| | 15 | 1-2 S points up on EU. Poor for DX working. |
| | 10 | Worse than dipole! Only DX raised was 1 PY but DX workable using dipole. Tests using coax feed were suspended after approx. 4 weeks due to TVI. |
| As above, but using 75 ohm twin feeder to ATU. Balanced ATU output. | 160 to 10 | Results using this set-up similar to above but TVI vanished. Tests carried out for approx. one year. |
| G5RV using open wire stub, rest of feeder 75 ohm balanced twin balanced ATU output | 160 | Feeders strapped. Tuned against counterpoise. 3-4 S points down on ref dipole around G. No DX. |
| | 80 | Fed as dipole. ½-1 S point down on EU, 2-3 S points down on DX. |
| | 40 | Good results to EU, and sometimes, dependent on direction, 1 S point up for DX. |
| | 20 | Very good for DX. But dependent on band conditions, down for EU. |
| | 15 | Fair results to EU. Some DX cotacts were up on ref dipole. Others the same |
| | 10 | Fair for short skip but worse than ref dipole for DX. |
| FAN DIPOLES 1½ wavelength centre fed (one 1½ wave length dipole per band) using 75 ohm balanced feeder. Fed via balanced output ATU. | 40 | EU signals down compared with ref dipole approx 1-1½ S points. 2 S points up for DX. Very good for DX: ZL, VK, W, PY etc. |
| | 20 | |
| | 15 | |
| | 10 | |
| SINGLE ELEMENT Quad Loop fed via 75 ohm twin and balanced output ATU | 20 | Results on 10, 15, 20 metres were very good to DX at right angles to plane of aerial *Consistantly outperformed dipole* by 1-2 S units. |
| | 15 | |
| | 10 | |