

Editorial

IT IS NATURAL to pause, after a year as Editor of these TRANSACTIONS, and to try to sum up what has happened, note any trends that seem to be indicated, and make some guess as to the future. In some cases, an observation time of one year is not sufficient to determine a trend. For example, the growth of the TRANSACTIONS as noted by the previous Editor, D. D. King, in January 1963, seems to have leveled off, if one compares the 563 pages of 1963 to the 624 pages of 1962. However, a similar drop occurred in 1961 with 596 pages compared with 692 for 1960.

There has been a steady increase in the ratio of the number of *Correspondence* items published to the number of papers published. In 1960, *Correspondence* items accounted for 62 per cent of the total and, in 1963, this figure had climbed to 74 per cent.

More papers and communications were submitted in 1963 than ever before. The total was 237, compared with 155 the previous year.

It is apparent that there is sharp competition for space in these TRANSACTIONS, and that the standards of your Editorial Board remain high. It also seems that an increasing proportion of researchers are tending to report more rapidly on portions of their work, rather than making a more complete report. This would seem to be a natural result of the increased pace of research in our times.

In the various fields of interest of our Professional Group, there have been indications of various trends, such as increased solid-state microwave applications. For example, the great majority of papers presented at the PTGMTT 1964 International Symposium dealt with solid-state applications. These included the development of fast switches, modulators and detectors operating at frequencies into the optical region, stable

signal sources, limiters, circulators, delay lines, etc.

One can also observe increased applications of microwave theory and techniques in the millimeter and sub-millimeter bands, and even at optical frequencies. Some optical frequency applications include microwave modulation and demodulation of laser beams, phase locking of coherent optical sources to microwave sources, and optical pumping of masers. Microwave researchers have a keen interest in further explorations along these lines.

Activity has increased in the development of amplifiers and associated equipment used with phased antenna arrays. Improved measurement techniques have been developed for the accurate determination of phase shift as a function of frequency.

The future is difficult to predict, but it continues to offer new challenges, and to call for increased microwave activity. For example, space exploration will certainly continue, and will make greater demands on the use of microwaves (and perhaps microwaves) in the long-distance control of space probes and communication between manned space craft, manned space stations, the earth, and perhaps the moon and other planets.

In a less glamorous field, we are almost certain to witness the development of greatly improved coaxial devices and measurement techniques as a result of the recent sharp improvement in coaxial connectors. It is anticipated that the VSWR of coaxial connector pairs soon will be 1.02 or less at frequencies up to 12 Gc.

Other predictions could be made concerning progress in other fields of interest to our Professional Group, but we should not need any more predictions to stimulate our optimism in the future. It often happens that the unexpected will occur and give rise to much more interesting developments than we could foresee.

—R. W. BEATTY