tape guidance system causing track spillover. The more practical approach is to have the four channels occupy the full width of the cassette tape and all running in the same direction. In essence a miniature version of the quad open reel system. There have been several prototypes using this format, but with no indication whether Phillips would allow this configuration, no production has ensued. Summation; we must bide our time.

It is freely acknowledged by everyone in the industry, that good as the quad tape formats may be, the success of quadraphonic sound must depend on the development of a disc embodying all the desired parameters of the medium. This has resulted in the confrontation between a matrixed disc system espoused by Columbia and Sansui, and the CD-4, discrete disc championed by JVC, RCA and the Warner/Elektra/Atlantic record group.

Columbia Records SQ matrix disc system is also used by EMI (England) which means Capitol/Angel in this country. The SQ system has been in use some time now and there is little doubt that Columbia has issued the most recordings and the most diverse of any of the quad disc systems. As in all matrix systems, a four-channel discrete tape (which may have been mixed-down from as many as a 24 channel master) is encoded to two channels by a complex mathematical mixing of phase and amplitude relationships, and then through a decoding unit attached to the playback system, is "reconstituted" in the left/right, front/rear configurations that existed on the quad discrete tape. Naturally, this can never be a perfect mirror image, since mixing occurred, so that each of the four channels of sound contains a certain amount of sound from all the channels. The emphasis in the SQ system is on good left to right separation, as in a normal stereo system. This is accomplished however, by a reduction of separation between the front and rear channels. In the simplest of SQ matrix decoder circuits, this results in dislocation of instruments, and a rather vague, amorphous sound as compared to what was heard on the quad discrete tape. Early on, corrective measures in the form of "logic" circuits were used, which automatically adjusted the gain in the matrix, so that on one channel the signal might be raised, while another channel might be attenuated, all in effect increasing the separation between the four channels. Unfortunately, some people could hear the gain adjustment circuits working, creating sort of a "pumping" sound. Now with a better understanding of the psychoacoustic factors involved in matrix quadraphony, really sophisticated circuits have been developed, like the new parametric matrix which affords such excellent separation between