possess the same limitations of background noise etc. as the analogue originals—and will sound very little better to the untrained ear than recordings made on any decent analogue cassette recorder. The only digital music sources available to the non-professional user are Compact Discs (and some as yet unscheduled prerecorded digital tapes and digital broadcasts). Yet the only way to make a DAT copy of a Compact Disc (in contravention of the Copyright Act) is to take the signals from the ordinary analogue output sockets of the CD player.

To make truly digital recordings, DAT recorders must be fed with digital signals. So far this is simply not possible, and it may never be so long as the steps already taken by the software and hardware manufacturers to inhibit such digital-to-digital copying remain in force. These are:

1. an anti-copying signal can be encoded on all Compact Discs, and the madatory chip in DAT recorders which reads this code also has other processing duties so that it cannot be bypassed by would-be 'pirates'.
2. different sampling frequencies are used in CDs and DAT recorders (as already mentioned).
3. CD player output sockets will carry only the analogue version of the music signal, plus special digital data signals when CD-ROM and display applications come into use.

In sum, R-DAT may appeal to recording perfectionists just because it is digital—but it has very little to offer the ordinary buyer that cannot already be done pretty adequately by standard cassettes—the most widely popular format already established in very many homes and vehicles.

R-DAT versus CD

Hints that R-DAT will bring about an early demise of the Compact Disc are very wide of the mark. A parallel has been drawn with the similar video confrontation between video cassette recorders and LaserVision disc players—where video tape has won hands down (despite the superior technical quality of the discs). Certainly the dual-function abilities of R-DAT to record as well as simply reproduce music give it a clear advantage (except for people who are primarily record collectors with no interest in recording). Yet VCRs are bought almost entirely as a means of 'time shift' recording of television programmes for viewing, once only, at a more convenient time. Few people would buy an audio recorder exclusively for time shift radio listening.

At one level the mere arrival of a new home-recording medium which encourages consumers (or commercial pirates) to make unauthorised copies of Compact Discs has a damaging effect on CD sales—especially when the CDs copied were borrowed or hired instead of being purchased by the consumer. But the much greater threat that R-DAT has been rumoured as posing to CD is that prerecorded DAT cassettes will directly compete with CDs and (like video cassettes) outsell the disc format.

In fact, and I have tried to keep to facts rather than conjecture, the major record companies have no intention of producing R-DAT cassettes at the present time. One spokesman for the record industry, Mr Jan Timmer the President of PolyGram, in an interview in the American trade magazine *Billboard* (July 26th) attacked any plans by the Japanese hardware industry for a "premature" launch of DAT as showing "arrogance and irresponsibility". He said that he would do everything in his power to prevent the introduction of DAT "at the present time and in its present form", and he would not allow any PolyGram repertoire to be licensed for DAT use until what he called the "immense problems" of the new format were resolved.

There has also been international concern over the copyright aspects of DAT. A recent meeting was convened in Brussels by the EEC Commission attended by representatives of IFPI (International Federation of Phonogram and Videogram Producers), EACEM (European Association of Consumer Electronics Manufacturers) and ETIC (European Tape Industry Council). They were given a demonstration of the CBS Copycode System, a copyright protection device, and both the software and hardware sides of the industry agreed that "the ability of DAT to make perfect copies of digital copyright material such as Compact Discs was a major threat to intellectual property rights"

CD going ahead

Meanwhile CD itself goes from strength to strength. Sales of players and discs continue to climb; player prices are coming down whilst new CD factories are going up all over the world to keep pace with disc demands; some fall in disc prices seems likely when sufficient disc stocks exist; new CD-ROM (Read-Only Memory, i.e. books, etc.) and CD-I (Interactive, i.e. games etc.) applications are beginning to take shape; a recordable CD is not an impossibility, and combined CD/videodisc players are on the way.

So it would seem that the death of CD has indeed been 'greatly exaggerated'; and the extent of public welcome for R-DAT recorders which offer so few tangible advantages over existing media is by no means certain. The R-DAT format is extremely interesting for all that, and readers may rest assured that its eventual launch, merits and demerits will be faithfully reported within these pages.

"THE HI-FI SHOW"

IVOR HUMPHREYS REPORTS

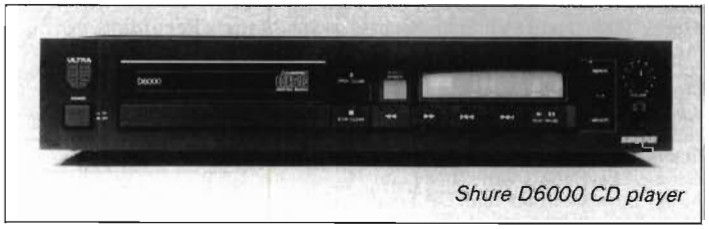
NEVER should one underestimate either the inventiveness of the audio manufacturer or the loyalty of the hi-fi enthusiast. Just when the industry was beginning to waver under the onslaught of the mass-market imports from, primarily Japan—when it seemed that all the buying public really wanted was some kind of basic piece of audio furniture to go in the corner of a room alongside the TV, video recorder and home computer and had largely forgotten about sound quality and the sheer enjoyment to be had from listening to proper hi-fi—Compact Disc was announced and new energy filtered through the entire market.

The widespread acceptance of CD as the medium of the future was fast indeed amongst most genuine record and music enthusiasts but within the small so-called audiophile arena reservations were expressed by some, not least about CD's ultimate performance capability. "Perfect sound forever" the advertisements proclaimed, which was clearly stretching plausibility too far. The radical 'analogue good, digital bad' wing of this contingent fought quite a rear-guard action for the first couple of years after the 1983 CD launch in the UK but over the last year or so the medium itself has won many converts among them as various 'high end' companies have brought out appropriately elaborate CD players to complement their existing analogue wares and have thus given CD more audiophile credibility.

"The Hi-Fi Show", sponsored by *Hi-Fi News & Record Review* and held for the fourth year in succession at the Heathrow Penta Hotel in September, really underlined this renewed enthusiasm for good quality sound. The punters came along in droves and there were a lot of new products to be seen. Some 60 exhibitors attended, showing around 140 brand names, which made for a manageable sized exhibition. Japanese giants such as Sony, Technics and JVC were absent as were, regrettably, several of the British companies one really would like to see supporting these events—B&W, KEF and Quad for example—but there was a good enough diversity of product to cater for most, if not all, tastes.

Compact Disc

Several exhibitors were showing new CD players for the first time in the UK and among these a number of models are surely destined to achieve 'classic' status. Pride of place on the British hi-fi front must surely be shared between Mission's beautifully thought-out PCM7000 and Meridian's 207-PRO, a two-box player of striking visual appeal and a novel range of facilities. Based on a Philips components, like Meridian's previous models, the MCD and MCD-PRO, the 207-PRO has two extra line-level inputs and a volume control so that it can double as the 'preamplifier' of a CD based system. It was to be heard making very nice noises indeed in both of the Boothroyd Stuart rooms, driving active Meridian speakers in one and Quad ESL-63s via Mark Levinson amplifiers in the other.



Shure D6000 CD player

Still more esoteric are the American California Labs valve player (yes, the analogue stages use valves!) which was on demonstration in the Absolute Sounds room and the Conrad Johnson machine imported by Automation Sciences, both at elevated prices. Acoustic Research showed their CD-04 player while HW International had the new Shure D6000 16-bit model, Nagaoka their NAG-1100/A1, NAD their 5330, Proton their 830R, Rotel their RCD 820BX, Sansui their CDV550R and Tandberg their TCP3015A. There were others too from the likes of Denon, Harman Kardon and Yamaha—a veritable glut of new or new-to-the-UK machines.

Electronics

This being a true hi-fi enthusiasts' show, much was naturally to be seen on the amplifier and tuner fronts. Almost arrogantly defying the inexorable solid-state progression, the valve renaissance goes on unabated, spearheaded in the UK by firms such as Beard, Croft, Audio Innovations and VTL. Beard had no less than three new designs, a 100W mono, a 60Wpc stereo and a new control unit, while Croft were making impressive noises with their output transformerless model in the SD Acoustics room, as indeed were VTL, using transformers, for Presence Audio.

Using transistors, Acoustic Research were showing both mock-ups and finished models in their new range of matching electronics units and Boothroyd Stuart were displaying prototypes of the preamplifier and tuner which match their new CD