off-stage synthesiser module, there is no reason why a saxophone player cannot be the primary controller of a group's electronics — even of its drum machine. Yamaha has incorporated breath control into its DX7 synthesiser, and the SynthAxe — a recently developed digital guitar — has been designed to use MIDI for controlling the output of a Fairlight.

This means that a string sound on the Yamaha could be produced with the unique performance characteristics of a saxophone, and, similarly, a Fairlight trombone sample could be articulated by strumming a guitar. Although neither of these developments is imminent — after all, the SynthAxe is a very expensive 'guitar' at £7,000 — they indicate probable tendencies for live performance in the near future. There is likely to be a gradual reduction in on-stage keyboards; string, wind and possibly tuned percussion instruments such as vibraphones will become more important, and, as sound-sampling technology becomes cheaper, acoustic sound may well be predominant.

By the end of the 1980s, musical traditionalists may be relieved to see — once again — a jazz-style unit of guitar, saxophone, double bass and drums. They may, however, be confused by the fact that the guitarist is playing an invisible vibraphone and the sax-player is 'breath-drumming'.

For many groups used to live performance, the first experience of an advanced recording studio can be intimidating. They are presented with musical instruments and operating systems they have never encountered before and are allocated a producer who may not know their work or their intentions particularly well. Yet they are expected by their record company to produce 'bigger and better' versions of their stage hits in this unfamiliar environment. It is comparable to putting a semi-professional theatre company onto a big-budget film set and expecting an instant box-office success. Sometimes the transition is successful, and all concerned are satisfied. But very often, the original ideas get lost in a maze of studio devices, and the group is left with an expensive failure.

Most often the breakdown point occurs when the group discards its own familiar equipment — and, in effect, its own 'sound' — and takes to the more desirable instruments available in the studio. But an idea which worked on a Mini-Moog synthesiser may fall apart when played on a Fairlight digital sampling computer and, if this type of musical failure occurs often enough, then the justification for using such a studio begins to weaken.

If, however, the musicians in the group are familiar with MIDI, and if a microcomputer has been used for storing sequences and other musical control data, then they will be familiar with the procedures already in use in advanced studios. On the most immediate level, it should be possible to try out ideas using a succession of different studio instruments with the minimum of difficulty, and with the prior knowledge that ideas and sequences

can be transformed simply by swapping synthesisers.

A MIDI background is also invaluable when getting to grips with studio systems other than those directly involved in sound-generation. A solid-state logic mixing desk, for example, has a dedicated computer that will recall and re-run any series of decisions made in the final stages of recording — known as mixing. When all the music has been recorded onto 24 separate tracks of tape — guitar on one track, backing vocals on another, lead vocals acrosss three others, and so on — the crucial task of balancing and mixing all the elements begins. It is usually at this point that individual parts are treated with any required 'effect' to enable them to stand out or blend in the mix. A single trumpet note may need reverberation added at one point only, and with 23 other things happening at the same time it is easy to miss it. Using a computer to handle such incidents while mixing is like MIDI-sequencing on a grand scale.

Another technique, originally developed for video synchronisation and editing, but emerging more into music production, is the use of time-code. Time-code is like a digital clock and trigger signal, but is laid down onto tape. It uses 80-bit words to provide synchronisation data when recording music against video sequences, and enables musical events and split-second video edits to be sequenced together.

Musicians, therefore, have good practical reasons for acquiring MIDI-compatible instruments — but, in addition, MIDI is a good introduction to the more advanced music systems currently in use. In the next, and final, instalment, we will take a look at some of the more exotic computerised music equipment in use today.

Big Science
Laurie Anderson, New York poet and performance artist, combines an unusual mixture of sounds and sound equipment with film, tape, and video technology to create a unique style. In songs like 'O Superman' and 'Mr Heartbreak', she uses or is backed up by anything from African bells to state-of-the-art electronic instruments such as the Vocoder and Synclavier