

contact

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Electronic Music Studios in Britain-9:

University of Glasgow

THE PROBLEMS OF ESTABLISHING a large electronic music studio at a time of economic difficulty for universities can well be imagined. It took five years from the decision by the music department of Glasgow University to appoint a lecturer with special responsibility for electronic music to the opening of a working studio in purpose-built premises. In the course of these five years we were fortunate to receive substantial grants from the Court of the University for equipment and building and from the Scottish Arts Council for equipment.

The studio premises are part of a complex of music department rooms in the Main Building which comprises a concert hall seating approximately 300, green room, artists' changing rooms, toilets and washrooms, main electronic music studio and technician's workshop/small studio. Both the concert hall and the green room may be used as recording studios with the main electronic music studio functioning as a control room. The technician's workshop is reasonably spacious and allows the accommodation of an independent small electronic music facility.

To discuss in detail all of our equipment would not be especially enlightening since much of it is standard (see list) and in common use elsewhere. I shall therefore deal with only two machines, the EMS Synthi 100 and the EMS Computer Synthi. While the standard Synthi 100 is a well-known device by now, the Glasgow machine has been extensively modified to give improved performance and extended facilities. All frequency controls have been replaced by genuine, locking ten-turn potentiometers making the setting-up of accurate frequencies a much less hit-and-miss affair; all inputs and outputs have been restructured to give better signal-to-noise ratios, increased panning possibilities and less manual patching;

reverberation circuitry has been improved; every quad-log-modulator pcb has been replaced with a low-noise 'state-of-the-art' design, allowing greatly improved amplitude modulation; sensitivity controls have been added to the envelope triggering; six inverting buffers have been added; a patching system linking the audio and control matrix boards allows any signal to function as a control voltage. Many additional points of modulation have been provided, e.g. every oscillator has not only frequency modulation, but amplitude and shape modulation as well (one no longer has to waste output channels to perform amplitude modification). Other alterations will include a further restructuring of outputs and a redesign of the sequencer to make its operation more straightforward.

The EMS Computer Synthi is a device which many will not know, since there are only three in existence, at Glasgow, Paris and Oxford. Ours has a DEC PDP-8A processor with 4K core, 24 analogue-to-digital converters, 24 digital-to-analogue converters, crystal clock, 16 sliders, 64 push buttons, a display and a dual digital cassette system. As at present conceived (further programming development is contemplated), it 'analyses' by means of the ADCs control voltages from the Synthi 100, stores them and outputs them via the DACs back to the Synthi 100. Depending on the desired resolution of data, a single layer sequence of up to about 40 minutes can be obtained! At the moment the Computer Synthi is best viewed, in terms of its potential musical function, as a vastly extended EMS sequencer, but with greatly improved editing and the possibility of inputting data directly from the push buttons (not just getting it from the Synthi 100). I hope, however, that programmes will be developed which will allow for computer-automated

mixdowns and for an extension of the Moog type of sequencer.

The original justification of the studio's existence was that it was necessary to provide students with direct experience of electronic music and recording techniques. This has meant the institution of a full course which involves work over three terms. It is now compulsory for all third-year BMus students. The work they do is submitted for assessment at the end of the year. Students also sit a three-hour degree examination covering the History, Theory and Practice of Electronic Music. To accommodate this course means, in effect, that the studio has to be closed to outside users during term-time.

Out of term, however, and particularly during the summer vacation, outside users are welcome to make bookings. Composers working in Scotland may apply to the Scottish Arts Council for bursaries to cover the costs involved. In order that more composers may become familiar with electronic music techniques and the Glasgow studio in particular, courses for small groups of composers are envisaged. Again, the Scottish Arts Council may be able to offer financial assistance in the form of bursaries.

Another interesting educational function which is helping develop studio facilities involved collaboration with the Department of Electronics and Electrical Engineering. Final-year students in that department have to spend one term on an approved practical project. The studio this year contributed suggestions for three such projects, two of which have been followed up. One involves the design and building of a complex, voltage-controllable, variable speed control for all our tape machines, the other a comprehensive remote control for the Ampex 16-track tape machine.

Many of the jobs that remain to be done are of a quite unspectacular nature and the fact that they have not been done already is a reflection of shortage of both funds and manpower. We need, for instance, to install a full permanent communications system between the concert hall, green room and studio; to purchase a portable mixer for 'live' electronic music and for the performance of tape music; to modify the acoustics of the rooms and improve soundproofing; to develop improved interfacing of our current studio equipment; to purchase higher-quality two- and four-track tape machines and a wider range of microphones. Less mundane projects involve the further development of certain digital controls, and possibly a digital synthesis system.

At the time of writing the studio is without a technician, since Graham Hinton resigned to take a post with EMS. Naturally we aim to fill this vacancy as soon and as well as we can.

So far, the output of compositions from the studio has been modest. Most have been student works, about 15 to date. But some half dozen or so works, most involving pre-recorded tape plus live performer(s) have been completed by other composers, notably Lyell Cresswell, Edward Maguire, Ian McIntosh and the present writer.

Electronic Music Studio
Department of Music
University of Glasgow
Glasgow
G12 8QQ

Current Personnel

Director: Stephen Arnold
Technician: Full-time Grade V post vacant

List of main studio equipment as at January 1978

Electrosonic 16-in 4-out mixer with EMS QUEG (four quadrapans)
Two Quad 405 power amplifiers
Four Quad 50E power amplifiers
Two Quad 303 power amplifiers
Four Spender BCII monitor speakers
Four Lockwood Major monitor speakers (Tannoy 15-inch Monitor Gold drive units)
Two Tannoy 15-inch HPD85 speakers in Amesbury enclosures
EMS Synthi 100, with modifications
EMS Computer Synthi
EMS Synthi VCS3 MkII, with modifications
EMS Synthi DK2 keyboard, with modifications
Four Grampian Ambisonic 666 spring reverberation units
Four Dolby A361 noise reduction units
Four Dolby CAT.22 modules in special purpose rack, wired for 19 CAT.22s
Ampex MM1000 16-track tape recorder
Teac A3340S four-track tape recorder
Teac A3340 four-track tape recorder
Revox A700 two-track tape recorder
Five Revox A77 two-track tape recorders (various models)
Ampex III bulk eraser
Four AKG D202 microphones
Four AKG D190 microphones
Tektronix 465 oscilloscope
Advance 051000A oscilloscope
Orbit 'Tic meter' frequency counter
Fluke 8040A digital multimeter
Farnell AC/DC TM2 millivoltmeter

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