

1985

PUTTING TEETH INTO COMPUTER SYSTEMS

Scotland, like Wales and Northern Ireland, does not have the regional structure of the health service in England, since such a two tiered structure was deemed to be inappropriate for a total population of just five million. In the absence of such a structure, the CSA in Scotland has 'national' responsibilities covering services that are common to the Scottish area health boards some of which are performed by the regional authorities in England. Its divisions include, Building, Supplies, the Scottish Ambulance and Blood Transfusion services, Education and Training and Medical Statistics. It has a Communicable Diseases, and Health Education Unit and a Catering School. It is responsible for prescription pricing and dental estimates. All told, there are 15 divisions including the Information Services Division, with a combined staff of 4500 and an annual expenditure budget running at £60 million.

At the end of 1980 the Secretary of State for Scotland accepted a plan to organise the Scottish Health Boards into six consortia as the basis for future computing development and to install six large ICL 2966 computer systems.

Under this reorganisation, the CSA found itself grouped with the Lanarkshire Health Board, the third largest in Scotland, which serves a population of 570,000 people in central Scotland.



In charge of the ROCC computer installations at the Common Services Agency is Ian Mann – computer manager, pictured outside the agency's Edinburgh headquarters.

The computer centre moved into the CSA headquarters building in January 1982 in the wake of reorganisation which saw computing staff increase from 16 to 56 over a short period, and with much broader computing responsibilities.

The agency had been running all its computing on a comparatively small ICL 2903 which it acquired in 1975 as part of an earlier re-think of health service computing that resulted in an order for three 2903s and four 1930Ts being placed with ICL. Ian Mann joined at that time, coming from outside the health service, and with a small team built up payroll, manpower, financial, and statistical systems on the 2903.

One of the subsidiary problems with the decision to replace the 2903 with the much larger 2966 was the question of data preparation. Data preparation is built into the 2903, but

not its big brother the 2966. Five years of experience with key-to-disk on the 2903, however, meant that Mann and his team knew precisely what they wanted and the agency went to open tender with a detailed specification.

The system had to have 15 keystations with minimal screen size specified, five megabytes of disk storage, tape and printer. It would have to work in a normal office environment and not have a dedicated supervisory terminal. It should be user programmable, have character-by-character verification and offer the facility to specify range checking and the ability to reformat records, validate and edit batches, delete and insert and so on and so forth.

"Some of the features were mandatory, others were desirable, but they were all based on things that

we'd found either useful or difficult or just weren't there at all in the previous system," Mann commented.

"ROCC (then Rediffusion Computers) met all the mandatory requirements, most of the desirable ones and the price was right," Mann said. A 15-keystation R1800/40 was duly installed in March 1982. By July of that year all the data entry work had been transferred from the 2903.

At the beginning of 1983 all the finance work of the Lanarkshire Health Board started to come across with its payroll of 14,000. Added to the CSA's own payroll of 4000, that meant a jump in the data preparation load to 18,000 payroll details in one week. "It was hectic, but it moved over without the users noticing the change," Mann commented.

"ROCC met all the mandatory requirements . . ."

At the same time, some of the medical statistics schemes started to move across one at a time. Each year something like, 70,000 SMR2 (Scottish Medical Records 2) forms dealing with maternity statistics have to be processed, along with 50,000 SMR11s which cover neonatal statistics. These are now entered via the ROCC system and will be followed next year by an even larger statistical data entry job, the 350,000 SMR1 hospital discharge forms that are produced each year.

The workload of the R1800/40 data entry system currently breaks down as 35 per cent financial work (payroll and ledgers) 41 per cent medical records and manpower data and the remaining percentage on a variety of other miscellaneous jobs, including the payroll for the State Hospital at Carstairs.

The system, in short, is pretty well loaded. "Peaks run from Monday through to Wednesday mid-day on payroll and the third week in the month is a tight schedule," said Mann.

The other effect of reorganisation that added to the data entry workload of the CSA was the requirement by the Secretary of State that all computing performed by outside bodies on behalf of the health authorities should, where possible, be brought back into the health service.

One of these situations was the Dental Estimates Board whose entire computing workload was handled by the Scottish Office computer centre. 'Estimates' in this case are more than



On average a Scot makes two visits each year to the dentist, generating a total of some three million estimates. To cope with this workload the CSA installed a ROCC 22-terminal 2830 system in the Dental Estimates Board.

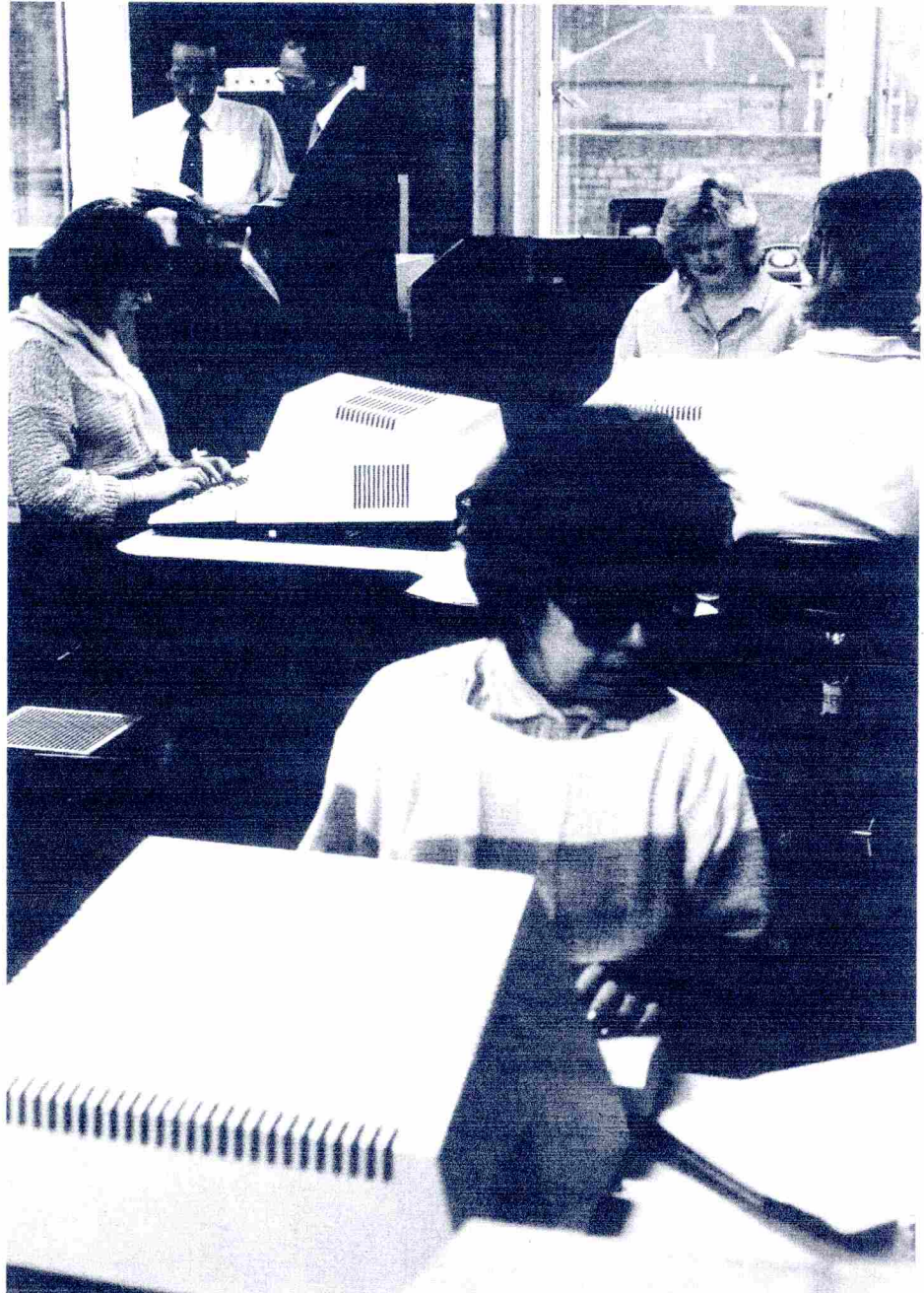
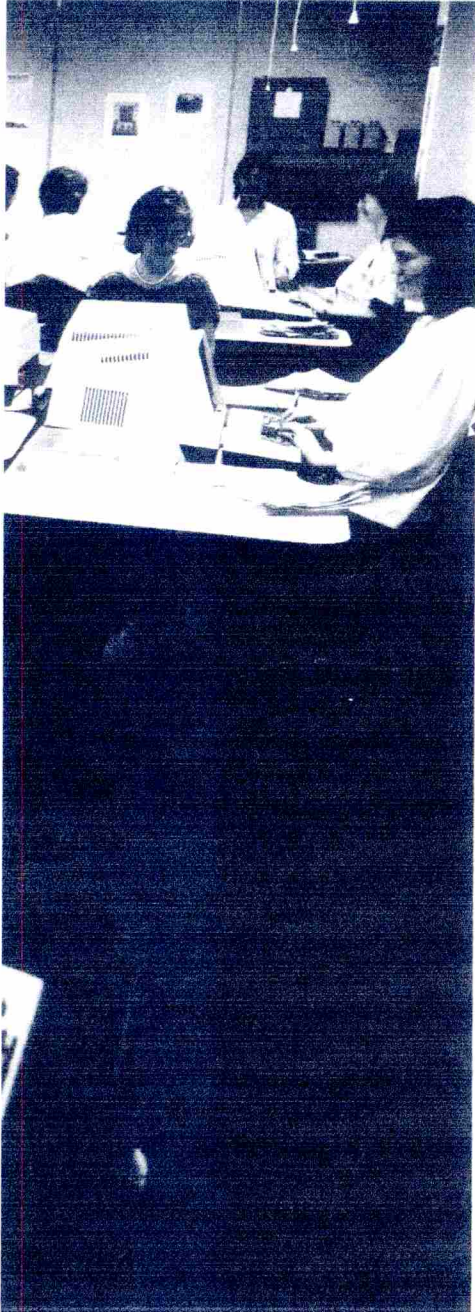
a polite form of saying 'invoices', — while serving the purpose of an invoice for the cost of treatment completed an estimate also acts as records of treatment completed and proof of contract between patient and dentist and as such, they are often referred to in Service Committee Hearings. The system involved the payment of Scotland's 1400 dentists who, each year, submit some three million estimates to the Dental Estimates Board for settlement.

"Traditionally, the Scots have dreadful teeth," Mann confided, though statistics show that the trend in dental caries in Scotland is on the way down. On average a Scot, makes two visits to the dentist each year, this

generates a total of three million estimates.

To cope with this substantial new data preparation workload the CSA had no alternative but to install a second system and in September last year a 22-keystation ROCC 2830 was installed.

The take-on was complicated since the data all came off cards under the old system. As with all similar punched card based systems, "The problem we have is getting the input forms completed with due attention to detail, since when you start putting in powerful equipment like the system we now have, it starts picking up things that a simple visual scrutiny would miss," Mann commented. The system, is less



tolerant of incomplete or erroneous data and the CSA is having to create larger holding files for incomplete data than it would like.

The equipment itself is performing well. In all the time that the CSA has been running with ROCC, they've only had two breakdowns.

Mann has no complaints about maintenance either – they'd had a few keyboard problems, he said, but the engineering response had been good. The software had done most of the things asked of it and, where attention was still needed in areas such as the ICL CO3 protocol link and variable length records on VME tapes, the shortcomings had been flagged and were being addressed.

The pace at which new work is coming into the CSA shows no sign of slowing down.

Part of the 15-terminal ROCC R1800/40 at the CSA. The current workload breaks down to 35 per cent financial work (payroll and ledgers), 41 per cent medical and manpower data; the remaining percentage covers a variety of miscellaneous jobs.

All things considered, Mann has no doubts that there is a long term future for key-to-disk data entry. Despite a move to build more and more on-line applications, the availability of a large computer system in the ICL 2966 and a number of ICL DRS micros throughout the CSA complex, Mann sees no end to the

In the longer term, there could well be a requirement for OCR, particularly since the CSA is finding it difficult to recruit keyboard data preparation staff in sufficient numbers, but the need for key-to-disk is undiminished and the effectiveness of the ROCC systems in handling the mainstream task unquestioned.

"It was hectic, but it moved over without the users noticing the change . . ."

"We're like the insurance industry," Mann commented. "The more we go on-line, the more other work seems to come in to take its place.

"We still get through a few hundred thousand punched cards a year, even though we're trying to get rid of them," he added to emphasise the point.

build-up of work for the ROCC system.