DATANEWS

'PROFESSIONAL DATACARE - COMPUTING FOR A HEALTHIER FUTURE'

ISSUE 12 - SEPTEMBER 1994

THE NEWSLETTER OF THE PROFESSIONAL DATACARE ORGANISATION

ONE OF THE BEST...

Now it's official!!

The Undersecretary of State for Health Mr. Tom Sackville MP visited Professional Datacare on Friday June 24th 1994 to accept the BS5750 Certificate from Lloyds Register Quality Assurance Ltd. on behalf of the North West Regional Health Authority.

In addition to being a local MP (Bolton West) Mr. Sackville is the Minister responsible for Information Technology in the NHS, and he was particularly pleased to accept the internationally recognised award for excellence in the field of Quality Assurance Management as it demonstrates the commitment of an organisation to Quality Assurance for the production and services supplied to customers. Professional Datacare is a trading department of the North West Regional Health Authority, an integral part of the NHS competing successfully for business with commercial organisations. There is little doubt that this Quality Assurance qualification strengthens Professional Datacare's competitive position and enhances its reputation with existing and potential customers. Joining Mr. Sackville for a tour of the data centre was MP for Bury South Mr. David Sumberg. During an in-depth tour the distinguished visitors were introduced to many staff in various sections. The Help Desk seemed to be a particular attraction, both MPs were keen to discuss its functions at length with the staff concerned.

continued on back page

Left to Right: **David Sumberg MP** *Bury South,* **Ray Tunnicliffe** *Chief Executive Professional Datacare,* **Geoffrey Thompson** *Chairman Professional Datacare,* **Hon. Tom Sackville MP** *Parliamentary Under Secretary of State for Health,* **Jim Mackenzie** *Founder Director, LLoyds Register Quality Assurance*

Left to Right: **Jim Mackenzie,** **Hon. Tom Sackville MP,** **Geoffrey Thompson** *Chairman Professional Datacare*

Left to Right: **David Smith** *Project Manager, Manpower Systems* **Ray Tunnicliffe** *Chief Executive Professional Datacare* **Hon. Tom Sackville MP**

TEAMWORK
NURSING SYSTEMS

MOVES TO

PROFESSIONAL DATACARE

May 3rd was a significant day for TEAMWORK staff: the move to new office accommodation at Professional Datacare and the warm welcome provided, ensured that there were no regret at vacating the 3rd floor room at Gateway House, on Manchester's busy Piccadilly. TEAMWORK is the Nurse Information System developed by NWRHA since 1987. Initially a small team known as the Nurse Manpower Project was set up to compare nurse workload methodologies in use at the time. The group expected to recommend the adoption of one of the methodologies for use throughout the North Western Region. However, the findings of the comparability study were that there were flaws in these methodologies, but from the large quantity of gathered data, there appeared to be a strong relationship between the identified workload, nurse hours and care judgments which nursing staff had recorded. The small team became known as TEAMWORK: The Estimation Algorithm for Measuring WORKload and from the data and the relationship between the three elements found to be significant in the original research, the first TEAMWORK Nurse Information System models were designed. Since then, TEAMWORK has researched many nursing specialities and the methodology remains firmly based upon the three elements. The models incorporate six Care Levels, each very specific, which are achievable according to the workload and the nurse hours available.

The TEAMWORK Team: Left to Right - Juanita Steele, Pam Eaton, Gary Spender, Pat Ross, George Dowswell, Nick Trimble, Barbara Morgan, Bill Weingart and Mark Sewell.

TEAMWORK's Good Care is the parameter most frequently used by Nurse Managers when assessing both the workload (Patient Activity) and the desired nursing establishment for a Ward, Directorate, Unit etc. TEAMWORK is used by many Hospitals within the North Western Region and has generated much interest throughout the rest of the country. The Nursing System and Strategic Planners are increasingly being used by Health Providers, with sites as far apart as Edinburgh and Cornwall. The user-friendly ease of use and the reliability of the methodology are just two of the reasons why TEAMWORK reaches more parts than other workload measuring tools! The team comprises: Bill Weingart, Mark Sewell, Barbara Morgan, Pam Eaton and Pat Ross, all of whom are nurses, Gary Spender and George Dowswell, who are Analysts, Juanita Steele, who provides invaluable Project support and Nick Trimble, TEAMWORK's Business Manager. The most recent research has been into Neurosciences and a model will be available by the Autumn, as well as updates to existing models and a new version 7 of the software which will see many behind-the-screens improvements in programming and functionality. TEAMWORK's move to Professional Datacare has created a different work environment; it has also signalled the beginning of a closer relationship from which both will benefit.

Welcome to Tina Morgan who joined Professional Datacare in July from the Port Talbot Borough Council. Tina is working as an Analyst/ Programmer in the Systems Development Section Manpower Team, helping to develop and support the Integrated Personnel System. Prior to working at Port Talbot, Tina gained a BSc (Hons) in Computer Science from Coventry University. All at Professional Datacare would like to congratulate Tina for her forthcoming marriage on September 3rd. Her married name will be Tina Foster.

New Members of Staff

PROFESSIONAL DATACARE welcomes the following new members of staff *(see article on page 3):*

DON WYCHERLEY -
Senior Analyst/Programmer UNIX Support Team

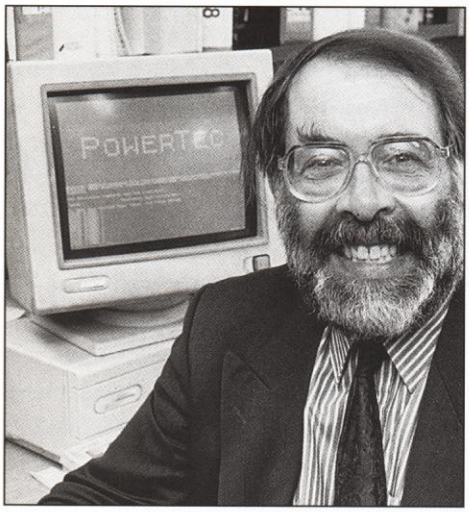
TAHIR SIDDIQUI -
PC Specialist PC Support Team

COLIN RICE -
Programmer/Analyst - UNIX Support Team

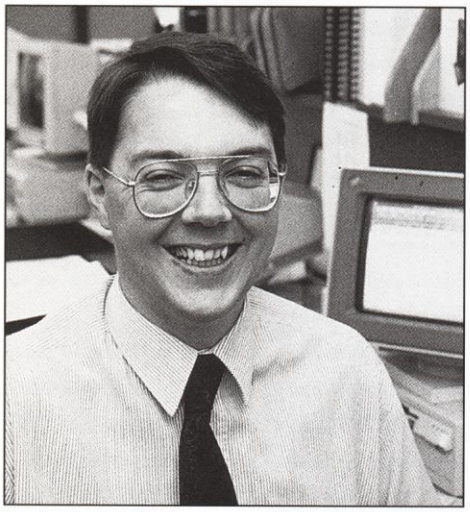
TINA MORGAN -
Analyst/Programmer Manpower Systems

MICHAEL PRICKETT -
Analyst/Programmer Financial Systems

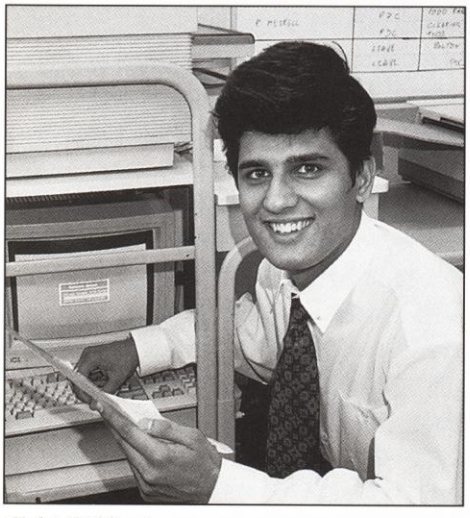
P·R·O·F·E·S·S·I·O·N·A·L DATACARE welcomes...



Don Wycherley



Colin Rice



Tahir Siddiqui

PROFESSIONAL DATACARE formerly welcomes **Don Wycherley** as a member of the Technical Services Section, covering support for the various Unix environments in general and PAS FES in particular. Don is taking over much of the support work previously dealt with by Paul Bullock and, in his spare time *(he should be so lucky)* he will be enhancing his Windows C and GUI development skills.

A WARM WELCOME is extended to **Colin Rice** who joined Professional Datacare on 1st August. Colin was previously employed by Daniel Pipelines Limited and has experience of both Unix support and Novell networking. His primary role will be to work with Don Wycherley, supporting the environments for DIP, PDQ, POWERtec and FES. I am sure that we will also find a role for his Novell and PC skills in any spare time that he may have!

ANOTHER VALUABLE ACQUISITION by the Technical Support section is **Tahir Siddiqui**, known to his colleagues as "Sid". Tahir has been with Professional Datacare since the beginning of May as a placement student. He will now be joining the data communications support team as PC and Novell support technician.

ST. HELENS COMMUNITY *choose*

P·R·O·F·E·S·S·I·O·N·A·L DATACARE

The St Helens and Knowsley Community Trust have chosen Professional Datacare to supply Payroll and Personnel services. The service covers facilities management of the Direct Input of Pay and POWERtec systems, together with Payroll Bureau services. The facilities management service is accessed across a 64 Kbps Kilostream BT circuit installed between the St Helens site and Professional Datacare.

Following training and successful parallel runs, the DIP and Payroll service went live in July. POWERtec is targeted for live processing in late August.

STOP PRESS

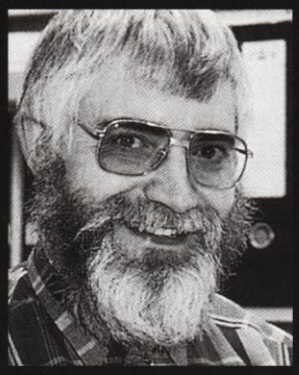
Welcome to PINDERFIELDS

The Pinderfields NHS Trust have recently signed a 3 year contract with Professional Datacare for the provision of Payroll Services.

The contract begins on April 1st 1995.

This new contract was won following a very competitive tendering process and further demonstrates Professional Datacare's ability to win new business.

Taking Care of IT



As recently as 1989 the computer network of the North Western Regional Health Authority (NWRHA) was, on the Authority's own admission, incapable of meeting the increasing demand of IT services. Today, any new device can be plugged into the network at any point and have instant access to the corporate systems. This achievement received official recognition last year when the Authority was described as having the Best Computer Network in the NHS. However, the road to success has been difficult and sometimes even painful as Ken Dearden of Professional Datacare, the authority's computer agency, relates.

At the start of this year the NWRHA was the second largest of the 14 Regional Health Authorities in England serving four million people. Its territory ran from Stockport to Lancaster, encompassing some of the North West's most densely populated towns and cities including Manchester, Blackburn, Blackpool and Preston. In 1990 the Authority's in-house computing department, based in Prestwich, was set up as a trading agency called Professional Datacare. In April 1994, its responsibilities increased further following the merger of the NWRHA and Mersey Regional Health Authority to form the North West Regional Health Authority.

Back in the late 1970's the Computer Centre at the NWRHA began to experiment with 0n-line access to early transaction processing systems. Much of this early data communications was achieved using dial-up modems. Performance was slow, the lines were noisy and unreliable and it soon became apparent that this was impractical. The next step was to use a combination of leased lines, where sites had more than one terminal, point-to-point statistical multiplexors.

Much of the early multiplexing was achieved using statistical, multiplexors from Micom Borer. These were mostly very reliable, efficient and inexpensive. They did the job very well but were eventually outperformed by one of the earliest purchases - a Case DCX. As time went on this proved to be the most versatile, reliable range of such devices on the market, migrating easily and effortlessly into the local area networking environment of today.

By 1985, it had become clear that users wanted more than on-line access in large numbers - they also wanted control of the processors. Under pressure from users, the Region embarked on two major projects in the form of a Patient Administration System (PAS) and a District based Integrated Personnel System (IPS). Unfortunately, no one thought to involve the Computer Centre at the outset of this initiative. Consequently there was a lack of co-ordination over data communications within and between NHS premises, with the inevitable result that the IPS was being installed using Micom Borer equipment and the PAS using Case DCX equipment.

The Computer Centre was brought in to cast light upon the darkness and secured management control while the projects were still in the early stages. It was possible to extract the data communications element of funding from each of the two schemes and create a small networking project in its own right. Thus a Case DCX network

was born which provided access to both locally based IPS and PAS systems and centrally based supplies services.

As time went on users were offered more and more on-line facilities and the network began to grow. There was no structure to this growth because networking was, once again, conceived to be part of application projects rather than an entity in its own right.

This philosophy was to change in 1989 when three projects led to the pooling of finances to build and maintain what has since been described by independent consultants as the best network in the NHS.

DEVELOPING THE NETWORK

The three strategic development projects involved enhancing terminal connectivity to the already successful PAS and introducing on-line access to two new central application services. The first of these was Masterpiece, a General Ledger application from Computer Associates, running on the ICL mainframe. The second was a Supplies application, to enhance the existing Supplies Stock System. The funding secured for a re-design of the data communications network was over £2 million. As things turned out, this figure proved to be barely adequate to meet the ambitious objectives set by the Computer Centre itself.

In summary the objectives were:

- *protect the existing investment in Case DCX*
- *base networking within organisations on local area network technology*
- *conform to international standards*
- *provide a network such that one terminal or PC can access any host computer application*
- *provide electronic file transfer across the network to dispense with magnetic tapes*

Whilst the Case DCX network had been very efficient at handling the communications between asynchronous terminals and host computers, there was no possibility that it would be capable of interfacing to the local area network protocols used by the ICL mainframe.

Consultants Price Waterhouse (PW) were commissioned to undertake a study and provide recommendations as to how modern networking should be approached and what equipment should be used.

The report considered a number of options. One of them, an X.25 network, was discounted on performance grounds and, upon reflection, was one of the wiser decisions taken at the time. The course recommended was to implement a router based network using the Case 6000 Series products, developed and manufactured to OSI standards by Scanet in Denmark.

WARNING SIGNS

The first major obstacle was that BT could not physically supply 64k bits per second kilostream circuits to some of the sites.

The second major obstacle was that much of the equipment was new. Being first does have its drawbacks; a great deal of time went into resolving quirks and bugs in software and firmware. Nevertheless, a functional network which delivered the objectives finally became fully operational about a year after the original deadline. Considering the difficulties involved in, to coin a phrase, pushing forward the frontiers of technology, this represented a tremendous achievement by all parties concerned.

It was then the problems really started. A colleague of mine at the time summed it up very well: "Standards are a wonderful thing. There are so many of them to chose from." He was so right.

A QUESTION OF PROTOCOL

At the time, the OSI standard for terminal access had not been fully ratified. Even today, given a stable VT specification, there are very few implementations of the protocol, even in its basic form. Since the situation was, and still is, unlikely to improve without legislation backed by the DTI in respect of trading and manufacturing licences, there were only two alternatives. Either we adopted an OSI Transport stack up to and including layer 4, using proprietary protocols above this or we went for the option of TCP/IP protocols.

Unfortunately, having followed the government guidelines on procurement and purchased a router network based on OSI, the products chosen could not, at that time, route TCP/IP traffic.

The Vase OSI protocol stack used asynchronous VT 220 terminal emulation over OSI Transport between the products, a technique since adopted by many other suppliers. Protocol conversion gateways were used to translate this protocol to proprietary host protocols, including DEC LAT and ICL OSLAN. By adding an interface card with TCP/IP protocols the existing DCX devices were migrated into the LAN environment.

This resulted in an "asynchronous echoplex" situation where asynchronous OSI packets were passed from the PC over the router network to the OSLAN gateway at the Computer Centre and then echoed back to the PC before the character appeared on the screen. The problem was that this set-up over a LAN environment, regardless of the underlying Transport protocol. Was not particularly efficient. For most PC users this method of communicating with the mainframe - via emulator, PC LAN card and gateway proved just too slow.

The OSLAN gateway was specified as handling up to 32 concurrent sessions but became slower at echoing characters as it became more heavily loaded and had the undocumented feature of randomly disconnecting sessions when more than about 25 were established. These problems, coupled with a roll-out to provide connectivity for 300 PC users, furnishing visions of stack upon stack of OSLAN gateways, led to the search for a better method of PC to ICL VME connectivity.

A FRIEND IN NEED

It was then we came across network communication specialists Network Designers Limited (NDL). The company's HQ-lan product - a mixture of hardware boards and software - allows access to ICL host systems (among others) from one terminal. HQ-lan has the look and feel of a modern system with new facilities but it still has the old system behind it. So the investment is considerably less. An arrangement was reached to licence 300 copies of HQ-lan under DOS for ICL VME access, running the ICAB04 interactive protocol, FTF file transfer protocol and Direct Print Primary (DPP) protocol for local printing, all over the Case OSI transport stack on the Case LAN card.

Success did not come straight away - there were some major shocks and surprises to resolve which for a time threatened to undermine the whole networking project. To start with, the documentation regarding the OSI interface to the LAN card from Case seemed out of touch with reality (we now know this was nothing unusual.) Secondly, ICL provided excellent facilities and documentation of the OSI capabilities of the mainframe but seemed to have omitted to test them. As one ICL employee remarked, "We have not got another customer who does what you do the way you do it."

At length we arrived at the network we have today. The network, comprising over sixty nodes, many of which are large local area networks themselves, is expanding rapidly into new customer's premises. There are countless PCs and terminals, hundreds of file servers and over a hundred hosts on the network. OSI FTAM is operational between different host environments, including DEC VMS, ICL VME, ICL UNIX and MDIS Series X. The routers now route OSI and TCP/IP, shortly to be joined by IPX. There are external links to suppliers for support and to other external network services suppliers.

One such link is to the University of Manchester

continued overleaf

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which will soon be providing access to University library services, as well as Janet and the Internet. There are external gateways to X.25 and ISDN2, providing access to BACS and, coming soon, Racal Healthlink and, possibly, the Prescriptions Pricing Authority. Network products from Satelcom, Spider and 3Com interwork directly with host processors and either supplement or are employed as alternatives to Case (now Cray Communications) equipment.

The network is presently undergoing its second major upgrade in three years as preparations are under way for the implementation of a Network Management system.

In terms of PC terminal emulation, NDL's TCT product works for all installations. TCT gateway/emulation software connects Windows workstations with host mainframes. A particularly useful feature of this emulation is the provision of a PAD (Packet Assembler/ Disassembler) protocol, Y13, based on X.29, over an OSI Transport for use with ICL UNIX hosts. It can also use the ICL VME DPP and FTF protocols with ICL UNIX hosts. The saving in bandwidth with such block mode protocols can be so dramatic that a 64 kilostream link will deliver a performance approaching 2M bps.

Professional Datacare has regular meetings with NDL to keep pace with emerging developments and has an opportunity to suggest strategies such as the possibility of migrating Y13, DPP and FTF to other UNIX hosts.

Looking to the future, the network is ideally suited to the implementation of the NHS X.400 electronic massaging service, for which the North West Region will act as a pilot. A gateway can easily be provided to the NHS Spine network when this becomes available.

So, on reflection, all the risks, the heartache, and the sleepless nights have paid dividends. The network is a success and Professional Datacare has made the transition from a Computer Centre servicing users to a Trading Agency which recovers it s costs by providing quality services to paying customers. This success is attributable to first and foremost the staff, without whose support and dedication it would not have been possible. The success is also attributable to our strategic suppliers, ICL, Cray Communications Ltd. (formerly Case), NDL and BT.

Squeezing The Assets

(OR HOW TO OBTAIN MEGASTREAM PERFORMANCE FROM KILOSTREAM LINKS)

Why continue to shell out increasing amounts of money each year on bandwidth you don't need? Or alternatively, how efficient is your communications network?

Many users today have PCs which are connected to a local area network. Interactive access to host processors requires communications software on the PC. There the problem starts. Most software does not make use of the intelligence of the PC. Instead the PC is used like a dumb terminal, sending one character at a time over the network. Worse still, the host still runs echoplex, which means that the character has to be returned to the PC before it appears on the screen. And if that isn't bad enough, in a LAN environment, each character in each direction has to be contained within a packet of information which must be a minimum of 64 bytes long. Consider, then, a ten character username, typed in at a login prompt. Each character requires two 64 byte packets, one in each direction. The total message requires 2 x 10 x 64 bytes = 1,280 bytes. That's a lot of bandwidth to pass a simple ten character message.

But supposing the PC software were intelligent enough to echo characters locally and didn't actually send any data until the return key was pressed. How much bandwidth is required then? Well, a minimum LAN packet of 64 bytes can easily hold ten characters of data. This is because packets which are shorter than 64 bytes are padded out to the minimum 64 byte length. So one packet of 64 bytes will send a ten character message. How many packets are required to echo the characters back to the screen? None, because the PC is performing local echo. The sum total of bandwidth required is thus 64 bytes.

This demonstrates that if the average message length from the PC to the host is ten characters, a bandwidth saving of 20:1 is possible. Even if the average length of messages is only one character, the average saving in bandwidth is 2:1, because host echo has been suppressed. Now the snag. How can you achieve this? There are only three implementations of block mode protocols as described above.

The first is that used by the ICL mainframe, known as ICABxx. Associated with this are DPP, the print protocol and FTF the file transfer protocol. All of these are proprietary to ICL and run over an OSI transport.

The second is that used by the ICL Unix processor, known as Y13 and resembling an X29 PAD, the latter normally being used over X25 networks. Again, associated with this are DPP and FTF. There are proprietary to ICL and run over an OSI transport.

The third is a proprietary product from McDonnell Douglas for the Series X processor.

Of these, the ICL protocols are supported by the NDL TCT (Windows) and HQLAN (DOS) products. The latest version of TCT is 1.05.

Those users, having TCT (or HQLAN) with VT220 emulation, can access host services of type VT220+ (Y.13). This feature can be used to connect to the PDQ UNIX box using TSAP 1405, responding to the PC on TSAP 1406. Users can take advantage of this now by setting up these host details within HQLAN or TCT.

In addition, those users who have bought the ICL VME emulation module for TCT (or HGLAN) will have available:

(i) FTF for transferring files from the PDQ box

(ii) IPA print service for direct printing from DPP running on the PDQ box.

Requests for these services should be made through the Service Desk on 0161 798 0601.

Professional Datacare is currently investigating the practicability of providing Y13 and DPP on DIP and PRIDE II as well as the feasibility of porting DPP and Y13, with the assistance of ICL and/or NDL, to other Unix platforms and possibly DEC VMS. The strategy with respect to file transfer is to provide a TCT FTAM module and this is being discussed with NDL.

For further information, contact Technical Services on 0161 773 9211.

HOSPICE APPEAL *Update*

A recent 'Midsummer Madness' raffle which netted the sum of £93, brought the total of the Hospice Appeal to a magnificent £1,872! Janice Palmer and Jennifer Bennett are still baking cakes each day to sell to colleagues. This gradually builds up the funds; but a raffle twice a year, for which most of the prizes are donated, add interest for fellow workers and gives a tremendous boost to funds.

As reported is Issues 9 and 10 of Datanews, the original target was £500. This was reached much quicker than anticipated and the target was reset at £1,000. At that point the plan was to divide the money between St. Anns Hospice, Little Lever and Springhill Hospice, Rochdale and to slow the pace down. The response has been so encouraging, despite one or two complaints about spreading waistlines that the target is now £2,000. This should be met and sent to the hospices in time for Christmas.

DIP

now available on Data General

Professional Datacare have extended the range of computers on which the UNIX version of the Direct Input of Pay system will run to include the Data General Avion 850. The development was undertaken in conjunction with the Scunthorpe and Goole NHS Trust IT Department, who were replacing obsolete equipment by the Avion 850. Because the UNIX DIP system runs under the UNIDATA product, which provides a standard interface to application code regardless of the UNIX variant, the conversion approach adopted was to port program object code from the existing development computer (an ICL DRS6000) directly to the Avion 850. This is an innovative approach to transferring programs between computers, as it is usually necessary to port source code, which is then compiled to produce the object code and opens up many exciting opportunities and possibilities.

Following the port and pilot trials, the customer went live on the system during early June.

The port and implementation were undertaken by Jeannette Domokos of the Manpower team, together with members of the Scunthorpe IT Department.

JEANNETTE DOMOKOS
Senior Analyst/Programmer Manpower Systems

TOM SACKVILLE

Announces Award of NHS Message Handling Contract

"SPEED AND SAVINGS FOR PATIENT CARE WILL CHARACTERISE NEW NHS MESSAGE HANDLING CONTRACT"

BT Syntegra is to supply the Message Handling Service (MHS) and associated products for the NHS in England, paving the way for establishing cost-effective, fast and secure NHS wide electronic communications, Tom Sackville, Parliamentary Under Secretary of State, announced today.

He said;

"Through this partnership with private industry and once the MHS is fully operational, NHS patients will benefit in three key ways:

- patient records will be transferred between GPs and hospitals more quickly and efficiently than ever before;
- patient records will be transferred securely between health purchasing authorities;
- the Chief Medical Officer's Emergency Medical messages will be sent to the NHS and concerned parties virtually instantaneously.

"The system will make substantial savings for patient care and speed up the secure transfer of all sorts of data around the NHS. The NHS will have some of the lowest tariffs for these services among major organisation in the UK and Europe. This deal is excellent value for money - the tariffs are less than half what the NHS is currently spending on MHS - and I am pleased to see the Health Service benefiting from this partnership with private industry".

The MHS is a critical part of the NHS-wide networking infrastructure which will support electronic communications throughout the NHS. These include a range of new IT applications to exchange electronic data and text quickly and securely within the NHS, including patient records and the Chief Medical Officer's emergency messages.

The capital risk associated with the provision of the MHS service falls to Syntegra, who will also invest significant project resources to testing the service, marketing it to the NHS and, developing a range of applications with their sub-contracted suppliers and other suppliers at our request. Users only pay according to the products and services they use which will be discounted to a level unavailable to users buying them on an individual basis.

After an extensive competitive procurement exercise, the NHS Supplies Authority, on behalf of the NHS Executive are awarding the major contract to a consortium led by BT Syntegra to supply the MHS and associated products for the NHS in England. The contract will run for three years, with on-going use of the messaging service for a further four years. BT Syntegra are taking on the commercial risk for managing, marketing and selling this service throughout the NHS, and it will be charged for only as it is used.

continued from front page

Mr. Sackville was particularly impressed by the obvious and tangible level of enthusiasm and commitment evident from staff during his tour. Following the tour a formal presentation took place with staff present. Mr. Jim McKenzie Chairman of Lloyds Register Quality Assurance Ltd. presented the certificate to Mr. Tom Sackville who in turn handed it over to Mr. G Thompson who accepted the certificate on behalf of Professional Datacare. To conclude the formal presentation Mr. Ray Tunnicliffe, Chief Executive of Professional Datacare expressed his thanks to the guests for their kind words and in particular thanked all staff for their commitment to the project. The successful registration for the BS5750 management system was confirmed in February 1994, following two years preparation and a number of very detailed audit and assessment visits. The award of the certificate is the beginning of a continuous process of assessment in order to satisfy the requirements of the BS5750 qualification. A complete reassessment will take place in 1997, however in the intervening three years, Surveillance Visits will take place every 6 months. At each visit the assessor from Lloyds Register Quality Assurance Ltd. will audit the system to satisfy himself that procedures are being followed and that the total system is being properly maintained. The first Surveillance Visit took place on Thursday August 18th. The assessor was delighted with what he found and was impressed by the level of enthusiasm and commitment displayed by all staff. The next Surveillance Visit is programmed for Thursday February 2nd 1995.

As a token of appreciation all staff were invited to a buffet lunch on Friday 16th August.

Left to Right:
Hon. Tom Sackville MP,
Hazel Moores
Data Entry Co-ordinator Data Preparation,
Irene Cleary
Key-to-Disc Operator Data Preparation,
David Sumberg MP.

Left to Right:
Hon. Tom Sackville MP,
Ray Tunnicliffe
Chief Executive Professional Datacare
Ken Dearden
Technical Support Manager
David Sumberg MP.

Hon. Tom Sackville MP,
Julia White
Help Desk Deputy Supervisor

Left to Right:
Ray Tunnicliffe
Chief Executive Professional Datacare
Hon. Tom Sackville MP
Geoffrey Thompson
Chairman Professional Datacare
David Sumberg MP.

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Acknowledgements:

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KEN DEARDEN
Technical Support Manager

•

JOHN STANFIELD
Business Manager

•

DAVE SMITH
Project Manager, Manpower Systems

•

TREVOR GUNSHON
ICL VME Support Team Leader

•

NICK TRIMBLE
Business Manager, Teamwork

•

JENNIFER BENNETT
Help Desk Control Assistant

•

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