

ROCC  
PRESS INFORMATION

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DESPITE some spectacular market success, notably in the travel and motor industries, and despite the rosy forecasts of the market researchers that all point to a multi-million pound market, the sceptics will say that the jury is still out on videotex.

Is videotex just a passing phenomenon that will be absorbed into the more traditional world of data processing networks and lose its identity, or is it a revolutionary communications medium in its own right that will have a major impact on the way people do business?

It is important to realise that there are three generic types of videotex system – public service videotex, such as Prestel, private systems that are lookalikes of public systems, known as PLAK systems, and super-videotex systems for private usage. In terms of business usage only the last two classifications are of any real importance.

The growth of private videotex has taken place in the last five years, following the initial breakthrough in March 1980 when the first private system was launched by Rediffusion. Astute business people quickly recognised that this type of system could be used as a marketing weapon against their competitors.

The first industry to take the initiative was the holiday tours business. This is a frighteningly competitive field, enormously dependent on marginality – the last few rooms sold and the last few aeroplane seats filled make the difference between profit and loss.

Here was the first clear example of the new information technology, videotex, being used as a direct, overtly competitive weapon. In the past technology had only been used like this in specialised manufacturing industries but here there had been a breakthrough in the services sector.

The next area to follow suit was motor retailing, and the trend continues with the insurance industry emerging as the next battleground. Financial services are on the starting grid and now mainstream manufacturing is being persuaded of the value of videotex. In the background, pharmaceuticals and tobacco are already limbering up, and agricultural chemicals are smouldering. Where

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of the machines.

To do this Infolink has installed multiplexers in front of the ROCC computers as well as a communications link joining the three systems. The result is a highly resilient system that cannot be dead-ended or fail to respond to an enquiry.

Hole and his team have also, during the past two years, been busy extending the videotex service beyond London and Birmingham – adding Edinburgh, Manchester, Leeds, Nottingham and Cardiff to the network and connecting them over leased lines to a twin Burroughs 7800 installation.

Two of the country's largest finance houses – UDT and Lombard North Central – are the major users of the videotex facility. They also use it to access a new "payment profile" service developed by Infolink in conjunction with Mercantile Credit and North British Credit, as well as UDT and Lombard.

The service has the blessing of the Finance Houses Association and enables participating companies to access confidential information on credit transactions, including a month-by-month payment history and the balance outstanding on the account.

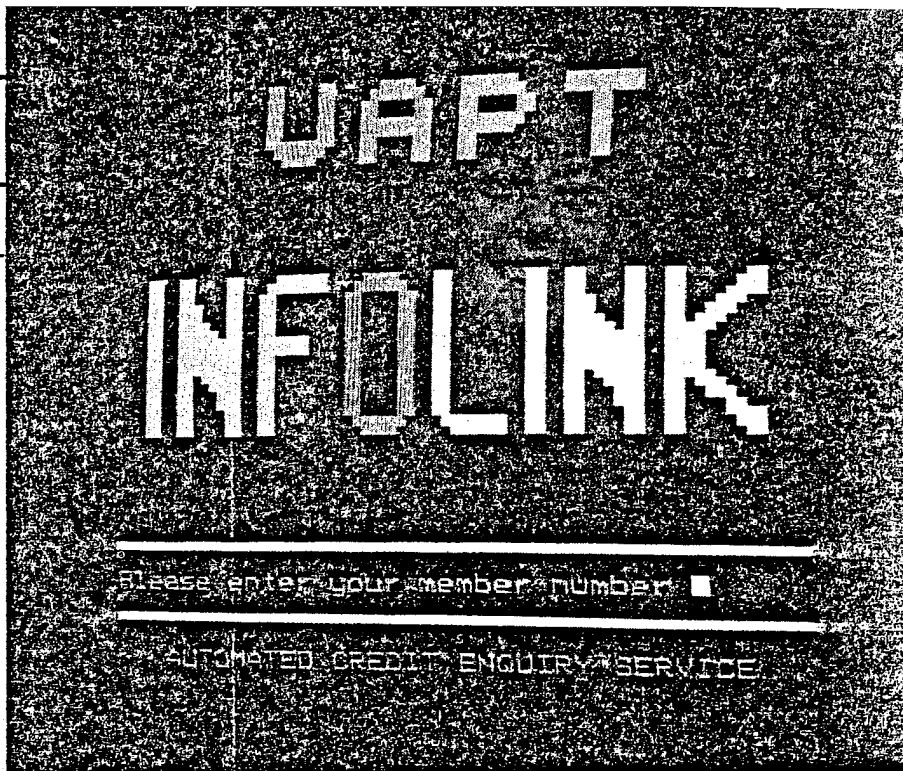
To date, two million account records have been loaded into the system to provide the service, and it is anticipated that by the end of this year the number will have risen to 6½ million.

Eventually it is expected that more than 30 finance companies will participate in the scheme, which, according to Infolink, "is destined to have as much if not more impact on the consumer credit market than the computerisation of data five years ago".

If D&B and Infolink represent the top and middle levels of credit reporting, the parvenu of the business must be Infocheck, which has just raised £1 million in the City "to fund the first dial-up database of analysed, full financial data on every limited company trading in Britain".

"I want to give company credit managers the fastest limited company credit-reporting service in the UK, at the best value for money" says Infocheck managing director David Clark.

This will mean the full Companies



*UAPT Infolink – the UK's largest credit information agency of its kind*

House details on the 450,000 limited companies trading in Britain, plus detailed analysis and recommended credit limit for each one.

For these and an estimated 600,000 further limited companies not currently trading, Infocheck promises basic credit status reports.

The full list of one million active and inactive companies will be added to immediately new data is listed at Companies House.

The database will be available for £3 an enquiry, on a subscription basis, to any credit manager with access to a DOS system terminal and the ability to dial up on any of the currently available British Telecom communications links.

Credit managers will be able to read the database from Apricot, IBM PC, Sanyo, Cifer, Olivetti or other DOS computers linked by PSS, analogue, and Kilostream.

Using the PSS X25 network, the connecting call will only be a local one to the PSS gateway phone number from anywhere in the UK. Or users can simply ring up Infocheck and request the information to be sent by telex.

The system runs on ITL Momentum 9000 range dual Model 21 super minicomputers with automatic fast-recovery features including mirror discs.

The system offers one gigabyte of disc storage, ten terminals in Cardiff where company report analysis is carried out, and four terminals at Infocheck's headquarters in the City.

The system's special software was written by the remote database enquiry specialists Multum Systems, who recently put Harrod's electrical buyer interactively on-line to the database of

one of his main suppliers.

Infocheck says it is building up its full reports total at the rate of 3,000 companies a week.

When the system goes live on October 1, full reports on 75,000 of these live limited companies should be in the Infocheck database and every new annual report filed with Companies House will be added, with analysis and credit limit recommendations, in the week in which it is filed.

Credit managers subscribing to the database will be able to have all their own limited company debtors added immediately, and automatically updated from then on as the latest annual reports are filed.

Within six months Infocheck hopes to have added another 75,000 companies and by next June the total is expected to be 200,000.

The full listing of every live British limited company within two years is the target.

"We expect this to be well ahead of any of our competitors", says Clark.

"Our main rival currently lists around 200,000 businesses on its database. But the questions to be asked by astute credit managers are: How many of these are limited companies, not just some of the millions of unincorporated businesses in Britain? And how many of them are up to date?"

"And how much do they charge for their best service, even if it doesn't match ours, compared to Infocheck's £3 price-tag for a fully-analysed limited-company report?" asks Clark displaying his appetite for what should be an interesting battle for the credit-checking cake in the months to come.

# Can we seize the videotex challenge?

there is competition, increasingly there will be videotex.

The reason is simple. Videotex puts the customer on-line to the supplier. It creates a new communications medium that is more effective than any other currently existing. This is because videotex has some particular business advantages.

It provides customers with the wherewithal to communicate directly with the corporate database, allowing them to enter orders, check deliveries, control their own credit limits, browse through catalogues and send messages to the organisation. That part of the organisation's resources hitherto devoted to providing those services for the customer is no longer needed.

Another advantage is that videotex can provide message services. Efforts are being made to harmonise videotex and teletex protocol specifications so that messages can be moved easily from one convention to another, with tremendous benefits for business in terms of faster more efficient communications.

Videotex also has big advantages for the end user. For the first time multiple, sophisticated, interactive computer applications can be accessed from a device that demands no special computing skills. In addition, the use of colour and graphics provides a means of communicating other than displaying alphanumeric. Videotex may be a small step forward for computing, but it is a giant leap forward for communication.

In this respect, as a general communication medium, videotex has many corporate applications. Typical terminal uses include management workstations, organisation notice boards, clerical workstations and

computer-assisted learning stations. These uses generally displace prior methods to give tangible economic benefit.

The participatory communication provided is generally most suited to transactional service, messaging, information dissemination, or educational applications.

The externalisation of office labour costs through videotex is a totally new phenomenon, and will have an even more dramatic impact than distributed computing on the shape of business and markets.

With distributed processing, computing power was moved to the operating elements in the business,

## By MIKE ALDRICH

often to improve customer service as well as internal efficiency. Videotex extends the distribution directly to the customer.

In parallel with this development, new videotex terminals will help to change current attitudes towards the technology. These new terminals differ in one important detail from previous terminals – they have been designed by and with the user.

At this stage we should note the lessons of the market to date. Large screen domestic televisions tend to sit uncomfortably on the top of desks. Alphanumeric keyboards are needed for alphanumeric messages. A telephone directory with only six numbers is a nuisance. Generally keyboards have in the past been poor from an ergonomic viewpoint. Lack of local page store and fast access bulk store at the terminal have traditionally been limiting factors.

The new generation of terminals

now available not only lack the limitations of prior devices – they also have new capabilities opening new application opportunities. Because their feature/function specifications are not based on mass-produced dedicated chips, there is much improved added-value potential for the supplier who can design the most economic solution to a particular customer's problem. Batches of 2000 to 3000 customised terminals for large customers will be a feature of the videotex terminal business in the future.

It has been a feature of most in-house videotex projects to date that they have been driven by strategic corporate management. Data processing departments have remained aloof. They have been unable to decide whether videotex was a toy or a threat, and they have been unable to understand that a new communication medium is a major opportunity. Thus they have been reluctant to move into videotex and others have seized the initiative.

It can be expected that most DP departments will continue to resist. The argument – videotex is just another VDU – can still be heard. The fast-coming developments in videotex will obliterate that argument forever.

There can be little doubt that videotex is a major worldwide phenomenon. For the next few years the corporate videotex market will be the front-runner in product development and business opportunity. Later in the decade the residential market will move into the ascendancy.

In business or in the home videotex will provide information at your fingertips. Most importantly, it will bridge the gap between business and consumer telecommunications.

Information technology is likely to be the most important development in sales and marketing since the advent of TV advertising. That confident prediction is made in a report by consultants Butler Cox, which is destined to become something of a best-seller.

The report, *Information Technology: Its Impact on Marketing and Selling*, uses 23 case histories to illustrate how major companies in Europe and the US have dealt with the question of how to sell to the institutions and citizens of the information society.

Their answers cover a wide range of products and technologies - from cellular radio and interactive videodiscs to portable computers and value added network services (VANS) - not all of which enjoyed a smooth introduction or successful outcome.

"It's still very much the exception rather than the rule for a company to use IT as a competitive weapon in selling or marketing," says Neil Farmer, who headed the Butler Cox research team. "But that is changing: it's now a hot topic. In fact, the sales and marketing function represents 70 per cent or more of the total market for some IT products over the next five years."

Clearly, those organisations which lead the market with the introduction of IT stand to grab a greater share of sales from their competitors if they get it right. But sometimes it's a gamble that does not pay off, and it is the market leader who has to find out the hard way.

"I suppose a classic case was the use of videotex by Thomson Holidays [though this is not included in the report]. It got in early in putting the system in travel agencies, having seen the potential for selling more holidays. But it might have found that people didn't like using it and preferred to ring a competitor. Fortunately, that did not happen and it worked very well with the result that other holiday companies soon followed suit."

Sometimes, however, instant success does not give a company a long-term competitive edge. The IT report cites the case of an anonymous European insurance company which offered computer terminals to large independent brokers who act as agents for many insurance companies.

It offered an IBM minicomputer, broker business software and the facil-

ity to link into its IBM mainframe computer to carry out transactions, on very favourable leasing terms.

The motive, of course, was to tie the large brokers more closely to the company and increase its share of business. It was an attractive deal for the brokers and by mid-1984 over 200 had installed the system.

But within months of the announcement, in 1980, the company's competitors began offering similar schemes, and six months later the insurance brokers themselves, through their trade association, launched their own bureau service with the co-operation of the large insurance companies. This trend has continued to the point where the insurance firms are now considering the establishment of a single industry-wide computer service.

So this was a case where IT failed as far as the initial supplier was concerned but the initiative led, by way of natural evolution, to an industry-wide IT system.

Now, Abbey Life has a large IBM mainframe computer and Epson HX20 terminals with specially-developed software for its sales people. The portable computers enable sales staff to give information to a potential customer immediately.

Interestingly, one of the objectives of the Epson project was also to enhance the status of Abbey Life's sales staff as well as improving the quality of their sales presentations to customers. At the same time, the computers reduce the risk of errors in calculations and also enable the company to update product information quickly.

The cost of this IT development was met by the company, but the sales people have to buy the briefcase terminal from Abbey Life if they wish to use the facilities.

Over 25 per cent of the sales staff have bought microcomputers since the scheme was introduced in 1982, according to the Butler Cox report. It

# How to sell HI-TECH

## Can technology add muscle to your sales

More successful, from the company's viewpoint, is the experiment carried out by Abbey Life to equip its sales force with portable computers. One of the UK's top ten insurance companies, it has around 4,000 employees of whom over 60 per cent are field staff and nearly 2,000 are directly involved in selling insurance.

The importance of the sales force to the company's turnover can be judged from the fact that only a quarter of sales are made to existing clients. So, the sales force main task is to generate new business in areas - particularly life insurance and pensions - which are often very complex. Until 1980 most information relating to such policies was processed manually, at local branches, using forms and index cards, with the result that delays of up to five weeks were sometimes experienced.

adds: "The introduction of portable terminals, as a presentation aid for sales staff, is considered a success by the company's management. The results, in terms of new business, have been encouraging."

Such schemes could be vital to the survival of some businesses. "A number of American insurance companies have gone to the wall in the last decade for failing to be competitive in terms of the type of insurance they are operating," Farmer says. The reason for that, largely, is that they did not have the information systems in place to offer that type of service."

Another company which has introduced portable terminals for its sales staff is Courage Take Home Trade, which is part of Courage, the independently managed brewery within the Imperial Group. Its 47 salesmen,

# SUPERVIDEOTEX

There are today three generic types of videotex system—public service videotex, such as Prestel; private versions of public systems, known as PLAK systems; and supervideotex systems for private usage, described here by Mike Aldrich.

As a communications medium, videotex has three elements. Firstly, there is the provision of information that is structured within some kind of database. The database can contain alphabetic, numerical, and graphical information, in virtually any volume, and with super-videotex, organised in any suitable manner.

Secondly, there is the distribution channel which is generally an internal or external telephone line (PSTN, PSS or leased line). Lastly, there is a human interface device with send, receive and local storage capability (the videotex terminal).

There are three technical conventions for handling alphabetic, numeric and graphical information. The first is alphamosaic, pioneered by Prestel and, later, Antiope and now standardised into the European CEPT standard. The second is alphageometric, now formalised as the AT&T presentation level protocol. The third is alphaphotographic which again has been pioneered by Prestel as Picture Prestel.

Because videotex is not application-limited, it can provide message services. Efforts are being made to harmonise videotex and teletex protocol specifications so that messages can be moved easily from one convention to another.

The applicational development of videotex front-end interfaces to existing computer information and on-line databases is of fundamental importance to the growth of the videotex markets.

These interfaces consist of hardware and software—the hardware handles the physical characteristics of the transport mechanism and the software provides logic control of the dialogue between user and computer together with appropriate access mechanisms to stored data.

Both hardware and software are much more complex than a casual glance would indicate. A dedicated videotex front-end processor needs to be able to handle simultaneously front-end videotex terminals, back-end interactive communications with a mainframe, together with processing information, manipulating data on its own database and that of its host. It also needs to be resilient and secure and simple to install and use, because for many buyers it will be perceived as a plug-in-and-play black box.

With videotex there is the system

designer's nightmare of how to handle large numbers of slow, asynchronous devices operating over 1200 baud lines and provide instantaneous response times often in a real-time transaction processing mode. The nightmare is generally exacerbated by the back-end mainframe communications running concurrently. These may talk interactive IBM 3270, so that a videotex terminal in standard videotex form can operate through the FEP as if it were a 3270 terminal. The technical solution therefore has to be highly sophisticated and can only be accomplished with a multi-computer configuration.

Videotex terminals are handled by dedicated processors; network communications, providing direct interactive links to up to eight mainframes or into a VAN, are also controlled by dedicated processors; and information processing and storage need further dedicated processors. Put all the processors together and the aggregated power needs to run at more than 9 MIPS for a 40-port system.

Driving these multi-micros requires a powerful software system with typically a 33 or 66M byte virtual engine and a 2M byte operating system.

The operating system needs to be built for videotex. The simplistic view that all you need for videotex is good multiplexors and acres of main memory is sustainable only if you have excess cash and resources. The market price for excellent performance is around £1300 per port and serious users are very much concerned with price/performance.

Operating software has to handle multi-users/multi-jobs, front and back-end communications, multi-level security, dynamic and static pages, virtual videotex terminals, keyword searches, multi-key record, insert, delete and retrieval, owner-member data relationships, ubiquitous caching, data entry validation, file archiving and system security/housekeeping, detailed utilisation statistics of users, and a host of other complexities. Yet it has to be almost invisible to the system operator and totally invisible to the videotex terminal users.

Additionally the operating software has to provide a videotex-oriented program generator, with verbs that reflect the special nature of videotex terminals and operations. Otherwise writing a program would be time-

consuming and expensive. Videotex is not simple communication but complex computing.

Packaged systems, therefore, are being sold that provide a plug-compatible solution for various mainframes with the ability to write interface software in the front-end in high-level business-orientated programming languages.

With this type of approach, sophisticated real-time interactive mainframe computer systems have been given a videotex front-end with just a few man-months of software development.

## Terminals

New videotex terminals will help to change current attitudes towards the technology. Large screen domestic televisions tend to sit uncomfortably on top of desks. Generally, keyboards have been poor from an ergonomic viewpoint. Lack of local page store and fast access bulk store at the terminal are limiting factors. There is no auto-answer on videotex terminals. Built-in telephone directories are very limited.

More modern terminals do not have feature/function specifications based on mass-produced dedicated chips, and there is much improved added-value potential for the supplier who can design the most economic solution to a particular customer's problem, with batches of 2000 to 3000 customised terminals for large customers.

The current novel uses of private videotex are worthy of mention. Significant profits are available in using Prestel to disseminate information, provided the information has low-cost production, high volatility, market demand and widespread usage characteristics. A private videotex system can be used as a real-time collection point of information which can update Prestel instantaneously and then disseminate that information to many countries.

Secondly, the Prestel Gateway has focused attention on long-distance call charges for videotex operation, but few people seem to realise that modern videotex terminals can be easily connected directly to the PSS service, for very low cost communications. ■

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# ERGONOMICS

Sally Clarke re-evaluates both sides of the argument on whether VDUs are damaging to health

## A deadly display?



VDUs (visual display units) have been blamed for causing everything from headaches and eyestrain to nasty face rashes and, more seriously, deformed and miscarried children.

Over the past few years numerous surveys have tried to prove or disprove that VDUs can seriously damage your health. Their findings are consistently inconsistent.

For example, a recent report commissioned by IBM and conducted by Professor Arthur Guy at the University of Washington, Seattle, discounted the possibility of any major risks from VDUs.

In March this year Apex, the white collar union, said people were at risk and released a report showing widespread health problems among VDU users.

A study carried out in Sweden decided that VDUs pose no threat to pregnant women, reports *The Financial Times* of May 5, 1985.

Just 12 days earlier *The Times* ran a story on a survey in Japan that found over 36% of pregnant women asked about working with VDUs reported abnormalities. The problems increased in proportion to the time spent in front of VDUs.

The sceptics will hold that there is no smoke without fire but facts have been notoriously difficult to obtain. The biggest hurdle is organising a survey that is physically big enough.

Brian Pearce of the Husat (human sciences and advanced technology) Research Group at Loughborough University, who runs courses for industry on VDU safety, pours doubt on the findings of most surveys, saying they are much too small. A large survey would be over 50,000 people, but most surveys look at well under 1,000 people, and often under 500.

The civil service commissioned a study which was conducted by the Department of Employment (DoE) at Runcorn. Pearce says that was also far too small.

The survey questioned retrospectively 169 women who had been pregnant over a nine-year period, from 1974 to 1982, hoping their experiences would throw light on the risks to pregnant operators.

Often employers give no thought to the environment in which VDU operators have to work.

The civil service put enough faith in the final results to circulate them as a guide to employees, but the Runcorn report is inconclusive and contradicts itself.

For example, it states that the rate of miscarriages in the "normal" population is 15%. The survey found that the rate for women working with VDUs was 14.5% within the normal rate. But then the report claims the normal rate is 14.4% to 78%.

The latter figure is obviously too high.

The report puts birth defects in normal women down to "chance", such as German Measles or "some other common factor".

It also discounts some of its findings, saying that little reliance can be put on the methodology and results.

The DoE concludes that "a relationship between VDU usage and adverse pregnancy outcome has not been established in any study worldwide" - those Japanese reported by *The Times* would disagree for a start.

Pearce is sceptical about the effects of VDUs on pregnant women. There are, he says, "a host of confounding factors".

What is the normal percentage of babies that develop

deformities? What age range should the survey cover? At birth the statistics may show one result, at two years they could show another. "It's an absolute minefield," he says.

It's easy for those who want to knock holes in the findings, he says, and however well meaning or knowledgeable one may be, it is an immensely difficult area to study.

The question of pregnancy defects is just one of a series of VDU versus health issues which have hit the headlines.

It was thought ionising radiation emitted by VDUs gave out harmful X-rays but this is now a dead issue. However, non-ionising radiation and its possible ill-effects are far from a dead topic.

Non-ionisation happens where there is a reduction in negative ions around the VDU, and Pearce describes the subject area as a "jungle".

Professor Arthur Guy concentrates on non-ionising radiation in the study commissioned by IBM. He concludes that it is highly unlikely that there is any relationship between birth defects and emissions from VDUs, although he concedes research by others has indicated that there could be links.

The press picked up on his recommendation that VDUs should have an extra layer of shielding to prevent exposure to high levels of emission. Most screens in the UK already have an extra layer of shielding as standard, and IBM was as quick to draw attention to this as the press was to ignore it.

Public opinion on VDUs and health should not be ignored, and Guy is aware of this. More research should be done on the effects of non-ionising electromagnetic fields, if only, he says, "to quell the concern of the labour unions".

Pearce thinks it is the attitude to VDUs rather than the hardware itself that is causing problems.

The trouble is that we work at, and not with, VDUs. The more intensive the work, the higher the rate of problems. We must try and work with a VDU the way we work with a pencil, he says.

People are being forced to work full-time at repetitive tasks, so it is not surprising there are problems. "It's the equivalent of a new technology sweat shop," he says.

Those with interesting jobs, like systems designers, who spend many hours in front of a screen, rarely com-

plain of ill effects.

What needs to be looked at is the way jobs are designed at supervision and management level, to ensure that people can use computers in a more creative way.

Repetitive jobs can be stressful and a lot of the symptoms of which operators complain, including tiredness, headaches, irritability and face rashes, can be the by-products of stress.

Stress can have various causes.

The level of training may not be sufficient. Even reading about health hazards can be overwhelming so the media likes to sensationalise the risks of working around VDUs.

The office environment itself can be unpleasant. A VDU needs a printer, and impact printers can be extremely noisy. The British Standards Institute (BSI) has laid down guide lines for noise levels, but these are all too frequently ignored.

The noise level inside buildings should not exceed 45-50 decibels (dB). The upper limit should be 55 dB, to be tolerated only in buildings where speech is important or where the background noise includes machinery - like typewriters and printers.

A noisy office can frequently reach 70dB, which is about the same as the noise made by traffic along Piccadilly.

Often employers give no thought to modifying offices in order to accommodate their wonderful new computers. Lighting, proper chairs, ventilation and extra work surfaces can make working at a VDU much more comfortable.

Reflections bouncing off VDU screens and glare from the lights can cause discomfort. The best type of lighting gives a low intensity beam falling downwards. Indirect lighting positioned so that the light bounces off the ceiling can also be used to great effect. Desk lamps, even if specially designed for use with VDUs, are not so effective.

Correct positioning of the keyboard and screen and the right chair can also check aches and pains. Sitting at a screen all day without proper precautions can force the body to adopt an unnatural posture.

The head stays in a fixed position staring at both screen and copy. The neck-shoulder-arm area is constrained because of the repetitive finger movement at the keyboard. There is a higher muscle tension caused by visual strain, mental load, and psychological adaptation.

In a book edited by Pearce, *Health Hazards of VDUs?* the following recommendations are made to help relieve the uncomfortable symptoms developed while sitting at a VDU.

Display screens and keyboards should be adjustable; keyboards should be movable and not exceed three centimetres in height; there should be space on the desk to rest hand and forearm; seats should have high backs and it should be possible to alter their position.

Even if all these ergonomic requirements are satisfied there are still question marks hanging over some health factors.

You can't say "there is no evidence, therefore these questions should be dismissed," says Pearce. But he doesn't see that there is sufficient evidence for people to stop working at VDUs.