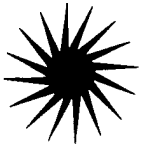


# Press Information



**REDIFFUSION**  
Computers

A Member of the Rediffusion Group of Companies

M. J. ALDRICH

P R E S S   C U T T I N G S

M A Y   1 9 8 3

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# Rediffusion treats the micro like an overgrown TV

Market still unconvinced by a novel  
approach to information technology

The computer jungle accommodates many strange beasts, but only Rediffusion Computers treats the microcomputer as an overgrown television. It has yet to persuade the market. "We are two years ahead of the market," laments Mike Aldrich, Rediffusion Computers' managing director. But Rediffusion has aggressive plans. By the end of the year it plans to start marketing its office systems in the US.

"The whole thrust of information technology is interactive video," says Aldrich. Rediffusion's Teleputer, introduced last year, is a Z80-based microcomputer with 128k of memory, but it can also run colour video from a VCR or video disc, and has an integral dialler and modem for videotex and communications. All the added extras make it considerably more expensive than most 8-bit microcomputers at £4,000. This is all very well, but what can you use it for?

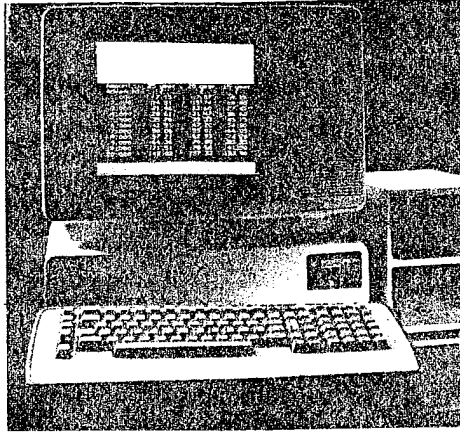
Rediffusion is still trying to answer that question with software that makes use of the video. So far the Teleputer has mostly been used for in-house videotex systems, but Rediffusion is developing software for computer-aided training and promotional films. The first products should hit the market by the end of the year.

"Eventually we will get into artificial-intelligence realms," says Aldrich. For instance, Rediffusion Computers is already working on getting the Teleputer to understand speech. In developing sophisticated interactive video, Rediffusion Computers is getting help from its sister company, Rediffusion Simulation, a world leader in computer simulation for training pilots and which has recently moved into robotics.

Because of his faith in office video, Aldrich believes that within a few years there will be a need for cable contractors to wire up offices with broadband networks, and that is where he plans to take Rediffusion Computers. Recently he became chief executive of Rediffusion Business Electronics, which supplies and installs closed circuit TV systems, private hotel video systems etc. Aldrich plans to combine their expertise to move over into cabling area networks for business.

Rediffusion already has several multiplexing and networking products. "We probably will not need to expand our product range much," says Aldrich, though he admits that Rediffusion does not really have enough digital technology, especially in virtual circuits.

Rediffusion Computers is not hitting the market with its unconventional



Videotex computer: bread-and-butter business

the 50% growth rate of the business micro-computer market. Aldrich says he hopes to start growing fast in the mid-1980s when the market catches up with him. Despite being way ahead of the rest, Rediffusion makes profits on its £21 million turnover. It is supported by its bread-and-butter business of making specialist minicomputers. In Britain, it has 60% of the market for data entry computers, and about 80% of the market for videotex computers.

Rediffusion's futuristic products do not stop at the Teleputer. Rediffusion also makes the Writeaway and the Chatterbox, the first being a method of digitising handwriting and sending it down a telephone line, and the second being a way of using the telephone keypad to send messages to a computer and get a voice message back. Aldrich admits that the market for these products is very slow. "The market is very conservative," he says.

Rediffusion Computers' latest innovation is a signature verification box, based on original research by the National Physical Laboratory. It seems a strange sideline to get into, but there is reason in it. Aldrich is a well-known prophet of home banking, home shopping etc in cable-TV circles, and he believes home signature verification will be needed to stop the kids buying Rolls-Royces through the TV, as well as for signature verification in more conventional banking applications. □



Extract from  
Management Accounting, London

## ELECTRONIC CHECK ON FORGERIES

Cheque and credit card fraud is a high-growth criminal activity on a worldwide scale. The use of 'plastic money' has brought in its train a new crop of experts who will use a stolen card intensively for a day in the UK and then sell it to the Continent where it will be used for a further week or so.

Up to now there has been little public recognition of the scale of the problem and no concerted efforts to prevent it. Thus, for example, when someone buys petrol by credit card, the attendant will merely glance at the signature on the credit card to compare it with the signature on the credit slip.

Changing the signature on a stolen cheque or credit card is quite easy for the criminal fraternity. The retailer does not directly bear the cost of the fraud, thus there is no great incentive to be meticulous in establishing that a person actually is who he or she purports to be.

In the USA, where it is the retailer — rather than the bank or credit card company — who foots the bill, rather more care is taken to validate signatures at the point of sale. Even so the retailer relies on 'eyeball scrutiny' and long-scale counterfeiting is rife.

Many attempts have been made and are being made to combat the problem but with little overall impact and even less common determination. Banks in the UK are thinking about photographs on cheque and credit cards. However, such photographs remain in the eyeball scrutiny era and are subject to the vagaries of human behaviour.

In the USA an investigator recently had a credit card made with the photograph of a gorilla on it and succeeded in obtaining goods and services without undue difficulty!

Vagaries apart, there is perceived to be widespread public resentment at the possibility of photographs on cards for obtaining credit or making payments. Women, in particular, who change their appearance from time to time will, it is thought, be apprehensive at using such cards.

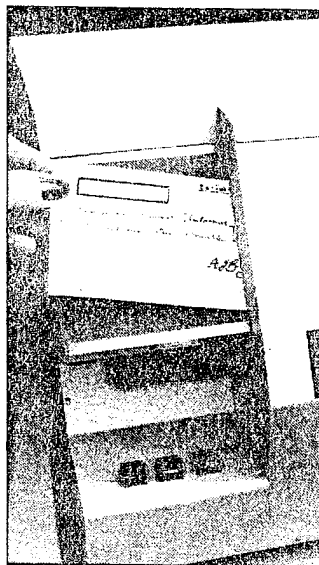
Other ideas have been mooted — fingerprints and handprints for example — but both are thought to be socially unacceptable and, in any case, too costly.

The need is for a simple, effective and inexpensive personal identification system to solve the problem in a socially acceptable manner by identifying a person by signature, a need which may now be met by a new product.

Rediffusion Computers claims to be the first company to offer a low-cost product which can identify whether a signature is true or false. Employing two microcomputer-based devices — an encoder and a verifier — the system, called Signcheck, will detect 'unseen' forgeries and 95 per cent of 'seen' forgeries, said the firm's managing director, Mike Aldrich.

'Unseen' forgeries — where a person has wiped the original signature from a stolen cheque or credit card and has substituted his or her own version of the true owner's signature — constitutes the bulk of the estimated £20 million annual

cost for cheque and credit card fraud in the UK, Aldrich said. 'Seen' forgeries, where the criminal copies the owner's signature from the cheque or credit card, are comparatively less of a problem.



The prototype version of 'Signcheck' for verifying signatures.

'The perfect forger will always get away with it but it's now possible to catch all but a very few of the rest', he said, adding that the cost of such a fraud in Britain had doubled in the past year and was 'ultimately borne by the community'.

The Rediffusion system was developed from some basic research conducted at the National Physical Laboratory at Teddington. The firm took the NPL ideas and translated them into the first practical static signature verification system.

Signcheck works in this way.

Six sample signatures on a standard A4 sheet of paper are passed through an encoding machine which establishes an identification number for the owner. This predetermined number is printed alongside the signature box on a cheque before issue by a bank. When a person signs a cheque it is fed into a shoe-box sized device (the verifier) — the only piece of equipment the retailer will need — which reads the signature and the number, compares them and either confirms or is unable to confirm, that the two pieces of data correctly correlate. The number is unique to that signature and so visual comparison against a signature on a cheque card is not necessary.

In the case of a credit card, the number is either embossed on to the card or held in the magnetic stripe. There is no need for the signature to be written on the card. Otherwise, the operation is similar to the cheque operation.

It is not possible, Rediffusion says, to create a signature from a number by any means whatsoever nor is it possible to create a number from a signature without an encoding machine.

Encoding machines will be fitted with encryption devices specified and owned by the banks and credit card companies, so that neither encoding machine supplier nor bank will be able to know how a number is generated.

Further information from Rediffusion Computers Ltd, Kelvin Way, Crawley, Sussex RH10 2LY, telephone 0293 31211.

Extract from  
Computing, London.

19 MAY 1983



Mike Aldrich: more recognition for cable's interactive potential

## Benefits of teleshopping years away, says expert

A US company chief raised doubts about the profitability of interactive teleshopping on cable, one of the services stressed by the IT industry.

Walter Forbes, chief executive of Comp-U-Card which is the only US company to make money out of teleshopping so far, said its real benefit was 'years away'.

Teleshopping would only be an attractive proposition to companies when they can transmit video pictures into homes.

But Forbes told companies to start experimenting with interactive services now.

Mike Aldrich, managing director of Rediffusion Computers, said that cable's in-

teractive potential should get more recognition. Cable, he said, should be renamed 'metropolitan area networks'.

It can carry teletext-type services, handle shopping, banking, publishing, mail, education services, security devices, telesoftware and other deliveries, act as a gateway to other networks and databases and deliver telesoftware, he added.

Stephen Dale, director of Inbucon Management services, said that cable is ahead of any other delivery means for interactive services. 'Anything viewdata can do, cable can do better,' he said.

But Dale added that the advantage of cable's cheaper 'terminals' should be built on quickly before the price difference is eroded.

And Kenneth Baker stressed: 'Consortia offering tired, old technology with limited or no interactive capability will stand little chance of success.'

Extract from  
New Electronics, London

23 MAY 1981

# Engineers required for people maintenance

In a recent address to the British Computer Society, Mike Aldrich, managing director of Rediffusion Computers, referred to the "thundering beat of the ubiquitous computer — at the heart of technological change" signalling fundamental changes in community lifestyles that would be with us in the 1990s. He went on to describe a scenario in which office workers and factory workers spend only a fraction of their working time away from home and when the distinction between producer and consumer "might fade completely".

"We are today at the beginning of the computer era — the Model T Ford stage. Today's computers are stupid. Tomorrow's computers will have the ability to reason, to use natural language, to parse sentences, to draw inferences and to connect items together and to relate them each to the other," he said.

This picture has been painted many times before, but becomes more and more realistic with every month that passes. There can be no doubt that electronics engineers all over the world are working flat out, aided by computerised design facilities, to produce the ultimate weapons for maximised productivity and profitability in industry — automated offices and automated manufacturing.

The most disturbing aspect of all this effort in design for automation, is that there is nowhere a corresponding effort to stimulate the "fundamental changes in community lifestyles". Unemployment is on the increase everywhere in the Western World.

In the UK, in almost certainly an election year, all competing political parties are desperately inventing plans to reduce unemployment. But even the most extravagant of the policies devised will bring no more than a million additional jobs over the next two years. If the improvement in industrial performance continues over the same period, the additional unemployment this entails will probably amount to the same number.

The effect of prolonged unemployment has already been shown to have drastic effects on the personality of displaced workers. The effects of never having been employed at all, have as yet to be determined. But the results will soon be manifested in the community and there is a desperate need for "human engineering" expertise to sow the seeds of a radical restructuring in our work ethic.

There does not appear to be much evidence for the emergence of this new technology.

Extract from  
Sussex Business Times, Shoreham

MAY 1983

## The New Revolution

□ Mike Aldrich, managing director of Rediffusion Computers of Crawley, told a British Computer Society meeting in Edinburgh that his industry and telecommunications are working to reverse the trend of the first industrial revolution.

In essence that revolution gave rise to a movement of population from the country to the towns, which in turn gave rise to worldwide problems of the commuter and dormitory community isolation. The new revolution, said Aldrich, will once again allow people to work and live in the same community.

'Teleworking does not mean people will never go to offices,' says Aldrich. 'It means that they will go less often because the basic office services of communications and recording will have been distributed to their homes. For a long time we have separated producers and consumers just as we separated working and living. It was always a false separation.'

A producer is invariably a consumer and a consumer is often

a producer. With new telecommunication systems in our electronic house or cottage, the distinction might fade completely. The weekday factory worker might become a weekend software producer, or even handicraft producer.

### Model T Ford

'Later this decade - totally new types of computer systems - the so-called "artificial intelligence" or "expert" systems - that would extend the use of computers and the opportunities that we can now see for them - would start to appear.'

Aldrich added boldly 'We are at the beginning of the computer era - the Model T Ford stage. Today's computers are stupid. Tomorrow's computers will have the ability to reason, to use natural language, to parse sentences, to draw inferences and to connect items together and to relate them each to the other.'

All this would lead to a further reduction in the average working life which since 1918 had already

reduced by two thirds, moving away from the three 48s, the three 40s even, to the three 35s and less - the 35-hour week, the 35-week year and the 35-year working life.

### Ambition

Aldrich has wide experience in the computer industry. After 15 years with the major US computer firms of Burroughs and Honeywell he joined Rediffusion in 1977 and became MD three years later. Since then he has taken the company into the world market leadership. He is one of six advisors to the Prime Minister as a member of ITAP - the Information Technology Advisory Panel - established within the Cabinet Office in 1981, and in that role was one of the principal authors of the ITAP report on cable systems.

'My deep-rooted ambition is to build a strong British computer company able to challenge all comers in the videotex and office systems markets of the world' he told us, and is proud of the increase in turnover of Rediffusion from £8m to nearly £18m today.

New Scientist 12 May 1983

## STUDENT BOOKS

Ian Witten's *Principles of Computer Speech* is too detailed for general study, but could form the basis of a final-year option.

*Computers in Society* by Nancy and Robert Stern is really two books in one cover. The first half is a conventional "this is how a computer works" book explaining concepts such as binary numbers and punched cards at a secondary school level. The second half is a useful elementary review of the impact computers are having in fields such as business, education, health and the arts. Both halves have their merits, but together their appeal will be limited to those teachers of computer science, who if lecturing on the impact of motor traffic on society, would spend half the time on the way sparking plugs work. This problem is not uncommon, as many books on computer applications, which might be suitable for undergraduate case studies, are padded out with material readily found in any good general introductory text.

Michael Aldrich does not make this mistake in *Videotex, Key to the Wired City*. This is a glossy paperback, with popular appeal, which could well form the basis of a case study for my

class next year. I will be backing it up with information from *Teletext and Videotext in the United States* by J. Tydeman *et al.* who include detailed information relating to current technology and future development of such systems. The book highlights the problem university staff have in keeping up with recent developments. Only a very few of the many references in the bibliography are earlier than 1979 yet undergraduates are already arriving at university with first-hand experience of videotex and expect their lecturers to know more!

Finally I would like to mention three books which appeared during the year which we at Brunel are already using successfully. *Essential Computer Mathematics*, by Seymour Lipschutz (in the Schaum's Outline Series in Computers), was added to our first-year reading list in the autumn. The 2nd edition of *Cobol for Students* by A. Parkin came out just in time for a course which started in January. Last but not least, volume 2 of C. J. Date's *An Introduction to Database Systems* appeared earlier this year. This fills the gap caused by the decision to split the book into two parts when the 3rd edition was brought out.

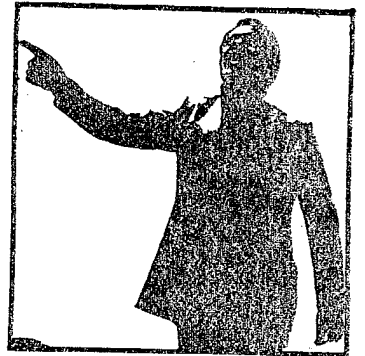
Extract from  
Computer Weekly, London

12 MAY 1983

## PLATFORM

# Putting intelligence into every home ...

This is an edited abstract of an address given to Edinburgh branch of the British Computer Society by Michael J. Aldrich, managing director of Rediffusion Computers.



COMPUTERS will remove the distinction between producers and consumers, working and living. They signal fundamental lifestyle changes that could be with us in the 1990s.

Computers and telecommunications are working to reverse the trend of the earlier industrial revolutions which caused the movement of population from the country to the towns and gave rise to the worldwide problems of commuter transportation and dormitory community isolation. Computers would allow people once again to work and live in the same community.

Teleworking, the transportation via telecommunications of office work to the worker at home will leave a residual office to be used for social encounter, task distribution, performance review, counselling and appraisal.

Teleworking does not mean that people will never go to their offices. It means that they will go less often because the basic office services of communications and recording will have been distributed to their homes. The office as we know it today as a particular conjunction of space and time will change dramatically.

There will still be factory and service workers. Some work, however automated, will always need concentrations of people. But even the factory workers will find their computer terminals waiting for them when they arrive home.

For a long time we have separated producers and consum-

ers just as we separated working and living. It was always a false separation. A producer is invariably a consumer and a consumer is often a producer, even with our quaint economic value system. With new telecommunication systems in our electronic house or cottage, the distinction might fade completely. The weekday factory worker might become a weekend software producer or even a handi-craft producer.

The terminal in the home will bring a new era of information-based services into the home. The factory worker might decide to do some teleshopping by dialling his home terminal into the local superwarehouse, ordering some goods that would be automatically picked and packed for collection or even home delivery. The worker's bank or credit card account would be automatically debited. (The banks are already planning such facilities from supermarket POS terminals).

As a sports fan, he might then dial into his local leisure centre to book the squash court and send a message to friends confirming the arrangements.

The home terminal will also provide the electronic messages - from the plumber who is coming tomorrow to fix the central heating to the gas board which now sends the final reminders electronically before disconnecting electronically. He has his message service set up to exclude as much junk mail as possible. He can even book his spring, summer, autumn and

winter holidays from the terminal.

Finally, one of the children tells him there is a new multi-media video game in the cable service (mixing audio, video and graphics with voice input/output). So they dial in, select the game Family Outcry, and play together. He loses, of course. Some things will never change.

The eldest daughter has always been good at computers. She was given her first upon her second birthday. It taught her vocabulary. Now she spends evenings and weekends, along with the rest of the fifth and sixth forms, working on computer programs for the local micro store. Her ambition is to be an information scientist. They used to be called librarians.

The local library has changed somewhat. The books are as plentiful as ever, but there is now an information centre where they used to keep the old office photocopier.

In this centre there are a dozen computer terminals in small booths, all connected into a copier/printer machine. From the terminals, one can roam the databases of the world making connections from one subject to another, printing out relevant information along the way.

The technology to do most of these things is already here. Most of the applications listed are already running in business videotex or are at the laboratory stage with multi-media devices. They will be commonplace by the end of this decade.

By that time, expert systems or artificial intelligence systems will be making a commercial debut. They will extend the uses and opportunities for computers into totally new dimensions.

We are only at the beginning of the computer era.

It is as if we have found and extracted iron. We have yet to realise fully what we can do with this new material.

As the myriad of new inventions and ideas tumble our way, we find difficulty in comprehension. Often we reach for the intellectual baggage of yesterday and ask who owns it or who controls it. We seem reluctant to ask who will use it and for what purpose and where is the value to our community of these new things?

We find further difficulty in dealing with technologies that are insensitive to our previous institutional dispositions and to our most cherished pecking orders.

A great new information industry is stirring, wider than computing and telecommunications, taking in publishing, television, radio, hi-fi, advertising and even news.

Most of the participants probably would not recognise they were in that industry.

And in our communities the thundering beat of the ubiquitous computer is drumming intelligence into every home appliance we use, into our cars, into our building and into our lives.

Does it matter that few people seem to have noticed?

**A**s with cars or televisions, the full exploitation of a technology — and a market — only comes when everyone can own one. Computers are no exception. Putting systems into the homes is the next, and potentially most lucrative, step for the computer and communications industries.

But attempts so far to take computer technology to the masses have only met with limited success. The microcomputer has certainly reached a lot of front rooms but generally as a games machine, programmers' pal or simply a conversation topic.

Yankee group analyst Al Dunn: "The home computer ends up performing tasks for which it is overqualified. Sinclair has done well because of the pricing strategy. It is cheap enough for the critical number of people to try."

The true home systems market — not using computers just as toys for the hobbyist or video-game addict, but as part of integrated home information, home management and leisure systems — is still a long way off. Industry estimates of a sizable market, range from 10 to 20 years away.

And it is not just the cost of equipment which is holding it up, but a whole host of technical, economic, social and political factors. For the market to take off there will have to be a distinct change of emphasis in the way the technology is developed and marketed.

That takes time — but there is plenty of activity right now.

Clive Sinclair, never far from a new idea, is already making plans: "Microcomputers are only the first step. When people get over basic programming and playing games with computers they will want to do something more useful."

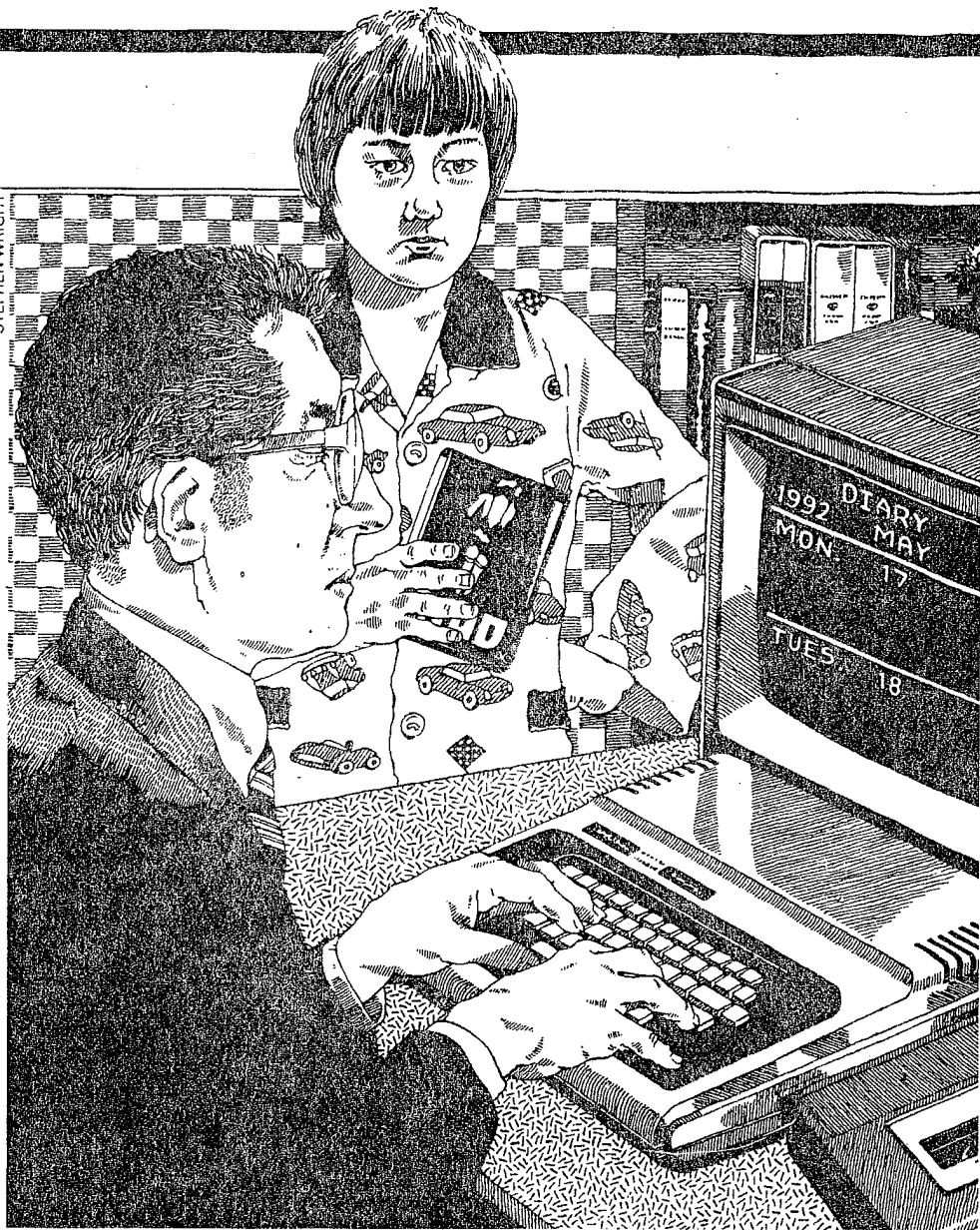
With around 80 educational cassettes on their way from a Canadian software writer for his personal computers, and another 1,000 planned for introduction by US partners Timex, Sinclair is making sure his machines can be used more constructively.

And he now plans to move into what he calls "genuine home computing" by 1984, using the spin-offs from a joint development plan with ICL, for a flat screen executive workstation, to build a screen-based home information centre.

The unit contains an essential element in a home system — wide access to information databases and other services — and it will be built around the familiar TV, and priced competitively.

Sinclair hopes the unit will eventually contain domestic "expert systems" — his latest infatuation — covering things like medical advice and education.

And while Sinclair is full of plans for his mini-TV, UK company Rediffusion under Mike Aldrich — a long-standing devotee of home systems — has already put its television and computer expertise together in the Telecentre. This is now being sold as an office system, but has been consciously designed for working from home, and with its communications potential, is the closest to a home



Attempts so far to take computer technology to the masses have only met with limited success

# Getting a handle on

workstation and information centre so far.

IBM is also preparing itself for the next stage in the process of moving its product range down market, after the launch of its Personal Computer. Its recent link with the mighty Japanese consumer electronics company Matsushita, not only covers the manufacture of its PC but also the development of systems aimed directly at the home.

The market at stake — even this decade — is worth the effort. Analysts Frost and Sullivan put the market value for subscriber home information software and services at \$580m by 1990, in the US alone. That is a massive leap from its current \$5m level — and does not take into account personal computer and terminal hardware where the number of units is predicted to grow from its 0.5m 1980 level to 15m by decade-end.

But tapping it is not going to be easy. One of the central problems is the diversity of products and vested interests. "The home of the future

marketplace is complex and is in disequilibrium," says Dunn.

No one industry is taking the lead, but on the starting block already are the microcomputer and systems manufacturers, communications companies, entertainment broadcasters, consumer electronics companies, public utilities, financial and retailing institutions — and the list goes on.

There are a number of trials in operation. The French are trying out home videotext as a public information medium; in Germany the Verbraucherbank in Hamburg is running a home banking service for 6,000 users on the national viewdata system; the Japanese are testing a two-way fibre-optic TV system in Higashi Ikkoma; and in the US there are around 80,000 homes involved in market tests of home systems, ranging from Sears Roebuck's tele-shopping trials to New York's PlayCable 24 hour video games channel.

Frost and Sullivan reckons there are more



A home system will involve a central device — nothing grand for cost reasons — with an intelligent screen, keyboard, and local multi-media storage like a video disk. This central unit will be the interface for a “home bus” onto which control devices, telephones, and other screens are linked.

Information functions will include database access to international, national, local and private databases, and through the use of interactive screens will support working, shopping, banking, travel booking, and a host of other services all from home, along with electronic mail, and videophoning.

On the home management side the “home bus” will support gas, electricity, and water monitoring systems, links to police, ambulance and fire services — and control devices which will handle everything from the oven temperature to closing the curtains.

In the leisure systems category falls multi-channel, interactive TV brought by cables and in some cases satellite dish aeriels, on-line video libraries, video games channels, digitised music and creative graphics packages for the artistically minded.

But the trouble with all this is that it is currently closer to fuzzy science fiction than marketable fact.

**Although true home systems are a long way off, analysts forecast a massive leap in the market by 1990. Paul Tate examines developments and speculates on the home of the future.**

# in the home market

than 100 companies now pursuing the market — although the results are still haphazard product launches, R&D projects and government studies.

In the UK, a Department of Industry-backed project in Milton Keynes is trying to put the home market in perspective. An information technology house, which opened last year, is being fitted with systems that will be available in the next five to ten years.

Martin Ray, of consultants Butler Cox and Partners, is heading up the project: “I must admit that what we are doing is taking an optimistic view of how technology could reach the home in five years time. The cohesion behind the systems being used, and in some cases simulated, is illusory. In fact the whole domestic market will emerge in a very fragmented way. People will start by buying discreet units to meet specific needs. The full integration of these on something like a domestic local network, is still 10 years away.”

Yet the project has attracted considerable interest. British Telecom is installing its low-end Ensign telephone switch which supports two exchange lines and up to 14 extensions; British Leyland is putting in its Comet electronic mail system; the Open University and the BBC are recording fake programmes to simulate multi-channel and interactive TV with services like home education; Hertfordshire-based Home Automation is wiring the place up using the ring main as local area network for domestic control systems; and Philips is using its laser disk, which stores sound, vision and up to 55,000 pages of information a side, for everything from domestic information like diaries or home accounting to simulated working at home, teleshopping, telebanking and teletexting. Also included are Prestel, community viewdata, voice-activated TV, and security and energy management systems.

It may sound like the last refuge for the industry's most bizarre schemes, but Ray

reckons that is a much more ambitious, and co-ordinated attempt to address the home market than any other project around the world.

Another significant move for the UK is that the broadcasting companies are each planning new ways of reaching the home through satellites and cables, and are planning to use the technologies to greatly expand the range of services they offer.

And home cabling, since a report submitted by the Cabinet's Information Technology Advisory Panel, is fast becoming the hottest topic since Stevenson's Rocket, with a Government White Paper on how the UK should approach the broadcasting and cabling problems nationally following last year's Hunt report.

Dunn feels that the new methods of distributing and accessing entertainment are crucial developments which will “catalyse the market”.

“The introduction of two-way interactive cable TV and satellite TV will be the watershed of the home market. It is a key stimulus which will also begin to redefine the telecommunications market and impact on the business technology market.”

The entertainment industry has already proved that it can be a gateway to increased domestic use of information technology. Prestel failed to capture the public imagination, but the two Teletext systems, Ceefax and Oracle, with over 400,000 sets sold, represent a greater understanding of the market they are aiming at — putting information access into the front room as an additional entertainment service. Future applications, ranging from teleshopping to working at home, will evolve from this entertainment base, according to both Dunn and Ray.

If the Government decides to take a national initiative on home cables it could provide some of the much needed cohesion in the marketplace and significantly improve the UK's chances of taking a major slice of the multi-billion pound international market, not just for cabling where BT and the UK telecoms firms are well-positioned to capitalise on fibre optic systems, but also for home applications devices and systems.

These will necessarily be highly integrated units, so although the home microcomputer is now essential to heighten public awareness of information technology — and to spur on product research into mass-marketable products — when manufacturers look towards future home markets, the home micro is a red herring.

The domestic user will need its components, like a keyboard and screen, but he does not in fact need, or want, a computer in the home. He wants computer power — whether it is for information access, entertainment processing — like video games, on-line film selection, and TV programme storage, or just to keep a diary.

Dunn believes new telecommunications systems, initially justified as entertainment systems, will be the way to provide it; “in the home of the future, telecommunications will rule.” □



# COMPUTERS

## INTO THE FUTURE

by Linda Diver

EVERYONE knows that computers play a vital part in industry, but few people realise the change they are going to bring about in their homes, says Mr Mike Aldrich, managing director of Redifusion Computers.

Mr Aldrich told a meeting of the British Computer Society in Edinburgh: "The factory worker might decide to do some 'tele-shopping' by dialling his home terminal into the local Superwarehouse, ordering some goods that would be picked and packed for collection or home delivery. His bank or credit card account

would automatically be debited."

He added that a sports fan may soon be able to dial into his local leisure centre to book a squash court and then send a message to friends confirming that he had booked the court.

The home terminal would also provide electronic messages — from the plumber who was coming tomorrow to fix the central heating to the gas board which now sends the final reminders electronically.

"He has his message service set up, of course, to exclude as much junk mail as possible. He

then decides to book his spring holiday through the terminal," said Mr Aldrich. "Finally, one of the children tells him there is a new video game on the cable service. So they dial in, select the game and play together. He loses again, of course. Some things will never change."

Mr Aldrich believes that soon girls who are good at computers, though still at school, will spend their evenings and weekends working on computer programmes for the local minicomputer shop. Pocket money would be a supplement rather than a staple. "Her ambition is to be an information scientist. They used to be called librarians."

Local libraries will change somewhat, according to Mr Aldrich. The books will be as

plentiful as ever, but there will be an information centre where the old photocopy used to be kept.

In the centre, there would be a dozen computer terminals in little booths, all connected into a copier/printer machine. "From the terminals, one can roam the databases of the world making connections from one subject to another, printing out relevant information along the way."

"The technology to do this already existed, said Mr Aldrich. Later this decade, totally new types of computer systems — the so-called 'artificial intelligence' or 'expert' systems which would extend the use of computers and the opportunities that we can now see for them — would start to appear.

"We are today at the beginning of the computer era: The model T Ford stage. Today's computers are stupid. Tomorrow's computers will have the ability to reason, to use natural language, to parse sentences, to draw inferences and to connect items together and relate them to each other," he said.

All this would lead to a further reduction in the average working life which, since 1918, had already been reduced by two-thirds. "We are moving away from the three 48s, the three 40s even, to the three 35s and less — the 35-hour week, the 35-year working life," he said.

"Teleworking", the transportation via telecommunications of office work to the worker at home, would leave an office to be used for social encounter, task distribution, perfor-

mance review, counselling and appraisal.

"Teleworking does not mean that people will never go to the office," said Mr Aldrich. "It means that they will go less often because the basic office services of communications and recording will have been distributed to their homes."

There would still be factory workers, since although manufacturing would become increasingly automated, it would still require concentrations of people. But even the factory workers would find their computer

terminals waiting for them when they arrived home.

"For a long time we have separated producers and consumers just as we separated working and living. It was always a false separation," he said. "A producer is invariably a consumer and a consumer is often a producer. With new telecommunications systems in our electronic house or cottage, the distinction might fade completely. The weekday factory worker might become a weekend software producer, or even handicraft producer," he concluded.



Mike Aldrich joined Redifusion — or, as it then was, Redifon Computers — in January, 1977, after 15 years with the major US computer manufacturers, Burroughs and Honeywell. He became managing director three years later. In those five years, Redifusion Computers has doubled in size from an £8 million turnover operation to a £17.6 million one in the year to March 1982.

Mr Aldrich was born in 1941, is married, and has four children.

## Fooling forgers

REDIFUSION COMPUTERS claims to be the first company to offer a low-cost product that can identify whether a signature is true or false.

Employing two micro computer-based devices — an encoder and a verifier — the system, called Sigcheck, will detect 'unseen' forgeries and 95 per cent of 'seen' forgeries, says Mr Aldrich.

"Unseen" forgeries, where a person has wiped the original signature from a stolen cheque or credit card and has substituted his or her own version of the true owner's signature, constitute the bulk of the £20 million yearly cost reckoned for cheque and credit card fraud in the UK, according to Mr Aldrich.

"The perfect forger will always get away with it, but it's now possible to catch all but a very few of the rest," he said, adding that the £20 million cost of such fraud had doubled in the past year and was "ultimately borne by the community".

"The cost is met initially by the banks and credit card companies, but it's the consumer who pays in the final count", said Mr Aldrich. In addition, there was a "large and ill-defined social cost of police resource and legal, judicial and prison costs" which were met by the taxpayer.

Under the new system, six sample signatures on a sheet of paper are passed through an encoding machine that establishes an identification number for the owner. This predetermined number is printed alongside the signature box on a cheque before issue by a bank.

A person signs a cheque, which is fed into a shoe-box sized device (the verifier) that reads the signature and the number, compares them and either confirms, or is unable to confirm, that the two pieces of data correctly correlate. So a visual comparison against a signature on a cheque card is not necessary.

In the case of a credit card, the number is either embossed on to the card, or held in the magnetic stripe on it. There is no need for the signature to be written on the card. Otherwise, the operation is similar to the

cheque one. In the case of an embossed number, the card and slip are run through a normal credit card machine and the slip is then passed through the verifier. The number is read from a magnetic stripe card, and the signature is read from the slip.

It is not possible, Redifusion says, to create a signature from a number by any means whatsoever, nor is it possible to create a number from a signature without an encoding machine.

Encoding machines will be fitted with concealing devices specified and owned by the banks and credit card companies, so that neither encoding machine supplier nor bank will be able to know how a number is fully generated.

In large-scale production (100,000 units plus), the Sigcheck verifier is expected to sell for around £250 per unit and will fit on a normal shop counter.