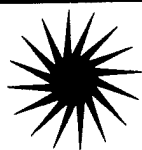


Press Information



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

N O V E M B E R / D E C E M B E R 1 9 8 3

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System to digitise signatures could fight cheque card fraud

A cheque verification system which can confirm signatures without the need to compare them with a database has been offered to the banks by Rediffusion Computers.

As yet there are no takers in the UK, although Rediffusion is promoting its system in the US.

The Signcheck system works by scanning a signature and translating the image into a 10-digit number which is unique to that signature.

Sample signatures are

analysed by a bank, and the user's code number printed on his cheques. For verification at point of sale the signature is read by the verifier, which also converts the signature to a number. This number is compared electronically with the number printed on the cheque and the machine accepts or rejects the signature as genuine.

Should the system go into production - in 12-18 months time - it would cost around £250 for each verifier, and



Picture shows a prototype version of 'SIGNCHECK' the Signature Verification Product being tested in a retail outlet. 'SIGNCHECK' employs two microcomputer based devices - an encoder and a verifier - which will detect 'unseen' forgeries and 95 per cent of 'seen' forgeries.

£30-£50,000 for each encoder, depending on the throughput of the specimen signatures.

Resistance by the British banks is seen to be due to the structure of the banking system in which the banks and their customers are responsible for losses from cheque fraud, rather than the retailers. This would place the

responsibility for purchasing the 100,000 or so verifiers which would be needed in Britain on to the banks - a £25m commitment. Cheque fraud in 1981 was £10m. In 1982 it was £20m and this year's forecast is £30m.

In the US, the bill for cheque - or credit card - fraud is paid by the retailer.

Rediffusion's managing director, Mike Aldrich, foresees a reverse import situation in which the technology would be exported, and in five years, when cheque fraud reaches epidemic proportions in the UK, British banks would follow the American lead.

Indexcard Ref L440

Extract from
The Standard, London.

26 OCT 1983

People barrier to office automation

The availability of people to design and install systems in user companies is the main barrier to the widespread adoption of office automation, Mike Aldrich, chief executive of Rediffusion Computers told a recent conference in the Midlands.

Mr Aldrich said that the technology for complete office automation was already available. Data, text, graphics, voice, image, information handling, storing and processing—each was readily available, and ready to be integrated into complete systems for offices.

But there were too few people in the potential user companies with the experience to make such systems work, he said.

Mr Aldrich said a similar stage had been reached in the 1960s with the introduction of computers—but there was one difference. With office automation, there was no

"comforting barrier of the computer department between the user and the silicon." The office system user was "directly confronted" with the technology—and that was uncomfortable for both the users and the suppliers.

He said office automation was "far more demanding" for both people and machines than data processing. The learning process among users, he reckoned, would probably take 10 years—and even then, users would still require paper print-outs, because the printed word was easier to use.

Extract from
Crawley & District Observer, Sussex

27 OCT 1983

COMPUTER boss Mike Aldrich, chief executive of Crawley-based Rediffusion Computers Ltd, has told building society chiefs that men, not machines, are putting the brake on developing office technology.

He told a meeting of the Midland Association of Building Societies: "Office automation is far more demanding of men and machines than data processing."

He said businessmen had to learn how to make best use of office machinery.

He said: "Enormous potential, but slow growth is often a feature of new technology."

INTERNATIONAL PRESS-CUTTING BUREAU
Lancaster House,
70 Newington Causeway, London, S.E.1

Extract from
Crawley & District Observer, Sussex

20 OCT 1983

Teachers may slow computer advances

TEACHERS who are slow to learn and councils which will not pay up could be slowing down the computer revolution in the classroom.

The warning comes from the chief executive of Rediffusion Computers in Crawley, Mr Mike Aldrich.

Speaking at the annual exhibition and seminar organised by the National Computing Centre at the London West Hotel last week, he said: "Teachers have hardly begun to understand the new technology and are a long way from fully exploiting it."

With the school population expected to rise, finding the money to equip schools with computers seemed more unlikely in future.

Mr Aldrich predicted that future learning from computers would be through privately-purchased models.

"The Standard"
26.10.1983

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"The Times"
25.10.1983

10 years to go to the new office

If tomorrow's office is slow to arrive, don't blame the machines, blame the people, writes Roger Woolnough. That was the message from Michael Aldrich, chief executive of Rediffusion Computers, when he addressed the Midland Association of Building Societies.

All the technology for integrating data, text, graphics, voice, image, information handling, storing and processing is already in place, he said. The main constraint to introducing the integrated office is the lack of people among users with the experience to design, instal and implement it.

He put the timescale for integrated office systems at 10 years. Even then old habits would die hard, and results would still be printed on paper. "There is no good news for the trees with office automation," Aldrich said.

- 8 NOV 1983

Teachers ⁴⁵²⁶ 'way behind'

By ROBERT RAE

DESPITE government-backed initiatives to put micro computers in schools, computer-based training could well fail to make the big impact on education that is predicted for it.

So says Mike Aldrich, chief executive of Redifusion Computers.

One of the main stumbling blocks holding back computer-based training is the school-teachers themselves, he claims.

"Teachers collectively have hardly begun to understand the new technology and they are a long way from fully exploiting it," he says.

Another problem is the difficulty schools face in finding enough money to buy courseware (teaching software) and to acquire sufficient micro computers to service a class of students.

These problems are made worse because stringent central government limits are stopping local authorities from spending more on those areas.

Mr Aldrich says there are two ways computer-based training can develop. Either educationalists in institutions could produce software on shoestring budgets for individual machines, or commercial firms could step in.

Mr Aldrich reckons there is a considerable role for commercial firms to play in computer-based training and considerable profits to be made.

The new millionaires, he reckons, will be the publishers of well-written, interactive training programs for subjects like mathematics.

The Brake on Office Technology

'Enormous potential, but slow growth is often a feature of new technology,' said Mike Aldrich, chief executive of Redifusion Computers, addressing the subject of 'Tomorrow's Office' at a recent meeting of the Midland Association of Building Societies.

'The pace of assimilation of new products is quickening, but instant success usually comes after a number of years of very hard marketing,' he said. It took newspapers 100 years to penetrate 50 per cent of households in the US, the telephone 55 years and radio and TV only ten years. It took video games six years to reach four per cent of households, Aldrich said.

In the UK, teletext has reached into over five per cent of homes in the past three years; videocassette recorder penetration has jumped tenfold — from half a million to five million, or nearly 25 per cent of household — in the same period; and personal computers will have penetrated nearly one in ten British homes by the end of 1983 after three years of marketing push.

All the technology for of-

fice automation in the sense of integrating data, text, graphics, voice, image, information handling, storing and processing is already in place, was Aldrich's message. The main constraint on the widespread implementation of integrated office systems was the lack of people in the user organisations with any experience of how to design, install and implement them.

'We are back to where we were in the 1960s when technically naive users came face to face with their new computers,' he said. But there was one difference. With office automation there was not the "comforting barrier of the computer department between the user and silicon". Today's office system user was directly confronted with the technology and neither the user nor the supplier enjoyed the situation.

INDUSTRIAL PLANNING &
DEVELOPMENT, London.

-- SEP 1983

EUROPEAN URBAN POLICY SEMINAR

The European Seminar 'Cities in Transition' will examine the impact of technological change in future policies for European cities and lead the way for the preparation of draft recommendations. Sponsored by the Council of Europe, the British Government and the City of Swansea, the Seminar will be a total of 20 speakers from Britain, Europe and the U.S.A.

British Speakers include:— Maurice Zinkin — CBI Europe and Overseas Committee; Michael Middleton — Director, Civic Trust; Peter Hall — University of Reading; Michael Aldrich — Chief Executive, Redifusion Computers; Nicholas Edwards — Secretary of State for Wales; J.B. Goddard — Centre for Urban & Regional Development; Kenneth O'Brien — Chief Executive, Rush & Tompkins; Ferdinand Dijkstra — Knight Frank & Rutley; John

Worthington — DEGW Architects.

The Seminar costs £65 inclusive of documentation, lunches, dinners and VAT. A selection of hotel accommodation is available to suit all pockets.

Details are available from the Director of Planning, Swansea City Council, Guildhall, Swansea SA14NL. Telephone: 0792 50821 ext. 2701.

Rapid changes in office technology

The rapid pace of change in office technology was outlined to the Midland Association Conference by Mr Michael J. Aldrich, Managing Director of Rediffusion Computers Ltd., in a paper entitled "Tomorrow's Office". He said the country was in the middle of an electronic explosion and in ten years' time it would be tele-communications rich, enabling work to be taken to the worker rather than the other way round. It would take ten years for office automation to be achieved.

A few years ago, he said, office productivity had become a major problem because white collar staff represented a substantial part of business costs. Already, however, fewer than 50 workers could undertake the work requiring 300 office workers ten years ago. For example, a word processor could provide 18% improvement in productivity.

Office automation was all about management productivity — the use of managers, professional and technical staff; and most of the costs in an office arose from the most expensive members of staff, whose productivity was difficult to measure. The senior staff/subordinate ratio had changed so that today fewer subordinates reported to each senior member of staff. The management hierarchy had expanded and costs had expanded at the same time.

Automation could help restore those ratios. There was considerable cost saving, for example, in increasing by 25% the number of subordinates reporting to one senior executive. Executives spent much of their time communicating with others and they needed new communications systems.

Improved communications also meant that location of the office was no longer so important, and that made a major impact on costs. As a consequence, a number of companies were moving away from the centre of London. The era of competition would lead to a reduction in the costs of telecommunication and to cheaper networks. The consequence could be a 10% to 15% reduction in office labour needed each year.

Significant changes would take place in financial institutions with the use of ATMs, personal computers, cable television, etc. leading to the provision of home banking. These changes would reduce the number of low-paid clerical workers. The electronic typewriter would have an advantage over the word processor.

he said, that education will cease to be a service in due course and become a product.

Rediffusion is active in commercial CBT but not, it should be noted, in the market for classroom networks.

Meanwhile from the United States come criticisms of another kind. As the new school year began, public

schools in the New York area dived deeper into computer studies and the use of courseware, especially for foreign languages. In this they are following recent developments in private schools.

But there have been protests that the move to computers is taking funds, teachers and classrooms away from other subject areas. In particular, arts, music and crafts have been hit with reports

converted into computer laboratories.

Irish teachers who find it difficult to raise the funds for a baby micro may be interested to learn of the level of hardware budgets in American schools. The 'New York Times' recently interviewed the principal of one New York high school with 1575 students who explained how he had spent the \$400,000 allocated for computer equipment

INTERNATIONAL PRESS-CUTTING BUREAU
Lancaster House,
70 Newington Causeway, London, S.E.1

Extract from
Irish Computer, Dublin.

-- NOV 1983

COMPUTER CRITICS

As the school year got underway criticisms of the ways in which computers are being applied in education have been heard on both sides of the Atlantic.

In Britain, where schools computing is probably more advanced than in any other country, Mike Aldrich, chief executive of Rediffusion Computers, has spoken out against the predictions that the micro will change the shape of formal education over the next decade. The impact on the learning process to date, he told a seminar organised by Britain's National Computing Centre, was not 'significant enough to be measurable'.

'Teachers collectively have hardly begun to understand the new technology and are a long way from fully exploiting it', he said. Finding the money to buy courseware remained a problem and acquiring enough microcom-

puters to service a class of students was virtually impossible, he added.

Aldrich compared today's forecasts for the micro with the predictions about the impact of the videocassette in schools ten years ago. Video-inspired changes in teaching methods had never materialised and he implied that the same may be true in the case of the micro.

In contrast, he argued, commercial computer-based training (CBT) is expanding very quickly. In particular he pointed to interactive video (micro - plus - videodisk systems) and videotex-assisted learning as the areas to watch.

At the same time, a consumer sector for CBT was beginning to take shape — what Aldrich called the 'self-improvement market' tapped richly in the past by 'how to' or 'teach yourself' printed media, including encyclopaedias. There was an argument

NOV 1983

Maggie's IT pundit attacks schools' micro programme

HARSH criticism of the government's microcomputers-in-schools policy has come from a member of Margaret Thatcher's very own information technology 'think tank.'

Rediffusion Computers chief executive Michael Aldrich, a member of the Information Technology Advisory Panel attached to the Cabinet Office, says that the impact which microcomputers have so far had on the learning process is 'not significant enough to be measureable.'

And Aldrich adds that local councils, facing government imposed spending cuts, will not be able to find enough cash to fund the capital spending needed to make a considerable contribution towards computer-based training.

The number of children aged 14 or less will rise by 6.7 per cent between 1981 and 1991, and the school leaving age is due to be raised to 17 by the same date. So present government spending

policies will not produce the resources to make an effective impact on the problem.

Aldrich also hits out at teachers who should be spearheading the microcomputer revolution in classrooms.

"Teachers collectively have hardly begun to understand the new technology and they are a long way from fully exploiting it," he says.

"Finding the money to buy 'courseware' to use microcomputers to their best advantage remains a problem and acquiring enough microcomputers to service a class of students is virtually impossible," he adds.

Aldrich says that despite government initiatives which have placed an average of five micros in each secondary school,

as well as machines in primary schools, it is difficult to believe that computer-based training will make a big impact in formal education over the next decade.

There will be two development paths for computer-based training, he says. These are an institutional path of educationalists

using micros to experiment with new teaching methods, and a commercial path which will use micros to teach more economically.

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information circle 168



Michael Aldrich: Teachers collectively have hardly begun to understand the new technology.

Extract from
Building Societies Gazette, London.

NOV 1983

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Why the SEO stands by IT

Michael Harrison continues the attack on Michael Dixon's heretical views

The Society of Education Officers has been accused in Michael Dixon's 'Critique' (*Education*, 14 October) of not knowing what it is talking about when it expresses itself on Information Technology in the Society's recently published paper *Key Issues for Education and Industry*. As the 'stupid theorist' who put together the IT section of that paper, which is castigated for naming information as a major resource in modern economics, additional to those such as land, labour and capital identified by the classical economic analysts (including Marx), I feel I want to refer Mr. Dixon to a few modern texts.

The first author must be the daddy of them all, Daniel Bell, who in *The Coming of Post-Industrial Society* analysed the transition of the United States from the condition where engagement in manufacturing was its dominant characteristic, to one where services predominated. In the foreword to his 1976 edition Bell says 'if industrial society is based on machine technology, post-industrial society is shaped by an intellectual technology. And if capital and labour are the major structural features of industrial society, information and knowledge are those of the post-industrial society'. The 'economics of information' is not the same as the 'economics of goods'. Knowledge is a social product and the question of its costs, price or value is vastly different from that of industrial items. However, information and knowledge are still 'products', i.e. resources, which can be bought and sold, stored, manipulated, exploited and magnified.

Every society has always existed on the basis of knowledge but only now has there been a change whereby (Daniel Bell again) 'the codification of theoretical knowledge and materials science becomes the basis of innovations in technology. One sees this primarily in the new science-based industries - computers, electronics, optics, polymers - that mark the last third of the century'. Information and knowledge are the material on which the modern economy signally depends for its wealth and effectiveness. Not a resource?

In case Daniel Bell is too much of a theorist for Michael Dixon and similar sceptics, let me refer to a random selection of very recent statements from the hard-headed. In the lecture given by Paul Strassmann, Vice-President of the Xerox Corporation to the final conference of IT82, he spoke of service economics and the possibility, given proper attention to the technology of organisation, of a great expansion of social wealth, on a global scale, 'through repositioning our civilisation ultimately into a culture where the consumption of services represents most of the source of individual as well as of social wealth'. Management of the means of communication - always the basis of social organisation - is the fundamental issue of future social

is the driving force. The raw material of communication, of course, is information and knowledge. Not a resource?

Information and knowledge, like a material, are tradeable. The Prime Minister's IT advisory panel, headed by N. J. Aldrich, Managing Director of *Rediffusion Computers Ltd.*, in its recent report *Making a Business of Information* puts a figure on it - a positive balance for the nation in 1980 of £2.5 bn. The scale of events is highlighted by the Alvey Committee Report *A Programme for Advanced Information Technology* - the world IT market is growing at 10 per cent per annum and is forecast to reach £150 m. by 1990. There is a general lack of comprehension in Britain about information technology and the electronics industry that supports it, says Dr. Ian Mackintosh, Chairman of Mackintosh International, IT consultants, in a recent letter in the *Financial Times*; this is the industry which will be the first ever to exceed £1 trillion (million million) worldwide. Dr. Mackintosh, of course, believes, as SEO do, that the U.K., that is to say the rising generations we are now educating and training, should be a vigorous participant in this game. Do we not think that these figures have something to say about information as a resource?

The 'Critique' then went on to deride the idea of information as a resource on the grounds that it may be true or false. Only 'the true variety' can be properly so classed, observes Mr. Dixon, putting up a semantic Aunt Sally about misinformation and motive which is really quite irrelevant to the subject. If our critic had been genuinely concerned to discuss the relationship of information and knowledge to truth, he would have been far better persuaded to abandon his antique philosophers and go to the most modern and effective of the epistemologists, namely Sir Karl Popper. For his work from 'The Logic of Scientific Discovery' onwards is not only a guide through the morass of the theory of knowledge but also is based on a principle that all educators should know about - and that also helps Michael Dixon's case concerning the relationship between the practical and the intellectual.

Setting aside questions of belief - as in myth or in religious faith, hugely important in the human makeup but not part of this discussion - Popper tells us that absolute truth is given to none of us. It cannot be projected into the future from natural laws derived from observation and induction connected to the past, because none of us can in logic foretell the future. Yet truth if universal truth must by definition be as true of the future as of the past. In short, knowledge is all that we can aspire to: that same knowledge can never more than approximate to truth; and even that knowledge can only be approached by a process of hypothesis, attempt, evaluation of experience and feedback. The process is

common to the infant at its mother's breast and to the advanced scientist - and also to the technologist and engineer.

For an illustration of the extent to which this theory of knowledge is now accepted and absorbed into the intellectual apparatus of the scientific establishment, see Sir Peter Medawar on *The Art of the Soluble*; to the engineer the process has always been self-evident. It is the more reliable the more stringently it is exposed to the risk of disproof - mistake to the infant means no milk; lack of vigorous integrity in the scientist means e.g. the Lysenko effect; inadequate testing for the engineer means his bridge falls down, or his aeroplane crashes. Success, however, brings extension of understanding, and of knowledge. And note that the perils of failure and the sweets of success are shared alike by the uninitiated, by the seeker after knowledge and by the designer of solutions or problems.

So the search for knowledge is also a systematic process and a practical art, and I conclude that Michael Dixon's opposition of the practical and intellectual is part of that same delusion that constantly prompts us (particularly us, the English?) into classification of human capacities - and so, helplessly, into a classification of institutions to serve those believed capacities - a regressive expression of values from which, thank our stars, we are within an ace of rescuing our basic school system. I shall return to this question of distinction among talents in a second article, so for the time being let me go on to say that what should be so much more important to us is the general enlargement of the powers of the human mind (incidentally for a most interesting new view on this, see Popper's co-operative work with John C. Eccles *The Self and its Brain*, where the epistemologist advances his own understanding in dialogue with the neurologist).

It is precisely in this area of mind power that SEO see the fascination of Information Technology. Michael Dixon's observations on the idiocy of the computer are by the way. By mocking the machine (a sterile game) he denies the human competence he seeks to revalue. The veriest tiro in the modern world knows 'the American adage 'garbage in, garbage out'. Fewer, perhaps including Michael Dixon, have explored the Turing test, which asks what is the quality of the 'intelligence' of the computer which when asked an unpremeditated question gives an answer indistinguishable from a human response. We have stepped here into the realm of artificial intelligence, expert knowledge systems, the 'fifth generation computer'. The Alvey Report on Advanced IT has persuaded the Government into a development programme amounting to £350 m. - and maybe also into ESPRIT, a European Community research and development programme in AIT - which Alvey supported by the IT community in Britain, encompassing both the industrial and



Michael Harrison: we recognise the IT gift-horse.

academic, believes is the key to future British competence, level with the American and the Japanese, in artificial intelligence.

AI involves the organisation and management of patterns of knowledge, through the advanced computer, towards a higher level of human endeavour. It is plain to see that we are dealing here with computer-based operations, only of course possible because of rapidly advancing technology in computer architecture and software, far in advance of the 'Critique's' simplistic references to the machine - yet also, in their advanced way, bridging the supposed divide between intellectual and practical objectives.

No-one can see, through however rheumy an eye, this endlessly retreating landscape of applied intelligence, without in some measure understanding that we face a discontinuity between past experience and the future. Of course knowledge and information have always existed, as Michael Dixon himself laboured to remind us; what has only just now come into existence though is the technology to organise it and manipulate it, at fantastic speed, to fantastic depth and at fantastic distance. Such step functions have occurred before, but with a slower transforming capacity. Gutenberg with his printing press may be said to have been the father of mass literacy and education, the first inventor of the means of publishing and broadcasting, the prime mover of the culture of the Reformation and the seedsman of the nation state. But the process he started gathered way gradually and is still not fully worked out.

Information Technology, however, is upon us in a moment of time - technically impossible without Einstein and succeeding discoveries in solid state physics, but now in the convergence of microelectronics, the computer and telecommunications moving with speed of light (literally, with the help of optical fibre and the laser).

IT is light years beyond the 'information processing' function ascribed to it by Michael Dixon. The phrase 'information technology' is unfortunately clumsy; how one longs for the advantage of the French when they can coin the neologism *informatique* to convey a combined effect of elegance and potency. We tried in our *Key Issues* paper to sketch the range which IT covers e.g. from remote sensing of planetary surfaces by spacecraft and satellite, to synthesised music. The IT invasion amounts to nothing less than a change in the culture - by which one means not simply the

cultivation of the aesthetic, but the ambient environment in which all of us lead our lives.

Satellite communications have brought about an immediacy of events world-wide which Isaac Asimov in a recent article in *The Times* called 'globalism', a sense of world consciousness; TV has changed the character of democratic politics: access to data bases through such devices as Prestel change the relationship of the individual to hitherto guarded and controlled bodies of knowledge - Daniel Bell calls this 'the end of the Alexandrian library': such access changes the relationship of the individual to established institutions including those erected in the name of education: perhaps it changes the relationship of the individual to the State: the portable microcomputer is a machine for modelling and problem solving: the number of micros in British homes is nearing two million, the highest ratio in the world not excluding America and Japan.

One could go on across the spectrum of individual and social, of economic and of recreational activity that makes up our daily lives. Are we not experiencing a major cultural intrusion? Can education stand aside and ignore this, or do we go on expressing a wilful antipathy to the 'idiot machine', behaving like the anti-steam faction of the early nineteenth century described by Martin Wiener in his book *The Decline of the English Industrial Spirit*?

If this is not enough to persuade, let those who are at all interested in the development of powers of cognition and imagination (and these must include all educators, mustn't they?) look and wonder at the interaction of the child and the micro. Let them observe the boost to learning given to the student by the machine he can control for himself. Let them note that education researchers into the processes of the mind, hitherto oblivious of the micro effect, have now been enjoined by an SSRC study (Morley Sage and David J. Smith: *Microcomputers in Education*) to wake up and take it seriously.

Let them see also how the triangular relationship of student-machine-teacher (first observed by Barry Macdonald in his evaluation of the National Computer Assisted Learning Development Programme of the 1970's) imposes upon the former linear student-teacher relationship a new dimension of learning and teaching. Let them remark how the micro in school is bringing teachers to a new analysis of curriculum and of pedagogy. Let them see finally, perhaps most exciting of all, how the problem-solving machine in the hands of the child is leading him on to imaginative and creative endeavour undreamt of only a few years ago.

Is this sort of experience, now familiar to many of us in SEO but still insistently to be pursued, not a swift and direct pathway to the reconciliation of those conflicts in educational objective that Michael Dixon chides us about? It is not only education officers who are to blame for the mistakes of the past for these were often laid upon us by the culture we all share, but at least if we recognise the IT gift-horse when it gallops up, please Mr. Dixon don't tell us to look it in the mouth.

(Michael Harrison is chief education officer, Sheffield and a former president of the SEU; he was chairman of the education committee of IT 82.)