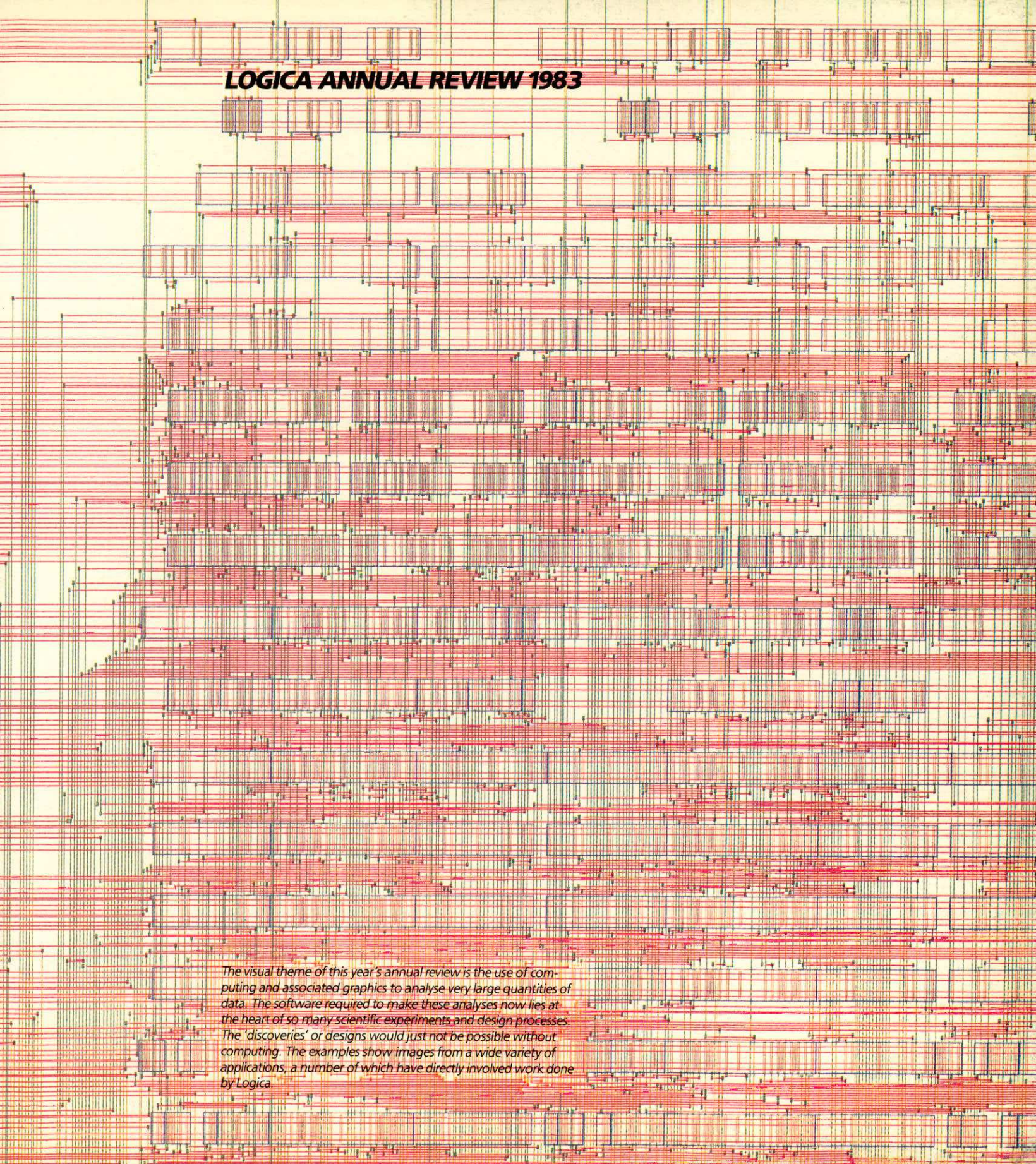

logica 1983

Two colour coded views of the galaxy Centaurus A. Colour is being used to bring out faint features from a single black and white image.

The mission of the Infrared Astronomical Satellite, IRAS, lasted for 300 days, finishing on 22 November 1983. It was sensationally successful, leading to a large number of major astronomical discoveries that are only now being analysed. The front cover shows a false colour image of our galaxy, a view in infrared of the Milky Way.

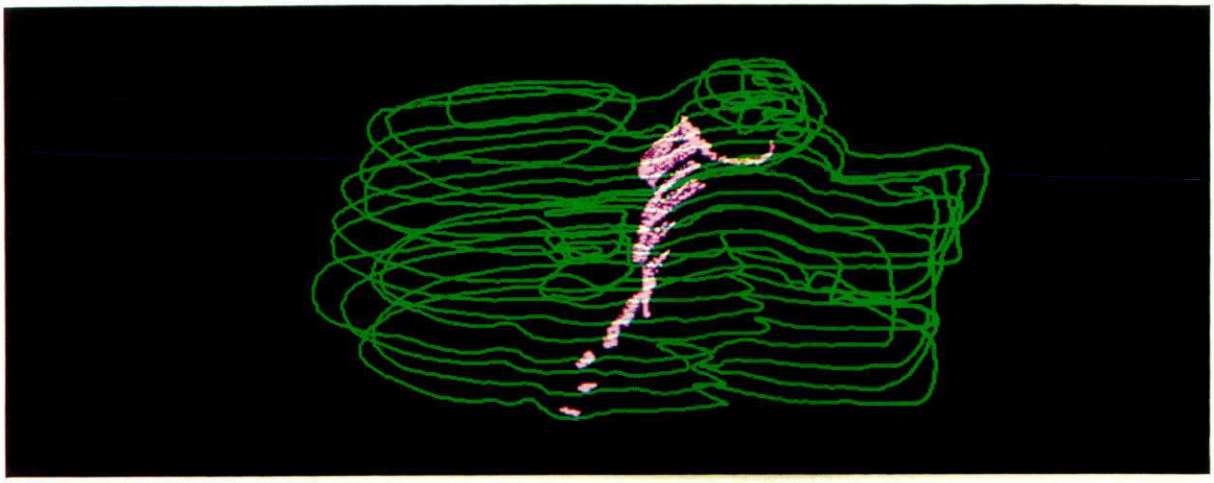
LOGICA ANNUAL REVIEW 1983



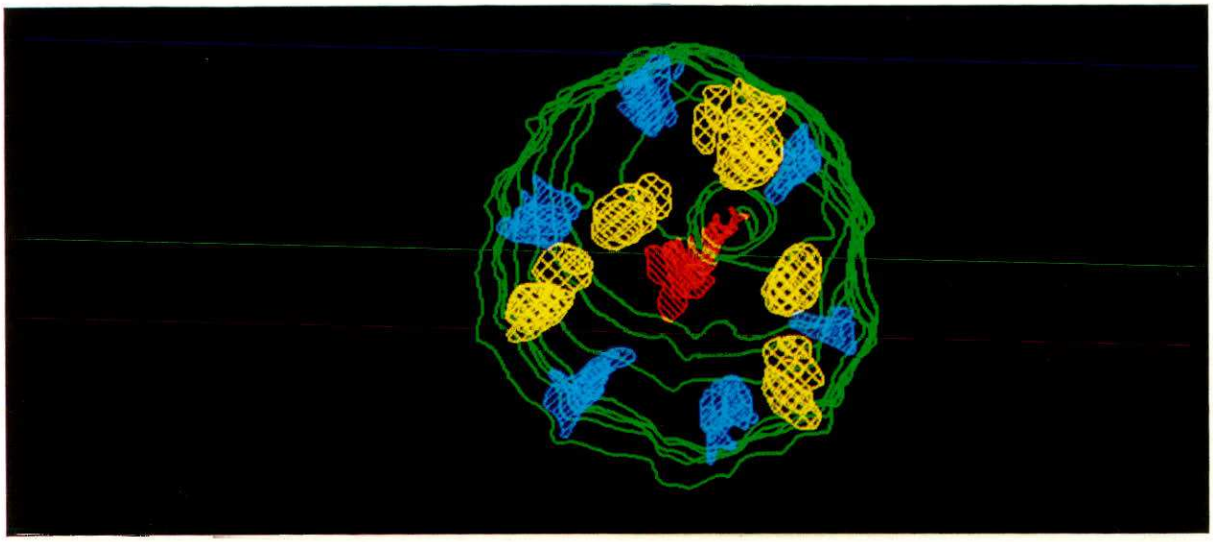
The visual theme of this year's annual review is the use of computing and associated graphics to analyse very large quantities of data. The software required to make these analyses now lies at the heart of so many scientific experiments and design processes. The 'discoveries' or designs would just not be possible without computing. The examples show images from a wide variety of applications, a number of which have directly involved work done by Logica.

Interactive graphics systems are being used to reconstruct, in three dimensional form, minute slices of biological features. The use of this technology enables microscopic structures to be examined in detail.

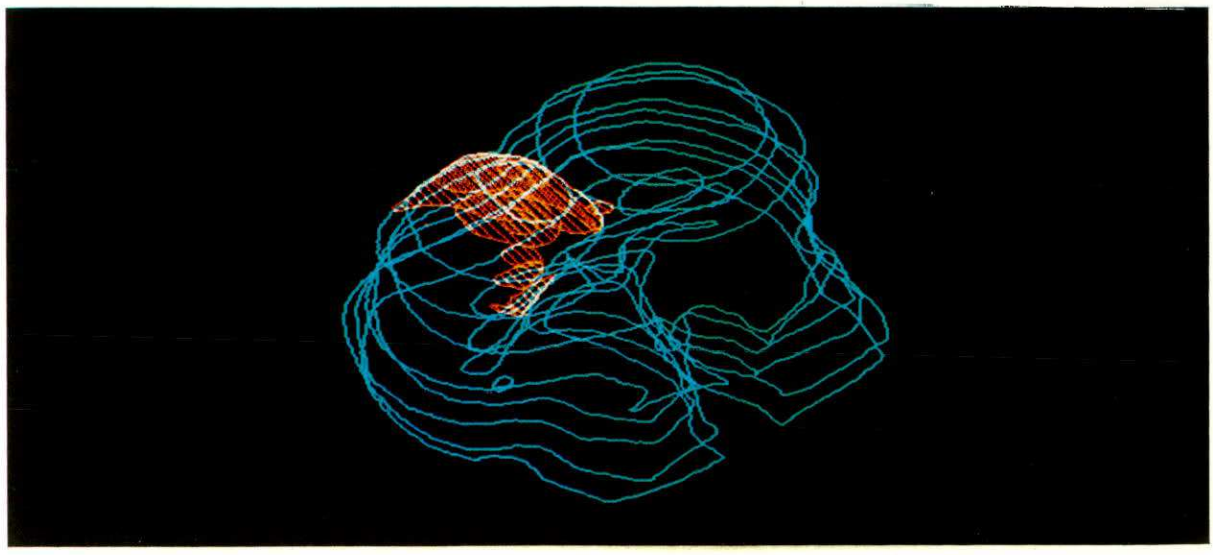
A serial section of the brain of a Xenopus tadpole with the nerve fibres being studied shown in purple, displayed on a DEC PDP 11/34 computer.



A computer reconstruction of serial sections of a nematode (plant parasite) showing the structure of the parasite. The computer is used to examine the complete structure since under the microscope only one section at a time can be seen.



A computer reconstruction of serial sections of a frog brain showing the effects of surgery (red).



LOGICA plc

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Frits Böttcher
Patrick Coen
Peter Harbidge
Philip Hughes (Chairman)
David Mann
David Matthews
Gordon Olson
Neil Prebble
Colin Rowland
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THE QUEEN'S AWARD FOR
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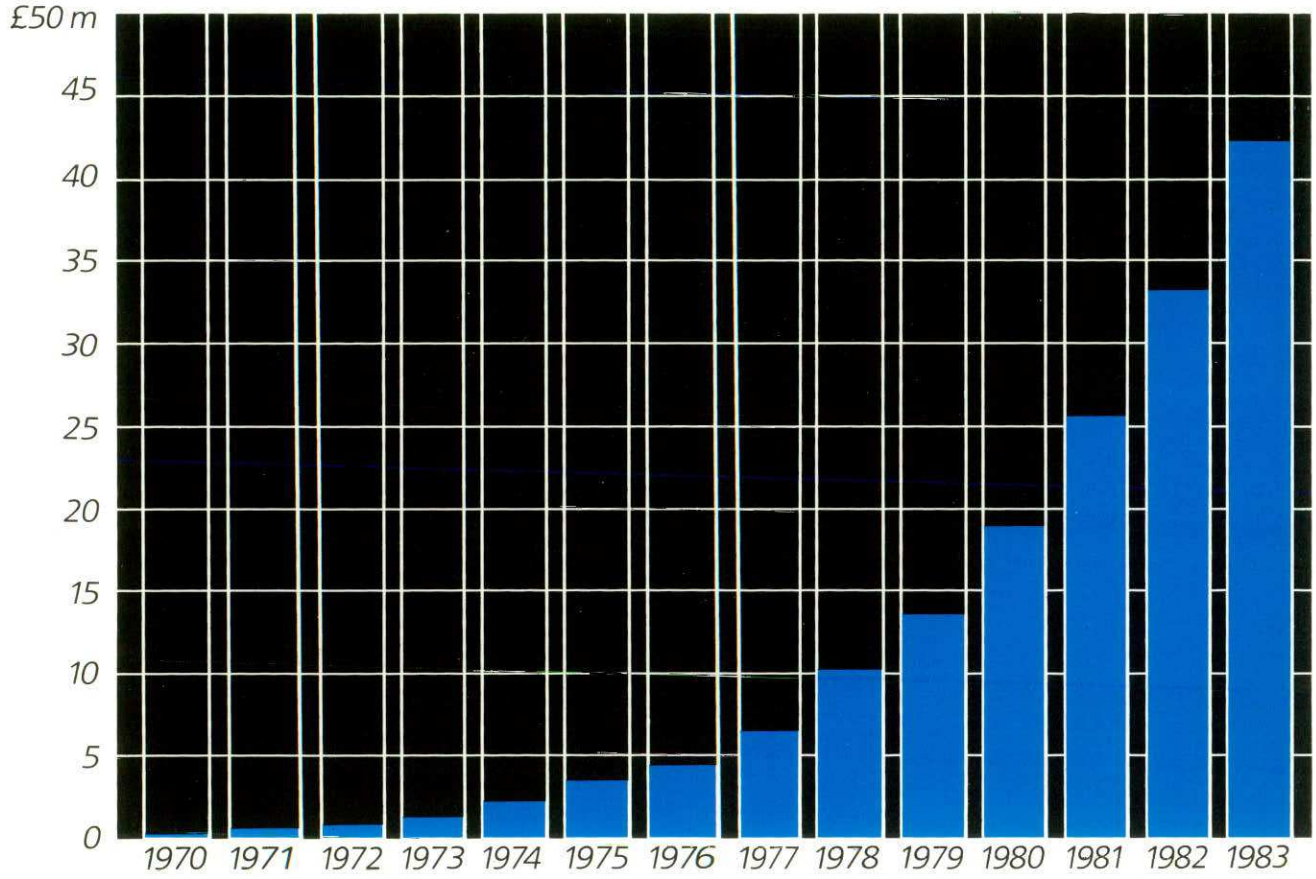
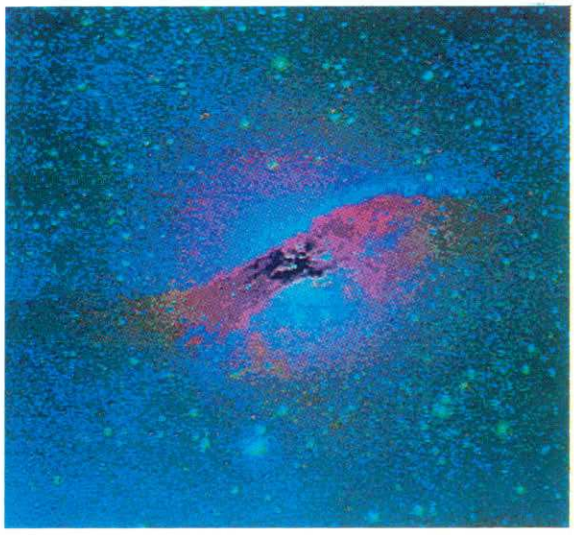
TURNOVER



A computer colour-composite picture of the galaxy Centaurus A. The picture shows a very red central band caused by scattering of light by dust particles, and a disk of blue – and hence very young – stars.

In the second picture processing has made the blue disk much clearer.



Turnover for the year under review was £42.2 million compared with £33.2 million last year, an increase of 27%. Before tax earnings were £3.346 million compared with £2.159 million last year, an increase of 55%. After tax earnings were £2.335 million compared with £1.042 million. Staff numbers at year end were 1475 compared with 1160, a growth of 27%.

Net assets rose from £6.849 million to £10.483 million. This growth reflects the £1.51 million net raised in a capital re-organisation in August 1982 and the growth in post-tax profits. Net borrowings allowing for cash in hand were £1.803 million at year end compared with £1.105 million in the previous year. This reflects extra working capital required to fund the growth in revenues, investment in fixed assets and payments made for the acquisition of PRC (Australia) Pty Limited.

The year saw a marked shift from services to products, which now form one third of our business compared with 20% in the previous year. Office automation accounted for a major portion of this activity, with revenues nearly doubled in the year. The Logica produced word processors now have a very strong position in the UK market, supplied both by International Computers PLC (ICL) and direct by Logica VTS. The other product activities, both the provision of standard software products and systems kernels, continued to expand.

There were a number of notable international successes. Logica in Australia trebled in size with the acquisition of PRC (Australia) Pty Limited. The expanded Logica Pty Limited is now one of the largest and most strongly established software companies in Australia. Logica's largest ever single contract was signed to provide the software for the automation of the Rafidain Bank in Iraq. Teletext sales continued country by country; systems in New Zealand, Singapore, Italy and Switzerland were sold during the year. In California Logica has a major long term project to help the Bay Area Rapid Transit District (BART) to redevelop its integrated control system.

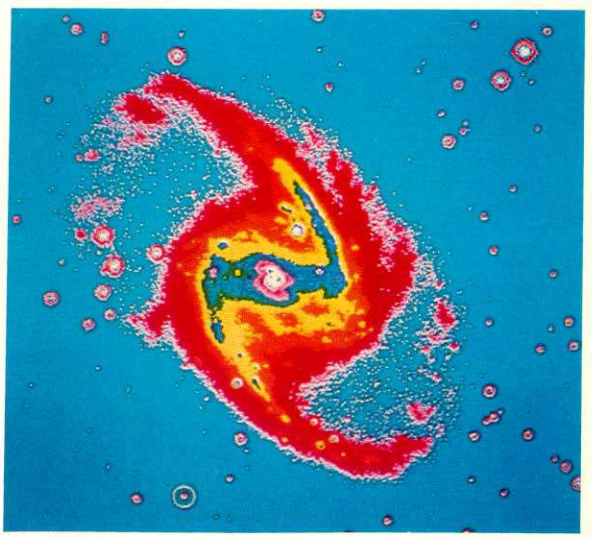
There was major growth in work for the banking and finance sector which formed 22% of all turnover. Much of the business is built around the systems kernels of FASTRX™, FASTRAN™ and DIDS™. These allow Logica to build high performance reliable systems for electronic banking by tailoring standard software to meet specific client needs.

During the year Logica received three prestigious awards. The British Computer Society's annual award for Technical Achievement was received for work on continuous speech recognition. Logica VTS received the Queen's Award for Technological Achievement for the VTS 2200™ word processor. To celebrate its 10th anniversary, the newspaper "Computing" polled some 150 industry leaders to ask them which company in their view had made the greatest contribution to Information Technology during the decade 1973-1983. Logica was the chosen company.

Following the year end Logica became a public company and its holding company, formerly named Logica Securities Limited, became Logica plc. At the same time, the company's UK systems and consultancy subsidiary, Logica Limited, was renamed Logica UK Limited. A listing was sought on the London Stock Exchange when, at the end of October, 30% of the expanded share capital was offered to the public by tender at a minimum tender price of 140 pence per share.

The flotation was completed extremely successfully. The issue was 7.6 times over-subscribed and still 2.9 times over-subscribed at the striking price of 220 pence per share. A significant result of the flotation was the strong demand for shares by the staff who now hold some 40% of the equity. The issue raised some £8.5 million net of new money into the company which will be used to eliminate borrowings and fund further expansion.

™ trademark of Logica



A colour coded intensity map of the spiral galaxy NGC 1365. The circle round a star at bottom centre is used to measure the brightness of that star. This is called 'aperture photometry'.

Summary profit and loss account for the year ended 30 June 1983	1983 £'000	1982 £'000
Turnover	42185	33168
Change in Stocks and Work in Progress during the year	2238	162
	44423	33330
Operating Expenses	41077	31171
Profit before Taxation	**3346**	**2159**
Taxation	(1011)	(1117)
Profit after Taxation	2335	1042
Minority Interest	(10)	(55)
Profit attributable to shareholders	2325	987

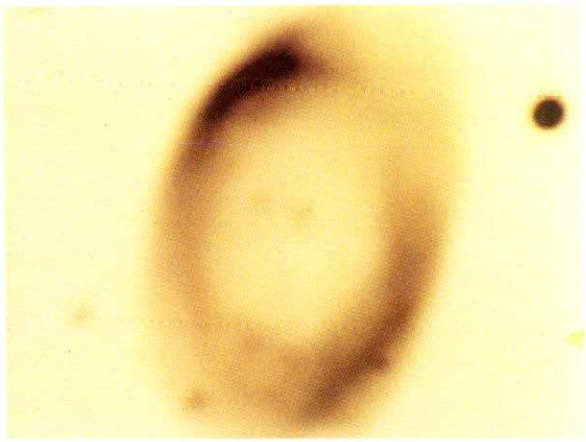
NOTES

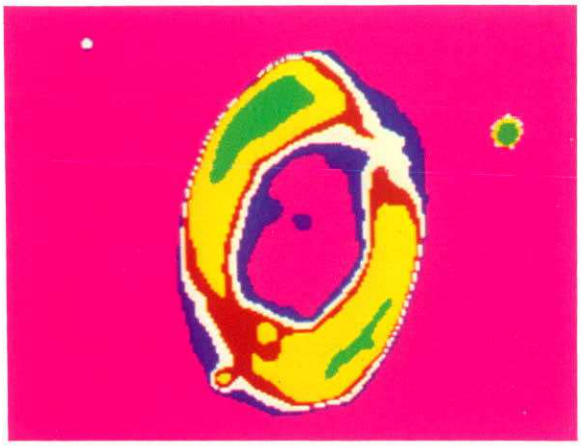
These profit and loss accounts and the balance sheet reflect the corporate structure of Logica immediately prior to the Offer for Sale dated 20 October 1983.

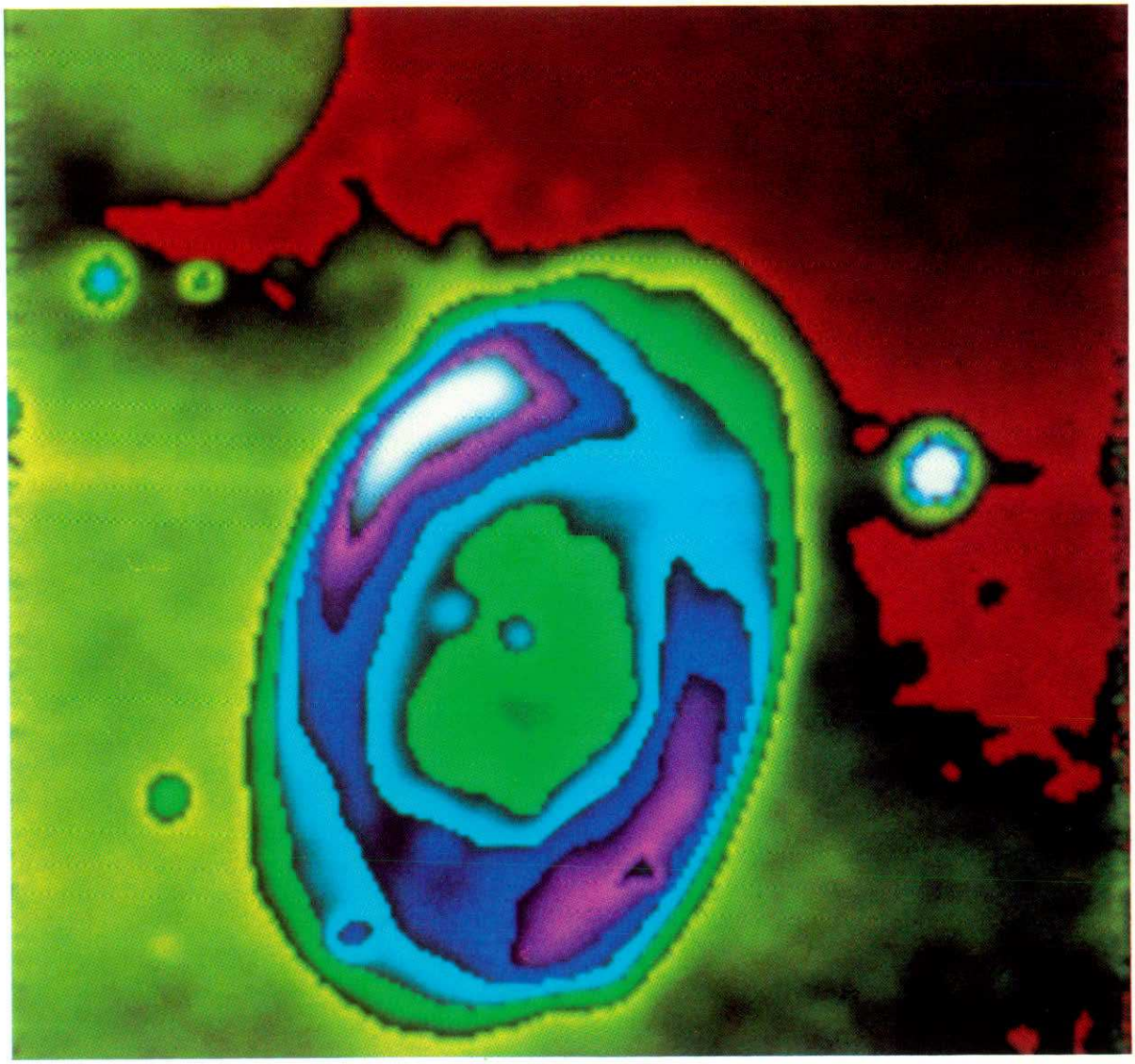
These abridged financial statements do not represent full accounts within the meaning of the Companies Act 1981. Full annual accounts for Logica Securities Limited (30 June 1983) and Logica Holdings Limited (30 June 1982) which included unqualified auditors reports have been filed with the UK registrar of companies.

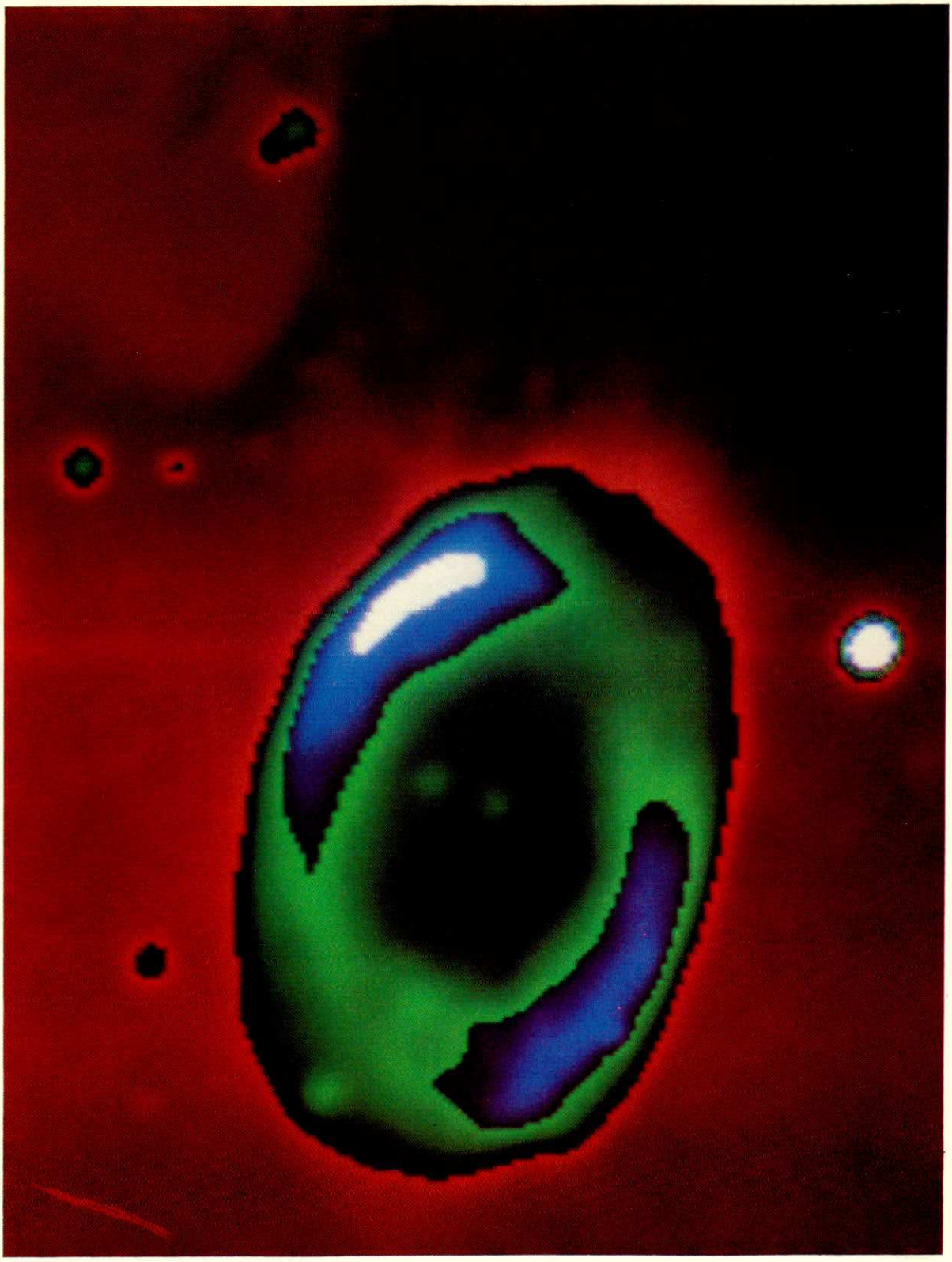
Balance Sheet at 30 June 1983		1983 £'000
Funds Employed		
Fixed Assets		4339
Current Assets		
Stocks and Work in Progress	5788	
Debtors	12030	
Cash	1030	
	18848	
Current Liabilities	12704	
Net Current Assets		6144
		10483
Deferred Liabilities	188	
Deferred tax	399	
		587
		9896
Financed by:		
Shared Capital and Capital Reserves		11295
Profit and Loss Account		1520
		12815
Interest of Continuing Minorities		280
Less		
Excess of cost of subsidiaries over net tangible assets at dates of acquisition		3199
		9896

A selection of views of the Ring Nebula after considerable processing.

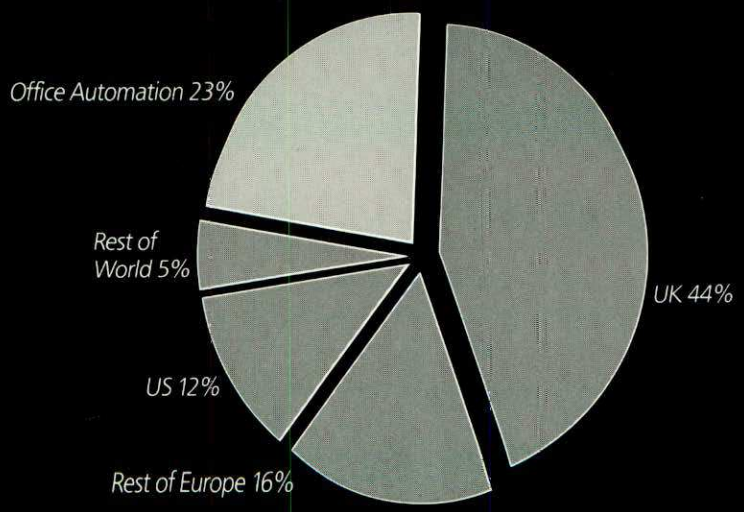




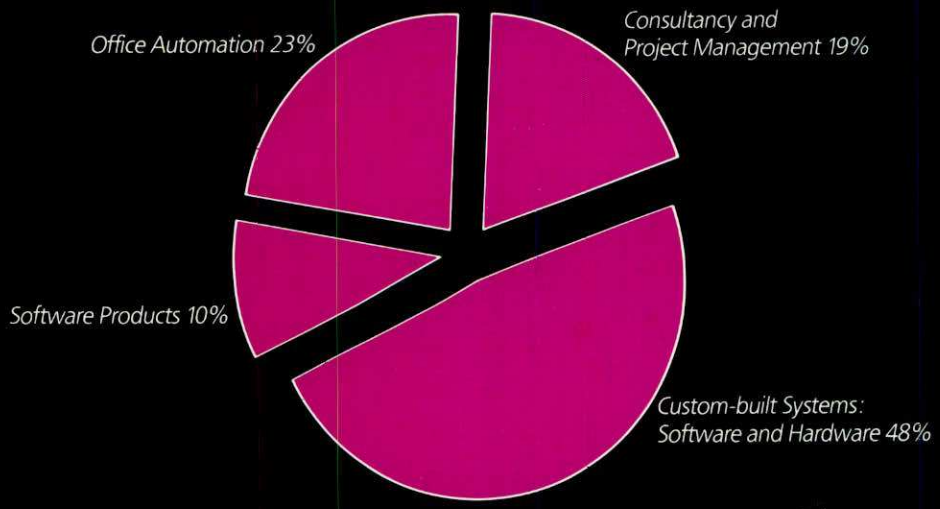




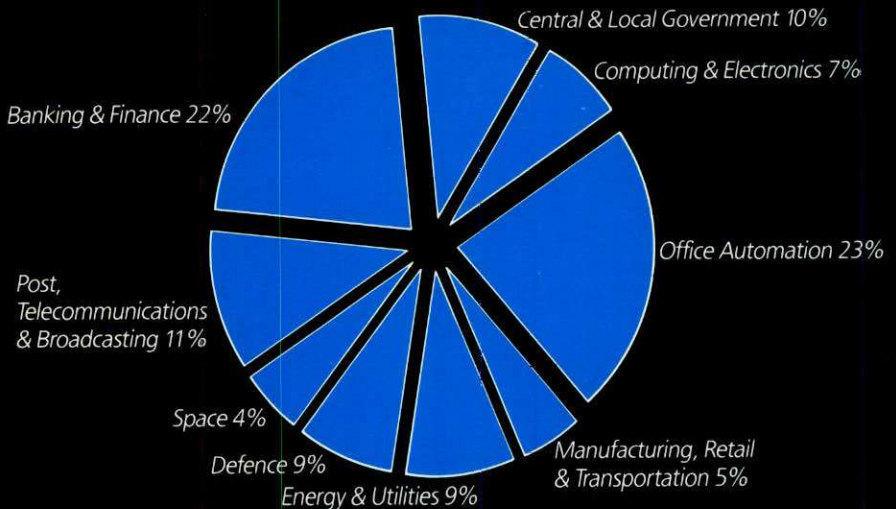
TURNOVER BY CLIENT LOCATION



TURNOVER BY WORK TYPE



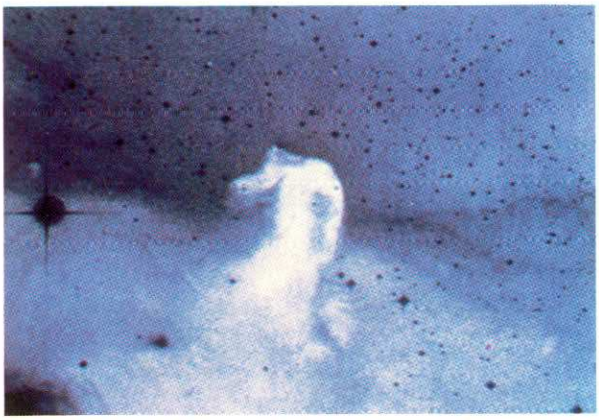
TURNOVER BY CLIENT SECTOR

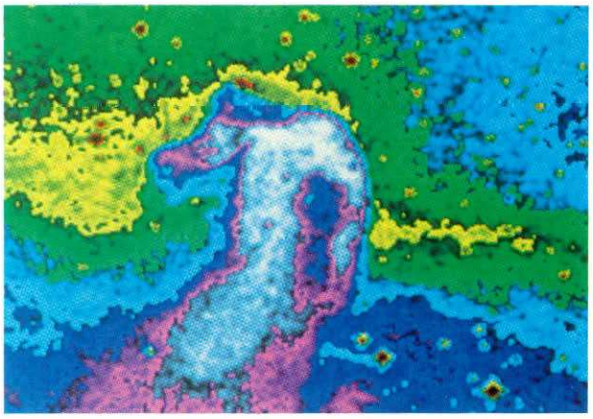



Logica's Offices
Countries where Logica has worked

The Horsehead Nebula in the constellation of Orion. The image was digitised, fed into a computer and re-displayed as a negative image.

The second picture shows an expanded region with colour used to emphasise brightness variations.





WORLDWIDE OPERATIONS

UNITED KINGDOM

During the year Logica's UK operating subsidiary, Logica Limited continued to expand its business in the design and supply of custom-built systems via five major operating groups that are orientated to different sectors of industry. A separate group was established at the beginning of the year to handle strategic consultancy activities across all sectors; a central unit was also formed to manage research projects funded totally or partly by Logica. Two further groups were responsible for the continued growth in revenues from the development, sale and support of standard software products based on RAPPORT® and XENIX*.

By the end of the year Logica had achieved a very prominent position in the UK software industry, and recognition as a leading exporter of software and consultancy services. According to UK Department of Trade and Industry figures, we provided approximately 12% of the total of such exports by the Computer Services Industry in the calendar year 1982.

These included the following examples:

France	- work for MATRA on rendezvous and docking of space craft
Germany	- software development for real-time satellite control for the European Space Agency
Switzerland and Singapore	- Supply of CONTEXT teletext systems
Hong Kong	- Study of a pilot electronic road pricing system
Indonesia	- Software development for a system to provide advanced data communications facilities via satellite
Korea	- Evaluation of proposals for the national packet-switching service
India	- Supervisory control and data acquisition systems for oil and gas pipelines
Iraq	- Design and implementation of software for the Rafidain Bank

The banking sector had a particularly successful year. Many projects were concerned with funds transfer and communications and a particular achievement was the completion of the Gateway software for CHAPS. Major contracts were also obtained for dealer information systems.

In the aerospace and defence sectors business continued to expand into wider applications of computer and communications technology for all the armed services and NATO, as well as for many different satellite users. Particularly important skills in these areas have included simulation, software engineering, real-time and fault-tolerant systems, signal processing and specialised hardware.

There was heavy demand for the services of the engineering division, which manufactures hardware to meet customers' individual requirements. The biggest order was for control visual display units in remote line testing equipment.

The first year of operation of the separate consultancy group was also very successful. Many important contracts were obtained for Board-level studies of communications, data processing and office automation within major organisations.

*Registered Trademark of Logica
*Trademark of Microsoft

NETHERLANDS

For Logica BV it was a very satisfactory year with sales and profit growth increasing substantially. The number of new clients was more than double that of any previous year.

In the financial sector, there was an increase in the demand for consulting services, especially to help determine data communications and funds transfer strategy. During the year we worked for more than ten different banks in the Netherlands.

Although the Dutch industrial market remained somewhat static, we were involved in some interesting and complex projects. These ranged from the automation of a heavy plate mill in a steel plant to the implementation of an advanced computer-controlled machine for the light manufacturing industry.

The petrochemical, oil and gas sectors continued as the most important areas for the company. During the year we secured the order to implement, on a turnkey basis, a real-time transient simulation system for the Dutch national gas grid. When complete, this will be the most advanced system of its kind in the world. We also undertook consultancy and implementation work for both crude oil and chemical product pipeline operators, and for petrochemical research laboratories.

The most significant new development for Logica in the Netherlands was the sharp increase of defence-related work. In addition to being retained by a major defence contractor to develop specifications for a battlefield fire control system we were also contracted directly by the armed forces to participate in military data communications projects.

BELGIUM/LUXEMBOURG

Logica SA/NV enjoyed a further year of expansion. Staff numbers doubled during the year with the majority of new personnel being of Belgian nationality.

The level of market awareness of our activities increased substantially and led to the provision of services to a number of important new clients, such as Monsanto and Telindus. We also entered the export market, undertaking a number of projects for French, Dutch and UK-based companies.

Whilst the majority of the activities of the company were consultancy and implementation projects, product sales and support continued for RAPPORT and XENIX. We also established local maintenance support for Logica's word processing and personal computer products and successfully commenced marketing these to selected companies.

SWEDEN

Logica Svenska AB had an excellent year. Activities expanded in the finance, electronics and service industries with numerous feasibility and strategy studies.

Two major projects were successfully completed for the Swedish Post Office. Based on Tandem computers, both systems will be enhanced to support new services being offered. Several new contracts were signed with established clients notably the Ericsson Group and the Swedish Bankers Association.

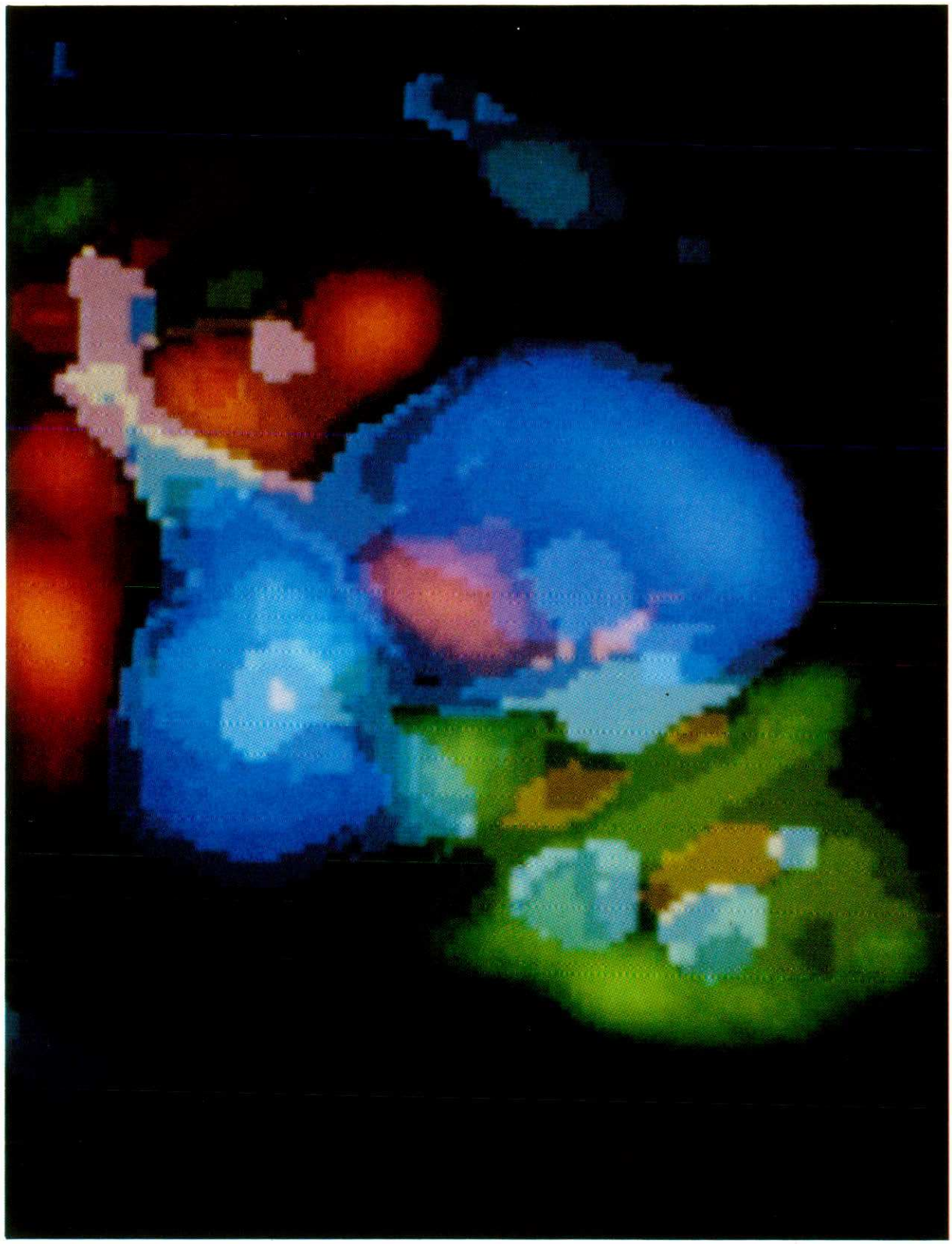
The information service division continued to produce technical information for a wide range of subjects and further developed its competitiveness in videotex.

Emphasis was placed on product marketing with the recruitment of senior sales and support staff. This was necessary in order to meet the increased interest being shown in UNIX†/XENIX related software for the new generation of microcomputers. A retail sales network is being created to accommodate the demands being generated in the Scandinavian market.

The company is in an excellent position to achieve the planned substantial growth during the next year in both the professional services sector and in product sales.

†Trademark of Bell Laboratories

A scan of the grossly abnormal heart of a patient. The red corresponds to atrial function, the blue to ventricular function and the green to abnormal function within a large aneurism.



AUSTRALIA

The key event of the year was the acquisition of Planning Research Corporation (Australia) Pty Limited. This extended the overall expertise and area of operation of the new company which has offices in Sydney, Melbourne, Brisbane and Canberra and is one of the strongest contenders in Australia for software and consulting services. There was a major increase in the company's commercial project management and implementation capability. As a result, we are now able to fully service the needs of our clients' computer, communications and market survey requirements.

The major proportion of our sales was to Federal, State and semi-government bodies. Services provided to these bodies cover the full spectrum of consultancy, implementation and product sales. Major achievements for the year include work on strategic consultancy for the Parliament of Australia and the completion of a fixed price, fixed time commercial project management and implementation contract for the South East Queensland Electricity Board. In addition, significant work was undertaken for Australia Post, the NSW State Electricity Commission, the Job Bank project for the Commonwealth Employment Service, and the Australian Federal Police.

Product sales continued in the provision of the ISA financial accounting and modelling systems, the VCI data centre management systems and RAPPORT.

UNITED STATES

Logica Inc. continued to grow. The number of employees increased to over 160. A new office was opened in Winter Park, Florida to serve the area's rapidly developing high technology market and after only a few months' operation, significant contracts were secured.

The finance sector remained the most important market. The year saw the announcement and first successful installation at Lloyds Bank International of FASTWIRE™, a systems package of bank cable room and funds transfer automation software to be sold in the international marketplace. This has reinforced our position as a leader in the implementation of advanced communications systems for the banking industry, supplementing the successful FASTRX and FASTRAN packages, which are now installed in major banks in both the USA and Europe. In all, projects were carried out for 20 major financial institutions in New York, Boston, Detroit, San Francisco, Toronto and Montreal.

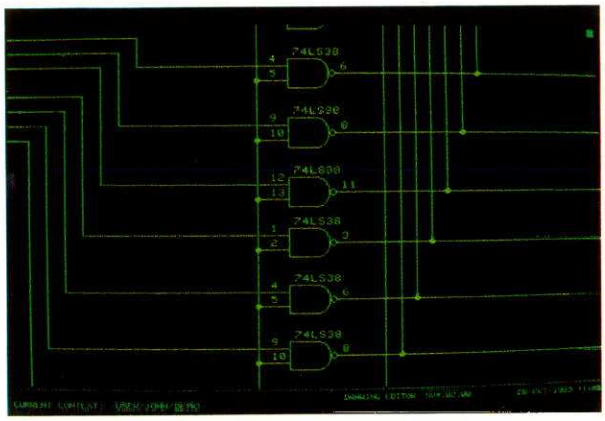
A key feature of the year was Logica's success in strengthening its position in the United States in other areas where it has a world-wide reputation. A major contract was secured, against fierce competition, to work with the San Francisco Bay Area Rapid Transit District (BART) on the replacement of its central computer control system which, when implemented, will allow BART to significantly expand its transit network.

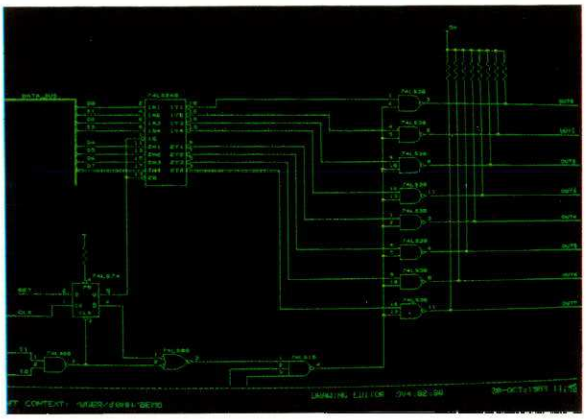
In the area of advanced communications systems, important clients were M/A COM DCC in Washington, and AT&T Information Systems and Stromberg Carlson in Florida.

Our activities in strategic, technical and market consulting also continued to develop with prestigious projects for a number of the Fortune 100 organisations. Our extensive experience in the design and implementation of state-of-the-art systems proved particularly attractive to large US companies, seeking high level, practical advice across the spectrum of technology.

The RAPPORT relational database management system was successfully launched in the United States and installed for clients such as GE, Minnesota Power, TRW and European American Bank.

A computer aided engineering system at Logica's Swindon factory is used to design three circuits and a printed circuit component board layout.





OFFICE AUTOMATION

This was an outstandingly successful year for Logica VTS. Compared with last year, orders and revenues increased by over 75% and the number of employees increased by 60%. Substantial investment is planned in developing new hardware and software products, in expanding manufacturing capacity and increasing marketing and customer support activities.

The VTS 2200 word processing system continued to be our highest volume product. Further development during the year has transformed the original 2200 product into a range of word processors with varying power and memory size and with a range of disk storage capacity. Standard microcomputer operating systems are now available on the VTS 2200 system and it can be used for personal computing applications as well as for word processing and communications.

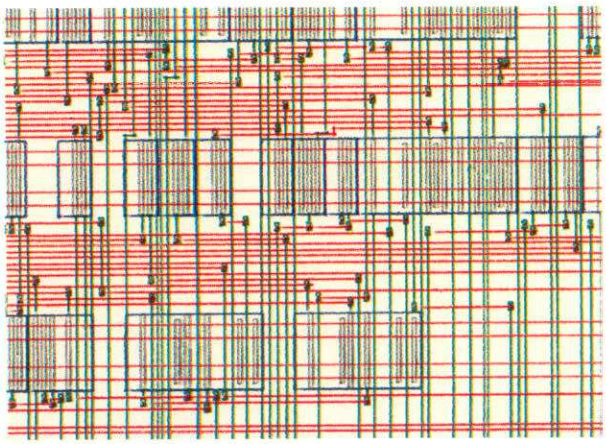
In the UK, direct sales activities are increasing, while outside the UK the company continues to expand product outlets through local distributors.

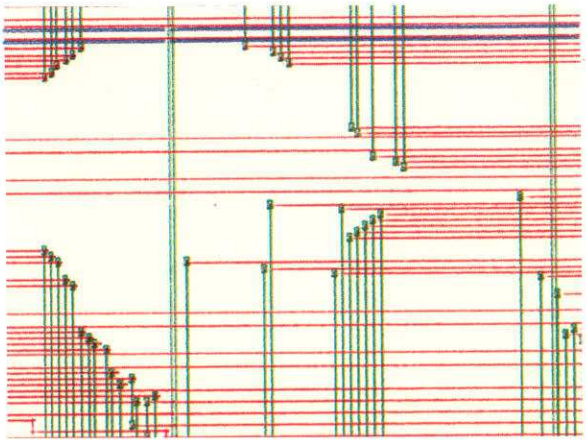
The joint co-operation agreement with International Computers PLC (ICL) signed last year proved very satisfactory. ICL is now shipping substantial quantities of the 2200 word processor as part of the company's DRS product line.

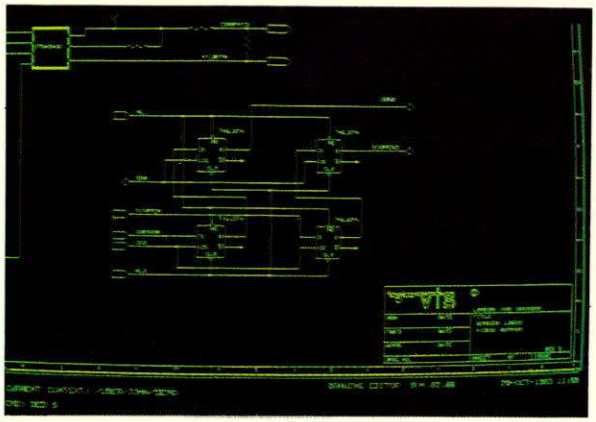
During the year we announced the Vitesse™, a 16-bit personal computer. It is based on the same hardware design as the VTS 2200 and has probably the best quality screen and keyboard available on personal computers in the same price range.

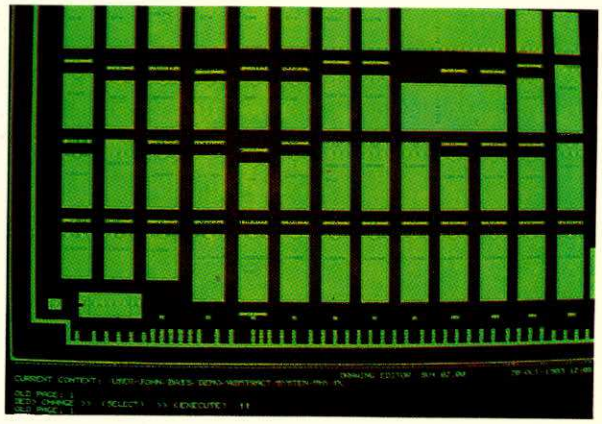
Logica is one of twelve companies chosen by the CCTA, after an extensive evaluation exercise, as suppliers of microcomputers to UK central government departments. This augurs well for the Vitesse in the UK public sector. The Vitesse has available a number of 'standard' microcomputer operating systems, several language compilers and a wide range of applications packages. It also has 'Wordsworth' - a very powerful and easy to use word processing package developed by Logica for the personal computer user.

Quadrant layout for a graph plot of a micro chip design.









While the future of local area networking continues to be a subject of interest and debate, we have actively pursued the supply and installation of POLYNET® systems. Over seventy systems are now installed in the UK, USA, Australia, Switzerland, Yugoslavia and Italy. During the year large systems orders were received from British Aerospace, the Joint Network Team and the UK Ministry of Defence.

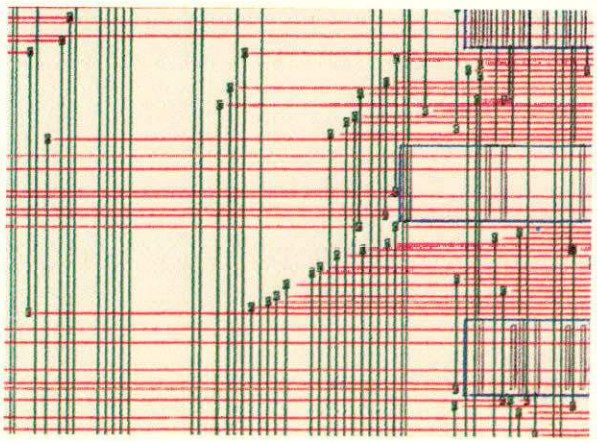
A collaborative development with BICC resulted in the Optlyne product which provides optical fibre links in POLYNET networks. These are particularly useful in high security or electrically noisy environments or in sites needing long (up to 2.5 kilometres) inter-node distances.

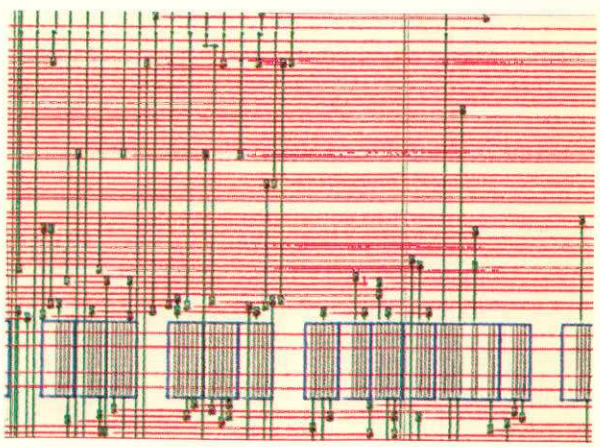
Developments continued on new hardware and software interface units for POLYNET. We are now able to supply interfaces for a wide range of mini and microcomputers including Vitesse and other personal computers as well as attached devices such as workstations and file servers.

Our staff participated actively in the definition of CR82 - a standard for slotted ring local networks. The external node interface specification is based on the POLYNET design which we agreed to publish as part of the standards making process.

As part of the Department of Trade and Industry's Pilot Office of the Future Scheme, Logica was selected to supply an advanced office system to Wales Gas in Cardiff. The system comprises intelligent workstations linked by POLYNET to central shared resources including file servers, print servers and inter-network bridges. The system provides text processing, personal computing and electronic mailbox services.

Logica VTS was one of 20 British organisations to receive the Queen's Award for Technological Achievement in 1983.





SOFTWARE PRODUCTS

Logica designs and sells a range of software products. There are two categories - 'systems kernels' that are used as components in the supply of custom-built computer systems and standard software products that are sold in volume. Systems kernels include the following:

FASTRX and FASTRAN - form the basis of funds transfer systems for leading international banks.

DIDS - the Dealer Information Display System supplied to Bank of America in London during the year and currently being implemented for Istituto Bancario San Paolo di Torino in Italy.

CONTEXT - a range of teletext systems installed in Switzerland, Italy, Singapore and New Zealand during the year.

FLAIR™ - Logica's video graphics system has been supplied to a number of video production companies and the BBC Network Production Centre.

MASTER CONTROL™ - an advanced range of supervisory control and data acquisition systems installed in the UK, the Netherlands and India.

INSIGHT™ - the image processing software package used in advanced systems for processing and transmitting pictures in digital form.

LOGOS™ - the award-winning continuous speech recognition system.

RAPPORT is a sophisticated relational database management product designed by Logica to run on a wide variety of computers. At year end there were over 170 installations of the product. Sales are made direct, through the company's own sales staff, as well as through distributors. RAPPORT is now available in eleven countries. During the year RAPPORT's position in the market place was further strengthened through the signing of a number of joint marketing agreements with leading hardware manufacturers including Data General, Gould-SEL, British Olivetti Limited and Prime. RAPPORT is being used by a variety of clients, for example:

Western Geophysical Co. of America	- for 3D seismic data interpretation.
UK Laboratory of the Government Chemist	- a biological database of information on cultures for industrial processes.
Burmah Oil Exploration Limited	- exploration, production and financial data.
H M Treasury	- for personnel management.
Rank Xerox (Nederland) BV	- stock control in an automated copier factory.
Minnesota Power (USA)	- a maintenance tracking system for power plants.

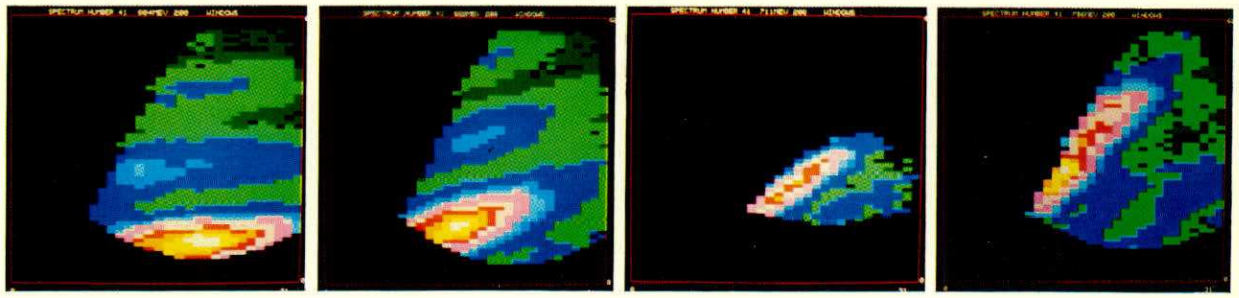
XENIX, is an enhanced version of UNIX which is becoming one of the world's de facto standard operating systems. Logica has become the leading European supplier for supported UNIX-related products to computer dealers, system developers and end users. Over 200 copies of XENIX have been sold to major organisations such as Plessey, Ferranti, ICI, Chemical Bank and Unilever for business and technical applications. Sales include:

UK Milk Marketing Board	- applications tools and resources to develop an integrated accounting system.
UK National Computing Centre	- validation and analysis of messages transmitted over the X-25 packet network.
UK Post Office	- information on parcel services and on-line management statistics.

It has been found essential to use colour graphics to compare complex data with theoretical calculations in the analysis of nuclear structures.

The events shown at the top of the page come from bombarding a ^{18}O nucleus on a ^{12}C target. The excited nucleus subsequently decays and the data indicate how fast it is rotating before the decay occurs.

The lower images show theoretical calculations for the above data.



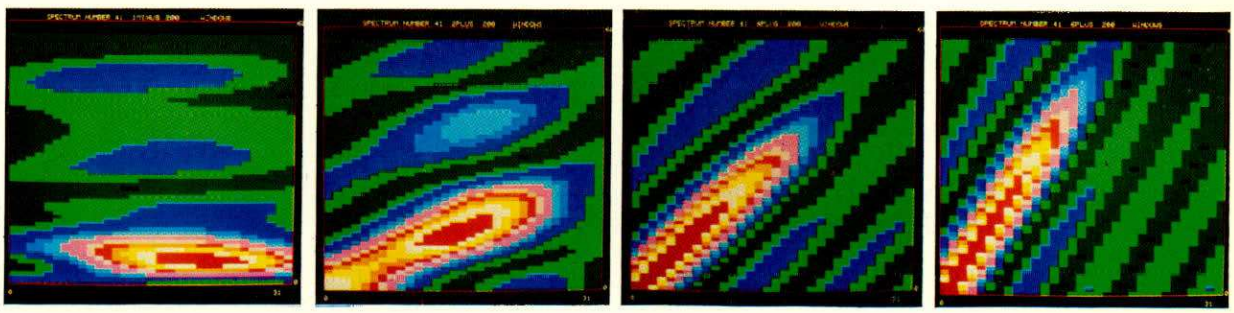
RESEARCH AND DEVELOPMENT

Logica's total expenditure on Research and Development during the year was approximately £3.5 million of which some £1.2 million was recovered from third parties or by way of grants. The majority of this expenditure went on developments in office automation and software, leading to significant new and enhanced products.

The main research undertaken during the year was Logica's participation in **Project UNIVERSE.** This satellite-based experimental network was inaugurated in February. POLYNET nodes and monitor stations are used extensively in the local area networks at UNIVERSE sites. We are already testing experimental applications over Project UNIVERSE. A data encryption system for secure traffic was established in collaboration with GEC's Marconi Research Centre. Software engineering techniques are being used to create a framework for sharing computer resources (and ultimately for distributed software development) between Logica, Cambridge University's Computing Laboratory and GEC. Other experiments include text transfer via an implementation of the CCITT Teletex standard and the evaluation of algorithms for image transfer over the satellite.

During the year funding was announced for two major long term government backed research programmes, ESPRIT and the Alvey Programme. Logica has contributed extensively to the formulation of these programmes. We are now active participants in both.

For the **Commission of the European Communities,** a number of studies were undertaken in connection with **ESPRIT.** One of these was concerned with the definition of initial requirements and short term implementation options for the **ESPRIT Information Exchange System;** a second with the definition of design rules for **Computer Integrated Manufacturing Systems.** Two others related to the use of UNIX and UNIX-based tools for the **ESPRIT Portable Common Tool Environment (PCTE)** and the definition of requirements for software engineering databases.



FINANCE

The **Committee of London Clearing Bankers (CLCB)** commissioned Logica to carry out a study of the network requirements for introducing point of sale terminals via electronic funds transfer.

Logica completed a major milestone in the development of the Clearing House Automated Payment System (CHAPS) on behalf of the **London and Scottish Clearing Banks** with the handover of the common CHAPS Gateway software. This will be used by all thirteen settlement banks participating in CHAPS. In separate contracts for the **Bank of England, National Westminster Bank** and **Barclays Bank,** we defined and developed specific systems to connect each bank to its CHAPS Gateway.

Work continued for the **Central Bank of Trinidad and Tobago** with the provision of a range of support services. We have also been designing and implementing a computer system for the **Trinidad and Tobago Unit Trust Corporation** in Port of Spain.

Logica performed a consultancy study for **F van Lanschot Bankiers,** a Dutch bank, investigating their future communications requirements and solutions. A number of possible strategies were developed for the short, medium and long term.

For **Phoenix Prudential Australia Limited,** Logica is to specify the requirements for an Instalments Payment System. The detailed development and implementation of this project is commencing on new Univac computer equipment recently installed by the client.

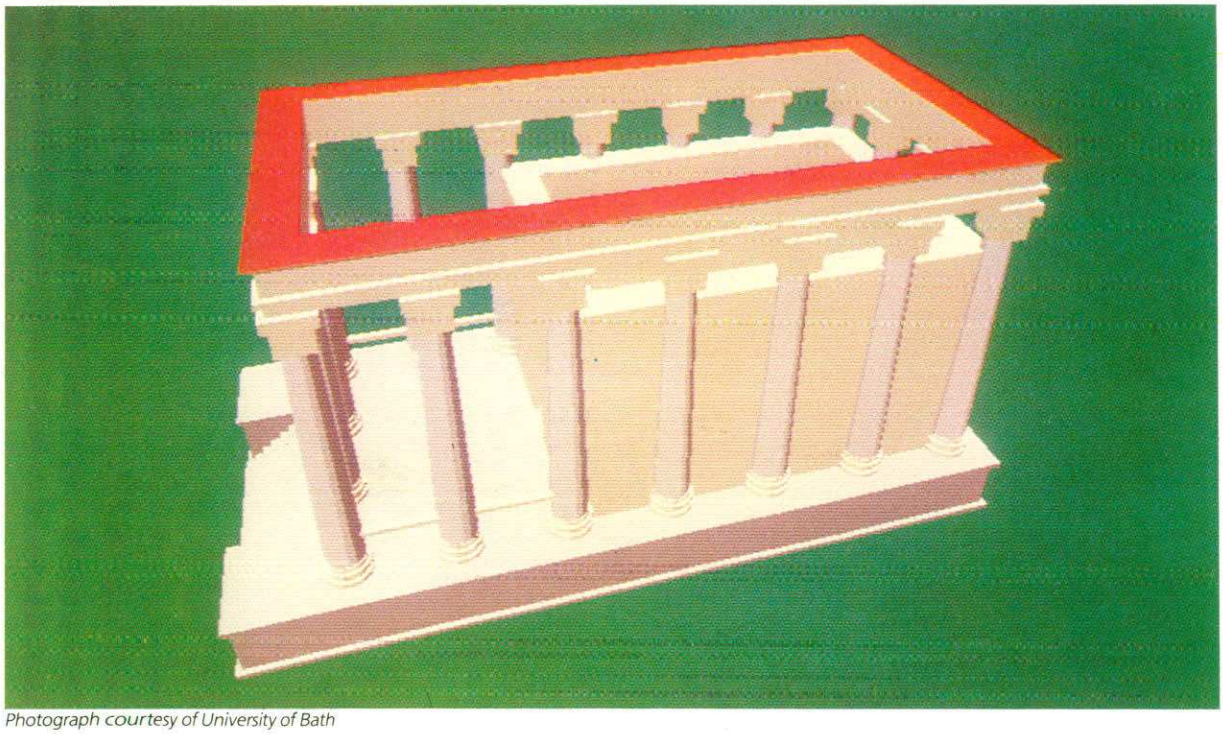
Logica is undertaking the implementation of a comprehensive information system for **Istituto Bancario San Paolo di Torino** in Italy to support the bank's foreign exchange dealing room and treasury. The applications are based upon Logica's Dealer Information Display System (DIDS).

Logica is working with **Bankomatcentralen,** the Swedish public cash dispensing organisation, to upgrade and enhance the central system to accommodate increased traffic and to provide more facilities. We have also completed development work on an extensive guide to systems operation.

We were commissioned by the **Central Gilts Office Project** (a joint development between **The London Stock Exchange** and the **Bank of England**), to assist with certain aspects of technical liaison between the implementation team and large potential users of the system.

At **Swiss Bank Corporation** in New York, Logica installed two interconnected DEC minicomputer systems that allow the Bank to communicate on-line with the S.W.I.F.T. and CHIPS financial networks. Incoming S.W.I.F.T. payment orders can be

Two sectional views computed from a solid model of the Roman temple of Sulis Minerva, Bath. The reconstruction is based on B W Cunliffe's book 'Roman Bath'.



Photograph courtesy of University of Bath

automatically validated, converted to the CHIPS format, and transmitted to the New York clearing house for payment. By processing these transactions completely electronically, Swiss Bank is able to effect almost instantaneous international transfers of funds for its customers.

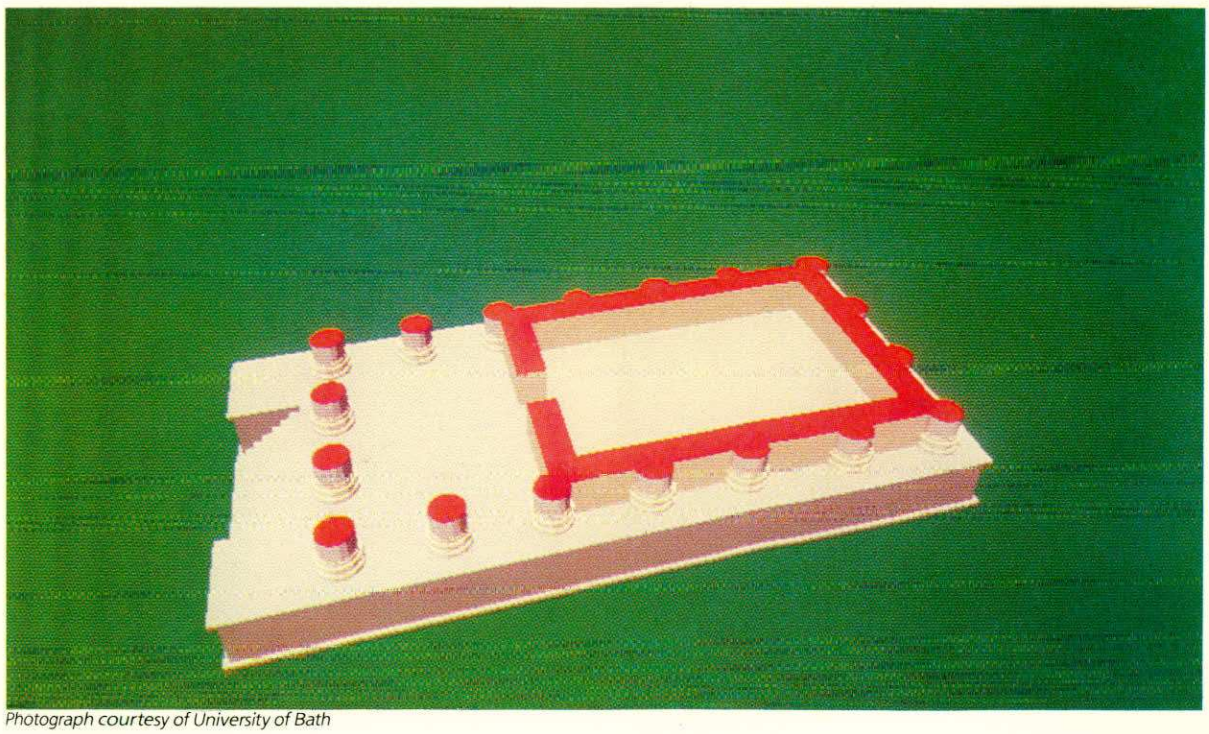
A major dealer support system was developed for the London dealing room of **Bank of America** to give the dealers access to external and internal information services and to maintain comprehensive records of dealing positions. In San Francisco, Logica continued to support the Bank in implementing new systems facilities in its money transfer network. For the communications department of **BankAmerica International New York,** Logica began the development of an automated wire room system.

The Finance Ministry of Iraq awarded a £4.6 million contract to Logica for the implementation of a pilot on-line branch banking system for the **Rafidain Bank** of Iraq. The contract defines a highly sophisticated system and trains a significant number of the Bank's software staff.

Logica was selected by **Lloyds Bank International** to design and implement a cable room automation and message switching system. The Bank's communications departments in London and New York were the first to install the system, which includes S.W.I.F.T., Telex and ILTMS connections.

In Boston, Logica was commissioned by **Fidelity Systems Company** to analyse the requirements for automation of batch data file communications. We designed and developed software allowing a wide range of automated file transfers to be configured and controlled. Additionally, we provided project management and technical consultancy during the design and development of a critical on-line securities pricing system. Work undertaken at Fidelity Systems Company employed a new generation of continuous processing hardware.

Algemene Bank Nederland/Bank of America/Bank Mees & Hope/Bank of Montreal/Barclays Bank International/Blue Cross Blue Shield/The Chase Manhattan Bank/Citicorp/Commercial Union/Crocker Bank/European American Banking Group/Fidelity Systems/ First National Bank of Boston/First National Bank of Chicago/Futures International Corp of America/Gerald Metals/Hongkong and Shanghai Banking Corporation/International Commercial Bank of China/Istituto Bancario San Paolo di Torino/Legal and General Insurance of Australia/Manufacturers Bank of Detroit/Midland Bank/The Morgan Bank/Nederlandsche Bank/Shawmut Bank of Boston/S.W.I.F.T./S.W.I.F.T. Terminal Systems/TSB Trust Company/Wells Fargo Bank



Photograph courtesy of University of Bath

POST AND TELECOMMUNICATIONS

With **Telecom Australia,** we have developed the Logica X-Series Report, a survey of the availability of the relevant X-Series interfaces in Australia from suppliers of computer systems and data communications equipment. This has been published and is being distributed throughout Australia.

We are supplying the Logica Intelligent Terminal (LIT) to **STC Telecommunications Ltd** as the basis for a control console. This forms part of the Mark 2 version for STC's Remote Line Test Equipment being supplied to British Telecom. We undertook a significant redevelopment of the input/output features of LIT and various other sub-assemblies, including modem and cassette drives being engineered into the case.

Logica supplied the **Netherlands PTT** with specialist software services to perform the validation of the asynchronous PAD facility of the packet switching Network Datanet 1. Together with software test programs, test scripts were developed for X25, X28 and X29 protocols.

On behalf of the **Data Communications Corporation of Korea,** Logica carried out a detailed evaluation of suppliers' proposals for the Korean national packet-switching service, and subsequently developed a detailed specification for the network.

Teleport, Logica's portable implementation of the CCITT Teletex document transfer protocol was sold to **Canadian Marconi.** This software will be used to provide teletex facilities on message switches based on the HP1000 computer and on gateways provided for PTTs.

Under a three year contract to **Australia Post,** Logica is to complete feasibility studies, project manage, develop and implement various operational and management information systems. At this time an accounts receivable system is in the development phase. A number of feasibility studies have been completed and are continuing in the operational areas.

To assist in planning for international satellite communication services the **Netherlands PTT** contracted Logica to undertake a preliminary market survey. Based on a specially designed questionnaire, the potential needs of a number of large users of telecommunications services were established and collated in a final report which will help the PTT to proceed with its planning process.

For a major Belgian communications system supplier, we conducted audits of two major network control and alarm monitoring systems projects being conducted for financial institutions. Subsequently, we were commissioned to assist in the implementation of the systems, and to provide overall project management.

A team of Logica marketing consultants and business analysts reviewed **American Bell Inc.'s** (now renamed AT&T Information Systems) various distribution strategies, targetting their small business customers and examining how ABI was implementing these strategies. Based on the findings, ABI asked Logica to build a simulator to help management to test and track distribution cost-effectiveness. Logica is also assisting ABI in the implementation, design, procedures definition and project management of a large packet switched data network. In particular, we have defined an enhanced network management facility.

We are assisting **Plessey Telecommunications** with the development of a call-logging system for installation in British Telecom inland telephone exchanges. The system is based on distributed microprocessors interfacing directly into the telephone exchange.

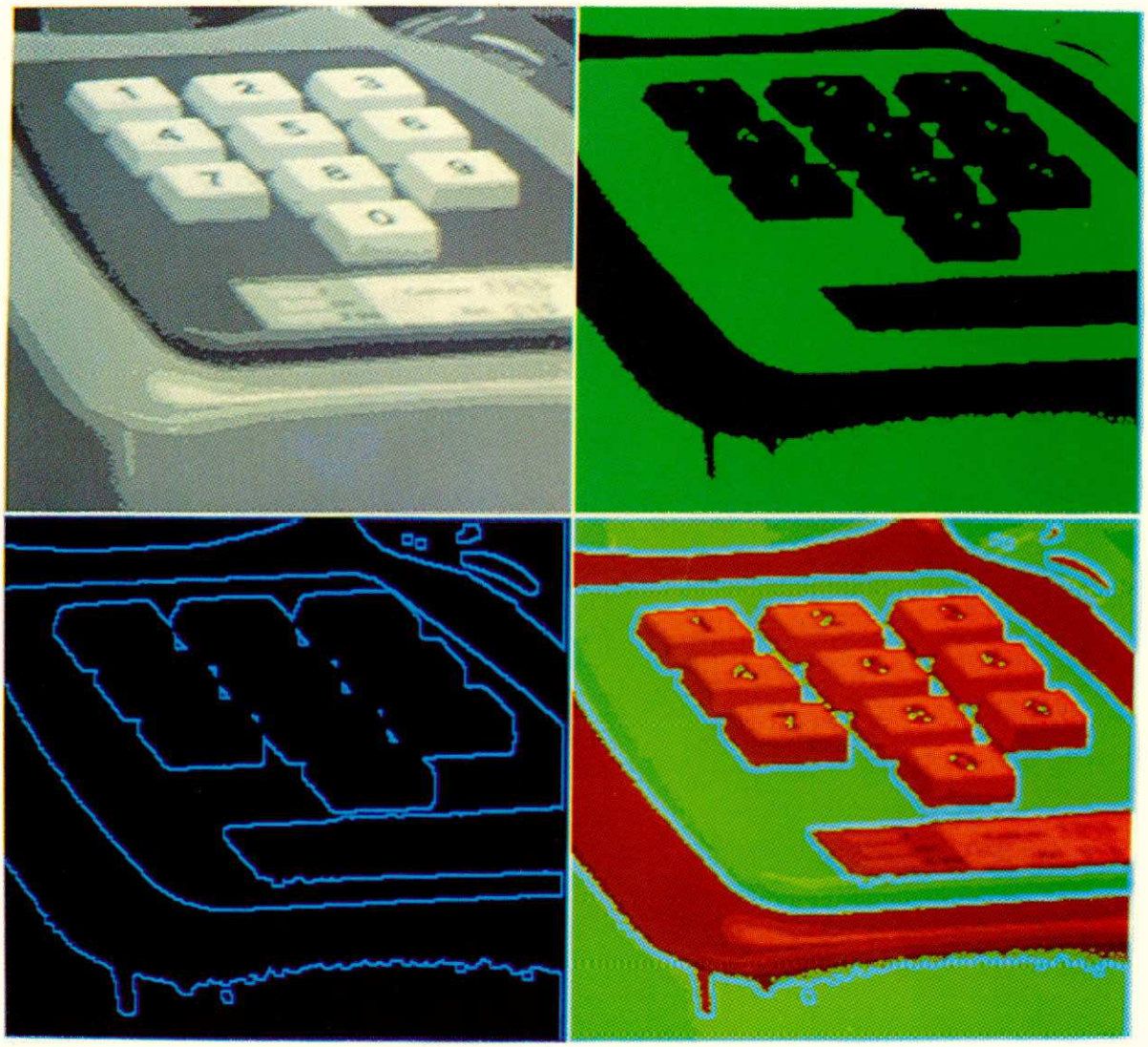
Assistance is being provided to **Pye Telecommunications** in the development of a new computer controlled mobile radio product and in the implementation of variations for Pye clients. The system uses distributed microprocessors for the computer control.

For **Postel,** a company providing information to Datavision, the National Swedish Videotex Service, Logica developed a 700 frame large database. The database, designed to serve tourists in Sweden, is the largest in Datavision.

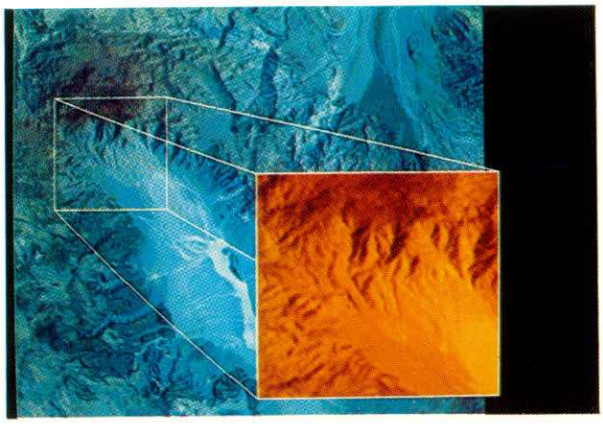
For **British Telecom** Logica carried out a consultancy project to assist in the planning and implementation of a network linking together the computers used for the development and support of operational software for System X telephone exchanges.

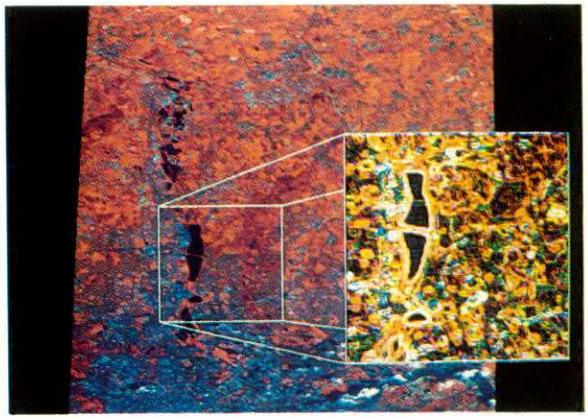
American Bell (AT&T Information Systems)/Australia Post/Australian Telecommunications Employees Association/British Telecom/ Business Telecommunications Services/Cable and Wireless/Canadian Marconi/Data Communications of Korea/Eurodata Foundation/ Hollandse Signaalapparaten/Italcable/International Telecommunications Union/Netherlands PTT/Plessey Controls/Plessey Telecommunications/Postens Kontorsrorelse/Postgirot/Pye Telecommunications/Southern Pacific Communications/ STC Telecommunications Ltd/Telecom Australia/Telic Alcatel/Telindus/UK Post Office

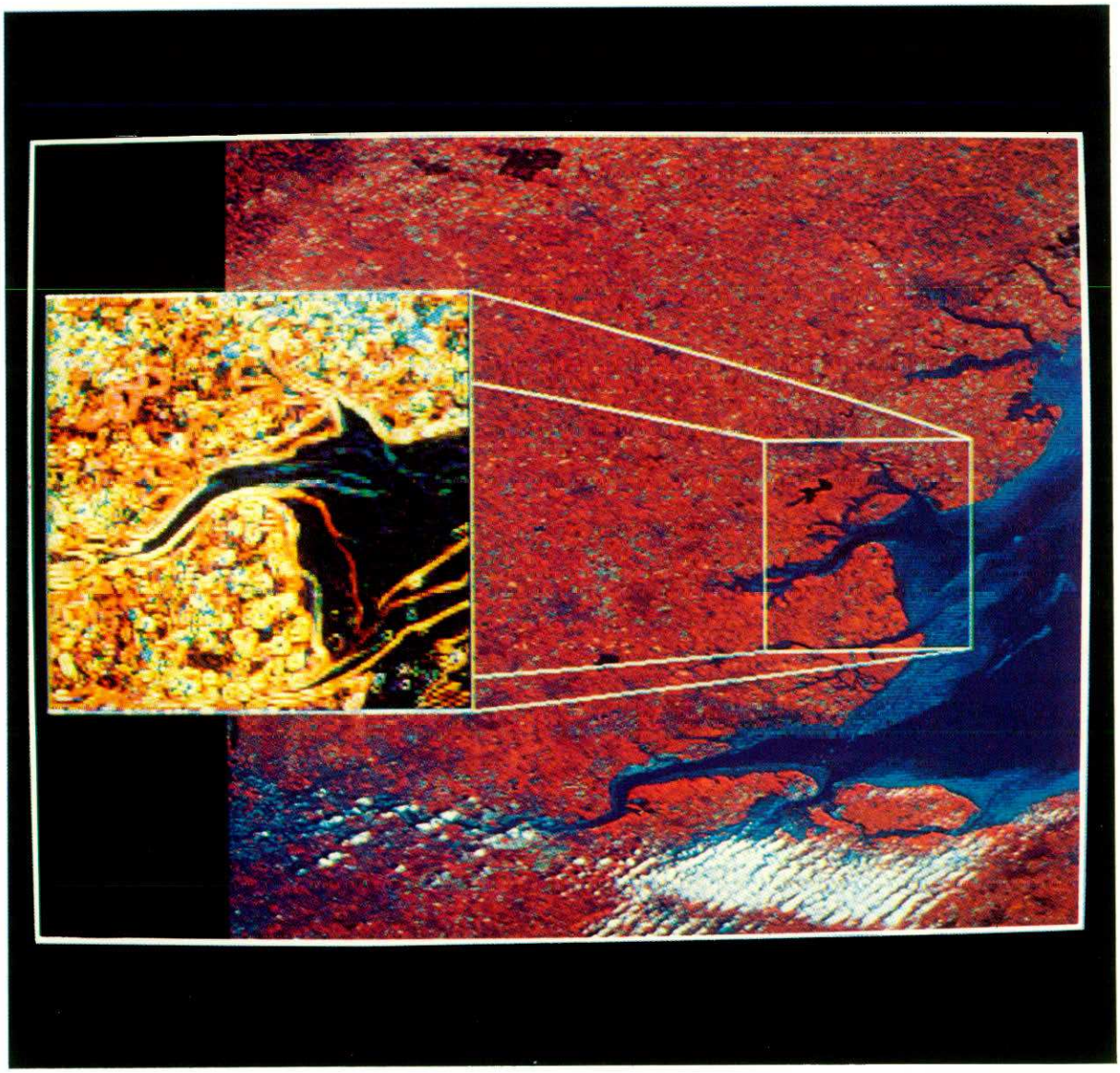
Automatic analysis of images, using Logica's image processing software package INSIGHT. The images show threshold and perimeter features superimposed using false colour.

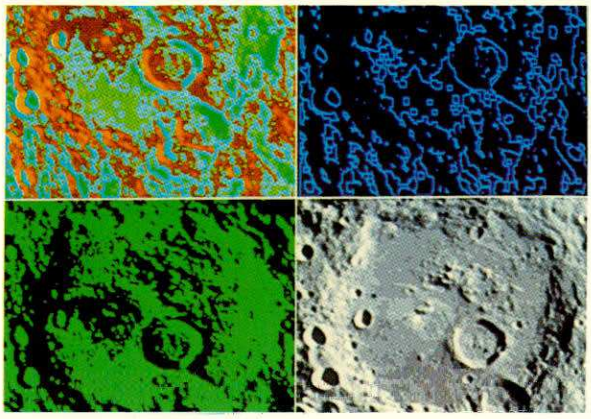


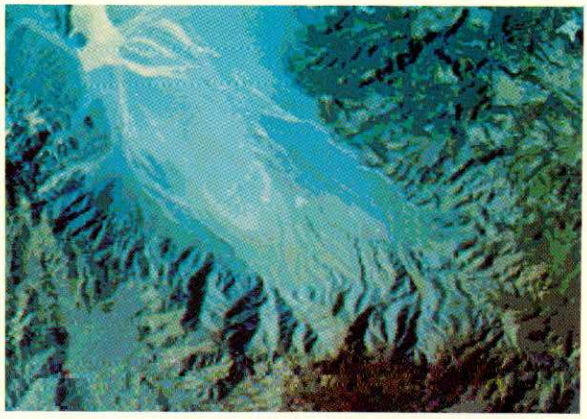
Information extraction from Landsat satellite images:
Death Valley, USA
Lea Valley Reservoir, North of London
Blackwater estuary on the West Coast of England.











Interpreting images with computers:
The Moon showing raw and interpreted images
Automatic classification of Death Valley.

BROADCASTING

The **BBC Network Production Centre** at Manchester is the first of the BBC's centres outside London to have an in-house system for digital production and transmission of stills and graphics. The Manchester centre will use FLAIR, Logica's video graphics system, to produce graphics for its full range of programmes.

FLAIR systems were sold to various video graphics production companies for the production of slides and stills. **Cal Video Graphics** is using a graphics system supplied by Logica, based on a DEC VAX 11/750 computer and using FLAIR as a drawing peripheral, to produce 3-D video animations. **Video Graffitti** is using FLAIR for production of graphics slides, commercials and industrial video.

For the **BBC External Service,** a turnkey computer system was supplied for the management and scheduling of broadcast frequencies for the World Service. This system is based on a DEC VAX 11/750 computer and uses Logica's relational database management system, RAPPORT.

A CONTEXT teletext editing and transmission system was supplied to **Swiss Television** for a German language teletext service. CONTEXT has also been sold to the **Singapore Broadcasting Company** and includes a link to the Singapore International Airport for providing a flight arrivals service on television via teletext.

The **Australian Broadcasting Commission** has purchased a CONTEXT Caption Transmission System to display captions for the hard of hearing in television broadcasts. The captions are coded as teletext, embedded in the unused part of the picture signal and transmitted with the normal picture. Viewers with television sets equipped with teletext decoders will be able to receive captions superimposed on the normal picture as required.

The **BBC** purchased several Logica Supertext Subtitling Systems. These systems are installed at the new Glasgow subtitling centre and will be used for generating subtitles to be transmitted under CEEFAX.

Australian Broadcasting Commission/Benedict Lindand/BBC/BTQ7 Brisbane Television/CAL Production/Channel 4 Television/ Ercotron/J D Audio Visual/Keycom/New Zealand Television/Osterreichischer Rundfunk/Radiotelevisione Italiana/Singapore Broadcasting Company/Swiss Television/Taft Broadcasting Company/Video Grafitti

SPACE

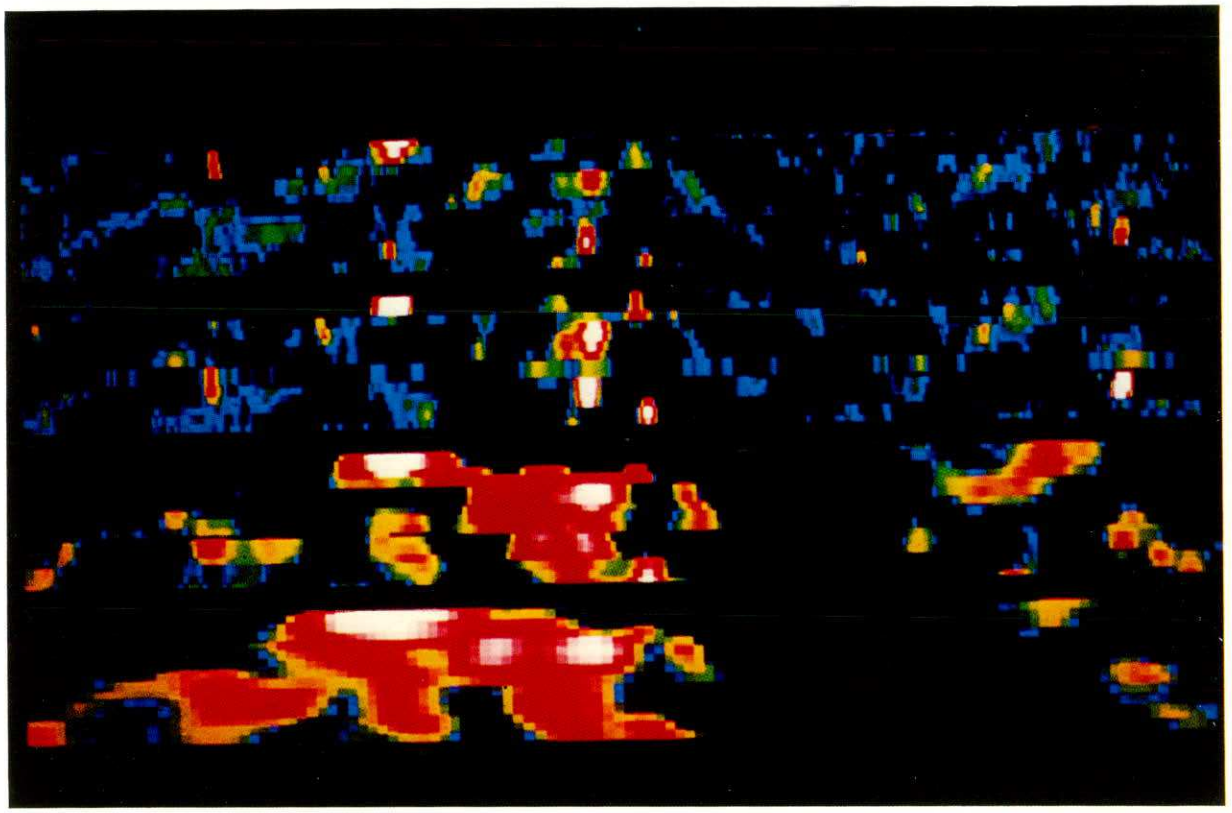
Following on from a successful study for the **European Space Agency (ESA)** which examined factors influencing the communications satellite capacity of the geostationary orbit, Logica has been awarded a contract to further extend the analysis. This involves defining satellite missions typical of those likely to be in service in the next 20 years, and analysing their impact upon orbit congestion.

Logica is to provide forecasts up to the year 2000 of maritime mobile satellite traffic, together with an indication of potential land mobile satellite traffic levels. ESA intends to use the forecasts to assist in the planning of future generations of maritime satellites operated by the **International Maritime Satellite Organisation (Inmarsat)** and in the provision of European land mobile satellite services.

During the year, work continued on a range of projects associated with ESA's **Earth Resources Satellite, ERS-1.** Under subcontract to **MDA** of **Canada** and as part of a consortium performing the definition phase of the ERS-1 remote sensing programme, Logica designed processing facilities for installation in Kiruna, Sweden. Together with Marconi and Systems Designers as subcontractors, we are working on the design of a cost-effective high throughput processor for the ERS-1 Synthetic Aperture Radar (SAR) data. This is a computer intensive task which currently takes several hours to produce a single image.

The **Hipparcos** satellite's objective is to measure the positions of 100,000 stars with unprecedented accuracy. Logica was commissioned by the MESH consortium to undertake a study of the satellite's performance relative to the accuracy requirement. This involved extensive mathematical analysis and complete simulation on-site at the MATRA, Toulouse establishment. The resulting software is now being used in four countries, and forms an integral part of the satellite design process.

Logica's association with ESA's Operations Centre in Germany, **ESOC,** continued with a contract to connect the display, telemetry and telecommanding software to new computers. Earlier in the year, the



This false colour image shows a scan in the infrared across the large Megellanic Cloud by IRAS.

conversion of the data handling software was successfully completed.

The rendezvous and docking of a spacecraft is considered of great potential importance to space programmes in the next decade. Logica is participating with **MATRA** in the development of a simulation program for ESA to aid in the design and use of rendezvous and docking systems. The orbital motions, sensors, attitude control systems and guidance strategies will be simulated.

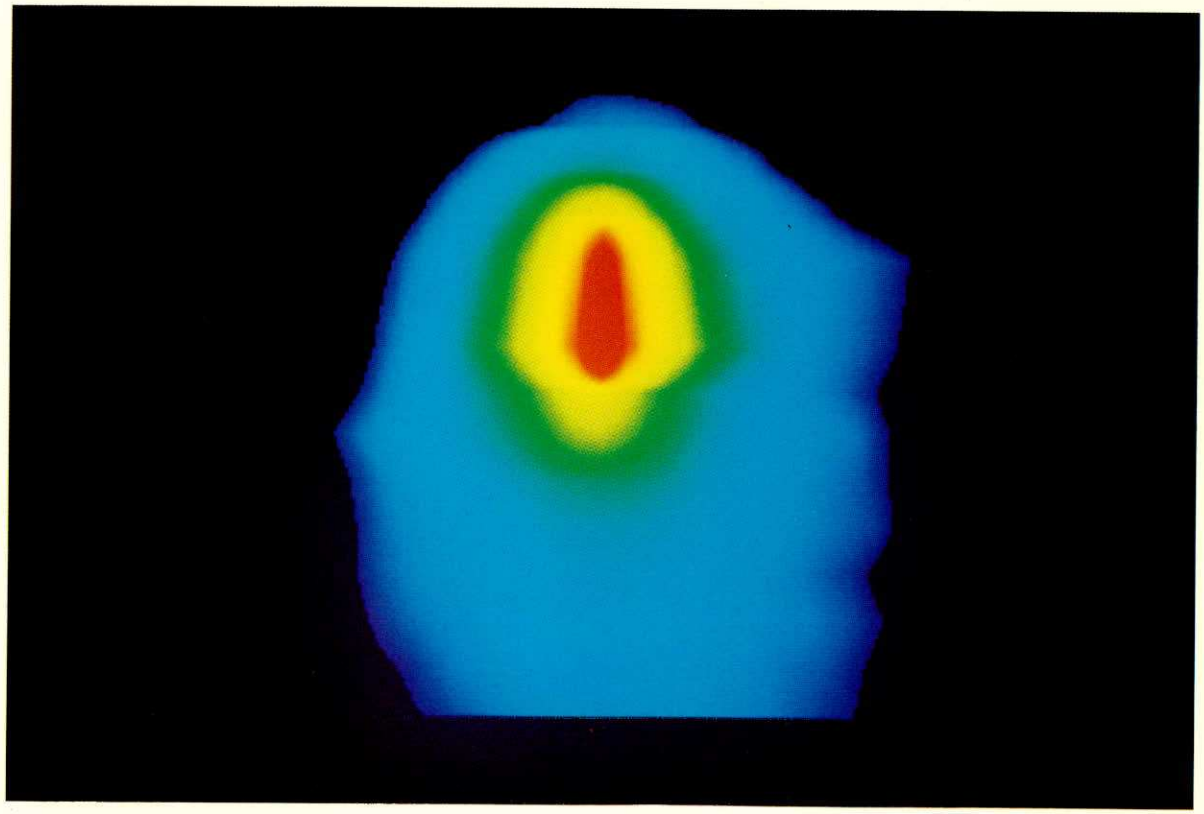
Work continues on the problems associated with the volume and quality of data to be produced by the next generation of satellites. A simulator for Synthetic Aperture Radar was operated and refined for ESA's Technical Centre in the Netherlands, **ESTEC**, for use with the ERS-1 satellite. In addition, a two year programme for the development of data compression algorithms was completed.

Throughout the year Logica worked within a consortium to produce flight dynamics software for the satellite **EXOSAT**, which was launched on 26 May 1983. Additional work in this area involved the adaptation of ESA's flight dynamics software to the new SEL 32/77 computer, in time for the launch of the **ECS-1** satellite on 16 June 1983.

For the **ERS-1** satellite, a study was carried out to analyse the requirement for data storage, processing and communications in support of the project management of the satellite in its development and integration phases.

ESA's research establishment at Noordwijk in the Netherlands installed Logica's INSIGHT image processing software package. INSIGHT is being used for the development of advanced image data reduction techniques for use in the transmission of images from satellites to ground stations.

British Aerospace/British Telecom International/CEC (Japan)/European Space Agency/Ferranti/Hunting Technical Services/Inmarsat/ Intelsat/MacDonald Detwiler Associates/Matra Espace/MBP/Messerschmitt Bolkow Bloehm/Natural Environment Research Council/ TRW Space Division/UK Department of Trade and Industry



This is one of the first infrared images of a comet ever returned from space. It shows the coma of the IRAS-Araki-Alcock comet and was made by the IRAS satellite on 8 May 1983. The picture covers a region about the same size as the Earth. False colour.

DEFENCE

Logica is providing systems support to the **UK Royal Signals and Radar Establishment (RSRE)** in the development of a sophisticated air defence simulation facility. The project concerns the evaluation of operational and technical aspects of a proposed command, control and communications system through the use of real-time software models.

Logica is collaborating with UK suppliers in the design and development of wide area communications systems for the UK Ministry of Defence. For the **Navy,** we completed studies of a nationwide telegraph message switching system and the modernisation of a major telephone network. We are also subcontractor to GEC Telecommunications in the supply to the **Royal Air Force** of a strategic digital network known as UNITER.

For **MOD PE,** we studied the feasibility of measuring aircraft attitude angles based on video images. Using Logica's INSIGHT image processing software package, a simulated aircraft image was produced and used to demonstrate accuracies in attitude measurement of the order of 5 degrees.

Logica is to assist **Hollandse Signaalapparaten BV** in the specification and design of an advanced artillery battery command and control system. The system will provide ballistic calculation facilities as well as tactical decision support to the commanders of artillery departments and batteries.

The **UK Royal Armament Research and Development Establishment (RARDE)** carries out studies of future battlefield operations. Logica has assisted in a wide range of technical activities such as the development of the computer support for Divisional level studies, including the Divisional War Game. We have assisted in the creation of a facility for demonstrating the worth of prospective battlefield ADP sub-systems and in the development of a design methodology aimed at improving the ease with which large computer models may be specified, designed and modified in a long changeable life cycle using Ada as the target language.

A project for **RSRE** involved a detailed study of contrast expansion techniques suitable for application to infrared imagery. The work resulted in the design and manufacture of an image processing unit capable of real-time operation on data presented at video frame rates.

Over several years the company has assisted initially Marconi Space and Defence Systems and now **Marconi Underwater Systems** in the development of advanced computer controlled torpedo systems. During the development of Sting Ray, a light weight air-launched torpedo, we assisted in the production of on-board software, simulations and test facilities. We have also been involved in the development of Spear Fish, a new generation heavyweight torpedo.

The 'Goddess' Ship Design System allows the **Ship Department** of the **UK Ministry of Defence** to formulate new designs and to evaluate performance and safety of surface ships and submarines. Logica is providing design and implementation assistance for this advanced interactive system.

On behalf of the **Admiralty Underwater Weapons Establishment,** we have undertaken a study to assess infrared remote sensing instruments for use in sea-surface temperature measurements.

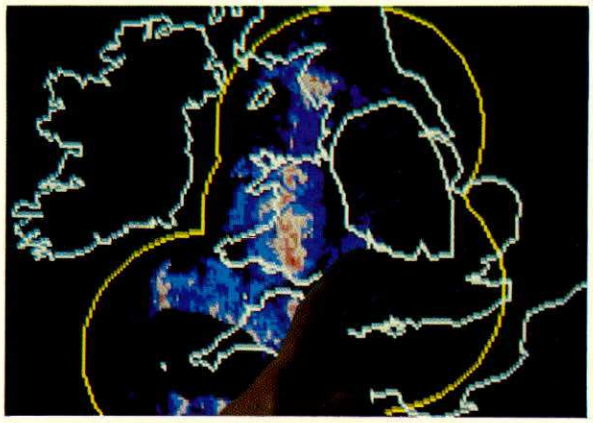
For **Westland Helicopters,** we are assisting in the development of simulators for the design of the Sea King replacement. The aircraft is being designed to fulfil anti-submarine warfare roles for both the Royal Navy and Italian Navy.

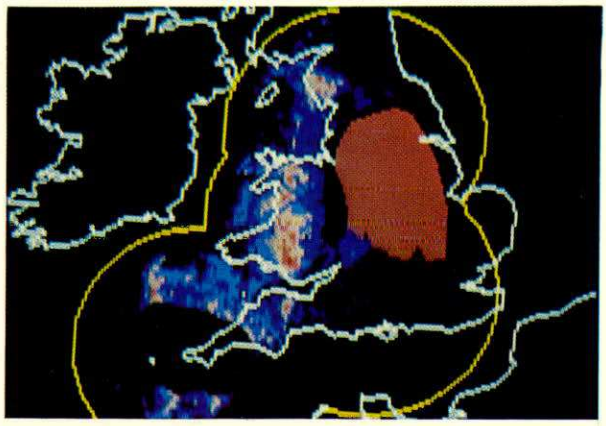
As a member of international groupings, we are involved in the three major **NATO** ADP and communications projects, giving us a unique position in the UK software industry. Logica is a founder member of the joint venture company Airspace Management Systems SA for the **ACCS** (Air Command and Control System). For the **ACE ACCIS** (Allied Command Europe: Automated Command and Control Information System), our consortium is developing the chosen architecture into design specifications. In another consortium we are supporting studies in the evolution of the **NICS** (NATO Integrated Communications System).

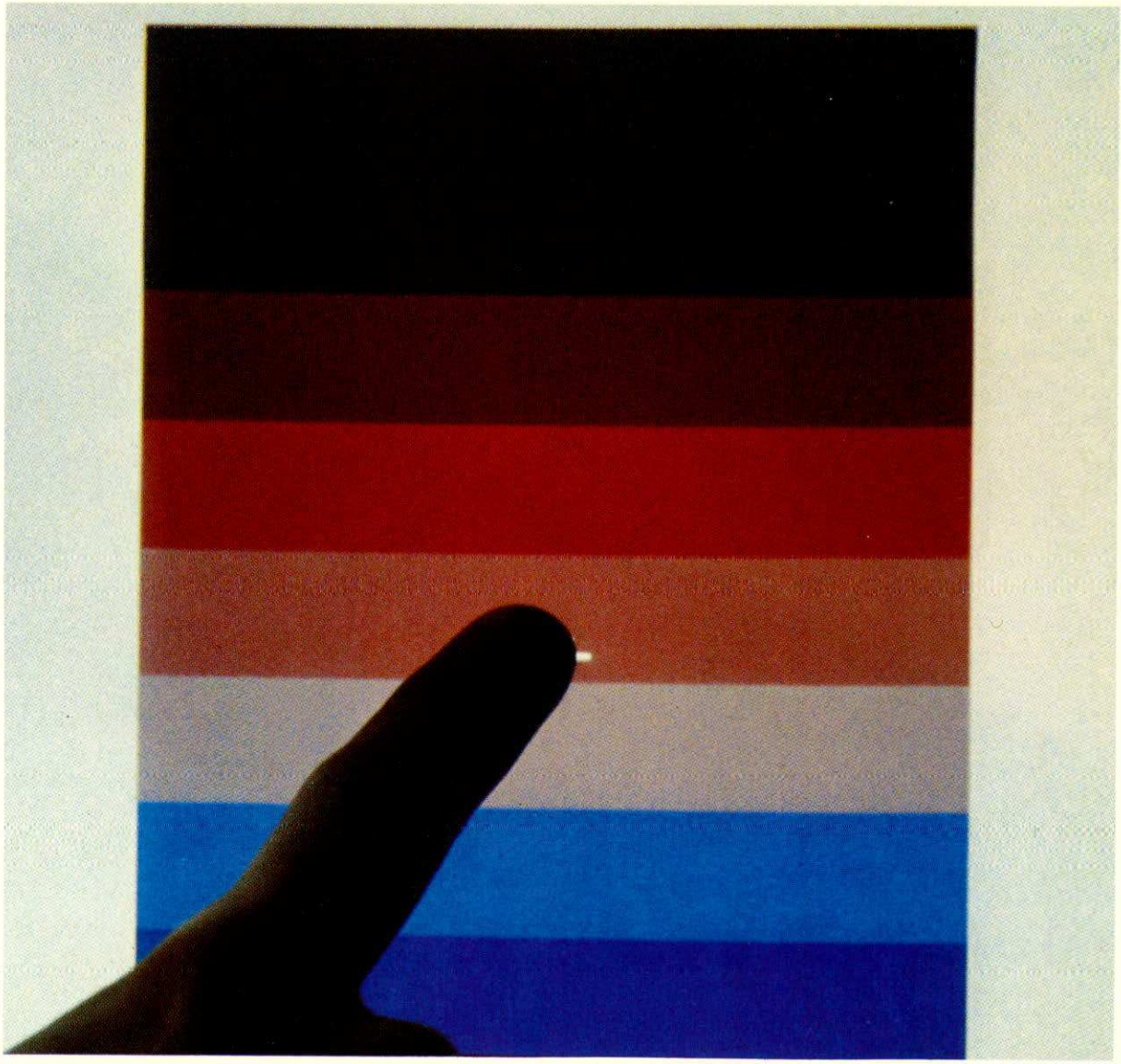
Logica completed a demanding development contract for the **UK MoD Procurement Executive** concerning a local area network (LAN) to connect a variety of computer equipment. The MoD have subsequently awarded us a contract for the limited production of these LAN systems.

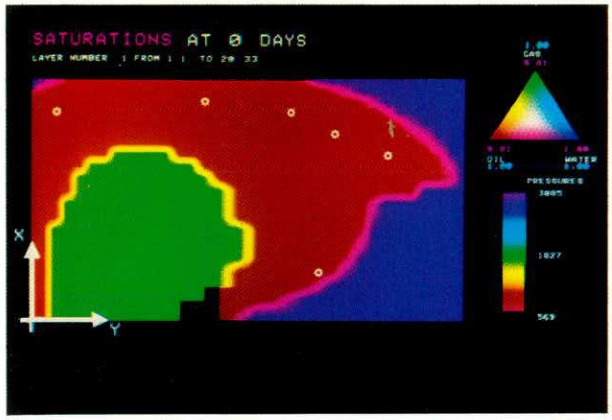
British Aerospace/GEC Telecommunications/Hollandse Signaalapparaten BV/Koninklijke Landmacht/Marconi/NATO/Plessey/UK Ministry of Defence/Westland Helicopters

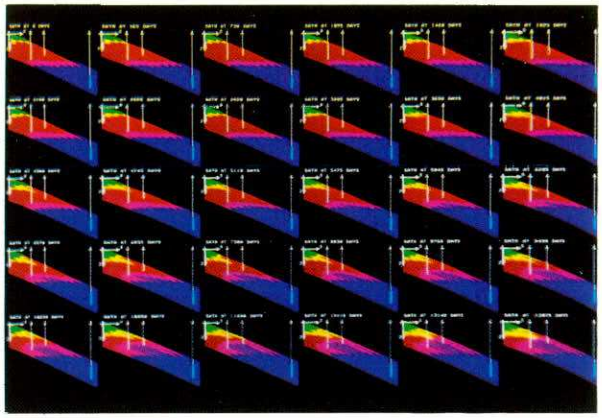
The FRONTIERS interactive display system developed by Logica and completed in 1983, will enable the UK Meteorological Office to use weather radars to improve the accuracy of short period rainfall forecasts. The system allows the forecaster to use his own experience to improve on the computer predictions. This is done by drawing onto the TV screen using only the finger.











Computer simulation plays an increasingly vital role in the engineering evaluation of subterranean hydrocarbon reservoirs. The first picture shows how computer models are used to compare alternate schemes for hydrocarbon production in terms of well type, location and offtake/ injection rates. Well location circles are shown draining oil reservoir (red) surrounded and underlain by original aquifer (blue), and overlain by a gas cap (green).

The second picture illustrates these cross-sections through the reservoir at various times in its life, showing 38 years of production bypassing reserves, by water (blue) and gas (green) encroachment. This residual oil (red) becomes the target for an enhanced recovery project.

ENERGY AND UTILITIES

For **BP International** Logica was awarded a study contract to define an international communications strategy, a statistical multiplexer network and an office automation strategy. Subsequently we were awarded contracts to assist with the implementation of the BPLINK International Network, and the telex network upgrade for the London office.

For **Occidental,** we provided support in the implementation of a reservoir management information system. This included the task of familiarisation with the Focus database package on IBM 4341. Additional facilities were developed in Fortran to provide a user interface to the Focus package.

Following completion of an extensive specification exercise, we are developing an on-line, transient simulation system for the **NV Nederlandse Gasunie** pipeline network. This system incorporates a load forecasting model to predict gas usage by Gasunie's customers. Applications include state estimation, leak detection, fuel use optimisation and training. The system is closely integrated with Gasunie's supervisory control system, previously supplied by Logica.

Severn Trent Water Authority awarded a contract to Logica for the provision of specialist data processing resources to assist with major systems development and implementation based upon ICL 2900 equipment. We are also undertaking the design and software implementation of the Authority's Shropshire Groundwater Scheme which will assist with meeting water supply demands into the next century.

For **Shell International Petroleum Company,** Logica continued to provide development support for two major simulation systems. The simulations relate to the modelling of distribution activities covering both land and sea applications.

We were commissioned by **Rotterdam-Rijn-Pijpleiding** to modify the extensive control system for its crude and oil product pipeline between Europoort and West Germany. The modifications became necessary as a result of changing operational requirements and the closure of one of its customer's refineries in West Germany.

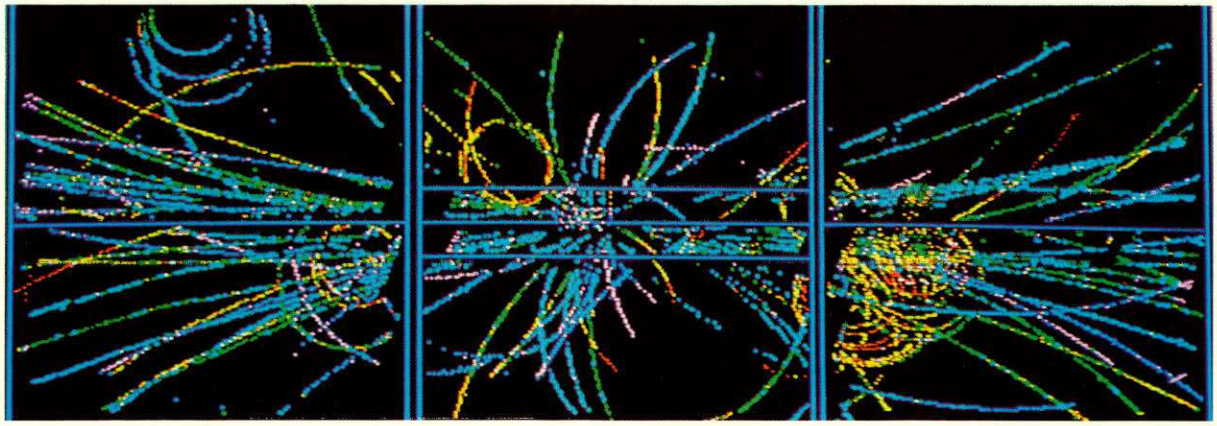
For **Shell UK Exploration and Production** London, Logica completed the support work for the Brent platform supervisory systems and delivered a new software system for the Fulmar platform. We also commenced development of a system for the North Cormorant platform on Ferranti Argus 700 computers using the PMS display package and Coral. In Aberdeen, we carried out support and maintenance activities for Shell's/Esso's operational North Sea platform SCADA systems and undertook a number of feasibility studies into ways of enhancing the effectiveness of these systems.

Logica was involved in the design and development of a number of experimental data acquisition and processing systems for the **Koninklijke Shell Exploratie en Produktie Laboratorium.** One system involved the monitoring of data on the performance of operations at a drilling rig. A second system related to the monitoring of a specially instrumented experimental riser joint for offshore drilling and completion operations. A third system was built to monitor model experiments on propped hydraulic fractures in gas wells.

Logica completed a major fixed price, fixed time project for the **South East Queensland Electricity Board (SEQEB).** The total management information system incorporated some 39 unique application systems using a network of 350 devices in 63 locations. The contract was won in conjunction

In particle physics the most important event of decades was the observation at CERN of the 'W' intermediate vector boson. Observation of this particle provided confirmation of earlier theory linking electromagnetism and the weak nuclear force.

Computer reconstruction of charged particle tracks emerging from a proton-antiproton collision in the UA1 experiment at CERN, Geneva. The kinetic energy of the colliding particles is converted into matter which manifests itself as many particles leaving the collision point. This was how the 'W' boson was first observed in December 1982.



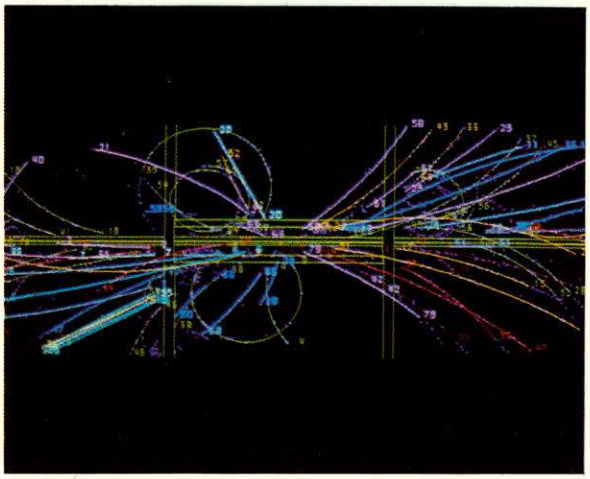
with FACOM Australia and involved the development of some 600 on-line and 135 batch programs. A feature of the system is the use of a fully integrated database.

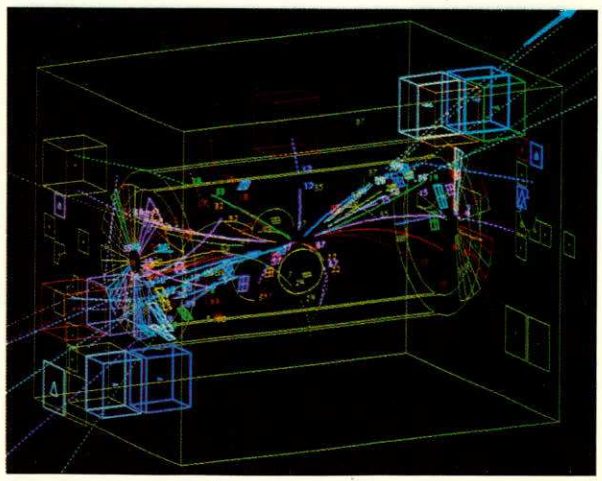
For **Shell Nederland Chemie**, we defined a strategy to replace and extend the control functions related to petrochemical product pipelines between various plants in the Europoort region and customer sites. The study evaluated existing and proposed alternative systems, identified operational requirements, costs and timescales.

A completely on-line personnel records system for more than 11,000 employees was developed for the **Electricity Commission of New South Wales.** Logica had project responsibility for the specification, design and implementation of the system.

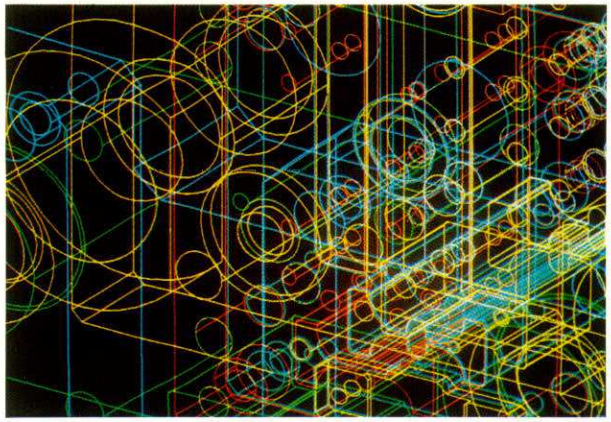
BP Coal/BP International/Electricity Commission of NSW/ENEL/Esso Nederland/Minnesota Power/National Coal Board/ Nederlandse Aardolie Mij/NV Nederlandse Gasunie/Occidental/Praxis Instruments/Rotterdam-Rijn-Pijpleiding Mij/ Severn Trent Water Authority/Shell International Petroleum Mij/Shell UK Exploration and Production/Shell Nederland Chemie/ South East Queensland Electricity Board/Wales Gas/West Midlands Gas/Western Geophysical

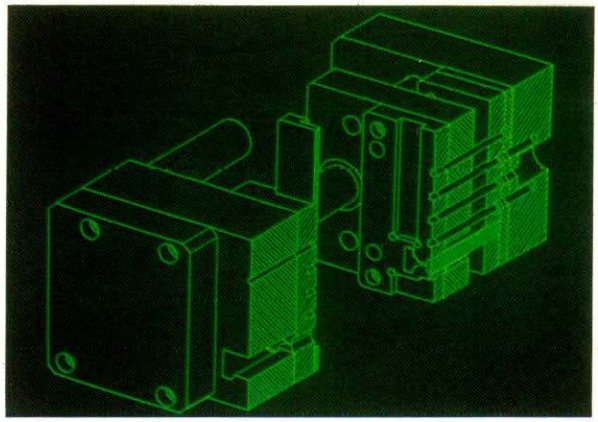
Two further reconstructions of proton-antiproton collisions as produced in the UA1 experiment at CERN. The events are displayed here on an interactive display system, which allows rotation and zoom and thereby investigation of details of the collision by physicists involved in the experiment.





A punch/die set designed on a CAM-X computer aided engineering system. Using a solid modeller module ambiguous edge detail (left) can be removed automatically to reveal a clear section view (right).





MANUFACTURING, RETAIL AND TRANSPORT

Logica was engaged by **Ainsworth Consolidated Industries** to project manage the implementation of an on-line manufacturing, management and control package. The interface to accounting and operational modules was specified, developed and implemented for this manufacturer whose products are supplied worldwide.

Logica was commissioned by the **San Francisco Bay Area Rapid Transit District (BART)** to assist in developing its new Integrated Control System (ICS). ICS will use station-level microcomputers to monitor and control train progress. These microcomputers will communicate with a new central system to provide a graphic display of the BART network status for duty controllers. The new system will allow BART to run more trains on the network than the current system, almost doubling capacity.

For **Laporte Industries Ltd,** we carried out a study into the economic and technical feasibility of the implementation of microprocessor-based control for an updated natural earth's processing plant.

Logica was commissioned by the **Philips Light Company** to develop a compiler system to be used in the production of electric light bulbs. The system enables the production engineers to produce software for controlling a number of fabrication and monitoring devices.

For **London Transport** we are designing a comprehensive on-line computer system for the scheduling of track and equipment maintenance on the Underground system.

For **Lockheed California Company,** Logica investigated how best to commercialise worldwide some very powerful applications software which Lockheed had developed to meet its complex material planning, purchasing, and inventory control requirements. We identified some highly attractive customer segments where Lockheed's software had a competitive advantage and then worked jointly with Lockheed to develop a business case which was presented to senior management for approval.

Logica is performing an in-depth study of international communications for **Ford Motor Company.** The study will assist Ford in developing short term network solutions and a long term communications strategy. It is being conducted by an international team of Logica and Ford staff and is being coordinated through Logica offices in the US, UK and Australia.

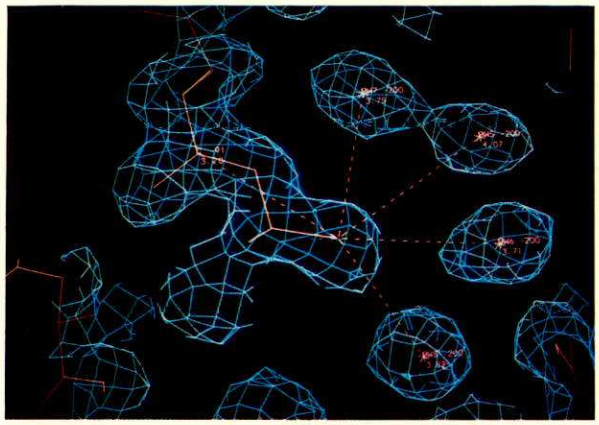
The company assisted **Medtronic BV** in the design and development of software to automatically test a new generation of advanced heart pacemakers. The system is used both for quality assurance of production floor output and for design testing of new pacemaker circuits.

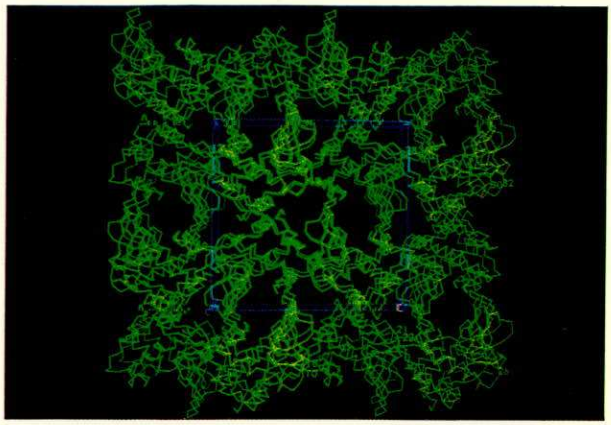
Logica supplied a quality control system to **PD Magnetics,** the Dutch magnetic tape manufacturer. The system maintains quality information on all stages of tape production, allowing access by reports and a standard statistics package.

Agfa Gevaert NV/Amalgamated Metals Corporation/Australian Consumers Association/BOSCOM/Chemspray/E I Dupont de Nemours & Co/ETAP/European Container Terminus/Jardine, Matheson & Co/GEC Traffic Automation/General Electric Ordnance/ Goodyear Tyre and Rubber (Australia) Ltd/Heineken/Hoogovens/Interpharm/KLM/Laporte Industries Ltd/London Transport/ Mannesmann Demag/Monsanto/Otis Elevator Co Pty/Rank Xerox/Transpotech/Unilever/Union Carbide/Volvo Car Produktie/Willem II Sigarenfabrieken/Wilmot Express

Computer analysis has been essential to the vital discoveries in molecular biophysics during the past two decades, such as the strict use of DNA. These images come from the continuing analysis of protein structures. The first picture shows the electron density of water molecules around a residue in the protein lysozyme, with the atomic model represented in pink.

The second picture shows the packing of lysozyme molecules in the protein crystal using the perspective capabilities of an interactive graphics system.





COMPUTING AND ELECTRONICS

For **Docdata,** a Dutch company developing a high density optical cassette device for mass storage, Logica developed and tested algorithms for a redundancy circuit. This circuit can correct data error and reconstruct data-bits lost when some laser detectors in a long array might be inoperative.

For the **Computable Informatica Seminars** publishing house, we designed and presented a number of one-day public seminars on different communications aspects including packet switching.

Logica prepared a project plan for **Ericsson Information Systems (EIS)** to port EIS communications software for clustered terminal systems into the new generation of microcomputer systems. We also undertook management of the technical implementation for the SNA software.

Logica continued to enhance its reputation as one of the world's leading authorities on information processing markets in Europe. We worked on tailored studies in such diverse product markets as superminis, specialised message switches, 3270 terminals, point-of-sale terminals, personal computer software, electronic typewriters and microwave equipment. Clients for these market studies included **AT&T, L M Ericsson, ICL, IBM, Siemens** and **Xerox.**

As subcontractor to **Philips,** we extended a feasibility study of a European electronics components database by preparing detailed short term development plans and presenting these at a workshop for senior industry representatives, organised by the Commission of the European Communities.

Logica is assisting a major French manufacturer of display terminals in the development of a new range of integrated telecommunications products.

We carried out a study for **L M Ericsson** on the benefits to be gained from the use of videotex. The study reviewed the requirements for internal use and for providing information to clients.

Logica is working with the marketing and technical staff of **Marconi Instruments,** a major supplier of ATE systems, to specify a computer-based link between various CAD systems and Marconi's ATE system.

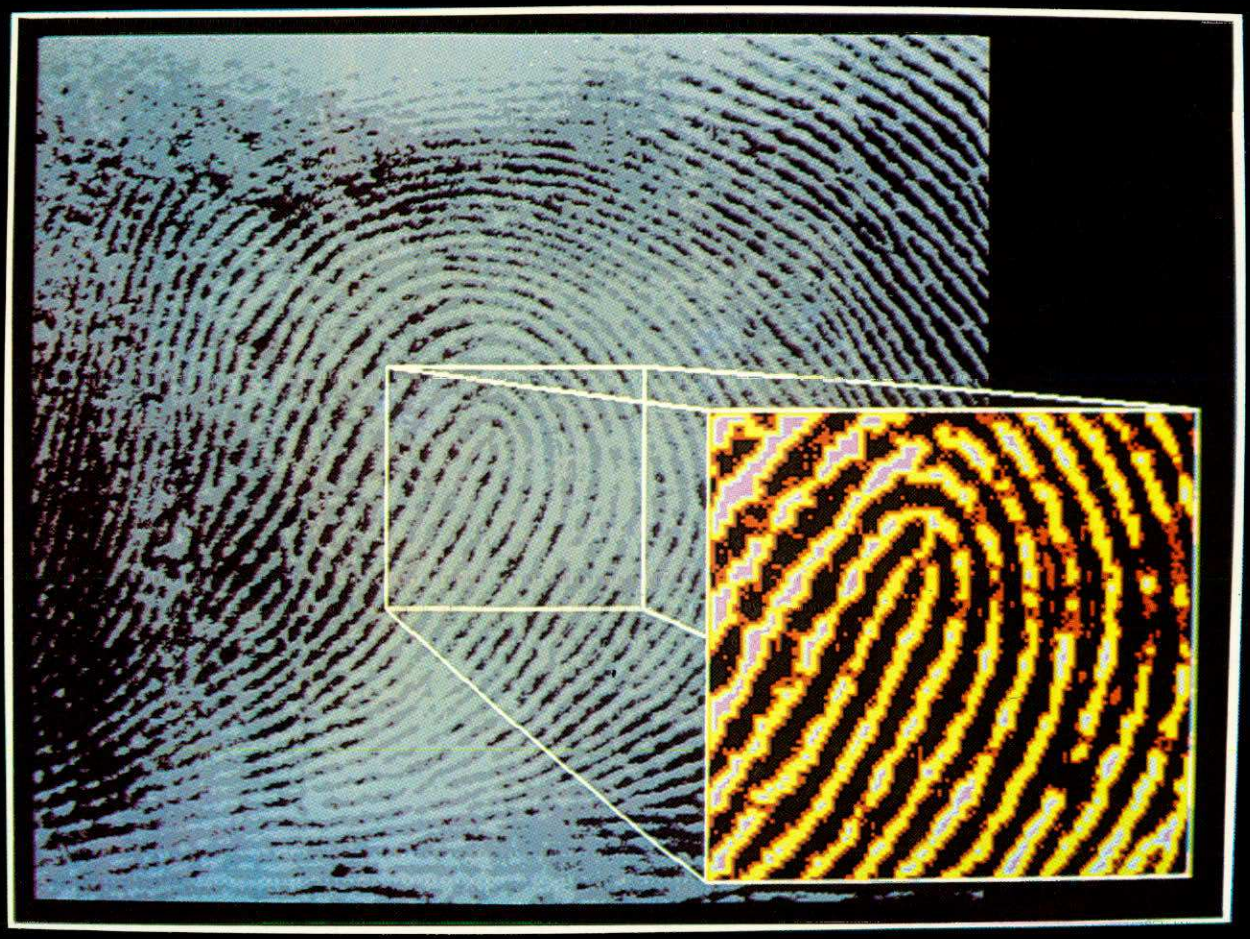
For a major telecommunications equipment and electronics manufacturer, we are providing project management consultancy and implementation support for the development of a new network product range.

As part of the **Telematica Service,** Logica published a series of multi-client reports on European information technology markets. These contain detailed forecasts of the installed base and shipments of a wide variety of office systems, data terminals, networking equipment and data connections in 17 countries of Western Europe until 1987.

We are assisting **Pye Unicam** with the development of a number of sophisticated scientific instruments. In particular the work involves the development of microprocessor software for instrument control.

BICC/Computer Technology Limited/Digital Equipment Corporation/Digital Research/Ferranti Computer Systems/Foxboro Company/IBM/ICL/L M Ericsson/M/A COM DCC/Marconi Instruments/Micom/Neve Electronics/Office Technology Limited/Perkin-Elmer Data Systems/Philips Data Systems/Philips Medical Systems/Philips Telecommunicatie Industrie/Plessey Telecommunications/ Stromberg Carlson/Tylus Systems

Edge information extracted from a fingerprint image.



CENTRAL AND LOCAL GOVERNMENT

Logica carried out a detailed planning and design study in relation to the introduction of computer-based management information and communication systems for the **Australian Federal Police.** Further applications are currently being developed with data being processed on-line in several locations throughout Australia.

For the **Stockholm County Council,** we undertook the development of a data communications strategy for the next five years, based upon a policy decision to distribute data processing to local sites. The county council is the largest employer in the Stockholm region with more than 60,000 employees.

Logica is prime contractor to the **Greater Manchester Police** for the supply of a computerised criminal record and message switching sytem together with the associated data network equipment. The system utilises Tandem Non Stop II computers, Codex communications equipment and Lynwood terminals. A Tandem system has been installed in Manchester with specially developed software for the conversion of existing records.

For the **Australian Patent, Trade Marks and Designs Office,** we defined a systems strategy and implementation plan for the integrated use of computers in searching, administration and publication. The study lays the foundations for the storage and retrieval of digitised images, the extended on-line searching of the international patent literature and ultimately large scale records management. Comprehensive public access is a feature of the strategy.

Logica was commissioned by **London's Metropolitan Police Force** to investigate requirements for planned and potential telecommunications applications. We developed a strategy for a common user data network for the Force that supports the Command and Control System as well as other operational and administrative systems.

The **UK Foreign and Commonwealth Office** is developing a comprehensive system offering office automation, electronic mail and information retrieval facilities to its home departments. Logica is providing technical and management support to the project. The system, which will interconnect around 1500 terminals via fibre optic local area networks, represents one of the most advanced developments of its kind in the UK.

Logica continued to work on a number of projects for the **Commission of the European Communities.** One project involved a major study of security requirements for the planned **Inter-Institutional Integrated Services Information System (INSIS).** A second, conducted in association with the UK Paper and Board, Printing and Packaging Industries Research Association (PIRA), was concerned with establishing user requirements and corresponding equipment availability for hard copy delivery of documents from electronic full-text document storage and retrieval systems.

We were retained by the **Charing Cross** and **Westminster Medical Schools** to firstly investigate the feasibility of a Remote Teaching System and subsequently to produce a specification. This system will enable users on several sites to participate in the same lecture, seminar or meeting using fibre optic links between sites to provide full two-way audio visual communication, and is indicative of the UK's use of fibre optic techniques.

A technically advanced **UK Central Government Department** awarded Logica one of two parallel design studies for a high performance, high reliability message handling system. The two studies were followed by a competitive tendering process for the fixed price turnkey contract. Logica won the multi-million pound contract based on Tandem computers. A significant design feature of this classified application is the use of FASTRX, Logica's communications software package.

A Logica consultant was assigned full time for the year to the Department of Trade and Industry (DTI) FOCUS committee advising on data communications standards, and helping to develop the DTI's 'intercept' strategy in this area.

Australian Department of Employment and Industrial Relations/Australian Department of Immigration and Ethnic Affairs/ Australian Department of The Parliamentary Library/CCTA/Commission of the European Communities/Computer Centrum Limburg/ Crown Agents/European Parliament/Gemeente Energie Bedrijf (Rotterdam)/Rijkswaterstaat/UK Department of Health and Social Security/UK Department of Trade and Industry/UK Foreign and Commonwealth Office/UK Home Office/UK Science and Engineering Research Council

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Royal Observatory, Edinburgh

Rutherford Appleton Laboratory

University College Hospital, Department of Medical Physics

University of Bath, School of Engineering

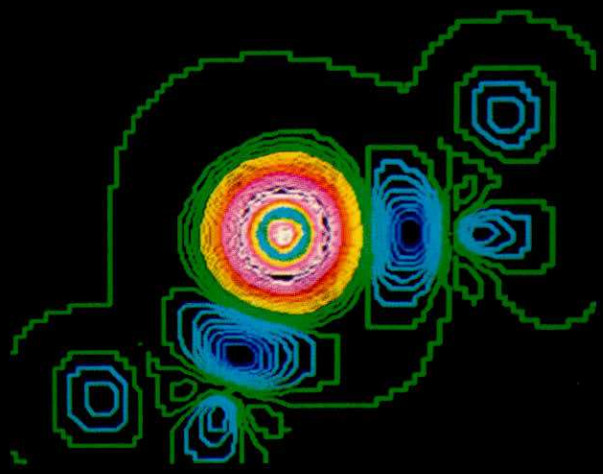
University of Oxford, Department of Nuclear Physics

University of Oxford, Laboratory of Molecular Biophysics

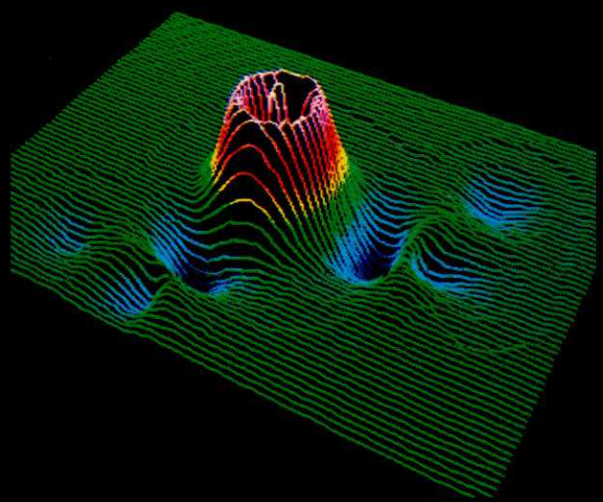
The images on pages 23, 24, 25 and 34 were generated using Logica's INSIGHT image processing software.

Designed by James Sutton FSIAD
Gabriella Le Grazie
Printed in the UK by CTD Printers Ltd.
Produced by Logica Public Relations Department

A contour map showing differences in electron density distribution between two similar substances. The different colours show levels of density and where the differences in chemical activity occur. The calculations were done on a DEC 2060 computer and displayed on a DEC PDP 11/34 computer.



This is the same image as above but shown as a three dimensional plot.



A computer reconstruction of serial sections of optic nerve fibres (yellow dots) of a Xenopus tadpole.