PLASMON DATA SYSTEMS of

Melbourn, Cambridgeshire, has

developed an optical data

recording medium called Moth

Eve. It is the first British

ment makers, are "likely to be

about \$25 a disk in 1986, and

Eye resembles the multi-faceted

cornea of a moth. The medium

Its main feature is ease of

already developed for compact long time.

tion moulding techniques

audio and video disk manufac-

ture. It uses no exotic

November 1984 and pilot pro-

130 mm in diameter, giving a

bytes, depending on the record-

ing technique. (A megabyte

equivalent to about 30 solid

text pages of the Financial

Optical recording, because it

The potential market for the

makes extremely small marks

tional magnetic recording.

and ignore the old ones.

bonus.

An innovative outlook has spearheaded

our tripling of total group funds, in just six

remarkable dividend growth record of over

was the number one performer in the City

Growth League over the decade 1975-1985

Could be one of your better ideas if you

(Management Today, August 1985).

found out more about us.

years, to over £3 billion in 1984, and our

Initially, the disks will be

capacity of 300 to 600 mega- panies.

duction has just started.

materials such as tellurium,

to drop below \$12 by 1970."

erasable version.

Prices, in volume to equip-

company to enter the neid.

Moth Eye for

the record

Under the microscope, the and several Japanese com-

unrecorded surface of Moth panies are developing erasable

is non-erasable, although the plant in Germany recently said

company is working on an BM had optical research pro-

production, using plastic injec- storage, magnetic recording

systems, which can degrade. system in Europe while

Engineering samples in disk Thomson CSF has supplied

form have been delivered to units to Integrated Automation

potential customers since for the US Library of Congress.

is a million characters and is Storage International are al.

Pilot production has

just started of a new

optical data recording

medium, Geoffrey

Charlish reports

systems. IBM takes a neutral

view. Its Mainz magnetic disk

grammes. But it is thought that

for conventional computer

would remain dominant for a

The optical market is already

beginning to look crowded.

Philips has banking and news-

paper orders for its Megadoc

Hitachi, Toshiba, Sony and

Matsushita are all active in

Japan and systems have been

supplied to telephone com-

Kodak, RCA and Optical

active. Drexler, for example,

has licensed more than 20 large

Physical Laboratory.

Even in normal interactive wave absorber is another egg- the on and off changes.

in archival and semi-archival way to the inside of acoustic information.

erasable, is thought to be large egg box. It acts in a similar turn can represent any kind of

Plasmon employed PA Tech-

which have so far been non- surface looks rather like an represent digital data, which in in a vacuum.

on the medium with a laser nology, also of Melbourn, to laser on and off extremely as a mould in injection mould-

beam, can put 40 times more develop Moth Eye and aspects rapidly as the disk rotates, ing machines to produce poly-

data on a disk than conven- of the work are the subject digital data is recorded in the carbonate disks at the rate of

the huge capacity will allow sions of the many pyramids are from a master, rather like samples have been made.

gamon Press in Britain.

## Innovation from a hostile sea

self-sufficiency in oil during the early 1970s marked the start of Mark Meredith looks at how the scramble for series of specialised technological developments de. UK oil self-sufficiency forged an alliance between and hostile waters surrounding deeply conservative oilmen and the electronics the country's offshore wells.

Much of that technology is unique and has set the pace for such other offshore developfewer people required to face platform. the unfriendly offshore conditions.

But while electronics was quickly adopted for use in some industries, it has not had an

easy ride offshore. The two big industries, oil

shore drilling rigs and oil platforms show this transformation. The electronics in the early seventies were established but not in time to figure in the offshore control systems and instrumentations. Most of these on early platforms were electromechanical and control rooms had entire walls covered with lights and switches.

Scanning electron microscope

picture of bits on the disk

surface at 10,000 times magni-

In its work on erasible sur- demand up to the second half faces, Plasmon will continue to of 1986. By then, says the comstructures are today highly and planning. Working dia- the costs. Again control systems applications where the informa- test room, where giant egg To read the disk, another use similar techniques to couple pany, a purpose-built plant will computerised. Electronics on grams of the pipework on will operate unmanned seabed Conoco's tension leg platform a platform can be stored and floor absorb the sound. Micro- a light sensitive device reads erasible medium based on prin- In addition, the company has in the Hutton field monitor and amended in a computer dataciples of altering magnetised a joint venture agreement with reducing a wall full of alarm thousand drawings. The commanufacture and marketing in signals to a flashing indicator puter is likely to spot a poten- tankers which will plug into a users simply to re-write records arranged to absorb particular gramophone records. The pilot plant at Melbourn Japan. The unit will also proon a screen plus an analysis of tial collision between two pipe wellhead and take on oil. radio wavelengths in radar. master starts as a glass disk is capable of 10,000 disks a vide a second source for the the trouble and often a suggested way to handle it.

> terms of their electronic controls. A system which Ferranti will install on Total's two example, will bring together fire and gas monitoring, data acquisition and production control as well as the emergency

The impact of electronics has information needed has

Improved information gathering and presentation, for example, will allow operators to assess the impact which some new equipment might have on the overall performance of an offshore platform.

BP, in another application, has used software prepared by Scicon in London to produce an overall assessment of their worldwide exploration activities. conference on offshore Aberdeen recently paid special attention to the growth of "total" systems which in effect bring the offshore platform to the executive's desk.

Mr Lew Riding, an offshore electronics consultant based in London, says the trend spending by operators shifted from computers.

It has produced economies in unexpected places such as insurance." The interpretation of more data has helped produce the most comprehensive risk assessment for offshore developments. This may well start to show on the estimated 15 per cent of oil company budgets which are spent on

packages pooling vast amounts of relevant factors. Technica, a London-based company of consulting engineers has added the stringent Norwegian off-

### FINANCIAL TIMES SCIENCE PARKS

For further details, please contact:

PAUL JEFFRIES

Financial Times Europe's Business Newpaper

ments as off the east coast of shore safety regulations into a systems earlier than the Canada. Today more realistic system which oil companies engineer. predictions can be made about can use to compare their plans. undersea oil reservoirs, better Another industry working group equipment extracts the oil more used software to assess the risks efficiently and more safely with involved evacuating an offshore Shell Expro, which repre- to be assessed.

and electronics, have taken some time to understand each other. The deeply conservative oilmen have been reluctant to try out new and possibly vulnerable computerised equip- Watt University, Edinburgh, has fiercer technological challenges ment. The computer industry presumed until recently that the oil industry would adapt to assess whether a new well is its hardware and did not worth developing. produce a tougher breed of machine more suited to rough offshore treatment.

The new generation of off-

Over the years an increasing number of independent functions on the offshore platforms have been integrated in North Alwyn platforms, for shut down procedures.

spread rapidly through the oil companies today offering chief executives instant and comprehensive overviews of operations. The ability to gather, handle and transmit masses of data and for each department head to design the package of improved decision making.

insurance premiums. Software has moved in with

# SURVEY

NOVEMBER 27, 1985

on 021-454 0922

sents the joint offshore activity Artificial intelligence is of Shell and Esso in the North waiting in the wings to help Sea, has one of the most interpret masses of data to help extensive monitoring systems make decisions. But the oilmen covering a network of offshore still want the final say over fields - including those of their operations. other companies — which feed Electronics, now it is estabgas into the Flags system

Britoil has prepared an engineering model which it believes will help it make more reliable estimates of the cost of building an offshore structure.

test or Caledonian Well and requiring such equipment Control in Britain have applied as sea-bed productions systems electronics to the rugged and highly sophisticated control environment of wellhead pres- and monitoring equipment sure measurement or planning operated from less hostile enthe deviation of a drill.

and Design have had a striking too expensive so far to develop The most recent offshore impact in offshore fabrication -electronics will help reduce scan thousands of operations, bank rather than on several

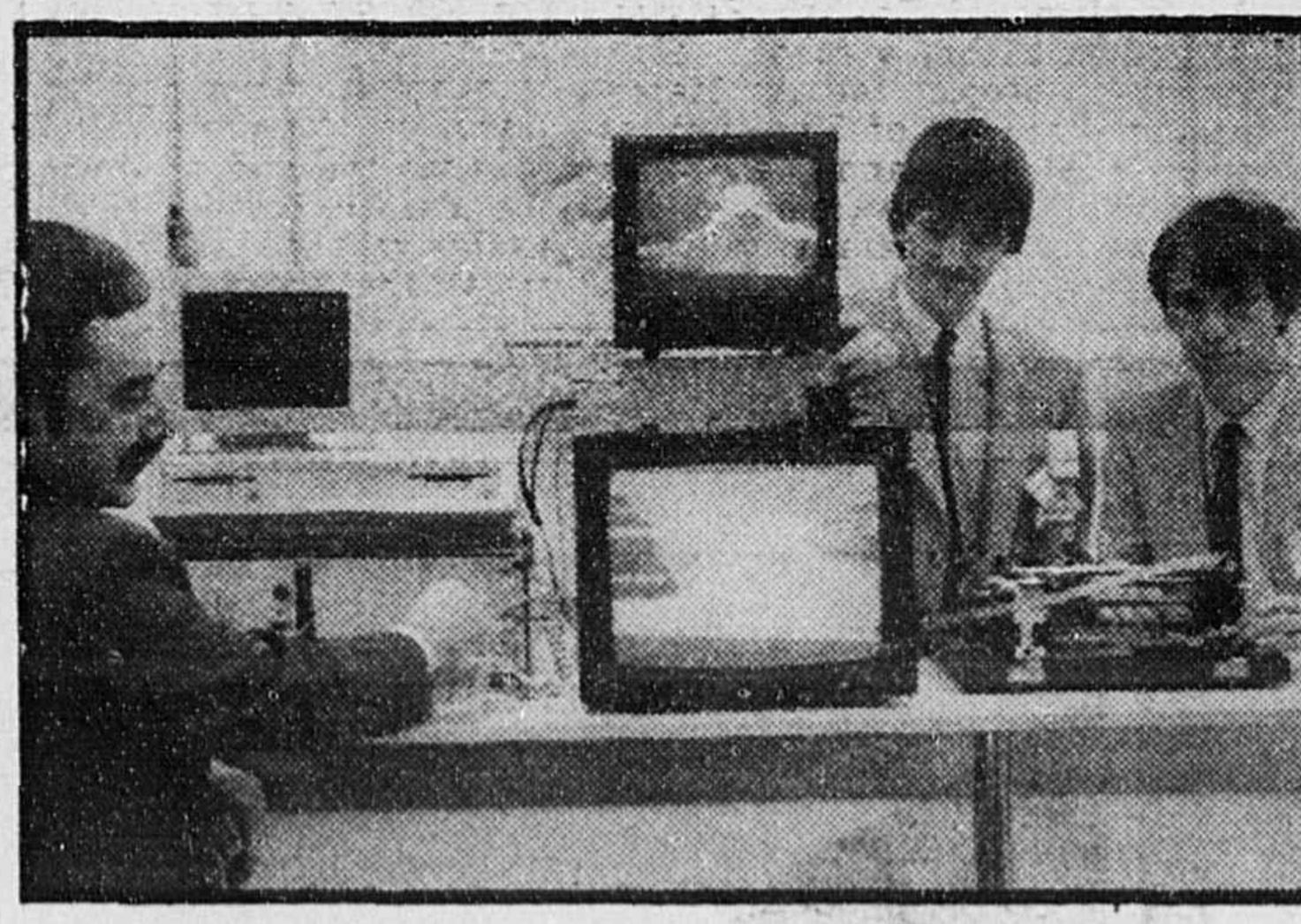
The right combination of hardware and software will also allow the variable impact of government royalties, petroleum revenue tax and corporation tax

destined for onshore processing. lished, and the offshore operators are going to have to go A company attached to Heriot hand in hand into some even produced a computer-based well presented by the next stage of test analysis system to help offshore development the move into deeper waters and the development of smaller, mar-

ginal fields. Exploration and possible development into the north Atlantic will be in depths of 2,000 ft, three or four times the Such companies as Computa- average depth of the North Sea vironments many miles away.

Computer Aided engineering For the smaller oil fieldsequipment linking these wells with nearby production platforms or to specially equipped

### Software package aids efficiency



The Computatest digitiser used in amerada scanning can be accurate to plus or minus one micron

COMPUTATEST, one of a growing number of electronics companies involved offshore development, found its niche in improving a 60-year-old piece of equipment, the amerada.

The amerada is a mechanical gauge used to measure reservoir wellhead pressure. The measurement is crucial for oil companies in predicting the amount of oil which might be forced up by natural

well pressure. The tube-shaped gauge is lowered to the wellhead and left there for up to 360 hours, measuring the pressure increase as the wellhead valve is gradually opened. The gauge scratches a mark on a graphite chart which is rotated by clockwork during the testing.

The problem for the enginbeen the behaviour of the amerada under heat and pressure; pervaries formance different conditions.

Mr David Waddell, one of Computatest's founders, has designed a software package which takes into consideration the amerada's variable performance and applied it to the readings fed in by the petroleum engineer analysing

the graphite chart. The correction factors have added to the efficiency of what the oil companies see as a tried and tested bit of equipment. Electronic pressure gauges are already probing this market, but in the view of Mr Mike Ward, Computatest's marketing executive, electronics has still not been able to operate reliably at temperatures above 300 deg F.

The company has licensing agreement for its new system with Britoil and BP. Like many small companies in the oil business expansion is fast and at times worrying. They are working on a overdraft facility to open an office in Houston, Texas.

## The Data Protection Act

REGISTRATION BEGINS TODAY

for a copy of the Act & full details of registration procedure

A GUIDE TO THE DATA PROTECTION ACT by Savage and Edwards £9.95 From bookshops or send cheque to

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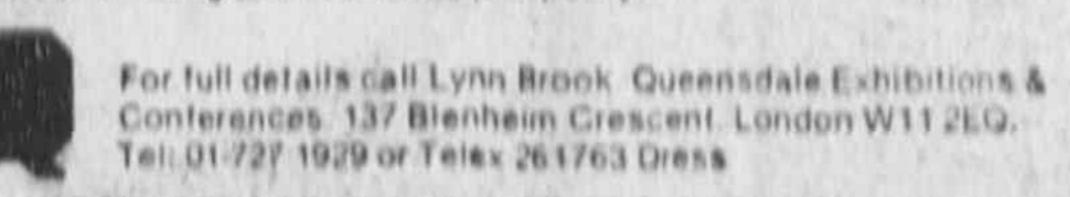
#### TECHNOLOGICAL CHANGE-INVESTING IN PEOPLE

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ave been and are being generated by technological change. The conference will low some of the ways of dealing with these needs and will demonstrate the I



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Plasmon president Peter Helfet holding a Moth Eye optical disk in front of an injection

moulding machine for making the disk blank

After the master disk has

metallic replica by means of

wavelengths of light, the resist, a substance which breaks

pyramid dimensions have to be down and can be chemically

microscopic—the peaks are washed away by a developer

spaced by 0.25 micron where it has been exposed to

0.1 micron deep. The eggbox microstructure is

surface, only about 15 per cent pattern of two sets of very

is reflected, even when coated closely spaced lines of light at

with a shiny metal. The rest right angles to each other. The

is absorbed and turned into line structures are interference

heat. To record, an extremely patterns produced by a laser

narrow laser beam is used to interferometer in a proprietary

area. The metal coating stays been developed, the hill and

By turning the recording electroplating. This is then used

short, bright dots and dashes. disk is given a highly consistent

When light strikes such a made by creating a crossed grid

(millionth of a metre) and are light.

coating, forming a raised, flat

organisations including Per- in place and the tiny flat spot dale surface is turned into a

of a licence from National form of concentric rings of three a minute. Each production

tion flow is from store to user boxes fixed to walls, ceiling and laser illuminates the tracks and light through to an underlying be operational in the US.

computer systems, many feel box structure, where the dimen- Production disks are made bits by means of light. The first Kuraray Company of Osaka for

Verbatim (Kodak) in the US For the extremely short which is first coated with photo- month, adequate for expected US and European markets.

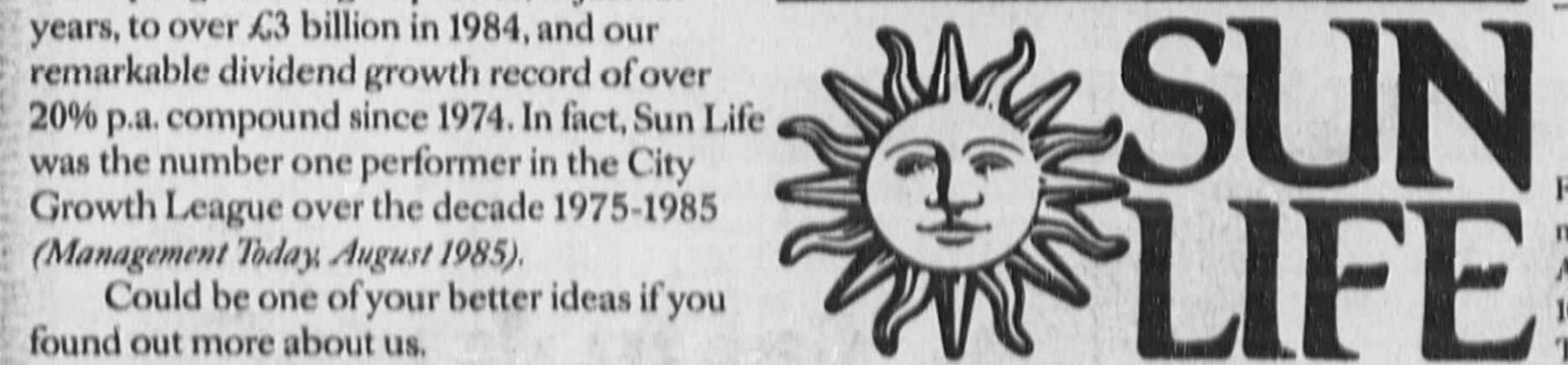
Highly magnified, the disk Similar to Morse Code, these platinum coating by deposition

becomes relatively reflective.

heat the plastic under the metal equipment.

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