

GIANT DISH FOR THE SPACE AGE PHONE

Out of the rustic fastnesses of Herefordshire a giant silver dish emerges eerily - it is the Post Office's latest contribution to the explosion in intercontinental telecommunications.

The dish is in fact an aerial through which as many as 2000 telephone calls can be simultaneously beamed out to bounce off a satellite stationed 22 000 miles over the Indian Ocean and be received by a network of aeriels in distant lands. As many incoming calls are also received by the aerial.

The aerial at Madley is the fourth erected by the Post Office, the other three are in operation at Goonhilly in Cornwall. But with a dish measuring 32 m in diameter, the aerial at Madley has twice the capacity of its predecessors. The aerial can be rotated to any angle of a hemisphere and it is constantly and automatically adjusted so as to maintain its beam focused on to the satellite.

The unlikely rural site near Hereford was chosen for its freedom from radio interference and its relative proximity to London. A further four aeriels are planned for the same site.

Contractual arrangements for the £10 million installation were complex. Although the main contract was awarded patriotically enough to Marconi, the British electronics firm, it transpires much to the chagrin of the Post Office that the bulk of the equipment was designed and supplied by the Japanese Mitsubishi Corporation.

The Stratford-on-Avon firm, IDC, carried off a £1 million

contract to design and build the base building of the aerial, the adjacent hall that houses the sophisticated electronic and radio equipment and an administrative block. The firm also erected the steelwork of the aerial supplied by Mitsubishi.

The ancillary buildings are all single-storey brick structures. The equipment hall is based on a standard Post Office concept - an open space that is serviced entirely from above an open metal grille. The open grille allows the easy threading through of the myriad of electric cables from the equipment and is a much cheaper and less cumbersome arrangement than a computer floor.

Environmental services are supplied by means of a high-level system of cylindrical ducts. At present the ducts supply heating and ventilation, but the system can be upgraded to full air-conditioning should the need arise. The happy effect of this utilitarian design is not unlike a down-market Foster interior.

FATIGUE FACTOR IN US ATOMIC SETBACK

A national commitment to having 500 commercial nuclear generating power plants in operation by the year 2000 has received a severe setback because of the near catastrophic failure of the Three Island plant at Harrisburg, Pennsylvania. Billions of dollars worth of construction may be shelved until safeguards can be demonstrated to the Congress writes our American correspondent, Richard Dober ACIP.

The cause of the accident has been traced to human errors and

mechanical malfunction. It is now alleged that the plant operators had been working 40 days, on 10-hour shifts, without adequate relief. Fatigue is said to be the contributing factor that led to the operator's decision to turn off the main emergency core cooling system at the wrong time, and to disengage four stand-by water pumps when there was no reason to do so, according to government inspectors who reviewed the operating sequence. On the matter of mechanical malfunction, the best guesses are likely to remain suppositions, inasmuch as no human can yet get close enough to the now radioactive monitors to check out exactly where and how the automatic systems failed.

Although there is general agreement that it is statistically unlikely that any of the 2 million people within 50 miles of the plant run the risk of accident-induced radiation illnesses, there is equal agreement that wholesale population decimation could have followed just as easily as the eventual gradual cooling down of the atomic core took place.

From an energy and construction viewpoint, the accident was a significant event. As of 1 January 1979, 70 atomic power generating plants were in operation in the USA, 94 were under construction and 30 in advanced design. Most of these plants are clustered east of the Mississippi not far downwind from dense, urban areas. At this time the active plants are producing 14 per cent of the nation's electrical energy supply. With continually rising costs for oil imports, it was expected that the new plants would help solve a distressing eco-political problem. Thus the commitment to constructing new plants and adding additional units by the end of the century was a keystone of the national energy plan.

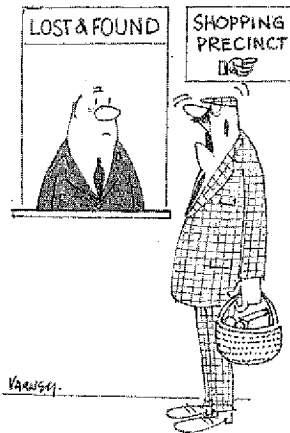
With each plant costing around one billion dollars, the \$344 billion worth of new construction also represents a significant figure to the construction industry, though much of that cost is in equipment and safety features. Because of the latter and with inflation, the per kilowatt construction costs jumped from \$100 (£50) in the 1960s to \$1000 (£500) in the mid-1970s. These cost increases have actually slowed down construction in recent years as has the public concern for atomic waste disposal which has been expressed in political action against atomic power.

With the scientific community split on the question of containing nuclear hazards, with engineers not knowing just what did go wrong with the Three

Island installation, and with the politicians sensitive to their constituencies' fears, the only certainty at this moment is that new atomic power plant construction is not likely to be advanced in the near future.

AT A LOSS

An elderly Dutch country woman wandered for three days in Utrecht's new shopping centre, unable to find the way out. She had been visiting with her sister but had become separated from her in the Easter crowd. When eventually helped out by the police she explained that she had been confused by the similarity of the complex's passageways.



"My wife goes missing with a cheque book and a fistful of credit cards and you don't think I should panic?"

COMPANY SUMMONSED ON SCAFFOLDING BREACH

Summonses against a Norwich scaffolding company alleging breaches of the Health and Safety at Work Act were adjourned at Cardiff magistrates court on Wednesday.

The summonses follow the deaths of five workmen at an office building site in Cardiff city centre.

Stephen and Carter Ltd of Riverside Works, Norwich, are accused of erecting a suspended scaffold from 30 May to 9 September last year and failing to ensure that persons using it were not exposed to risk.

It is also alleged that on 9 September one of the winches was not marked with the safe working load, that steps were not taken to supply adequate information about conditions necessary to ensure safety, and that the company failed to provide adequate stops on the outriggers.

The company is also accused of erecting scaffold towers not of good construction, using underweight counterweights and using outriggers of inadequate strength.

The hearing was adjourned until June 27.

DAMAGED THREAD KILLED THREE IN CRADLE CRASH

A damaged thread was a likely cause of three workmen, employed by a Tyneside building company, falling 120 feet to their death, a Gateshead inquest was told.

The men, two 34-year-old twin brother steel erectors and a technical electrician, working for local builders Stanley Miller, were erecting a materials hoist to the roof of a 16-storey block of flats from a cradle.

Evidence was given by one of the occupants of the flats that, when the men were working at 12th storey level, the cradle was seen to tilt suddenly and throw the three men to the ground.

On behalf of the company, the coroner was told that three weeks earlier 150 hours had been spent on the maintenance of the equipment in the firm's own workshops.

A senior scientific officer from the Sheffield laboratory of the Health and Safety Inspectorate gave evidence that he had discovered a thread on the mast section of the cradle had been damaged. He said there was strong evidence that the internal thread was in a poor and unacceptable condition. The weight of the three men and their gear on the cradle at the time was too great for the cradle to bear having regard to the weakness.

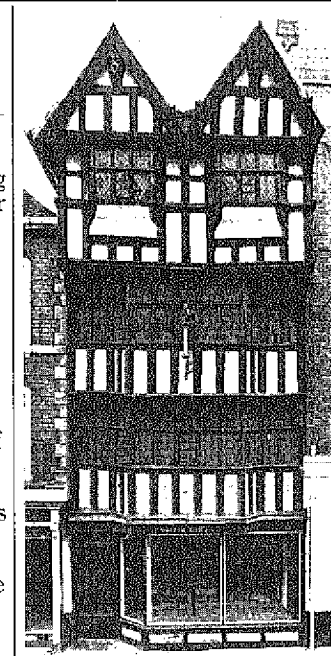
The jury returned a verdict of accidental death on all three men.

IN BRIEF

James Stirling and Partners have been selected by the trustees of the Tate Gallery to undertake a feasibility and design study for the development of the old military hospital site adjacent to the Tate. They will shortly be commissioned by the DOE to consider new buildings to provide galleries for loan exhibitions and a possible sculpture garden.

Permission to demolish Manchester's Memorial Hall, a Victorian building in Albert Square, has been refused by the council. The Wirthington-designed building, built in 1864, houses the Manchester Press Club. Its new owners said they were unable to sell or let.

The South London Consortium is launching an energy group on 10 May. The aim is to help its members, borough councils and others who wish to join maximise domestic and other energy savings by exchanging information and good practice.

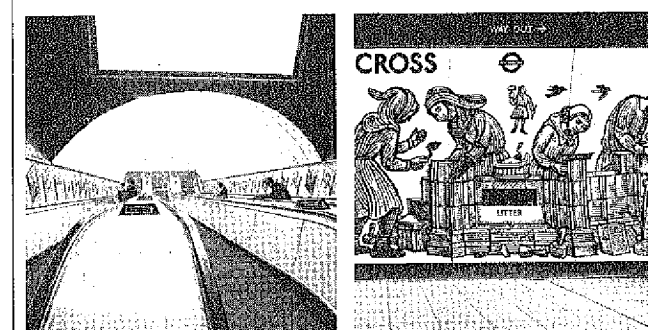
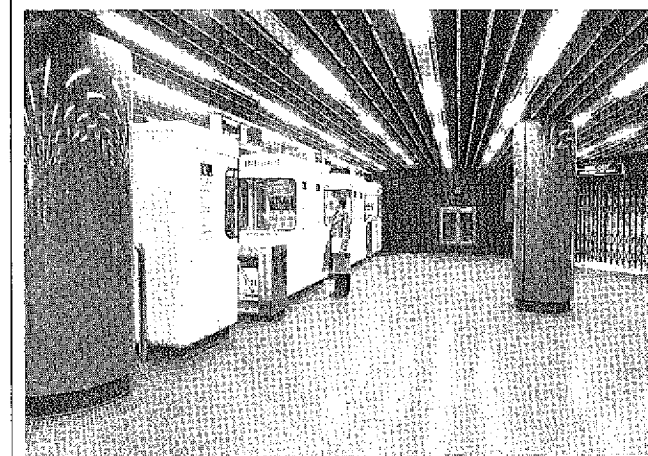


"Nodding Gables", a Grade I listed 15th century building in Tewksbury, is said to be restored and converted for occupation by the local office of the Halifax Building Society. Birmingham builders William Sapcote and Sons are doing the work, with architects Barratt Shaw and Wheeler.

Hong Kong is about to launch the first major development in Fanling in the New Territories as part of a planned expenditure of over £200 million to turn the area into a new town. Site works, including the construction of a truck drainage system to serve the housing estate and industrial area start in August at a cost of £8 million.

RIBA president Gordon Graham's statement earlier this year on the future need for architectural skills has evoked an "encouraging response" from education authorities and schools of architecture, the RIBA reports. In the statement, educationalists were told that architectural skills would still be greatly in demand in the 1980s, and this view has not been reversed in their response.

Dorset Institute of Higher Education, Bournemouth, has developed new courses leading to Diplomas in Building Surveying and Building Control. The courses are being run in conjunction with the Incorporated Association of Architects and Surveyors and the Institutions of Building Control Officers. Course structure is block release requiring full time attendance of 20 weeks in each year for four years. Details: Admin Assistant, Faculty of Science and Technology, Dorset Institute of Higher Education, Landowne, Bournemouth.



Four aspects of the new Charing Cross station: main concourse (top), ticket offices (middle), new escalators and platform mural (above)

JUBILATION OVER JUBILEE LINE

Commuters will be happy on May Day when they will be able to use the Jubilee Line for the first time. Stage One has now been completed and the Prince of Wales will be opening it formally on 30 April.

The new line is taking over the Stanmore branch of the Bakerloo Line and runs through new twin tunnels from Baker Street via Bond Street and Green Park to Charing Cross, relieving the other lines of the rush-hour commuter crush.

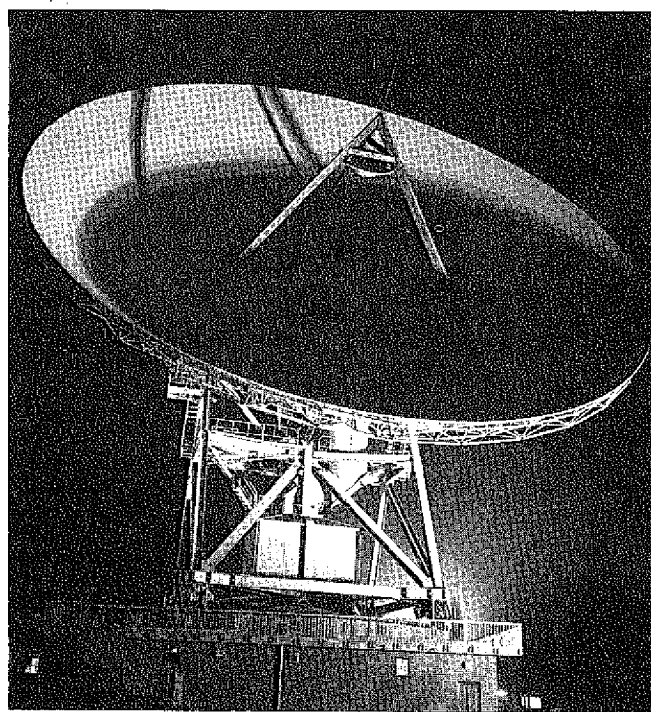
Since starting work in 1971 the civil engineers have come across problems at Bond Street and Charing Cross. Steel umbrellas had to be erected to carry the road traffic while the ticket hall works and subways were built. Care also had to be taken not to disturb the existing

shops in Oxford Street.

The new stations have been designed not only with easy access and efficient travelling in mind but also for aesthetic appeal. Bright primary colours provide a much more exciting interior than the original LT drab yellow. The escalator at Green Park is a brilliant red, the ticket office at Charing Cross emerald green and yellow. The murals and tiled motifs also add to the attractiveness of this £87 million development.

London Transport hope to start on the second stage of the Jubilee Line, possibly as soon as this summer, finance permitting.

This stage is an extension from Fenchurch Street, running through Docklands to Woolwich and Thamesmead. Site investigation is now going on to locate mains and sewers in order to minimise delay when London Transport finally get the go-ahead.



The 32 m antenna of the Madley aerial