

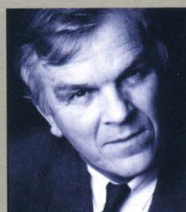


**connected  
earth** How communication  
shapes the world

Founded by BT

## Preface

I view Connected Earth as an exciting development in the evolution of heritage based education, not only in this country but world-wide.



A network of museums supporting and being supported by a museum on the internet, will satisfy demand for information from people of all ages and backgrounds. In realising this genuinely distributed national collection, BT and its partners in this undertaking will be creating a blueprint that I am sure others will follow.

Communication has an impact on every aspect of our lives and we can not allow our rich history in this field to be overlooked. Connected Earth will ensure that this heritage will not only be made widely accessible, but that the birthright of future generations will be protected and enriched by an investment of corporate assets and energy into the museum sector.

*Mark Evans*

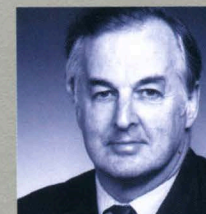
Lord Evans of Temple Guiting CBE  
Chairman of

**re:source**

The Council for Museums, Archives and Libraries

## The Vision

BT is custodian of arguably the richest telecommunications history in the world, and we have a duty to open up access to this wonderful heritage to the largest possible audience.



Connected Earth will see the creation of the first web based museum to be underpinned by a series of major physical collections, distributed amongst a network of major museums. This unique combination will enable visitors to enjoy unlimited access to historic materials of international importance, regardless of geography.

We will connect museums and exhibitions around the UK with schools and homes throughout the world, enabling visitors to collect, store and retrieve information more effectively than ever before.

In achieving this vision, BT is fulfilling a long held responsibility as guardian of the nation's telecommunications legacy. By uniting the curatorial excellence in the UK's leading museums, with BT's expertise in digital technology, we will devolve the responsibility for the ongoing conservation and management of the nation's physical telecommunications heritage, to a network of suitably qualified and equipped institutions. BT will continue to play its part by creating and hosting a museum on the internet, opening up immediate access to a vast store of knowledge about the communications technologies of earlier ages.

*Christopher Bland*

Sir Christopher Bland  
BT Chairman



**Above:** Britain's first telephone exchange at 36 Coleman Street, London EC2. Opened in 1879 by The Telephone Company Ltd., members of this telephone service paid an annual subscription - like a club. Hence the term 'subscriber'.

Talk sets Mankind apart from the animals.

Throughout human history, this marvellous and unique capacity has enabled us to interact, to collaborate, and to make our thoughts known.

And yet we have always striven to extend our ability to communicate beyond the range of normal speech. Our needs have ever outstripped the physical means at our disposal.

The last 200 years in particular have witnessed a radical expansion in the science and application of telecommunications - extending the ability to transmit information, words, pictures, and most importantly talk itself, across the globe.

But the lesson of this extraordinary history is that whilst technologies constantly evolve, the fundamental human needs of this great enabling power remain the same. As do the issues and concerns thrown up by the advent of each new technology.

All that truly changes is the potential; the possibilities for extending human communication through technology are virtually unbounded. And as the speed, scale, and distance achievable through the latest communications technologies surpass that which existed previously, each new technology only hints at the opportunities of the future.

Through an exploration of its key themes and stories, Connected Earth charts the astonishing journey from the first telegraph to the broadband age, from rural village to global village. A journey which will be illuminated by the world's richest collection of historic telecommunications artefacts, documents, images and film.

Perhaps, one of mankind's greatest journeys - and which is still unfolding.

**Below:** A mid-Nineteenth Century Birmingham lineman. The interior of his stovepipe hat was purportedly used as a receptacle for his tools.



**Left:** A National Telephone Company exchange switchroom, c1890. The boys originally employed as operators proved too unruly, and were soon replaced by women. Telegraphist and Telephonist posts provided two of the first respectable employments for young ladies.

Connected Earth will redistribute the collections of historic telecommunications artefacts and materials, currently in the care of BT, and make them accessible to the widest possible audience.

The newly configured collections will be housed from Edinburgh to Cornwall and will contain some of the most important items of communications history in the world. Connected Earth will continue to preserve this important inheritance whilst at the same time ensuring that more people than ever will be able to enjoy and learn from it. It will now be possible not only to physically visit permanent exhibitions, but also to visit the collection in cyberspace.

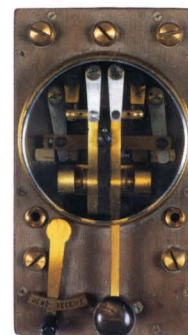
**Below:** The early needle telegraphs were first used along railway lines - for signalling purposes, as well as to carry messages.



Working alongside partner museums, Connected Earth will enable access, regardless of location or physical ability, via the Connected Earth Museum on the Internet. In a related series of investments in new curatorial and research posts, Connected Earth will also extend scholarship and knowledge in the field of telecommunications heritage.

Visitors to the virtual museum will be provided with much more information than they might expect to find in a traditional museum. Audio and video clips will be available alongside 3D images, animations and photographs. Visitors will be able to structure a personal journey through the history of telecommunications.

Unlike many museum sites, Connected Earth is not intended merely to act as a virtual advertisement for physical exhibitions, but to provide an entirely satisfying experience in its own right.



**Left:** Morse originated digital communications. Substitute dots and dashes for ones and zeroes, and the basic premise remains the same - a system of code which reduces all information to an electric current which is either present, or not present - on or off.

People without easy access to the web can utilise common access points in libraries, schools and community centres. They can also visit the partner museums where interactive terminals will be located, offering the entire Connected Earth experience on-line.

The architecture of the website will be designed for users of all ages and abilities, the entire site will be easy to navigate and use. Step by step instructions will be available for those new to using the web, whilst more experienced users will be able to explore at their own pace.

Perhaps the greatest advantage of the virtual museum is that it will be possible to present a much larger range of artefacts than we are able to display in physical exhibitions in any one place.

**Right:** Workmen dismantling a broken pole in 1907. The work of the overhead linemen was regarded as dangerous, and inevitably increased after a storm.



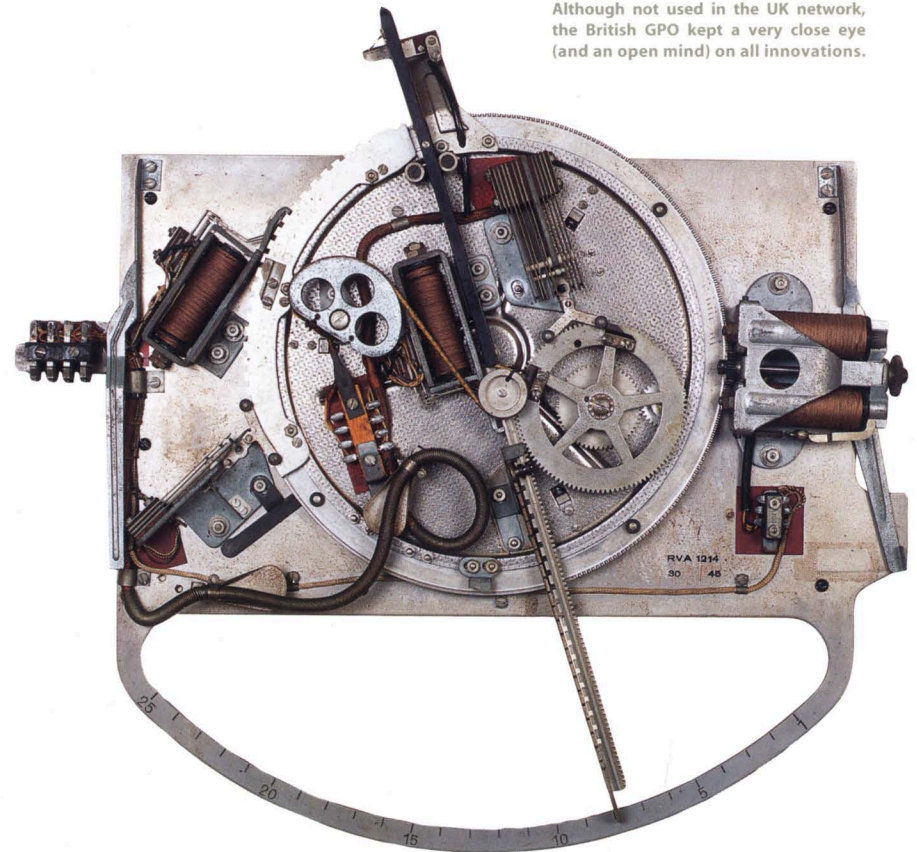


**Above:** An early Canadian automatic exchange (trialled in Hereford from 1914) used this remarkable 'keyphone' style of telephone. Despite many unique features, the system ultimately proved unreliable.

**Connected Earth is a unique project combining web-based technology alongside museum displays. Major partners in Connected Earth include:**

#### National Museums of Scotland

A major new display at NMS Edinburgh will focus on the role of innovation and invention in the history of telecommunications, with special reference to Alexander Graham Bell, as well as wider aspects of the history of communications and items of particular Scottish provenance. Additionally, a new permanent curatorial fellowship will be endowed, to carry out research and extend scholarship on the collections, both within NMS and the wider Connected Earth network.



**Below:** An automatic exchange switch built by the Ericsson Co. in the early 1920s. Although not used in the UK network, the British GPO kept a very close eye (and an open mind) on all innovations.



**Above and Right:** World War II posters. Much effort went into reducing non-critical use of the public network, which was also being used to transmit radar signals and other traffic vital to the conduct of the war.



#### The Museum of Science and Industry in Manchester

The MSIM are installing a number of galleries in the historic 1830 Warehouse exploring many aspects of communications. A major component of the project will be a series of Connected Earth displays, focusing on the part Manchester has played in the development of communication, how technology has enabled people to communicate faster and further via railways, telegraph, telephones and computers, and the impact of communications on trade, industry and the development of the industrial city.

### Amberley Working Museum in Sussex

A new building at Amberley Working Museum near Arundel will house a major permanent new museum, representing the everyday public experience of telecommunications down the ages - from vehicles to street furniture, old telephones to old advertising.

### Museum of London

The Museum of London will represent the role of communications in London, through its displays and educational activities. The Connected Earth collections will be housed initially in a new resource centre at Eagle Wharf Road in Hackney. Objects will also feature in forthcoming displays and exhibitions at the Museum at London Wall. Here the collection will be interpreted within an urban history context, underlining the critical importance of communications for London and its people.



**Above:** An underground cable-laying gang c.1910. Prior to the advent of underground cabling, the urban skyline was an unsightly tangle of derricks and open wires. Moving the infrastructure underground improved both the reliability of the network, and the visual environment.



**Left:** Whatever the weather, subscribers expected their telephones to work. As early as 1915 the Post Office recognised that the public were: 'not in the faintest degree interested' in the theoretic working of the telephone system - only that it worked reliably.



**Right:** Early mobile communications - mobile telegraph office at the Oxford Cambridge boat race in 1872.



**Above:** One section from the manual exchange switchboard that used to serve Ossett in Yorkshire until the mid 1960's. A catalogue of designs suited everywhere from the smallest village to the busiest metropolis.

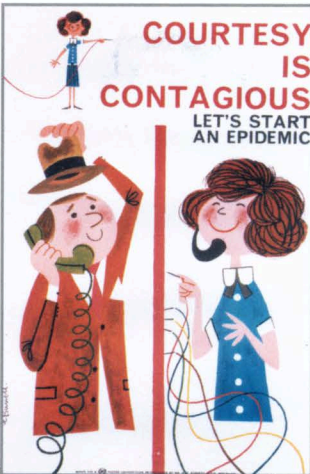
Science Museum, London

The Science Museum will expand its collections, and consequent storytelling capacity, in relation to the place of communications in the broad context of the Museum's subjects of science, technology, medicine and media. A particular focus will be on significant innovations (failures as well as successes), everyday communications equipment, interstitial areas such as the role of Dollis Hill as a research station, and health and psychological aspects of communications. At the same time, Connected Earth will create a research post at the Science Museum to carry out research and extend scholarship on the collections, both within the Science Museum and across the wider Connected Earth network.

The Institution of British Telecommunications Engineers

The IBTE will be organising a network of volunteers to provide support across the distributed collections in areas of conservation, interpretation, and collection of oral history. The IBTE's Museum of Switching Technology at Workop will also be included in the Connected Earth network, providing a home for more specialist items of historic telecommunications infrastructure.

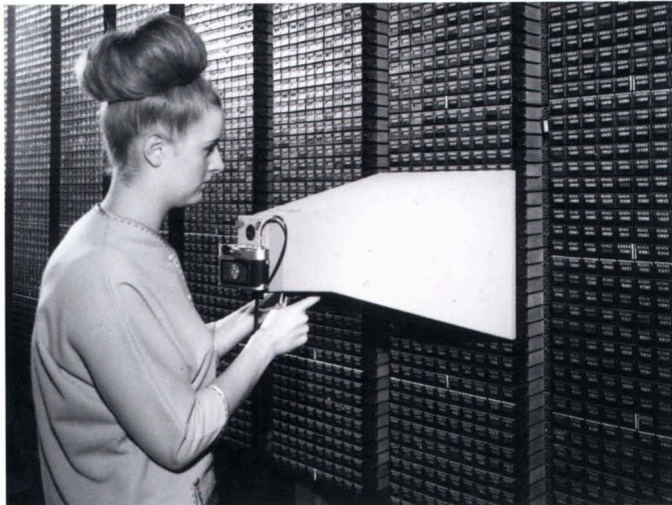
**Below:** Almost half a century before the advent of the telephone call centre industry, the telecommunications business was well aware of issues connected with handling customer service over the telephone.



**Left:** When the Brighton area exchange system went automatic, on 12th November 1927, its subscribers were given unusually helpful dials. Rather than having to remember a range of local codes, callers merely dialled first the name hole and then the number required on that exchange.

**Below:** Wartime operators at Bishopsgate 'auto-manual' exchange in London. Even a fully automatic exchange still required operators to provide assistance.





**Above:** 1965. Reading telephone meters by photographing batches of 100 at a time, continued well into the 1980's. This efficient manual method of capturing the information required to create a bill, also provided irrefutable evidence when disputes arose.

**Below:** Multicoloured telephones of the 1960's. Contrary to the popular image of the ubiquitous black telephone, it was in fact possible from the 1930's, for a subscriber to have a telephone in any colour - provided they paid twice - once to spray it the colour of choice, and a second time to re-spray it black when rental of that instrument ceased.



### BT's role

In addition to creating and managing the Connected Earth Museum on the Internet, BT will be substantially extending its existing Visitor Centre at Goonhilly Earth Station in Cornwall, to include a new Connected Earth gallery focusing on the history of international connections, satellite and radio communications. BT will continue to retain an expert historian, whose role will be to provide curatorial support and advice across the Connected Earth network.

Furthermore, BT will continue to be custodian, on behalf of the nation, of the archival collections of the historical records of BT and its predecessors dating back to 1846. This unique resource is covered by the Public Records Acts, 1958 and 1967. These records are preserved and made available by BT Group Archives.

### Further partners

It is envisaged that further museums will become associated with the Connected Earth network during the next year, including some smaller museums which have already benefited from major donations of historic material from the BT Collections, as well as museums in those regions of the UK where the initial disposition of the collection does not provide ready access.



**Below:** An early manifestation of the gradual influence of telecommunications beyond the plain old telephone. Since the 1940's, television pictures have been carried by the telecommunications network along cables and via radio links.



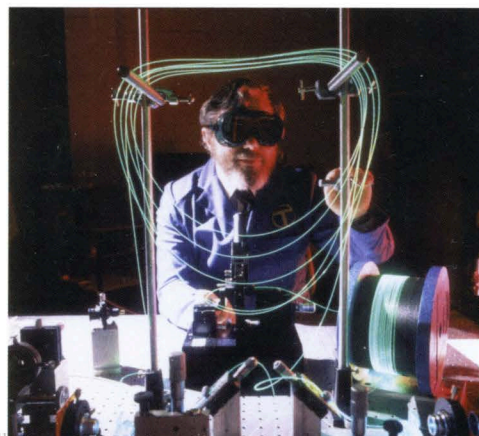
**Above:** The classic K6 kiosk was introduced in 1936. Now regarded as a treasured icon of Britain's heritage, the arrival of a bright red, cast iron box in the countryside, was greeted at the time with as much hostility as the programme to replace the same kiosks with modern glass and steel housings in the 1990's.

The idea of learning is changing and no longer intended solely as the domain of those wishing to pass exams. Learning is a life long activity and does not end in the classroom or lecture hall.

Connected Earth will provide a rich educational resource regardless of age or entry level and will be equally useful to a Year Three class as it will to an academic. Visitors to the Museum on the Internet, or to a partner museum, will be able to tailor the experience to their individual requirements. Younger visitors will enjoy the learning experience enhanced by interactive elements, whilst the more experienced visitor will be able to retrieve and analyse information quickly and efficiently.

Recommended routes through the material will tie in closely to National Curriculum based themes, across a variety of subject and topic headings. The Museum on the Internet will offer immediately available resource materials and teacher information, specifically related to National Curriculum topics including IT, Science, History, Personal Communications and Design.

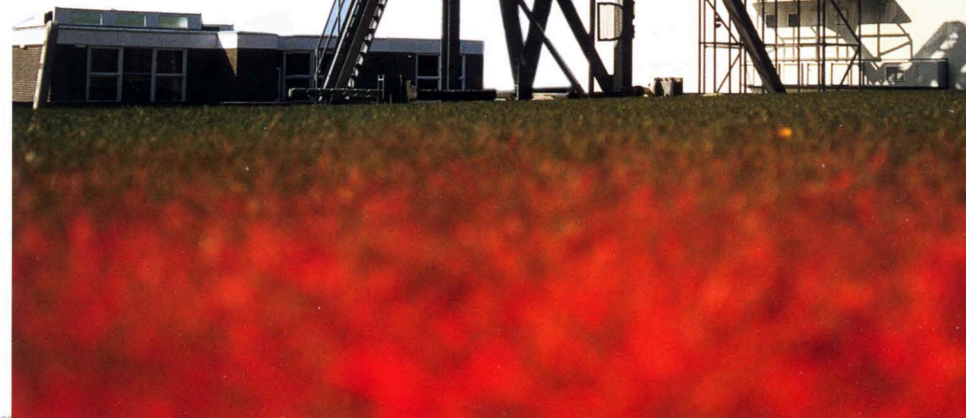
**Below:** Optical fibre research engineer at BT's research laboratory at Martlesham in 1982. Optical fibre and many world firsts have come out of the UK's telecommunications laboratories.

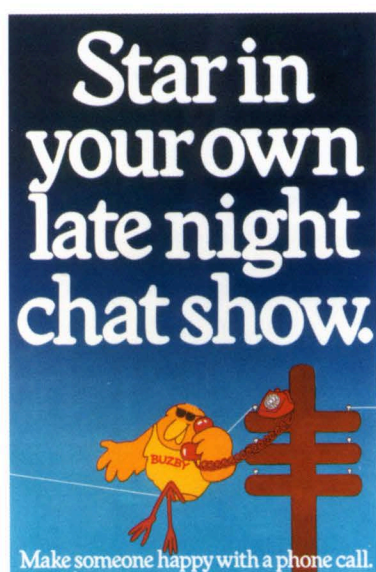


**Left:** More than 130 communications satellites are now in orbit above the equator. The first geo-stationary unit in 1965, Early Bird, was tiny. About a metre high, it would fit into the boot of a car. The signal it sent back to earth was incredibly faint - roughly equivalent to the energy generated by a small electric fire burning on the moon.



**Right:** Goonhilly Earth Station. Now home to several dozen distinctive parabolic 'dish' aerials, Goonhilly's Aerial No1 was the world's first such installation and carried the first live transatlantic television pictures in 1962.





**Above:** The popular 1970's figure, Buzby, was the first highly memorable character created for advertising campaigns designed to stimulate telephone usage.



**Above:** The records selected for play on the dial-a-disc service were chosen by a committee of Post Office officials. But limited network capacity led to the extraordinary alternate operation of dial-a-disc with the test match score service - a very British compromise.



**Above:** Optical fibre provides vast capacity. In theory, a single fibre could carry all the world's telecommunications traffic, both now and into the foreseeable future.

In the story of communications - as in many subjects - the perspective of the past can help one to see the future more clearly. Connected Earth is intended not only as a thorough exploration of our communications history, but as a knowledge-based springboard to our communications future.

The Connected Earth Museum on the Internet will launch in Spring 2002. Many of the new galleries and displays at participating museums detailed in this prospectus will also open during 2002 / 2003.

We would be interested in your views on this new model for Britain's telecommunications heritage. If you have suggestions for further Connected Earth elements or activities, please email us at [connectedearth@bt.com](mailto:connectedearth@bt.com), or write to the project office at Post Point 10A04, Delta Point, 35 Wellesley Road, Croydon CR9 2YZ.



**connected-earth.com**



How communication shapes the world



**National Museums of Scotland**

Pioneers of communications - innovation in commerce and technology

**Workshop IBTE Museum**

The infrastructure of communication

**Museum of London**

Communications shaping and supporting London

**Science Museum**

Communications in the broad context of science, technology, medicine and media

**The Museum of Science & Industry in Manchester**

Communications shaping industry, trade and transport

**Goonhilly Earth Station**

International communications, satellites and radio

**Amberley Working Museum**

Living and working in the telecommunications age



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MUSEUM OF LONDON

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Science Museum  
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## Offices worldwide

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