

Mrs. Goodman

POST OFFICE

tele **communications**

JOURNAL

ONE SHILLING

AND

SIXPENCE

AUTUMN 1962

The 11th of July, 1962, was a memorable day in the exciting and exacting science of space communications. On that day the first television picture was flashed across the Atlantic by way of the artificial satellite *Telstar*. In the days that followed even more remarkable results were achieved on both sides of the Atlantic

TELSTAR

IT was 45 minutes past midnight on Wednesday, 11 July, and a team of engineers at the Post Office experimental satellite communication ground station at Goonhilly Downs, in Cornwall, began anxiously watching the monitor screens.

But the screens remained blank as the giant aerial outside changed its elevation and direction, searching the sky for an earth-bound satellite called *Telstar*. The minutes ticked by and still nothing happened.

Then, suddenly—at exactly 1 a.m.—a picture appeared on the screen, at first only a vague shape and then recognisable as Mr. Frederick Kappel, chairman of the American Telephone and Telegraph Company.

It was an historic and exciting moment. For the first time a television picture had been transmitted across the Atlantic by bouncing it off an artificial earth satellite. And, though Goonhilly experienced some technical difficulty and the picture lasted for only a minute before disappearing as *Telstar* went out of view on its sixth pass, it marked the beginning of a new era in the science of communications. The technical problems were soon overcome and on the following day the Goonhilly Station performed extremely well.

There were other no less historic and exciting moments within a few days of the transmission of the first television signal. In the early hours of Thursday, 12 July, television pictures of excellent

quality were received at Goonhilly from the American ground station at Andover, Maine, and pictures which included some night scenes from Paris were received from the French station at Pleumeur-Boudou. Two hours later, as *Telstar* orbited the earth for the 16th time, the first live television pictures, showing the Goonhilly station and a young man and woman seated beside a river, were sent from Goonhilly to America. Reception in the United States was described as “brilliant and perfect”, and the pictures were broadcast live over the CBS television network in the United States.

Early in the morning of 13 July, Post Office engineers at Goonhilly and engineers at the American station exchanged the first telephone calls by way of *Telstar* simultaneously with facsimile pictures, including one of Princess Anne, which were sent from London to New York and from New York to London with very satisfactory results.

The following day the first telephone call using the public network by way of *Telstar* was made when Sir Ronald German, Director General of the Post Office, spoke to Mr. Eugene McNeely, President of the American Telephone and Telegraph Company. Then, on Monday morning, 16 July, on the initiative of the Post Office and with the co-operation of BBC television, the first colour pictures to be sent across the Atlantic by

Continued overleaf



The first television picture by Telstar. It shows Mr. Frederick Kappel, chairman of the AT and T Company, sitting at a desk, and was "bounced" off Telstar from America. Subsequent television pictures to and from the United States were of much better quality.

TRIUMPHANT

A test card showing a map of Great Britain and bearing the Post Office crest was one of the first pictures to be sent from Goonhilly across the Atlantic to the American satellite communication ground station at Andover, in Maine.



The first live television picture sent to the United States from Europe showed the inside of the Goonhilly station. Seated (right to left) are: Mr. F. J. D. Taylor, Staff Engineer, Captain C. F. Booth, Deputy Engineer-in-Chief, and Mr. R. W. White, an Assistant Staff Engineer.



satellite were transmitted from Goonhilly. Andover reported: "Colour good; picture quality excellent."

Several days later—on Thursday, 19 July—the first press telephone calls were satisfactorily exchanged between Britain and America, followed by an exchange of colour television pictures between Andover and Goonhilly, again with excellent results.

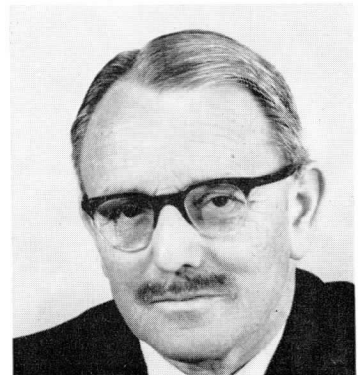
On 23 July the first joint European television programme to the United States, preceded by a television programme from America to Europe, was sent across the Atlantic via *Telstar*. The European programme included pictures of Gaellivare, in the Arctic Circle in Sweden, the southern

coast of Sicily, Vienna and Lands End to show the extent of the network, and contained shots from London, Paris and Belgrade, of the Sistine Chapel in Rome, blast furnaces at Duisburg, Germany, and the European Centre for Nuclear Research in Geneva.

Seldom can scientific achievement have been attended by so many remarkable successes—and all of them at the first attempt. Little imagination is needed to appreciate the technical promise of this new instrument of communication. World-wide television is only part of its possibilities for it will undoubtedly make a major contribution, too, to world-wide communications by telephone, telegraph, facsimile and data transmission.



*LEFT: One of the first television pictures transmitted by the French station.
BELOW: Sir Ronald German, Director General of the Post Office, who made the first public telephone call via Telstar to America.*

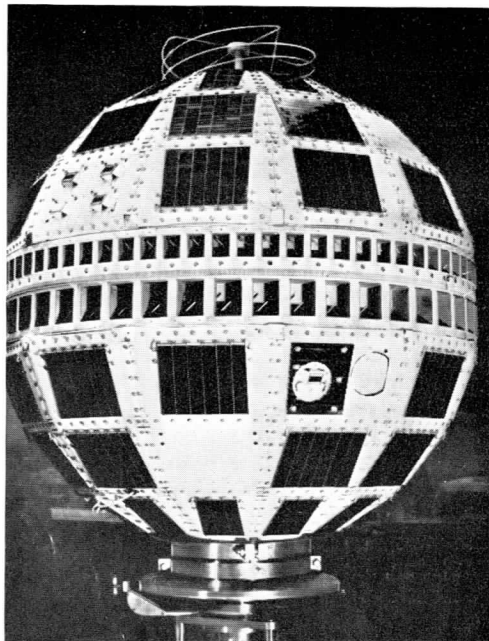


—THIS IS TELSTAR—

Telstar, the world's first broad band active communication satellite, was launched into orbit by the United States National Aeronautics and Space Administration from Cape Canaveral on 10 July. It is circling the earth once every 158 minutes at a height of between 600 to 3,500 miles and is mutually visible to the ground stations at Goonhilly and Andover, Maine, for up to some 30 minutes on each of three or four consecutive passes in each 24 hours.

Circular in shape and painted sapphire-blue and silver, *Telstar* has nearly 15,000 parts stored inside its 34-inch diameter. It draws its power from the 3,600 solar cells on the surface which turn the light of the sun into electrical energy for supplying the electronic equipment in the satellite and picks up the faint signals from the transmitting ground station, amplifies and re-transmits them on another frequency to the receiving ground station. The satellite contains equipment suitable for a television picture, or up to some 600 telephone channels.

Telstar was designed by the Bell Telephone Laboratories.



This was one of the first test cards to be sent from Andover, Maine, to Goonhilly. Similar transmissions were exchanged between the United States, British and French satellite communication ground stations.

