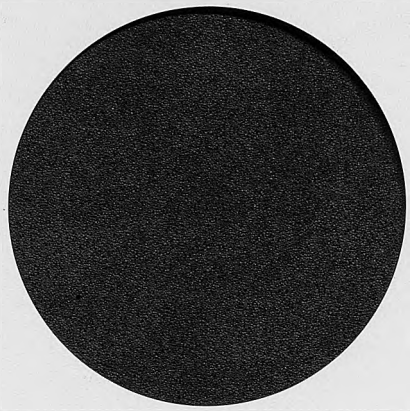
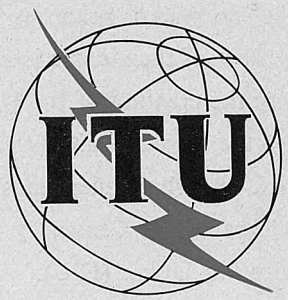
1865

a hundred years of international cooperation

1965

INTERNATIONAL TELECOMMUNICATION UNION





One hundred years is not long compared with the time-span of a civilization.

The Centenary of the International Telecommunication Union is, however, a meaningful moment. Meaningful not as another trophy in the universal anniversary hunt. Meaningful, because it marks the first easily measurable stage in the journey of an idea.

An idea which does honour to all those who, in the Union's hundred years, have laboured to cultivate it. An idea enshrined to-day in the United Nations, of which the ITU is the most ancient of the Specialized Agencies. An idea which may be the beginning of a new civilization.

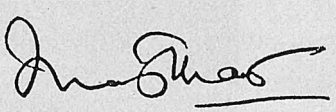
The idea of international co-operation.

SECRETARY-GENERAL
INTERNATIONAL TELECOMMUNICATION
UNION

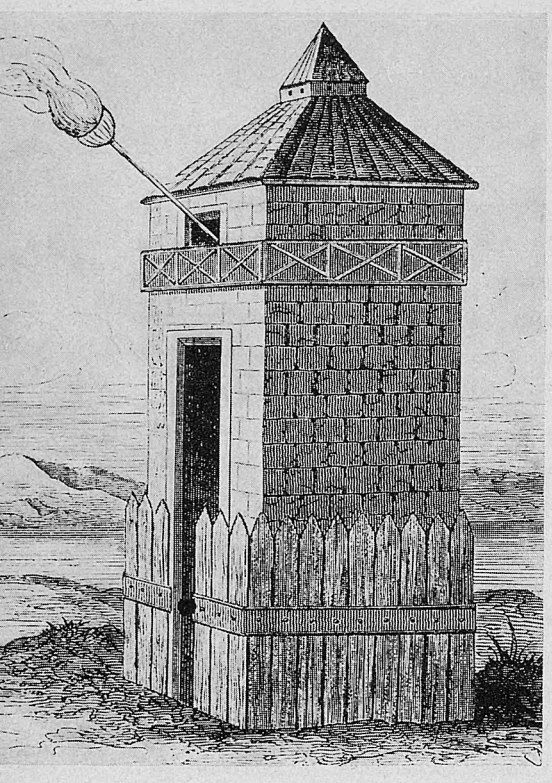
I am pleased to add my congratulations to the many that ITU will be receiving. It is indeed a fortunate organization that celebrates its centenary as much in terms of past achievements—of which ITU may justly be proud—as of new challenges.

Two of the tasks which ITU has now undertaken would indeed have astonished the men who met in Paris a hundred years ago to form an International Telegraph Union. I refer to assistance in equipping the developing countries with a comprehensive system of telecommunications, and to the exploitation of the possibilities of communication in outer space for the benefit of all mankind.

By a happy coincidence the centenary falls in 1965, which has been designated as International Co-operation Year by the General Assembly of the United Nations. Communication is essential for co-operation, just as co-operation is not possible without communication. Although ITU is a strictly technical organization, it has made a valuable contribution to international co-operation for economic and social progress and development called for by the United Nations Charter. I wish the Union every success on the eve of its second hundred years.

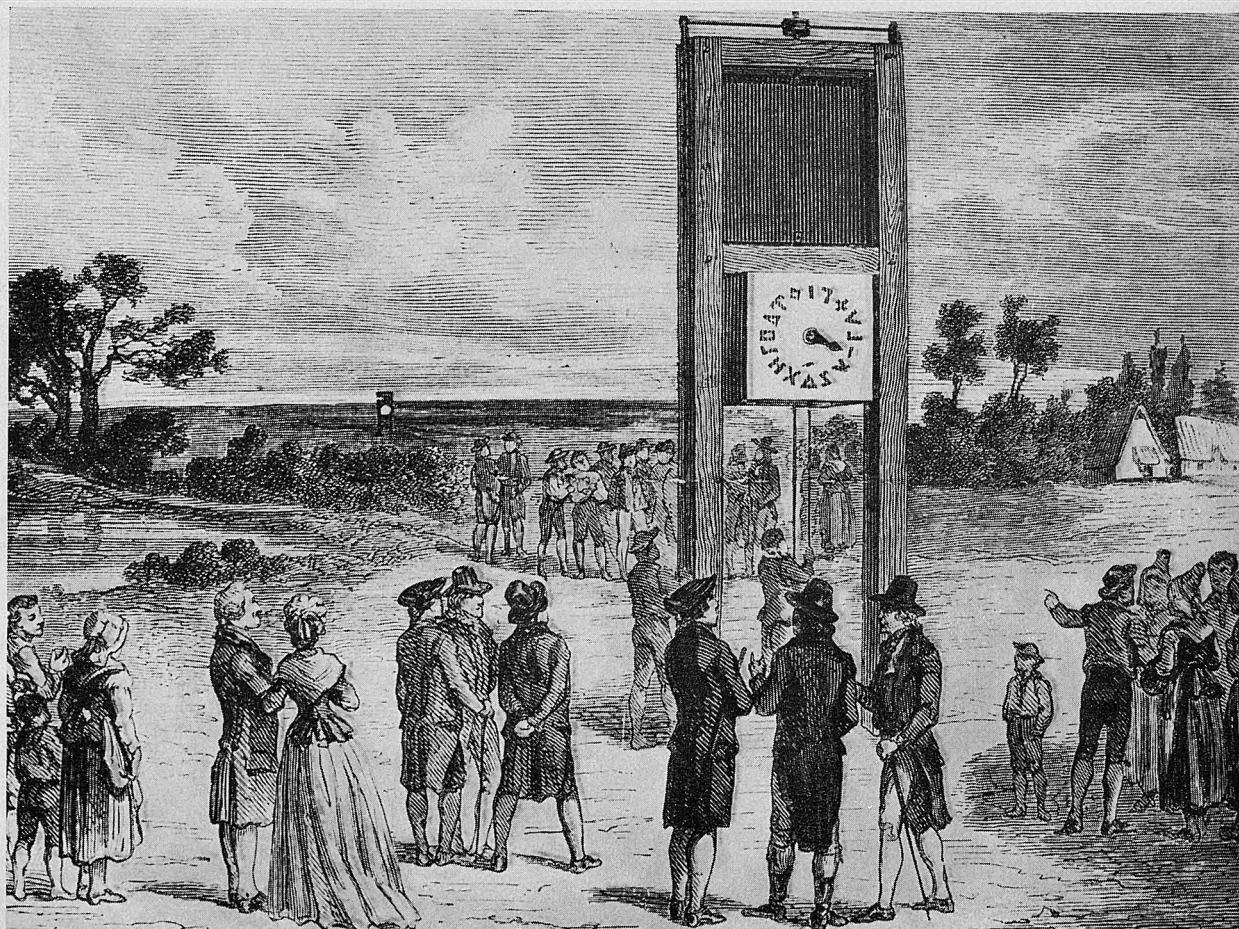


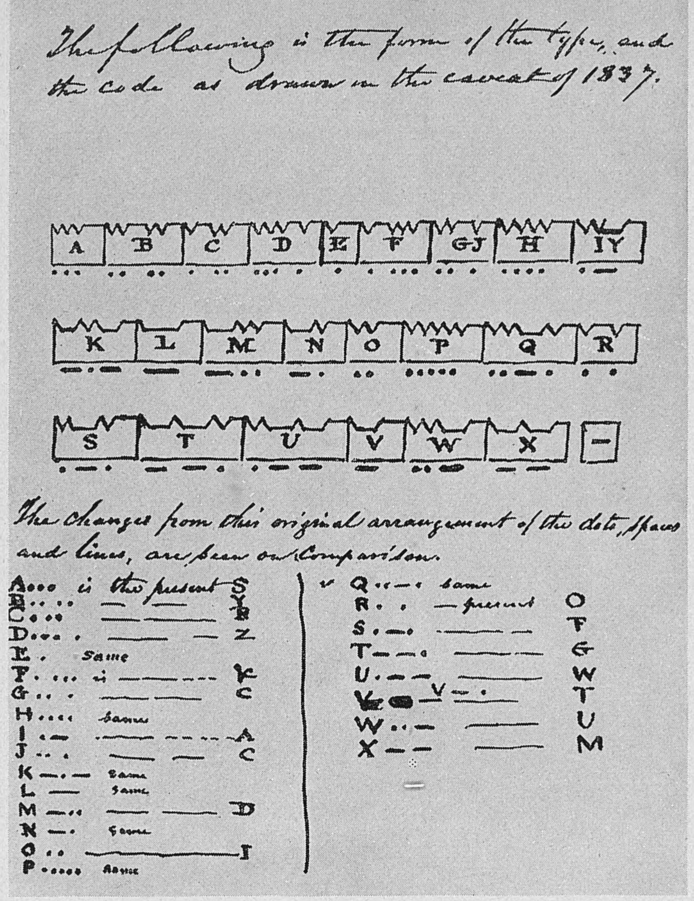
SECRETARY-GENERAL
UNITED NATIONS



FLANKING the United Nations, now in the twentieth year of its battle for the future, are its specialized agencies. Each of them an international organization in its own right, they deal, as their collective name implies, with specialized branches of human need and endeavour. Most of them came into being in their present form following the creation of the United Nations itself — UNESCO and the World Health Organization, for example. Others go back to earlier generations. Oldest of all — the first to be celebrating its Centenary — is the International Telecommunication Union (ITU).

This might seem strange. Nothing, surely, could be more modern than telecommunications, with telex and television, with radio helping us to reach out into space and the prospect of our telephone calls travelling along beams of light. And yet perhaps this juxtaposition of old and new is not so strange. For what after all is "telecommunication"?





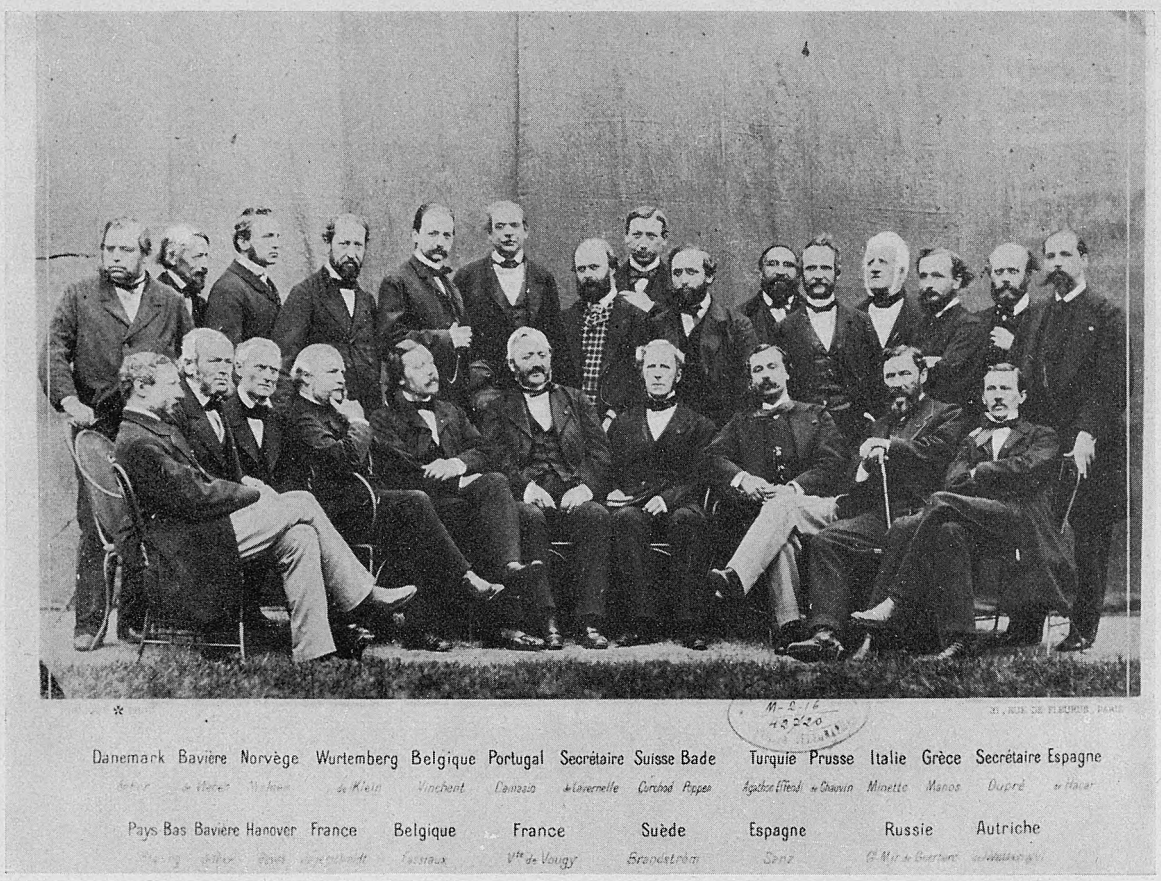
(Above left) Primitive post: Artist's rendering of Roman signal tower.

(Opposite) Semaphore station: Early in 1791, Claude Chappe gave a demonstration of his first "telegraph" before townsmen in French village of Parcé.

(Above right) Morse messages: Telegraphic code was devised by assigning the simplest signs to most frequently used letters.

Human societies, as they developed and began to master the concept of distance, worked out a number of ingenious ways for communicating over the vast areas which separated them. Mostly, messengers of one kind or another were used. But there were also methods involving direct sight and sound — drums in the jungle, beacons along the coast, smoke signals on the horizon. These methods, picturesque to-day, were strictly practical solutions devised by man's imagination for overcoming the obstacles that distance placed in the way of his basic need to communicate. They were the first real telecommunications.

From the early dawn of civilization until a little over 100 years ago man did not get much further than the written message, the drum, the beacon and the smoke signal in his efforts to communicate at long distance. One of the last devices was an "optical telegraph" or semaphore invented by Claude Chappe, a Frenchman, at the end of the 18th century. Signal towers with movable arms were set on hilltops a



May 17, 1865. Paris: Heads of delegations at first ITU Conference. After 16 meetings, members reached agreement on all points, including adoption of Morse Code (later adapted) for use on international lines and a uniform tariff for telegrams in most of Europe.

Opposite: First page of 1865 Convention.

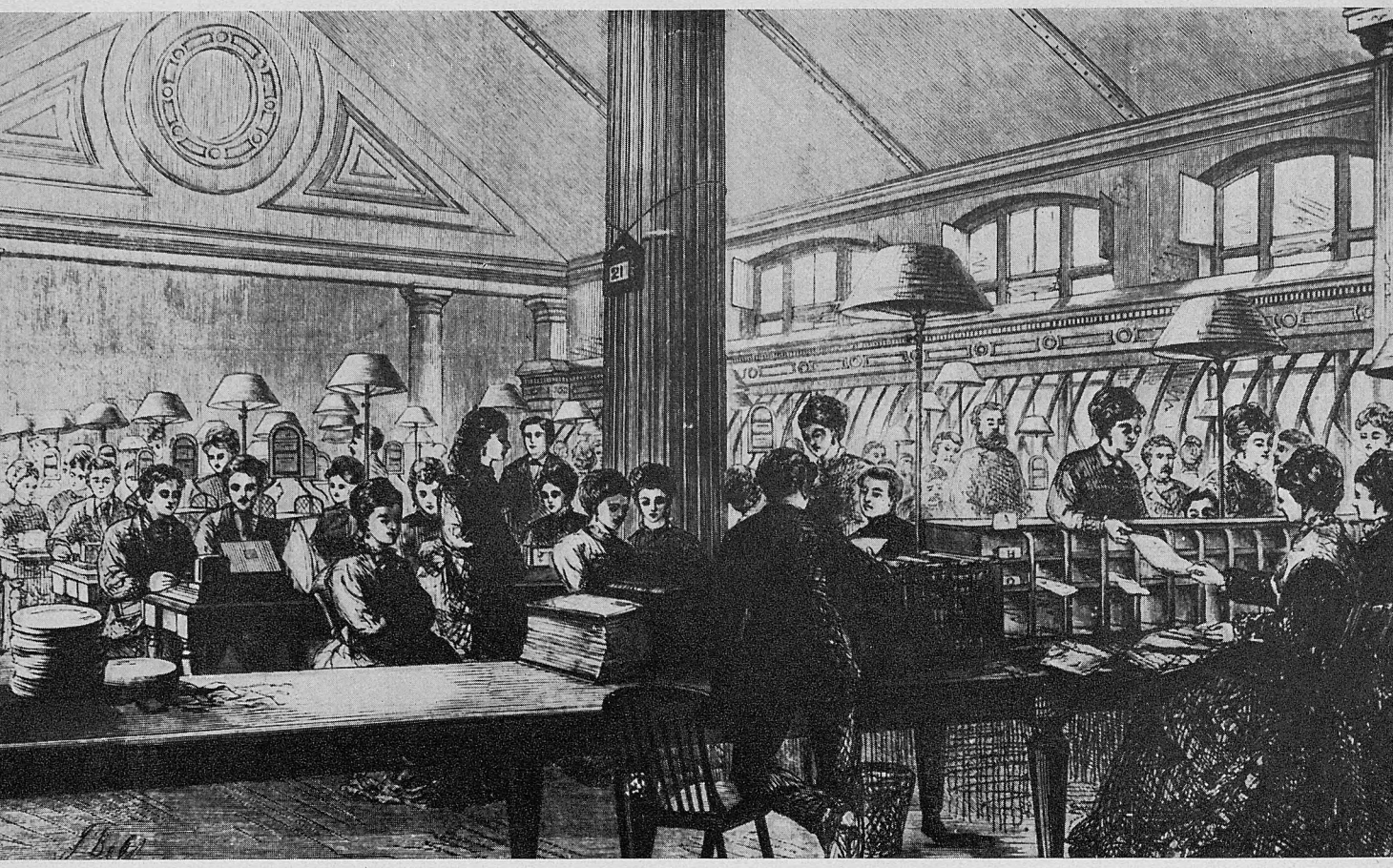
few kilometres apart. Messages spelt out by different positions of the arms were read by telescope from one tower to another and passed on. The system worked quite fast on clear days but was useless at night or in fog.

With the development of electricity in the first half of the 19th century, man's capacity for practical achievement was suddenly enlarged a hundredfold. Nowhere was this seen more dramatically than in the invention of the electric telegraph, of which the first known line was operated in 1837 and the first public line opened by Samuel Morse in 1844.

CONVENTION.

Sa Majesté l'Empereur d'Autriche, Roi de Hongrie et de Bohême, Son Altesse Royale le Grand-Duc de Bade, Sa Majesté le Roi de Bavière, Sa Majesté le Roi des Belges, Sa Majesté le Roi de Danemark, Sa Majesté la Reine des Espagnes, Sa Majesté l'Empereur des Français, Sa Majesté le Roi des Hellènes, la Ville Libre de Hambourg, Sa Majesté le Roi de Hanovre, Sa Majesté le Roi d'Italie, Sa Majesté le Roi des Pays-Bas, Sa Majesté le Roi de Portugal et des Algarves, Sa Majesté le Roi de Prusse, Sa Majesté l'Empereur de toutes les Russies, Sa Majesté le Roi de Saxe, Sa Majesté le Roi de Suède et de Norwége, la Confédération Suisse, Sa Majesté l'Empereur des Ottomans, Sa Majesté le Roi de Wurtemberg,

Également animés du désir d'assurer aux correspondances télégraphiques échangées entre leurs États respectifs les avantages d'un tarif simple et réduit, d'améliorer les conditions actuelles de la télégraphie internationale, et d'établir une entente permanente entre leurs Etats, tout en conservant leur liberté d'action pour les mesures qui n'intéressent point l'ensemble du service,



Central London Telegraph Office, 1874, thirty years after Samuel F. B. Morse sent the first public telegram.

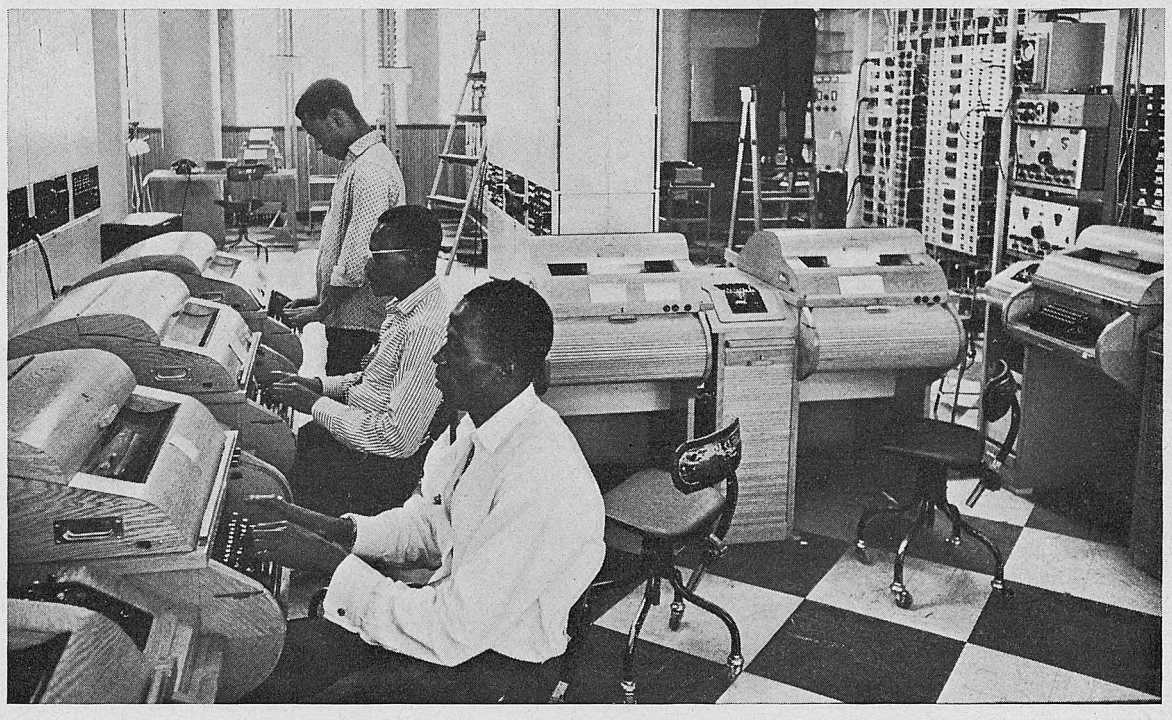
Its possibilities — for commerce, for the new railways, in diplomacy, in personal crises — aroused an immediate tide of enthusiasm which, by 1849, had carried the telegraph networks of European countries up to national frontiers. And that was the start of the problems which, sixteen years later, called into existence the ITU.

At first, for example, international telegrams had to be written down on a piece of paper and carried across the border by a messenger at each frontier they passed. Then there was the question of dividing the charges of the telegrams between the countries which carried them. These and other problems, for the most part totally new in international relations, finally led the Emperor Napoleon III in 1864 to invite the major countries of Europe to a con-

ference to bring uniformity into the international telegraph system.

It was in May of 1865 that the delegates of twenty nations assembled in Paris. Among the states represented were Baden, Saxony, Württenberg and a single Norway-Sweden. The Turkish delegation had come part of the way on horseback. Great Britain had not been invited because its telegraph services, unlike those of other European nations, were still in private hands. Paris at the time was discussing Jules Verne's latest book, *De la Terre à la Lune*, a subject of some practical importance to an ITU Conference 98 years later.

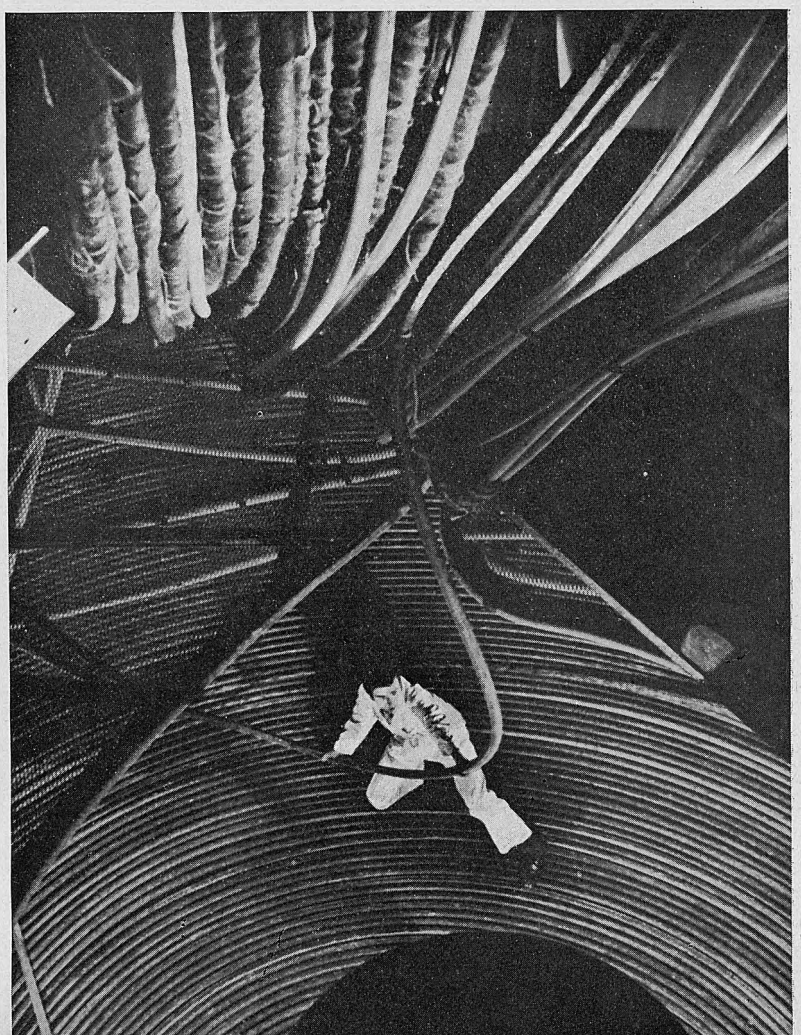
The Convention that was signed on 17 May 1865 created the International Telegraph Union and brought common rules to Europe's international telegraph system. Uniform tariff rates were agreed on (except, understandably, for the easternmost regions of the Russian and Turkish Empires) and the French gold franc was made the currency for the payment of international accounts.



Congo, 1963: the ITU sent 36 experts to train 400 students in telecommunications, including telex operation.

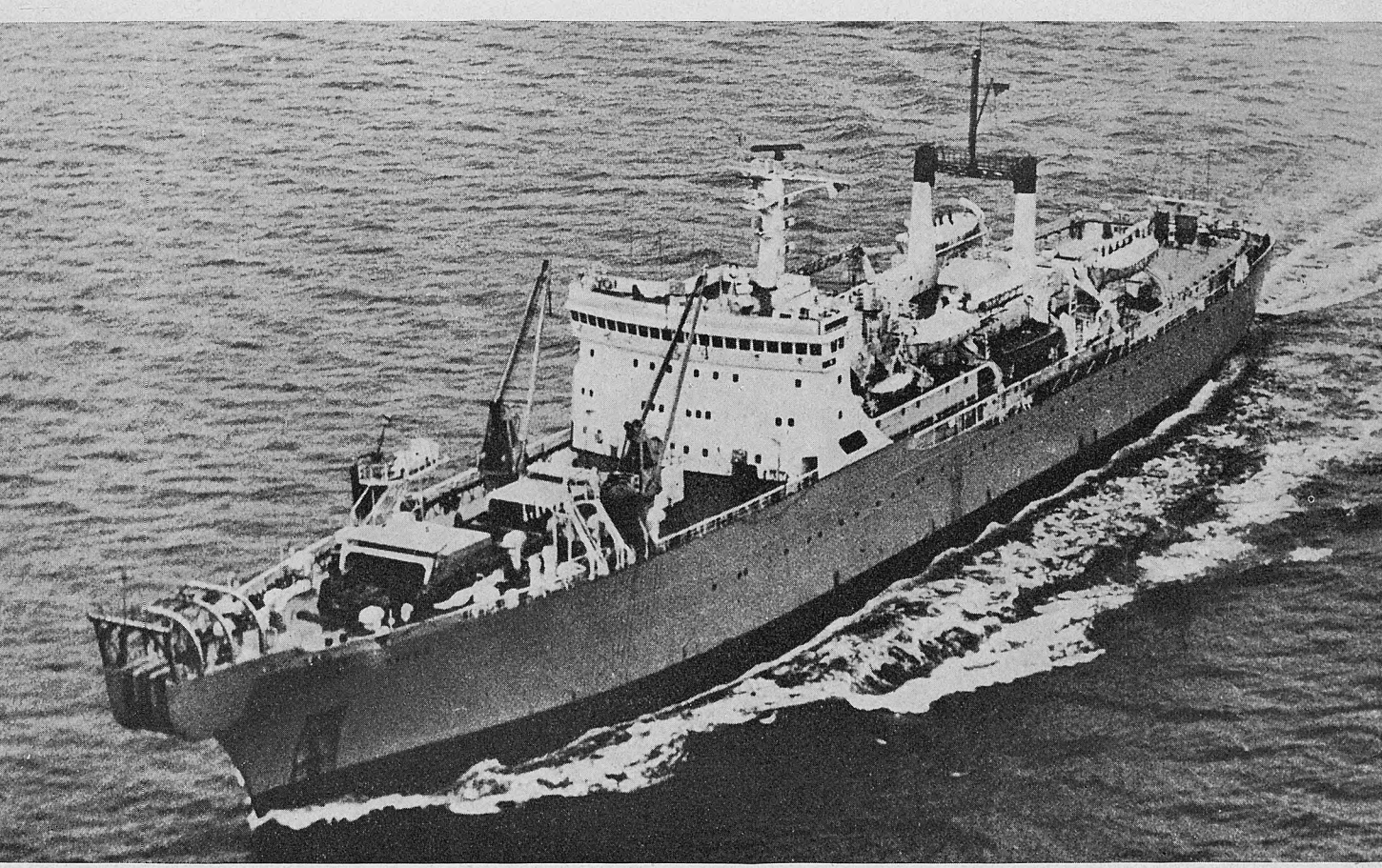
1850 : The tug *Goliath* paying out the first submarine telegraph wire mid-Channel between France and England. Accompanying the tug is H. M. packet *Widgeon.*

1961 : Loading trans-Atlantic cable aboard H. M. T. S. *Monarch.*

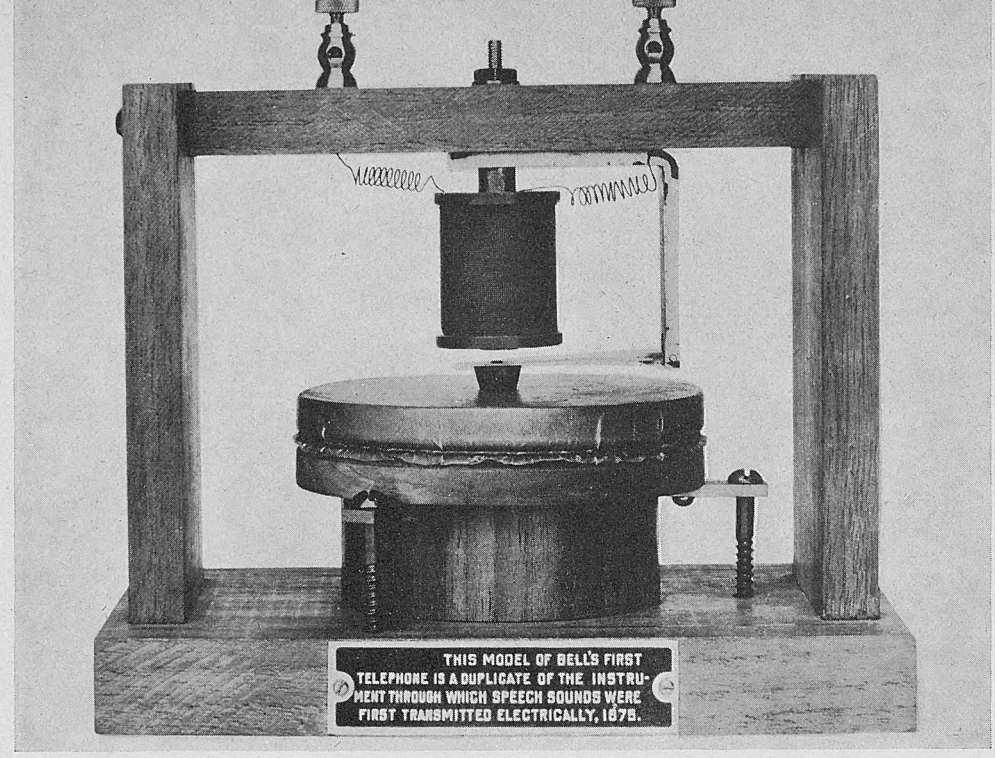


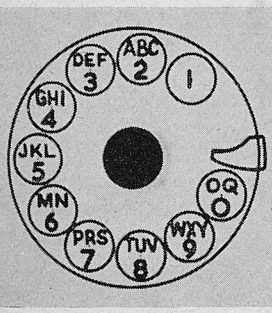
This historic conference was followed in 1868 by one in Vienna which took a decision of almost equal importance for the history of international organizations. It set up a headquarters with a Secretariat. The headquarters, established in Berne as the Bureau of the Union, was under the control of the Swiss Government until 1947 and started off with a staff of three Swiss citizens. Modest though this beginning may have been, the principle was made clear for the future that international government organizations need a home and servants.

Throughout the rest of the 19th century the Union pushed purposefully ahead, holding a succession of larger and larger conferences in the romantically-tinted capitals of a now-forgotten Europe. It revised and redrafted the

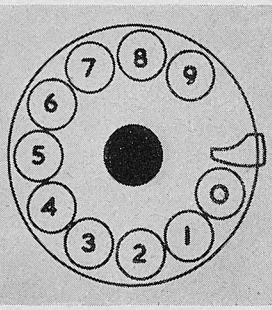


1963 : U. S. Cable Ship *Long Lines* laid the cable providing direct telephone link between United Kingdom and United States.

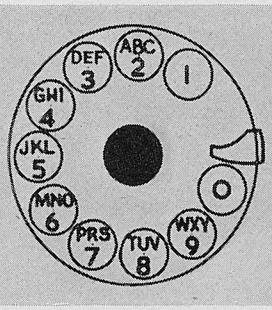




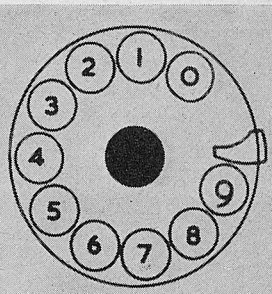
Algeria



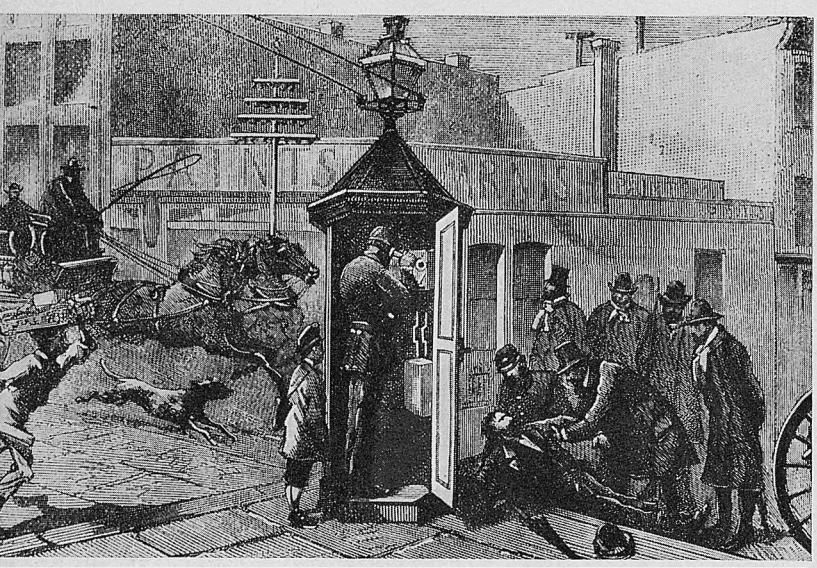
New Zealand



Canada



Sweden



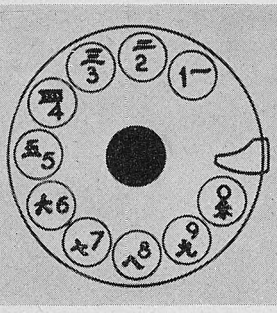
(Left) Model of the original telephone invented in 1875 by Alexander Graham Bell.

(Center) Examples of phone dials used in various parts of the world; ITU works on standardization of dials.

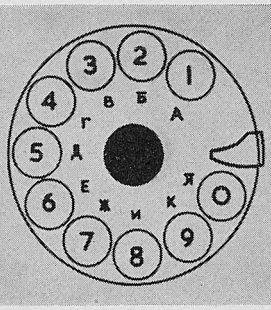
(Below, left) Chicago, 1893: At scene of an accident, policeman calls for aid from one of first phone booths.

(Right) Telephone dialling was accepted in Europe in the 1920's; here, in Sweden, a typical dial phone of the period.

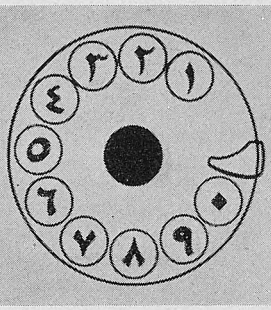
(Bottom, this page) Still in the experimental stage, the *Picture-Phone* has buttons to make calls and control the video screen. Thus, caller can choose to see or not to see, to be seen or not to be seen.



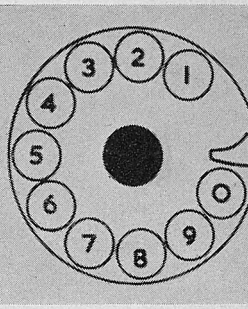
Singapore - Hong Kong



U.S.S.R.



Middle East



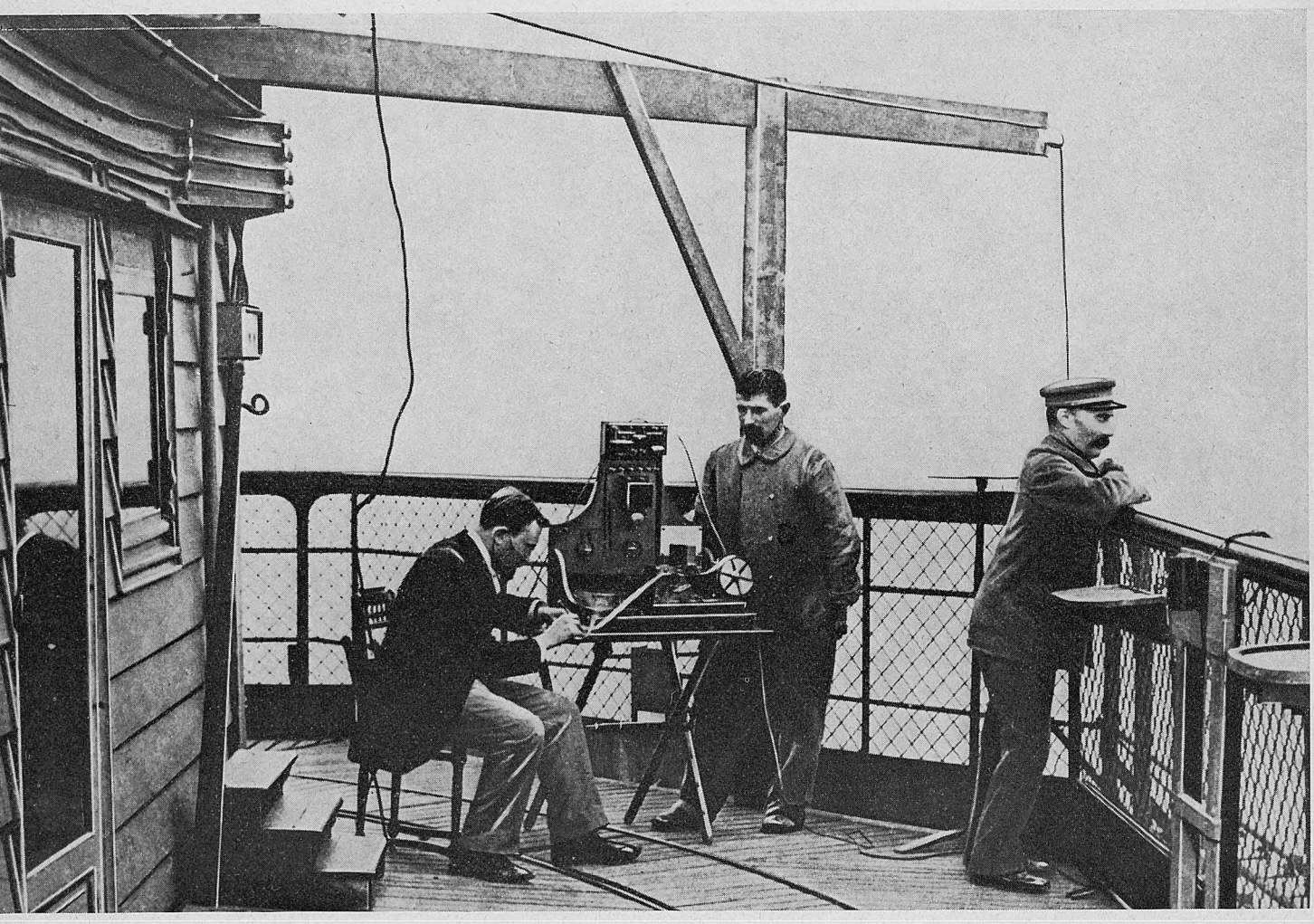
Argentina

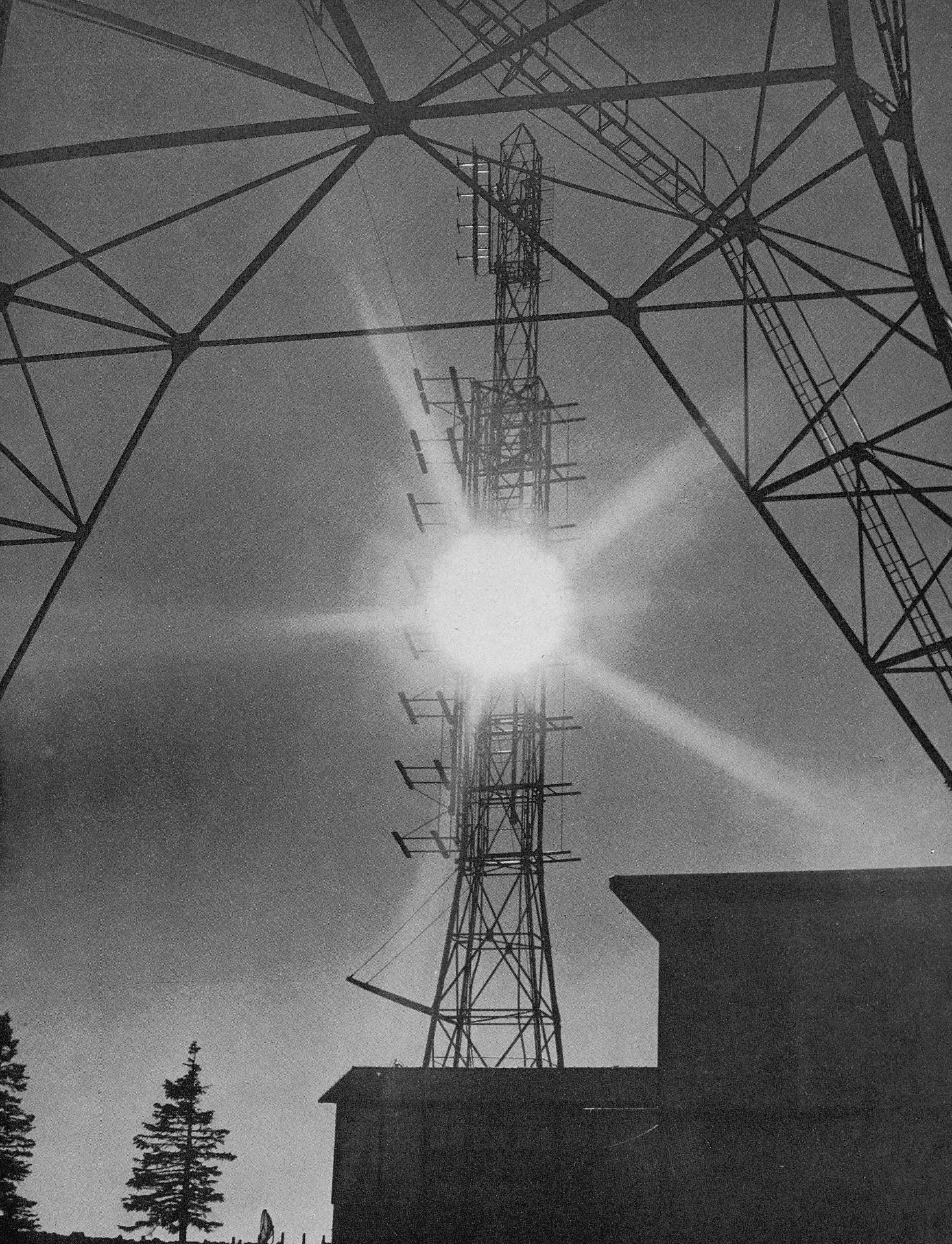
international Telegraph Regulations, sternly forbade telegrams against public order or decency, tirelessly wrestled with legal and financial problems, wondered whether the widespread use of private codes might not be imposing too great a strain on ordinary telegraphists. In 1885 it also took to legislating internationally for the telephone which had been launched by Alexander Graham Bell in 1876. It grew.

A few years earlier, in 1895 and 1896, the first successful wireless transmissions, crowning decades of research and experiment, had brought about what is still the greatest

(Opposite) Modern transmitting tower in Switzerland.

Paris, 1898: First experiments in radio transmission from the Eiffel Tower. Messages were received four kilometres away near the Pantheon.





Danish tenor Lauritz Melchior broadcasting from the Chelmsford works of The Marconi Company in July 1920, two years before the birth of the BBC.

revolution in the history of telecommunications. The invention of radio, one of the proudest conquests that science can point to, will always be associated with such names as James Maxwell, Heinrich Hertz, Oliver Lodge, Alexander Popov, Guglielmo Marconi and Lee De Forest.

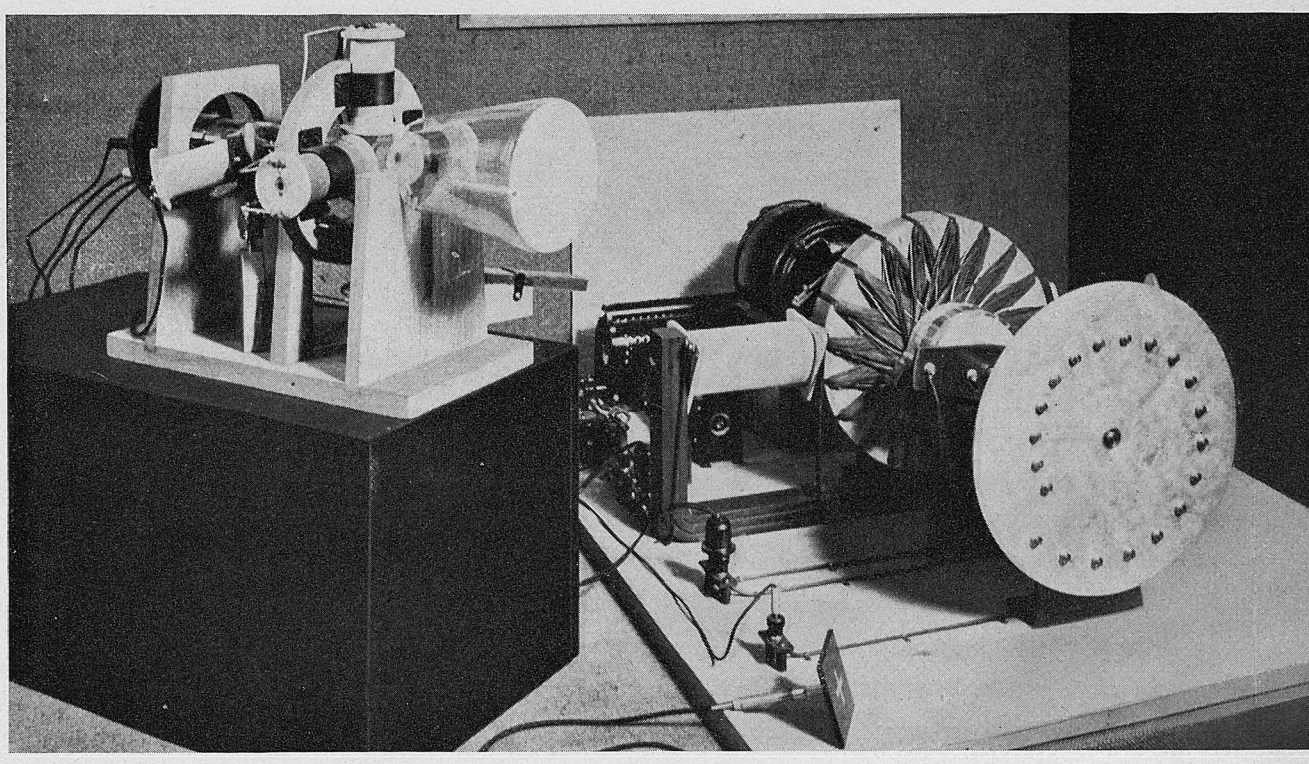
At first regarded purely as a radically advanced form of telegraphy, radio spread across the international scene even more rapidly than the parent invention, for the first time bringing ships at sea within the reach of telecommunications. It became clear with equal rapidity that international regulations were needed. One major problem was highlighted as early as 1902, when Prince Henry of Prussia, returning across the Atlantic from a visit to the United States, attempted to send a courtesy message to President

Theodore Roosevelt, only to have it refused because the radio equipment on the ship was of different type and nationality from that at the shore station. Partly as a result of this incident, the German Government called a preliminary radio conference in Berlin in 1903 which prepared the way for the Berlin Radio Conference of 1906. The 1906 Conference drew up the first international Radio Regulations, incorporating the principle that ship and coastal radio stations must accept messages from each other and adopting the SOS distress signal.

The problem of ensuring effective radio communications at sea were far from solved, as was shown dramatically in 1912 when the desperate operator of the sinking *Titanic* was unable to communicate with a ship within rescue distance simply because *its* operator had gone off-duty for the night. But a start had nevertheless been made toward solving them.

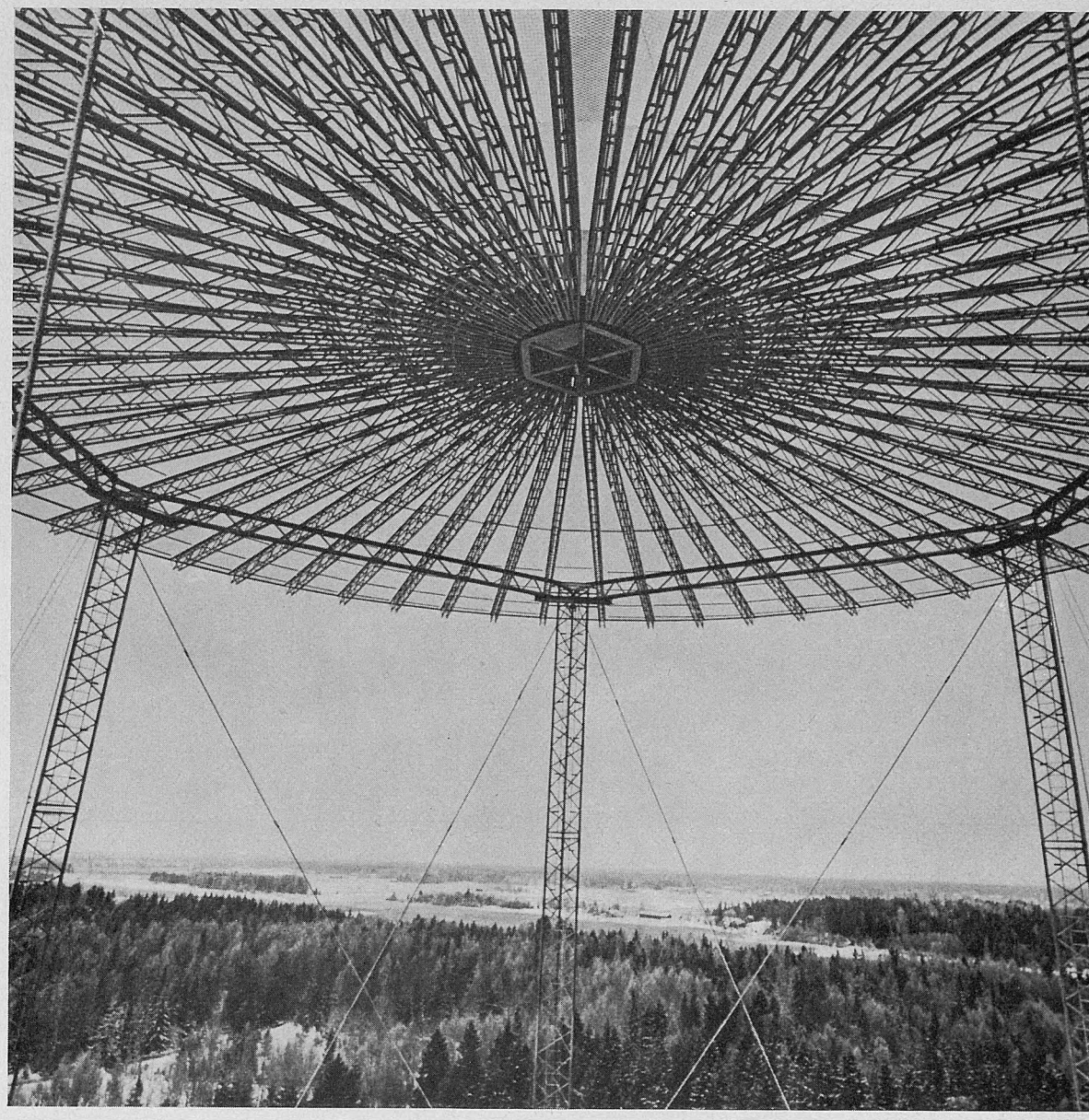
The First World War greatly stimulated the development of radio and then, in the early 1920's, a new kind of radio

Model of first television receiver made in Germany, 1906, using the cathode ray originally invented by K. F. Braun.



1890, New York: Telegraph wires criss-crossing the sky above heavily-populated Broadway before they were installed in underground cables.

service began — broadcasting. All this gave rise to a new problem — how to share out the radio frequencies over which transmissions travel so as to avoid the otherwise inevitable interference between stations. Since the use of radio constantly grows, it is a problem which has to go on being solved all the time, and now to-day, four decades and many conferences later, the international responsibility for radio frequencies remains one of the Union's heaviest and



Vanghärad, Sweden : Navigational radio antenna for civil aviation in sparsely-settled area near Stockholm.

most vital jobs. The first move was made at the Washington Radio Conference of 1927 which proceeded by allocating bands of frequencies to all of the different radio services including maritime and broadcasting.

In 1932, at Madrid, the organization took the formal step of changing its name to the International Telecommunication Union, thereby embracing in its title the full range of its new responsibilities. And indeed radio was bringing

Tracking the manned spacecraft Faith VII on a world map demands specialized international telecommunication systems. Here the spacecraft, shown by the bright light, has just passed over Zanzibar on its 16th orbit. Tracking stations are shown on map and circles around them indicate their range.

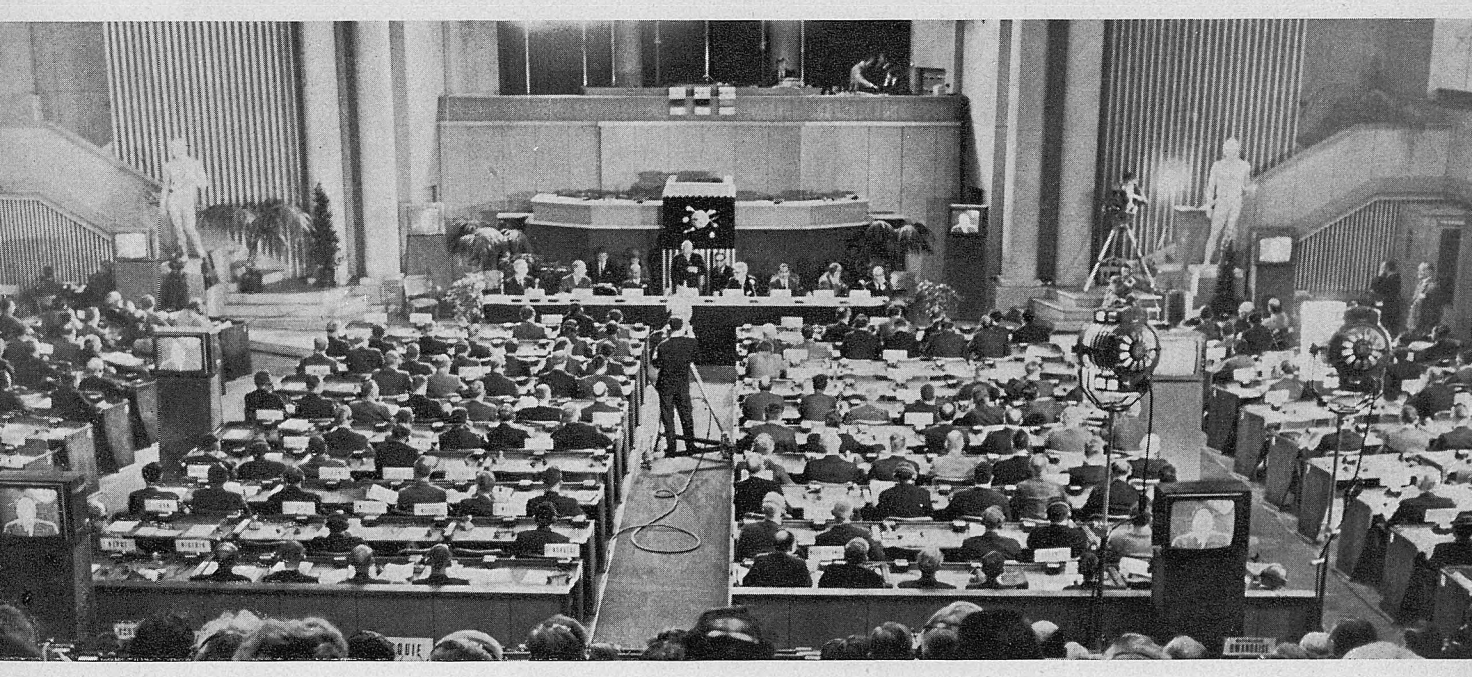
in a new communication age. The 1930's saw the development of both television and radar. The Second World War spurred on the technological advance still faster. Wartime broadcasting also made the world vividly aware that frequencies are free of frontiers. It was not hard to see that much wider international agreement on radio would be needed in the future.

Thus, two ITU Conferences met in Atlantic City in 1947 with the aims of magnifying and modernizing the Union. Under an agreement with the United Nations, the ITU became a specialized agency and its headquarters were transferred from Berne to the traditionally international

atmosphere of Geneva. As a result of decisions taken at Atlantic City, ITU headquarters now harbour the staff of its four permanent organs — the General Secretariat, the International Frequency Registration Board (IFRB) and two International Consultative Committees which are known by the initials of their French titles (the CCIR for radio and the CCITT for telegraphy and telephony).

The advent of the Space Age has thrown the ITU a new challenge, since man's exploration of outer space depends on radio. To meet the new demand, the Union held a special world Space Radiocommunication Conference in Geneva in 1963, at which more than 6000 megacycles (roughly speaking, 15 per cent of the entire radio frequency spectrum) were allocated for outer space.

Thus, this period of a hundred years, which began with those who wanted to hear faster from abroad, has been rounded off with those who want to listen closer to the stars.



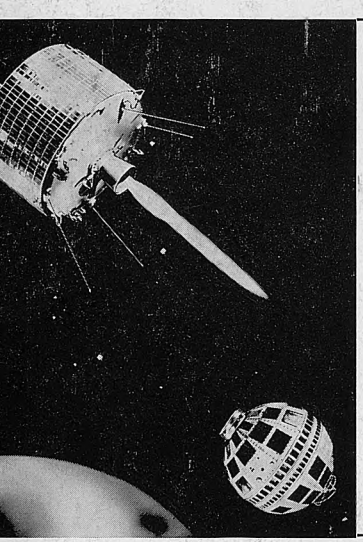
October 7, 1963. Geneva : 400 delegates from 70 countries attending world Conference on space communications. Convened by ITU, the conference allocated radio frequencies for outer space and revised the relevant part of the *Radio Regulations*, the basic document governing world-wide radio operation.

ITU-Special Fund sponsored training centre in Kuala Lumpur, Malaysia

A hundred years of international co-operation. It can be seen in the Regulations which govern the operation of telegraphy, telephony and radio around the world. It can be seen in the acceptance by ITU Member countries of the radio frequency allocations which determine the assignments they themselves make to their own radio stations. It can be seen in the work of the ITU Plan Committee which is drawing the blue-print for a future world network in which telephone subscribers will be able to dial each other from anywhere to anywhere. It can be seen in the Union's Technical Co-operation programme which is training the engineers of new countries in the newest of techniques. It can be seen in the simple fact that it is possible to telephone to another country or listen to a foreign radio programme.

A hundred years of international co-operation which has helped to make possible the amazing scientific and economic progress of this last century and which has, in the quiet succession of its practical achievements, established the Union as a prototype of the sane collective future that we seek.

The headquarters of the ITU located on the Place des Nations in Geneva, Switzerland, was opened in May 1962. At right is the Palais des Nations.



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