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The Plenipotentiary Conference, Madrid 1932

Historical perspective



by

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Introduction

It is now 50 years since the Final Acts of the International Telecommunication Convention were signed in Madrid on 9 December 1932 by 167 representatives of the 80 countries and territories accredited to the Plenipotentiary Conference. On the next day, 10 December, the Telegraph Regulations and the Final Protocol thereto, which were annexed to the Convention, were also signed.

This was not only the culmination of the long series of meetings which had begun on 3 September of that year, but also a milestone in the progress of international telecommunications and the bodies concerned with co-operation in that field; this had begun in 1855 with the setting up of the Western European Telegraph Union, to which five countries belonged, and in 1865 had taken a step forward with the establishment of the International Telegraph Union, the precursor of the present International Telecommunication Union, which adopted the first Convention and Telegraph Regulations.

The telecommunication situation in 1932

The Plenipotentiary Conference of Madrid, following the Paris Conference of 1925 and the Radiotelegraph Conference of Washington, 1927, was awaited with tremendous interest because it was to consider the strides that had been made in telecommunication systems over the past few years, particularly in radio techniques, which had been fully incorporated into the existing services, with the result that delegates to the XIIIth International Telegraph Conference and to the IVth International Radiotelegraph Conference were meeting simultaneously in Madrid.

Indeed, the progress made and the growing scope and expansion of services were spectacular for the times, even if they seem almost deliciously primitive to today's expert or even to the private user.

The oldest of the services, telegraphy, which like all the others was experiencing a fall in traffic as a result of the profound economic crisis of the time, was nevertheless employing the latest frequency division multiplex systems and benefiting from the advances in telephone carrier transmission and the laying of underground and even submar-

ine telephone cables for reliable direct communications over long distances.

Radiotelegraphy, initially developed for the maritime mobile service and subsequently extended to the aeronautical services, had become firmly entrenched in the public telegraph services, with such circuits as those between London and Sydney (17 000 km) and between Madrid and Santiago de Chile (10 600 km).

Then again, there was growing use of easy-to-handle start-stop equipment, which did away with the need for specialized operators, and in August 1932 the British Administration had even inaugu-



The Madrid Communications Palace at which some of the 1932 Plenipotentiary Conference meetings took place

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rated a start-stop public subscriber service, which it christened "telex".

What is more, telegraphy was providing major services for aeronautics, another technique which was making giant strides at the time, and the shortcomings of radiocommunications between airports were being made good by overland links incorporating teleprinters; by 1932 these extended to Copenhagen and Malmö in the north, to Geneva and Zurich in the south, to Gleiwitz and Prague in the east and to Brussels and Amsterdam in the west.

Telephotography was not only a reality within individual continents, with many circuits established in Europe and North America, but a number of intercontinental links were operating between the United States and various European countries.

Radiocommunications

The explosion in broadcasting, combined with the expansion of other radio services for public correspondence such as those already mentioned, made radiocommunications one of the most thorny subjects before the Madrid Conference, owing to the large amount of interference being caused, the need for new frequencies and the fact that the Additional Radio Regulations of 1927 had not been signed by some of the countries attending the Washington Conference, including the United States and Canada; nor had it been possible to get all the countries to accept the frequency distribution table worked out at that Conference.

It has to be remembered that in 1932, according to a report submitted at the Electricity Congress in Paris the same year, there were only 1113 broadcasting stations in the whole world, 235 of them

Table 1
Significant figures on world telephone development

region	number of telephones				
	1882	1900	1932	1950	1982*
Africa	—	—	238 000	805 600	6 366 000
America	72 500	1 100 000	21 824 900	45 604 600	228 090 000
Asia	—	—	1 303 000	2 468 400	85 745 000
Europe	13 400	803 000	10 921 900	20 299 000	200 000 000
Oceania	—	—	682 200	1 522 400	10 135 000

* Estimates.

in Europe and 771 in America, with a combined antenna power of 4000 kW, 2600 kW being emitted by European stations. There were an estimated 35 million receivers, the latest advances including automatic volume control and the use of space diversity for reducing fading in distant broadcasts. The sensitivity and selectivity of commercial receivers had also been improved.

The Plenipotentiary Conference of Madrid added to the Convention a new chapter on radiocommunications, adopted the annexed Radio Regulations, regulated the use of the band 150-1500 kHz (the greatest bone of contention since it was the band used for long- and medium-wave broadcasting), introduced rules for registering the frequencies of new stations and agreed to hold a European Broadcasting Conference in the following year, which produced the Lucerne Plan.

In 1932, television was more of a promise than a reality. Experimental transmissions such as those made by the British Broadcasting Corporation (BBC) had been in progress since 1929 using

Baird's mechanical scanner system and the French had introduced the so-called "visiotelephony" service, in which people speaking on the telephone could see each other. But it was still to be some time before advances in electronic systems, developed from 1929 onwards with the iconoscope and the cathode-ray kinescope, were to enable the first regular television services to be introduced in Germany and Great Britain around 1935-1936.

Telephony

By 1932, automatic switching was well established and covered 70% of subscribers in such countries as Germany and Austria. The number of telephones installed throughout the world amounted to 35 million on 1 January 1932, including 19.6 million in the United States and 10.9 million in Europe, but only 238 000 in Africa. Table 1 gives a few significant figures on world telephone development.

Table 2
Significant figures on telephone development in certain countries

country	1 January 1932			1 January 1981		
	telephones per 100 inhabitants	degree of automation	number of telephones	telephones per 100 inhabitants	degree of automation	number of telephones
Germany	4.5	70.4	2 960 401	46.38	100	28 553 622
Spain	1.1	63.4	270 542	31.64	97.8	11 844 623
France	3.1	30.4	1 292 754	45.96	100	24 686 319
Great Britain	4.6	34.5	2 109 695	49.71	100	27 783 534*
Sweden	9.1	24.5	563 337	79.67	100	6 620 487
USSR	0.3	13.1	569 111	8.90	98.6	23 707 000
Japan	1.5	17.1	965 390	48.20	99.7	56 284 139*
United States	15.6	—	19 602 000	79.26	100	180 424 000

* Data for 31 March 1981.

Trunk and international telephony had received a considerable boost with the development of multiplex carrier systems and intermediate repeaters; many international circuits had been established over both overhead lines and underground cables, and there had even been intercontinental radio services linking the United States with various European countries from as early as 1927. In 1932, the telecommunication authorities could be justly proud of being able to establish links between the European telephone network and 18 countries outside Europe, all by radio.

Despite the development that the figures suggest, however, telephony was nothing like what it is today. Apart from the United States, where 65% of telephones were private in 1932 and Sweden, which had a similar percentage, in the rest of Europe and the world the telephone had not yet reached most homes;

it was used essentially for administrative and commercial purposes and was far from being a normal means of communication in family and social relations, let alone a channel for citizen's participation, such as it has now become, particularly in the more developed countries.

Conclusion

The Plenipotentiary Conference of Madrid, 1932, whose 50th anniversary we are now celebrating and which laid the foundations of our present International Telecommunication Union, was a milestone in international co-operation in telecommunications.

I feel that even this rough sketch of the telecommunication scene and the sort of problems the delegates at the Confer-

ence had to face, not to mention the tremendous future of which they already had an inkling, fully confirmed during the subsequent 50 years of development, will give the reader an idea of the valuable results international co-operation in the field has yielded and of the growing role telecommunications can be expected to play in the service of mankind.

A comparison between 1932 and 1982 and consideration of such indications as telephone density or the penetration of the telephone into the home still point up vast areas of the developing world in which telecommunication services are decades behind, giving an idea of the effort of solidarity and co-operation still needed to benefit those living in less favoured areas, in some of which telecommunication has not yet even reached the level enjoyed by some countries in 1932.

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