“Electric business”. The first globalization and the birth of the International Telegraphic Union

To know almost immediately what happens on the other side of the world, to buy and to sell financial holdings of foreign companies without leaving your own city, to negotiate contracts with suppliers of another continent. Unknown to most people, all these operations were already possible at the end of the 19th century, although with more limitations compared to nowadays. Already in the 40s of the 19th century, many Western countries had started the creation of the first international telegraphic network. From the 50s, the installation of the first submarine cables allowed the connection between continents and started the first international telecommunication network. The need to improve and extend international communications motivated countries to enter into bilateral and multilateral agreements on telegraphic communications. These agreements were joined together in 1865 with the founding of the first international organisation: the Telegraphic Union. Its objectives were: the technological standardization, the set of regulations and the adoption of the same international tariffs. The Telegraphic Union had an extremely modern administrative structure, on the basis of recurrent bodies (the Conferences) and a permanent body (the International Office of Telegraphic Administrations).

The first studies on the Telegraphic Union focused on organizing and political aspects, underlining the innovative changes, as the first international organization but neglecting the actual technical aspect of the object managed at an international level.[1] In the last few years, with more knowledge from the studies about the creation of telecommunications, they have become the main topic also in the researches about the Telegraphic Union and the Telecommunication Union. It has been stressed how the actual international structure of communications has fostered a multilateralism among nations and according to some researches, has also supported a long and gradual process of European integration[2]. This study wants to underline the role of the International Telegraphic Union between the 19th and the 20th century which fostered the development of the international telegraphic network and therefore provided the flow of economical information. First of all, in the first paragraph it is debated in general the birth and the development of the International Telegraphic Union.

[1] G. A. CODDING, *The International Telecommunication Union. An experiment in International Cooperation*, Leiden, E. J. Brill, 1952

[2] L. LABORIE, *La France, l’Europe et l’ordre international des communications (1865-1959)*, Thèse pour obtenir le grade de Docteur de l’Université Paris IV – Sorbonne (directeur: Pascal Griset), Paris, 2006.

Furthermore, it is underlined the close link between the business world and the international telegraphic network, by means of some issues which were discussed during the Telegraphic Conferences, which were the Union's decisional body.

The International Telegraphic Union

The Telegraphic Union was the starting point of a number of bilateral and multilateral agreements entered into by several European States during the 50s and the 60s. Many among the characteristics of what would have become the International Telegraphic Union were, for instance, already present in the Austrian and German Telegraphic Union, founded in 1851, or in the Western European[3] Union, founded in 1855, together with many regulations enforced in the first international Conventions which were simply transferred to the Union in Paris[4]. The International Telegraphic Union can therefore be considered in all respects, as the natural consequence of all the previous conventions and agreements.

The International Telegraphic Union was founded in 1865, after the Conference held in Paris[5] and was the first supranational organization to gather together various Nations in order to regulate a public service[6]. At the beginning, all those Nations whose telegraphic service was controlled by a state-owned monopoly[7] took part, so Great Britain[8] and the United States[9] were excluded. The main objective of the Union was to guarantee international telegraphic

[3] The Western European Telegraphic Union gathered all European States under the French government.

[4] This decision is explained in: J. HORRENBERGER, *L'Union Internationale des Télécommunications ou Les exigences techniques comme factor de la coopération internationale, Mémoire pour l'obtention du diplôme des Hautes Etudes Européens section des sciences de l'information, Université de Strasbourg, 1976,* page 11; See MEYER, *L'Union Internationale des Télécommunications et son bureau, Berna, 1946,* page 3.

[5] *Documents de la Conférence Télégraphique Internationale de Paris*, Union Télégraphique Internationale, Paris, 1865.

[6] The Universal Postal Union was in fact established only nine years later, in 1874, in Berne. For a detailed study about the history of the two unions, see: G. A. CODDING, A. M. RUTKOWSKI, *The International Telecommunication Union in a Changing World*, Deedham, Artech House, 1982.; G. A. CODDING, *The Universal Postal Union, coordinator of the international mails*, New York, New York U. P., 1964. For a comparison between the two Unions, see: G. GNEME, the *«Unione Internazionale delle Telecomunicazioni»* and the *«Unione Postale Universale»*, Rome, The State Printing Office, 1941, or *Le traité de l'Union générale des postes et la Convention international des telegraphes*, in *«Journal Télégraphique»*, 1874, pages 551-554, 575-580, 591-594.

[7] The Conferences were also attended by invited private companies which managed the telegraphic service of submarine cables. However, they did not have any voting rights.

[8] Great Britain attended the Conference held in Paris in 1865 on behalf of the Indian colonies. In 1869, the British government nationalized the telegraphic service and so, from the Conference held in Rome in 1871, it attended all the meetings of the Telegraphic Union on behalf of their own metropolitan network. For the request of the British attendance with two separate delegations, see: *Verbaux de la 1ere seance de la Conference Télégraphique Internationale de Rome 2 decembre 1871* in *Documents de la Conference Télégraphique Internationale de Rome, Union Télégraphique Internazionale*, Berna, 1872.

[9] In the United States, the telegraphic service instead, was always managed by private companies, so official American representatives were never invited at the telegraphic Conferences, even if observers were present, they had no voting decisional power. The United States officially attended the International Telecommunications Union's Conferences only after the Conference held in Atlantic City in 1947.

communications. To achieve this objective the technological standardization, a set of regulations and the use of international mutual tariffs were necessary. It was therefore essential that the States, by means of regular Conferences, decided which telegraphic equipment[10] and which materials use for international lines[11], which laws to enforce for the control of national and international telegraphic service[12] and finally, how much people should pay for a single telegram sent from one State to another. At the time, such Conferences were a novelty, as for the first time all the European Nations abandoned a small part of their national government to foster the development of a service which was becoming essential for economical and trade business relationships, as well as diplomatic ones[13].

The main body of the Telegraphic Union were the Conferences, which included the participation of the representatives of all registered Countries. The first four Conferences, from 1865 until 1875, were so-called "plenipotentiaries", for they gathered delegations which their own Country gave "complete decisional power" to enter into international agreements. The delegations which took part in the telegraphic Conferences included diplomats but because of the high technical value required for the drawing up of the regulations for the control of the international telegraphic service, there were also experts of the single telegraphic governments. The Conferences drafted three types of documents: the *Conventions* which included the general rules of the telegraphic circulation, the *Regulations* which set the more detailed and technical aspects of the service and finally, the *Schedule of the tariffs*.

After the Conference held in Saint Petersburg, in 1875, only so-called "local" Conferences[14] were held, which were attended only by representatives of the single telegraphic administrations[15] that is, without diplomatic decisional powers with the

[10] The article number 3 of the Convention held in Paris established the use of the Morse telegraph on international lines: *«l'appareil Morse reste provisoirement adopté pour le service des fils internationaux»*.

[11] It is important to underline that the first article of the Convention held in Paris concerned the use of a standard criteria for the building of new lines*: «les villes entre lesquelles l'échange des correspondance est continu ou très actif seront successivement et autant que possible, reliés par des fils directs, de diamètre superior et dont le service demeura dégagé du travail des bureaux intermédiaires»*. Advising the use of direct and wide wires among links in the most relevant cities, the objective was to actually suggest a standard system for the building of international telegraphic lines, a solution which very soon would have become an advantage for customers.

[12] As for the general principles of the circulation of telegrams, in fact, the Austrian and German and Western European Union's Conventions were basically the same. This led to the consequence that also the national telegraphic Regulations of the various States were very similar to one another. The general principles of the telegraphic circulation, that is the free access to a service by everybody, the possibility to stop telegrams against public order or immoral, the possibility of a sovereign State to partially or totally suspend the telegraphic circulation in its own territory, were included in all the Union's Conventions from the first one held in Paris and were then sanctioned, in a rather definite way, in the Conference held in Saint Petersburg.

[13] P. DURAND BARTHEZ, *Union Internationale des Télécommunications*, Thèse pour le doctorat en droit, Université de Paris I-Pantheon-Sorbonne Sciences Economiques-Science Humaines-Sciences Juridiques, 1979.

[14] CODDING Jr., *The International Telecommunication Union*, cit., pages 43-45.

[15] This was established in the article number 16 of the Telegraphic Convention held in Saint Petersburg: *«Ces Conférences sont composée des délègues représentant les Administrations des Etats contractants»*. Article

consequence that the only documents which continued to be elaborated, were the Regulations and the Schedules of the tariffs[16]. The general principles of the international telegraphic communication remained in fact sanctioned in the Convention held in Saint Petersburg founded in 1875, during the last plenipotentiary Conference[17]. Between 1879 and 1908 six local Conferences were held, in each of which were changed the regulation and the general schedule of the tariffs.

In 1868, after the second telegraphic Conference, the Union established a permanent body which guaranteed the control between one Conference and another: the International Office of the Telegraphic Administrations[18]. It carried out at least five main functions: 1) the grouping of information of the telegraphic administrations; 2) the consequent revision of the information with the editing and the publication of works or magazines; 3) the sending of official communications to the administrations; 4) the correspondence about the changes of the Regulation or the International Convention; 5) the advice about technical aspects of the international service[19]. Despite the secretariats of many current international organizations, the *Bureau International des Administrations Télégraphiques* did not have any decisional powers, nor any kind of authority to oblige the observance of the regulations sanctioned in the Conventions[20].

After the Conference held in London in 1903, the Union started to include in its competences also the international regulation of the telephone service. In 1906, after the development of the radiotelegraph, the first Conference of the International Radiotelegraphy Union was held in Berlin. It shared with the Telegraphic Union, the permanent body, that is the International Office of the Telegraphic Administrations, as well as its magazine, the

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number 16, paragraph 1 *Convention Internationale Télégraphique de St Petersbourg*, 1875 in *Documents de la Conference Telegraphique Internationale de St Petersbourg 1875, Berne, Union Télégraphique Internationale*, 1876, pages 1-11.

[16] International agreements had to and still have, to be ratified. The ratification consists in the formal recognition of the agreement as a national law, so it has to be entered into formally by the legislative body, which in democratic and liberal governments is represented by the Parliament. Regulations were instead limited in terms of formal dignity of international agreements, so the approval of the single national governments was sufficient in order to become executive in the various Nations.

[17] *Convention Internationale Télégraphique de St Petersbourg*, 1875 in *Documents de la Conference Telegraphique Internationale de St Petersbourg 1875*, cit., pages 1-11.

[18] Article number 61 *de la Convention Télégraphique Internationale de Vienne 1868*, in *Documents de la Conference Telegraphique Internationale de Vienne, Berna, Union Télégraphique Internationale*, 1869 .

[19] For the roles of the *Bureau*, read the previously mentioned article number 61 *de la Convention Télégraphique Internationale de Vienne 1868*, the Art. XXXII de le *Reglement annexé a la Convention Télégraphique Internationale de Vienne 1868*, the art. 14 de la *Convention Télégraphique Internationale de St Petersbourg, 1875*. To understand the reasons why these roles were appointed to the *Bureau* you can read *Verbaux de la 13eme séance de la Conference Télégraphique International de Vienne, 4th July 1868*, in *Documents de la Conference Telegraphique Internationale de Vienne*, cit., pages 382-394.

[20] BUREAU INTERNATIONAL DE L'UNION TELEGRAPHIQUE, *L'Union Télégraphique Internationale (1865-1915)*, Union Télégraphique Internationale, Berne, 1915, pages 27-34.

Journal Télégraphique[21]. In 1932, during the Conference held in Madrid, the two Unions became one single body: the International Telecommunications Union (ITU). After the latter half of the Second World War, the ITU became an organisation joined to the United Nations and for this reason, its seat was moved from Berne to Geneva.

The role of the business world in the decisions of the International Telegraphic Union

The Telegraphic Union has definitely had an essential role in the development of international communications. Without sharing technologies and common rules, it is not possible to create long distance communications. This has been shown by the fact that the first international telegraphic lines were always controlled by bilateral agreements, which established in detail technical limitations, ways of communications and tariffs. The development of telegraphic technologies followed therefore the development of the agreements which regulated international communications. Meanwhile, while more resistant submarine cables were placed and faster telegraphic devices were invented, simple bilateral conventions became multilateral and more complex international organizations were founded. It is not therefore possible to separate the study of international telecommunications from the one of international organizations, which establish and regulate the structure.

In fact, it is also well know a link between the telegraphy and the business world. Several researchers have shown in detail the increase of financial transactions, after the creation of submarine lines particularly "hot", as the transatlantic one[22]. Other researchers have analyzed how some European Stock markets have increased their operations after the introduction of the telegraph or the telephone in their premises[23]. Others have showed how the creation of an international telegraphic network has allowed a more efficient control of trade business, therefore increasing the performance and also the profits[24].

In other words, one can understand that the Telegraphic Union, as a basic element for the development of the international telegraphic network, has strongly motivated the international business world. As the representatives who attended the Telegraphic Conferences were part of state-owned administrations, it is not surprising that many of the issues which were discussed, concerned mainly with regulations and the technical field. Yet,

[21] DURAND BARTHEZ, *Union Internationale des Télécommunications*, cit., page 55.
[22] HOAG, The *Atlantic Telegraph Cable and Capital Market Information Flows*, cit.
[23] S. BAIA CURIONI-L. FANTACCI, *Telegraphy and New Financial Procedures*, in A. GIUNTINI (ED.), *Communication and its lines. Telegraphy in the 19th Century among economy, politics and technology*, Symposium Proceedings Prato 20 September 2002, Prato, Institute of Post Historical Studies, 2004, pages 83-109.
[24] LEW-CATER, *The telegraph, co-ordination of tramp shipping, and growth in world trade*, cit.

taking into consideration the discussions which occurred during the telegraphic Conferences, there were at least two topics which mainly concerned the business world: 1) how to enforce international tariffs; 2) the possibility to use coded telegrams. According to the analysis, both cases show how the representatives of the Telegraphic Conferences were completely aware of the link between the international telegraphic network and the business world.

Tariff issues

At the beginning of the international telegraphic service, one of the first necessities was to define a tax criteria of telegrams equal for all the Nations of the international network. For this reason, since the first telegraphic Conventions and above all, for those which regulated the Austrian and German and the Western European Unions, an area tax system was established. This consisted in taxing telegrams in each State according to the distance "crossed" by telegrams. In this way, the price of a telegram sent from France to Prussia could change according to the departure office and the destination one, therefore creating big price differences.

In Paris, in 1865, a standard taxation system was enforced, thus establishing that the cost of a telegram from a specific State to another always remained the same, regardless of the departure and the destination offices. The Convention held in Paris envisaged in fact that each State had a destination tax and a transition one. In this way, according to the States which a telegram had to cross, the employee calculated the tax of the international telegram adding the transition taxes and the destination ones. The different destination and transition taxes were supposed to be imposed to the so-called "simple telegram" of twenty words only. For every extra ten words another half of the tax was added.

Then a new situation was appearing, the issue of the so-called "single word taxation" which would have allowed customers to pay only for the actual words which were sent. This system would have become an advantage for all those people whose professional job was based on the international information exchange via telegraph, in particular it would have been an advantage for press agencies and international trade businessmen.

Since the Conference held in Vein in 1868, after the establishment of the taxation of single words for telegrams sent outside Europe[25], the European tariff system and the non-

[25] In the Conference held in Vein an issue arose, mainly for the correspondence to Asia or America, that a telegram of twenty words was far too expensive. The Indian British delegation, pointed out for instance, that for a telegram sent beyond European borders, the cost calculated for twenty words was prohibitive because of the long distance. On this matter, the Belgian representative Vinchent proposed the opportunity, from the Administrations and the Companies which worked in the non-European territory, to reduce the simple telegram

European one, were considered in a different way until the Conference held in Berlin in 1885, when the word taxation was used in both cases[26].

During the Conference held in Berlin, in 1885, another remarkable change was introduced on international tariffs: the European single tariff. For the first time in the history of the Telegraphic Union, were in fact introduced *«une seule et meme»* destination taxation and *«une seule et meme»* transition tax, valid for all States. The destination taxation was 10 French franc cents per word and the transition one 8 cents. This considerable simplification of the international taxation was due to have several derogations, which would have changed the importance, above all for users[27].

Despite the contradicting aspects previously mentioned, the European and the non-European tariff system established in Berlin in 1885, remained the same until 1925. You can therefore state that the tariff for a single word represented the finish line of the development of the telegraphic taxation until the 20s of the 20th century. Possibly, during this route of improvements and simplifications of international telegraphic tariffs, the economical interests of press agencies and economical and financial businessmen played an important role.

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to ten words only. The Belgian delegation justified such decision stating that mainly for the submarine cable companies, the simple telegram of twenty words endangered their own business. In actual fact, as Vinchent mentioned, the companies had already found another dodge to avoid the damage caused by fixed taxation of twenty words, that of "packing messages". The companies accepted therefore messages with less than twenty words and then sent some of them together, in order to form only apparently, a single simple telegram. Obviously, this device allowed companies to increase their incomes at the expense of the Unions' Administrations. In the face of the evidence, the other delegations admitted formally a situation already existing and allowed the administrations and the companies which sent telegrams outside Europe, to send telegrams of ten words only, obviously at a reduce tariff. See: *Verbaux de la Commission des délégues speciaux*, in *Documents de la Conference Telegraphique Internationale de Vienne 1868*, cit., pages 295-301.

[26] *Documents de la Conference Telegraphique Internationale de Berlin 1886*, Berne, Union Télégraphique Internationale, 1886, pages 394-395.

[27] The most relevant derogation given at the Conference held in Berlin, concerned the possibility of the single administrations to own taxes at their own will. This meant that, although it was in present use, an international tax per word, the same for all States, in actual fact, each State offered customers international telegrams with a different tariff system. Obviously, it was expected that enforcing a different taxation system, the administrations remained within specific limits, which were only apparently strict. The first limit imposed that the taxes could have been rounded up by increasing or decreasing, compared to the taxation per word established in the taxation Schedules, according to the monetary interest of the State. Moreover, the changes should have been applied only to the tax conceived by the departure office and should have not changed the taxes division due to other offices concerned. These should have been regulated in order that the difference between the conceived tax for a telegram of 15 words and the one exactly calculated on the basis of the Schedules, did not exceed fifteen percent of the concerned tax.

As we can understand, the theoretical system of the exceptions conceded to the single Administrations is rather complex. It is therefore useful to trace back a practical example. In Italy, the international tariff was never enforced per word. It was in fact given a fixed price of one *Lira* for the first fifteen words, in order to standardize the international tariff system to the national one, and a tax of 16 cents was required for each word added besides the ones allowed for a simple telegram. According to this system, the taxes received for telegrams under fifteen words, were higher than the ones established by the Regulation held in Berlin. Yet, the longer the international telegrams were, the less were the costs compared to the tariff Schedules, as to remain within the limits stated by the Regulation, Italy had established a tax per word lower then the one established in the Conference held in Berlin. See: BUREAU INTERNATIONAL DE L'UNION TELEGRAPHIQUE, *L'Union Télégraphique Internationale (1865-1915)*, cit., page 41.

Coded telegrams

Another topic of all the Telegraphic Conferences of the International Union, which mainly concerned the business world, was that of coded private telegrams[28]. Besides secret reasons[29], people used to write coded telegrams for economical reasons. They tried to summarize the meaning of several words used orally into one single coded expression. This solution offered great money savings, because the single word taxation, the least number of words used, the less the cost of a telegram. The introduction of codes was therefore a move essentially due to trade reasons. In fact, among the administrations which promoted the newest innovations in this field, the British one was always in the front line.

During the Conference held in Paris, it was established that private telegrams sent in a secret language, were taxed on every group of five letters, regardless of the actual length of the coded words. This however obliged people who often used international telegrams to use codes which words were used orally, although having a different meaning. This system could evade the regulation concerning coded messages and a lower tariff could be enforced to current language[30] telegrams. This dodge, which press agencies and important trade businessmen used, testifies that the use of codes in private telegrams mainly focused on money saving in international tariffs.

The recognition of telegrams' secret language was confirmed and definitely sanctioned in the Convention held in Saint Petersburg[31] in 1875. The enclosed Regulation of the Convention tried to limit the excessive use of long words, setting the maximum limit, for each word, of fifteen letters for Europe and ten letters for non-European countries.[32] This limitation stopped the tendency which spread in the 70s to invent codes with all the words used orally, formed by a great number of letters.

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[28] There were basically two types of Codes: based on real words and formed by invented words. Those of the first group were included in the dictionaries of the languages admitted in the international telegraphic circulation, so they made life easier for telegraphers who had to send telegrams.

[29] The telegrams were mainly of the government, that is the ones sent by the States used for secret reasons and due to their importance for the State members of the Union, were always allowed in all Nations. About this matter read the article number 9 of the *Convention Télégraphique Internationale de Paris 1865*: *«Les dépêches d'Etat et de service peuvent être composées en chiffres ou en lettres secrètes, soit en totalité, soit en partie»*.

[30] CODDING Jr., *The International Telecommunication Union*, cit., pages 65-73.

[31] «Les télégrammes d'Etat et de service peuvent être émis en langage secret, dans toutes les relations.
Les télégrammes privés peuvent être échangés en langage secret entre deux Etats qui admettent ce mode de correspondance.
Les Etats qui n'admettent pas les télégrammes privés en langage secret, au départ et à l'arrivée, doivent les laisser circuler en transit, sauf le cas de suspension défini à l'article 8», Art. 6 of the *Convention Télégraphique Internationale de St. Petersbourg 1875*.

[32] Art. XXI du *Règlement annexé a la Convention Télégraphique Internationale de St. Petersbourg, 1875*.

The Conference held in Berlin in 1885 confirmed formally a situation already existing in everyday life, establishing the difference between coded and ciphered languages. Ciphered telegrams, whose words were completely artificial, continued to be taxed every five letters. Coded telegrams, on the contrary, formed by words present in the various languages, were taxed exactly like the ones in ordinary language. Obviously, precise limitations were set to coded languages to distinguish them from the ciphered ones. In particular, they had to be formed by words present in the dictionaries of the included languages and formed by not more than ten letters[33]. These limitations reduced remarkably the possibilities to invent new codes, so the use of coded languages which included artificial words, resembled the ones in the various languages. The code inventors aimed to exploit the relative linguistic ignorance of telegraphers, who could not look up in dictionaries for every telegram in the various languages. The consequence was that some telegrams which were admitted as coded, were in actual fact ciphered, so they should have been subjected to a higher tariff[34].

To eliminate these kind of abuses, the Conference held in Paris in 1890 granted the *Bureau International* to elaborate and then publish an international telegraphic dictionary[35]. The excitement about the new dictionary though, ended nearly immediately, by the time it was published in 1894[36]. The majority of the administrations believed in fact that the dictionary lacked in too many points and did not include many words used in currently used codes. Because of the spread of pessimism, the representatives who attended the Conference held in Budapest in 1896, instructed the *Bureau* to add more words to the dictionary and to publish an updated version[37]. The International Office took four long years before publishing a dictionary which included 218 public and private codes, for a total of nearly six million words[38].

After the decisions taken by the *Bureau* during the Conference held in London in 1903, some delegations, among which Belgium and Japan, wanted the use of the dictionary to be

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[33] Art. VIII du *Règlement annexé a la Convention Télégraphique Internationale de St. Petersbourg révisée a Berlin, 1885*.

[34] CODDING Jr., *The International Telecommunication Union*, cit., pages 67-68.

[35] *Documents de la Conférence Télégraphique Internationale de Paris 1890*, Berna, Union Télégraphique Internationale, 1891, pages 418-419.

[36] BUREAU INTERNATIONAL DES ADMINISTRATIONS TELEGRAPHIQUES, *Vocabulaire officiel pour la rédaction des télégrammes en langage convenu dressé conformément aux décisions de la Conférence télégraphique internationale de Paris*, Union Télégraphique Internationale, Berna, 1894.

[37] *Documents de la Conférence Télégraphique Internationale de Budapest 1896*, Berna, Union Télégraphique Internationale, 1897, pages 556-559.

[38] BUREAU INTERNATIONAL DES ADMINISTRATIONS TELEGRAPHIQUES, *Vocabulaire officiel pour la rédaction des télégrammes en langage convenu dressé conformément aux décisions de la Conférence télégraphique internationale de Budapest*, Vol. I, Union Télégraphique Internationale, Berne, 1899, Vol. II e Vol III, Berne, Union Télégraphique Internationale, 1900, Vol. IV et Appendice, Union Télégraphique Internationale, Berna, 1901.

mandatory[39]. In another words, coded telegrams were admitted only if they had words included in the official dictionary. After such a proposal, Great Britain had an immediate reaction, as holder of the main interests in international trade, which refused the request advancing rather justified objections[40].

The Conference held in London though, had to provide by means of new regulations, limitations on abuses of the use of codes. Once more, it was established that coded words had to be pronounced in one of the eight languages and could not be formed by more than ten letters. Moreover, it was not allowed the creation of new words by means of the combination of words present in the admitted languages[41]. These limitations however, were not very useful, as already in 1904 new codes were invented based on words of five letters, which joined one to another, formed words of ten letters. On the other hand, the pronunciation in eight different languages was a criteria too general and a clever customer could show it by means of a number of linguistic contortions, even where there was not one present. To definitely solve the issue of coded telegrams, during the Conference held in Lisbon in 1908, a special Committee was founded, composed of France, Germany and Great Britain Administrations, which task was to verify the acceptability of the new invented codes. The results of the Committee were rather satisfying, although its work stopped at the break out of the First World War[42].

After the war was over, the issue about the abuse of codes in telegraphic correspondence returned as a main problem. The Union, after giving powers for a new regulation to a studies' Committee[43], sanctioned during the Conference held in Brussels in 1926 more or less the same limitations which existed before the Great War. In other words, the issue about the regulation of the use of secret codes in international correspondence, remained unsolved until the founding of the Telecommunications Union in 1932. However, the continuous research of new trade codes, which eluded international regulations, shows how much press agencies and

[39] *Documents de la Conférence Télégraphique Internationale de Londres 1903*, Union Télégraphique Internationale, Berna, 1904, pages 230-231.

[40] Above all, the creation of new codes continued timelessly, so there would have been coded languages not included in the dictionary. Moreover, the dictionary had few words and lacked in flexibility. Finally, the control on the Dictionary of the words of a telegram, by telegraphers, would have been impossible to put into practice. Considering the good reasons for the use of the dictionary not be to mandatory, the Belgium and Japanese proposal was rejected.

[41] Art. VIII of the *Règlement annexé a la Convention Télégraphique Internationale de St. Petersbourg révision de Londres*, 1903.

[42] Archive UIT, Geneva, *Notifications du Bureau International des administrations Télégraphiques*, n° 694, 16/7/1913; n° 702, 1/12/1913; n° 715, 1/8/1914.

[43] COMITE D'ETUDE, *Documents du Comité d'étude du langage convenu institué par la Conférence télégraphique internationale de Paris (1925)*, Berna, Union Télégraphique Internationale, 1926.

trade businessmen wanted to lower transmission costs and increase the quantity of information sent.

Conclusions

The International Telegraphic Network has been studied from different points of view. It has been taken into consideration the role of the companies of submarine cables, powerful Nations and important press agencies. The economical interests of cable builders and their technical development have also been taken into consideration. Up to now though, there have been only a few researchers who have studied in detail the role that the International Telegraphic Union has had in the development of a global telegraphic network. Maybe there have been only a few because it is difficult to quantify the actual importance of this organization in the spread of the telegraphic network. Since the beginning, the future of the telegraphic network and that of the Union were strongly linked to one another and the technological development has proceeded at the same pace as the tariff and the regulation one. It is therefore difficult to think of the development of a technological network without the support of an international organization which sets the regulations in all aspects, even if it is impossible to calculate the actual relevance. On the other hand, if one analyzes carefully the regulations entered into by the Telegraphic Union and the debates in which they were decided, one can understand the close link between this organization, the development of the telegraphic network and the business world. Although the Conferences were a place for diplomats and public representatives only, press agencies and trade businessmen, by means of their elusive interests towards tariffs and international regulations, created a complex and stimulating relationship with the Telegraphic Union, which was of merit to have favoured the development of the telegraphic network.

ARCHIVE AND BOOK REFERENCES

All official publications by the International Telegraphic Union, during its existence, have been consulted. These copies are all kept in good condition in the library of the International Telecommunication Union in Geneva.

Moreover, all documents elaborated by the International Office of Telegraphic Administrations which are today kept in the archive of the International Telecommunication Union in Geneva have been consulted.

All books and specific works of the time mentioned in this research have been examined in the library of the Communications' Ministry in Rome.

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