

REVISTA TELEFONICA INTERNACIONAL

SVCESORA DE CVBAN TELEPHONE MAGAZINE



VOL. VI

JANUARY, 1923

NUM. 1

Girl Singer Heard 3,500 Miles by Radio

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Teléfonoica

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Hotel "LA UNION"

CUBA 53-55 AND AMARGURA 28

150 ROOMS

ALL WITH BATH AND TELEPHONE

Francisco Suárez & Co.

HAVANA



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UNITED STATES RUBBER EXPORT
CO., LIMITED

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1872

Capital

\$1,000,000.00

Reserve for all other
liabilities

342,291.68

Net surplus

26,798.79

Assets

1,369,090.47

**Great American
Insurance Company
New York**

HOME OFFICE ONE LIBERTY STREET, NEW YORK CITY

1922

Capital

\$10,000,000.00

Reserve for all other
liabilities

20,592,997.95

Net surplus

12,213,010.92

Assets

42,806,008.87

PAID FOR LOSSES \$133,275,321.56

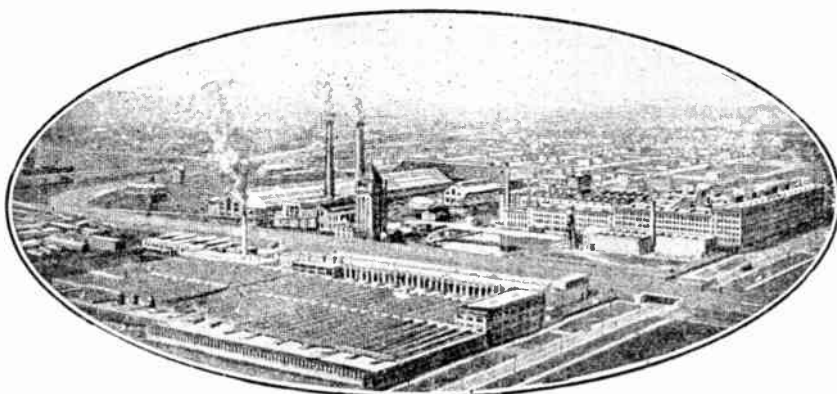
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MISS HARRIET WILLIAMS

With her violin in the Studio of Radio Station PWX of the Calumet Telephone Company. On the night of January 6 Miss Williams sang "Mother Machree" and played the violin at Station PWX. She was heard at Douglas, Alaska, approximately 3,500 miles from Harrow, thus establishing a new long distance record.

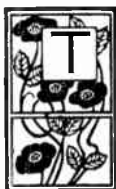
REVISTA TELEFONICA INTERNACIONAL

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HAVANA, JANUARY, 1923

No. 1

Girl Singer Heard 3,500 Miles by Radio



TO TALK with Miss Harriet Williams of the United States Consulate in Havana, Cuba, one would think she couldn't make her voice be heard down to the next corner.

But perhaps there is no woman who has so actually covered the continent of North America with her voice as has Miss Williams. It is pretty safe to assume, too, that half of South America heard her at the same time.

If Miss Williams isn't the woman champion long distance singer, she certainly is a very serious challenger for the title.

For when a woman has sung her little song into the microphone of a radio broadcasting station, and has been heard distinctly a distance of 3,500 miles, there are not many to argue with her over the championship aforesaid.

Elsewhere in this magazine, there is a story about Miss Williams having sung "Mother Machree" at Station PWX of the Cuban Telephone Company, in the hope that her mother in Toledo, Ohio, might hear that old favorite of hers. As recited in that story, Mrs. Williams didn't hear, because some man, emulating more or less the Father of his Country, chopped down the tree that held the antenna; but, as also related, she did hear her daughter on a later occasion.

When that story was written, the editor thought it was a good one, and he still thinks it good enough to print; because, after all, it meant more to Miss Williams to be heard by her mother than to break a long distance record. And to daughters who are away

from their mothers, and mothers whose daughters are away, it may mean more, also.

Besides, if it hadn't been for the long distance telephone connections between Cuba and the United States, Mrs. Williams wouldn't have heard her daughter, anyway.

Of course, when that story was written, nobody in Cuba knew that Miss Williams had broken the long distance record of Station PWX, if not of the entire broadcasting world. But just as the magazine was going to press, there came along this letter from Robert E. Coughlin, of Douglas, Alaska:

"You will probably be interested to know that part of the program that you broadcast this evening was received by us. The one selection we think must have been from an Italian opera, but the other, as announced by your operator (R. P. Falcon) was a Spanish song.

"My wife was listening-in Saturday evening about 6:45, Alaska time, and she received a station in Havana and heard a woman sing 'Mother Machree'. We doubted that such a thing was possible, but this evening when we picked up your station we split the headphones and heard that part of your evening's program perfectly (I mean wonderfully). . .

"We have a Grebe CR-9 set and are having wonderful success with it; and we hope we will be able to pick you up quite frequently."

The program which Mr. and Mrs. Coughlin heard on the evening of Jan. 8 was a special one, the music being furnished by the orchestra of Antonio M. Romeu. Therefore, Miss Williams' long distance record is shared by Mr. Falcon, assistant manager and an-

nonner of Station PWX, and the orchestra of Professor Romeu.

It ought to be said in all fairness, also, that Mr. and Mrs. Coughlin belong in the long distance championship class, themselves. There are very few amateur receiving stations that are picking up programs from so great a distance as lies between Douglas, Alaska, and

Havana, Cuba, with a continent and the Rocky Mountains intervening.

It is said to be very cold in Alaska at this time of the year. If those reports are true, it is to be hoped that the Coughlin family will pick up Havana often, and that a little of the glorious sunshine of Cuba may seep into their winter quarters from the Pearl of the Antilles by radio.

What Do You Think of Revista Telefónica?

Most everybody likes flattery, if there isn't too much of it. Some are bold enough to like honest criticism, whether it pleases or disappoints.

Revista Telefónica Internacional begs to be considered that bold. Perhaps we are trembling in our boots when we do it, for all you know, but we invite our readers to write us their frank opinions of our magazine.

Maybe we will feel all puffed up about ourselves after we have received your letter; and maybe we will seek shelter in the first convenient pinhole. But anyway, that is the only way we can hope to succeed. For, perhaps, we think we are better than we are, or that we are giving more nearly what a majority of our readers want to read than is actually the case.

We must be interesting.

Each new edition must be expected with pleasure, and received with some sense of satisfaction.

We must be read.

Otherwise, we are not worthy to call at your front door and ask the hospitality of your reading table.

This magazine is now in its sixth year. It has been successful in the field where it previously has circulated—that is, among the stockholders, employees and telephone friends of the companies associated with the International Telephone and Telegraph Corporation.

But, in the invasion of a somewhat different realm, that of the subscribers to the service of those companies, we have trod on new, though not entirely unknown, or, we hope, unfriendly ground. Still, it is not exactly like walking the old familiar paths we have known so well in times past.

We have somewhat different, and much more varied tastes to satisfy. We have to speak to persons not so familiar with the language of our own peculiar business as those who have formed our previous audience. Yet we still have our old audience with us.

The distribution of 50,000 magazines a month has been, frankly, more or less of an experiment on our part. Of course, when we started, we considered that it would be worth while. But sometimes we cannot help wondering whether it is worth while to continue.

What do you think about it?

We have been actuated by a desire to inform the public whom we serve about how we give that service, and how we plan to improve it. We have felt that the public ought to know more about the telephone, which is so vital a factor in the daily life of everyone; and that knowing more, a closer understanding of mutual value might develop.

We cannot expect people to come and ask us about our business. If we want them to know about it, we must go to them and tell

them. And our business is one of which we are in no way hesitant about telling.

In fact, we are confident that the more our subscribers know about us, the better friends we will become. We only wish that it were possible for every subscriber in each locality which our companies serve to visit the telephone plant and become thoroughly conversant with everything that goes on there.

Realizing that such personal study of our physical plants is impossible for everyone, we

have adopted the plan of using *Revista Telefónica Internacional* as our missionary to explain some of the workings of the institution which makes it possible for you to talk to your neighbor in the next block, or 6,000 miles away.

We will appreciate your candid opinions. And if we can improve in any way through your friendly suggestions, we shall be deeply appreciative.

A Way To Learn Languages

Is English your native language, and do you wish to learn Spanish? Read *Revista Telefónica Internacional*.

Or, is Spanish your native language, and do you wish to learn English? Well, read *Revista Telefónica Internacional*.

That is not so silly as it may sound. The articles which appear in this *Revista* are published in both English and Spanish. That is, we have an English edition and a Spanish edition. Some of the articles are written originally in Spanish, and some in English. In either case, the translation is the careful work of an expert. Therefore, we beg to offer our services as a teacher of languages.

This is no idle dream. *Revista Telefónica* already is being used as a text book.

This month, J. M. Leonard, executive assistant to the president of the Cuban Telephone Company, received a letter from G. H. McGaw, headmaster of Woodsville High School, in New Hampshire, in which he referred to a copy of *Revista Telefónica Internacional* which had been shown him by a Mr. Fred H. Mann, a friend of Mr. Leonard. Professor McGaw wrote:

"We are giving Spanish courses in Woodsville High School now, and it occurs to me that you might be able to send us some Spanish material.

"The October number (or any other similar issue) of the *Revista* would be admirable reading matter, and a dozen copies of one issue would supply the class with the equivalent of a modern practical text book—a copy for each pupil. You may have on hand back numbers of no particular value to you, and just suitable for us. * * I should be very glad to refund the cost of postage and transportation. * * Whatever you can do for us will be much appreciated."

Soon after, a letter was received from the headmaster of Carlton Academy, Summit, New Jersey, acknowledging receipt of some copies of *Revista Telefónica Internacional* and saying:

"I have no doubt but that this will prove both interesting and instructive to some of our boys, and I wish to thank you for your kindness."

Wide awake educational institutions today are not blind to the fact that students learn most quickly from things that interest them. In the matter of reading matter, there is no comparison between an up-to-date article on radio, for example, and that old type of text book so many will remember, which started off in Lesson No. 2 with the sentence, "The sick cat of my honorable grandmother has yellow hair."

A cat with hair instead of fur may be interesting to students of natural history; the cat's blonde complexion may appeal to others; the misfortune of failing health, even in a beast endowed with nine lives, may arouse the sympathy of many; and the grandmother factor in a story is always guaranteed to provide the human element feature; nevertheless, it is a safe bet that the modern youth, of either sex, will devote considerably more diligence to translating a sentence that reads:

"At the receiving station, the wave train impresses the coherer, closing the circuit of the battery."

Revista Telefónica Internacional is not literature. But it is good, everyday, English or Spanish.

Furthermore, it treats of topics that should be of interest and informative value to the youth of today and the adult of tomorrow. Perhaps it is as well that the young mind should be trained to shoot in the direction of better telephone service, the responsibility of public service corporations, and the advance of the science of radio, as in that by-path of veterinary surgery that applies to honorable grandmothers' yellow cats.

If there is any other school director who feels that his students of languages may be interested and benefitted by having access to copies of Revista Telefónica Internacional, it will be considered as a pleasure to add his institution to the mailing list.

Broadcasting at WKAQ, Porto Rico

The second broadcasting station of the associated companies of the International Telephone and Telegraph Corporation, WKAQ of the Radio Corporation of Porto Rico, is now in operation.

Programs are being given on Thursday and Saturday evenings, starting at 8:30 Porto Rico time. A wave length of 360 meters is used.

The station is situated in San Juan, near the main office of the Porto Rico Telephone Company. It is an exact duplicate of PWX of the Cuban Telephone Company, being a 500-watt Type 101-A Western Electric set, consisting of a radio transmitter, power equipment, input amplifier and No. 2-C receiving apparatus.

Like PWX, also, Station WKAQ has been heard in many parts of the United States and Canada, and has established an enviable record as one of the foremost DX stations of North America.

Havana has been among the cities to enjoy


the programs of this Porto Rico station, and vice versa, many letters from Porto Rico have reported excellent reception of the programs of Station PWX.

With these two first-class stations, the West Indies loom up this winter as one of the important centers of radio broadcasting.

Revista Telefónica at Pan American Union

Readers of Revista Telefónica Internacional are advised that copies of the magazine may be found at the Pan-American Union in Washington, D. C., if they happen to be visiting that city. A letter has just been received from Mr. Franklin Adams, counselor of the Pan-American Union, expressing appreciation for having been supplied with copies of the Revista.

Statistics on Telephone Development Place Cuba and Porto Rico in Leading Positions

HE development of the telephone industry in Cuba and Porto Rico, as compared with other countries of the world, is a matter of honest pride for the International Telephone and Telegraph Corporation, as shown in tabulated statistics printed by the American Telephone and Telegraph Company.

Under the heading, "Telephone Development of the World, by Countries, January 1, 1921," the Bell System presents a comparative set-up of figures which prove that, outside of the United States and Canada, there are very few countries which approach the development of Cuba and Porto Rico, and none which show very much more progress in the expansion of telephonic communications.

Cuba is shown to have accomplished a greater percentage of increase in telephones than any other country in the world, except Brazil, Colombia, Paraguay, the Dutch East Indies and some miscellaneous unnamed places in Asia.

Besides the above-named countries, the only ones which exceed Porto Rico in the percentage of increase are Central America, Denmark, The Netherlands, Spain, British India, Hawaii and the Philippine Islands.

However, at the date of the compilation, Cuba had more telephones than all the rest of the West Indies, as well as a considerable number more than Central America, Bulgaria, Greece, Jugo-Slovakia, Portugal, Rumania, Bolivia, Colombia, Ecuador, Paraguay, Peru, Uruguay, Venezuela, British India, all of Africa except Egypt and the Union of South Africa, Hawaii, the Philippines and Oceania. In fact, Cuba had substantially more telephones than Bolivia, Colombia, Ecuador, Paraguay, Peru and Venezuela, combined. Even the small island of Porto Rico had more

telephones than Bulgaria, Greece, Bolivia, Colombia, Ecuador, or Paraguay.

In the matter of saturation, the United States was, of course, first, with 12.4 to every 100 of population, and Canada was second with 9.8. However, Cuba was shown to have a greater saturation than Central America, Mexico, Belgium, Bulgaria, Czecho-Slovakia, Greece, Hungary, Italy, Jugo-Slavia, Poland, Roumania, Russia, Spain, Sweden, Switzerland, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Venezuela, British India, Japan, China, Egypt, Union of South Africa, Dutch East Indies or the Philippine Islands.

Likewise, Porto Rico was shown to have more telephones to every 100 of population than Central America, Mexico, Bulgaria, Czecho-Slovakia, Greece, Italy, Jugo-Slovakia, Poland, Portugal, Roumania, Russia, Spain, Bolivia, Brazil, Colombia, Ecuador, Paraguay, Peru, Venezuela, British India, China, Japan, Egypt, the Dutch East Indies or the Philippine Islands.

Europe as a whole had about as many telephones per 100 persons as Cuba, but only showed 31.9 percent increase as against 113.5 per cent for Cuba and 81.5 percent for Porto Rico.

All South America did not show as many telephones per 100 population as Porto Rico, and far less than Cuba. Also, South America's percentage of increase was only about half that of Cuba. Asia, Africa, Oceania and other places in the West Indies fell far below both Cuba and Porto Rico in both respects.

The figures quoted, of course, do not reveal the present situation in any of the countries, necessarily; but they do serve well to give an idea of the relative development of the telephone industry. Similar figures compiled

as of January 1, 1922, undoubtedly would give Cuba and Porto Rico even greater cause for pride, as the telephone development in both islands, in the last two years, under the guiding policy of the International Telephone and Telegraph Corporation has made remarkable progress.

For purposes of more easy comparison, the adjoining table of statistics on Latin American countries, taken from the American Telephone and Telegraph Company's report, is reproduced.

Country	Number of Telephones in Service	Tele- phones per 100 Popula- tion	Per cent of increase Telephones Since Jan. 1, 1914	Miles of Telephone Wire per 100 Population
Cuba	34,376	1.1	113.5	3.0
Porto Rico	7,970	0.6	81.5	0.9
C. America	15,950	0.3	102.4	0.5
Mexico	44,784	0.3	7.0	0.8
Argentina	116,553	1.3	56.8	4.1
Brazil	85,091	0.3	117.2	0.7
Chile	29,867	0.8	51.6	1.3
Colombia	6,843	0.1	115.3	0.1
Ecuador	3,946	0.2	34.9	0.3
Paraguay	406	0.04	18.6	0.01
Perú	8,552	0.2	113.6	0.6
Uruguay	22,381	1.5	64.7	2.9
Venezuela	8,896	0.3	76.9	0.8

To Broadcast Niagara's Power by Radio

WITH the present stage of radio—the sending and receiving of telegraphic and speech waves through thousands of miles of space—fast approaching its full development—electrical engineers are now turning their attention to the development of the next stage—the transmission of electrical energy without wires. Recently a 16-hour continuous test was carried out in transmitting wireless telegraph signals across the Atlantic ocean, with the aid of nine high-power metal vacuum tubes of giant size, or about three feet in length, six of the tubes being rated at 20 kilowatts each and taking the place of the large Alexanderson alternator previously employed.

The development of these huge audions or vacuum tubes to a still greater degree has aroused the scientific imagination of great engineers like Dr. E. F. W. Alexanderson, and others, to predict that such tubes may indeed lead the way eventually to the wireless transmission of energy. Dr. Alexanderson at the time of the successful experiment with the new high-power vacuum tubes in radio telegraphing across the Atlantic spoke in regard to the transmission of power from Niagara to New York through the air by means of such powerful vacuum tubes, and as quoted in *Science and Invention*, said:

“We have seen here a new physical princi-

ple reduced to practice on a large scale. Shall it make real the dreams, that Edison's dynamo has not yet fulfilled, and carry Niagara's power to New York? Atlantic radio telegraphy has become a routine business, but the importance of this demonstration is the bridging of the ocean by a few powerful vacuum tube units; in this case only six tubes were used, and we can safely predict that the same feat will some day be performed by a single tube. But what is the next?”

The set used at present for transmitting radio telegraph signals across the Atlantic from England to Germany, and from the Radio Corporation station at Rocky Point, L. I., consists of three 50-kilowatt, 15,000 volt, water-cooled metal-vacuum tubes of the Kene-tron type, which are used as rectifiers; there are six 15,000-volt 20-kilowatt tubes of the water-cooled metallic type and designed as pliotrons, for use as high frequency converters. For the experiment with the tube set one of the new mile and a half-long antenna was used, suspended from six towers, 420 feet high and the tube set succeeded in developing and sustaining in the antenna a current of 350 amperes. About 600 amperes have been used with the Alexanderson alternators, but it has been found that with the development of wireless apparatus, a lower amperage may be used.

Another Cuban Town Gets Local Telephone Service

WITH a hundred local subscribers, service was established at the close of the year by the Cuban Telephone Company in the thriving town of Esperanza, Province of Santa Clara.

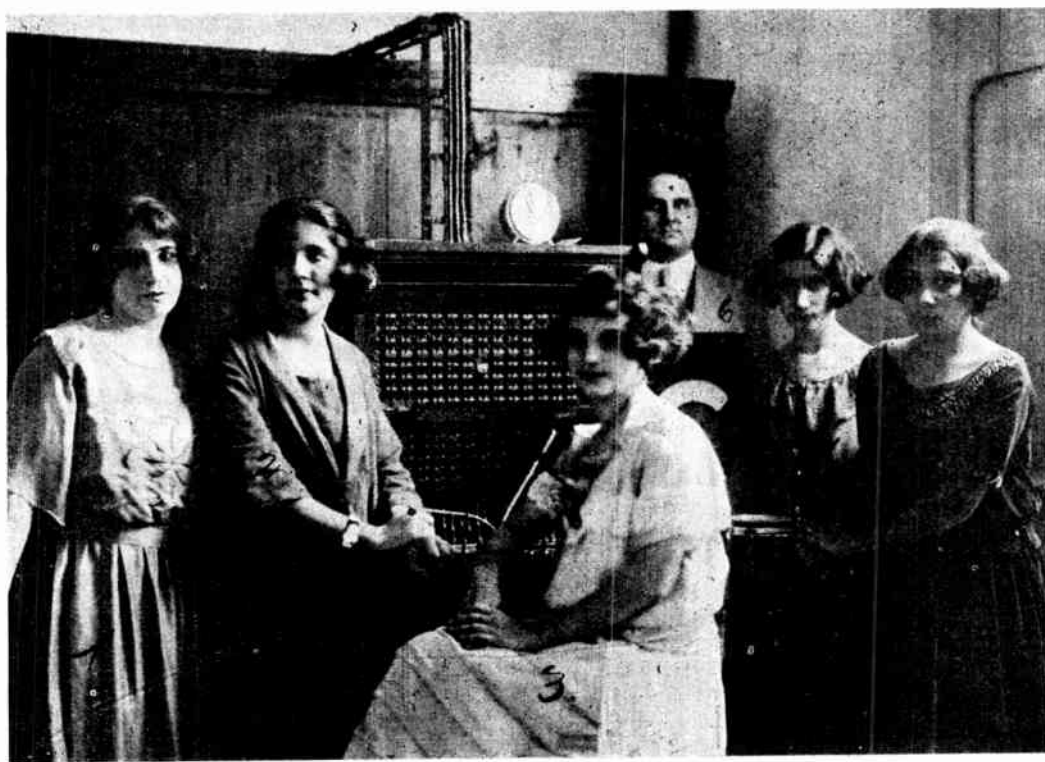
Heretofore the town has had only long distance service, but now the citizens will be able to talk with each other, or with anybody in any part of Cuba, the United States or Canada, without leaving their own houses.

The opening of the new service was dignified by the presence of a large gathering of officials and business men, including Sr. Alejandro Saurez, president of the Spanish Colony, and Venerable of the lodge "Esperanza"

Sr. Aurelio Cabezas, president of the society "Liceo"; Dr. José M. de Rojas, municipal and correctional judge; Sr. Salvador Fernandez, municipal treasurer, representing the mayor; Dr. Cesar Bacaró, attorney and notary; José Gonzales, Diego Gonzales, Mateo Diaz and Juan Rios.

A demonstration of the long distance service was given as a part of the ceremony, Sr. Fernandez, Dr. Bacaró and others speaking with J. A. Fernandez, assistant to the president of the Cuban Telephone Company, in Havana.

The new Esperanza office is in charge of Señorita Rosa Amelia Rodriguez, assisted by



OPERATORS PRESENT AT OPENING OF ESPERANZA OFFICE

No. 1 Señorita Rosa Amelia Rodriguez, local manager at Esperanza; No. 2 Señorita Clara Rosa Moeses, operator at Santa Clara; No. 3—Señorita María Teres Quintero, operator at Santa Clara; No. 4—Señorita María Teresa Rodriguez, operator at Esperanza; No. 5 Señorita Ana Maria Rodriguez, operator at Esperanza; No. 6 is Sr. Donato Blanco, chief of District No. 2



SCENE AT THE OPENING OF ESPERANZA OFFICE

No. 1—Alejandro Suárez, president of the Spanish Colony and Venerable of the "Esperanza" Lodge; No. 2—Aurelio Cabezas, president of the "Liceo" Society; No. 3—Dr. José M. de Rojas, municipal and correctional judge; No. 4—Salvador Fernández, municipal treasurer, representing the mayor; No. 5—Dr. Cesar Baccaró, attorney and notary, who spoke on behalf of his profession; No. 6—José González, merchant; No. 7—Diego González, warehouseman; No. 8—Mateo Díaz; No. 9—Juan Rios



OPERATORS AND A GROUP OF THEIR FRIENDS

Who Were Present at Opening Ceremony of Esperanza Local Telephone Exchange

Maria Teresa Rodriguez and Ana Maria Rodriguez, her sisters. At the opening ceremony, these operators were assisted by Señoritas Clara Rosa Meneses and Maria Teresa Quintero of Santa Clara.

The company was represented by R. A. Walker of the engineering department of the International Telephone and Telegraph Corporation, H. C. Hart, assistant chief engineer of the Cuban Telephone Company, and Donato Blanco, chief of District No. 2.

Cuban Commission

The Cuban Government, in a law effective September 15, provided for the creation of a commission, called "La Comision de Examen y Calificacion de Adeudos del Estado," which will examine and determine the claims outstanding against the Cuban Government. All such claims must be presented to the commission before March 15, 1923, as after that date the courts again take control of them.—*Cuba Review*.



VIEW OF MACAO STREET, ESPERANZA

Showing the Long Distance lines of the Cuban Telephone Company

In the Morning's Mail



VERY day, the postman brings a couple of hundred letters to Radio Station PWX of the Cuban Telephone Company.

There is romance in every one of them. What flights of fancy the imagination may take as the eye wanders from a date line in Maine to one in California; from a letter that was posted in the white winter chill of Alaska, to the next one, mailed in the palm-shade of Panama. And all of them heard, at the same instant and with the same clarity, the voice of the singer or the moan of a boy across the violin of an artist in the silk curtained studio at Havana.

Some write from the exuberance of youthful achievement; others from the meek gratitude of a help'less and cloistered invalid. Some discuss with fine technique the scientific accomplishment of having heard the station with this or that equipment; others see only the art of it. The one is a student of transmission, the next, of music.

Here is a letter from a mountaineer, whose world has been broadened immeasurably by radio. There is a city dweller, grown restless of the commonplaces of having everything within a stone's throw, who finds renewed interest in contact with an unknown and unseen outpost of the world.

Now we pick up a badly scrawled postcard from a Boy Scout who is operating with excitedly-beating heart the set he made himself with his own little kit of tools. Next, it is the carefully worded and dignified acknowledgement of a ripened and successful business man, whose dictated letter appears on the embossed and water-marked stationery which none in the company save he may use.

This is a woman's handwriting. That a man's bold flourish. This letter is in Spanish, the next in Italian, and here's one in French.

Letters and letters and letters—postcards, photographs, business cards, newspaper clippings, diagrams, advertising circulars, New Year's cards.

Sheets of paper of every size and shape and color on earth, almost; ink, pencil, typewriter, printed forms filled-in; clean, crisp bond paper, and finger-marked newsprint; one sheet, two sheets, three sheets.

Sedate compliments, uncontrolled enthusiasm, jokes, sentiment, technical statements and technical questions, remarks about the weather, radio, static, prohibition, pineapples, antennae, modulation, hotels, snow, music, linguistics, religion, race horses, foreign exchange, European politics.

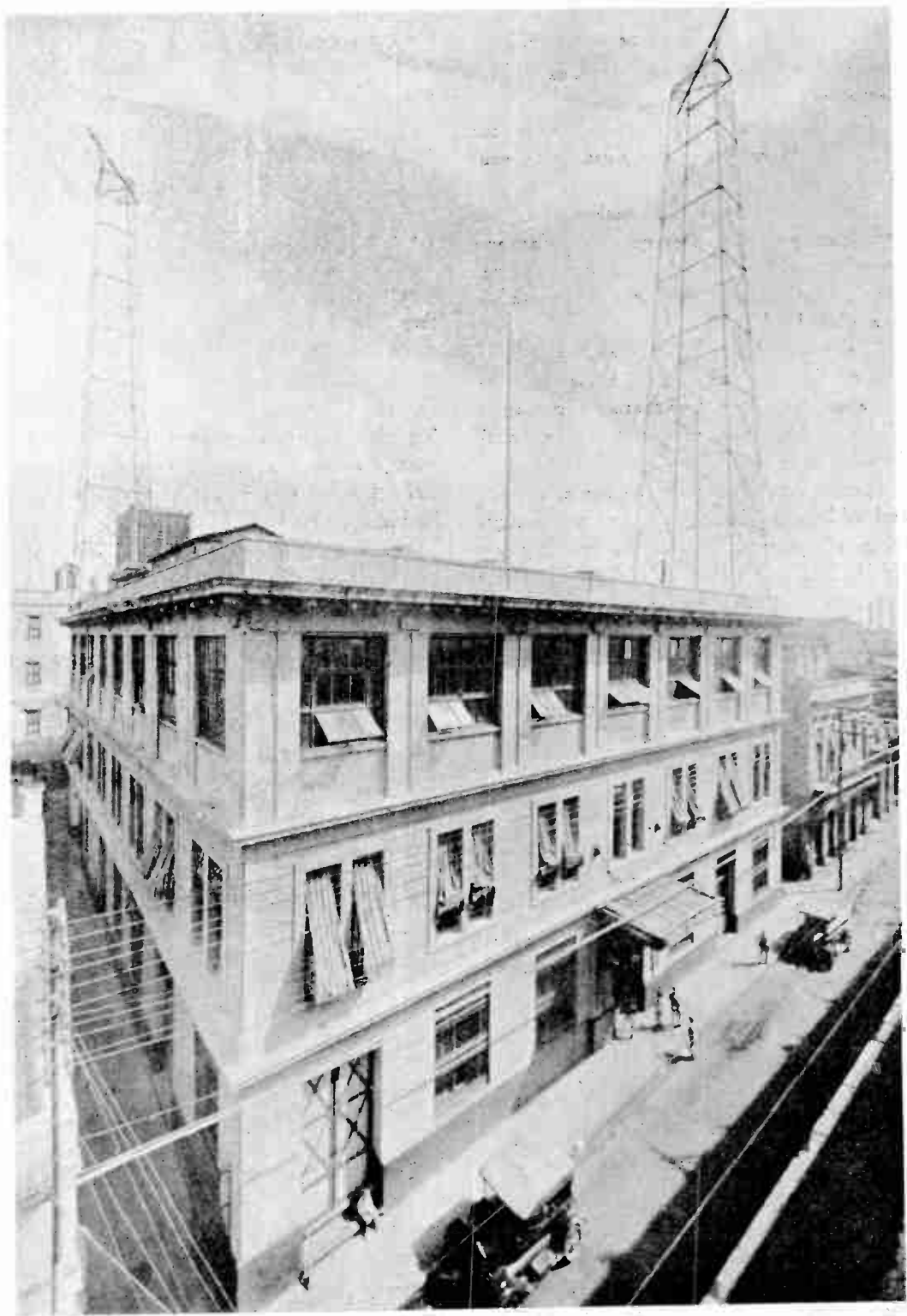
But all are actuated by the one common interest, radio telephony. It is the greatest international audience, the greatest international debating society, the greatest international family gathering in history.

To broadcast produces a thrill, to receive a distant station excites strange emotions, but there is no sensation in the whole weird field of radio that compares with that of perusing the morning's mail of a successful broadcasting station.

Who are these people? Everybody. What do they think? Everything. Where do they live? Everywhere. What have they in common? Radio.

There is no use in selecting the letters. Each one has an interest all its own. Some are more or less typical of others. To publish all would require a large volume each month. Each tells its own story, but a few tell the stories of many, in the main. That's a paradox, but many a paradox is true.

For instance, on the very top of the unanswered pile is this:



RADIO STATION PWX AND THE CUBAN TELEPHONE BUILDING, HAVANA

Cincinnati, Ohio, U. S. A.,

December 28, 1922.

Cuban Telephone Company, Havana.

Gentlemen:

You do not know the great pleasure our whole family experience by listening to your radio concerts.

Our aged 73-year-old mother, lying in bed, hears your station every Wednesday and Saturday. There seems to be some fascination in hearing your announcer speak, who is in a class by himself.

We use a loud speaker, and your concerts can be heard all over our house. To say we appreciate your broadcasts is putting it mildly. We enjoy your station even more than our own.

Kindly send me your announcer's name and address, so that I may send him a slight token of appreciation, as we certainly are indebted to him and the Cuban Telephone Company for many enjoyable evenings spent in listening to your unsurpassable concerts.

access.

Respectfully,

E. STOCK,

795 Delta Ave.,

Cincinnati, Ohio.

* * *

The announcer is R. P. Falcon, assistant manager of the radio department of the Cuban Telephone Company. The only token he desires is the knowledge that he is giving good service. That's the telephone spirit, and he is a telephone man.

But here is another:

* * *

St. Louis, Mo., Jan. 3, 1923.

Mr. Kenneth McKim,

Cuban Telephone Company,

Havana, Cuba.

Dear Mr. McKim:

Your letter of Dec. 14th was greatly appreciated. We have exhibited it with pride many times to verify the statement that we heard your clock. This innovation is out of

the ordinary and as no other station uses it we know at once when we pick you up. We heard the clock last Wednesday a few minutes before eight o'clock, but unfortunately one of our local powerful stations is on every night except Thursday from eight to ten thirty and we are unable to hear you. It is only by chance when they have a short program that we are able to hear you. Your station is talked of a great deal in our city. The fans are all exceedingly anxious to say they have heard you. Frequently I learn of some one who has succeeded in picking you up. It is great sport to be able to tune in on long distance. I have a wonderful set. My nurse operates my set and we quite frequently entertain a large number. I am especially fond of inviting the boys of my neighborhood to come and listen, for as I told you we have a large amplifier and can entertain any number. The radio is a boon for the invalid. I certainly receive a great deal of pleasure from it.

I am enclosing a small photo as per request, and I trust you may be able to use it. Kindly send me a copy of magazine when you publish the photo.

Again thanking you for your kind letter, I remain,

Yours cheerfully,

A. E. RUMP.

* * *

Who could help but admire "Yours Cheerfully, A. E. Rump"? Who would not gladly do something to brighten and perhaps shorten the monotonous hours of that plucky fighter, "down but not out", to whom the world still possesses something worth living for, to whom the fight is not lost until it is ended, and then it is won?

Broadcasting is worth while, if it accomplishes nothing more than to bring the world into the narrow sick-room of such unsung heroes as this St. Louis optimist.

Now comes a student, ambitious to improve his knowledge of the Spanish language. Read his letter:



A CHAMPION OPTIMIST AND A RADIO FAN

Introducing "Yours Cheerfully," A. E. Rump, of St. Louis, Mo., whose picture proves his motto, "Down, But Not Out"

131 S. Darlington St.,
West Chester, Penn., 1/3, 1923.

Radio Station PWX.

Dear Sirs:

I have been listening to your Wednesday evening concerts for more than a month, and have enjoyed them very much. I was the first person in West Chester to hear you. Your station not only gives me pleasure with its music, but also I enjoy the announcer.

The facts which were broadcast from your station a short time ago were used by me in my talk about Cuba in my Spanish class. On Wednesday, the 10th of January, I have invited my Spanish teacher and some of my classmates to listen-in with me, and I hope you will have a fine program for them.

Please send me a schedule of your broadcasting, and if it is convenient, please reply in Spanish.

Respectfully yours,
LE ROY HARTSHORNE.

P.S.—While listening between selections, I hear a clock ticking. Why is this?

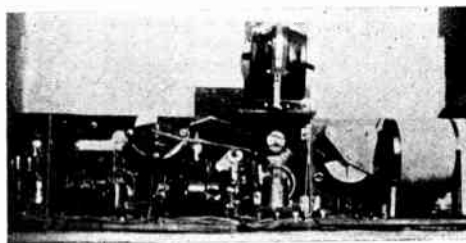
* * *

It's to help you keep tuned-in, Le Roy.
And here is another:

Kentucky State Horticultural Society
Henderson, Ky., Jan. 4, 1923
Radio Station PWX,
Havana, Cuba.

Gentlemen:

For some time, we have been connecting with the concerts you have been broadcasting,



Receiving Station that heard PWX in Northern
Canada's greatest gold mining camp

but last night we were delightfully entertained by some of the numbers of your program, especially one selection composed of piano, cello and violin. This came through splendidly, and could be heard about as distinctly as though we were sitting in the audience, just in front of the performers' stage.

Your announcer's comment on the delightful climate of Cuba, compared with a some-

what severe spell of cold weather we are having, made one feel very much like a trip to your wonderful country would certainly be enjoyable, just at this season of the year.

Being some distance from Havana, and thinking that possibly you might like to know the enjoyment your service is bringing to many such as myself, I decided to write you these few lines, and to further thank you for the splendid programs you are sending out.

Sincerely,

BEN E. NILES,
Secretary.

* * *

There is an endless pile of other letters, but here are just a few more to typify what the many say in their kind and very encouraging communications:

International General Electric Company.
San Juan, P. R.
January 10th, 1923.

Radio Broadcasting Station PWX,
Cuban Telephone Co.
Box 945,
Havana, Cuba.
Gentlemen:

I wish to report to you that at 11:30 p.m. (Porto Rico time) on the day of January the 8th, I listened to your test and that the reception and modulation was of first class in spite of the fact that you were broadcasting with phonograph records.

We have been enjoying in Porto Rico regularly your programs on Wednesdays and Saturdays and I wish to say that they are of first class.

Last, but not least, I wish to congratulate the announcer for his command of both the English and Spanish languages and his perfect enunciation.

Wishing you continued success in the year of 1923, I am,

Yours very truly,

A. CELIS,
Manager, San Juan Office.

AC:AH
MT. McGovern.

Standard Oil Company
Marine Department.

S.S. James McGee
Port. Baton Rouge, La.
Jan. 10, 1923.

Cuban Telephone Co.,
Havana.
Gentlemen:

While listening in on my watch on the Steamship "James McGee" at 9:36 P.M. on January 9th, 1923, I happened to tune to four hundred meters and heard Station PWX announce his test program. We were in Latitude 28 degrees 20 minutes north and Longitude 85 degrees 36 minutes west at the time I heard PWX. Your program came in fine and very QSA, and was much enjoyed by the Captain and myself, and we will listen in for PWX on our future trip in the Gulf.

Hoping that PWX is a success, and with best 73s, I am,

Yours very truly,

I. H. WALKER.

Address:

I. H. Walker,
Radio Operator,
% James McGee, Marine Dept.,
% Standard Oil Co. of N. J.,
26 Broadway, New York.

Telephone Folks Give Radio Concert

It was "Ohio Bell Telephone Night" on January 25th, at Station WJAX of the Union Trust Company, Cleveland, Ohio. A program was put on by a male chorus of 60 voices, composed of employees of the Ohio Bell Company, and an orchestra of 15 pieces from the personnel of the same company.

WJAX is a 500-watt Western Electric station, similar to PWX of the Cuban Telephone Company and WKAQ of the Radio Corporation of Porto Rico. The wave length used is 360 meters.

From the Announcer's Viewpoint

By R. P. FALCON

Assistant Manager and Announcer, Station PWX of the Cuban Telephone Company.



WELL, folks, here I am, just like a little silver spoon in a beautiful silk-lined box.

Shut away from the rest of the world as completely, almost, as a man in his coffin, with the walls deadened against sound, with everything air-tight, yet I am vastly more in touch with the whole world than the man in a crowd.

It's a strange feeling, to stand in a radio broadcasting station, so utterly alone that there's not even the slightest echo to one's own voice, and yet know that the slightest clearing of the throat, a mere hesitancy to moisten the lips, will be noted by hundreds of thousands of persons scattered everywhere within a radius of more than 3,000 miles.

Stage fright is a tolerated failing among those who have to face a visible audience. I have been told, however, that actors and practiced public speakers seldom see the throngs in front of them.

It is even easier to get stage fright when facing an audience one may not see at all, composed of all classes and types of people everywhere, with the unforgettable fact always in mind that the momentary weakness which the actor or public speaker might easily conceal will be magnified almost immeasurably and spread heartlessly before an international audience.

I want to settle an argument now, before I go any further with how I feel when I face the relentless microphone.

I am just one man.

There might not seem to be any ground for argument there. Yet a great many of the listeners to whom I talk twice a week have referred in their letters to "the man who speaks in English," and "the man who speaks in Spanish." There have even been bets made



R. P. FALCON

Known to the Radio World as Announcer RPF of PWX

on the question whether Station PWX has one or two announcers.

I am a Cuban by birth. But, without revealing my age, I went to the United States in December, 1901, and stayed there until August, 1921, then returned to Havana.

Hence my knowledge of the two languages.

Enough of personal details.

Aside from the formal announcements, and the talks in English and Spanish which characterize the programs of Station PWX, there is a most important studio detail to be attended to with the utmost care. That is the placing of artists with relation to the microphone.

This is particularly delicate in the matter of an orchestra, for an instrument in the wrong place, or too near the microphone with respect to the other instruments, may spoil the effect of the music. All artists must be instructed explicitly how and where to station themselves, and no amount of nervousness or temperament on the part of an artist must be allowed to affect the fixed principles of good transmission.

At Station PWX there is a system of signals whereby the announcer, locked in his sound-proof jewelbox, keeps in contact with the chief operator. A buzz from the announcer informs the operator that everything is set in the studio. A green light warns the announcer and the artist, if he is looking, that the operator is ready.

The announcer then throws the transmitter switch, which, besides establishing the connection, produces a red light in the operating room, warning everyone to keep quiet, and the operator to be on his toes.

That's the mechanical side of the job.

I started out to say something about how I feel, when I close the studio door and prepare for action. I imagine the movie actor feels somewhat the same way when he faces the camera, knowing that what he is about to do will be flashed on thousands of screens before critical and super-critical audiences.

The movie actor has one advantage, however, for he can be coached over and over again by the director until he has the trick well learned; and if he makes a mess of it, the film can be destroyed, even if it gives the producer a pain. But once the word has flown from the lips into the microphone and

out into the untracked spaces of the night with the speed of lightning, no power on earth can recall it, or erase a single blemish of pronunciation.

The man in the radio studio gets just one chance. It is unavoidably up to him to be right.

All my eyes see is the paper in front of me, or the tan silk draperies of the dimly-lighted room.

But my mental vision travels far—farther, perhaps, than the sound of my voice.

In the telephone business years ago I learned the importance of trying to visualize the man at the other end of the wire. To do that makes telephone conversations vastly more easy.

The same principle should apply to radio broadcasting. It is easier to see the person you know than the multitude you do not know; it is even much easier to picture one stranger whose voice you can hear, and whose business and habits, perhaps, you know something about, than to visualize uncounted tens of thousands in many countries and climates, living under almost every imaginable condition of civilization.

An announcer ought to have an imagination. If his heart is in his work, I think he must have.

As I speak, the silk draperies of the studio seem to part, and a gigantic panorama opens before my eyes. Stretching out for limitless miles in front of me, I see the farmer of the Middle Western plains and his family grouped around the roaring fire on a bitter winter night, listening intently and trying to picture the mysterious, palm-shaded island from which the voice comes out of the darkness.

I see the small boy, intent on the operation of his home-made set, eyes aglow with the excitement of accomplishment, surrounded by admiring relatives, busily scribbling in his thumb-marked log book.

I see the lonely shut-in, confined to bed or wheel-chair by unkind Fate, brightening at the sound of a voice from a far-off land where

Romance beckons to the imagination, if the physical self may not go.

I see the genuinely tired business man in the comfortable home which his industry has provided, following with keen-minded appreciation the workings of his expensive set, glad of something to lead his fagged mind away from the cares of his working hours.

I see the homesteader in his far northern cabin, oblivious to the howling blizzard outside as he enjoys the music of a world which he has deserted to carve independence for his family from the wildness.

I see the manager of the Cuban sugar mill rocking gently on the wide veranda of his home, puffing a fragrant Havana cigar, dreaming, perhaps, of the last time he sat in a box at the opera in Paris.

I see the watchful operator on the rolling tramp steamer in mid-ocean, with head-set

clamped to his ears, whiling away the minutes in enjoyment while he maintains his vigil of the night.

I see the plantation owner in his tropical bailiwick smiling appreciation for the voice which comes out of nowhere, bringing the words of his native Spanish and helping to pass the hours before the curtain shall fall on another day of his existence.

I see—but what may I not see? The world is my field, and I see humanity in all its characteristics, in all the localities and conditions where mankind exists, listening to express approval or disapproval of my humble effort.

Stage fright, sometimes?

Well, why not, in my little silk-lined box, whose curtains part to disclose such a stupendous vista to my imagination?

Long Distance Service between Matanzas and Havana

By A. HOWARD SOLER,

Traffic Superintendent, Cuban Telephone Company

DURING the first days of December, 1922, a radical change was made in the method of handling long distance calls over the four Matanzas-Havana circuits of the Cuban Telephone Company. The new method of operation has resulted in an average delay of 62½ seconds from the time the line operator receives the ticket at her position to the time the subscribers begin to talk on all completed first attempt calls. On calls from Matanzas to Havana there is very little more delay to the subscriber, in as much as the recording positions there are adjacent to the line positions and there is practically no delay in passing the actual ticket to the line operator; in Havana, this part of the work takes a little longer as manual distribution is employed from the recording positions to the line positions, and the time element here is variable, running from 10 seconds to as high as 2 minutes in some cases.

The best record so far obtained was a call from Matanzas to Havana in which the Matanzas recorder had to notify the subscriber over the recording trunk to hurry up and hang up because the line operator was ready with his Havana party. This all took 12 seconds to complete.

The method employed is a modified call wire system. Havana-Matanzas circuits, No. 7, 9, 11, and 13, terminate at both places at one position and are assigned to one operator. Both the Havana and Matanzas operators are constantly "on" the lowest numbered circuit, so that ringing is completely eliminated. The called number and the trunk assignment are the only things passed, the operator at the originating toll center handling all other details.

A typical call is as follows:

Havana operator receives ticket in which Mr. Jones of A-2101, Havana, wishes to talk to Mr. Smith of 1896, Matanzas.

Hav. Op. "1896."

Mat. Op. "13." (Trunk assignment).

Havana operator dials A-2101 while Matanzas operator is dialing 1896.

(The above usually takes 8 seconds.) Havana subscriber A-2101 answers.

Hav. Op. "Mr. Jones, hold the line please." Matanzas subscriber 1896 answers.

Hav. Op. "1896."

Mat. Sub. "Yes."

Hav. Op. "Havana is calling Mr. Smith."


Mat. Sub. "This is Smith."

Hav. Op. "Go ahead, please."

(The time element here is entirely dependent on the speed with which the subscribers answer their telephones.)

Previous to the use of this method, calls were handled on the regular two ticket method whereby complete tickets were recorded by both exchanges. The average time required for completing calls ran about 400 seconds on completed first attempt calls.

Radio with a Religious Flavor

 EVERYONE who has heard Radio Station PWX of the Cuban Telephone Company is familiar with the cheery "Good night, everybody" of the announcer, R. P. Falcon.

A new and interesting interpretation with a devout religious touch at the end is given to Falcon's internationally-known way of signing off by the Junior Daily News, a Boy Scout newspaper at Canton, Ohio, in the edition of January 14. Under the title, "Good Night, Everyone", this publication from the home town of the late President William McKinley says:

What a common expression, "Good Night."

Every one else in the house is asleep. No one left to say good night. The snow is blowing outside. The book picked up is uninteresting. It is one of those nights when one feels lonesome. You are going to bed yourself pretty soon. There is no one to say good night. On such an occasion one could

muse and say to himself, "I wonder if when going to sleep for the last time there will be any one to say 'Good night' and how will it be in the awakening, will there be any one to say 'Good morning?'" The furnace fire is fixed and the milk bottles are out. Bed time is here. No, there on the desk is the radio. In a mood of curiosity the headset is adjusted, the dials are manipulated, a series of static screams like the imaginary sounds from Dante's Inferno assail the ears. More manipulation and then harmony and the sweet strains of music come from somewhere. Pretty soon the music ceases, a man's voice is heard. Someone is talking earnestly but in a strange language which may be Spanish. When he is through another speaks. Now it is a rich, well modulated voice in good English. What is this? Where am I? The snow is blowing outside but I hear: "This is Station PWX, Havana, Cuba, ringing off. Good night, everyone."

Well, after all the world is not so friendless. From the summer isle comes through the winter blast a cheery good night for me, but not only for me but for "everybody."

I know that I am in a vast audience sitting on many continents listening to the one "good night."

Why doubt the last time I lay me down to sleep? Why doubt the friendly voices and loving hearts? Static screams like the exhaust of the hog killing department of the Union Stock Yards of Chicago accumulated in the ether waves for many years may be heard but a well tuned instrument brings harmony and cheer and confidence.

Happiness is after all the tuning of the soul to the laws of Him who rules the ether waves and has taught men to find the laws which use them. I tune my heart to say "Good night" to Him in whom we live and move and have our being, and my heart again receives the message that comes this time far beyond the summer isles. It comes down the ages: "Thy rod and thy staff they comfort me. Yea, tho I walk through the valley of the shadow of death I shall fear no evil."

Havana an Unusually Healthful City

The following description of Havana and Cuba, with special reference to the exceptionally good sanitary conditions, was given in English and Spanish from Radio Station PWN on the night of Jan. 17 by Dr. José López del Valle, chief of the Sanitary Department of Havana:



UTILIZING this wonderful invention, this marvel of science, which, endowing the word with multiple wings for its clear and rapid transmission to the most distant regions of the earth, affirms the ties of universal fraternity, I wish, with a heart full of patriotic and legitimate pride, to send greetings to the whole world and announce that Havana, this charming city, this lustrous Pearl of America, offers the traveler a most generous and noble hospitality, together with the unequaled attractions and indescribable beauties with which it has been prodigally endowed by nature. And that it can also give absolute assurance of a pleasant and happy sojourn, because of its mild climate and complete freedom from contagious diseases. Public health is excellent, and residents and visitors to this romantic and beautiful city are perfectly and efficiently safeguarded against all epidemic diseases.

"Cuba has singular artistic attractions for the intelligent and observing tourist. Its ever-green prairies are strikingly beautiful. The wonderful fertility of its incomparable soil, its deep valleys, and the majestic grandeur of its mountains and hills, where the stately palm rears its queenly foliage; this, and many other bountiful gifts of Nature, make this island irresistibly attractive for the tourist.

"Its fruitful fields are traversed by rivers which give them freshness and fertility. Immense cane fields, like a green and movable mantle, cover all the cultivated zone, and caressed by the wind, give forth a soft and melodious hymn, praising this richness and the labor which has brought it into existence.

"And if these gifts of Nature impress the mind and gladden the eye, no less striking and worthy of admiration are the marvels due to the hand of man, through different ages. In our cities, and especially in Havana, we have side by side with the recent sumptuous, sani-

tary and comfortable constructions, carried out in accordance with the practices of modern engineering and hygiene, buildings which have survived through centuries of constant strife, and still show their cracked and rusty walls, speaking to us with the dumb eloquence of remembrance, ages long past, but which have left a deep spiritual impression, and the habitual residents of the cities which were created and promoted in these modern times, scientifically laid out formed with the construction of this age of the 'armed and polished cement' houses, with smooth, shining and stuccoed ceilings and resplendent walls, radiantly clear: lofty buildings penetrating the clouds—these modern dwellers of the modern cities will surely feel deep artistic emotions when they behold those ancient structures where the hand of time has left symbols of legends and chronicles, and where the builders 'embroidered their illusions and crystalized their artistic ideals' on the hardwood of the ceiling and the stone of the walls.

"And the narrow, dark and damp streets and lanes, with their sombre, dilapidated old mansions, still seen in Camagüey, Santiago de Cuba, and even in Havana, where old romantic legends survive, and where we see, as in a moving picture, the knights of old, with cape and sword, in search of adventures, contrasting with the modern and ample avenues, beautiful and flooded with light, perfectly laid out, well paved and lined with shady trees, where the light, the air, the 'gladness of wholesome and clean things' sung the glorious hymn of modern life.

"Havana, when she joyfully receives the visiting foreigner, may well tell him, repeating the words of Columbus: 'Welcome to this the most beautiful land ever beheld by human eyes,' to one of the capitals of the civilized world, which, together with the indescribable, splendid and surprising beauties of the tropics, offers you, because of its excellent sanitary conditions, the best guarantees of a happy and healthful life."

REVISTA TELEFÓNICA INTERNACIONAL

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KENNETH MCKIM, *Editor*

Who uses the telephone more, you or your neighbor? Who uses it the most, the successful man or the one

WHO USES THE TELEPHONE THE MOST? who is just plodding along in his business? Who gets more out of his telephone, the man who seldom takes

advantage of its facilities, or the man who never overlooks the opportunity to let his telephone save him steps and time? Who gets the most for his money?

If you know a man who uses his telephone more than you do, it is worth your while to inquire why, and what results he gets out of it. Perhaps his telephone is a better investment to him because of his more frequent use of its services.

Perhaps, on the other hand, you are using your telephone as much as your business justifies, but he has a bigger business. You can not be expected to use the telephone as much in a small business as is the case in a place doing twice as much business.

Still, if your business is small, the telephone can help it to grow. You can economize on employees by intelligent use of the telephone.

Study its possible benefits to you. Ask the telephone company for advice. It is their business to understand the telephone, and it will be their pleasure to give you sound, sincere advice.

Whose telephone is worth the most money to him? It is worth thought.

Telephone companies print directories because they are inseparable from efficient service. They are a very expensive proposition, but they are so necessary to the subscribers that they must be published, whatever the cost.

The subscriber has in his directory a carefully collected record of telephone addresses which has been compiled with the utmost precaution against error. There will be errors in any directory, but they will be as few as possible, you may be sure of that.

The subscriber who consults his directory before calling serves himself and the company; but he also serves the person whom he may otherwise call in error. It is an unkindness to summon the wrong person to the telephone because you had rather trust your memory

than take the time to consult your directory. You will agree with that, for you have been called to the telephone yourself by a person who did not think it necessary to look in the directory.

It takes less time to look in the directory than it does to discover that you have called the wrong number.

Don't try to remember telephone numbers—

REMEMBER THE GOLDEN RULE.

Whatever kind of telephone you have, it does you no good and never helps to get what you want, by wiggling the receiver.

DON'T hook up and down. That will be WIGGLE surprising information to a lot of

THE telephone users. But people in the HOOK telephone business, who know how telephones are built and how they

are operated, will stand behind that statement, notwithstanding.

If there is an operator at the other end of your telephone line, she cannot answer you while you are wiggling the hook. It doesn't help a bit to attract her attention; and she, being human, doesn't appreciate your lack of courtesy a bit, either.

If you have an automatic telephone, to wiggle the hook absolutely ruins all chance of your getting the number you want. For wiggling the hook a given number of times has exactly the same mechanical effect in the central office as turning the dial to that number. If you have an automatic telephone, and you want the wrong number, or no number at all, go ahead and wiggle the receiver hook.

But if you want the right number, please keep your fingers off the receiver hook. It wasn't put there to be wiggled.

Cuba Rejoices Over Terms of Loan

As announced by radio from Station PWX of the Cuban Telephone Company on the night of January 13, with the approval of President Alfredo Zayas of the Republic of Cuba, the new \$50,000,000 government loan was awarded to the New York banking house of Morgan and Company on a bid of 96.77.

This was a gratifyingly high price, not only in view of world financial conditions today, but in comparison with previous Cuban loans. It was a clear demonstration of the excellent condition of Cuba's foreign credit, and of the undoubtedly first-class security which so naturally rich and traditionally industrious a country affords.

President Zayas authorized Station PWX to make the following announcement in his name:

"The award of the \$50,000,000 bond issue to the banking house of Morgan & Co. has been a great triumph for the credit of Cuba. This is so, because the propositions received have been much better than all the

offers made for the previous bond issues of this Government. My satisfaction over this matter could not be greater."

What Dr. Zayas undoubtedly had in mind was that Cuba's \$35,000,000 bond issue sold at 90; the issue of sixteen and a half millions at 88, and the \$10,000,000 issue at 90.

Steady prosperity is in store for Cuba; but the best part of it is, perhaps, that outsiders never lost confidence in her any more than her own people did.

Cuban Trade with England

Exports of Cuban products, principally raw sugar, to Great Britain during the first six months of 1922 were of more than twice the value of similar exports in the corresponding period of 1921. Last year, Cuban products to the value of £7,359,000 were received at British ports up to June 30th, while in 1921 this trade amounted to only £3,218,000.

A Radio Control System

By AGUSTIN RIU

Chief Operator Station PWX, Cuban Telephone Company



SHALL describe in this article a radio control system which I designed, for the control of a submarine while on or under the water.

It is well known that, while submerged,

shaft indicates which point the switch blade is on, and a handle mounted on a shaft allows the operator to switch quickly the blade on any of the points. This system moves constantly in a clockwise direction.

Each time the blade of the switch comes in contact with a point, it closes the primary circuit of the transmitter and one emission of waves is radiated by the antenna. After each control, the switch blade should be returned to zero. These emissions act upon the receiver installed aboard the submarine and operate the proper control, as may be understood by looking at the diagram of the receiver, Fig. 2.

At each impulse received in the antenna of the submarine, the receiving set closes a relay circuit which, in turn, completes the circuit of the battery B, in which is inserted the winding

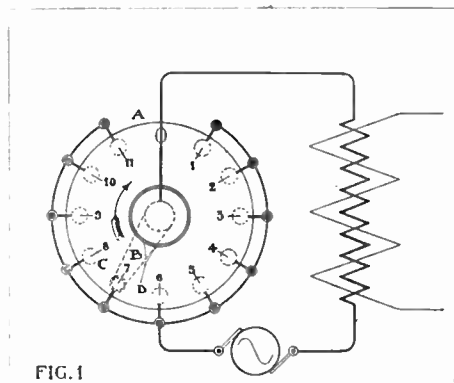


FIG. 1

Connections from the controlling device to the transmitter

it is possible to receive radio signals on board a submarine. This is used in the present invention to control the ship while under the water. In order that the submarine be not controlled by other stations or accidentally by static, very sharply tuned circuits are used. At the transmitter, Fig. 1, a controller system is used, which consists of a dial A, bearing in front of each point the name of the control corresponding to this particular point. A pointer fixed on the

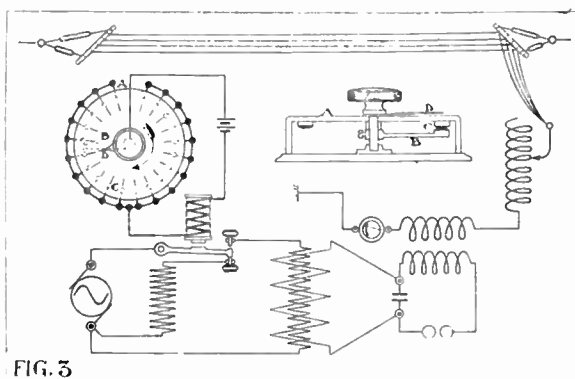


FIG. 3

Hook up of the transmitter apparatus, by means of which the radio-controlled boat is operated from a distance

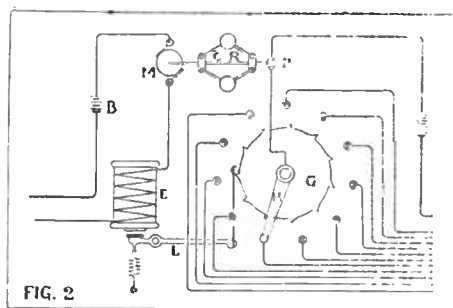
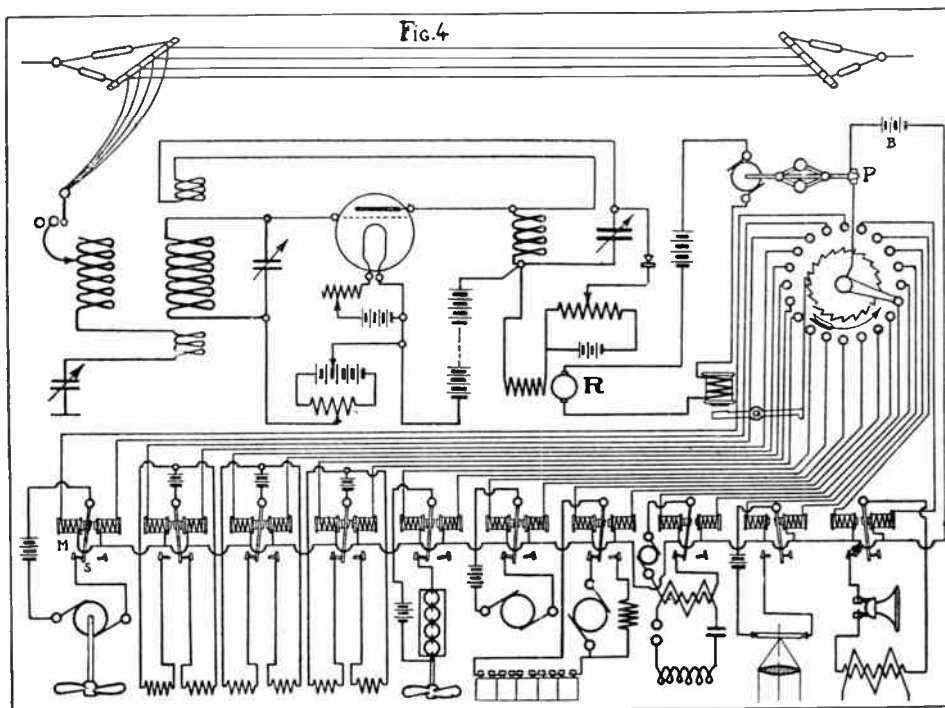


FIG. 2

Distributor and time device of the radio control system

of the electromagnet E, and a small electric motor M, which constantly runs as soon as the circuit is closed and the armature L is attracted by the electromagnet E. These two operations are simultaneous and produce the following effect: First, the speed regulator CR, run by the motor, pulls back the contact P, producing a gap in the circuit of the control relays; and second, the spring supporting a finger mounted on the armature L, pulls the



Detailed diagram of distributor and time device of the radio control system. Only one stage of amplification is shown, for clearness in the receiving circuit

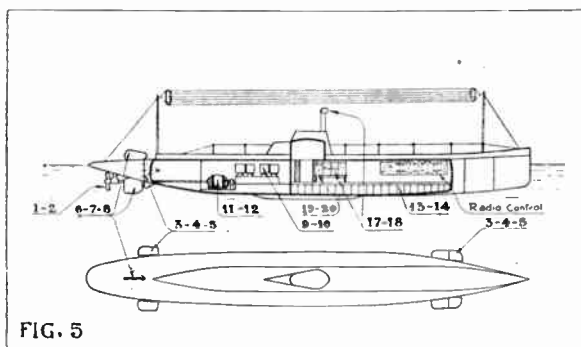
ratchet wheel C the length of one tooth, moving the switch blade H from one point to another.

The inertia of the centrifugal speed regulator makes it run for a few seconds after the current in the motor is cut off and allows the contact breaker P, to complete the circuit only when the switch blade H, is on the proper point, for during the time that it passes over the other point, the motor being supplied by impulses, keeps the regulator running and the contact P, open.

The operation of this system may be better understood by referring to the general hook-up in Fig. 4, showing the complete receiving system on board the submarine. For instance, if it is desired to start the submarine, and supposing the blade of the selector is on the position shown in Fig. 4, it would require six dots sent by the transmitter to move it to the proper point. The functioning of this is as follows:

The impulses received in the aerial are detected and amplified by the proper instruments

and operate a relay R, closing the circuit of the local battery operating the motor and the electromagnet, as explained previously. If six dots are sent, the spring supporting the finger will move the ratchet wheel six teeth and bring the blade in contact with the upper center point, completing the circuit of the battery B, which energizes the electromagnet M, as soon



Drawing of inside of radio-controlled boat (cross-sectional view), showing arrangements of the apparatus with their control numbers corresponding to the relays

as the contact P closes the circuit. This results in the closing of the motor circuit by the

armature S, which, being attracted to the left, closes the circuit. The operation of all other relays is similar.

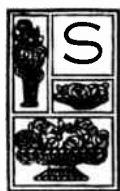
The various controls operated aboard the submarines are, from left to right:

1. Motor start.
2. Motor stop.
3. Diving rudder down.
4. Diving rudder horizontal.
5. Diving rudder up.
6. Direction rudder right.
7. Direction rudder straight.
8. Direction rudder left.
9. Diesel engine start.
10. Diesel engine stop.
11. Diesel engine starter on.
12. Diesel engine starter off.

13. Storage battery on charge.
14. Storage battery on discharge.
15. Automatic transmitter (sending long dashes for taking radio compass bearings) on.
16. Automatic transmitter off.
17. Radio vision system on.
18. Radio vision system off.
19. Radio telephone on.
20. Radio telephone off.

The radio vision system which is operated by the relay 17 and 18, is a new device which shall be described in a future issue of this magazine and which uses the property of selenium to send by radio from the submarine what may be seen by the periscope, enabling the operator directing the submarine to see what is around it.

Mother Hears Daughter Sing More Than 2,000 miles Away



SCIENCE bridged the space between Havana, Cuba, and Toledo, Ohio, on the night of January 20, enabling a fond mother in the northern city to hear her daughter singing and playing the violin in the tropical capital.

Miss Harriet Williams, a secretary in the United States consulate at Havana, was one of the artists who took part that night in the broadcasting program of Station PWX of the Cuban Telephone Company. She sang to the whole wide world in general, but with special interest in one radio fan who, she knew, was listening for her voice.

Mrs. H. S. Williams, the mother, lives at 617 Oakwood ave., Toledo. A neighbor, William Steinaker of 742 Fernwood ave., has a radio receiving station with which he has been able to enjoy the programs from the powerful Cuban broadcasting station on numerous occasions. Knowing the anxiety of Mrs. Williams to hear her daughter, Steinaker invited her to his home, and to the delight of

everyone, was successful in receiving the Havana program clearly.

Miss Williams is a coloratura soprano. She sang Batten's "April Morn" because she knew it was one of her mother's favorites. Then she played Weinowski's "Obertas Mazurka" and Handel's "Largo" on her violin.

It was not the first time, however, that science had enabled Mrs. Williams to hear her daughter's voice from Havana. On Christmas Day, Miss Williams called her mother on the long distance telephone, and after a chat with each member of the family, said that she was going to take part in a radio program on January 6. The arrangements were made by telephone for Mrs. Williams to go to Steinaker's home.

Thus it was that the telephone enabled the little consular secretary to spend Christmas with her relatives, more than 2,000 miles away.

It was a particularly cold and blustery day in the north. A sleet storm had torn down many of the long distance telephone lines of

the American Telephone and Telegraph Company. Some, however, held up, and it was possible to establish the connection for Miss Williams, in spite of the Christmas rush of business and the congestion caused by the storm, in less than a half an hour.

Miss Williams talked for a quarter of an hour with various members of her family—a genuinely enjoyable Christmas for all. She spoke from an ordinary automatic desk telephone, in an open office. The connection between the Cuban capital and the long lines of the Bell System was made through one of the submarine telephone cables of the Cuban-American Telephone and Telegraph Company, the longest and deepest in the world.

These cables, three in number, are owned jointly by the International Telephone and Telegraph Corporation and the American Telephone and Telegraph Company. They were used by many other Americans in Cuba to extend holiday greetings to friends and relatives in the States.

Miss Williams sang "Mother Machree" on January 6 for the particular benefit of "Mother" Williams. But luck was against her.

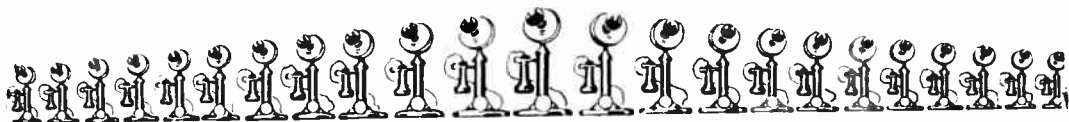
One end of Steinaker's antenna was attached to a tree on another man's property. The day before Miss Williams was to sing, the owner of the tree cut it down. So, while others in Toledo heard Miss Williams, those at the Steinaker house did not.

Miss Williams was at one time connected with the Toledo Institute of Musical Art. In addition to her musical talents, which are quite varied, she is a gifted writer, and before entering the consular service, was associate editor of a Mexican magazine in New York City. Her childhood was spent in Cuba, where her father was formerly in business.

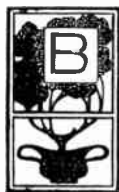


MRS. H. S. WILLIAMS
Listening to her daughter's voice by radio

Station PWX is one of the largest in North America. It is a duplicate of Station WKAQ at San Juan, Porto Rico, both being owned and operated by the system of companies associated with the International Telephone and Telegraph Corporation of New York. The Cuban station has been heard more than 3,000 miles by listeners in Canada and on ships in the Pacific Ocean.



Broadcasting Begins in Brazil



BRAZIL, that progressive South American Republic which is now celebrating the One Hundredth Anniversary of its Declaration of Independence by holding Centennial celebrations in the beautiful city of Rio de Janeiro, is being entertained by a radio telephone broadcasting station.

The necessary governmental concession to erect and operate a short wave experimental station during the Centennial was secured by L. A. Osbourne, president of the Westinghouse Electric International Company who was in Brazil while the feature attractions of the Centennial were being made. Mr. Osbourne also secured the co-operation of the Brazilian Light & Traction Company in finding a location and later in rendering programme and operating assistance.

Entering the beautiful city of Rio de Janeiro the most impressive sight is the exquisite mountainous background of the city, and particularly "Corcovado," an almost perpendicular mountain with its summit over 2,000 feet above sea level.

"Why erect high masts when such a mountain is so near by?" queried the radio engineers.

"Can we get the location?"

This question was answered in the affirmative by F. A. Huntress, general manager of the Tramway Light & Power Company who own the cog wheel railway that climbs "Corcovado." He also stated "We can supply 120 volt or 220 volt 50 cycles alternating current on the mountain top for the radio outfit."

The party set out to explore the mountain crest. The first 2,000 feet of ascent, or five mile ride from Rio de Janeiro, was made in 30 minutes, and the final climb of 125 feet

by following the foot path to the circular observation tower on the top.

A quick survey of the available space on the crest disclosed a narrow path about 120 feet long leading to a concrete parapet on the edge of the precipice.

The crest of Corcovado had always been used as an observation point, but the radio-telephone engineers saw more than merely scenery—the invisible radio audience in numerous ships at sea, and the millions in the capital city several thousand feet below.

The mountain ranges and their peaks, while beautiful to look upon, were viewed as obstacles to be overcome in broadcasting to the distant cities and towns in Brazil.

Two 125-foot masts were erected on the verge of the precipice on which are stretched a 153-foot six wire antenna between two 26-foot spreaders which are balanced on the ends of the 70-foot horizontal pole bolted fast to the mast on the summit. The counterpoise wires are stretched clear of the mountain sides, down about 100 feet to the tops of two poles located near the terminal building of the railway where the wires converging symmetrically form a 10-wire cage which leads into the radio telephone operating room. The hum of the 220 volt alternating current motor was eliminated by the filter system made up of microfooid condensers and large choke coils.

A single wire antenna was strung from the mountain top to the operating room about 125 feet below, for receiving messages.

The call letters "SPC" were assigned to the station.

The first week of broadcasting completely captured the Southern Republic. The grand Opera House, rivaling any in the United States from point of architecture, has been equipped with a microphone, connected by amplified lines of SPC's mountain top station,

and both afternoon and evening performances, clouds. Rio de Janeiro is practically on the boundary line between the Temperate and Torrid Zones. The climate is varied by the mountain range Serra do Mar which runs along the coast.

An amplified line has also been installed in the Monroe Mansion for broadcasting from Rio. The mountain top studio, in the same building with the operating room, is duplicate in size and arrangement of KDKA at East Pittsburgh, Pa.

Several loud speakers have been installed in the exposition grounds—one outside of the Monroe Palace and another outside of the American Building. The President of Brazil and his official family listen in through a very attractive receiving station installed in the President's Palace.

SPC has a unique position in the radio telephony broadcasting field. At various times the station and antenna are in or above the

clouds. Rio de Janeiro is practically on the boundary line between the Temperate and Torrid Zones. The climate is varied by the mountain range Serra do Mar which runs along the coast.

The observances and records of SPC will, therefore, assist in studying the peculiarities of the air as far as radio telephony is concerned. The experiences of this station in penetrating the Equator and the Torrid Zone, when correlated with the data being compiled by other stations and close students of the new science, will no doubt result in listing peculiarities of the atmosphere unknown to science today.

In this it will parallel the study of the peculiarities of the ocean bottom which were a closed secret before the laying of the Atlantic cable by Cyrus Field.

The Official Exchange of the Cuban Government

The department of General Communications of the Cuban Government includes in its private telephone exchange more than 500 instruments, distributed among the executive and legislative offices, and other branches of the national government.

At the head of this official telephone organization is Esteban R. Diaz, supported by a very competent personnel. Mr. Diaz has spent more than 20 years in the service of the Department of Communications, and his consistent and able efforts have been rewarded with well-earned promotions and expressions of approval on the part of his superiors.

The private exchange of the governmental service is situated in the Post Office and Telegraph building, at Havana.



ESTEBAN R. DIAZ

Head of the official telephone service of the Cuban Government

The Latest—Father—"That child of ours is altogether too annoying with his toy boat."

Mother—"What does he want now?"

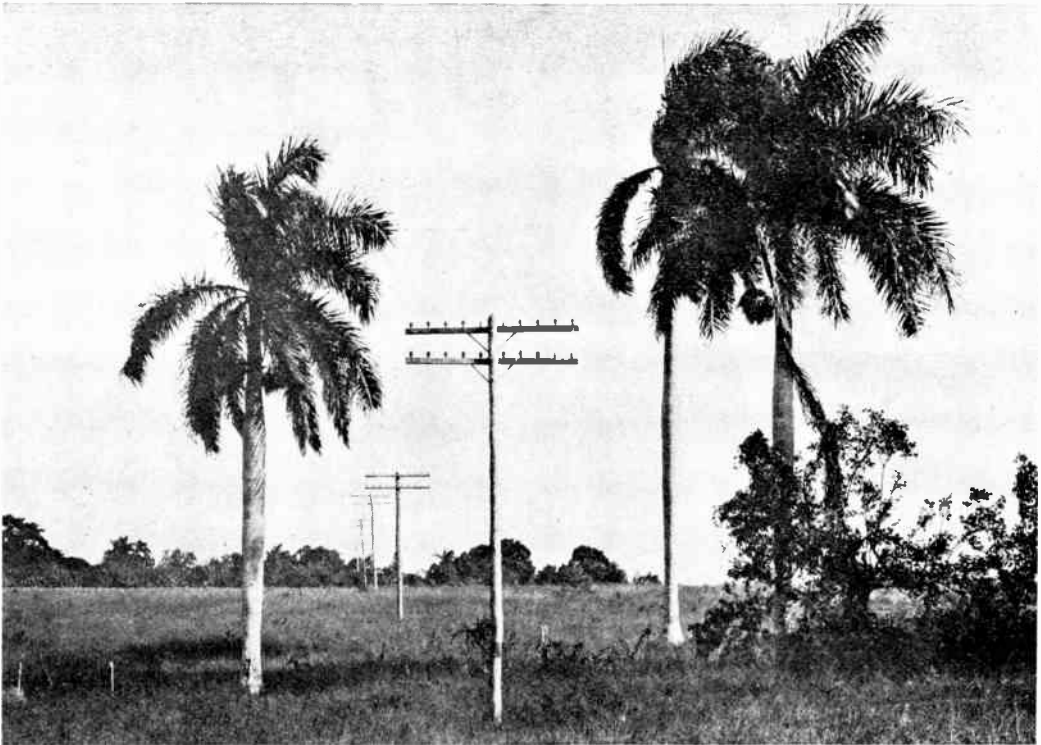
Father—"He wants to have it fitted out with a wireless."—*Le Journal Amusant* (Paris).

Long Distance Telephone Development in Cuba

EXPANSION and renewal of the long distance lines of the Cuban Telephone Company, which has been going on upon a large scale for the last two years, will continue in 1923. The work planned for the year will add much to the facilities, already good, for rapid and dependable communications between the various communities of Cuba.

1,800,000 meters of rubber-covered copper wire; the placing of 11,500 new poles and 11,000 crossarms; and the installation of 5,500 more telephones than there are at present in the island.

To accomplish the above net gain in telephones, it is estimated, will mean the installation of at least 11,000 new telephones, taking into consideration the probable number of



Typical long distance construction of the Cuban Telephone Company

The program for this year covers the construction of many new local exchanges, extensions to existing exchanges, new long distance routes, and reconstruction and betterment of the outside plant generally. It will involve the placing of 107,000 meters of cables of various sizes, ranging from those containing 50 wires each, to those of 2,400 wires each; the stringing of 130,000 pounds of copper wire, principally in long distance extensions; the use of

discontinuances due to persons going away and other causes.

Last year, in spite of generally disturbed business conditions in Cuba as a result of the post-war readjustment, the Cuban Telephone Company showed a net gain of more than 3,500 telephones, a truly remarkable achievement and a convincing proof of the energy and confidence of the organization.

Nine new local telephone services were

opened in Cuba in 1922, and connected by the long distance service with all the rest of the island, as well as the United States and Canada. These new central offices were located in Cueto, Limonar, Florida, Zaza del Medio, Antilla, Perico, Batabanó, Gibara and Esperanza.

There was added to the outside plant 3,600 kilometers of wire in aerial cables, 1,400 kilometers of wire in underground cables, 1,150 kilometers of rubber-covered copper wire, and

750 kilometers of long distance pole lines were reconstructed, involving the use of 4,500 new poles and 4,800 crossarms.

Throughout the island of Cuba, the long distance telephone system is now being maintained in excellent condition, and with repeater stations in operation at four different points, the quality of transmission is as good over circuits of hundreds or thousands of miles as between telephones located in the same town.

Why Telephone Companies Must Grow

By R. A. WALKER

Engineering Department, International Telephone and Telegraph Corporation.



SERVICE to the public is the obligation assumed by the corporation which accepts a concession, under the Government, to supply telephone service. The obligation does not cease with the placing of poles, the stringing of wires and cables and the installation of telephones and switchboards,—these are but the means to the end. Service to the public carries with it the continuing obligation of supplying dependable, continuous communication. Telephone companies who serve well—meet their obligation to the public by supplying them with the thing they need at the time they need it—engratiates themselves in the public favor as has the Cuban Telephone Company, which has fitted itself into the life of Cuba as a necessity, as much an inseparable part as the railroads.

The facilities offered by the telephone assist to inspire the necessary confidence and enthusiasm for the production of the very articles which the railroads transport.

When men come to know each other, business confidence increases—the contact which people secure through word of mouth by telephone adds to business—countries grow through development of their resources, which

can only be brought to their full possibilities through the advantage of education, transportation and communication. Men learn day by day to make more use of the effective assistant at their elbows—the telephone. The man who multiplies his time by judicious telephone use prospers. He can transport effectively his thoughts, his executive ability and influence from Havana to Santiago de Cuba, or, if he wishes, New York or San Francisco, without leaving his office, without losing for a moment intimate touch with the operation of his local business or with home or friends.

Due to the far-seeing, energetic and effective management of this Company, the demand for such service did not long precede the provision—but with education encouraged by the opportunity of use, the people of a great country like Cuba learn to use this facility. As they comprehend its great advantages to them—as those who have not had telephone service see the advantage others gain from its use, and as those that have service find the need of reaching others who do not have it, the compound result makes it necessary for the telephone company to provide thousands of additional telephones and the facilities for their operation each year.

As intercommunication increases, and with it transportation, production and prosperity, population increases. In the world there are large areas unpopulated due to the lack of communication. In the advance of the army of civilization as it seeks dominion over the whole earth, it is as dependent upon communication as is any army advancing into hostile territory.

The commercial activities of Cuba are penetrating the farthestmost parts of the island. To bring all the parts into one effective coordinated business institution, has been, and still is, the continued responsibility of the telephone company.

When we see men going out into the far spaces, clearing the woods, subjecting the earth to cultivation, we know that tomorrow more people will follow and day by day the need, the necessity of the one real means of intercommunication—the telephone—grows.

From the census of 1899 to 1919 the population of Cuba grew from 1,573,000 (up to which time it had remained practically stationary for a great number of years) to 2,889,000. Judging as best we can from past history and looking forward to the increasing activity of the people of Cuba, in production, with an ever increasing demand for its products, it should have a population in 1940 of at least 5,000,000. Five millions of people acquainted with the use and advantage of the telephone and looking to and demanding, of those who furnish telephone service, that they be served.

In order to meet this stored up and latent demand together with the ever-increasing need of the increasing population, the telephone company cannot, must not, permit one day to pass without increasing its ability and fitness to serve.

It must, day by day, develop the confidence of the public, and particularly the telephone-using public, who we feel will gladly cooperate in continuing the high service ideals that have been built up by the Cuban Telephone Company. Ideals they are which consider the best possible service to the public as their

obligation and responsibility, and the only road to its highest success.

Cuba, with 5,000,000 people in 1940, must have on the basis of a minimum calculation, 150,000 telephones which the Cuban Company will be called upon to furnish. With 41,000 telephones today, it means the addition of an average of more than 6,000 telephones per year. Our estimates of growth this year are more than 5,500 telephones, requiring the effective cooperation of every employee to be sure that the work of today will be permanent and on a secure foundation, so that each year can be taken care of as it comes.

Each subscriber added increases the value of the service to every other subscriber, and creates new demand for service from others.

The Telephone Company, in order to keep pace with the public demand for service, to fulfill the obligation of its stewardship of the public welfare, must grow with the growth of the people in the knowledge of the advantage of the telephone and with the growth of the country itself.

Costa Rica Hears Cuba

Among the thousands of congratulatory messages received by Station PWX of the Cuban Telephone Company, the following telegram is worthy of note:

San Jose, Costa Rica, Jan. 2, 1923.
Radio Telephone Station,
Havana.

I desire to express warmest New Year greetings to the artists who performed so perfectly on Wednesday and Saturday.

COLONEL PARDO.

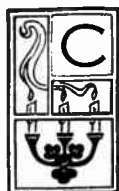
The following telegraphic reply was sent by Urbano del Castillo, director of Radio Station PWX:

Havana, Cuba, Jan. 3, 1923.

Colonel Pardo,
San Jose, Costa Rica.

Appreciate very much felicitations to artists upon good quality of concerts.

Insurance President Boosts Cuba by Radio



UBA was advertised by radio to the people of the United States this month by George Kuhns, president of the Bankers Life Company, of Des Moines, Iowa.

Mr. Kuhns spoke from Station PWX of the Cuban Telephone Company on the night of Saturday, January 13, at his own request, it being his desire to tell the American people some of the many interesting facts about the island which had impressed him as a visitor with a keen ability to observe. It was an interesting discourse, and revealed the power of Mr. Kuhns to get quickly and directly at facts.

At his home in Des Moines, Mr. Kuhns has a radio receiving set with which he is able to pick up stations from the Pacific to Atlantic Coast, and from Regina, Saskatchewan to Havana.

The programs of Station PWX so greatly pleased Mr. and Mrs. Kuhns and their friends, that he wrote to the Cuban Telephone Company, extending his congratulations and suggesting that he speak by radio when he visited Havana. The offer was promptly accepted.

The annual conference of the field forces of the Bankers Life Company was held in St. Augustine, Florida. At its conclusion, Mr. Kuhns took his "Gold Medal Club" to Havana, there being 117 persons in his party. The club is composed of field men who have sold at least \$10,000 worth of insurance before the tenth of each month for a year.

The party was met at the dock by a representative of the Cuban Telephone Company, and the service of the company and its personnel were offered to Mr. Kuhns during his stay.

The president of the Bankers Life Company came to Cuba to see what he could in a limited time. How much he saw, and how thoroughly he understood what he saw, was demonstrated by his radio address, which follows:

I have been asked to tell my friends in the United States of Havana and Cuba, both of which are picturesque and beautiful, and the island abounds in natural wealth.

The city of Havana was founded in 1519. It has a population of over 600,000. It is the capital of Cuba and the commercial centre of the West Indies. It is situated on the Bay of Havana, one of the best harbors in the world, which has deep water up to the docks. The harbor is entered by a narrow channel.

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three-eighths of a mile long, protected by Punta Castle on the west and Morro Castle on the east.

The old part of the town is a maze of narrow crowded lanes, traversed by one or two broad streets. The new city is on a ring of hills, 150 feet above sea level, south and west of the old, and has a wealth of broad and finely shaded macadamized streets, drives, promedades, plazas, flower gardens, fountains and statues, which make it one of the most beautiful cities in the world.

The water supply of the city was installed by a Cuban engineer, Albear, some forty years ago, and is considered a most remarkable piece of engineering. It comes from solid rock in the shape of a mammoth spring, and is piped to the city in a large aqueduct some twelve miles long. The water is of the purest and best.

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Also there are reproduced by the DUO-ART the works of the most renowned pianists of popular music. The Fox Trots and other modern dances sound in this instrument with the characteristic atmosphere of the New York environment.

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The climate is mild. The mean annual temperature is 77 deg., ranging from 81 deg to 71 deg. The mean rainfall is about 54 inches.

Havana is the market of western Cuba and is the centre of the great domestic shipping trade and the vast foreign commerce with Spain, France, England and the United States. Its exports are chiefly of sugar, tobacco and cigars. Its manufactures are mainly tobacco products. Its cigar factories—of which there are over one hundred of the first rank—are the largest in the world.

The eastern point of the Island of Cuba lies south of New York City, its western point nearly south of Cincinnati, and the island has a length of some 730 miles. In its upward curve the coast line attains a point that is only 96 miles distant from Key West.

The mountains of Cuba owe their attractiveness rather to beauty or oddity of outline, the luxuriance of the foliage on their slopes, and the exquisite charm of the valleys they

enclose. On the southern coast is a range that in majesty rivals and probably surpasses any mountains of the North American continent, east of the Mississippi River. This is the Sierra Maestra including the Sierra dei Cobre. The greatest altitude of these mountains is 8,600 feet.

Cuba's agricultural wealth is due to the fertility and depth of the soil.

One of the show places of Cuba is an old Spanish estate—"Rosario," owned by an American citizen—Mr. Hershey, of chocolate fame. In landscape gardening and luxuriant growth of tropical fruits, shrubbery and beautiful flowers, "Rosario" is unexcelled in the western hemisphere. The residence is an old Spanish mansion built more than 100 years ago. Our party was entertained there a few days since by Mr. Hershey, after traveling through some 60,000 acres of most fertile sugar cane lands, the product of which is all required by a single firm in the manufacture of chocolate candy.

Whatever you have been used to having on your shelves in the line of

FANCY GROCERIES

in your kitchen in the United States you can obtain at

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please all and suit everybody's purse

Always Cheaper Than in Any Other Place

“LA REINA”

P. TAPIA & NEPHEW

NEPTUNO 231

We also take orders from any place in the Island

WRITE US

Employees Appreciate Christmas Bonus

The bonus granted by the Board of the Cuban Telephone Company to all employees at Christmas as a recognition of their efficient and loyal work during the year, was greatly appreciated by all the beneficiaries.

The amount thus allowed ranged upward to 25 percent of a month's pay, depending on length of service, all employees with nine months or more of continuous service getting the maximum amount, and none getting less than five dollars.

The following letters give an indication of the way in which the employees received the gift:

Hoyo Colorado, Dec. 25, 1922.

President of the Cuban Telephone Company.
Sir:

In the name of the employees of this exchange, we express our most sincere thanks for the present which has so kindly been given by

the directorate of this Company, over which you so capably preside.

We wish you a Merry Christmas and a Happy New Year, and through you, we extend the same sentiment to all the executives and employees of the said Company.

Respectfully yours,

S. Fernandez,

Local Chief.

* * *

Ciego de Avila, Dec. 28, 1922.

Mr. Hernand Behn,
Havana.

Dear Sir:

I have the honor to express to you in the name of all of the employees of this central office the most hearty thanks for the words of encouragement which were set forth in your circular of the 23rd inst.

AT \$5.00 "LA MODA" SHOE STORE

OF

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SAN RAFAEL AND GALIANO STREETS, HAVANA, CUBA

To our many and distinguished patrons:

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SHOES THAT ARE SOLD IN CUBA: SUITABLE TO THE OCCASION

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Very Good Prices and First Class Quality

Do Not Pay Rent

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place you desire — in the city
or in any town in the Island

With Our Plan We Have Delivered
27 Houses in EIGHT Months

THE HOUSES ARE OF CONCRETE WITH CEILING
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Buy Your House with the Money You are Paying for Rent

Houses From \$2,200.00 Up

WE DESIRE AGENTS FOR THE INTERIOR

For Information Address

PASCUAL & PRADO, Contractors

SAN LAZARO No. 144

TELEPHONE F-4903

HAVANA, CUBA

We are extremely pleased with the goodness of the Directors of our beloved Company for the bonus which we have received so opportunely.

Respectfully,

Zoila Bartoli,
Local Chief.

Union de Reyes, Jan. 5, 1923.

Mr. Hernand Behn, President,
Cuban Telephone Company,
Havana.

My Dear Sir:

The chief and employees of this office have received with the greatest rejoicing the Christmas gift of the most dignified President and Directorate, and it gives us pleasure to express our most hearty thanks and best wishes for the prosperity of the Company and of its present and efficient Directorate in 1923.

Very truly yours,

J. Fernández,
Local Chief.

Juan M. Casanova

□ □

A Ready-Made Clothing Store
has been opened by JUAN M.
CASANOVA, in which will
be found suits of the finest
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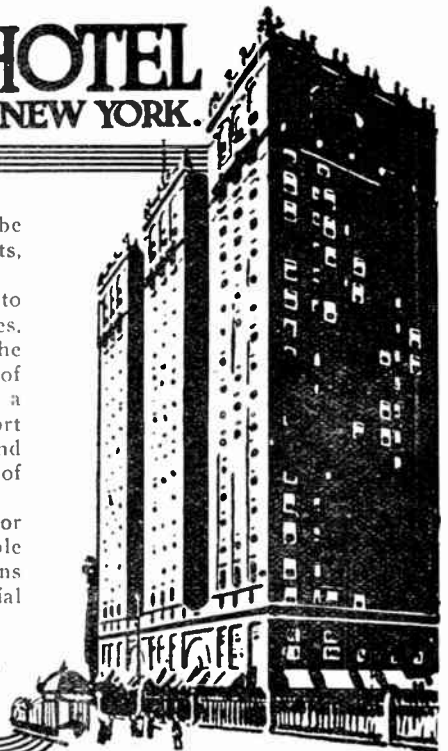
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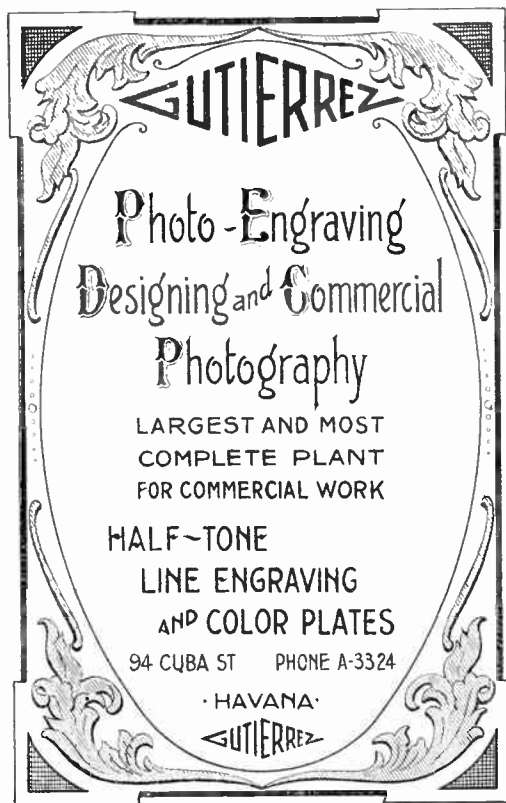
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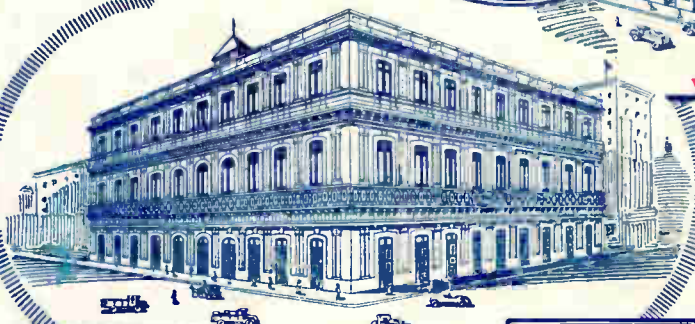
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