The World's Busiest Multi-Office Telephone Exchange

The Telephone System at Havana, Cuba, with Equipment Exclusively of the Strowger Automatic Type, Has Won the Distinction of Carrying More Telephone Traffic per Station Than That of Any Other Large City in the World.

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IF the question were to be put to a number of people, asking the opinion of each one as to which large city of the world the telephone was used the most, the thoughts of the great majority would doubtless be directed to one or more of the great metropolitan centers, such as London, New York, or Paris. Very few would think of Havana, Cuba, at all, and probably none would think of it as being, in terms of telephone traffic per unit of population, the busiest city in the world. Such, however, is the case, and has been for many years.

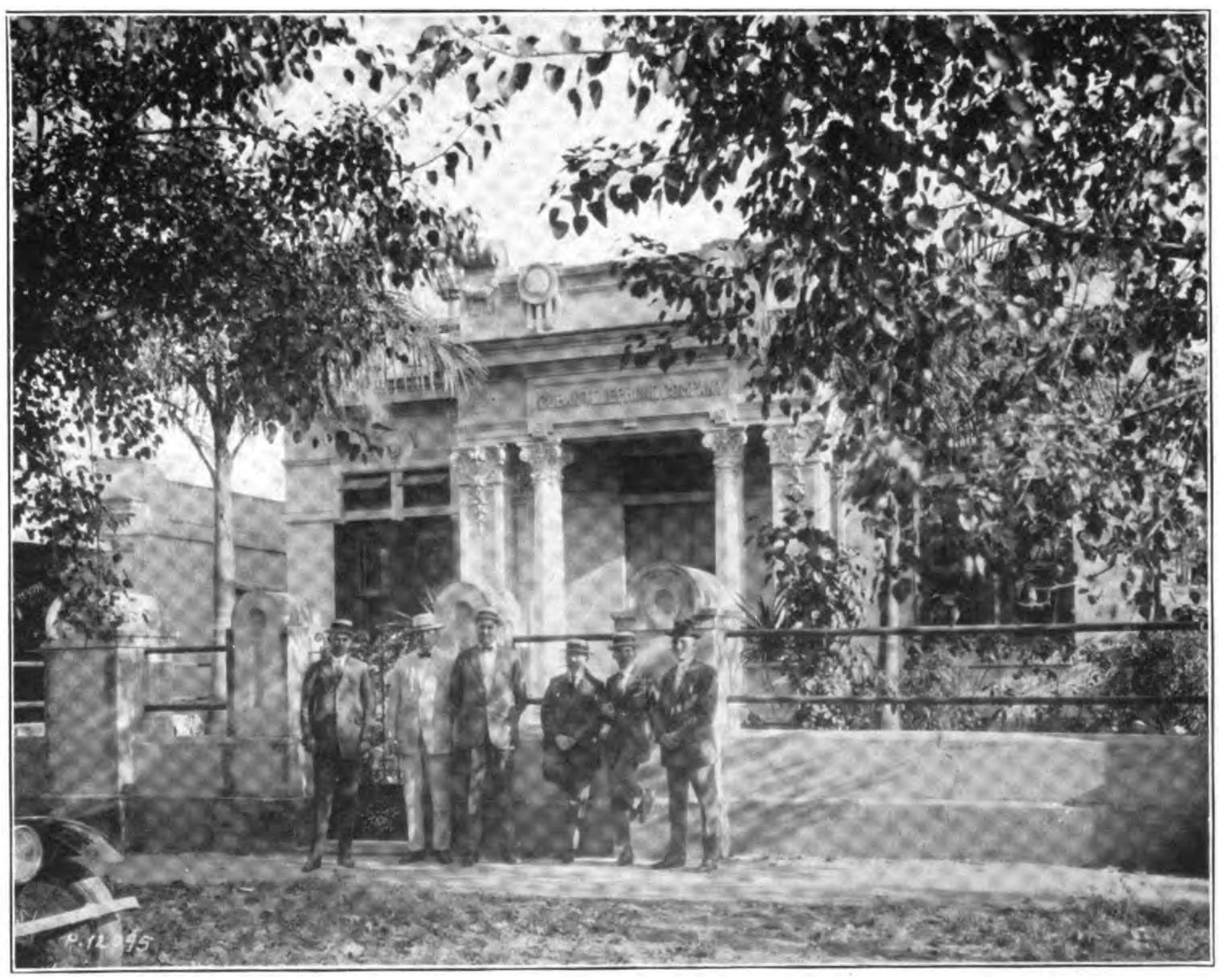
Many reasons have been advanced to account for this remarkable telephone traffic, and probably all of them have some bearing on the situation. One is that the Cuban is instinctively more affable and courteous than others, and his telephone messages, even those carried on in the course of business, are more elaborate because of an instinctive desire to maintain the traditional politeness of his race. Others place the responsibility for the heavy traffic on the climate, which is claimed to be so warm and humid that communications, which in other countries might be easily transmitted personally, in Cuba are carried on via the telephone system. Another reason, and probably by far the most valid one, is that the automatic equipment, with which almost all exchanges in Cuba are equipped, facilitates and encourages the use of the telephone as nothing else can.

But we are not so much concerned in this article with a discussion of the various factors in stimulating telephone traffic in Cuba as we are with the immense organization which is responsible for the rendering of telephone service there and the methods they employ to handle the demands for service in the most efficient way.

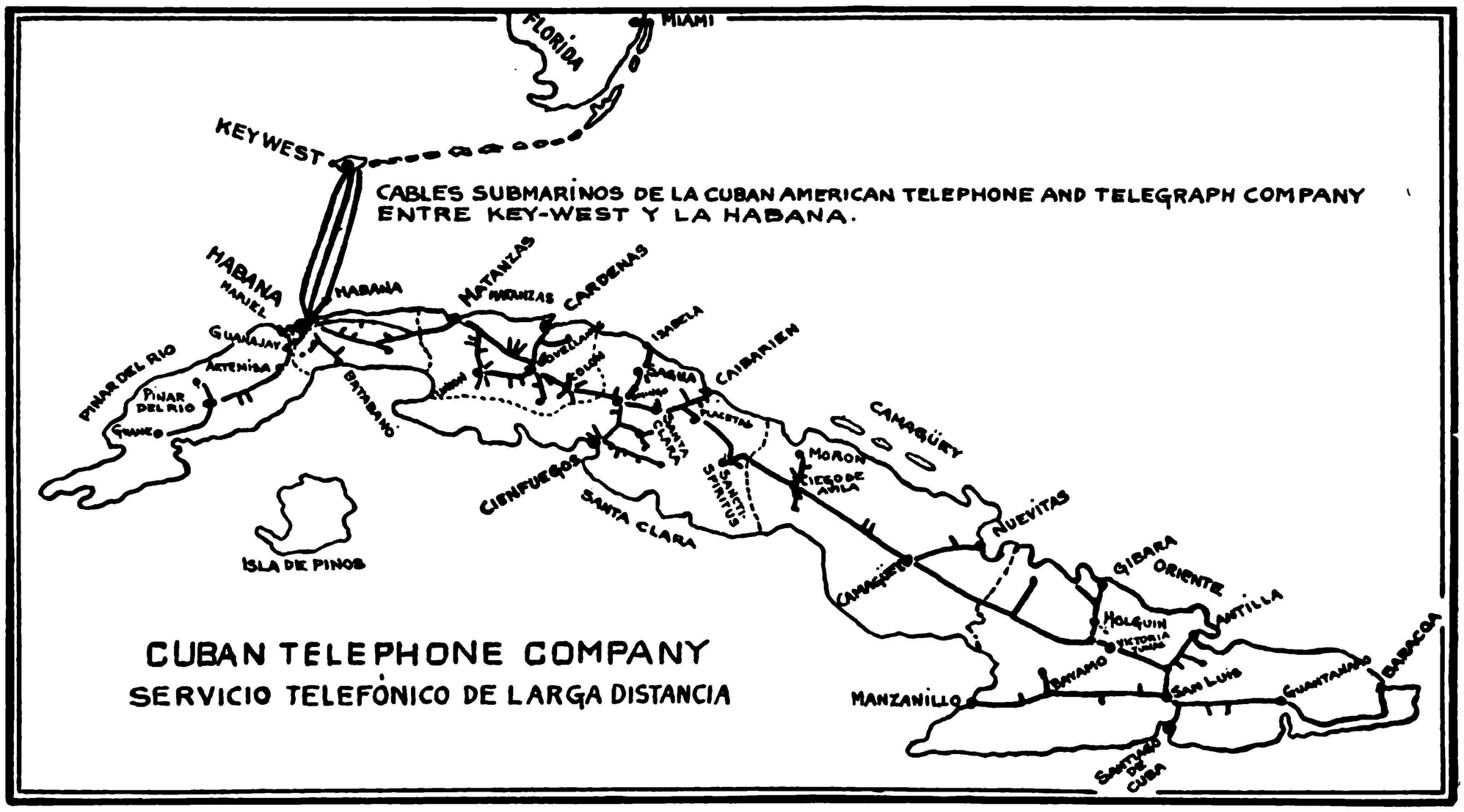
The telephone system of the entire island of Cuba, including both local and long-distance lines, is operated by the Cuban Telephone Company, with headquarters in Havana. The personnel, equipment and operating and service standards of this organization rank with the very best in the world.

The Cuban Telephone Company, which, together with other telephone properties in Central America, is owned by the International Telephone and Telegraph Company, has experienced a remarkable growth during the last few years. Under the active leadership of its president, Mr. Hernand Behn, the business of the Cuban Telephone Company has expanded rapidly and is continuing to flourish in an unprecedented way.

In selecting the executive personnel of the island company, Mr. Behn has exercised the utmost care, and it is largely to the experience and ability back of the organization thus built up, that the success of its work is largely due. Responsibility for the operation of the entire property rests on Mr. F. T. Caldwell, Chief Engineer.



The Vedado office is typical of the branch offices in Havana, which are architecturally beautiful as well as sturdy in construction. Standing in front of the building are, left to right: H. C. Hart, Assistant Chief Engineer, Cuban Telephone Company; F. Holmstrom, Jr., Manager, New York Office, Automatic Electric Company; F. T. Caldwell, Chief Engineer; Kenneth McKim, Director of Publicity; Carlos Soler, Assistant Chief Engineer, Cuban Telephone Company, and H. P. Mahoney, Superintendent of Installation and Operation, Automatic Electric Company.

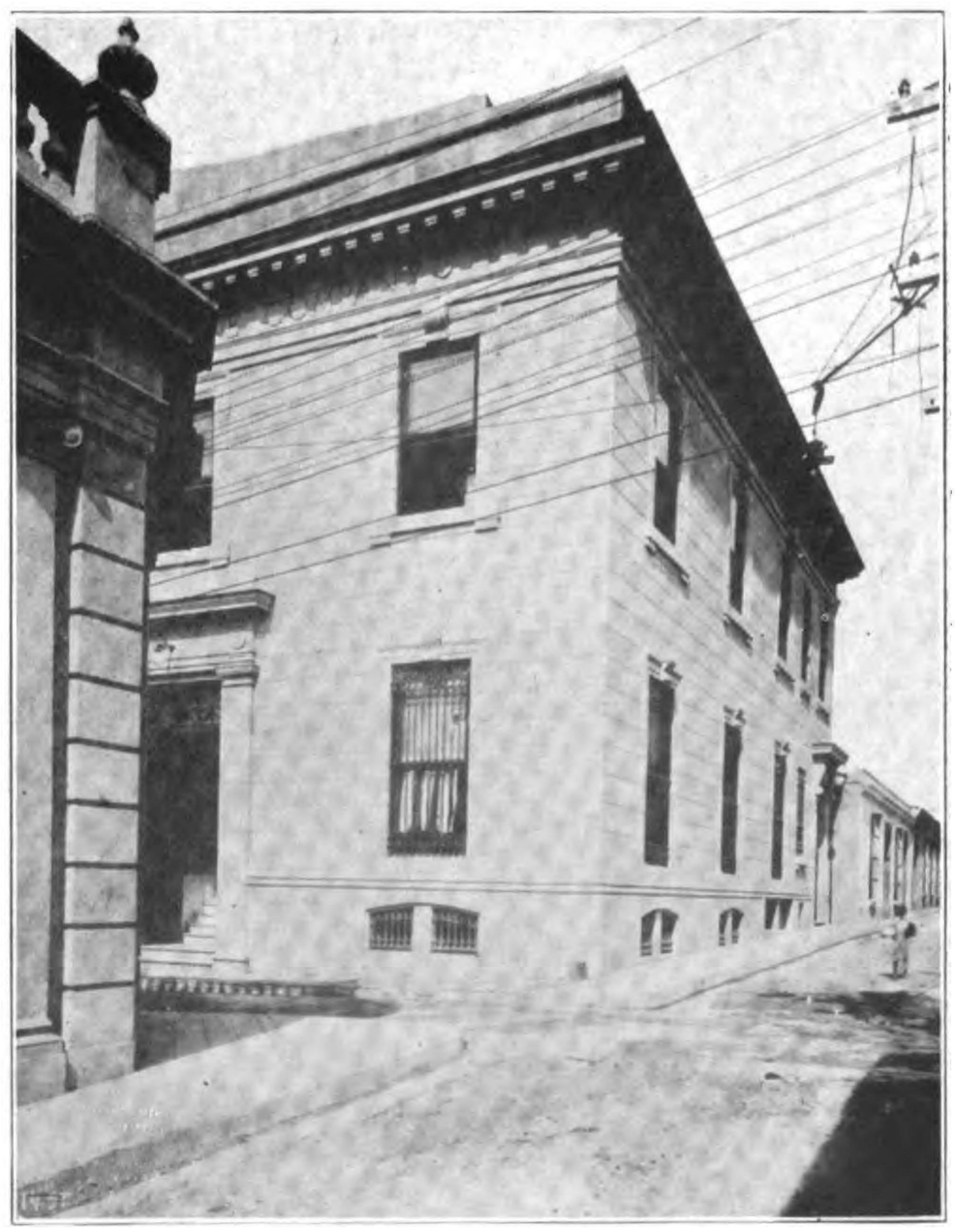


Map of Cuba showing the long distance lines operated by the Cuban Telephone Company, and the cable connection to Key West

Mr. Caldwell has had a wide experience in telephone and telegraph engineering in various parts of the United States and Canada previous to his appointment as Chief Engineer and Assistant to the President of the Cuban Telephone Company about two years ago. His activities have covered both manual and automatic telephone operation in Edmonton, Spokane, Winnipeg and elsewhere and telegraph operation for the Grand Trunk Pacific Railroad.

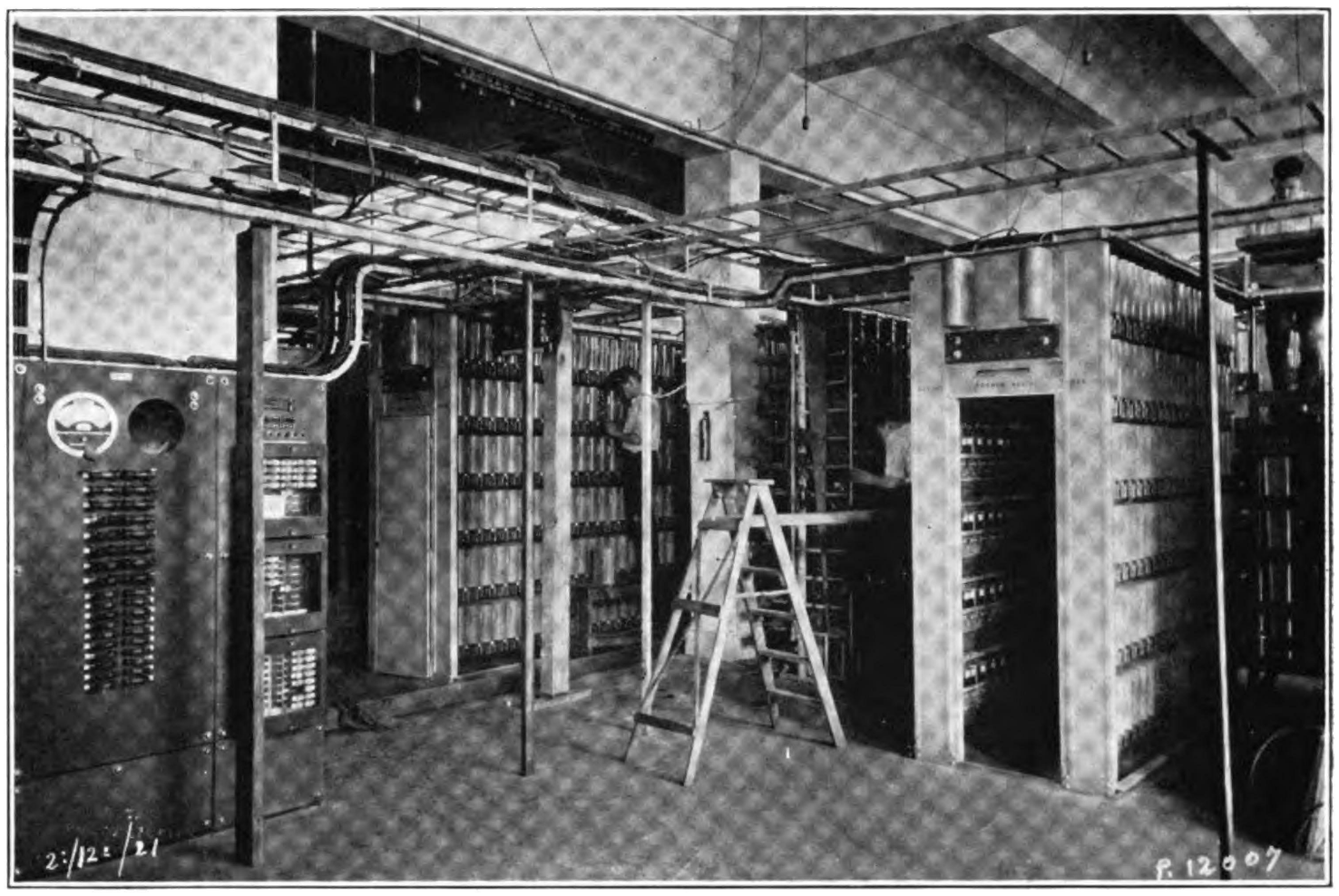
Associated with Mr. Caldwell in Cuba is H. C. Hart, Assistant Chief Engineer in Charge of Plant; Carlos Soler, Assistant Chief Engineer in Charge of Equipment, and J. A. Fernandez, Assistant to the President in Charge of the Commercial Department.

The Aguila (Havana) office building, containing the largest automatic switchboard in the world, and housing the general offices of the Cuban Telephone Company.



The telephone building at Santiago de Cuba is equipped with a switchboard of the Stowger automatic type. This exchange is also rapidly growing.

A few paragraphs back, mention was made of the enormously heavy traffic carried by the telephone lines of Havana, and other cities of Cuba. That this high calling rate is handled in a very adequate manner and almost entirely by Strowger Automatic equipment speaks well for the flexibility of this type of equipment. The original installation was placed in service in Havana in 1909, and was one of the first two-wire installations. The line switch equipment was of the single coil Keith type and the selector and connector switches were of the vertical relay type.



Installing an addition to the constantly growing Aguila automatic office in Havana

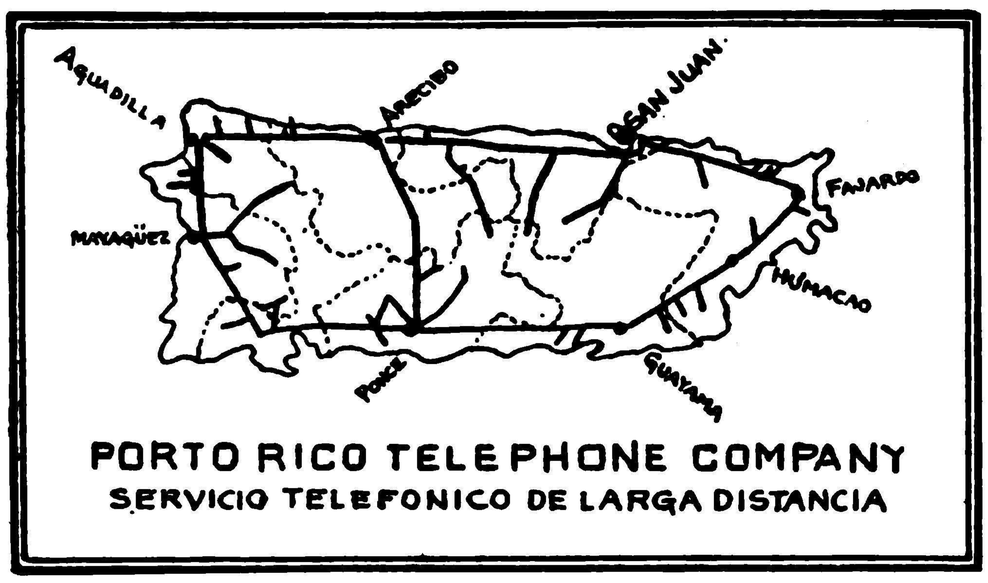
Since the original installation additions have been made at various times, using the latest types of equipment then available. The more recent installations have been of the rotary line switch type. These switches, used as secondaries on inter-office trunks and with plunger type secondaries for local traffic, have been eminently satisfactory, and the efficient way in which the heavy traffic in Havana has been and is being carried by this system demonstrates completely the adaptability of Strowger Automatic equipment for large cities.

SOME TRAFFIC FEATURES

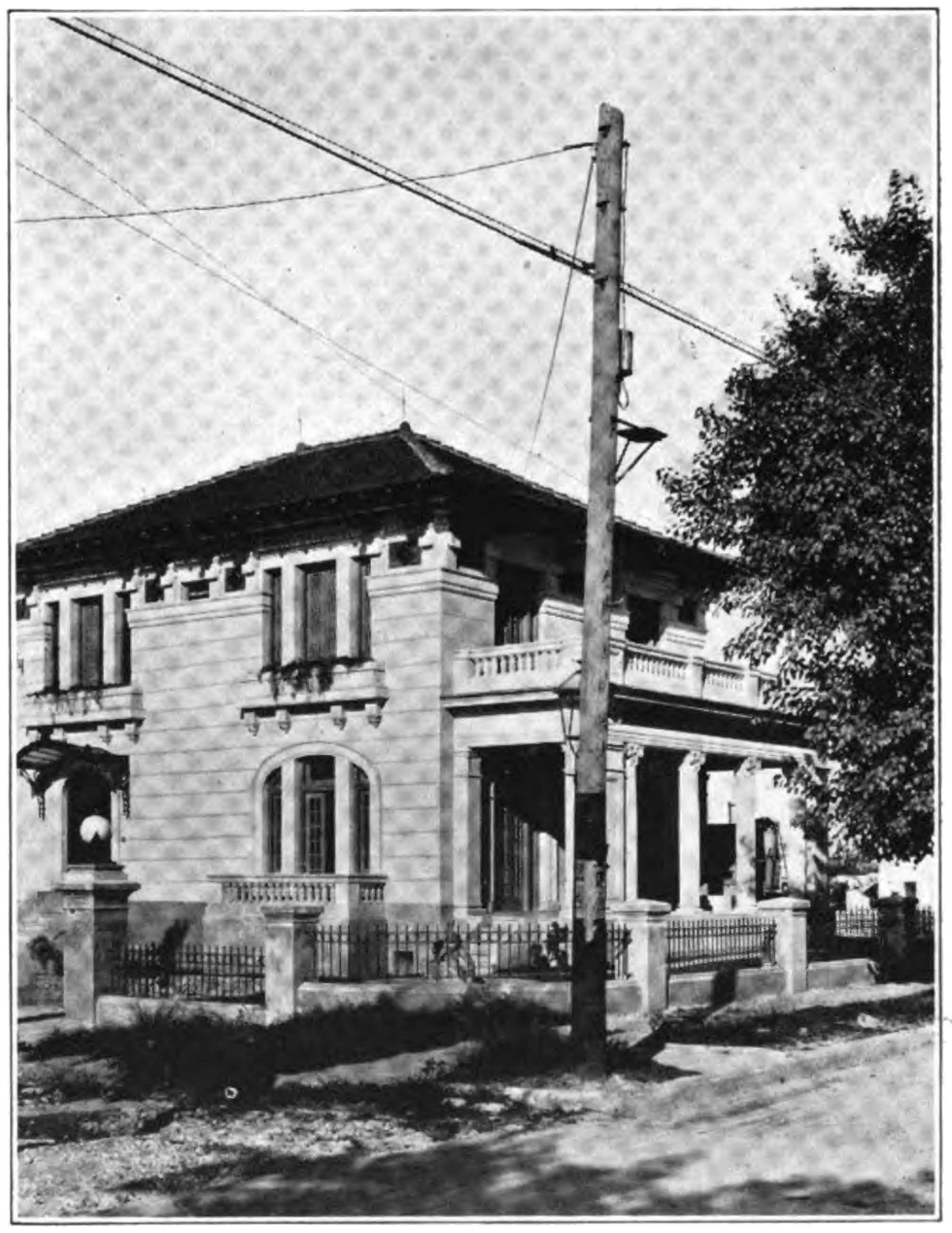
Traffic measurements taken in Havana at various times tell an interesting story. To go into detail in this article would serve no purpose, but some idea may be had when it is said that the *average* calling rate per line per day, *exclusive of P. B. X. trunks,* amounts to 28. Peg counts have shown some lines to be running close to 100 calls per day. It is evident from this that the Cuban finds Automatic service not only easy, but very highly convenient. A large volume of traffic is also contributed by calls from and to private branch exchanges, of which there are about 150 in Havana.

Outside construction in Havana is practically all cable, and built with an eye to permanence; the standards of construction compare favorably with the very best in the United States. The constantly increasing demands for telephones have necessitated many changes in the cable plant, which were not incorporated in the original fundamental plan.

An excellent idea of the type of building used for the Automatic exchanges in Havana may be had from the accompanying illustrations, which show the Aguila office, containing the largest amount of automatic equipment of any telephone office in the world, and the Vedado office, which is typical of the branch exchanges in Havana.

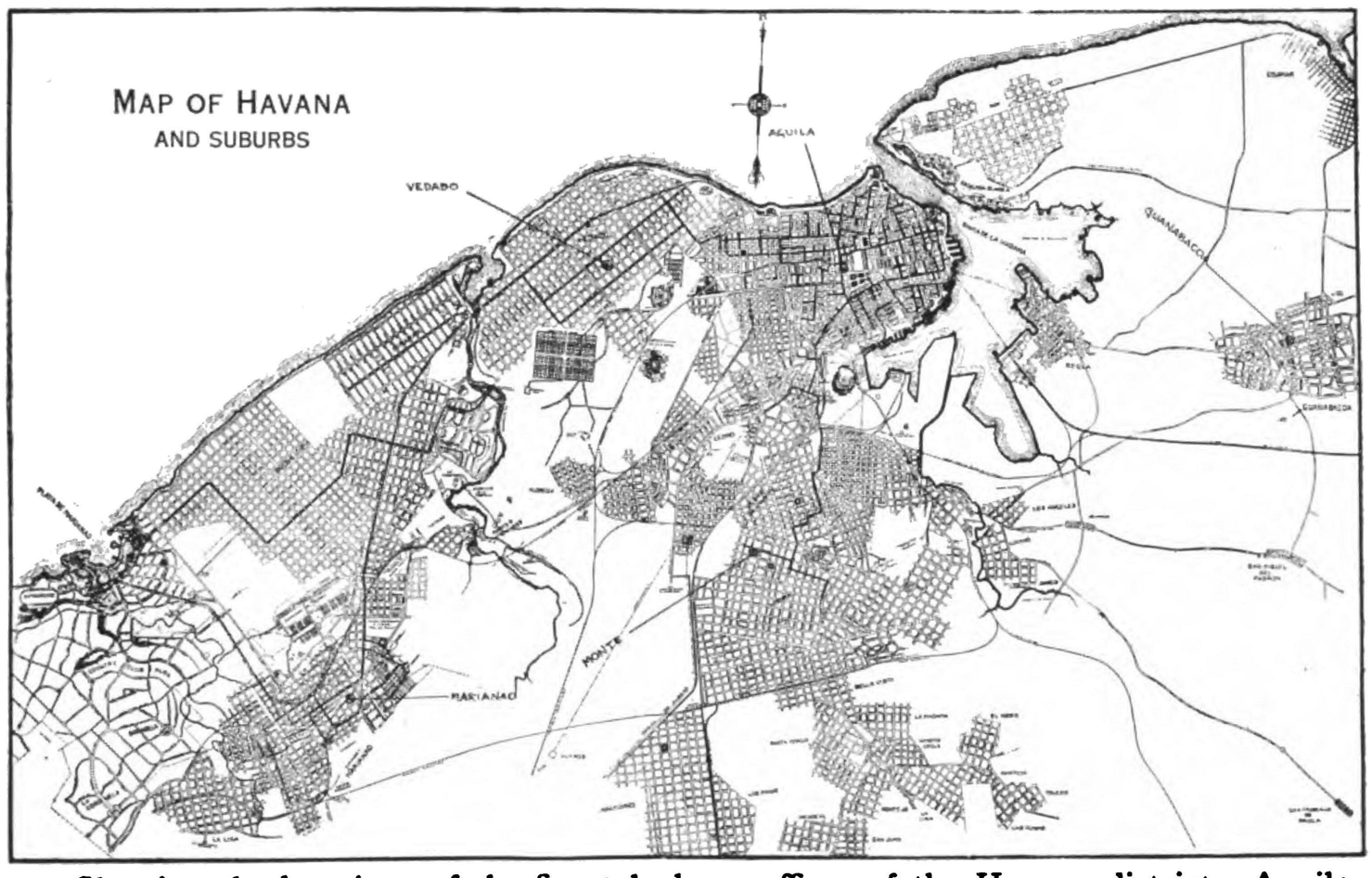


Map of Porto Rico showing the long distance lines operated by the Porto Rico Telephone Company



The outside plant of the Cuban Telephone Company at Havana is practically all cable. Incidentally, this picture shows a typical Havana residence.

The long distance telephone traffic in Cuba is also very highly developed, requiring the use of nearly two thousand pole-line miles and more than 6,000 miles of circuits, connecting six automatic exchanges, serving nearly 33,000 telephones, and 33 manual exchanges located at various parts of the island. Repeater stations of the latest approved vacuum tube type have been established at all important points, and this, together with a high standard of line construction, enables the company to give a long distance service surpassed by none. The amount of long distance traffic handled may be understood from the figures covering a typical month, in which 54,000 tickets were passed, about 90 per cent of which were completed.



Showing the locations of the five telephone offices of the Havana district,—Aguila, the largest in the central part of the city, and the four branch offices Vedado, Marianao, Monte and Guanabaco.

In addition to the land long distance lines, connection is made at Havana with the three submarine cables of the Cuban American Telephone and Telegraph Company, which connect with the land lines of the American Telephone and Telegraph Company at Key West, Fla. Through these cables are handled approximately 1,200 calls per month from Cuba to various points in the United States and Canada.

The successful engineering and installation of these cables were carried out by the International Telephone and Telegraph Company, which was the connecting company. The idea was conceived primarily by Colonel Sosthenes Behn, President of the Cuban-American Telephone and Telegraph Company, and carried to a successful conclusion by a group of men under his leadership. The foresight of Colonel Behn in engineering this enterprise is evidenced by the rapidly increasing amount of traffic being carried over these lines.

Besides the two companies already mentioned, the International Telephone and Telegraph Company also controls the Porto Rico Telephone Company, which operates all telephone lines on that island. This system comprises 75 exchanges, connected by long distance lines, and approximately 8,500 telephones. The headquarters of the company are at San Juan.

The work of the International Telephone and Telegraph Company in meeting the telephone needs of Central America has already brought remarkable results, and if the plans of the company are carried out as successfully hereafter as they have been in the past, the future of communication engineering in that part of the world will be assured.

Oklahoma's Annual Convention

THE Oklahoma Utilities Association held their Convention at The Huckins Hotel, Oklahoma City, March 14 to 16.

This convention is unique in that it is the only state in the country which has an organization that includes utilities of all knds. A number of general sessions were held, where subjects of general interest to all utilities were discussed, and then individual sections of the various divisions, such as gas, telephone, electric light, electric railway and manufacturers and supply dealers.

Mr. Sherman Mooter, of the Hanna Telephone Exchange, was in charge of the telephone division, as Chairman; H. W. Hubenthal, Telephone Engineer of the Corporation Commission, as Vice-Chairman; W. S. Vivian of the Automatic Electric Company of Chicago, as Vice-Chairman, and L. W. Scherer, of the Yale Telephone Company, Yale, Okla., as Secretary.

This meeting was opened by its Chairman, Mr. Mooter, who after a short talk, introduced Mr. Hubenthal of the Corporation Commission. Mr. Hubenthal read a most interesting paper on Telephone Service in Oklahoma, following which an Operators' School was held during Wednesday afternoon and Thursday morning, by W. S. Vivian of Chicago, which was attended by a number of telephone operators in various parts of the state.

One of the most interesting talks of the meeting was given by Mr. C. A. Shock, General Manager of the Grayson Telephone Company, Sherman, Texas, on "The Public Utility Manager's Place in the Community." This talk was for the purpose of encouraging public utility men, whether representing the telephone or other utilities, to take an active part in helping to build a community along civic lines and to take an active interest in developing the individual employe so that he may have a larger outlook upon life, and become of more use and value in the community.

Another attractive part of the program was the discussion by Messrs. C. C. Deering and W. S. Vivian on "The Invention of Mr. Bell."

Mr. Deering narrated the invention and development of the telephone up to the time of the invention of the automatic telephone. Mr. Vivian then took the floor and related how the automatic telephone came to be invented, and the development of both the automatic telephone and the industry from that time up to the present.

In connection with this the moving picture film, "Dial of Destiny," was exhibited and met with great enthusiasm.