

# Women Worked by the Automatic Telephone--No More Hello Girls

M OMAHA, one of the most widely-spread and progressive cities of the great west in all other affairs, is still behind the times in the matter of telephone service. With the examples of Lincoln, Hastings and Sioux City, within a radius of 100 miles, equipped with and proud of their automatic telephone service, demonstrated success--Omaha still clings to the old manual system of telephonic communication with its unsatisfactory service depending upon the frailties and suffering from the faults of manual operators.



AUTOMATIC DESK TELEPHONE

The reason for this lack of interest must lie in the fact that the telephone company is not informed upon the matter of automatic telephony and its advantages to enlighten them upon this subject, so that when they are ready to lend their support to the launching of an individual telephone company which shall relieve them of the tyranny of a monopoly on one of the most important of public services, that of communication, they may demand that the best be given them, and that best in telephony is automatic service.

The last years of the nineteenth century witnessed women in the way of hand labor being supplanted by machinery, and with the best results, so far as certainty, uniformity and rapidity of operation are concerned. Perhaps this is more noticeable in the automatic switchboard than in any other mechanical device. Today the telephone apparatus is thoroughly standardized and is one of the greatest triumphs in the field of automatics.

No one will deny that the manual system of telephony is prolific of many annoyances and delays due largely to the carelessness or poor articulation of the operator, the hurried operator or the person asking a connection. Every thinking man will admit that these imperfections cannot be remedied in manual practice and that they can only be eliminated by the introduction of an automatic device which places the calling and connecting processes entirely in the hands of a machine. This is just what the automatic telephone exchange does; it automatically and instantaneously connects the subscriber with the person desired and gives to them a secret or private line over which to talk.

In the automatic practice the subscriber himself instantaneously connects with the person he wishes to call, and the apparatus is so constructed that it is an impossibility for another subscriber to "cut in" upon or in any way interfere with the line he is using. The complaint, "They cut us off," is never heard where the automatic telephone is used.

The frequent delays and mistakes which the manual board causes are entirely unknown to the users of our automatic telephones. Our switches never make errors, never gossip, are never tired or sleepy, are not interested in the subscriber's affairs, are never impudent or saucy. There is no "Hello Girl" to be scolded from the central office, such as "What number did you say?" "Talk louder." "Put your face nearer the 'phone.'" "Did you get him?" "Are you through?" etc.

It should further be borne in mind that the same number of switches are always at work in an automatic exchange as there are in a manual board. In the manual practice the number of operators is increased during the so-called busy hours and decreased when the night comes on and the volume of business is supposed to be lax. Oftentimes this decrease of force is greater than the decrease of business will warrant, some special calls, telephone sending in a number of hurry calls

which the depleted force cannot handle. This can never happen with the automatic exchange, which always has as many operators or switches as callers.

In addition to the above following advantages afforded by the automatic exchange may be noted: First, quick connections; second, instantaneous disconnections; third, prompt answers secured from the called subscriber; fourth, the accuracy and promptness with which the busy signal is always given where the subscriber is actually busy.

There are few to whom the successful application of the automatic idea to telephone practice and the introduction of a system in which the operator, so long the ruling spirit of the central office, has been altogether banished from its precincts, does not come as a "commutation" devoutly to be wished, not alone because of the more rapid service it offers, but because of the relief it brings from mistakes, delays, interruptions and other annoyances that the present manually-operated system is naturally heir to.

The apparatus, which contains within itself such wonderful possibilities, fur-

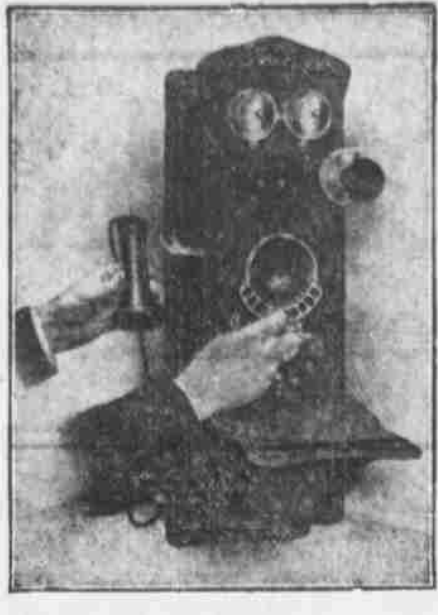
## New Device Insures Absolute Secrecy

ishes material for a most interesting study, and though an adequate comprehension of it can only be had by actual inspection, a general idea can be secured from an explanation of its construction and operation. The automatic telephone is, in the main, like the ordinary instrument, having the usual receiver, transmitter, bells, etc., added outwardly only the dialing dial, a circular metal disk about five inches in diameter, having on its periphery ten finger holes, numbered from 1 to 0. This dial is capable of rotation, being pivoted on an axle at its center, and its operation constitutes all that a subscriber is called upon to perform in selecting the number desired. Suppose the number 52 is to be called. The subscriber first removes the receiver from the hook, places his index finger in hole No. 5 and turns the dial downward as far as possible--that is, to the stop provided to limit the distance through which it may be revolved. He then releases it and the dial is restored to normal position by the action of a spring within. This operation is repeated for 2 and 2. It then remains only to press the black button underneath the dial to ring the bell on telephone No. 52. The connection having been established as the result of the several operations of the dial. When conversation is completed, disconnection

is accomplished by the hanging up of the receiver, which act instantaneously clears the line and leaves it open for a second call if one is to be made. If the line called is busy a buzzing sound immediately occurs in the receiver of the calling 'phone to give notice that such is the case. The keyboard or internal mechanism of the telephone measures  $\frac{1}{10}$  inch and consists of an impulse-sending device, which in response to the movements of the dial sends out across the line to the switchboard a succession of impulses, corresponding in number to the number of the hole in which the subscriber's finger is placed, thus actuating the switches in such a way as to properly establish the connection.

The apparatus in the central office which thus responds to the operations of the dial on the subscriber's instrument offers no resemblance to that which is so widely in use today. The accompanying illustration of the switchboard now being operated by the Lincoln Telephone company, Lincoln, Neb., gives a very good idea of the appearance of a large working automatic exchange. The present capacity of this board is 3,000 lines, but it is so designed that it can be increased to 10,000 lines without change in the present equipment by the mere addition of extra sec-

tions. The unit in the automatic exchange is an instrument about thirteen inches high, four inch wide and four and one-half inches deep, known as the selector switch. This switch constitutes the necessary equipment in the central office for the operation of one telephone, and it is connected with the telephone assigned to it by means of a pair of wires, making what is generally known as a metallic circuit. It is extremely simple in construction in view of the character of the work it is called upon to perform. The upper half consists of a pair of relays and three pair of magnets mounted on a small cast-metal frame. These relays and magnets, together with the necessary springs, armatures, etc., operate the shaft which occupies the central position in the switch, lifting and rotating it until the "wiping fingers" attached thereto are brought into connection with the brass contacts, which, arranged in three semicircular banks, constitute the lower half of the switch, releasing it when the call is completed. The upper of these banks referred to is the "busy bank," and simply serves to indicate busy lines in the automatic selection of trunks. The lower two are the line or trunk banks to which the line wires connect and over which the conversation is held. The switches are



AUTOMATIC WALL TELEPHONE--MAKING A CALL.

mounted on iron shelves, twenty-five to the shelf, supported by iron standards.

As auxiliaries to the first selector switches there are so-called connector switches, the proportion of the latter being ten to 100 of the former. The connectors are in construction and in method of operation the same as the selectors, and their function, as already suggested, is that of completing the work initiated by the selectors. These connector switches are arranged in independent groups, each group carrying the terminal of lines leading to 100 telephones, and each connector in the group having access to the entire 100 lines. These switches resemble in function the cord in the manual board, since they serve as links between the calling and called instruments. Each group of connectors is numbered to correspond with the hundred number of the lines it connects with. For instance, the sixth group has the terminals of lines leading out to lines numbering from 60 to 69, inclusive, and the third group from 30 to 39, inclusive.

The tracing out of a call from its origin in the telephone of the subscriber calling to its completion in the telephone of the subscriber called will not only be of interest, but will serve to indicate the functions of the different mechanisms employed and their inter-relationship in practice. The number 52, previously used to demonstrate the method of calling, will serve again. When the dial is pulled to 5, five impulses are communicated to the relay which controls the vertical magnets or the magnets which control the upward movement of the shaft, and lift it five points. Following this an extra impulse is sent in, which energizes the relay in control of the rotary movements, and the shaft is rotated until the "wiping fingers" attached to it close over and make contact with an idle trunk, when the rotary movement is arrested. The subscriber's line is now extended on from his own selector switch to one of the ten connector switches which constitute the fifth hundred group, and with which all the lines numbering from 50 to 59 are connected. The second movement of the dial calling 4 sends four impulses through the selector switch, and the connector and lifts its shaft to the fourth level, not affecting, however, the

selector switch. The last movement of the dial causes the shaft to rotate two points and connects the line of the calling subscriber with the line leading out to the telephone No. 52. The connection is now completed. The ringing is accomplished, as before indicated, by the pressing of the black button, the action of which is to throw the generator on the line of the called instrument and operate its ringer. When the receiver is hung up the release magnets in both switches engaged in the call are operated and both shafts are restored simultaneously. The lines of the calling and called telephones are thus cleared.

That is the order of operation in the case of an exchange of not more than 1,000 lines. In exchanges of the 10,000 type an intermediate switch, known as the second selector, is employed. The call, as before, originates in the selector, or, as it is known in this case, the first selector, passing then to the second selector and being completed in the connector. The percentage of second selectors to first selectors is the same as that of connectors, viz., ten in an exchange of larger type, i. e., over 10,000. A third selector is added. The function of this latter is the same as that of the second selector, being that of an auxiliary to the first selectors in the process of selection. The second selectors occupy the fifth and sixth shelves of the racks, the first four shelves, as before shown, being assigned to the selectors.

The advantages of the automatic system are easily apparent and have been partially suggested in what has already been said. Rapidity of operation, secrecy and accuracy of service and freedom from the frequent annoying delays and interruptions so common to present practice, are the features which figure most prominently in measuring its value from the viewpoint of the subscriber.

The automatic telephone system described has been adopted in the following cities besides Lincoln, Hastings and Sioux City: Chicago, Ill.; Grand Rapids, Mich.; Columbus, O.; Portland, Me.; Portland, Ore.; Auburn, N. Y.; Lewiston, Me.; Fall River, Mass.; New Bedford, Mass.; Los Angeles, Cal.; San Diego, Cal.; Hopkinsville, Ky.; Cleburne, Tex.; Columbus, Ga.; South Bend, Ind.; Aberdeen, S. D.; Marietta, Ga.; Auburn, Me.; Medford, Wis.; Dayton, O.; St. Marys, O.; Woodstock, N. B.; Westley, R. I.; Manchester, Ia.; Princeton, N. J.; Albuquerque, N. M.; Van Wert, O.; Battle Creek, Mich.; Clayton, Mo.; Pentwater, Mich.; Toronto Junction, Canada; Wilmington, Del.; Riverside, Cal.; Traverse City, Mich.; Waukegan, Ill.; El Paso, Tex.; Havana, Cuba; Maricao, Cuba; Berlin, Germany, and other cities.

The United States government has installed it in four of its arsenals, at the naval station in New Orleans, La., and at the Sandy Hook proving grounds, Fort Hancock, N. J.

The success of the automatic telephone service given in the cities named has made every user an enthusiast. Volumes of letters have been written to the Automatic Electric company by patrons of the service praising it strongly. Many of these have been reprinted in pamphlet form and may be had by mail. The service is now being extended to other cities.

Now Omaha knows what automatic telephone service is. Readers of this who are telephone subscribers, if they are interested in bettering Omaha's telephone service, should proceed to exert their influence to secure from the city council a franchise for an independent telephone company and should insist that every contract for such franchise should require the independent company to adopt automatic equipment.

# How San Juan Battlefield Looks to an American Visitor in 1905

(Copyright, 1905, by Frank G. Carpenter.)

SANTIAGO DE CUBA, Sept. 28. (Special Correspondence of The Associated Press.)--The monument on San Juan Hill. It is a beautiful summer evening in this peaceful year of 1905. The sun is just setting. There is not a sound to be heard, but the singing of birds and the chirping of insects. Over there on Kettle Hill, up which Colonel Theodore Roosevelt marched with his Rough Riders in the face of shot and shell, a flock of white goats is feeding. Down on the slope of San Juan, where our infantry made one of its fiercest charges, a dozen red cows are chewing their cud, and further over in the midst of the plain a white horse grazes. The grass about him is breast deep. Here on San Juan everything is covered with green, and, excepting the trenches and the monument there is no sign that this was one of the great battlefields of our history. All signs of war are hidden, save the stone passed away. As I write the white horse neighs, and way off in the direction of El Caney I hear the lowing of a cow. Looking beyond the white horse, I can see the San Juan river. It is still lined with bushes at Bloody Bend, where when our soldiers were there under the fire of the Spanish guns. They were in sight for more than a mile and they crossed that plain and were under fire until they reached the foot of this hill, which is so steep that the Spanish soldiers who lay in the trenches could not see them. Our men swarmed up the hill, grabbing their enemies as they climbed, and fighting their way to the top.

Marking the Santiago Battlefields. Standing here the greater part of the Santiago battlefields are in plain sight. Away off at the left is El Caney with its block house, a low mound in the lagoon still filled with water, across which our soldiers marched, and everywhere I look is upon one of the scenes of that great fight. The battlefields are being carefully surveyed. They are to be marked and preserved in a great national park which shall be kept here forever in memory of our struggle for Cuba's independence. Colonel Webb Hayes has the matter in charge. I understand that he will start where General Bates was stationed at the lower end of the battlegrounds, and place divisional and regimental markers along the whole line of the engagement. A road is to be made over the heights around the Kettle Hill and thence across the San Juan Hill and on to the Surrender tree. It will then go down to where El Caney road branches off from that of San Juan hill, and thence along El Caney road to the Block house. The Block house is to be repaired and a gun will be placed there. This road will be 150 feet wide. It will include the whole

battlefield and will extend along the hills between the trenches and be so marked that a soldier can come here and find just where he lay while fighting.

San Juan Monument. While standing on San Juan hill, I had Mr. Y. B. Cox, the manager of the Spanish-American Iron company who was with me, take a snapshot of myself standing beside the monument, in order to show you its size. I am five feet eight inches, and a comparison between the top of my Panama hat and the top of the monument will give you the height. The monument is a shaft of concrete made on a concrete base, with one great shell on top and shells about the corners of the foundation. The inscription upon it reads as follows:

"In memory of the officers and men of the United States Army who were killed in the assault and capture of the ridge, July 1, 1898, and in the siege of Santiago, July 1, to July 15, 1898. War between Spain and the United States."

San Juan hill has been lately cleaned of brush. The grass is growing finely, and even the hills are covered with green. Crossing the fields, I stopped awhile under the Surrender Tree, beneath which General Shafter received from General Toral the surrender of Santiago. It has now a barbed wire fence around it to keep the vandals from cutting their names in its bark or clipping it for memories. The tree is a magnificent cedar, which rises about forty feet from the ground before its branches begin. It is in full leaf and great green orchids hang from its limbs and nestle at their roots against the trunk. It was under this tree that the real end of the war came. Here was the first acknowledgment of Cuba's independence and of the absolute defeat of Spain.

The Surrender Tree, in fact, marks the birth of the Cuban republic. It is the site of our beginnings as a world power. The United States looked through its branches and saw that the earth was good and started out to possess it. Since that surrender we have held a different rank among the nations. Our strength has been appreciated, our flag respected and our trade increased. It means much to the United States, and it should be guarded in this great national park until the tooth of time rather than the hand of the vandal or traveling relic hunter brings it to the ground.

"Wood's Folly." During my stay here I have taken a drive over the road which General Leonard Wood made from Santiago to the tops of the mountains in the rear. The road runs right along the railway, crossing it five times before it reaches the hills. It then winds up the mountains to an altitude of

1,000 feet above the sea. It is as well built as the military road made by the Spaniards across Porto Rico and it cost, in places, as much as \$3,900 a mile. There are cement drains every few feet, where it climbs the mountain, and these drains are as smooth as a tiled bath room. They serve to carry the water under the road. They were expensive. Still, on a twenty years' proposition, they may be profitable as a piece of engineering. Every acre and there is a stone bridge as fine as those of Rock Creek park in Washington, and along the way on both sides are miles of stone walls two feet in height. The road is looked upon as so extravagant that it has been nicknamed "Wood's Folly." It was built to give work to the Cubans, and on this ground its construction may have been warranted. It would seem, however, that the money might have been spent in building highways where they were more needed than here.

The Santiago Dray. Much of the eastern part of the island is a wilderness, the only way of going from place to place being by bridle paths. The government expects to remedy this, and roads are being constructed in different provinces from here to Pinar del Rio. It is hoped that there will some day be a great highway from one end of the island to the other, with branch roads running off to the different farming centers. Such a network of roads will be very expensive. The rains are heavy and most of the highways must be macadamized, as dirt roads become bogs of mud during the wet season, through which it is almost impossible for a vehicle to go.

Santiago in 1905. Much has been recently published about the filthy condition of Santiago. I do not find it so. The streets are clean, and, although here and there rough, they compare favorably with those of any American city. The town looks prosperous. Its people are well dressed and its stores do a big business.

Santiago is beautifully situated. It lies on the bay, rising the hills. The warehouses are located and wholesale dealers have their establishments in the lower part of the city, fronting the water, where there is also a large park, with a fountain in the center. Beside the fountain stands a thirten-inch cannon, which was dropped in the

city from one of the gunboats during the war, and from each end of it extends a long promenade, lined with trees, which with the fresh breeze from the bay, is a delightful thing about the evening. Farther back is a central park or plaza, about which the chief hotels are situated and upon which the cathedral faces.

More Spanish than Havana. The buildings of Santiago are even more Spanish than those of Havana. They are seldom of more than two stories, but their walls are three or four feet thick, and their great windows and doors are barred with iron. The walls are painted in all colors of the rainbow and the roofs are of red tiles. Mosky of the floors are of red brick or marble. The buildings run around courtyards or patios. There is usually only one tier of rooms, so that each room has windows on both sides, affording excellent ventilation and abundant light. There are no chimneys in the town. Charcoal is used for cooking, and the weather is so warm that any sort of heating arrangement is unnecessary.

There are but few good hotels in Cuba, and they are not to be found in Santiago. I am stopping here at the "Venus." The only lovely thing about the house is its name and the park upon which it faces. My room looks out upon the patio, with a prison-like window high up in the wall at the back. The price is \$2 a day, without board. I get my meals in the restaurant of the hotel, where all sorts of Spanish dishes are served a la carte. I am told that the Cuba road intended to build a hotel here, but that just as soon as it was found that the railroad officials wanted property for the purpose the owners of all available sites put the

prices at such a figure that the officials could not afford to buy.

Must Pay for Being American. Indeed there are two sets of prices all over Cuba--one for natives and the other for Americans. The hotels of Havana double and triple their rates during the winter. In the height of the season they make Americans pay \$5 and upward a day for the same accommodations that Cubans receive for \$2 during the summer. At such times one can only live on the American plan, and if he would have extras at table he pays through the nose. The Cuban or Spaniard gets his rooms on the European plan, and his payments are moderate. In most of the cities the cab rates are fixed. They are reasonable and the service is good. This is the case inside of Santiago, but outside the city the cab drivers put on exorbitant rates. In the city the rates are somewhat like a dollar an hour. Outside, if the customer is an American, \$4 is often demanded, especially if a bargain has not been made beforehand. The other day a young American was charged an outrageous amount for a drive outside Santiago. He refused to pay it, and one of the city policemen, who was probably a friend of the driver, said that the money must be given or the man go to the police station. The young American replied that he would go to the police station, and did so, taking the policeman and calmly until he was. The cabman told the chief of police that he had already received \$9 that day from one American, \$12 from another and \$15 from a third for a similar service, whereupon he was fined \$10 for overcharging, and upon the number another \$10 for continuing to tempt of court was made. He was then forced to let the American go free upon his paying \$0 cents per hour above the regular city rates.

In the Santiago Prison. Speaking of the police brings me to a visit that I paid yesterday to the prison of Santiago. I was walking from the harbor to the plaza. About half way between the two I passed a fine building with the Spanish word for the above its front door. There was a policeman in full uniform on the front steps and other policemen inside. I entered, called upon the superintendent, and by presenting my card was granted permission to go through the establishment.

It is the most luxurious prison I have ever visited. Its spacious rooms run around a hollow court, and, were it not for their crowded condition, they would be quite as comfortable as those of the Hotel de Venus. Its second floor rooms have galleries or covered porches overlooking the courtyard. These form a promenade and looking place for the prisoners. As I walked through them I found scores of convicts seated in cane chairs rocking back and forth in the breeze as they laughed and chatted together. Some were playing checkers, others one was writing, another was smoking, and on others were lying in hammocks and snoring away. There was a barber's chair on one porch and in it a prisoner was being shaved by a fellow prisoner. Indeed, the iron bars were the only signs of a prison.

Feeding the prisoners is another prerequisite of the officials. The ordinary prisoner has poor fare, but he who can pay for it may have all the luxuries of the market. In one of the rooms on the second floor I saw a dozen convicts sitting at a table. Several had bottles of wine before them, which they mixed with Apollinaris water; others were eating steaming beefsteaks and Lyonnaise potatoes. Some of the prisoners pay 50 cents per day extra for board, and all can alleviate their sentences by a judicious expenditure of money.

I went into the ward devoted to the women, where a score or more female convicts, white, black and brown, are banded together. I noticed a laundry tank in one corner of the room in which they had been washing, and there were clotheslines running across from window to window, upon which garments were drying. I tried to make a photograph here, but the girls furiously objected. One of them, however, had a naked baby in her arms, and she held up the little one that I might photograph it, forgetting that she must come into the picture behind.

FRANK G. CARPENTER.

Lonely Hearts Get Together

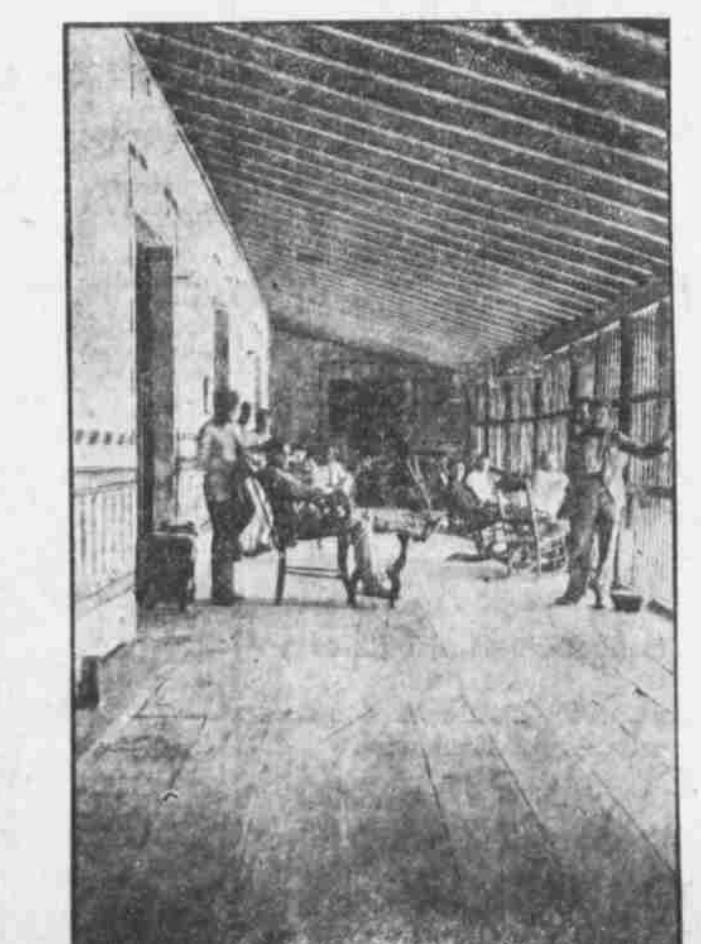
DISBURSED with the idea of homes upon them. For those of the more sedentary girls, where Adam is not always waiting within five miles of Eve, J. A. Arbuckle has been working out a plan by which young men and women can be brought together in the hope that they will fall victims to each other's charms, marry and prevent race extermination. Such is his reasoning. To bring this about, relates the New York Sun, he is giving fifty couples a two weeks' outing at a reasonable price on Mary and John Arbuckle's farm at New Platz, N. Y. In explaining the name of the farm, Mr. Arbuckle says, "My wife has better judgment and a bigger heart than I have, so her name goes first."

All kinds of chances are given to pair off and get acquainted. Everybody has free access to the golf course and to the lawn tennis courts. To urge on the backward, requests, clubs and balls are fairly thrust upon them. For those of the more active girls, where Adam is not always waiting within five miles of Eve, J. A. Arbuckle has been working out a plan by which young men and women can be brought together in the hope that they will fall victims to each other's charms, marry and prevent race extermination. Such is his reasoning. To bring this about, relates the New York Sun, he is giving fifty couples a two weeks' outing at a reasonable price on Mary and John Arbuckle's farm at New Platz, N. Y. In explaining the name of the farm, Mr. Arbuckle says, "My wife has better judgment and a bigger heart than I have, so her name goes first."

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SAN JUAN HILL MONUMENT.



GALLERY IN SANTIAGO PRISON.

### Well Known Correspondents Collaborate

NEWS reached San Francisco a few days ago that Martin J. Egan, the well known correspondent of the Associated Press at Tokio, was married September 11, to Miss Eleanor Franklin, an accomplished writer from New York, who was sent to the Orient some time ago by Leslie's Weekly. Several of her letters appeared in The Sunday Bee. Egan has made a great reputation in the Orient as a correspondent. He went out originally for the St. Louis Globe-Democrat and the San Francisco Chronicle during the Boxer troubles, and wrote vivid letters of his experiences. He made

warm friends of all army and navy men, and Lieutenant Victor Blue once made a dangerous trip down the Yangtze to carry dispatches for Egan. He was also correspondent in the Philippines, and later was sent by the Associated Press to Tokio, just before the outbreak of the Russo-Japanese war. He made all arrangements for handling news from the Japanese side. High Japan government officials gave him first "tips" on news. Egan will soon return to this country with his wife, and will then go to London, where he will take charge of the Associated Press office, so long held by Walter Neef, who died recently.