

MARCONI SERVICE NEWS

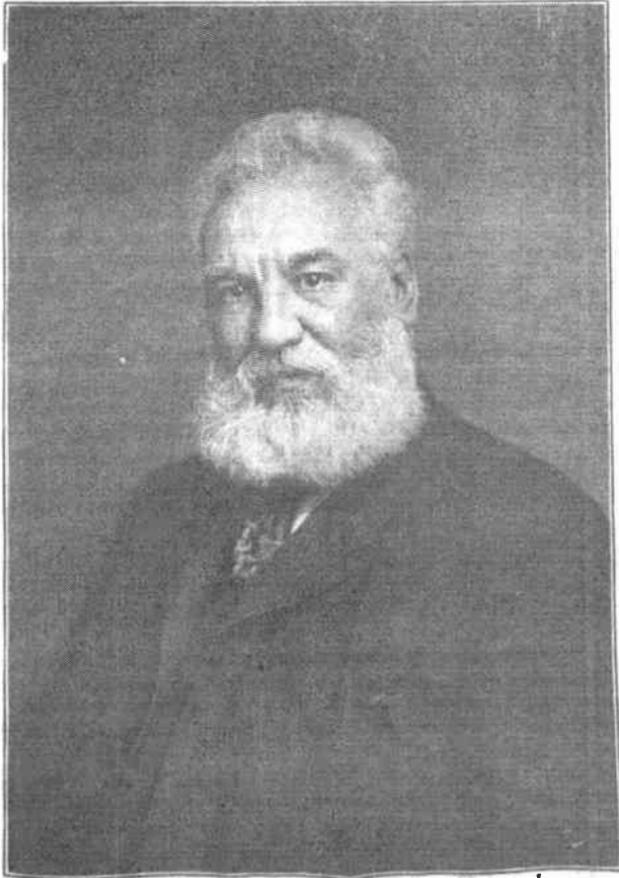
SEPTEMBER, 1919



VOLUME 4

PUBLISHED AT 233 BROADWAY, N. Y.

BY AND FOR MARCONI EMPLOYEES



DR. ALEXANDER GRAHAM BELL

Digitized by Google

THE BIRTH OF THE TELEPHONE

Forty-three short years, and, presto! the newborn art of telephony is fullgrown. So entirely has the telephone outgrown the ridicule with which, as many people can well remember, it was first received, that it is now taken for granted, as though it were a part of the natural phenomena of this planet. It has so marvelously extended the facilities of conversation that it is now an indispensable help to whoever would live the convenient life. The disadvantage of being deaf and dumb to all absent persons, which was universal in pre-telephonic days, has now happily been overcome.

All the world acknowledges its debt to the inventor of the telephone, Alexander Graham Bell, who was born in Edinburgh, in 1847, and educated in that city and London. He became a teacher of acoustics and elocution at 16, and devoted much time to studying the nature of vowel sounds. For years he sought the society and friendship of scientists, learning all that was known in regard to speech. He became interested in the instruction of deaf mutes. At the age of 22 he removed to Brantford, Canada, for his health, which in a year, was fully restored. In 1871 he accepted a position in Boston as instructor to train deaf mutes to talk, and then became an American. His success was sudden and overwhelming. It was the educational sensation of 1871 and won him a professorship in Boston University. He is living today in Washington, enjoying the appreciation of mankind.

Bell became absorbed in the discoveries of Helmholtz, who had kept tuning-forks in vibration by the power of the electric magnet, and blended the tones of several tuning-forks together to produce the complex quality of the human voice. This was a new and very attractive law which appealed to Bell as a student of speech, and suggested the possibility of a musical telegraph; and this was his starting point in his quest of the telephone.

One day in Boston he was wholly absorbed in the making of a non-descript machine, a sort of crude harmonica with a clock-spring reed, a magnet and a wire. It was a most absurd toy in appearance. It was unlike any other thing that had ever been made in any country. The young professor had been toiling over it for three years and it had constantly baffled him, until this day in June, 1875, he heard an almost inaudible sound—a faint *twang* come from the machine itself.

For an instant he was stunned. He had been expecting just such a sound for several months, but it came so suddenly as to give him the sensation of a surprise. His eyes blazed with delight, and he sprang in a passion of eagerness to an adjoining room in which stood a young mechanic who was assisting him.

"Snap that reed again, Watson," cried the apparently irrational young professor. There was one of the odd-looking machines in each

room, connected by an electric wire. Watson had snapped the reed at his end, and the professor had heard from the other machine exactly the same sound. It was no more than a gentle *twang* of a clock-spring; but it was the first time in the history of the world that a complete sound had been carried along a wire, reproduced perfectly at the other end, and heard by an expert in acoustics.

The *twang* of the clock-spring was the first tiny cry of the newborn telephone, uttered in the clanging din of a machine shop and happily heard by a man whose ear had been trained to recognize the strange voice of the little newcomer. There, amidst flying belts and jarring wheels, the baby telephone was born, as feeble and helpless as any other baby, and with no language but a cry.

To other men that exceedingly faint sound would have been as inaudible as silence itself; but to Bell it was a thunderclap. It was a dream come true. It was an impossible thing which had in a flash become so easy that he could scarcely believe it. Here, without the use of a battery, with no more electric current than that made by a couple of magnets, all the waves of a sound had been carried along a wire and changed back to sound at the farther end. It was absurd. It was incredible. It was something which neither wire nor electricity had been known to do before. But it was true.

No discovery has ever been less accidental. It was the last link of a long chain of discoveries. It was the result of a persistent and deliberate search. Already, for half a year or longer, Bell had known the correct theory of the telephone; but he had not realized that the feeble undulatory current generated by a magnet was strong enough for the transmission of speech. He had been taught to under-value the incredible efficiency of electricity.

While puzzling over the harmonica the dim outline of a new path suddenly glinted in front of him. He had found means to make the vibrations of sound plainly visible. If these could be improved, he thought, then the deaf might be taught to speak by *sight* by learning an alphabet of vibrations. He mentioned these experiments to a surgeon who was also an aurist, and the latter naturally said, "Why don't you use a real ear?"

Such an idea never had, and probably never could have, occurred to Bell; but he accepted it with eagerness. The aurist cut an ear from a dead man's head, together with the ear-drum and the associated bones. Bell took this fragment of a skull and arranged it so that a straw touched the ear-drum at one end and a piece of moving smoked glass at the other. Thus, when Bell spoke loudly into the ear, the vibrations of the drum made tiny markings upon the glass.

It was one of the most extraordinary incidents in the whole history of the telephone. To an uninitiated onlooker, nothing could have been more ghastly or absurd. How could anyone have interpreted the gruesome joy of this young professor with the pale face and the black eyes,

who stood earnestly singing, whispering, and shouting into a dead man's ear? What sort of wizard must he be, or ghou! or madman? Certainly it would not have gone well with Bell had he lived two centuries earlier and been caught at such black magic.

What had this dead man's ear to do with the invention of the telephone? Much! Bell noticed how small and thin was the ear-drum, and yet how effectively it could send thrills and vibrations through heavy bones. "If this tiny disc can vibrate a bone," he thought, "then an iron disc might vibrate an iron rod, or, at least, an iron wire." In a flash the conception of a membrane telephone was pictured in his mind. He saw in imagination two iron discs, or ear-drums, far apart and connected by an electrified wire, catching the vibrations of sound at one end, and reproducing them at the other. At last he was on the right path, and had a theoretical knowledge of what a speaking telephone ought to be. What remained to be done was to construct such a machine and find out how the electric current could be brought into harness.

With the constant aid of Thomas A. Watson he accomplished this and on March 10th, 1876, produced an instrument which could talk, and on which he was awarded, on his twenty-ninth birthday, the most valuable patent ever issued—bearing the number 174,465. This being the year of the Philadelphia Centennial Exposition, advantage was taken of that occasion to exhibit the new device to the public. It attracted the earnest attention of the Emperor of Brazil, Joseph Henry, Lord Kelvin and other scientists, all of whom recognized its great commercial possibilities.

It now remained for men of different abilities to take up the telephone and adapt it to the uses and conditions of the business world. The first man to undertake this work was Gardiner G. Hubbard, who soon afterwards became the father-in-law of Bell. Associated with him was Thomas Sanders, a man of wealth. These pioneers met a series of disheartening rebuffs. The business world refused to accept the telephone as an article of commerce. It was a toy, a plaything, a scientific wonder, but not a necessity to be bought and used for ordinary purposes by ordinary people. Capitalists treated it exactly as they treated the Atlantic Cable project when Cyrus Field visited Boston in 1862. They admired, they marveled, but not a man subscribed a dollar. Imitations sprang up in rapid succession, resulting in expensive and long-continued litigation and ruinous competition. All these difficulties were overcome and a telephone company was organized to do business in New England and with \$50,000 in its treasury. Theodore N. Vail, then superintendent of Railway Mail Service, was installed as general manager, at a salary of \$3,500 per year. He was full of energy and courage and put up a heroic fight. The first telephone exchange was established in Boston in 1877. Month after month, the little Bell company lived from hand to mouth. No salaries were paid in full. Often, for weeks, they were not paid at all.

Fortunately, and most opportunely, a young Bostonian named Francis Blake produced a highly efficient transmitter, the possession of which was invaluable to the Bell Company. It encouraged the few capitalists who had invested money, and it stirred others to come forward. The company reorganized as the National Bell Telephone Company with \$850,000 capital and with Colonel W. H. Forbes as its first president. This was followed in 1880, by the creation of the American Bell Telephone Company with \$6,000,000 capital. This company was soon succeeded by the American Telegraph and Telephone Company.

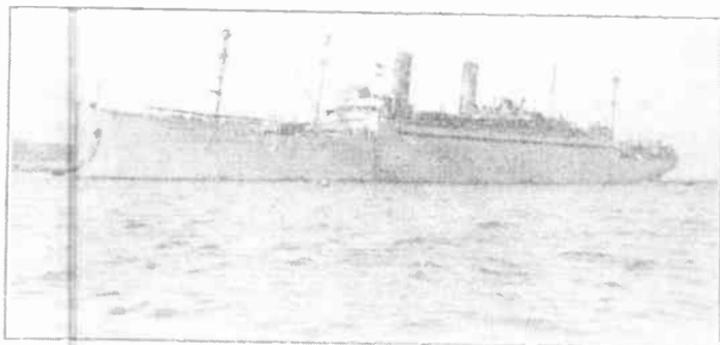
From this time onward the telephone has had strong friends in the financial world. It has taken its place with the telegraph, the railroad, the steamboat, and other necessities of civilization. Mr. Vail remained at the helm nine years, when he went to South America and accumulated a fortune in the development of water power and the building of street railways. In 1907 he returned and became president of the company, holding that office with the highest success and honor until the present year. It is due very largely to him that the telephone has been adapted to all kinds and conditions of men, and that it is now in universal use. It was his persistency which made trans-continental telephoning a reality. It was due to his co-operation with the government during the world war that the movement and control of our armies at home and abroad reached the highest point of efficiency.

THE LAST PRESIDENTIAL TRIP OF THE GEORGE WASHINGTON

By B. F. Hoard, Chief Electrician (R)

It was a warm, sunny day, the 29th of June, to be exact, when the George Washington, the second largest of the American transports during the war, steamed out of the harbor of Brest with President Wilson and his party, returning at last to the United States. An imposing escort of a battleship, a cruiser and seven destroyers preceded the ship, while the French man-of-war Marseillaise brought up the rear, to the accompaniment of salutes from the warships lying in the harbor, each firing the regulation twenty-one guns as the President's ship passed. Shortly after the last point of land vanished, the cruisers and three of the destroyers turned back to Brest, leaving the Oklahoma and four destroyers, the Tarbell, Yarnell, Wickes and Woolsey, to convoy the transport across. A regular formation was taken for the whole trip, the battleship leading, with the George Washington a few hundred yards in her wake, and two destroyers on either side, one ahead and the other astern of the big gray ship.

The chief feature of the voyage was the use of the wireless on a scale larger than any heretofore attempted. The George was equipped with the latest types of apparatus, with which constant communication



was maintained with the big shore stations at Lyons, France, and New Brunswick, New Jersey, thus enabling the President to keep in instant touch with Washington and Paris; and the preparations were unusually complete.

The big transport was fitted with five transmitters, a Federal 20-30 kilowatt arc set, a two kilowatt Navy spark set, built by the Marconi Company, a high-powered radio telephone set, operated by the General Electric Company and in charge of two of their experts, a small telephone set, and a short wave spark set, the last two being used only for inter-communicating with the other ships in the convoy. Direct communication was obtained with New Brunswick on the first afternoon out, the strength of the arc signals being reported as seven. On a previous trip the George had established a world's record for ships, having worked with New Brunswick while lying at anchor in Brest harbor, a distance of 3,200 miles; and except for a period during which a very severe electrical storm over the American coast prevented the reception of signals, continuous communication was kept up for the entire trip.

Owing to the large amount of Presidential traffic to be handled, a regular schedule was adhered to between the ship and the shore stations, the George Washington transmitting at the beginning of every even hour, Greenwich time, and for an hour or as long as was necessary to send what messages she had; and at the beginning of the other twelve hours, both Lyons and New Brunswick sent to the ship. Five receivers were used, one long-wave type each for Lyons and New Brunswick, thus enabling both to be copied simultaneously, and a spark receiver, as well as one to handle any work between the other ships in the escort, and an Alexanderson barrage receiver, working in conjunction with the big telephone, to receive special telephone tests from the powerful transmitter at the New Brunswick station. This set could receive while the ship's spark transmitter was being used, being designed to neutralize the effect of the local disturbance.

Due to the necessity of clearing the way for official business, the

spark set for communication with vessels other than those in the escort could seldom be used; so at various times the Oklahoma and the Woolsey took charge of this work, answering calls for the George Washington and handling many messages of congratulation to the President from passing vessels, all of which were passed to the transport on one of the two inter-communication sets, which could operate during the receiving period without interference to the two arc receivers, owing to the low power and short wave-length at which they were used. The President's replies were sent the same way, being transmitted to the vessel in charge of the spark traffic by telephone or by the 126-meter set, and forwarded from there.

In addition to this, it was important that the press from the numerous trans-atlantic stations be copied, and as the George's schedules would interfere with this, the other ships in the escort were assigned to cover various stations, including Horsea, England; Carnarvon, Wales; Tucker-ton, New Jersey; Lyons (during transmitting periods), and Annapolis, Maryland. Any news of importance intercepted from these stations was then forwarded to the transport at convenient times, thus giving the President a summary of the world's events as quickly as though he had been on shore.

It was intended that on nearing the American coast the President should talk to Washington by means of the big telephone; his voice would be received at New Brunswick, and thence sent along the ordinary telephone line to the capital, while the words of Secretary Daniels and other officials would go to New Brunswick and be flung out from there on the big transmitter. Unfortunately, however, atmospheric conditions became bad as the ship was off Newfoundland, and grew steadily worse as New York approached, effectually preventing a successful trial of the scheme. Finally, when but a few hours out, and preparations were being made for a final test, the New Brunswick alternator broke down, and the long-expected conversation had to be cancelled.

Aside from this, the communication during the trip was an entire success. A system of numbering the messages separately for each station was used, to avoid confusion, and the sets worked with very little trouble, except for the relay keys on the arc transmitter, due largely to the rather heavy overload which they were called upon to stand, and which, at times, heated up the contacts.

The trip as a whole was uneventful in the matter of storms, very little bad weather being encountered. A number of incidents occurred, however, which broke up the monotony of the run. The first came while a day out from Brest. The transport Northern Pacific had already left New York with important dispatches for the President. Therefore, those dispatches must be brought aboard the ship. By the interchange of several messages, the course of the convoy was altered to bring it into the path of the Northern Pacific, and upon the sighting of the vessel, the destroyer Tarbell detached herself from the escort and ran alongside

the oncoming ship, receiving the bags of mail at the end of a rope. She then ran alongside the George and the dispatches were speedily brought aboard and delivered.

The Fourth of July was celebrated in the usual fashion, with various races and boom-fights in the morning, and a series of boxing and wrestling bouts in the afternoon. The chief event of the day was a speech by the President to the assembled crew and troops on the after-deck. He came down among the men, instead of delivering his remarks from the platform which had been prepared, and told them of his early ambitions to be a sailor, and of the meaning of this particular Fourth of July above those which preceded it. It was a speech which will never be forgotten by those who heard it, and the accompanying destroyers, who could see the event, promptly requested that the message be sent to them, which was accordingly done.

The credit for the successful performance of the radio belongs to the radio officer of the ship, Lieutenant H. D. Loeb, a man who was universally liked and respected by all who knew him. Under him was a force of seventeen men, four of whom, Chief Electricians (R) J. L. MacCargar, D. C. Wallace, B. F. Hoard and H. C. Roberts, had direct charge of each watch, and to their efforts was due this proof of the reliability and trustworthiness to which modern radio telegraphy has progressed. Of this hunch all were former Marconi men excepting Mr. Roberts.

AN AERIAL WEDDING

A real made-in-heaven marriage was performed July 26th, at the Police Field Day at Sheepshead Bay Speedway, Brooklyn, N. Y., when Lieutenant George H. Burgess, U. S. Air Service, and Miss Milly K. Schafer, of Brooklyn, were married while flying in an army biplane a thousand feet above the earth. The aviator and his bride-elect went up in one plane, while the minister was taken aloft in another plane piloted by Lieutenant Eugene H. Barksdale, the best man. Miss Doris K. Schob, the bridesmaid, went up in a machine piloted by Colonel Archie Miller. The couple were joined by radio telephony, and loud speaking telephones installed in the grandstand below magnified the words spoken in the air so that the audience was able to hear the ceremony. Thirty airplanes joined the wedding procession in the clouds.

Lieutenant Burgess is twenty-six, one year his bride's senior. They first met at Seagate five years ago, when he was in charge of the Marconi Wireless Station there, under romantic circumstances. Miss Schaefer was canoeing near the station with a friend when the canoe suddenly pitched, and her friend was thrown into the water. Burgess came to their aid in a row boat.

You might better strike out for yourself and have the satisfaction of knowing that you tried, than to have some pinch-hitter strike out for you.

THE UNITED STATES STEAMER IMPERATOR

(Reprinted by Permission from the Delphian Quarterly.)

Among the ships turned over to the United States and the Allies by Germany was the S. S. Imperator, since re-christened the U. S. S. Imperator. She is one of the three largest ships in the world today. The largest, the S. S. Bismarck, is still under construction in Germany; the next, the U. S. S. Leviathan, was one of the interned German ships seized by our government at the outbreak of war; the third in size is the present U. S. S. Imperator. All of these colossal ships are the product of the Hamburg-American Line.

Despite the fact that she is called the United States Ship Imperator, she is still the property of the Hamburg-American Line. We pay the German Government \$10,000 a day for the use of it. In other words, we are simply chartering the ship from the Germans, the same as we would do it in peace times. It is needless to say that before the war it would have been easier to charter Lake Michigan for an afternoon. Of course this charter was actually forced upon the Germans, as it was necessary to release their ships that they might obtain food. As a result American ships are carrying food to Germany, and German ships are carrying back troops to the United States. This is the status at the present writing.

The Imperator was built at the Vulcan Works, Hamburg, in 1913. The length over all is 909.6 feet or a little less than one-fifth of a mile. The beam or breadth is 98.5 feet. Her bridge towers 83 feet above the water, while her keel is buried 39 feet below the waves. Her decks number fifteen, nine of which are above the waterline and six below. "C," "D," "E" and "F" decks, amid-ships, are the first class passenger decks. They will accommodate very comfortably a little over 1,100 people. The other decks, both forward and aft, that were formerly used for second, third and fourth class passengers, will now accommodate, due to alterations made after the first trip to New York, approximately 8,800 troops. In addition to this the crew has been stowed in odd nooks and corners to the number of over 2,000 men.

The Imperator has for power eight turbines, four for going ahead and four for going astern. The steam for the turbines is furnished by forty-six boilers. Consider that the average ship today only boasts two boilers, and finds them quite enough! The fire-room is a labyrinth into which you would be fearful of venturing unless you used Perseus, "Thread Guide to Labyrinths" or were a "grease ball," i. e., engineer officer. The Imperator in peace times has made a trip across at twenty-three knots an hour. Even now after a four-year lay-up, she can do nineteen quite comfortably. Her gross tonnage is 51,969 tons, and, at 39 foot draft, her displacement is 70,000 tons.

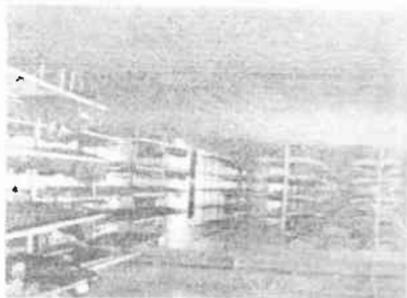
On "A" deck is located the smoking-room, now used by Army and

Navy officers. It is finished to represent an old German tavern. The woodwork stained a dark brown, is exquisitely carved to the smallest detail in figures representing the hunt and the chase. A large fireplace, in which it is possible to burn real logs, is the center of interest. The furniture of the room matches the deep brown of the carved woodwork, and in its design carries out the German tavern idea.

The social hall on "B" deck, next to the dining room, is the main gathering point for the returning war-worn Army officers and nurses. It is a ball room—the equal of any our New York hotels can boast. It has a good-sized dance floor in the center. The room also possesses two large pieces of tapestry, each a treasure in itself. The walls are made of oak paneling, the borders artistically carved, and in the ceiling is a glass dome 30 feet high. The massive curtains over the windows, the upholstering and carpets are in the different shades of red, ranging from pink to maroon.

Outside of the social hall is one of the three passenger elevators contained in the ship. There are also several freight elevators going down into the holds of the ship.

There are two first class dining rooms. One is located on "F" deck with a balcony on "E" deck; the other, the "Ritz," is on "B" deck, aft of the social hall. The "Ritz" has all the furnishings and trappings that you would associate with that name—especially if you



(1) U. S. S. Imperator
 (2) Banks installed in "B" deck
 (3) Two boats loading troops on U. S. S. Imperator at Brest
 [Side of the Imperator on left of picture]



live in New York. It is divided into two distinct sections. The back section of the restaurant is about three feet higher than the front part. Six steps lead up to it from the front section. A fancy iron railing serves further to divide the two. The decorative scheme differs also. The front is done in gold and light green, and white Doric columns form the support of the large glass dome roof. A large painting decorates the forward end of the room, while the panels of the ceiling formed by huge beams are painted to resemble clouds and blue sky. The back section is finished off in large oak panels with a frieze of heroic figures forming a border at the top. Four green ionic columns support the white beams of the ceiling; a large glass dome also contributes to the beauty of this part of the "Ritz." The staterooms and suites throughout the ship are regal in their fittings and arrangement. No expense apparently has been spared in furnishing them. The furniture is strong and of the best, the upholstery matching the color schemes of the room. The suites that are the most elaborate and most desirable are the two kaiser suites on "C" deck. They are each composed of two bedrooms, one dining room, one sitting room and one porch or sun parlor. The suites are also well equipped with toilets and wardrobes. In peace time these brought \$5,000 a passage. There are also a swimming pool of no mean dimensions, a gymna-

(4) Smoking Room, "A" deck
 (5) A corner of the Social Hall
 (6) Ritz Restaurant from back section looking to front section

sium, electric baths, a tailor shop, two barber shops, a ladies hair-dressing shop, and a shoe repair shop on board. All are running today with the exception of the pool, electric baths and gymnasium. The swimming pool has been found to be a handy place to stow odds and ends. Besides, with so much water around, who wants to go in swimming!

Prior to the outbreak of the war the *Imperator* made thirteen trips from Germany to the United States and return, and despite the enormous running expenses of such a vessel, she was still a very good paying proposition. While on her fourteenth voyage in 1914, she was recalled to Germany on account of the outbreak of war. From then until April, 1919, she laid in the Elbe River with a very small crew on board to keep her in condition. In February, 1919, she was inspected by an Allied Commission, and after some delays was finally put in running condition by the Germans. In taking the big ship from Hamburg, it was necessary to dredge away sandbars that had formed during the four years of her enforced idleness. This delayed the turning over of the ship to the U. S. Government until May.

After a slow trip down the English Channel she moored in Brest harbor about 8 a. m. May 5, 1919. The German officers and crew were in charge but the flag they flew was the blue and white Allied flag. The ship was hardly made fast to the buoy before the naval officers, who were to take the ship over, were on board. At one o'clock that afternoon the ceremony took place that made her a vessel of the United States Navy. With the German officers and crew looking on, the Stars and Stripes were run up while the band played the National Anthem.

All of the German crew were sent back to Germany from Brest except twenty officers and men. These were kept on board to help orient the new masters. The officers as well as being in the Hamburg-American Line were also officers in the German Navy, and have served on U-boats and raiders during the war. Nevertheless they did all in their power to explain the workings of the ship.

In ten days the *Imperator* started again across the Atlantic. In that ten days vast quantities of stores had been put aboard; eight thousand tons of coal had been trimmed away in the bunkers; thirty-five hundred officers, nurses, and troops had been billeted; and the workings of the big plant down below had been grasped by the engineers. First estimates said she would be lucky to sail by May 25th. She sailed May 15th, arriving in New York on May 22d, at the same time the U. S. S. *Leviathan* came in. No more inspiring sight has ever been witnessed in any country than to see those two big transports, the *Leviathan* and the *Imperator*, come sailing into New York harbor one immediately behind the other. Every part of available space on board from which a view could be obtained of New York was crowded with boys in khaki. From every port hole their eager faces looked out. Escorted by the welcoming boat from Illinois (the *Leviathan* carried the Prairie Division) with bands playing and flags flying, and with the cheering of the

thousands of boys, they roared out their welcome to the United States. Surely it must have been an impressive sight to the German officers aboard the Imperator to see these boats dock at the Army Transport docks at Hoboken, on either side of Pier No. 4. It was a day that must have caused them chagrin to see these boats, the pride of the German service, built for the glory and pride of Germany, built for the entertainment of the rich, to be put to the purpose of carrying the victorious troops home that were the knock-out blow to their Imperial Master.

SHADOWS

In a military athletic meet last spring, an athlete broke the world's indoor record for one of the events. He was not seriously considered as a record-breaker, nor was any such extraordinary performance prepared for. The first half of the distance was run at a speed that led no one to expect that the record was in danger, but in the last few laps the young man seemed to receive inspiration from some mysterious source and an amazing burst of speed made him a world's champion.

"How ever did you do it?" he was asked after the games, and a general laugh registered when he responded that certain electric lights in the galleries threw shadows of posts across the track and when he glanced behind he mistook the shadows for his competitors pressing him for the lead, and as he was determined to win, he was spurred to extraordinary efforts.

How many of us in life fail to acquire the maximum because we have never recognized the shadows that should have forced us to the best that was in us. Lured along by the ordinary comforts of life, perhaps we struck an easy gait and never saw shadows of reward urging us toward the big things. Perhaps we have never made our supreme effort nor won the goal that was ours for the taking.

SUNBURN

How many of us have gone to our doctor with a bad case of sunburn, only to be smiled (if not laughed) at, and dismissed with a cheery word of hope but no treatment?

Look in the massive medical books devoted to skin troubles exclusively, and not a word do we find about it, unless we are canny enough to recognize it under the head of "erythema solare" or "eczema calorificum," and even then, no mention of treatment. Can we prevent it by the use of cold cream, powder, or other aids to beauty? No. Only sun-bonnets and high-necked bathing suits will help us, unless we follow the mother who consented to her daughter's swimming provided she did not go near the water. As a matter of fact, the use of cold cream makes the skin more tender, and more liable to be burned.

But if we remember that sunburn is what its name implies, viz: a burn, much can be done to relieve the pain and distress. The simplest

and best treatment (and the sooner applied the quicker the cure), is that good old household remedy, bicarbonate of soda. Make a thick, milky solution in water, and dab it freely on the inflamed area—face, arms, legs, shoulders. Let it dry before covering, and repeat in two or three hours. True, one looks a whited sepulchre, but it does relieve the pain, and often prevents blistering and peeling. When blisters actually form, then the same treatment should be used as for other burns—i. e., grease, in the form of vaseline, carbolated or plain.

WIRELESS BEATS THE DUTCH

Sometime during the war British naval officers were searching the mail bags of a Dutch liner bound for New York and extracted therefrom about \$200,000 in American railroad bonds. In spite of the angry arguments of the purser that the bonds belonged to the Dutch bankers whose names appeared on the envelopes and that they were for delivery to United States bankers who had already sold them, the North Sea skippers took them aboard the cruiser and from thence they found a resting place in the British treasury.

Not long afterwards a delegation of lawyers representing the Dutch and American interests visited the British Embassy and laid the case before a representative of Great Britain.

He listened politely and said: "Gentlemen, you apparently have a good case, but wait a moment." With this he touched a button and asked the clerk to bring in file No. —.

Taking a few slips of paper from the file he read to the lawyers not only the names of the German bankers who had sold the bonds through Dutch banks, but the names of the American bankers who were actually to receive said bonds, and also all the wireless messages in regard to the transaction, which had been carefully decoded by the British Admiralty experts.

The astonished lawyers politely withdrew and will wait for the peace terms before pressing their suit. They will probably get the bonds then.

A BUSINESS MAN'S PRAYER

Teach me that 60 minutes make an hour, 16 ounces one pound, and 100 cents one dollar. Help me to live so that I can lie down at night with a clear conscience, without a gun under my pillow, and unhaunted by the faces of those to whom I have brought pain. Grant that I may earn my meal ticket on the square, and that in earning it I may not stick the gaff where it does not belong. Deafen me to the jingle of tainted money and the rustle of unholly skirts. Blind me to the faults of the other fellows, but reveal to me mine own. Guide me so each night when I look across the dinner table at my wife, who has been a blessing to me, I will have nothing to conceal. Keep me young enough to laugh with my children.

And when come the smell of flowers and the tread of soft steps, and the crunching of wheels out in front, make the ceremony short and the epitaph simple: "Here Lies a Man."

OBITUARY

John J. Harrington, Chief Electrician (Radio), died at Brooklyn, May 19th, after an illness of three months. He was born in Baltimore, November 12th, 1888, served four years in the Navy, and joined the Marconi service in 1912. He enlisted in the Naval Reserve last April while stationed at Virginia Beach, and was detailed to the U. S. S. Allaguash on transport duty. He was widely and favorably known in the Marconi service. His funeral was from St. Edwards Church, Baltimore, with a guard of eight Naval Reserves as pallbearers, and his younger brother as altar boy. He left a widow and infant daughter. We extend deep sympathy to the family.

Fullerton Ford died at his home in Brooklyn, August 7th, aged 19. He entered Marconi service April 12th, immediately after his release from the Navy, having served as operator on the U. S. S. Roanoke during the war, while that ship was laying mines in the North Sea. He made a fine record and was commended by his officers. He was popular among his associates, and was at the threshold of a promising career. His father was the late Thomas Paul Ford, of Brooklyn, a prominent lawyer. His mother, a brother and sister survive him, to whom our deep sympathy is extended.

WEDDING BELLS

The marriage is announced of Ensign Herbert C. Rodd, of NC-4 fame, to Emily Parido, of Lancaster. Mr. Rodd is stationed at the Navy Air base, Norfolk.

At Halifax, July 10th, Kate Avery, daughter of C. F. A. Patterson, of Hortonville, N. S., and William Irwin McGhee, of Liverpool, England. Mr. McGhee is Marconi Inspector at Liverpool.

At Los Gatos, Cal., June 9th, C. M. Jackson, a former Marconi man in the Pacific division, to Shirza Smith, of Berkeley.

HIGH COST OF MATCHES

In the United States and Canada, 50,000 matches are burnt every second.

BORN

To Mr. and Mrs. Fred J. Elliott, Cleveland, O., a baby girl, 8 pounds. Mr. Elliott is Chief Operator at Cleveland.

To Mr. and Mrs. Walter E. Wood, Chatham, Mass., July 28th, a son, Walter Cecil, 8 pounds. Mr. Wood is Superintendent of the trans-oceanic station.

Tobacco—A nauseating plant that is consumed by two creatures; a large green worm, and—man.

The worm doesn't know any better.

CIGARETTES AND FIRES

The United States smokes 3,000 miles of cigarettes every day. Fires caused by cigarette stumps last year destroyed \$8,588,375 of property.

BRASS BUTTON.

Bess—There's Mrs. Grabbit—she's a great war worker.

Bob—Indeed!

Bess—Yes; she's married four of her daughters to soldiers.

EXECUTIVE OFFICE

Mr. Nally sailed on the Aquitania recently for a brief business trip to England.

Alex. E. Reoch, of the Engineering department, has returned from a six months' stay at Buenos Aires, where he went on business of the company.

Robert F. Miller, Chief Electrician (Radio), has been released from the Navy and rejoined the Eastern division as Chief Operator.

Mr. Sarnoff is enjoying his holidays on Cape Cod.

Messrs. Weagant and Winterbottom have returned from an inspection of Chatham station.

Commodore C. J. Ross comes ashore now and then from his yacht to give the once-over to the Comptroller's office. His uniform is very fetching.

Mr. Cullman is spending his vacation among the Pennsylvania Dutch.

Mr. Hock is luxuriating on the sands at Belmar.

Mr. Sullivan has returned from the Catskills.

Mr. Sawyer has taken the Editor's advice and gone fishing at Ocean City.

Mr. Ringgold has returned from an auto trip to Cape Cod.

Miss Horton enjoyed her vacation on Long Island.

Mr. Hayes has gone in quest of the elusive trout up-state.

Joseph Jackson is in charge of the store room.

EASTERN DIVISION**NEW YORK**

That the New York office furnishes an excellent opportunity for one interested in observing the growth of the American merchant marine is the impression brought to mind during the past few weeks in watching the steady stream of operators leaving for all points in the world. Unlike the old days when an assignment to a ship destined to any country other than in South or Central America or England was a great rarity, and when one would never hear of an American ship sailing for Italy, Russia, Germany or South Africa, these voyages have of late become far more plentiful than the familiar runs to points along the Atlantic coast and the West Indies.

Thomas Bowen left on the Gratia for France and on to other distant places to be gone for perhaps a year; Alfred S. Cresse has just returned from Egypt on the Paulsboro and immediately shipped over on the Edna to be gone 140 days on a voyage touching at several European countries, thence to Buenos Aires and back to New York; George H. Catlin is on the Keresan running to Hamburg; Clyde Diderich, who left on the Cora Cresse last September has not yet returned to America; Dr. James F. Forsyth recently returned from an extended trip to different ports in Europe; C. L. Fagan is on the Monsome running to South American ports; J. M.

Harrison is on the Rio Negro and is understood to be somewhere near Australia; Stephen Hoppe left on the Finback for a long voyage among the ice fields of the far North and aside from cruising around Hudson Bay will undoubtedly go somewhere close to the North Pole before returning to New York.

John P. Huckaby returned from a seven months' trip on the Ruth E. Merrill and on the following day joined another ship en route for Japan; Carl Orloff returned from a five months' voyage to South America and up the River Platte on the Dawnlite; Jacob Kramer after arriving from Greece left the following week on the De Sota for European ports; H. H. Long is off again on a trip to South America on the Munaire; B. J. Murphy after getting back from Australia left again on the City of Puebla for Manchester.

E. J. Martineau is sailing somewhere about Calcutta on the Dorothy Palmer on which he left New York last December; Philip Petlicki is on his way back from Hamburg on the Kerwood; W. J. Quinn left on the Malden for England.

A card was received from China from F. F. Reb, who was assigned from this office some time ago to the Broad Arrow, in which he told of an interesting trip up the Yangtze River. Reid S. Shipley is still encircling the globe on the Howick Hall and is not expected to return to New York before next year. Benjamin Skeete has been away on the Singleton Palmer since November and his arrival in New York is expected this month. Thomas J. Welch, who left last

February on the Argonne to trade around South Africa, is not expected back until about March of next year.

Louis Kern left on the Wisconsin Bridge for Archangel; W. H. Earle went to Germany on the Kermanshah; E. A. Pope left for Sweden on the Munalbre; A. D. Bernstein is en route for Liverpool on the Mount Baker; W. P. Doty is now running to Venezuela on the Caracas, and P. J. Donahue is on his way to Bordeaux, on the Carib.

E. W. Rogers left for Valparaiso and other ports of the west coast of South America, on the Santa Isabel; J. B. Thornton and M. Mariano, senior and junior operators on the Cote Blance, are en route to Italy; D. Carruthers left for Trinidad and L. L. Yost left for Italy during the past month.

When Alfred S. Cresse visited Egypt on his last voyage on the Paulsboro that country made the twentieth he has been in. He has seen practically every European country as well as others in South America and Africa. He experienced the thrill of being on a ship carrying TNT and gasoline when torpedoed, causing a terrific explosion which sunk the ship within a few minutes. On his last trip the Paulsboro was rammed by a British ship off Gibraltar which was the cause of his sending out an S O S call, the fourth he has sent during his career.

Cresse has crossed the Atlantic on all types of vessels from large passenger liners, the American Line St. Paul for one, to a small 98-foot tug, the Vigilant. He was shipwrecked on the latter vessel. He is considered one of the best

operators in the Marconi service and none have had more experiences than he. On his present trip on the Edna, a small cargo ship, he expects to visit several European countries, including northern Norway, thence to the southern part of South America—from the furthest North to the furthest South navigable waters on the same voyage.

The Eastern division has a new Chief Operator, and he is none other than Robert F. Miller, whose steady gain in popularity started when he was O.K.-ing O.S.'S at the old AX station at Atlantic City, and has never wavered since. His feat in capturing a cup for the national wireless speed contest held at Philadelphia, while he was manager at Atlantic City, gained him much prominence and it is said that his record made at that time has not yet been passed. Until another such contest is held and the record broken Mr. Miller retains the championship of America.

When the Atlantic City station was discontinued in 1912 Mr. Miller was transferred to the head office, New York, where he came in personal contact with all the operators in examining and passing on ships' logs. In the early part of the war he rendered valuable assistance to the government through his keensightedness while perusing the logs. On enlisting in the Navy, he was given the rating of Chief Petty Officer. He was released from active duty on the last day of July and the following day found him back in the Marconi service.

Mr Miller succeeds William S.

Fitzgerald, who becomes Assistant Superintendent.

A news item carried by several New York papers recently stated that the Mount Baker was in distress at sea and had sent out an SOS call. No further particulars have been received and we are awaiting the arrival of A. D. Bernstein to learn to what extent he played the hero role.

Philip Petlicki arrived in New York on the Kerwood, the first American ship to leave Germany for the United States direct since the ending of the war. This was Petlicki's first voyage as operator in charge and all reports of his work were favorable and showed the good results of the excellent training he had previously received while junior operator under A. M. Mitchell on the Lenape.

W. H. Earle also arrived from Germany, but made a stop at England en route. He was on the Kernshaw, commanded by Captain Service, one of the youngest and best-liked masters in the American merchant marine.

J. M. O'Herin, who has for several months past been filling the position of storekeeper in the main stock room, sailed in charge of the Marconi station on the Arlington and is en route overseas. O'Herin's wireless record will be remembered from his thrilling account of being on a torpedoed ship in the war zone, which appeared some time ago in the SERVICE NEWS, and from one or two SOS calls he had occasion to send from other ships. He would have made an excellent storekeeper had not the call of the deep blue been so strong.

It has been learned that at least one nicely engraved formal note has been received around these parts announcing the approaching marriage of Marion H. Hammerly. This was quite a surprise as it was thought that his six years of sea life had taken away all such notions and that Hammerly was slated to be a bachelor for years to come.

Interesting souvenir postcards have been received here from W. J. Quinn from Gothenburg, Sweden; G. J. Hamilton from Buenos Aires; F. F. Reb from China; J. F. Forsyth from Rotterdam; Jack Kramer from Norway, and J. A. Worrell from Texas.

The renowned Douglas C. Smith has returned from a vacation spent at his home in Detroit and sailed out on the maiden trip of the new Standard Oil steamer S. P. Hunt. Douglas resembles in many ways the famous actor by that name, is just as clever and enjoys almost equal popularity.

Alfred S. Cresse is off to Europe again; this time on the Edna. If he continues to make those quick changes every time he gets in, it appears to us he is going to lose that little girl down in New Jersey who used to write to him every day, but whose letters have fallen off greatly in number of late.

C. W. Volmer has returned from Japan and has many interesting tales to tell of his experiences while waiting there for a steamer to return, it being agreed that he was to return as a first class passenger after taking the ship over as an operator. Travel was so heavy that he had to wait a month before

he could obtain accommodations, stopping the while at the best hotel at the steamship company's expense.

C. A. Biddinger, who was four years with Marconi, has just been released from active service and is back in our ranks again. David Carruthers, another ex-Marconi man, is also back at sea, as is also J. B. Harrietts, who spent some time as operator at Sea Gate and New York Herald stations previous to the war.

SOUTHERN DIVISION

BALTIMORE

Schwab and Armstrong equipped the Brandon.

Armstrong equipped the Mangore.

Schwab and Wexler equipped the Ayuruoca.

D. D. Moore relieved W. Hoffman on the Cretan. Hoffman took the Lake Gordon out of Philadelphia.

F. Hovelsrud relieved A. P. Smith on the Cretan.

H. Moulton relieved Lindauer on the Ontario. J. H. Johnson went out as junior.

H. R. David left our service on the Dorchester. W. H. Wilson took her out. J. E. Wynkoop and T. Braidwood are now assigned to her.

F. Atlee left our service during July.

J. G. Johnson was on the Juniata awhile, then L. M. Temple tried her for a week, now F. J. Samaha is junior. Can't figure whether it is the ship or the senior. He has Hopper's record beat.

L. M. Temple relieved R. J. Nicholls on the Nantucket.

F. R. Smith said the stewards on the Grecian were not up to his standard, so left her at Baltimore. Frank has too much money, but he left some of it in Baltimore. How's the roses and pasteboards?

Harvey Butt is back in our fold and in order to see THE girl, took junior on the Juniata for one trip. He missed his Service News while away.

Johnny Flagg writes that he can take 35 in cipher without batting an eye. Phil says he is from Missouri.

Armstrong reports everything O.K. in Norfolk. He has a little flat and everything.

The Borgestad came in for a slight overhauling. Haake says he is tired of this wagon. Anyone want a nice home? Isn't much for salary but has other good qualities.

There is a rumor that a certain operator in the Philadelphia district is teaching his fiance wireless with the intention of getting a first grade commercial license, having the knot tied and go to sea on a two-man ship. Two hundred and twenty-five dollars per month and board is quite an inducement at that.

The Philadelphia office did not send in their notes this month. Manley is too busy trying to locate operators.

Harold—I thought you made a resolution not to drink any more?

Percy—I did.

Harold—But you are drinking as much as ever.

Percy—Well, that isn't any more, is it?

GULF DIVISION

L. J. N. Du Treil, who, prior to the war, was manager of the WHK (New Orleans) station, has re-entered the service as Division Inspector, relieving C. A. Coe, who is going to join his parents at Norfolk, and later hopes to rejoin the company in the Southern division.

E. Hulsemann has been transferred from the Catania to the Gulfport.

Our old friend M. O. Green has re-entered the service and been assigned to the Walter Hardcastle.

Harold Ely, the genial purser-operator of the H. M. Flagler, is negotiating for the purchase of a motor-bike. Presume the shrubbery along the Key West County road will soon assume a scorched appearance.

J. Morenus, who was made homeless by the sinking of the Pacific division ship, Santa Cristina, has been assigned to the Herman Winter of this division out of Mobile.

Broussard and Ellsworth, of the flagship Miami, have become amphibious lately. Whenever the Miami halts for a few minutes they don bathing suits and jump in. Both are becoming well tanned.

Inspector Coe has completed installation of a new two k.w. Canadian set on the Mexican steamer San Antonio at Mobile.

R. I. Young and J. E. Kane continue to ride serenely on the Mascotte. They seem to enjoy it, more especially the two days each trip in Tampa.

L. B. Asadorian, after a lay-up with appendicitis, has been assigned to the Itampa. Asadorian was formerly on the tug Gulfport.

G. G. Norris, a recruit in the Marconi service, has relieved G. H. Pascoe as junior on the Jalisco. Pascoe has been assigned to the Am petco.

Paul E. Cassels is still waxing prosperous on his old love, the Joseph R. Parrott.

With the re-entry into Marconi service of the tanker fleets owned by the Pan-American Petroleum & Transport Company, The Sinclair Navigation Company, and Freeport & Tampico Fuel Oil Transportation Corporation, all operated by this division, come many of our former old-timers. One of these is Miss Lena Michelson, in charge of the equipment on the Tamesi. Miss Michelson's father is Master of the Tamesi.

C. C. McCann, with the S. M. Spalding, has re-entered the Marconi service.

Vance Nall remains assigned to the Panuco.

GREAT LAKES DIVISION CLEVELAND

L. F. Bremmer, of the Harvey H. Brown, paid us a hurried visit, but after taking in the newly-shined shoes, hair cut, and several other improvements, we decided there was ample cause for the hurry.

Arthur Jensen, a new man in our service, has relieved Harold Henkel on the Harry Croft.

Aldo Montle, a new recruit in this division, is located on the M. A. Bradley.

Winslow Neely, one of our time-honored men, left our service. C. E. Erickson has been transferred

from the J. P. Reiss to take Neely's place on the Wm. G. Mather.

The City of Erie has had a number of changes, the last being M. Limb, formerly of the U. S. Naval Radio Service.

Harry Fraser, of the City of Detroit III, is on leave for a few days. Edward Clark is acting as relief operator.

W. A. Liggett left our service to return to college. M. L. Cummings, a new man, replaced him on the A. M. Byers.

Roy Wenning has been relieved from the Peter Reiss on account of illness, and Albert Meggers is acting as relief operator. We trust that Roy will soon be able to return to the service.

J. J. Reiss, operator in charge of the John Reiss, has been relieved by Alfred Johansson.

Edwin Boyes relieved C. D. Morris on the Concaut. Morris writes us that he is going to settle down. Well, we expected it, and we all offer him our heartiest congratulations.

The Cleveland district has a newcomer in the form of the Steamer Theodore Roosevelt. This vessel has joined the excursion service between Cleveland and Port Stanley, Canada. Paul Frederick, the operator in charge, admires the new type one-half k.w. Q. M. S. panel installed. This vessel was recently equipped at Chicago by L. C. Dent.

The Octorora, while in Cleveland, made a change in her operating staff. George Noack relieved Charles Macomber as junior.

Miss Balhorn, of the Cleveland office, has returned after a delight-

ful two weeks' vacation spent in one of those nooks on the shores of Lake Erie and is still single.

CHICAGO

E. D. Bryant, one of our old-timers on Lake Michigan, has been transferred from the Harvester to the Petoskey, where he is holding a combination job of operator and purser.

Charles Beazley, a new man in the service, has been assigned as operator to the Harvester.

Harold Leighton has been assigned to the Georgia, in place of Philip Burke, who resigned.

J. E. McDonald is purser and operator on the Pere Marquette No. 8. The radio equipment on this vessel was just recently installed and is of the one-half k.w. cargo type.

Two old-time Marconi operators, Frank Wilkinson and George Keefe, have just been released from the Navy at Great Lakes. Both are seeking fields of adventure in another direction, and it is regretted that wireless will lose the services of these valuable men.

PACIFIC DIVISION

D. W. Horstmeyer, a new man in our service, also a graduate of the Marconi Institute, has been assigned as junior aboard the Klamath, relieving G. F. Bowes who has resigned from our service.

J. Fernandez relieved A. W. Wilson, junior operator of the Wapama. Mr. Wilson resigned as he had prospects for a trip to Europe.

Mr. E. R. Fairley and E. O. Hendricson, of the Hermosa and

Cabrillo respectively, are now contented after much changing about on these vessels.

E. D. M. Fabian has been assigned as operator in charge of the Multnomah, relieving P. Thorne, who has been assigned as junior aboard the Santa Cruz.

M. Hoffman, a new man in our service, also a graduate of the Marconi Institute, has been assigned as junior aboard the Multnomah, relieving R. D. Campbell.

J. M. Boyle, who has had a couple of years' service with the U. S. Army, returned to our service undamaged and was assigned to the Santa Cruz as operator in charge.

E. H. Robertson, who left our service sometime ago to accept the radio job on the Jim Butler, plying along the coast of Mexico, has returned and been assigned to the Santa Rita as operator in charge. Mr. Robertson says, "Never again for him in that country" whenever questioned about his position there.

E. P. Wuensch has returned to Seattle after a month's visit with relatives in the East.

John MacGowan re-enters our service after being overseas for the past year. MacGowan will be assigned to the Senator as senior.

Reggie Harris has arrived in Seattle and has many interesting stories to tell of his experiences while in France.

Howard S. Pyle is with us again. He has been assigned to the City of Seattle.

During the month, the yacht Dolaura was equipped at Seattle with a one-half k.w. set.

Marconi Wireless Telegraph Company of America

223 BROADWAY (WOOLWORTH BUILDING) NEW YORK

EXECUTIVE OFFICE

John W. Griggs, President
Edward J. Nally, Vice-Pres. and Gen. Mgr.
Charles J. Ross, Secretary and Comptroller
George S. DeSousa, Treasurer
Marion H. Payne, Assistant Treasurer
Lewis MacConnach, Assistant Treasurer

COMMERCIAL DEPT.

David Sarnoff
Commercial Manager
C. Harold Porter
Asst. Commercial Mgr.
George W. Hayes,
Commercial Engineer

William A. Winterbottom, Traffic Manager
Edward B. Pillsbury, General Superintendent
George W. Hayes, Purchasing Agent
Elmer E. Bucher, Director Marconi Institute, 25 Elm St., N. Y.
Sheffield & Betts, Patent Counsel
Herbert G. Ogden, Patent Attorney
Charles H. Taylor, Engineer

ENGINEERING DEPT.

Roy A. Weagant, Chief Engineer
Adam Stein, Jr.
Asst. Chief Eng. and Works Mgr.
Dr. Alfred N. Goldsmith
Director of Research

SUPERINTENDENTS

John B. Duffy
Supt. Eastern Division
25 Elm Street, N. Y.
Frank Chapman
Supt. Southern Division
American Bldg., Baltimore
Arthur A. Isbell
Division Supt., Pacific Division
Insurance Exchange Bldg.,
San Francisco
Lawrence A. Malarin,
Marine Superintendent,
Insurance Exch. Bldg., San Francisco

Julius A. Pohl,
Supt. Gulf Div., 301 Commercial
Bank Bldg. Annex, New Orleans
Edwin A. Nicholas
Supt. Great Lakes Division
Schofield Bldg., Cleveland
George W. Nicholls
District Supt., Eastern Division
136 Federal Street, Boston.
Lee Manley, District Manager,
109 South 2nd Street, Philadelphia

BOARD OF DIRECTORS

John W. Griggs, Chairman	Edward W. Harden	Robert H. Patchin
J. Edwards Barbour	Godfrey C. Isaacs	James W. Pyke
George S. DeSousa	Senatore G. Marconi	Charles J. Ross
Marcus Goodbody	Edward J. Nally	James R. Sheffield
John L. Griggs	J. Van Vechten Olcott	Ernest H. Wanda

EXECUTIVE COMMITTEE

John W. Griggs, Chairman	Senatore G. Marconi	J. Van Vechten Olcott
Edward W. Harden	Edward J. Nally	James R. Sheffield

Interesting and Helpful Books for Men in the Marconi Service

PRACTICAL WIRELESS TELEGRAPHY BY ELMER E. BUCHER. This book is the last word in wireless text books. It furnishes much information of utmost value in regard to the very latest styles of wireless sets now in use, and which has not appeared in print before.

Practical Wireless Telegraphy is the first wireless text book to treat each topic separately and completely, furnishing a progressive study from first principles to expert practice. Postpaid.....

\$1.75

RADIO INSTRUMENTS AND MEASUREMENTS. You will find this a valuable reference book for daily use.

CONTENTS

- Part I. Theoretical basis of radio measurements.
Part II. Instruments and methods of radio measurement.
Part III. Formulas and Data.

Full cloth binding, 320 pp. Fully illustrated.
Price \$1.25 postpaid.

RADIO TELEPHONY BY ALFRED N. GOLDSMITH, PH. D. This complete text on radio telephony is intended for radio engineers, radio electricians in the Navy, men in the Signal Corps and especially men in the Aviation Service who handle radio equipment. All who desire to be clearly informed concerning this newest and most interesting branch of electric communication will want this book. Postpaid.....

2.00

HOW TO PASS U. S. GOVT. WIRELESS EXAMINATIONS BY ELMER E. BUCHER. Third edition, largely revised and extended. 142 questions and answers. Postpaid.....

.50

VACUUM TUBES IN WIRELESS COMMUNICATION BY ELMER E. BUCHER. An elementary text book for Army and Navy men, students and operators. Tells in understandable language the fundamental operating principle of the vacuum tube. Shows over 100 different circuits for the practical use of the Vacuum Tube as a Detector, Radio or Audio Frequency Amplifier, Regenerative Receiver, Beat Receiver, and Generator of Radio Frequency Currents. More than 100 diagrams reveal, step by step, in simple and direct form, the uses of the vacuum tube. The only text book on the market devoted solely to the various applications of the Oscillation Valve. Cloth. Size 6x9 inches. 130 diagrams and illustrations. Postpaid..

1.75

PRACTICAL AVIATION INCLUDING CONSTRUCTION AND OPERATION BY J. ANDREW WHITE. A text book for intensive study by men preparing to become skilled mechanics and aviators, containing all the knowledge of fundamentals required prior to actual flying and air combat. Each subject is presented by illustration and described completely for the reader, without turning the page. A broad treatment of subjects never before contained in general aeronautic text books is included, comprising operation and care of aviation engines, reconnaissance, map reading, signaling and co-operation with military bodies, radio and its uses, machine gunnery and bombing from airplanes. Full cloth, size 6x9 inches. Fully illustrated. Over 100 specially drawn diagrams and many photographs. Postpaid.....

1.75

THE WIRELESS AGE. Published monthly and containing practical training courses in the following branches, of which there is urgent need. Aviation, conducted by Maj. J. A. White and Henry Woodhouse Governor of the Aero Club of America. Signal Corps work, conducted by Major J. Andrew White, Chief Signal Officer, American Guard. Wireless Telegraphy, conducted by E. E. Bucher, Instructing Engr., Marconi Wireless Tel. Co..

2.00

Send Orders to **THE WIRELESS PRESS, Inc.,** 25 ELM ST., NEW YORK

All persons in the Marconi service are allowed a discount of 20% from prices.