

CURRENT TOPICS

WIRELESS TELEGRAPHY IS ATTRACTING very general attention in these days and there appears in the American Monthly Review of Reviews an article written by A. Frederick Collins relating to this subject. Mr. Collins' article should be read by every one. He points out that there are now nine companies prepared to build and install cableless telegraph apparatus and that these companies have equipped six stations in the United States, including the most powerful one in the world, at South Wellfleet, Mass. Other stations are at Table Head, Glace Bay, Nova Scotia; three stations are in course of construction in Alaska, five stations are in operation in Hawaii, twenty are in Great Britain; in Germany there is an equipment on Borcum island with its complementary apparatus on Borcum lightship; in Belgium there is one; in France there is another.

MR. COLLINS SAYS THAT THERE ARE eighteen vessels carrying the Marconi apparatus. The English admiralty, for instance, have land stations at Malta, Gibraltar, Tientsin, Hong Kong, and Bermuda, while thirty-two men-of-war have Marconi installations. The Italian navy has five land stations and twenty ships are equipped with the same system. The great progress of the wireless telegraphy during the year 1902 is shown by Mr. Collins in a very striking way and he points out that these systems are capable of holding communication with vessels at sea to distances ranging from fifty to three hundred miles. In some instances experiments in long distance wireless telegraphy over land have been made and these experiments have been very encouraging. Mr. Collins does not, however, hold out great promise that there is anything to justify the impression that the network of wires spreading over every civilized land will be immediately eliminated.

IN THE FIELD OF TELEGRAPHY BETWEEN ships or between ships and the shore Mr. Collins says that the cableless telegraphy has, of course, an absolute monopoly. This is clearly shown in the case of telegraphing across intervening bodies of water, such as the English Channel, where this form of telegraphy is now a successful competitor of the cable system, not only in cost of operation, but in the efficacy of services rendered. Mr. Collins even goes so far as to make the prediction that from this time onward wireless telegraphy will entirely supplant cables for distances up to three hundred miles. In the matter of the cost of the two systems, some interesting comparisons are made. The cost of a submarine cable is estimated to be about a thousand dollars per mile, added to which is the enormous expense of keeping the cables in repair. This repair item is a comparatively light one in cableless stations as the only expense in that direction is for an occasional mast damaged by storms. The initial expense of a trans-Atlantic cableless telegraphy outfit would aggregate about half a million dollars against two million dollars for an Atlantic cable.

SOME COMPARISON IS MADE BY THIS SAME authority as to the difference in speed between the two systems, but as it must be remembered that the wireless telegraphy is comparatively a new institution and the cable system has been in operation for fifty years, much data on this subject is not yet obtainable. An interesting fact, however, is brought out when it is shown that when Queen Victoria sent her first message, which consisted of ninety words, by cable, it required sixty-seven minutes to get it through, whereas the first complete message without cables sent by Lord Minto of Canada to King Edward contained thirty-two words and was transmitted in sixty-four seconds. The cost of transmission is also considered and it is pointed out that the first cable message was sent across the Atlantic in 1866 at an expense of five dollars a word, while Marconi has agreed that messages will be flashed between Canada and England at the rate of ten cents per word to the public and five cents per word to the press. The present rate for cable messages is twenty-five cents per word.

ATTEMPTS TO SEND MESSAGES OVER great distances without the use of wires have been interesting inventors since 1896, according to Mr. Collins' article. The system as it is developed today involves a source of electricity for operating an induction coil, this coil in turn being employed to transform the low-pressure current into an alternating current having a very high pressure, and this action causes the antenna, or wire, suspended from a mast and its complementary wire which leads to the earth, to cause the opposite charges of electricity to rush together causing a spark or disruptive discharge through a small air-gap. As a result of this meeting of the electric currents the high currents surge to and fro through antenna and earth connected wire hundreds of thousands of times per second. This phenomenon causes electric waves which radiate exactly as light waves do, and as a matter of fact there is a close analogy in the emission of light and the process of transmitting and receiving cableless messages.

ACCORDING TO THIS AUTHORITY THE reception of these electric waves is effected in somewhat a similar method as that employed in their transmission, "the only specific difference being in connecting the antenna and grounded wires with some metal filings inclosed in a small glass tube or coherer, instead of the spark-gap. When the electric waves impinge upon the antenna they are converted into electric oscillations, and these, acting on the filings, cause them to draw together, or cohere; lessening the resistance they nominally offer to current electricity derived from a battery, the latter flows through the filings and an auxiliary circuit and registers the impulses on a ribbon of paper in readable Morse dots and dashes."

THE DISTANCE TO WHICH TRANSMISSION of these electric waves may be made effectual depends largely upon the medium over and through which the waves travel, according to this same writer, and this contention he proves by taking an example of the difference in radiation over the sea or other bodies of water and the land. The waves have been known to travel nearly ten times the distance over the sea than they do over land and this is attributed to the fact that the land offers many intervening obstacles which intercept and in some instances annihilate these waves.

SO FAR AS CONCERNS THE POSSIBILITY OF wireless telegraphy being made practical, Mr. Collins has no doubts, and he declares that now the problem rests more with the electrical engineer in devising the most feasible method of transforming a large quantity of electricity at ordinary pressure into electric oscillations of enormous power and high frequency. For a distance of eighty to one hundred miles, this energy must be equivalent to one horse-power at least. It is said that Marconi used only twenty-five horse-power at the Poldhu station in sending his first signals across the Atlantic a year ago; at Glace Bay station a forty horse-power is used and at Wellfleet, Mass., one hundred horse-power is at the service of the inventor. Another problem for solution is one named by Mr. Collins as syntonization and this may be better understood by a glance at the principles involved in the case. It is asserted by this writer that the radiator sending out the waves and the resonator receiving them must be absolutely of the same dimensions or resonance will not be possible, and this is the problem that Mr. Collins says "will be revealed only by the most patient investigation and overcome by the most persistent experimentation."

IT SEEMS THAT MUCH OF THE DIFFICULTY in wireless telegraphy comes from the fact that ground wires must be employed in order to secure long-distance transmission, and the earth must be subcharged to a certain extent with electricity. Owing to the influence of meteorological conditions as well as by conditions prevailing in the earth itself, this process renders it extremely difficult as yet to obtain the best results. Mr. Collins is confident, however, that before the year

is out communications will be flashed by means of wireless telegraphy not only across the Atlantic ocean, but also across the Pacific, and all this without the least fear of any conflict or confusion.

EVERY ONE IS FAMILIAR WITH THE TUNE of "Yankee Doodle" and yet a deep mystery surrounds the origin of this air. A writer in the Philadelphia Press says: "How, when or where the tune first came into use nobody knows. It is a good deal like Topsy—'It was never born, but grewed.' The words adapted to the music and commonly used in the revolutionary war were the product of those stirring times, but to attempt to write the history of the tune would be nothing less than bewildering. There is as much obscurity surrounding the origin of 'Yankee Doodle' as there is uncertainty connected with the airs to which we sing 'My Country, 'Tis of Thee,' and 'John Brown's Body Lies a-Mouldering in the Grave.' The story of 'Yankee Doodle' from the time it was brought to this country is definite and absorbingly interesting. It has a great mission."

THIS TUNE HAS BEEN THE SUBJECT OF considerable derision and the Press writer says that "with all the derision that has been heaped upon it, it is none the less a great tune. When one hears the once ridiculed and rollicksome strains of 'Yankee Doodle' let him cogitate the fact that it has been the marching tune of all the victorious armies of American patriots and has such a universal sentiment and universal nationality that it will measure the tread of the coming millions. It is one of the indestructible institutions of America. It has a character of its own—comical, rampant, 'rattle-brainish,' but with all its oddities it has somehow entwined itself so closely about the national heart that one might as well try to rob the people of Bunker Hill as this 'clattering, right-about-face, defiant battle march.'

THIS FAMOUS TUNE WAS BROUGHT TO this country in 1755 when the British were engaged in a war with the French and the Indians. The writer in the Press says that "the story goes that the militia which were called to aid the British regular army were strangely clad in many colors, some wearing long coats, some short ones and many having none of any kind to wear. The British army surgeon was one Dr. Richard Shackburg, who not only mended shattered limbs, but was somewhat of a musician. One day he thought to play a joke upon the militia because of their grotesque figure and awkward manner, and with much mock solemnity he presented them the words and music of 'Yankee Doodle' commending the tune as one of the most distinguished in martial music. The joke greatly pleased the well-dressed British officers, but as a joke it proved a stupendous failure, for the tune soon became the battle march of the revolution. The British officers would raise shouts of laughter when they heard the innocent and simple-minded militia play 'Yankee Doodle,' and the British bands would repeat it in derision. This contemptuous use of the song by the English army continued more than twenty years; then came the battle of Lexington, and by a strange irony of fate the colonists made the British dance to the tune of 'Yankee Doodle.' The giving of the tune to the ill circumstanced militia in mockery of their unfortunate appearance was a prophetic piece of fun, for twenty-five years later Lord Cornwallis was forced to march to the tune of 'Yankee Doodle' when entering the line of the same colonists to surrender his sword and his army to General Washington."

WHILE THE YEAR 1902 HAS BEEN pointed to as a year of supreme peace a writer in London Answers says that in 1903, battles are waging in nearly a dozen countries and war is abroad upon every continent. This writer adds that "the average reader, if asked to name the wars now in progress, would very likely step uncertainly after mentioning the struggle between Britain and natives in Somaliland. But this is not the only war of the day, by any means. Here is a little list of the places whereat battles have