

**NO ALUM**

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### The Secret of Wireless

The question is often asked, How is it possible to operate several wireless stations in the same vicinity without mutual interference? To answer the question it is necessary first to explain the theory of their operation in general.

A frequently used yet perfectly good illustration is that of likening it to the action of throwing a pebble into a still pond, which causes ripples to form in all directions in a circular fashion from the spot at which the pebble disappeared. In the centre the ripples are well pronounced, but as they broaden out they gradually diminish in intensity until they disappear altogether. Finally, a larger stone will cause stronger and broader ripples to form. So it is with wireless or radio communication, in which the exciting force is the "spark" or discharge of high potential electricity oscillating at a very high rate of speed. The power of the transmitter and the efficiency in "tuning" determine the distance of communication. We come now to the theory that science gives as an explanation of its operation.

Scientists tell us that wireless, or more properly, electro-magnetic waves, are but another form of motion, as are light, heat and sound. These all move in the ether in the air, and wireless waves are likewise propagated in the ether.

To those at all familiar with the scientific theories of light, heat and sound, it is scarcely necessary to add that all these forms of motion have individual and measurable wave lengths.

It is in the measurement of radio waves and their adjustment that it becomes possible for numerous stations to operate simultaneously in comparatively close range to one another. Thus stations working on a wave length of 500 meters and properly adjusted would cause no disturbance with another station operating on a wave of 600 meters. In fact, not so very long ago Marconi, the inventor of wireless communication, announced that he would soon have apparatus that would enable stations with but a variation of five metres to operate without each disturbing the other. (A metre is about 39 inches.)

At the present time, however, commercial ship and shore stations usually operate on wave lengths of 600 metres, 450 metres and 300 metres, with efficient means of rapidly changing from one to the other. Naval stations, ship and shore, commonly operate on wave lengths varying from 600 metres to 1,600 metres. The powerful station at Radio, Va., formerly Arlington, usually operates on a wave of 2,000 metres. Generally a change of 5 per cent. of a station's wave length is sufficient to overcome disturbance caused by the operation of nearby stations. To further eliminate interference the various Governments of the world have agreed upon certain wave lengths to be used by commercial stations, and others by naval and Government stations. Some of these have been given above. Another reason for such wide divergence of wave lengths is that for the purpose of overcoming the effects of "forced oscillations" by this is meant the uncontrollable waves that are given off by every station, which fortunately do not carry very far. Were they to travel any great distance there would be a great deal more of "jamming," as was the case when wireless was in its embryonic state. The advantages can be the more readily appreciated when one realizes that frequently there are a score or more of ships on the water within a radius of ten miles or so, as often happens on a big sailing day at New York, such as Saturday.

However it is to be supposed that all these ships are able to carry on communication at one and the same time; it is an achievement if five of them can do so. Herein, also, can be seen the advantages of efficient apparatus properly adjusted, together with skill in operating. In efficient apparatus there is a minimum of "forced oscillations" given off, and the wave lengths are well and sharply

defined, thereby enabling stations to "tune" closely and eliminate a great deal of disturbance from this source.

Knowing now that the number of stations that can operate at the same time in crowded areas is limited, it is well to show the part that the operator plays in such instances. It is known that the wireless operator must constantly wear his "receiver," or specially constructed telephones, to be able to rapidly and efficiently operate his station. He must frequently change from one "tune" or wave length to another, to be on the lookout for a call or await an opportunity to do some calling himself. When the operator desires to communicate with another station and finds that some other station is already operating on his wave length he arranges his apparatus to operate on a different wave length. Often it so happens that all his available wave lengths are being used. In that event he finds it sometimes necessary to operate on, and directly through, a wave length being used by other stations at that time. The factor that comes to his aid in such cases is the fact that all stations have "sparks" of varying tones or notes. Therefore, even though there be several "sparks" that are being heard on one particular wave length, and experienced operator can pick out the "spark" with which he is working, much the same as two persons conversing in a room in which there are quite a number of people all of whom are talking, listen to the conversation of some one person and who are practically oblivious of the other conversation about them.

Not only must he often work through other stations, he must constantly be on the alert, for he must be aware of the general drift of the "conversation" of other stations operating near him so as to be able to know approximately when such and such a station will discontinue sending. This is essential, for in crowded areas stations operate in turns according to the order in which they have signalled their intention of sending; the shore station usually taking note and later giving instructions. Should the operator have been "off tune" or inattentive, he is apt to cause interference by breaking in during periods of seeming inactivity, as, for instance, when a sending station has ceased transmitting and is awaiting the "O. K." of the receiving station or its perhaps awaiting correspondence that the latter may have for him.

### LITTLE WORRIES IN THE HOME

These Bring the Wrinkles and Paild Faces That Make Women Look Prematurely Old.

Almost every woman at the head of a home meets daily many little worries in her household affairs. The care of her little ones, the work about the house all contribute to these worries. Most of them may be too small to notice an hour afterwards, but they constitute a constant strain that affects the blood and the nerves and make women look prematurely old. The effect of these little worries may be noted in sick or nervous headaches, fickle appetite, tiredness after slight exertion, and the coming of wrinkles which every woman dreads. To those thus afflicted, Dr. Williams' Pink Pills offer a speedy cure, a restoration of color to the cheeks, brightness to the eye, a hearty appetite and a sense of freedom from weariness. Among the many thousands of Canadian women who have found new health and strength through these pills is Mrs. G. Strasser, Acton, West. Ont. who says: "I am the mother of three children, and after each birth I became terribly run down, I had weak, thin blood, always felt tired, and unable to do my household work. After the birth of my third child I seemed to be worse, and was very badly run down. I found the greatest benefit from the Pills. I had gained my old time strength. Indeed after taking them I felt as well as in my girlhood, and could take pleasure in my work. I also used Baby's Own Tablets for a splendid medicine for childhood ailments."

Dr. Williams' Pink Pills are sold by all dealers in medicine, or you can procure them by mail for 50 cents a box or six boxes for \$2.50 from The Dr. Williams' Medicine Co., Brockville, Ont.

### CRUDE WIRELESS.

Long Used by an Indian Tribe of the Amazon Valley.

In these days of wireless telegraphy it may be interesting to learn that as long ago as July, 1898, the Geographic Journal recorded the discovery of a wireless telegraphic apparatus in use among the Cataguana, an Indian tribe of the Amazon valley, in South America.

The apparatus, called cambarysu, consists of a hole in the ground about half filled with coarse sand; above this layer of fine sand, fragments of wood and bone powdered men fill it almost to the surface of the ground. These materials are surrounded by a case of hard palm wood, which extends above the surface. The upper part of the apparatus consists of layers of hide, wood and hard rubber. Between there is a hollow space. With a club, much like the stick used to play a bass drum, the native strikes the layer of rubber that forms the top of the instrument.

One of these instruments is concealed in each hamlet of the tribe. The villages are not more than a mile apart and are placed in direct north and south line. Although a person standing outside the building in which the apparatus is kept cannot hear a blow of the stick on the rubber top, it is quite distinct in a similar building a mile distant. When one of these instruments is struck the neighboring ones to the north and south echo the blow. The Indian stationed at each one of the posts answers the signal, and by means of code, messages a long conversation can be carried on.

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### France Gives Her Answer

The French Government has not shrunk from making a plain answer to the Russian demand for peace on the basis of no annexations and no indemnities. France refuses to accept that principle in so far as it may be construed to prevent the return to her of the lost provinces of Alsace and Lorraine. In that she will have the support of all the rest of the Entente Allies, whatever may be the disposition of the Government now in power in Petrograd.

The no annexations, no indemnities demand has just been renewed by the Russian Council of Soldiers' and Workers' Delegates. It must therefore be frankly faced by all the powers at war with Germany. The Government at Petrograd has fallen into the hands of various groups of radical Socialists, who aim at making over Europe through the use of the machinery of international socialism. That machinery broke down completely when Germany started the present war. The German Socialists forget their fraternal obligations to the Socialists of France and Russia and backed the Kaiser in his policy of nationalist aggression. They fought without a whimper to crush France and Russia to enslave Belgium, Serbia, Montenegro and Roumania. They have worked to create a greater Hohenzollern empire, stretching from the Baltic to the Gulf of Persia, consolidated through military conquest.

The German and Austrian Socialists are still the ready tools of German ambition. They are still stool pigeons for the Kaiser. They are going to the international Socialist conference at Stockholm with secret instructions from Bethmann-Hollweg. Their plan will be to cajole the Russian delegates with assurances that the Socialist proletariat of Europe can be welded into a combination strong enough to impose its will upon the Governments at war and to secure peace on terms which will make international socialism thereafter the dominant force in European politics.

The Russian delegates, intent on domestic reorganization and more or less indifferent to outside perils, will probably listen gladly to German promises. Having secured what they will consider as co-operation from the German Socialists, they will probably be tempted to bring pressure for an acceptance of the German promises by Socialists representing Great Britain, France and Italy. Thus Germany will have succeeded in creating a rift between Russia and the Western Allies for it is inconceivable that French, British or Italian Socialists would accept at face value any pledges given by Bethmann-Hollweg's surly agent Herr Scheidemann, or that the French and Italian Governments would be influenced by such pledges, even if accepted by Socialist delegates going to Stockholm with their consent.

What assurance can the German and Austrian Socialists give that they are really able to influence the decisions of the German and Austrian Governments? They have no internal political reforms they have de-throned an Emperor, as the Russian Socialists have done; only a few of them have dared to speak openly of the possibility of an anti-dynastic revolution.

If Russia is willing to be duped at an international Socialist conference why should France, Great Britain, Italy and the United States be willing to be duped? These countries know the meaning of German perfidy. They have seen German brutality repudiate the most solemn treaty obligations. They remember Bethmann-Hollweg's justification of the invasion of neutral Belgium. They are aware that

nothing said or done at an international Socialist conference will bind the German and Austrian Governments, and that any programme of no annexations, no indemnities, approved there would be repudiated by the two Kaisers if they saw any advantage to themselves in repudiating it.

Germany is an international outcast. Her Government has put itself beyond the pale of law. The menace to civilization which Germany of to-day represents can be abolished only by defeating Germany by her arms to keep the peace. The nation which forced this war on the world and which has broken every law of humanity in fighting it must make reparation before she can be accepted again into the family of nations.

No annexations and no indemnities is a programme which would protect her in her crimes—which would leave her free to run amuck again after she had recovered her strength. The world must be made secure for peace and international order, and there can be no security until Germany is stripped of all the gains which she has made in the war and forced to pay for the barbarities which she has committed on land and sea—her submarine murders and her atrocities in Belgium, Northern France and the other territories overrun by her army.

Germany's power for evil in the future must be circumscribed. Otherwise the war will have been fought in vain from the point of view of civilization. Other territorial readjustments that the recession of Alsace-Lorraine will be necessary to establish a permanent political system in Europe. The Allies, excluding Russia in her present mood, are at one on this point. It should not be yielded in the vain hope of creating a socialist solidarity powerful enough to restore and maintain peace. Until socialism in Germany unseats the present Government, now using it as a plaything, there cannot be the slightest hope of permanent peace through such a concord. To defeat and then shake Germany is the only policy on which the Allies can safely rely to bring about a just settlement which will be just and lasting.

—New York Tribune.

St. Joseph, Lewis, July 14, 1903.

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Gentlemen,—I was badly kicked by my horse last May, and after using several preparations on my leg nothing would do. My leg was black as jet. I was laid up in bed for a fortnight and could not walk. After using three bottles of your MINARD'S LINIMENT I was perfectly cured, so that I could start on the road.

JOS. DUBES,  
Commercial Traveller.

Minard's Liniment Cures Dandruff.

Waterton's Climb.

The steeplejack's ability to keep his head and feet while working on a "top," which is a ledge three feet wide between abysses 500 feet deep, is a gift. Like the poet, the steeplejack is born, not made. Charles Waterton, the naturalist, had the gift, and would have adorned the profession—the only one into which men do not drift.

When on a visit to Rome, Waterton determined to rival the feats of the Italian climbers who yearly scaled the dome of St. Peter's and the pinnacles of the castle of St. Angelo, to illuminate their summits on the feast of St. Peter. Eighty men used to climb the dome of St. Peter's and the pinnacles the boldest completed the spectacle by crowning the cross with a waving torch of fire. Each night's show was said, on the average, to cost a man's life. Waterton scaled the dome by daylight and left his glove upon the vane.—Los Angeles Times.

**Requiem of Broken Hearts.**

In the old Franciscan church of the Holy Cross rises one of the two monuments to the memory of the great artist-god, whose greatest gift was his gift to the world in a splendid sweep of a pure and recreated Italian language—until his time halting and feeble—in that immortal masterpiece of literature, the Divina Commedia.

This church might be well known as the Broken Hearts, instead of Saint Croce, for near Dante's cenotaph—his exiled ashes still rest in Ravenna—lies the body of that other terrific genius, Michelangelo, who, broken in spirit, died gladly when the city so dear to his heart fell once more upon dark and tyrannous days. And Galileo is here, too, and Galvani, and Machiavelli, and many another, a brilliant train.

Michelangelo's last work is in the nearby Church of San Lorenzo, in the mortuary chapel of the Medici—the great house which deigned to favor him with its patronage or its enmity throughout his life.—National Geographic Magazine.

Minard's Liniment Cures Burns, Etc.

### Passing Ties On Fashions.

Sports hats are seen with crowns embroidered in heavy floss of rich Oriental colors. A hat of straw with removable brims converts milady's small travelling chapeau into a large afternoon affair with a lace of silk brim.

Sports hats are seen with bands painted with flowers or pastoral scenes.

Beautiful mushroom shaped hats are made of Georgette crepe in the new blue which Paris calls "bleu de la Marine."

Big wire sailors are made of pale yellow lawn, organdy, silk and other fabrics, to match the costume.

Veils naturally come in mind. Square and octagon weaves are good this spring.

A taupe veil or plain weave, with a border of falls of tulle, is outlined with black velvet ribbon.

Veils of fine mesh have elaborate edges of braid in design.

COMBS.

"Excelsior!" is the motto for hair ornaments today, and the high shell comb of our grandmothers time is just the thing for her granddaughter.

One comb was inset with brilliant; another had a row of pearls across the square top, while a third had a pleating of tulle attached to make it yet higher.

### IN SHOES ONE SEES.

Low shoes with toes of kid and sides of cloth.

Shoes with vamps of pink kid and upper of white embroidered in roses.

Gray or tan pumps with tiny tips of the toes and ornamented with steel buckles.

Siren pumps in pearl gray and biscuit color, two-toned.

Laced English walking shoes with low heels, tan, with fawn-colored uppers.

Mules for the boudoir in Maya colors.

AND IN STOCKINGS.

Silk stockings inset with net embroidered in beads.

Hand-painted, of French gray, with pink and blue roses.

Sports stockings of white silk with narrow vertical lines of green embroidery.

Yellow silk with insets of yellow sequins.

Stockings rivaling the rainbow in color, some plain and others lace-trimmed.

And breathe low, there are silk hosiery for women, just a little longer than men's socks, in blue with stripes of white, and black with white stripes.

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### ADMIRAL SIMS.

### Sketch of U. S. Navy Head in European Waters.

Rear Admiral William Snowden Sims, now representing the United States Navy in cooperative action with the British and French naval authorities, who has his temporary headquarters in London, does not lose any of his symbolic significance, at the present moment, because of being a native of Canada. (He was born in Port Hope.) In fact that significance is enhanced by the fact, Pennsylvania has the credit of having given him his early education, and of having sent him to the United States Naval Academy at Annapolis, where he was graduated in 1880. His record, up to the beginning of this century, was one creditable to him, but not especially significant, different from those of other competent men, trained by the mixed service on land and on sea which the Navy provides for its officers. True it had been somewhat different in one respect, namely, the opportunity which had been given him for study of international problems, naval and diplomatic, owing to his assignment to United States embassies, first at Paris, and later at St. Petersburg, now Petrograd.

With the duty of acting as fleet intelligence officer and inspector of target practice for the Asiatic squadron, Commander Sims had to concentrate on phases of gunnery. It was his fortune to carry on much of this work in waters where he had intimate association with Admiral Percy Scott, at that time gunnery expert of the British Navy. This specialization on ord-

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nance, gunnery practice, and the mechanism of watching, recording, and shaping the shooting skill of a fleet or a navy's marksmen has been of great value to Admiral Sims, and to the United States, during the succeeding years.

For seven years following he served as inspector of the target practice of the navy, with the Bureau of Navigation as his department. When the Atlantic fleet torpedo flotilla was formed, in 1913, he was put in charge. Now the experience gained, through all these years of special study of the problem, is being put at the service of the anti-German naval forces, in respect of national names. The man who transformed the target record of the United States navy, who has had more experience with craft built to combat the submarine than any other American, and who has shown inventive skill in devising ways and means for accomplishing professional and naval service ends, is on duty in waters off the coast of western Europe.

Admiral Sims' marriage with the daughter of Ethan Allen Hitchcock of St. Louis, former Secretary of the Interior, quite early in his career, gave him an opportunity of disclosing and developing social graces which are not the least of his assets, as he carries on his professional work in European capitals.

Minard's Liniment for sale everywhere.

### Why the Trail?

In reply to a question, Mr. Ernest Thompson Seton has this to say in the December Guide to Nature:

It would take eleven large volumes to discuss the functions of a quadruped's tail. It is commonly believed that the original ancestor of the quadruped was aquatic and used its tail for a sculling oar; but since then it has taken countless different additional forms—in the giraffe and the elephant as a fly-flapper; in the South American monkeys as a fifth hand; in the alligator as a flag; in the skunk, warning to enemies, the same in the rattlesnake; in the flying squirrel as a helm for volplaning; in the gray squirrel as a parachute to break a fall; in the porcupine as a dangerous weapon of offense; in the fox as a muffler for the feet in the snow. In the cat its service is not very obvious, but it seems to be used as a directive mark when signaling one of its kind from behind; that is achieved partly by the color pattern and partly by the nervous twist or the tip. These are only a few of the uses which occur to me and each illustrates a further development of the tail. I would add that in the beaver it is used as a plunging paddle in diving, as well as a signal sounder.

### Minard's Liniment Relieves Neuralgia

### Curious Andean Keyholes.

A curiosity of the Andean villages are the doors of the houses, which are hard to open and hard to close, but which, despite the intricacy of the locks, admits the air freely on all sides. Harry A. Frank describes one such door, writing in the Century Magazine of the town of San Pablo, Colombia: "The keyhole was in the shape of a swan. Others in the town and all through Narino have the form of a man, horse, goose and a dozen other ludicrous shapes. These homemade doors of Andean villages never fit easily, and their locks always have some peculiar idiosyncrasy of their own, so that by the time the traveler learns to unlock the door of his lodging without native assistance he is ready to move on."

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**QUICK—HANDY—LASTING**

**FRENCH ALMOST LOST**

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**WIN IN C**

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Paris cable says: sensitive against the Vauxhallon Monday were stormed and for naught, for the violent counter-offensive nearly all their losses.

Although the Germans had launched his effective, composed and covered it by a and by bomb dropping, the capture of the short-lived, and of metres northeast of now remains in the hands, heavy casualties the Germans, who in the field of battle.

Likewise, in Champagne, France has been in between Mont (Carnille) in an attempt to previously taken Germans first were French, who then a drive and advanced it of more than 500 yards, an excess of 300 yards. Germans lost heavily wounded.

**QUIET ON BRIT**

The British official issued Thursday evening "Hostile raiding, pushed by our fire the Bapaume-Cambrai, Laventie, and in the Lombaertzyde. An enemy succeeded in our front line post, but was at once few of our men are. The enemy's attack during to-day, south of Scarpe River."

**FRENCH**

Paris cable says: issued Thursday evening night reads: "In the course of was continued to of Vauxhallon. A our troops in a trooped by the enemy Moley farm, gave At this hour we high our positions with weapon of sufficient in the morning to the east of this farm, are still maintaining. "The artillery actively in this region blue and Croon were quiet violent Champagne the morning by our troops. Under particularly b a German attempt in the morning to which we had taken the 18th, between Mont Blond was Grenadiers, who, in their turn, pushed detachments into which they captured an advance of 200 metres, an extent of 600 metres. German dead remained on ground."

**DRIED FRUIT VEG**

So Preserved, S and Glas

And Are Easily proc

Drying was a well successful way of foods before canning al use. So say the United States Department, and modern still more practical either in the home groups. The Department writes to dry fruits in the winter if the can scarce or expensive. Shrinkage methods, proved to be very successful. The three methods are drying, drying and drying with an electric fan.

Trays for drying by methods, as well as over ovens or be made satisfied. France and travel to heat may be used if desired.

Home made trays, and end boards on inch thick and bottom boards of inch thick galvanized sheet to the sides to form the bottom.