

Stupendous Speed of Wireless Waves

The ether which is the carrier of wireless waves must not be confused with the ether used by surgeons as an anesthetic.

The latter is a liquid which can be touched, seen, and smelt; the other, well, just what the other is we do not know yet, although in recent years science has discovered a great deal about its marvelous properties.

Our great-grandfathers believed that space, the vast domain in which the earth, the sun, and all the planets float, was completely empty; that it was simply a vast tract of nothingness. But with the discovery that such things as heat and light are caused by waves, came the realization that this idea of space must be revised.

Millions of Minute Atoms.

Waves cannot take place in nothing; there must be a medium of some kind to be thrown into a state of agitation. Space could not be empty; it must be filled with some amazing substance, tougher than the earth, yet having no weight; more elastic than the finest steel, yet incapable of resisting the passage of solid bodies through it. If the ether offered a hundredth part of the resistance of air, the earth would be burnt to a cinder in a moment owing to the friction set up by its onward rush as it whirled around the sun.

Then came the discovery that the ether is not confined only to the realms of space. It is everywhere, in everything, in every atom. The most solid mass of iron is really like a sponge in structure. Though it feels as if it were all one piece, actually it is composed of countless millions of minute atoms, separated from each other by tiny pores and channels. And every nook and cranny is filled with ether, which occupies everything just as water occupies every part of a submerged sponge.

The most amazing thing about the ether is the rapidity with which waves move through it. Light coming to us from the sun, 92,000,000 miles away, takes only eight and a half minutes to accomplish its journey; its waves move at the extraordinary speed of 186,000 miles a second. Wireless waves also rush outward at a terrific speed—they can travel round the earth seven and a half times in a second!

To be able to carry waves at this speed the ether must be surprisingly elastic and infinitely more rigid than any metal! The more rigid any medium is, the greater is the rapidity with which waves or vibrations pass through it. The waves move through air at something less than 1,100 feet a second; but through water they travel four times as quickly; whilst if they pass through iron or steel their speed is increased fifteenfold. A soft substance such as putty will not pass waves at all owing to its lack of rigidity.

Passing Through Mountains.

Sound waves, and waves which travel over the surface of water, grow smaller as they move outward, until finally they die out altogether. But ether waves never come to an end.

Nor does their size decrease. If a wireless station in Britain sends out a stream of waves, the crest of one of which is 15,000 metres from the crest of another, they will be of exactly the same size when they reach America, or even Australia. They can pass through bricks and mortar, or even great mountains, as easily as through air.

Tree Planting on Prairie Farms.

The officers in charge of the Dominion tree-planting work report increased interest in this subject in all parts of the Prairie Provinces. The experiences of the past few years have impressed on prairie farmers the great benefits of having belts of trees across their farms and about their farm buildings. The injury that has been done to many farms by soil drifting has led to the discussion of tree planting as a remedy at farmers' meetings and in the press. The planting inspectors note that the ground is being better prepared to receive plantations, and that the plantations are being better cared for than in the past.—Annual Report, Director of Forestry, Ottawa.

Closer Check on Forest Fires.

It is always of considerable value to know how fires originate, as such a study makes possible the application of preventive measures. For a considerable number of years past it has been necessary to designate the cause of a large percentage of fires as "unknown." The percentage of unknown fires for last season, however, shows a considerable reduction, which may be taken as an indication of material improvement in the attention given to study of the fires.—Annual Report, Director of Forestry, Ottawa.

Splinters.

When a splinter gets under the nail and will not readily come out, a cold water bandage around the top of the finger will in time loosen the splinter and prevent festering.

Day or Night.

Its inventor claims a new combination lock for automobile steering posts can be operated as well in total darkness as in bright light.

Watch your step. Many a man has slipped up on the truth only to fracture his good name.

WORRIED WOMEN NEED RICH BLOOD

If the Blood is Not Kept Pure Health Will Break Down.

It is useless to tell a hard working woman to take life easily and not to worry. To do so is to ask the almost impossible. But, at the same time, it is the duty of every woman to save her strength to meet any unusual demands. It is a duty she owes herself and family, for her future health may depend upon it.

To guard against a complete breakdown in health the blood must be kept rich, red and pure. No other medicine does this so well as Dr. Williams' Pink Pills. This medicine strengthens the nerves, restores the appetite and keeps every organ healthily toned up. Women cannot always rest when they should, but they can keep their strength by the occasional use of Dr. Williams' Pink Pills. Among those who have found benefit from this medicine is Mrs. Cora Conrad, Broad Cove, N.S., who says: "My system was very much run down, and my blood poor and watery. I suffered a great deal from headaches and dizziness; my appetite was poor, and I tired easily. I decided to try Dr. Williams' Pink Pills and have every reason to be glad that I did so. Soon I felt better, and under the continued use of the pills the headaches and dizziness were gone, and my blood reemed in a better condition than before. For this reason I recommend Dr. Williams' Pink Pills."

You can get Dr. Williams' Pink Pills through any dealer in medicine or by mail at 50 cents a box or six boxes for \$2.50 from The Dr. Williams' Medicine Co., Brockville, Ont.

One Cause of Forest Fires.

Practical experience is what counts in all walks of life and nothing is more true with regard to fire prevention. "A burnt child dreads the fire" is as true to-day as it was in olden times, but the average citizen has not yet been burnt and it is to make him realize his responsibility not only to himself, but to his family, his neighbor, and the community at large that our efforts should be directed.—Deputy Fire Marshal, G. F. Lewis, Ontario.

Surnames and Their Origin

LEYDON

Variations—Liddane, Laydon, Layton. Racial Origin—Irish. Source—A given name.

Here is a family name which, in any form you may consider, Leydon, Laydon, Layton or Liddane seems to be typically English. But it is not. It is Irish.

True, the form Layton does often come from an English source, but it's not that Layton we are speaking of in this article.

You'd never be mistaken about the Gaelic form of the name, however. It is "O'Liadhain." From this form have come the foregoing varied spellings of Anglicized forms, all of them based more upon the sound of the Irish name than upon its spelling.

The given name from which this clan name is derived is "Liadhain," based upon the Irish word for "lithany," and, therefore, likely to appeal to parents of religious inclination as a suitable name for their sons.

The chief of this name who founded the clan came to the same line as the O'Connors. The clan territory was in Tipperary.

Latent Power.

If you visit one of the great department stores you will be unaware what power is required for the many mechanical contrivances round you—the radiators, the myriad overhead lamps, the cash tubes, the elevator that saves you so many steps. It is only when you go down to the third basement and see the power plant that you realize how great is the mechanical energy that is being expended.

All is silent in the basement; there are only a few men on duty. Yet more than a score of boilers are constantly receiving coal; automatic stokers feed them just enough to maintain the needed pressures. The steam from the boilers is converted into electrical energy. Most of the motors are idle now, but if you were to stay there through a winter afternoon you might be astonished to see the after another, apparently of their own volition, take up its task. No human hand has touched them; but something has happened. Darkness has settled down first on the lower floors and then on the upper floors; one person here and another there has switched on the lights. The engines respond to the call for more power. Another day you might be astonished at the sudden and furious activity of some of the motors. What has happened? A fire has started on one of the upper floors, the heat of which has melted the plugs from the automatic fire sprinklers; the amount of water in the great tank on the roof has suddenly decreased, and the motors are working to pump more.

What a wonderfully complicated and finely adjusted power plant it is! Broadly speaking, every chilling gust of wind that blows against the building sends a shiver through the heating system. Every shadow that crosses the sky and every gleam of sunlight affect the lighting system, which is so adjusted as to respond to every need; the presence of an overseer is scarcely necessary. If we admire the genius that has devised the wonderful plant, how much more should we admire God, who has created for us a body that is far more wonderful!

Many persons tell us to pray for power, but, though prayer is good, there is another duty to perform in order to get power; we must harness ourselves to a task that requires it. To turn power into an engine that has no "load" is ruinous; when a ship pitches and the propeller comes above the water line the engines race, and the whole ship trembles. God does not

waste power by giving it to the man who has no hard task. "As thy days, so shall thy strength be." Let us, then, rejoice if our task is hard, and especially if it is just a little beyond our strength, for God's strength makes perfect our weakness.

KEEP CHILDREN WELL DURING HOT WEATHER

Every mother knows how fatal the hot summer months are to small children. Cholera infantum, diarrhoea, dysentery, colic and stomach troubles are rife at this time and often a precious little life is lost after only a few hours' illness. The mother who keeps Baby's Own Tablets in the house feels safe. The occasional use of the Tablets prevents stomach and bowel troubles, or if the trouble comes suddenly—as it generally does—the Tablets will bring baby safely through. They are sold by medicine dealers or by mail at 25 cents a box from The Dr. Williams' Medicine Co., Brockville, Ont.

The Orchestra's "Step-Child."

When the average person attends a concert by a symphony orchestra, he or she is probably apt to follow the string section of the orchestra more readily than any other. And of the stringed instruments the violins hold the centre of the stage. Of the cellos, violas and double-basses, which go to complete the string section, the viola is the least known. Many people think that the viola is very like the 'cello.

The viola is the alto violin. Its strings are tuned a half octave below the violin, and a whole octave above the 'cello. The viola strings are the same as violin strings, only thicker and a little longer. The viola is only a few inches longer than the ordinary fiddle, as it must also be held at the shoulder, and because a man's arm has a limit in its reach.

The viola has been termed the "step-child" of the orchestra's string section. Formerly it was little used. It is said that in earlier times about the only man who played a viola was the man who was so poor a violinist that he couldn't qualify even for the second violin. To-day violas are so important that they are entrusted with parts of special prominence, and even solos. There is no other tonal effect in the orchestra that can be mistaken for the viola, and the fact that this instrument is so seldom heard in solo passages, makes its introduction all the more effective.

Burned Forests Pay No Wages.

Living forests provide us with wood material of all kinds for our homes and industries, but burned forests provide no lumber, no work for the working man, no business for the merchant and no freight for the railway or steamship. Most of the land on which our Canadian forests now stand is not fit for agriculture, but it is fit to grow fine crops of trees to keep our sawmills, our wagon factories, our furniture factories and our paper mills running at full force forever. Let us all take part in protecting our valuable forests.

Not to be Hurried.

An old Scotsman, David Gordon, who was seriously ill, had been wheeled by his relatives into making a will. They were gathered about his bedside watching him sign it. He struggled as far as D-A-V-I-D, then fell back exhausted. "D, Uncle David, D," urged a nephew. "Dee!" ejaculated the old Scot, with feeble indignation. "I'll see when I'm ready, ye avaricious wretches!"

Scientists state that it is possible for disease germs to travel to earth from other planets on the tails of comets.

Measuring Instruments Must be Standardized.

Most industrial processes, surveying, trade and other activities of modern civilization depend upon measurements of one kind or another. The steel maker must be able to measure temperatures and other quantities connected with his work; the surveyor, distances, angles and time; the trader, weights and volumes and the scientist still further properties of materials.

It is obvious that the accuracy of any measured quantity depends upon the precision of the instrument employed for the measurement. While the precision of a measuring instrument can be verified by comparing its indications with those of one known to be accurate, a little consideration shows that ultimately, either directly or indirectly, it must be compared with a unit or standard which is accepted by common consent—as illustrations, the three fundamental standards, the yard, the pound, and the second.

In practice it is usual for the Government to undertake the work of certifying to the precision of measuring instruments (especially when these are directly employed in trade), and either to test all appliances before they can be put to use, or to test a proportion which can be used as secondary or reference standards by manufacturers, traders and others.

Formerly instruments for measuring mass, volume and length were the only ones in which any accuracy or agreement was considered necessary, but under modern conditions it has been found necessary to establish additional standards of measurement.

The International Bureau of Weights and Measures, Sevres, France, enables different countries in the world to be supplied with copies of the standards agreed upon by an International Committee, representing nearly every civilized country. Single nations are provided for by such national institutions as the National Physical Laboratory, England, and the Bureau of Standards of the United States, where many different instruments are verified and much research is undertaken.

While Canada has not as yet a large central organization corresponding to these laboratories, much of the work undertaken by them is done at the Government Laboratories at Ottawa. In the Survey Laboratories of the Department of the Interior a large volume and variety of instruments are tested annually. The measuring instruments verified at this laboratory include chronometers and watches, measures of length, surveying instruments, barometers and pressure gauges, thermometers, telescopes, etc.

Minard's Liniment for sale everywhere

To Cultivate Markets for Canada's Minerals.

Dr. C. Cammell, Deputy Minister of Mines, has been named by the Hon. Charles Stewart, Minister of Mines and Minister of the Interior, as delegate to represent Canada at the International Geological Congress, to be held in Brussels, Belgium, in August next.

This congress, at which all the leading mining countries of the world will be represented, is held triennially. The last session, however, was that held in Canada in 1913, the war having made subsequent sessions until the present impossible. Eight Canadian geologists, most of them representing Canadian universities, will attend the congress.

Dr. Cammell has already left for England, his intention being to make a close study of the market possibilities there for Canadian minerals. In view of the impending enactment of high tariff legislation in the United States tending to restrict the market for our minerals in that country, it is of great importance to the mineral industry that new markets be cultivated. This subject will be fully canvassed with the Imperial Mineral Resources Bureau, who have already shown a keen interest in the development of a market for Canadian products. Among other minerals to be considered in this regard are graphite, tar sands, feldspar and bentonite. The last-mentioned is a clay used in the manufacture of textiles, very high-grade deposits of which have recently been discovered in Alberta and British Columbia.

The terms of peace have directed Germany of some of her best mineral territory, notably in Alsace-Lorraine and Poland, and there is a possibility of developing a market for certain of our minerals in that country. It is understood that German interests have already made tentative enquiries respecting the possibility of obtaining iron ore from Newfoundland. While in Germany Dr. Cammell also hopes to investigate methods perfected there for the briquetting of coal, a subject which is of vital importance to the Prairie Provinces. He will also give special attention to phosphates and other mineral fertilizers.

Pat Went

An Englishman, a Scotsman, and an Irishman were arguing as to who had had certain things the longest.

The Englishman said, "I've had this horse ever since it was a colt."

The Scotsman said, "I've had this cow ever since it was a calf."

"Well, that's nothing," exclaimed the Irishman. "I've had this cart ever since it was a wheelbarrow."

Mother (to the Vicar): "Oh, please sir, I was again' to ask you, could anything be done to change poor little Lloyd George's name ere?" The child's "ad to suffer summat cruel. 'E can't do a rith' right since 'is father changed 'is views about the Prime Minister!"

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HAMILTON MAN IS BACK ON JOB AND FEELS FINE

Chas. Davis Was Often Forced to Lay Off From Work Days at a Time Before He Began Taking Tanlac—Stomach Trouble Now Entirely Gone.

"Tanlac did me so much good that I should like to tell everybody about it," said Charles H. Davis, 24 Crosthwaite Ave., Hamilton, Ont., a popular machinist.

"My kidneys gave me so much trouble that I often had to lay off from work for two or three days at a time. I had awful bagging pains across the small of my back and I often went for a whole day without eating, because of the severe pains in the pit of my stomach after every meal. I had frequent spells of weakness, and became so dizzy at times that I couldn't see where I was going and would bump into people in the street. I just felt tired out all the time and was getting weaker every day."

"But Tanlac has rid me of these troubles and I'm right on the job every day now and am just feeling good and getting stronger all the time. Tanlac is certainly a wonderful medicine."

Tanlac is sold by all good druggists. Advt.

The soot of wood has been minutely analyzed and found to contain 15 different substances.

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Wash With Cuticura Soap and Have a Clear Skin

Bathe with the Soap and hot water on rising and retiring, using plenty of Soap. If any signs of pimples, redness or roughness are present smear with the Ointment and let it remain five minutes before bathing. Always include the Cuticura Talcum in your toilet preparations. Soap 25c. Ointment 25c. and 50c. Talcum 25c. Sold throughout the Dominion. Canadian Depot: Empire Limited, 343 St. Paul St., W., Montreal. ^{25c.} Cuticura Soap shares without mug.

Classified Advertisements

WEEKLY NEWSPAPER WANTED.

WE HAVE A CASH PURCHASER for a weekly newspaper in Ontario. Price must be attractive. Send full information to Wilson Publishing Co. Ltd., 73 Adelaide St. W., Toronto.

BELTING FOR SALE

THRESHING BELTS AND BUCKLE HOSE, new and used, shipped subject to approval at lowest prices in Canada. York Belting Co., 114 York St., Toronto, Ont.

No Cause for Worry.

His cousin—"I hope Richard's life hasn't been blighted by that cruel girl."

His sister—"Don't worry, dear, Dicky is too much infatuated with himself to be injured by any external love affair."

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Send a Dominion Express Money Order. They are payable everywhere.

The path of duty generally parallels the road to happiness.

In proportion to its size, the swallow has a larger mouth than any other bird.

PETRIE'S MACHINERY TORONTO

MINARD'S "KING OF PAIN" LINIMENT

YARMOUTH, N.S.
The Original and Only Genuine.
Beware of Imitations sold on the Merits of

MINARD'S LINIMENT

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Relieved by Taking Lydia E. Pinkham's Vegetable Compound

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Any woman in this condition should take the Vegetable Compound, for it has helped other women and so it should help you.

For nearly fifty years this good old-fashioned root and herb medicine, which contains no narcotics nor harmful drugs, has been the standard medicine for female ills, and has restored the health of thousands of women who have been troubled with such ailments as displacements, inflammation, ulceration, irregularities, etc.

Lydia E. Pinkham's Private Text-Book upon "Ailments Peculiar to Women" will be sent you free upon request. Write to The Lydia E. Pinkham Medicine Co., Lynn, Mass.

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Taste finds the full satisfaction of a hot, comforting mealtime drink, and health finds a real friend—for Postum is free from any of the drug elements contained in tea and coffee.

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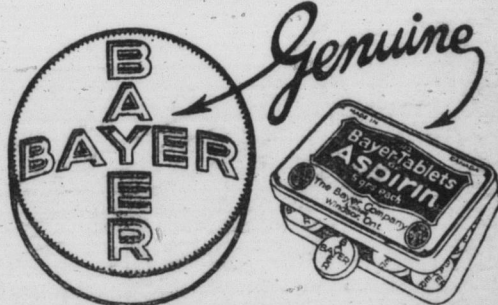
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