

CANADIAN'S THEORY

ABOUT RADIUM PROVED BY EMINENT
BRITISH SCIENTIST

"Atomic Disintegration Is the Mot de L'enigme in the New Canadian Theory, and the 'Canadian' Theory for the Present Holds the Field"—Interesting Experiments With the Wonderful Rays.

Radium's rays have pierced through the walls that seemed to mark the bounds of science and have flung a strong light far beyond them. The mysterious metal has been the means of showing that there is much more in space than was dreamed of in the atomic theory of Dalton or in Faraday's conception of the ether. Scientists, the least prone of mankind to dogmatize, have been taught by it to suspend judgment about many things they formerly scouted or denied. Speculations once regarded as fanciful or mad, theories long exploded or condemned as humbug, are no longer treated as necessarily preposterous, but are being respectfully investigated by some of the most distinguished physicists. The gaseous emanations from radium, given off continuously without appreciable loss of substance or change of structure in the mass, along with rays that penetrate thick walls of lead, recall the principle of "phlogiston" which Lavoisier drove out of chemical science. The disruption of the atom brings back old ideas of a primal element. The proved convertibility of radium into helium diminishes our contempt for the alchemist of the Middle Ages. And if the knowledge recently obtained of this metal's properties has made some of the discredited assumptions of the past seem less impossible, it makes some newer guesses about the stuff of nature seem more probable. Its phenomena lent support to the view that matter and force are identical.

Atoms and Electrons.

Sir William Ramsay, professor of chemistry in University College, London, announced the other day that he had actually changed one element into another. From the simple substance radium he had obtained the equally simple and markedly distinct substance helium. What might not be done after that? Might not the experimentalist hit upon the magic of so breaking up the atoms of iron and so reassociating the ultimate particles as to change the base metal into the precious? For, atoms, till lately thought indivisible, are now known to be resolvable into electrons. That was discovered before the wonders of radium attracted attention. Sir William Lockyer long held that the elements were broken up in the fiery mass of the sun, thus disputing the theory that the combining unit is undecomposable. But it is neither to astronomers nor to chemists that we owe the discovery. It is the result of investigations into the nature of electricity. It is thirty years since Sir William Crookes began his observations of the effects of electricity in vacuum tubes. They led him to the conviction that there is another state in which matter may exist besides the gaseous, liquid and solid, and to this fourth state he gave the name of "radiant matter." It is the result of electrical action on the residual gases in the vacuum tube. Its constituents are neither atoms nor molecules, and whatever kind of gas they were produced from their properties are the same. So Sir William not only broke up the atom but seemed to have got to the fundamental element, the constituent of all matter. Whatever doubts may have been left by Sir William Crookes were pretty completely cleared away by Professor J. J. Thomson, who showed that the atom is burst into a thousand fragments in a vacuum. These are electrons, and the hypothesis now adopted is that an atom consists of an aggregation of electrons in orbital revolution. Rays somewhat resembling the Röntgen and cathode rays produced by electricity in the imperfect vacuum are produced spontaneously by radium.

Transmutation.

Sir William Ramsay's lecture has much in common with a splendid article that was published in the last number of the Edinburgh Review. He is probably the writer. The fact, announced in the lecture, that radium could be changed into helium is one for which the scientific world was prepared. In the Edinburgh Review article we find this sentence: "Recent discoveries, however, compel a suspension of judgment as to the feasibility of some modified kind of transmutation." Further on in the article is the following passage about radium and thorium: "Remarkable, above all, is their association with their better-known relatives of the inert family. Sir William Ramsay and Mr. Soddy obtained decisive spectroscopic evidence that the gases evolved from radium bromide by solution in water include helium. It seemed, moreover,

Dislocated Her Shoulder.

Mrs. Johanna Soderholm, of Fergus Falls, Minn., fell and dislocated her shoulder. She had a surgeon get it back in place as soon as possible, but it was quite sore and pained her very much. Her son mentioned that he had seen Chamberlain's Pain Balm advertised for sprains and soreness, and she asked him to buy her a bottle of it, which he did. It quickly relieved her and enabled her to sleep which she had not done for several days. For sale by all druggists.

to develop from the emanation. A number of characteristic helium rays, at first invisible, were derived from a tube in which a radium gas had been collected, and allowed to stand four or five days. Prof. Rutherford is of opinion that the emergent helium was really made fresh from the emanation. For this is apparently a fleeting form of matter; it is breaking up into others, and its break-up is accompanied by the emission of Alpha-rays. Now Alpha-rays are, as we have said, atomic in composition, and the weight assigned to the atoms composing them possibly agrees with the atomic weight of helium. That they are, in fact, helium atoms the Canadian investigator is persuaded, and we can rely upon his neglecting no experimental device for testing the truth of so significant a view.

Professor Rutherford.

The Canadian investigator's theory has been proved, not by himself, but possibly by the very writer of the foregoing passage, by Sir William Ramsay at any rate. He stated in an interview that Prof. Rutherford and Mr. Soddy were co-operating with him in his investigations. The great services rendered by these physicists are freely acknowledged in The Edinburgh Review article. In that article we are told that the analysis of the effects manifested by radio-activity has been largely due to the splendid work carried on at Montreal by Prof. Rutherford, with the able co-operation of Mr. Soddy. "He (Prof. Rutherford) employed, for the first time in such researches, a quantitative method. He precisely measured results. The scale by which he gauged their intensity was the ionisation, in a certain interval, of a given quantity of air. And this in turn was known by the readings of an electrometer. The rate of leakage of electricity, then, under the influence of emitted rays, supplied the standard for determining their efficiency. And it is one eminently trustworthy and refined. The electric test for radio-activity is of almost preternatural delicacy. Quantities of matter can, by its aid, be detected five thousand times smaller than those revealed spectroscopically." Credit is given to Prof. Rutherford for elucidating "with brilliant success," the nature of the emanations, "Atomic disintegration," we are told, "is the mot de l'enigme in the new 'Canadian' theory; and the Canadian theory, for the present holds the field." "A gramme of radium, according to Prof. Rutherford's indisputable statement, contains a store of power sufficient to raise 500 tons a mile high."

The Dangers of Travel.

Grouchy Bachelor—I heartily disapprove of taking children on railway journeys and to large hotels.

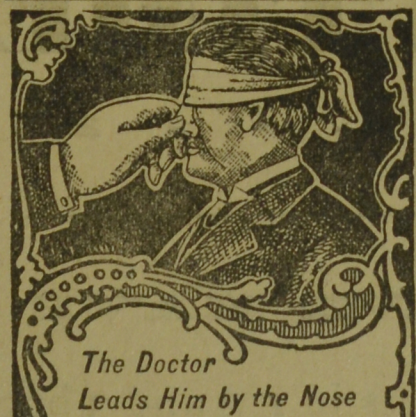
Doting Mother—So do I. One meets so many rude people and sees so much selfishness at those places that one is always glad the little darlings aren't there to pick up bad habits.—Baltimore American.

A Christian is more in love with his present duty than with his future glory.

Stomach Troubles.

A disordered stomach may cause no end of trouble. When the stomach fails to perform its functions the bowels become deranged, the liver and kidneys congested, causing numerous diseases, the most fatal of which are painless and therefore the more to be dreaded. The important thing is to restore the stomach and liver to a healthy condition, and for this purpose no better preparation can be used than Chamberlain's Stomach and Liver Tablets. For sale by all druggists.

Yes! It is at Edgcombe's where they are showing such a fine lot of sleigh robes, horse blankets and storm blankets. These are good things to have for man or beast.—d.



The Doctor Leads Him by the Nose

Ninety-nine hearts out of a hundred are failing to do their work. There may be no pain there, but it is felt somewhere for some organ is robbed of its proper need of blood by this insidious heart failure, and distress follows. Common sense says, cure where the trouble and pain begin. Use

DR. AGNEW'S HEART CURE, because it begins at the blood's distributing organ, healing that rapidly and making it strong and able, quickly sends strength and health to every other organ. It is the only way that combines science and sense and relieves and cures.

HENRY AKEY, of Peterboro, Ont., writes: "I suffered with my heart, nerves and general debility. The best doctors said I must die within a month. On my wife's advice I tried DR. AGNEW'S HEART CURE. Relief from the first dose. I am fully cured. Weighed 125 pounds—now 180 pounds."

DR. AGNEW'S OINTMENT will drive Piles away forever. Relief on the instant. Speedily removes all skin blemishes, pimples, tetter, salt rheum, etc. Price, 50c.

SOLD BY W. H. CARTEN

CASTORIA

The Kind You Have Always Bought, and which has been in use for over 30 years, has borne the signature of *Chas. H. Fletcher* and has been made under his personal supervision since its infancy. Allow no one to deceive you in this. All Counterfeits, Imitations and "Just-as-good" are but Experiments that trifle with and endanger the health of Infants and Children—Experience against Experiment.

What is CASTORIA

Castoria is a harmless substitute for Castor Oil, Paregoric, Drops and Soothing Syrups. It is Pleasant. It contains neither Opium, Morphine nor other Narcotic substance. Its age is its guarantee. It destroys Worms and allays Feverishness. It cures Diarrhoea and Wind Colic. It relieves Teething Troubles, cures Constipation and Flatulency. It assimilates the Food, regulates the Stomach and Bowels, giving healthy and natural sleep. The Children's Panacea—The Mother's Friend.

GENUINE CASTORIA ALWAYS

Bears the Signature of

Chas. H. Fletcher

The Kind You Have Always Bought

In Use For Over 30 Years.

THE CENTAUR COMPANY, 77 MURRAY STREET, NEW YORK CITY.

SHOT GUN
- PRESCRIPTION -

We suppose we are not revealing any trade secrets when we say that many medicines are made up on the principle of the so-called "Shot Gun" Prescriptions, which were formerly somewhat in vogue. The idea of the Shot Gun Prescriptions was to put into a medicine a large number of different drugs, each useful for different purposes, in the hope that some of them might hit the case.

The most successful physicians we know use a more direct method. The medicine we sell over our own name, and guarantee, does the same. This medicine is called

Staples' Dyspepsia Remedy.

It is the best remedy we know of for Dyspepsia in all forms, such as Indigestion, Costiveness, Bilioussness, Sour Stomach, Heartburn, Water Brach, Sick Headache and all the terrible diseases caused by Dyspepsia. It is not a scattering "Shot Gun" Prescription but it goes straight to the mark, and has cured so many people right here in town, that it gives us confidence to sell it on an absolute guarantee, as follows: If you use a bottle and it does not help you, we will give you your money back without a word of complaint. We could not afford to guarantee it so boldly if we had not seen it succeed ninety-eight out of every one hundred cases.

Prepared by **ALONZO STAPLES,** Druggist, corner York and King sts. F'ton, N. B.

Piano Bargains.

For 10 days we will offer the following wonderful bargains in Pianos and Organs:

- 1 English Upright Piano in good shape for \$ 47 50
- 1 American Upright Piano worth \$200.00 for 125 00
- 1 Canadian Upright Piano, nearly new, worth \$250.00, for 150 00
- 1 Square Piano, cost \$450.00, great bargain, 115 00
- 6 New Organs, shipped to us by mistake, - 40 00

These offers are for 10 days only, as we require the room for new stock.

CALL AND SEE THEM.

McMURRAY & CO.,

Queen Street, opp. Normal School.

CANADIAN PACIFIC RY.

PUBLICATIONS

"The New Highway to the Orient."
"Westward to the Far East."
"Fishing and Shooting in Canada."
"Time Table with Notes."
"Around the World."
"Climates of Canada."
"Quebec—Summer and Winter."
"Montreal—The Canadian Metropolis."
"Houseboating on the Kootenay."
"Across Canada to Australia."
"Banff and the Lakes in the Clouds."
"The Yoho Valley and Great Glacier."
"The Challenge of the Rockies."
"Western Canada."
"British Columbia."
"Tourist Cars."
Write for descriptive matter, rates, etc., to
C. B. FOSTER,
D.P.A., C.P.R., ST. JOHN, N. B.

DR. F. W. BARBOUR,
SURGEON DENTIST,

President and Prizeman Boston Dental College Class 1891. Registered by Mass. State Board of Legislation. Facilities and experience in all branches of Dentistry. Special attention given to saving aching or abscessed teeth.
45 Young lady in attendance.

W. HARRY STEEVES,

Doctor of Dental Surgery,

Specialist in Crown and Bridge Work

220 Queen street, opp. Post Office.

All kinds of Dental Work performed promptly and efficiently with all the advanced and improved methods. Office hours 9 a. m. to 1 p. m.; 2 p. m. to 6 p. m.; 7 p. m. to 9 p. m. Telephone No. 174.

INTERCOLONIAL RAILWAY

On and after Sunday, October 11th, 1903, trains will run daily (Sundays excepted), as follows:

TRAINS WILL LEAVE ST. JOHN

No. 6 Mixed for Moncton	6.3
No. 2 Express for Halifax, the Sydneys and Campbellton	7.00
No. 4 Express for Point du Chene	13.15
No. 26 Express for Point du Chene, Halifax and Pictou	12.15
No. 8 Express for Sussex	17.10
No. 134 Express for Quebec and Montreal	18.00
No. 10 Express for Halifax and Sydney	23.25

TRAINS WILL ARRIVE AT ST. JOHN

No. 9 Express from Halifax and Sydney	6.30
No. 7 Express from Sussex	9.00
No. 133 Express from Montreal and Quebec	13.50
No. 5 Mixed from Moncton	15.20
No. 3 Mixed from Point du Chene	16.50
No. 25 Express from Halifax, Pictou and Moncton	17.40
No. 1 Express from Halifax	18.40
No. 81 Express from Moncton, (Sunday only)	24.35
All trains are run by Atlantic Standard Time. Twenty-four o'clock is midnight. Moncton, October 9, 1903	

CANADIAN PACIFIC RY.

ATLANTIC DIVISION

ALL RAIL LINE THE SHORT LINE
To Boston, etc. To Montreal.

IMPERIAL LIMITED ROUTE

TO THE PACIFIC COAST

ARRANGEMENT OF TRAINS
In Effect, October 11th, 1903

Atlantic Time. Trains daily except Sunday unless otherwise stated.

LEAVE FREDERICTON

6.25 a. m.—Express from St. John, St. Stephen, St. Andrews, Houlton, Woodstock, and points north; Edmundston, River du Loup and Quebec; Bangor, Portland and Boston, etc.	
6.50 a. m.—Mixed, via Gibson Branch, for Woodstock, Presque Isle, Edmundston, River du Loup. Leaves St. M's 7.30 a. m.	
9.45 a. m.—Express for Fredericton Jct. connecting with Express for St. John and points east. Palace Sleeper Car Fredericton Junction to Halifax. Dining Car Fredericton Junction to Truro.	
6.00 p. m.—Mixed, for Fredericton Junction, connecting with Short Line Express for Montreal, Ottawa, Toronto, etc., and with Pacific Express from Montreal for the West, Northwest and Pacific Coast. Also connects for Bangor, Portland, Boston, etc. St. Stephen, Palace Sleeper, Fredericton Junction to Montreal. Pullman Sleeper Fredericton Junction to Boston. Dining Car Fredericton Junction to Mattawamkeag.	
9.00 p. m.—Express for St. John and points east.	

ARRIVE AT FREDERICTON

9.05 a. m.—From St. John and points east.	
11.45 a. m.—From Boston, Montreal, St. Stephen, Houlton and Woodstock.	
8.10 p. m.—From St. John and east.	
4.50 p. m.—From Woodstock and all points north as far as Perth and Plaster Rock via Gibson Branch. Arrives at St. Mary's 4.20 p. m.	
10.40 p. m.—From Boston, Portland, Bangor, St. Stephen, St. Andrews, Woodstock, Houlton, etc.	

C. B. FOSTER.

Dist. Pass. Agent, St. John, N. B.
C. E. E. USSHER,
G. P. A., Montreal, P. Q.