

MORE ABOUT THE MYSTERIOUS METAL RADIUM.

Sir Oliver Lodge does not believe there is more than an ounce of radium in all the laboratories of the world. Yet that ounce has done more for the leading scientists inquirers than all the speculating for the discovery of its properties and the nature and origin of its powers means the slow deciphering of another line in the great, mysterious book of nature, says the London Express.

Radium was discovered by two French scientists—M. and Mme. Curie—a few years ago. It is the rarest, the heaviest and the costliest of all the metals—a new element in nature. It is extracted from "pitchblende," a black mineral, shading to brown or green, which is found in minute quantities in many parts of the world, but chiefly in a particular mine in Cornwall.

There are about 15 grains of radium in a ton of pitchblende, and the process of extraction is very laborious and costly. It is computed that a pound avoirdupois of radium would cost £25,000, but that the price would be lowered to not a pound of extracted radium in the world, and such as there is not for sale.

Sir William Crookes acquired a fifth of a gramme of radium, and with this tiny amount he has been able to creep across the threshold of another of nature's secret compartments. He found his piece of radium to be radio-active in an extraordinary degree. Everything he used, in handling it, became luminous in the dark, even after careful washing.

Even after the first raining of brilliant white particles, the screen, covered with sulphide of zinc, which became immediately dotted with brilliant little stars of green light, "as if raindrops were falling into a phosphorescent sea." And then he saw that the radium was casting out electrons; or ions, which bombarded the plate, causing minute explosions and visible points of light. An electron is an incredibly small affair. The scientists, who love to astonish us, say that it bears the same relation to water molecules as a billiard ball does to a pea. Paul Curie and his wife, Marie Curie, find radium sends out heat, and it sends

out infinitesimal particles of itself. It has been doing this from the moment it became radium, and, for aught anybody knows, it may continue to do it to the end of time.

Radium melts more than its own weight of ice within an hour. It fuses a fragment of it in a tube, put the tube in your waistcoat pocket, and in 10 min. later you will be suffering from an open sore. It blisters and burns the skin. M. Curie says that a pound of it in a room would probably kill everybody present by the blasting force of its rays.

And this power of radiation seems inexhaustible. Although the heat and the bombardment never cease, the scientists say the rate of efflux is so small that a piece of radium would lose only one grain from each square inch of its surface in ten thousand million years!

When met with a raising of the eyebrows, they explain the mystery by the analogy of a perfume. A perfume is constantly losing something. It infects with the scent the things in contact with it, and the air around. And yet, although this activity is constant, and the perfume must suffer an incessant deterioration in weight, the loss is so slight that it cannot be detected after many years by the most sensitive and delicate of scales.

Where does the energy come from? How does radium obtain it? This is the problem to which the scientists are devoting their attention, and nobody can say how far their investigations will lead them. They may discover an entirely new light on that mighty mystery, the primary methods by which it is transferred from one body to the other.

Dr. Johnstone Stoney has an ingenious theory. Radium extracts its power from the air. But radium is always about two degrees warmer than the atmosphere, and the second law of thermodynamics says that energy cannot be conveyed between two bodies of the same temperature by the transference of heat from one to the other, nor can heat be transferred from a cold body to one that is warmer.

How, then, does cold air transfer heat and energy to warm radium? "Nature possesses a power of making available the energy which is stored up in gases and liquids in virtue of there being differences between the activities of their individual molecules at each instant of

time. The molecules of a gas or of a liquid travel about with different speeds, and they also differ in the activity of the events that are all the time going on within these travelling molecules.

"Now, some of the molecules impinge upon any body immersed in the gas or liquid, and whenever those that are moving swiftest, or those of which the internal events are most vigorous, can produce an effect upon that body which the more sluggish molecules cannot produce—in all such cases energy is transferred from the adjoining air or liquid to the body immersed in it, and the air or liquid becomes cooler.

"Energy can be obtained from this source only at a moderate rate. This is because the air or liquid from which the energy is derived becomes cooler in the act of yielding it up, and its warmth has to be restored to it by the ordinary

process of radiation, convection and conduction. Accordingly, the rate at which its warmth can be relinquished by these processes limits the rate at which it can persist, without diminution, in yielding up energy to the body immersed in it. This is a very suggestive fact in relation to the rate at which events develop themselves in organic life."

And what is the good of ruminating now that I have found 2. tschoet@gmail.com?

What is it found? To what commercial or medical purpose can it be applied? Will it cheapen international communication like Marconigrams? Will it help scientific surgery, like the Roentgen rays? Will it provide a new energy which will run our steamships and factories? Will it, applied as a fuel, relieve us from anxiety as to our dwindling wealth of coal?

To these questions, which came tumbling out of the mouths of the State

"Marconi, Edison, all the inventors are men trying to make money, and they often do it by applying the principles which have been discovered by men who devote

"I shall not attempt to say whether radium will ever be applied to the needs of man. It is enough that the discovery

with the wide field of research it opens, has carried us a step further toward the fending of the profound secrets of nature."

Thrown From a Wagon.

Mr. George K. Babcock was thrown from his wagon and severely bruised. He applied Chamberlain's Pain Balm freely and says it is the best liniment he ever used. Mr. Babcock is a well known citizen of North Plain, Conn. There is nothing equal to Pain Balm for sprains and bruises. It will effect a cure in one-third the time required by any other treatment. For sale by all druggists.

RUSSIAN LADY AS NAVVY.

The Lokalanzeiger states that the "watchman" at a level crossing on the Russian Southern railway, who goes under the name of Alexander Rodcheyevsky, is really the daughter of a high railway official. She sought and found work as a navvy on the line some time ago, and proved so intelligent and industrious as to soon become foreman. When the position as watchman became vacant, it was given to her, and she has discharged the duties with unflin-

Chance led to the discovery that the "watchman" was a lady, a Bluestocking who had taken a university degree, and a distinguished classical scholar. She disappeared from home over 18 months ago, and her relatives had given up all hope of seeing her again, when they heard of the curious employment she had accepted. As soon as a new watchman can be appointed she will be sent back to her parents. It is not known why she gave up her studies to become a manual laborer. Her age is 27.—*London Express*.

A Serious Mistake.

E. C. DeWitt & Co. is the name of the firm who make the genuine Witch Hazel Salve. DeWitt's is the Witch Hazel Salve that heals without leaving a scar. It is a serious mistake to use any other. DeWitt's Witch Hazel Salve cures blind, bleeding, itching and protruding piles, burns, eczema and all skin diseases. Sold by all druggists.

BOYS' AND GIRLS' FREE BOOK CHANCE!

All boys and girls into whose homes the Saturday News comes, are invited to try their hands at this puzzle. For the first three correct answers received through the mail (none others considered) THE DESERET NEWS BOOK STORE will give a free story book, a standard work, neatly printed and well bound. The names of the three winners, with the solution of the puzzle, will be printed in the following issue of the Saturday News. Cut out the picture, mark plainly the location of the various objects you find, and address it to the

DESERET NEWS BOOK STORE, PUZZLE DEPARTMENT.

As there was no Puzzle Picture in the paper last week the usual list of winners does not appear.

SOLUTION OF THE PUZZLE OF THE SCAPEGOAT.

With the picture in its natural position, one of the chickens can be found toward the left, about one-third way up, its body formed by the boulder on the far side of the stream. By using the right side of the picture as base, a dog can be found, formed on the body of the scapegoat, and a second chicken in the lower right corner, formed by the trees. With the upper part of the picture used as a base, the scapegoat's father can be found in the upper right corner, the owl on the far bank of the stream, beside one of the large boulders, and the farmer toward the right, between the trunks of two of the trees. By using the upper left corner as a base, a second dog is found, just back of the scapegoat, the fox in the upper corner, and the scapegoat's mother formed in the scapegoat's shadow. From the left side as base, a third chicken is found near the fence, toward the upper left corner, and a third dog formed on the front part of the scapegoat's body. By using the lower left corner as base, another chicken can be found near this corner, a little to the right.

THE WITCH'S APPRENTICE.

Find the Witch and Her Owls, Snakes and Lizards, the Wolt, the Innkeeper, His Wife and Servants, Twelve in All.



Once upon a time in a dreary forest there dwelt a witch who, having accumulated great riches by her incantations and mystic arts, decided to put some of it to use. So she cast a spell over herself and was changed from a gruesome, toothless old hag into a beautiful lady. Then she took her ill-gotten gains and journeyed into a far country to obtain an apprentice to assist her in the concoction of her vile potions. As she approached a quiet village at the base of a mountain, she was overtaken by a severe storm, and she sought refuge in a small inn. The innkeeper was a gruff, ugly fellow, but his man, and his treatment of those about him was painful to see. Among them was his son, a beautiful boy, whom he loved dearly. The witch, who had been so impressed with his beauty and affable ways that she at once made the

keeper an offer for his services. Having no objection whatever to the boy, and being anxious to obtain the witch's gold, he forthwith had a notary draw up the papers, and thus the lovely creature became a witch's bound boy, and great was the joy of the witch to have to him her true self on their arrival at his home in the forest. Here the poor lad was made the companion of bats, owls, and other evil spirits, and he learned his craft which goes to make up a witch's household. She taught him to know the poisonous plants and herbs which grow in the vile and dark forest, and compelled him to go day and night in search of them. One day, while hunting the berries of the deadly nightshade, he came across a beautiful white wolf, which had been followed by a pack of hunters. At first he was terrified and would have run away, but perceiving the helpless condition of the wolf, he remembered the witch's words, and the kindness of his heart he bound in his

bleeding wounds and bathed his head with water from the cooling stream. After making it as comfortable as possible, he left it for the night. Each day he returned to it with food, and thus the beautiful white doe was nursed to health and happiness. One day, lying helpless in the forest recovering from its wounds, the wolf became aware that the good creature who had nursed him was very near to death at heart, and it grieved him very much. On inquiring of the boy he learned the secret of his sadness, and as the wolf's heart was filled with gratitude for the kindness of the boy, he determined to free his benefactor from the thralldom of the witch. One dark night, he stole out of his den, and, in the solitude of ravens' voices, and the howl of the witch thought her end had surely come. There seemed no possible way of escape, and in terror, on her knees, she begged for mercy.

wolves would only spare her. Then the wilderness night again dawned out for her again, the witch back, headed by the white wolf, having withdrawn into the darkness. Now, the witch, realizing that some mysterious power and strategy were at work, and that the evil should come upon them again, quickly cast a spell over herself and was again changed into a beautiful woman, journeying quietly to that place where the witch restored her apprentice to his home and family and forsook her evil ways from that day. In the meantime, the father of the witch, quarantined and died, leaving being the eldest son, became the innkeeper in his stead, and in after years many were the guests who gathered 'round his board to hear the tale of the witch and her apprentice and the white wolf's gratitude.

The moral of this fable is: "Would you have others befriend you, be

An Opportunity Wasted Is An Opportunity Lost.

Don't Again Waste Our \$4.50 Cut
Glass Bowl Opportunity.

THOSE who lost the opportunity three weeks ago to get one of Leyson's \$9.00 8-inch cut glass bowls for **\$4.50** are, however, given another opportunity on Monday at 9 a.m. to provide themselves with one of these wonderfully beautiful bowls.

We promised the disappointed ones that we would buy another lot and put them on sale at the same price, and on Monday at 9 a.m. fifty bowls will be sold at—

\$4.50

Don't blame us if you don't get one, but come early; you won't be disappointed.

Fixtures For Sale

OUR new store at 236 S. Main Street will be equipped throughout with solid mahogany fixtures, and all of our elegant cherry and plate glass fixtures now in use must be sold. Anyone who can use wall or counter cases—cashier's desk, umbrella and cane cases, watch rack—private office, etc., can buy of us at their own price—The fixtures must be sold.

Leyson's
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