THE ROENTGEN RAY.

THE GREATEST OF ALL MODERN SCIENTIFIC DISCOVERIES.

A Full Exposition of the Wonderful Light That Renders all Material Things Visible to the Camera. Photographing Through Wood.

Unprecedented is the history of ancient or modern science is the swiftness with which the discovery of William Konrad Roentgen, a comparatively obscure German professor of physics, has spread to the four corners of the earth. Unprecedented, also, is the unanimity with which it has been taken up throughout the civilized world and the extraordinary interest it has awakened.

It is now a little more than three months since Roentgen announced and demonstrated that he had found a new and wonderful property in certain rays of light, and in that time experiments have been inaugurated by hundreds of scientific bodies and by thousands of individuals.

The lay as well as the scientific press has teemed with voluminous description, and a popular interest has been created that has never been hitherto observed in the announcement of any important step forward in the realm of scientific search and endeavor.

And this is in the very infancy of the discovery; in its germ condition; at a point where the human mind is just beginning to grasp the multiplicity of its great possibilities. No such speculation as to future accomplishment attended Watt's discovery of the power of the vapor from boiling water; nor the birth of modern photography, fathered by Daguerre; nor the invention of the magnetic telegraph by Morse; nor the recording of the human voice on the phonographic cylinder by Edison. All these

PROFESSOR ROENTGEN.

were of slow propagation.

What they might eventually become was conservatively discussed and reasoned out as they progressed and improved, but Roentgen has in a short time flashed a new ray of light around the earth, and has lighted up a pathway so far ahead that its termination cannot be conceived by the present generation. Nevertheless, the speculation as to possibilities even at this early day is startling.

What Prof. Roentgen has found to be possible—to begin at the beginning—is the "photograp' y of the invisible," and it isn't so much how he does it or how he tells others to do it as it is what may be accomplished in the future from this discovery.

The operation itself is not at all complicated. The principal is the employment of a current of electricity discharged through a highly rarefied atmosphere, so highly rarefied indeed that it is the nearest approach that can be made to a perfect vacuum.

This is secured in what are known as Crookes tubes—glass bulbs in which the atmospheric air has been exhausted, and containing the positive and negative poles of a battery. The current is obtained from a large induction coil. The discharge creates certain rays of light in the tube, one of which is called the cathode or X rays—the algebraic appellation of an unknown quantity,

PHOTOGRAPHING THE HAND.

and used for convenience sake. It has a singularly penetrative power and is invisible in the daylight. In a darkened room it can be seen to shine through a book of a thousand pages, to light up two packs of cards held together and to penetrate an inch of solid wood. All these substances lose their opacity under the X rays.

When a picture is to be taken of invisible objects, say the bone of a hand, a Crookes tube is suspended about six inches over the hand. Beneath the tube is a lead diagram with a hole in it, through which the rays shoot. Under the diaphragm the hand of the subject is placed on a sensitive photographic plate, the plate being first wrapped in heavy paper to keep out the ordinary light. Both it and the hand are then covered with a black cloth. The current is turned on and kept on from 35 minutes to an hour and a half. The longer the exposure the better the result will be.

After it is believed that sufficient exposure has been made the plate is taken to the dark room and developed in the regular way. The print is then made, and if everything has been properly done it will be found that the image of the hand, in slightly dim shadow, has been projected on the plate, through the cloth, the paper, and the black cardboard plate cover, which may be used if desired. The hand is outlined in shadow, but the bones within it are made more clearly visible than the flesh.

If an envelope containing several flat substances like a key, ring or coin, be placed over a sensitive plate and exposed to the X rays for twenty minutes, the image of the invisible articles will be very distinct. Key and coin will be sharply outlined. Paper appears to offer the least resistance to the rays.

As soon as Roentgen's communication to the Wurzburg Society was given to the world, experimenting began everywhere. The new radient energy became the subject of discussion among the anatomists and surgeons all over the world. It was contended that if the X rays could picture the bones in part of the human organism, they could disclose a malformation or lesion of those bones.

If the rays could penetrate the flesh of the hand, they might penetrate the flesh of the chest and discover the exact location and extent of diseased lung cells; they might find a tumor in the stomach where none was expected; they might determine the certain existence

TAKEN THROUGH AN INCH BOARD—THREE MINUTES EXPOSURE.

or absence of appendicitis; the location of a bullet in muscular tissue or in the osseous structure, the determination of a dislocation, the precise seat of adhesion in pleurisy, the discovery of a brain lesion—in fact, it is hoped and expected from the present outlook that the cathode ray will some day become the great search light in surgery, the great diagnostician, as exact and as irrefutable as a mathematicial axiom.

If the penetrative quality of this mysterious property be still further developed the possibilities in other directions are well nigh limitless. The internal secrets of all structural work will be laid bare with its employment as a detector of faults.

Nothing invisible in the concrete world can escape after it has been brought to the zenith of perfection.

Caught a Whale in His Net.

The sharks drove a hump-backed whale into the nets set by W. D. Gori, of Capitola, recently, after giving him a merry chase for his life. When they got the whale tied up they left him and went off to seek other prey.

Gori came down to his nets in the morning and found, instead of the bass for which he had set his nets, the whale, for which he had no particular use. It was a question of saving his nets. He and his men found the hump-back a tough fellow to deal with, and finally had to resort to dynamite, which was driven into him with a pointed gas-pipe.

The huge fish, which was over forty feet long, dropped immediately to the bottom of the bay as soon as the explosion occurred, carrying the net with him. The seine was worth about one hundred dollars, and the oil to be secured will not cover half the cost.—San Francisco Examiner.

Saw the Chesapeake and Shannon Fight.

William Endicott, of Beverly, Mass., who has just celebrated his 97th birthday, and is in enjoyment of good health is the nearest direct descendent of Governor John Endicott.

He was an eye witness of the battle between the Chesapeake and the Shannon during the War of 1812, and after the fight he attended the funeral of Lawrence and Ludlow, who were killed in that conflict.

UP HILL AND DOWN.

"Land sakes, it's just a toy to ride,
Sort of a winged toboggan slide.
Learn? Why, he takes me for a fool
With his polytechnic ridin' school.

"That was an earthquake, can't fool me,
That tipped me over beside this tree,
And a western cyclone bent my nose
And ripped the stitches all out of my clothes."
—New York Herald.

GETTING READY FOR SUMMER.

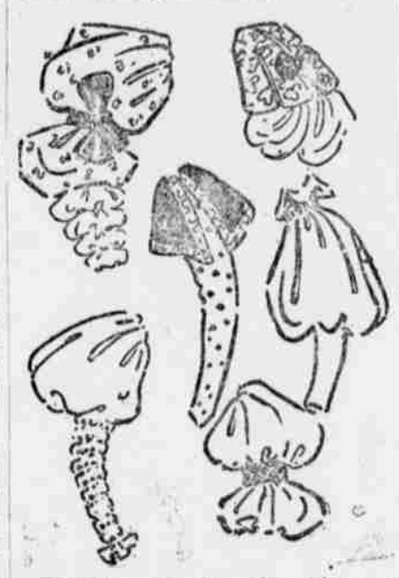
A Chapter on Summer Silks, Shirt Waists and Washable Materials.

Published by special arrangement with the New York Sun.

The variety in washing materials must be seen to be appreciated, for it surpasses anything ever shown here before. The new piques are much finer and more pliable than the old-fashioned fabric of this kind, and they come in tiny stripes and figures of satin finish in all the light and dark shades of every fashionable color, and with open work embroidered patterns scattered here and there. The fancy cotton crepes and crepons are very pretty. "Washing poplin" is mentioned in the foreign fashion notes as one of our new materials. White lawns with a narrow stripe of black, dainty flowers between, and tiny pinhead dots of black all over them, make pretty summer gowns, and they are very cheap. Chusan taffets, which is a cotton material with a printed warp, looks much like fine gingham, comes in patterns which resemble silk, and costs about twenty cents a yard.

The colors which seem to head the list this season are blue in all its varying shades, especially turquoise, green, and brown, but there is such a medley of color in the chameleon silks and ribbons which shades so differently in different lights that all the colors of the rainbow seem to be blended together in one indescribable changing tint.

The close coat sleeve is still promised for the near future, but all styles and sizes of puffs are offered as a sort of compromise between the large and the small, to win the way for the one which is not contemplated with any pleasure by the majority of women.



The shirt waist is made with a narrow pointed yoke in the back, and with or without a yoke in front, and the collar and cuffs may be of the same material or of white linen. Dimities, lawns, and batistes, plain, striped, and patterned all over in Persian designs, make the daintiest shirt waists, and these usually have a soft turn-back cuff of the same, and either a white linen collar or a colored satin stock with a white piping set in the edges and a narrow satin tie to match is tied around the neck over this. Sleeves of these thin waists sometimes are tucked in one cluster at the top, or in two, one being

well down toward the waist. Swivel silks, ginghams, and the heavier cotton cheviots are also made up into these waists, but the batistes seem to be the favorites this season. The light colors look pretty with white muslin collars and cuffs trimmed with lace, and ecru batiste waists are trimmed up and down or across with innumerable frills of narrow Valenciennes lace. Another style has a yoke of ecru embroidery, with a frill of embroidery around the edge. Very handsome are the dotted Swiss muslin waists, lined with silk and trimmed elaborately with lace and ribbon. These usually have elbow sleeves and a wide collar of muslin with, yellow lace on the edge.

A SUMMER CABIN.

Built of Logs and a Jolly Reminder of Primitive Times.

Copyright by Co-Operators Building Plan Association, N. Y.

A club of men camping in the woods might easily diversify their sport by building with their own hands a cabin like that illustrating this article. About all that would need to be purchased in the way of materials would be a wagon-load of flooring, a few sashes, a keg of nails, a pair of strap hinges, one pound of rope, a small pulley, canvas for doors, a stovepipe and a barrel of cement. The cement may be omitted if good, stiff clay is available. A few axes, a saw, a hammer, a trowel and a shovel would be all the tools required.

If the club's resort be far from the haunts of men, they may put in practice squatter sovereignty, but it would be wiser to get permission to use the land.

Following will be found a brief description:

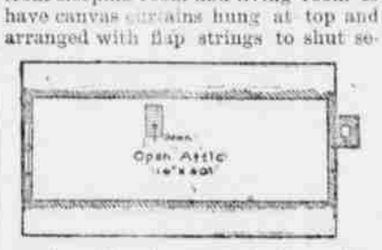
General Dimensions—Width, not including projections of chimney, 42 feet; depth, including veranda and not including cook shed, 37 feet 6 inches.

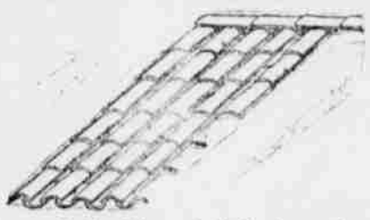
Heights of Stories—First story, 8 feet 6 inches; second story to ridge, 11 feet; at side walls, 4 feet.

Exterior Materials—Foundation, large stones and logs; all walls and gables, logs. Joints to be filled with clay. Roofs made of bark, laid like Spanish tiling and nailed with one nail to each piece under lap.

Interior Finish—Rooms and veranda floored with spruce. Interior walls left with logs showing. Stone fireplace and chimney laid in clay.

Accommodations—All rooms and their sizes shown by floor plans. Attic floored and well ventilated. Large openings from sleeping room and living room to have canvas curtains hung at top and arranged with flap strings to shut securely. Sleeping room to have four bunks at end, as shown on plans. In case ladies are in the party they could sleep in this room, the men sleeping in the attic, or, reversing the arrangement, give the ladies the attic, where they would probably feel more secure. Access to the attic room from open dining room by a cuttle and steps. Steps arranged with rope and pulley to swing





up against ceiling of first story when not in use. In case window frames cannot be procured conveniently, the window openings may be covered with canvas. Passage between open dining room and cook shed to be uncovered. Stovepipe hole and pipe at rear of cook shed as shown on plan. When cabin is not tenanted all openings to be boarded up.

A Dramatic Incident.

The coming of Robert Hilliard to the city, where he fills an engagement the coming week, recalls a very amusing incident which occurred several years ago at the Park Theatre where Mr. Hilliard was filling a professional date.

His little son, then about three years old, was in a box viewing the performance. During the play Mr. Hilliard was required to make a daring jump from the second story window to the (stage) street below. The dark faced, slouch hat man in the play had spoken his threatening line:

"Jump, I say, or, by the 'tarnal, I'll brain ye as I would a dog."

The hero was about to go when the excitement became too great for the little fellow in the box. Jumping up and running to the front rail of the box, he shouted, so that his shrill little voice could be heard throughout the auditorium:—

"Don't do it, papa. Oo'll hurt oo'self."

Mr. Hilliard was broken up for the entire act.—Boston Transcript.

Mark Twain's Latest.

Mark Twain has become so used to Eastern customs that he says he cannot avoid slamming a door at present.

A NEW GOVERNOR.

THE LATE GOV. GREENHALGE'S SUCCESSOR IN THE BAY STATE.

No Handsomer and No Better Dressed Man in Massachusetts. Not an Orator or a Handshaker, but a Clear Debater and a Good Campaigner.

Roger Wolcott, the acting Governor of Massachusetts, is a Boston man, the son of the late Lieut. J. Huntington Wolcott. He comes from a family as old as New England itself, closely identified with the early history of the colonies, and conspicuous in the colonial and revolutionary wars.

Mr. Wolcott is the fourth Governor in his family, the other three having achieved success in Connecticut. He was born on July 18, 1847. His hair is prematurely silvered, but in constitution and deportment he is a much younger man than the date of his birth would indicate. Six feet in height and of athletic frame, he is pointed out on the streets of Boston many times a week as a person of striking appearance by men who do not know him. Always a student and a close reader, he was known among the students of Harvard as a young man of considerable literary attainments. He was orator of his class, which was graduated in 1870.

After leaving Harvard Mr. Wolcott bent all his energies to the study of law. He was admitted to the bar, but like his close friend, Henry Cabot Lodge, never practiced, all his time being occupied by his many affairs and his duties as trustee of several large estates. His office is on the sixth floor of the Exchange Building in State street. He has occupied there one large room, rather bare and lonely looking. His inclinations pointed toward politics, but his extreme modesty long kept him in the background.

Nature seemed to have fitted him for a high place, but politicians hereabout always maintained that he required somebody behind him to do the pushing. He was not aggressive enough, but everybody admitted that he possessed most of the other essential requirements.

ROGER WOLCOTT.

Mr. Wolcott was started on his political career in 1877, when he was sent to the Common Council, where he remained until 1879.

In 1882 he was elected to the lower branch of the Legislature, and he was re-elected in 1883 and 1884. While in the Common Council and the Legislature Mr. Wolcott was regarded as a hard-working, conscientious man. He was not conspicuous in politics from 1884 to 1890, but he gave his friends a tremendous surprise when President Cleveland came into the field. For a time he was a Mugwump. He spoke and voted against James G. Blaine, and with Richard H. Dana practically defied the old-line Republicans.

In 1885 Mr. Wolcott and Richard H. Dana were sent to Springfield as delegates to the State Republican Convention. In 1891 he was chosen President of the Republican Club, and in 1892 he was elected Lieutenant Governor of the State. The Hon. William E. Russell was Governor.

Mr. Wolcott held second place from that time until Gov. Greenhalge's death. Four years ago, when there was talk of running him for Governor, he wrote:

"My attitude toward the nomination is this: That in what seems to me the wholly improbable event of the Republicans of the State wishing to place me in nomination, I should consider it a wholly undeserved compliment and honor, and should not decline, but I do not seek the nomination, and if it should go elsewhere, as I think it will, it would be to me personally a relief rather than a disappointment."

Mr. Wolcott will be the logical candidate of the Republicans next fall, but the American Protective Society, headed by Congressman Rising Sun Morse, want his political scalp, and will try to get it.

Not a New Woman.

They were discussing politics, and there had been a noticeable lack of logic in any of her remarks and arguments. At last he said with a little laugh:

"I don't believe you can give me a single good reason for your being a Democrat."

"Are you willing to make a bet on it?" she asked.

"I am," was the reply. "If you can do it you have two pounds of marrow glaces, to-morrow."

"Well, then," she said, with a merry twinkle in her eye. "I am a Democrat because my father is."

She got the bonbons.—New York Journal.

An Instance.

"Moral courage," said the teacher, "is the courage that makes a boy do what he thinks is right regardless of the jeers of his companions."

"Then," said Willie, "if a feller has candy and eats it all hisself and isn't afraid of the other fellers callin' him stingy, is that moral courage?"—Cincinnati Enquirer.

A REAL AMERICAN TRILBY.

Mrs. Gage Can Sing Only Under Hypnotic Influence, but Needs No Svengali.

There is a real Trilby in New York City—a woman of wealth and prominence, who, like Du Maurier's heroine, cannot ordinarily sing at all, but whose pure vocal notes and marvelous performances on the piano charm all who hear them when she is under the influence of a hypnotic spell. She is Mrs. Addie Belden Gage, who lives with her husband at the fashionable Hotel Empire, Fifty-fourth Street and Columbus Avenue. Her strange case has been the marvel of her friends, as, indeed, it has been of herself, for years. It differs from that of Trilby in that Mrs. Gage has no Svengali—the influence comes on, apparently, of itself. No one suggests it. Mrs. Gage feels no ill effects. Of what occurs during the presence of the influence she is ignorant. She has never heard herself sing.

MRS. ADDIE BELDEN GAGE.

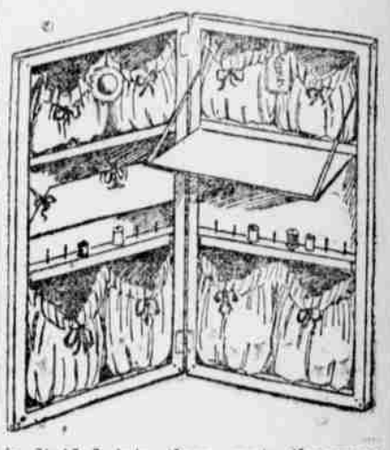
She sits at the piano with tightly closed eyelids, a strangely white, intense, rapt expression on her face, while her hands seem to be stiffened and to fall without being in the least under the control of the player. The singer wanders from Gounod to Meyerbeer, from Verdi to Wagner, then to simpler melodies, and finally to "Home, Sweet Home."

Mrs. Gage positively asserts that it is not her own voice; she declares that it is the spirit of a great actress and a singer, long since dead, who seeks astral embodiment, and gives vent to its pent-up being, through the medium of her person and throat. Some thirty years ago Mrs. Addie Belden Gage was born in Rochester, N. Y., of a fine old aristocratic family.—New York Journal.

THE SEWING SCREEN.

A Useful and Decorative Addition to Household Impediments.

A delightfully decorative and useful note in my lady's morning room, or a cozy setting for the corner of her bedroom, is the sewing screen, a gracious little affair combining all the comforts of thread basket, pincushion, needle-case, work bag, catch-all, and table. One such screen, which graces the bedroom corner of the home of a busy little housewife, is fashioned of yellow denim and a delicately flowered yellow silk, and can be very easily carried out in any color by a pair of clever hands. The framework, which consists of two leaves eighteen inches wide, is about three feet high and is covered from the outside and fastened on the inside corners with fancy gilt nails. Each leaf



is divided into three parts, the upper and lower given over to pockets made of the silk. A needle case covered with silk and a pincushion of yellow plush hang from the top of each leaf, respectively. Two flat pieces of pasteboard covered with the silk fall against the middle division of each leaf, one being held by ribbons to form a wide pocket, the other standing for a small shelf or table when caught by ribbons to two fancy-headed nails on either side of the screen above. Nothing so convenient was ever put into so small a space before, according to the owner of this housewifely joy. For it is a joy, she will tell you. Here is always the very thread and needle one wants at her very hand. Here is room for one's work of various kinds. The table, pincushion, scrapbasket, and scissors, which hang at the side, are ever ready, and all practical things considered, this home-keeping attachment has the merit beside of being a thing of beauty.

The Largest Ever Built.

The largest schooner ever built on the Atlantic coast has been constructed at Bath, Me. She is a four-master and has been named the William B. Palmer. Her dimensions are: Length, 257 feet; breadth, 42 feet; depth, 20 feet, and gross tonnage, 1,805.73. The largest schooner previously built is the Gov. Ames, which is of only 27 tons less than the new vessel. Each of Palmer's lower masts is 116 feet long, or one foot longer than those of the Gov. Ames.

Died at 129 Years.

Hiram Lester, who died at the poor farm in Henry County, Ga., not long ago, was said to be 129 years old. A son of his living in the same poorhouse is 90 years old, and a daughter, who lives in Heard County, is 95 years old.