THE PHONOSCOPE

A Monthly Journal Devoted to
SCIENTIFIC AND AMUSEMENT INVENTIONS
APPERTAINING TO
SOUND & SIGHT.

ENTERED AS SECOND-CLASS MATTER AT THE NEW YORK, N. Y., POST OFFICE

Vol. I *No. 5*

NEW YORK, APRIL, 1897

Principal Features of this Number

THE PHONOSCOPE

PUBLISHED MONTHLY BY

The Phonoscope Publishing Company

4 East 14th Street, New York, U. S. A.

SUBSCRIPTIONS

United States and Canada . .	$1.00 per year
Foreign Countries	1.50 "
Single Copies	.10 each

THE PHONOSCOPE is the only journal in the world published in the interest of Talking-Machines, Picture-Projecting and Amusement Devices, and Scientific and Amusement Inventions appertaining to sound and Sight.

Correspondents in London, Paris, Berlin, Amsterdam, Madrid, Alexandria, Constantinople, Australia, South America, Central America, Canada, and all cities in the United States.

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Vol. I NEW YORK, APRIL, 1897 No. 5

Thomas A. Edison is a Miner now

He is "Thomas A. Edison, miner," now. His general address is neither Llewellyn Park nor the laboratory at Orange, but the iron ore mines at the place which used to be called "Ogden," but which has been rechristened "Edison," N. J.

"Oh, yes," he said the other day, "I get home once in a while. As a rule, I come down to the laboratory once a week—on Mondays." It must be said that Orange and the laboratory are feeling the effects of Mr. Edison's change of base of activity. The old laboratory, the scene of so many triumphs, is a lonesome spot nowadays. The working force is small and the people of Orange bewail that the glory is departed from them. But the sun will shine on them again, sooner or later. It is impossible to divorce Edison from his first love, pure electrical science, and this flirtation with mining is being carried on because he believes that there is money in it. As he himself would say, in his graphic and direct language, he is "out for the dust" this time. Edison is most sanguine as to the success of his mining mills. "In June they will be started up full blast," "We'll have the largest mill of the kind in the world."

Mr. Edison explained how masses of gneiss rock containing crystals of magnetic iron ore were blasted out and crushed, and how the crystals were separated by a magnetic separator.

"Then," he added, "the crystals are put in the form of bricks by the machinery, and sent to the furnace for the purpose of being made into pig-iron. The process is simple enough in its results, but it is difficult in practice. Thirty-one mills have been started heretofore in the United States. Every one of them has been a failure. Oh, I knew when I started what I had to buck against.

"I am in splendid health and am cheerful, I am a good McKinley Republican, and I believe that prosperity is going to come back to the country, but it is going to come slowly and not in a night. These are not the days of miracles. The cheapening process has wiped out so much capital that it is going to take capital some time to get its second wind. People used to have money—the surplus of their business earnings—to invest in new enterprises, but that was all done away with in the Free Trade regime. There was no surplus to invest, and therefore there was no new investment, and new enterprises were likely to die a-borning. "Now, I tell you that there is one sure standard of prosperity. When the laboring man—I mean the wage earner, because we are all laboring men—is prosperous, then we are all prosperous. If any man is going to make money when the wage earner ain't making good wages, I'd like to see him, and I'd like to know how to do it."

Mr. Edison was brought back from sound politics and experimental mining and milling to electricity.

"What, in your experience up to date, is the greatest electrical discovery, leaving aside the telegraph and telephone?"

"The greatest thing out is the Röntgen ray, so far," said Mr. Edison enthusiastically. "It is an undoubted benefit to mankind. Its real, humane and scientific value has now been demonstrated repeatedly. The surgeons are all getting and using the apparatus, and so are all the hospitals, and are using them for practical applications almost every day."

"Have you any brand-new electrical inventions, or plans for any?"

"Yes," was the reply. "I have got a number of things that are new, but that I am not quite ready to say anything about. I'd like to get them all right first and talk afterward."

"What do you think of the talk about a method of transmitting telegraphic messages without wires? Is such a means of communication likely to go beyond experiment? Is it practical and practicable?"

"Transmitting without wires?" said Mr. Edison, his blue eyes sparkling. "Why, I pioneered that business. I was the first one in this country who ever tried it. We had it practically for a number of years on the Lehigh Valley Railroad—on the passenger trains for experiment and regularly on the construction trains. We were able to 'jump' messages as far as two hundred feet. Then the messages would be run along the wire for fifty miles. In this way messages were exchanged while the train was in motion. One was sent from New York to London and return. The static electric wave was what was used.

"As far back as 1880 we tried a number of experiments in this line at Menlo Park with kites. The scheme I had was to telegraph at sea, the idea being to have a sail or flag, with tinsel woven in it. and to connect that down to the deck. The object was to see how far one could signal at sea from the top of the mast of a ship to another ship; but the land experiments were tried with the kites. We had a fine wire through the kite string and thin tinfoil on the kite. Then, away across on some hills, we had a man stationed with a hoop covered with paper in metallic foil. We exchanged signals there about one and three-quarter miles—that is the limit we got without proper apparatus. With apparatus we could possibly have gone three or four or five miles. At sea, with powerful apparatus, I could not see why they should not go fifteen or twenty miles. The electric static charge would run up and jump in all directions. M. A. Preece of the British Post Office telegraph has been trying some experiments. He has obtained better results than I did. I also see that an Italian has been trying it. His results were not any better than Mr. Preece's, if as good."

Mr. Edison does not believe in the possibility of telegraphing without wires to illimitate distances. "Because," he said, according to natural law, there must be a limit. When you go twice as far away you have got four times the area. When you double the diameter of the thing you have made four times the area. A pound of butter covers so much surface spread a certain thickness. If the surface is doubled in width the butter gets very thin when you spread it out.

"Theoretically, if you throw a stone into the air you disturb the whole world—you have thrown it out of the centre of gravity. But practically the effect does not amount to much—is not noticeable. And so you may send out one of those electric waves, and perhaps it may go all over the world, but practically it grows so weak that after a certain distance it becomes ineffective."

There is a good deal of food for thought and speculation in the fact that this Protean genius of an Edison is only fifty years old, and that his strength, physical and mental, "is as the strength of ten." What new enterprises will he give to the world before the end of this old nineteenth century?—*N. Y. Press.*

May Spar Six Rounds for the Kinetoscope

Jem Mace and the representatives of John L. Sullivan met at the Hotel Reynolds in Boston, Mass., last night to arrange a limited round contest, to take place either in that city or in New York. The outlook for their meeting there did not seem bright, so a suggestion was made that Mace and Sullivan agree to box six rounds in private before the kinetoscope or some other picture motion machine for the best financial inducements offered. Mace readily agreed to this proposition, and, unless something unforseen happens, the probabilities are that these two most famous pugilists of modern times will be matched to box under conditions that will bring them bigger financial results than if the original idea of a joint benefit had been carried out.

During the course of the conversation relating to this matter a telegram received from E. C. Rivers, president of the California A. C. asking for terms for a ten-round contest between Sullivan and Slavin, the contest to take place in San Francisco in July or August, Frank Dunn, Sullivan's manager, refused to consider the proposition, because the plans he has arranged for the "big fellow" would be interfered with.

"I do not consider Slavin a good drawing card," said Sullivan's manager, "and therefore will pay no attention to the offer. We expect to be in England at the time mentioned, and the only thing that will cause us to change our plans is the fact that Fitzsimmons has accepted the challenge we have issued on behalf of Sullivan. There seems to be a popular misconception that this challenge has been issued and the money posted to 'boost' Sullivan. Anybody who thinks that way can win our money. Sullivan can whip Fitzsimmons, and I am willing to bet from $5,000 to $10,000 that he can do so."

At this point a well-known real estate dealer said that he would bet $10,000 that Fitz would defeat Sullivan.

Like a flash Sullivan's manager laid down a crisp $1,000 bill and invited the gentleman to cover it. The Fitzsimmons adherent said that he did not carry so much money around with him, and the matter was dropped.

That the Sullivan people are in earnest cannot be doubted for a moment. Their money is up in responsible hands, and they feel nettled over Julian's statement that Fitz can defeat their favorite in ten rounds. "If Fitz can defeat Sullivan he can win a million dollars," was the way a well-known hotel keeper put it.

Mace left for New York at midnight to see Dan Creedon about the latter's proposed English trip.

The Phonograph

Whisperings of Disease Revealed by the Phonograph

Medical science has found a great field of usefulness for the phonograph. It is no longer a toy with which to amuse the wide-mouthed rustics at country fairs, but a valued agent of the healer's art.

There is in New York a laboratory, with walls of red and tables and shelves laden down with delicate instruments, where daily for five years the coughs, the hoarse whisperings and all the labored sounds of diseased throats have been recorded upon cylinders of wax.

Every malady of the palate, throat, chest and nasal cavities has been registered in this way. Marked, dated and described, these cylinders can be brought out at any time, slipped into the phonograph, and the entire study of the case reviewed.

And not only this, Dr. J. Mount Bleyer, owner of the collection, who has, he insists, been the only man in the world to adapt the phonograph to the uses of medicine, has gone even further. In addition to the 600 cylinders with records of coughs he has at least 1,400 others, carrying the finest voices in the world. Stars of the Metropolitan Opera House contingent, foreign voices which have never been heard on these shores, famous orchestras, violinists, great musicians all over the world.

It is without a doubt the most curious library in the world, and one of the most valuable from a scientific standpoint, too, because of its absolute uniqueness.

Many curious stories of disease are told by these cylinders of throats and vocal organs only slightly affected, of throats in somewhat advanced stages of various maladies, and, finally, examples in which disease has reached its worst form and no cure is possible. With the tubes from the instruments in his ears, the student or physician can hear as plainly as if the patient were before him, the exact sounds accompanying all sorts of throat diseases.

Compariug, by the use of different cylinders, disease with disease, and cough with cough, it becomes possible, as never before in the history of surgery, to gauge the exact intensity of the ailment that is being studied and to mark out more effective cures. And if a patient returns for treatment, eveu after years of absence, all the physician has to do is turn to the box of cylinders, listen to the noises they give out and have the case as fresh in his mind, in its technical points, as if it had been entrusted to him only yesterday and he had been thinking about it all night.

Dr. Bleyer believes that this phonographic system of keeping records of cases will, within a few years, become as useful as the old methods of surgeons of preserving parts of the human body in alcohol. It matters not how weak and "lost" the voice is. Even the hoarsest breathing out of a sound records itself upon the cylinder and can be reproduced in its precise intensity. This is the great scientific value of phonographic registeriug of vocal sounds, for if the most trifling tones and shades of tones were lost the record would be imperfect, incomplete and valueless.

To take down the record of any talking voice, all that is needed is to have the phonograph carefully adjusted and to see that a distinct and clear record is made. The phonograph in every-day use does not give this, conveying only the general impression rather than the exact tone quality which is necessary for scientific investigation. To obtain the precise results he wants, and to make sure that the record shall be set down undeviatingly, Dr. Bleyer uses a special diaphragm, a device of his own, which differs from the diaphragm in ordinary use in that the needle or stylus which cuts into the wax and makes the impression, deeply or lightly, according to the intensity of the tones, is much more rigid and has no give or spring to it. This has given to his records their scientific value.

The cone that is used in this scientific work is about six inches in diameter at its mouth, and is made of papier mache. Two or three minutes of talking or whispering is all that is necessary to complete a record. Where the patient is an ignorant person, the mere fact of having to talk through a machine like this confuses him and he seems to have no idea of what to say. Therefore, a large number of the records which Dr. Bleyer keeps are merely descriptions given in the voice and language of the patient of the features of his case.

It is a much more difficult matter to register with exactness a singing voice, but an improved apparatus is used, which is so finely adjusted that if the singer be tired or out of voice, that fact is made perfectly apparent in the reproduction.

For taking a singing voice a second funnel is used, a long one, also of papier mache, four feet in diameter at its outer edge, or where the singer stands, aud not joining on to the big end of the smaller funnel. In fact, the small end of the large funnel is much greater in size, and when it is supported so that it meets the small funnel there is a considerable outlet for a great deal of the voluue of sound. This insures only the most perfect tones passing into a second funnel and striking the diaphragm. It is in this way that Dr. Bleyer has obtained his records of many of the world's greatest singers, and also of orchestras in full operation.

It might seem that a collection of so much that is delicate, brilliant and perfect in the way of sound would be unnecessary and superfluous in scientific records that concern the diseases of the voice, but these examples have an especial value for the purposes of comparison, representing, as they do, the possibilities of the vocal cords in exceptional instances.

Dr. Bleyer proposes now to devise a microphone which will take the chest and heart tones or sounds aud set them down upon the cylinder in such a manner that they can be accurately perceived by the ear and carefully studied. It is not far from probable that this instrument will be in complete operation by the early Fall. If it is as successful as is expected, it will bring about a revolution in the study of diseases of the lungs and heart, and be a remarkable contribution to uiodern medicine.

It is a theory of Dr. Bleyer's that through the phonograph it is possible to correct many errors and deficiencies of the voice and to train people to overcome impediments in speech. In this way the phonograph is not only valuable for purposes of cure, but it can train and preserve.

The Motor Mr. Depew Wants To See

In an interview with a reporter the other day, Mr. Chauncey M. Depew, president of the New York Central Railroad, gave his views on the possibilities of making fortunes. Here is one of the questions asked him, with his reply:

"What are your opinions on the great inventions of the future?"

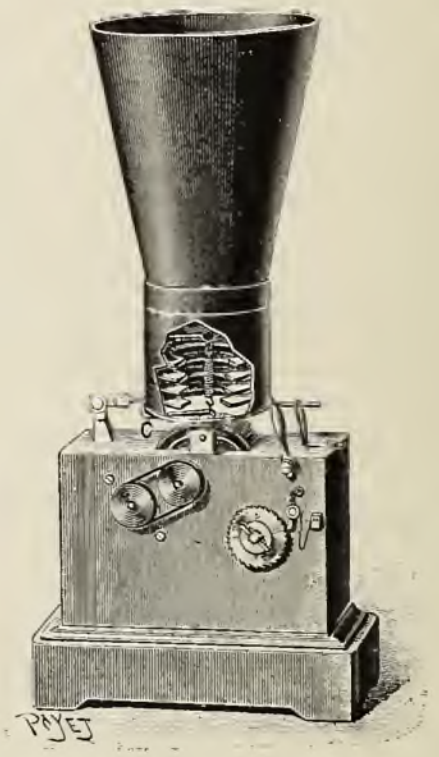
"The man who will make money is the one who perfects an electric motor which will enable the railway companies to move passenger and freight trains at less cost than now by the steam locomotive; which will solve the problem of street transportation, so as to supersede the overhead trolley, at less cost.

"If the flying machine can be made a success, as it will have no right of way to buy, no roadbed to keep up, no expenses for the maintenance of way, it will revolutionize everything, and make a fortune beyond the dreams of avarice for the man who makes it a success. Great fortunes are made mainly in two lines—one, inventions; the other improvements."

A Toy Phonograph

Although, in order to instruct children, it is well enough to make them read a description of great scientific inventions, such as the telegraph, telephone, phonograph, etc., it is certainly preferable to put these different instruments in their hands in order to permit them to learn how they operate.

Very simple apparatus capable of giving children general ideas as to the telegraph and telephone have been devised and sold at very low prices, but such an advantage has not hitherto existed for the phonograph. This want has, fortunately, just been supplied. Thanks to an ingenious instrument, which is very easily manipulated and of relatively low price, children will be able in the future to assure themselves that it is as easy to obtain a reproduction of the human voice with the phonograph as it is that of a piece of music by means of a mechanical piano. So this is one of the playthings that has met with the most success this year.



A TOY PHONOGRAPH

The principle upon which the construction of this phonograph is based is the same as that of the Edison apparatus. It is the transmission to a disk of the vibrations that correspond to certain sounds. For registering a sound in the Edison phonograph, a point connected with a plate in front of which the speaking is done traces upon a revolving cylinder moving longitudinally a series of lines, the depth and length of which depends upon the vibrations to which the place is submitted.

It results inversely that when the cylinder is displaced the point with which it is in contact transmits to the plate, and then to the ears of the auditors, the sounds due to the vibrations to which the plate has previously been submitted. In order that such apparatus may be placed in the hands of children, it is necessary to take eare not to have them of too fragile construction. The principal difficulty resides in the selection for the cylinders of some other material than wax, the wear of which is too rapid. Celluloid has been found good for this purpose.

These cylinders have an orifice in the center into which passes the rod that holds them in place, and a rotary motion is given them by a clockwork movement that is wound up with a key.—*L'Illustration.*

Our Tattler

The good people of Naples were treated the other day to an amusing experience of the vagaries of the kinematograph. Two or three series of moving pictures were successfully reeled off, and then the machinery stuck. The operator frantically worked to get matters right, but though be perspired in every pore, the screen showed simply impenetrable darkness, at first the music kept the spectators a little quiet, but as time passed and the darkness continued, signs of impatience commenced to make themselves evident. At this juncture a brilliant idea struck the demonstrator. "Ladies and gentlemen," said he "you have before you a scene representing a deadly conflict between two savage tribes of negros in a dark railway tuuuel."

Some one has discovered that Skakespeare knew all about the X-rays, for Hamlet casually remarks to his queen mother:

"Come, come and sit you down, you shall not budge.
You go not till I set you up a glass,
Where you may see the inmost part of you.

There is one man, so the story goes, who curses long and loudly the cinematograph. In his amiable, husbandly way he took his wife to see the "cin" (new abbreviation), and in the Sunday afternoon disembarkatiou scene, his better half saw what she believed to be her husband coming ashore with another lady. To be the more convinced, she saw the tableau fully half-a-dozen times with the aid of opera glasses. The accused male indignantly denies everything, but as he cannot prove a complete alibi for that particular Sunday afteruoon, and his wife won't entertain the idea of au "extraordinary likeness," there is a big storm in the once happy home.

If Miss Pauline Fletcher becomes Mrs. Auguste Van Biene aud moves from New York to Berlin, the phonograph will be responsible. Miss Fletcher is an aetress—a tall, bloude, pretty woman, who does not know peroxide. Van Biene is a short, round little mau, who plays the 'cello.

Miss Fletcher's home is iu the far West and she often longs for her uative prairie. So when Van Biene played "Home, Sweet Home,' on his 'cello she thought it the finest music she had ever heard. The 'cello made them acquaintauces. Several suppers and strolls through the park made them friends, and then—but let the phonograph speak for itself.

Pauline was continually asking Auguste to play "Home, Sweet Home," for her.

"I'll play it in a phonograph," said he, "While I am thinking only of you. Then you can hear it whenever you like."

The uext day Miss Fletcher was invited to hear the familiar tune. Van Biene touched the spring of the instrument while the actress poised herself prettily near it, all attention.

"Through pleasures and palaces" — began the phonograph in music.

"Oh Pauline, how beautiful you are"—the machine continued.

Miss Fletcher looked astouished and a faint color rose in her cheeks.

"Wherever I roam," continued the instrument.

"Ah, darling, with what grace you leaned over the balcony as Juliet to-night."

"Be it ever so humble."

"Oh, that I were a glove upon thy hand that I might touch they cheek"—

"There's no place like home."

"Never have I loved as I love uow, never"——

"Home, home"——

"Oh, darling, I"——

The words of a proposal of marriage, even though they were spoken into a phonograph, will not be given. Van Biene's bashfulness was overcome, but Miss Fletcher would not say last hight whether she was engaged to him or not.

The spell of "scopes" and "graphs," under which we have labored ever since the first modernized magic lantern began to squirt continuous pictures on a screen in an out-of-the-way little shop far down town, continues unabated. With infinite pains I have uudertaken to compile a list of the frantic diversity of freakish names that have been foisted upon us to designate these otherwise admirable contrivances. The list is, I fondly believe a heart-breaker. Behold uot alone the eidoloscope, which was the uame of the original downtown outfit, but also the biograph, bioscope, verascope, vitagraph, cinematographe, cinematoscope, cinetoscope, cineograph, kinematograph, kinematoscope. kinetograph, kinetoscope, kineoptiscope, triograph, trioscope, centograph, zimograph, multiscope, hypnoscope, vitamotograph, magniscope, magiscope, animatograph, animatoniscope, kineopticau, motograph, mutagraph, alethoscope, projectoscope, and last and most dreadful, phantographoscope. There may be others, but are not these a feast? Over in London they have concocted a nefarious scheme by which the machines have been christened for the houses whereat they have beeu exploited, this plan serving to bring forth such awful names as alhambramatograph and empiretograph. Let us be thankful that our managers have not seen fit to afflict us with an Olympiagraph, a Kosteraudbialoscope, a Keithoscope, a Proctoropticon, a Tonypastorgraph, or even a Weberandfieldoscope.

An insurance company, inculcating in its annual report the wisdom of insurance, and seeking to confirm the truth of the adage, "Nothing is so certain to happen as the unexpected," mentions a uumber of queer accidents, and the utmost of consolation in dollars which the policyholder or his heirs in each case received. The list was as follows: Solicitor, fell over bag, $400; hotel proprietor, soda water. bottle burst, $350; drummer, trod on rusty nail, blood poisoning, death, $5,000; secretary, fell over mat, $700; gentleman swallowed false teeth while asleep, death, $5,000; printer, carrying open umbrella, fell over obstruction, $60; gentleman missed dog when trying to kick him, struck sofa iustead, injured great toe, $75; solicitor, struck by falling centre-piece, in drawing-room, $30; merchant, kicking mud off foot, sprained ankle, $55, lawyer, walked against open door of wardrobe in the dark, $1,000.

The devil himself appears to be in the Cinematographe people. I have been patting them vigorously on the back for a couple of weeks because they put up a good show, and now they are as bad as ever, and turn up with a brand uew trick. They change the labels on the films and try and make you think it's a new one. They do have a majority of films not seen here, but the pictures ou the screens are indistinct, and there is a return of the old vibratiou noticed several weeks ago. The motion photograph machines are good for a year yet if properly handled, but we must have plenty of new views well presented. The penny-wise-pound-foolish idea of letting any old thing go is bound to bring disaster soouer or later, and it is more apt to come soouer than later. This means everybody, not alone the Cinematographe.

Novelties Up to Date

This is an age of new things and desires that are ever moving. There seems to be a feverish eagerness on the part of the people for coustant amusemeut, and manufacturers who cater to this feeling have a wide field before them.

The Novelty Export Co. are promoters and introducers of all sorts of fancy inventions aud novelties. They have been established about two years, and have met with a very popular success.

Among the most widely sold of their specialties are the paper novelty, the Kinetoscope, the sale of which they are now pushing, and of which they handle about 60,000 daily, and the Phonograph and Gramophone Musical Records, of which they carry an immense stock of the finest and highest grades on the market.

The Automatic Photograph Machine, which produces a perfect picture in oue minute, is another one of their novelties which has met with a grand success.

As makers of this, the members of the Novelty Export Co. are also members of the Automatic Photograph Machine Co., organized with a capital of $500,000.

The President of this company is a man of strong organiziug ability and liberal ideas.

These companies do business in all the great European centres—London, Paris, Hamburg, and throughout India, Japan, and China. They have shipped within the past three months 75,000 novelties to Berlin, 200,000 to London, and a 100,000 lot to Swedeu.

The main office is in New York, but their business extends to every part of the world.

Where They Were Exhibited Last Month

Vitascope
Vitascope Hall, Washington, D. C.; Birmingham, Ala.; Central High School, Kansas City, Mo.; Auditorium, Parkersburg, W. Va.; East Lake, Birmingham, Ala.

Kinematographe
Collin's and Pencoast Hall, Camden, N. J.

Biograph
Willard's Hall, Washingtou, D. C.; Association Hall, Trenton, N. J.; Keith's Theatre, Boston, Mass.

Zinematograph
Huber's Museum.

Cineograph
Duluth, Minn.

Kinetoscope
Odeon, Marshalltown, Ia.; Graud Opera House Sioux City, Ia.

Projectoscope
Opera House, Augusta, Ga.; Metropolitau Opera House, Raleigh, N. C.; First M. E. Church, New Bruuswick, N. J.; Opera House, Columbia, S. C.; Academy, Greenboro, N. C.; Hibernian Hall, Charlestou, S. C.; Opera House, Piedmont, W. Va.,

Cinematograph
Caruegie Hall, Alleghany, Pa.; Graud Opera House, Bostou, Mass.; Edeu Musee, N. Y.

Cinematoscope
City Hall, Springfield, O.; Eden Musee, N. Y.

Bioscope
Austin and Stone's Museum, Boston, Mass.

Phantograph
Grand, Grand Rapids, Mich.

THE PHONOSCOPE

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PUBLISHED MONTHLY BY

THE PHONOSCOPE PUBLISHING CO.

4 EAST 14TH STREET, NEW YORK, U. S. A.

SUBSCRIPTION:

United States and Canada	$1.00 per year
Foreign Countries	1.50 "
Single Copies	10c. each

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Photography in colors, which so long eluded the research and endeavors of the scientist, was successfully accomplished some time ago. The new method is called the radio tint color process, and some of its results, a score of prints and transparencies, were put on private exhibition in New York City lately.

The collection was brought from Paris by R. A. Anthony of E. & H. T. Anthony & Co., who went abroad especially to investigate the discovery, and was shown at the office of the firm, which deals in photographic supplies in this city. The pictures embrace landscapes, marines, portraits and several lots of coins and metal articles, the latter taken merely to illustrate the wonderful discrimination made by the new process in copying accurately delicate variations in coloring.

The inventor is M. Villiedieu Chassagne, of Paris, who has developed a process originally suggested by Dr. Adrian Dansac. He will make the photographs before your eyes, and will allow you to go through the whole performance yourself, but as yet will not tell the secret of the chemicals used.

The application of color to the photographic print is by purely chemical means, and the method is non-technically described thus:

A negative is taken on a gelatine plate, prepared by treatment with a certain solution. This is developed and fixed in the ordinary manner. It shows no trace of color. From it a print is taken on glass, or paper, the plate or paper being specially prepared by treatment with the same solution. The transparency, or the paper print, in no way differs in appearance from an ordinary positive, and shows no trace of color by transmitted or reflected light.

It is washed successively with three colored solutions, blue, green and red, and it takes up the appropriate colors in the appropriate parts, these three colors giving, by their various combinations, all varieties of hue. How it is that this power of selective absorption is given to the components of the photographic image is the interesting question connected with the process.

In the landscapes every minute difference in the shades of the green verdure is brought out, and the sunlight effects through the trees and the falling of the rays on the turf in openings in the woodland is charmingly reproduced.

In a portrait of Mr. Anthony himself, an inch of his watch chain is shown in the yellow of the gold of which it is made, and the deep red of his scarf is perfectly reproduced. Mrs. Anthony had herself photographed, wearing two bunches of violets, one lighter than the other; a yellow gown, a red hat and many colored ribbons. She was a symphony in colors, as she stood before the camera, and so was the picture that was made.

A consignment of the chemicals with which the pictures are made will arrive in this country by July 1st. They are not expensive.

By means of the radio tint scenes can be reproduced with absolute exactness. Not only will the moving objects be pictured in their every motion, even to the flicker of an eyelash or the throb of a beating pulse, but probably the sounds will be heard, as in nature.

The discoverer or inventor never, or almost never, reaches the point of perfection unassisted, if perfection is ever obtained, which is doubtful. The telephone, telegraph, sewing machine, cotton gin, steam engine, X-rays, the use of antiseptics, anesthetics, and other classes of drugs and so on in countless numbers, may be cited as instances where the original thought was quickly and thoroughly developed by other minds. Every day in this era of specialization brings nearer the fulfilment of an original and useful idea. The number of men, and women also, who are going in for the "highest education," which is a synonym for specialization, is increasing with rapidity. And with this increase, combined with the benefits of instruction by teachers who are themselves specialists, arise possibilities difficult to estimate, beyond the fact that no former development of an invention or discovery, whichever it may be, can equal what will be.

So it will be with the kinetoscope, the machine which takes photographs with such sequent rapidity that when passed before the eye every motion of the scene portrayed is exact. It makes no difference whether one looks at the quickly-passing photographs in their original size or when thrown by means of magnifying lenses upon a great screen. The process, however, is as yet incomplete, but the Frenchmen have already bettered the American invention and a few years will see it perfected.

Photography in colors will progress with rapid strides, now that the first essential steps have been taken. Phonography is already on the high road to success. Combine motion, color and sound, and a scene is faithfully pictured. More than this combination might be unpleasant, for the two of the five known senses are enough in most instances. Perhaps an ultimate result will be the reproduction, by means of all-essential vibrations, to produce a delusion for the others of the five senses. Taste may be omitted and also touch. But smell would be disagreeable to many persons should the spectators of the prize fights of the future indulge in smoking. But no one can tell where the discoveries of science will end.

The headquarters of the Veriscope Company, at 244 West Twenty-third Street, this city, is a busy place nowadays. The managers have the following to say of the films of the Corbett-Fitzsimmons fight: "They are the most perfect production of the kind in the world, showing every movement of Corbett and Fitzsimmons from the time they entered the ring until they left it, giving a view of the timekeepers, the seconds of both men between the rounds, the action of all spectators in the immediate vicinity of the ring, including Mrs. Fitzsimmons, Senator Ingalls, Riley Grannan, "Pittsburgh Phil," and many others. The picture contains over ten thousand feet of film, will consume nearly one hour and a half in exhibiting and the auditors will be able to decide upon all of the disputed points in connection with the contest. No one except those directly interested can imagine the care, labor and expense that has been necessary to place this great enterprise on the market. No picture has ever been shown before that covered over five hundred feet of film. The veriscope is the only machine existing capable of taking a longer one. The actual cost of the film used in taking the pictures is close on to $2,500, and it is only possible to print one copy of the fight every twenty-four hours, and in order to protect the picture from piracy the company is spending nearly $25,000, depositing copies of the film in the copyright office of every country of importance in the world. This must be done before one representation is given in public. In America, two copies must be deposited in Washington; in England, five copies at Stationer's Hall; in Canada, two at Ottawa; in France and Germany, two copies with the Minister of Agriculture, and so on in all other Continental powers. A wicked war is to be waged against all fakirs, pirates and persons manufacturing, selling or exhibiting imitations of this picture. One scheme is to take the old Corbett-Courtney film, label it Corbett-Fitzsimmons, and mislead the public. Decided action is to taken against all unauthorized uses of it. The genuine Corbett-Fitzsimmons film will be ready for delivery on or about May 15, and it is the intention of the Veriscope Company to place them in every State in the Union immediately."

Legal Notices

Leopold Wallach, and Moritz Wallach, composing the firm of Martin Wallach Nachfolger, of Cassell, Germany, lately filed a bill in equity in the United States Circuit Court against George S. Pilling and Charles J. Pilling, composing the firm of George S. Pilling & Son, of Philadelphia, asking to have the defendants enjoined from the making of an alleged infringement on an assigned patented invention for improvements in the phonendoscope, an apparatus for rendering small sounds distinctly audible on a magnified scale.

An attachment secured by Edwin Hamerschlag in his suit against the Cathoscope Electrical Company was vacated upon the motion of the Allen Advertising Agency, a subsequent lienor. The First Appellate Division has now reversed the order vacating the attachment, holding that the Allen Advertising Agency had not made sufficient proof that it was a subsequent lienor, having failed to show that the judgment recovered by it in the City Court, in November, 1896, was valid. The City Court, having limited jurisdiction, it should have been shown that the court had acquired jurisdiction of the subject matter, and over the person of the defendant. The affidavit showed that the judgment was obtained upon personal service on the Secretary of the Cathoscope Company but it did not appear that such service was made within the City of New York, or under such circumstances as gave the City Court jurisdiction. It was held further, that the court below should have permitted plaintiff to read new affidavits upon the motion the application to vacate not having been made upon the papers upon which it was granted, but upon papers which were not in existence at the time the application was made to the Judge for the warrant of attachment. These were papers showing facts additional to those which had been presented to the courts by the plaintiff upon applying for the attachment.

The Projectoscope people at Greensboro, N. C., were served with a notice last month by W. F. Bogart for a breach of contract, Mr. Bogart alleging that they had made a contract with him and then backed out. The papers were issued from Squire Keith's office.

Col. Staples, for the plaintiff, asked for time to reply, and half an hour was given.

After recess, affidavits being filed, Squire Eckel decided in favor of the defence, viz.: that the service of process was not properly made, and the case was dismissed. Plaintiff Bogart appealed and the case is just where it was at first. The Superior Court will settle it.

General News

Mr. Geo. Schweinfest, the popular picollo soloist, lately a member of Issler's Orchestra, in the employ of the United States Phonograph Co., has severed his connection with that concern, and will hereafter be associated with the Columbia Phonograph Co., who have secured his valuable services as a member of the Columbia Orchestra.

The Universal Phonograph Co., have succeeded in getting some very creditable records of Miss Annie Hart, the popular vaudeville favorite.

Dr. Nicola Tesla, in a lecture before the New York Academy of Sciences, on April 6th, announced that he had discovered a new source of rays in the electric arc, by which more powerful rays and finer definition may be obtained than by any method previously known, and stated that its application was possible, not only to the Röntgen and Lenard rays, but to lightning and other practical purposes. Dr. Tesla claimed also to have demonstrated that the Röntgen rays can be deflected by a magnet, and that they are identical with the Lenard rays, described first in 1891.

Dr. J. Mount Bleyer is said to have invented an instrument for the photographing sound vibrations in the atmosphere. This instrument consists of a cone, over the large end of which is stretched a diaphragm of thin rubber. On this, and in its exact center, is placed a thin layer of powder, which is disturbed by the vibrations of the diaphragm, answering to the human voice at the small end of the cone. The lines formed in the powder are photographed on a rapidly moving film, and the records obtained show very interesting results.

Hardy Holman has invented an ingenious contrivance on the principle of the X-ray. It is a small box having two glass tubes on top and a vacuum between. An electric battery is attached. A ray of light passes through iron and other solid articles, giving a clear view of objects opposite. So it is with a watch or several silver dollars in layers. The little box has excited a good deal of interest, and the young inventor is to be congratulated on his inventive genius.

Mr. Mervin E. Lyle, New York, manager for the Columbia Phonograph Co., paid a flying visit to Europe last month. Mr. Lyle visited London, Paris and Berlin, and reports that the talking machine is getting to be a staple article on the continent.

Russell Hunting went to Washington, D.C., last month to talk to the Gramophone. He received one dollar per minute while talking to the machine. He was accompanied by the Diamond Comedy Four, who made a number of records on the same day.

A new baritone has appeared in the Phonograph field. Mr. J. J. Fisher a popular Eastern artist is meeting with great success in this peculiar line.

Mr. Gilmore, of the Edison Works, deserves great credit for his persistent experiments to improve the quality of the Edison phonograph blanks. The cylinders that are now being turned out by the works are the best ever produced, and show a marked advance over those manufactured a year ago.

The United States Phonograph Co. has occupied one of the floors over the meat market on Orange St., Newark, N. J., intend to extend their facilities, and have hired another room down stairs, which will be used for shipping purposes.

Mr. Frank Thayer, the prominent Western exhibitor, has moved his headquarters from Waterloo, Iowa, to Chicago, Ill.

The Chicago Talking Machine Co., has sold out to the Columbia Phonograph Co., and will hereafter be known as the Chicago branch of the latter concern. Mr. Leon Douglass, former manager of the Chicago Talking Machine Co., will be retained by the Columbia Co. as their Chicago manager.

George V. Gress has been interested in a number of financial schemes in Atlanta. He has always aspired to become one of the prominent citizens in the place. He ran for the Common Council three years ago, and was defeated by an overwhelming majority. He first came into notice in Atlanta when he bought all of the animals of a stranded circus and presented them to the city to form the nucleus of a zoological garden. The lot was established in a house built for the purpose in Grant Park, near Atlanta, and was known as the Gress Zoo.

Gress was afterward elected a member of the Park Board. This is the only office he ever held. In addition to being interested in the Georgia Savings, Loan and Banking Company, he was President of the United States Bond Company, and of the Georgia Pine Lumber Company. He owns extensive pineries in the southern part of Georgia. He employs convict labor on all of them. His main camp is at Kramer, Ga. It was at Kramer, in Gress's camp, that the notorious Lord Berseford, alias Sidney Lascelles, the forger, served a term of years for forgery, and cheating and swindling.

He has two sons—Morgan and Hart Gress. It was his eldest son, Morgan, who applied for a receiver before Judge Lumpkin for the Georgia Savings, Loan and Banking Company. Gress has for the past eighteen months spent a great deal of his time in New York. About eighteen months ago he became interested in an invention of a man named Moore, who was a mechanic attached to the Kimball House in Atlanta.

The invention was an improvement on the phonograph, whereby five cylinders could be placed in a machine instead of one. He formerly had an office at 1,395 Broadway, but left there several weeks ago. He and Moore disagreed and dissolved partnership. It is thought that he has left New York to attend the Centennial Exposition at Nashville, Tenn.

Our Foreign Correspondence

London, Eng., Feb. 10, 1897.

Mr. Editor: Agreeably to your request I herewith take pleasure in giving to your readers a short account of some of my experiences with Automatic machines in the land—which flows with milk and honey—England.

Avoiding superfluous details, allow me to tell you that, after inventing an Automatic Weighing Machine during the winter of 1887–1888, I had built fifty of them, which, by the middle of March, 1888, were ready to be placed. As you are aware, in England the season for outdoor exercise opens with the Oxford and Cambridge Boat Race, held annually, about the 25th of March, on that part of the River Thames which extends from Battersea Park to Putney Bridge. All London, rich and poor, low and high, makes it a duty to attend this race, which, for the day, divides the people into two chaffingly hostile parties, the dark and the light blues. The main stand for these crowds is on the right bank of the river, along the towing path from Hammersmith Bridge to Putney Bridge. Here I had intended to place my first machines in order to give them the severest possible test by exposing them to the roughest usage.

Unfortunately or otherwise I was unable to secure proper locations there, and thus I was compelled to look for suitable places elsewhere. At length, late on the night preceding Easter Sunday, April 1st, 1888, I had succeeded in securely placing fifteen Automatic Weighing Machines in various parts of London.

My machine consisted of a cast iron weighing platform attached to a similar column on which there was an oval box also of cast iron, tastily ornamented, and having in the centre of its front under a small glass window, a lion's head, the mouth of which was an open slot. Inscriptions surrounding these told patrons, that on standing on the platform and inserting a penny into the lion's mouth, the shutters behind the window would be automatically drawn aside, thus displaying on the dial behind the glass the exact weight of the customer. The whole machine was neatly painted in red, blue, and gold, being very attractive in every respect.

New to this business, I had arranged to have my machines started altogether at eight o'clock, a.m., on Easter Sunday, and to have the money, they might take, collected on the following Tuesday.

As I was sitting down to enjoy my Easter dinner, a telegram was handed to me, informing me that the machine placed in front of the post-office in Brompton Road was out of order, and requesting me to have is set right at once. I hitched my pony to my gig, and drove helter skelter to Brompton, where I found a great crowd surrounding my machine; with great difficulty I made my way to the machine, opened it, and found it literally choked with pennies. The money box constructed to hold about two hundred and fifty pennies, was full, so was all the rest of the machines; pennies had been forced in everywhere, jammed in between the wheels, behind the dial, in the column, and under the platform. After gathering the pennies into a Gladstone bag, and setting the machine agoing, I went into the postmaster's house to count the money; a total of eight hundred and twenty three pennies had been forced down the lion's mouth, within six hours, a sum equal to £3.8.7.

I was thunderstruck; my most sanguine expectations had been far surpassed. Dreading the same delightful fate for the other machines, I drove off to clear them, too, and it was well I did so.

On Easter Sunday, 1888, I took out of fifteen machines, in coppers, the sum of £57.16.4 or nearly $300.

On my way home that evening, I stopped to collect the money taken by the machine placed outside a Barber's Shop at Turnham Green. My bag was full of money, and when, after closing the machine, I wanted to return to my gig standing close to the curb, I found myself hemmed in by a surging crowd of East End holyday makers. Dreading their intentions, I put my hand into my bag and flung a handful of coins into the middle of the road, as far as I could. Scampering after these the crowd dispersed in a moment, and, jumping into the gig, I was soon far away, safe with my money.

It had been a hard day's work, but, withal, a very pleasant work. It is with lively pleasure that I recall to-day this, my first day's experience with Automatic Machines.

F. L.

"Picture Projecting" Devices

It is interesting to notice what pictures are the popular favorites in the exhibitions of the biograph, vitascope, cinematograph, and similar instruments. The serpentine dances and high kicking get a moderate amount of applause; the military scenes get a good deal more; the march of a procession down, apparently, into the very teeth of the audience, is almost startling; but these are not the things which receive an encore. At two recent exhibitions of this sort there were only two encores. One of these was a burst of enthusiasm over a view of the surf breaking on one of the piers at Manhattan Beach. The other was from an audience that wanted to see again the onward rush of the Empire State Express.

The surf picture seemed fairly to bring the smell of the sea into the smoke-clouded theatre. As the wave began to gather, form, and get an edge, the audience drew in an expectant breath. And as the water hurried on and on, until it finally broke at the crest, and flung itself forward with a force that sent up a cloud of spray, the spectators gave a great "Ah-h-h!" The view of the Empire State Express was even more thrilling. At first there was only the long line of the railroad coming straight down the picture, and curving off to one side at the front. Some section hands were at work on the track. There was a spot in the distance with a fine line of smoke streaming away from it. It grew with every second until it was a throbbing engine pounding its way right toward the audience. People held their breath as the train swept toward them, and it seemed an actual escape when it swung off on the curve and out of sight.

Next to these scenes, which portray the working of some tremendous natural force, the most popular ones are the homely, everyday ones. One of the most delightful of these is a pillow fight among four little girls. They are in two cribs with railings around them. One of the children lifts herself up and, taking her pillow, mischievously bangs it down on the head of her bedfellow. At this, the two in the other crib are highly delighted and promptly sit up in bed, holding on to the railing at the side. The unfortunate one, who has just been whacked, emerges from under the pillow and is so angry when she sees the other two laughing at her that she snatches up a pillow and knocks them both out of sight with one fell swoop. Then she turns her attention to the original offender and hostilities are general until one of the pillows bursts, and the whole picture is full of feathers.

In this age of marvelous scientific achievements, and the general distribution of scientific knowledge the public mind rapidly accustoms itself to wonderful inventions, and generally loses the sense of wonder that they first inspire. This has been demonstrated in the case of the telephone, phonograph, etc., which now enter into every-day use without exciting any sensation of the marvelous. But the vitascope, the most recent of those scientific marvels, promises to hold the public mind in wonder and amazement longer than any invention of the century, combining as it does entertaining and instructive powers of the highest order, with all that is fascinating in the mysterious and inexplicable. Every one should see the exhibitions of the vitascope.

The biograph seems to have some trouble in getting out of Washington. In the case of some companies in the show business this is caused by the holding of baggage for board bills and the like, when it is usually kept as quiet as possible and not exploited in the next season's advance notices. But the biograph people don't care particularly who knows about this. Their reasons are different. There are so many people in Washington who want to see this remarkable combination of electric and photographic skill that it has been too profitable a field to leave alone. It was decided this week that the engagement would really have to terminate, but the churches put in petitions to have it stay for one week longer, and they will fill up a large part of this last week with benefits. There will be some new views on exhibition Sunday night.

Deep Sea Talking

A Telephone Devised for the Use of Divers on the Ocean's Bottom

Since the invention of the present system of submarine diving by means of the armor and helmet, into which air is pumped from above, the diver has labored under the disadvantage of being unable to communicate with those on the surface, save by a few simple signals, such as could be communicated by means of tugs or jerks on the life line. For instance, one jerk might mean "send me a line," or it might mean "haul me up at once." Two jerks might mean "I want more air; pump faster," etc. The life line is a half inch manilla rope of the finest quality, which is noosed around the diver's body, under the arms, and is the means by which he is lowered down to or hauled up from the bottom of the ocean. The surface end of it is held by the diver's tender, in order that he may instantly receive and reply to all signals.

The most laborious part of the diver's business, and possibly the most dangerous part of the hazards he is compelled to take, is in ascending and descending, as the sudden relieving or increasing of the pressure of the air inside the armor is likely to drive the blood to the head, causing the rupture of a blood vessel in the brain, apoplexy and instant death. He must take care in descending, and more time in coming up, according to the increase in depth. In ascending from very deep water, the diver, having been in a condensed atmosphere, time should be given for the muscles and tissues of the body to be relieved of the pressure by very slowly ascending, or frequently stopping for a time at certain stages, to allow the body to be relieved of the greater pressure acquired while working in the denser atmosphere, or to establish, as nearly as possible, an equilibrium between the pressure of the water he may be resting in.

All this shows that the diver's risk is reduced by his remaining down until his work is finished. Heretofore, he has been unable to do this, owing to the fact that he was compelled to make frequent descents and ascents, in order to receive and transmit instructions and to get tools, materials, etc., which he might require from time to time.

To obviate all this a submarine telephone was invented some years ago, but it was not a success. It consisted of an ear piece, or transmitter, and mouth piece, or receiver, inside the helmet.

Recently Captain Lewis Sorcho, a submarine diver of long experience, began a series of experiments with submarine telephones in a huge tank, which he erected in Baltimore. This tank was an immense glass front affair, containing eighty thousand gallons of water, and gave ample opportunity for the testing of the 'phone. He had two assistants, one of whom was his wife. One or the other of these would spend hours under water, while the Captain remained on the surface, making alterations and improvements in the telephone. Occasionally, the Captain would make a descent, in order to test the diver's end of it, and after months of tireless exertion he had perfected a deep sea telephone which was practical, strong and highly effective.

The new submarine telephone is simple, but wonderfully effective. The tender or attendant can hear almost a whisper from the diver, and vice versa. The latest improved 'phone consists of a headgear for both diver and tender made of elastic rubber. This fits over the top of the head and under the chin.

Over the left ear is the transmitter, and over the right a wooden pad, which shuts all sounds out of the ear and prevents pain in the ear from the air pressure.

The submarine waterproof cable passes through the front of the helmet by means of a stuffing box.

The arrangement is such that the tender has the free use of his hands, which is very important in the handling of the lines connected with the diver. The cable, which is waterproof, runs from the lower end of the brass strip, where there are also connections for the wires that lead to the batteries. Of these there are from eight to twenty-four used, according to the depth at which the diver is working. They are dry batteries, encased in a neat wooden chest, handy for carrying in a boat or moving about wherever needed.

The receivers and transmitters look about like those of the ordinary long distance telephone, save that the latter are flat and about the circumference of the little wooden boxes the druggists put salve in.

To be able to talk to a man away down in the ocean's depths is truly novel, and to hear him talking and telling of the strange sensations he is enduring, the wondrous sights he is seeing, and to be able to get an accurate account of just what he is doing are still more interesting.

The dangers which beset the diver will be greatly reduced, for the reason that if anything happens to him, such as a beam or other heavy object in a wreck falling on him or his lines, thus making him a prisoner at the bottom of the sea, he can give an accurate account over the telephone of just what has occurred, and another diver can easily go down and release him.

He can also order anything he may need sent down to him, and can, by a simple wire connection made on the surface by two tenders, even talk to another diver who may be working some distance away from him.

A case is on record where a diver became entangled while working on a wreck and could not release himself. Another diver was sent for, but five hours elapsed before he arrived. It was then too late. Fright had killed him,

Had he been equipped with a telephone he could have talked with his tender, who could have assured him that assistance was near at hand, by which means his courage would have been kept up until he was released.

Another advantage of the telephone is that it is always ready for instant use. There is no calling up to be done, and in case of an accident the diver can instantly call on his tender to haul him up. In the New York papers a few weeks ago there appeared an account of a diver whose armor commenced to leak badly. He signalled by the old system of tugs at the life line to be hauled up, but different divers have different signals, and a new tender thought he wanted to be let out further, so slacked away on the air hose and life line. Every frantic signal resulted in a further slacking instead of tightening of the lines, and when the diver finally reached the surface he was nearly dead.

Such a state of affairs could not have existed had the diver been equipped with a telephone.

'Graphs, 'Phones and 'Scopes

The Synchronograph

An exceedingly interesting paper was read at the meeting of the American Institute of Electrical Engineers, by Dr. A. C. Crehore and Lieut. George O. Squier, U. S. A., on the "Synchronograph," described as a new method of rapidly transmitting intelligence by the alternating current. The experiments on which the papers were based were made in the electrical laboratory of the United States Artillery School at Fort Monroe, Va., where land telegraph and telephone lines were used.

By means of the new transmitter which was exhibited, Lieut. Squier said that 3,000 words a minutes could be sent.

Among some of the possibilities which Lieut. Squier presented was the publication of the same newspaper in different parts of the country the same day. "For example," he said, "in an edition of a daily newspaper of twelve pages, eight columns to a page, there are less than 185,000 words. At the rate of 3,000 words per minute, it would require only about an hour to transmit the entire contents of the paper. The great flexibility of the alternating current, as employed, permits, if necessary, considerable amounts of power to be transmitted over the line, which may be used for making simultaneous manifold copies of the same dispatches in remote cities. It is also practicable to use the system in the ordinary quadruplex telegraphing at the same time."

Concerning the telegraphy of the future, based on this system, Lieut. Squier said: "The telegraph line of the future will comprise substantial poles carrying a few copper wires, worked to their full capacity for transmitting electric signals. The cost of maintaining such a line, when once constructed, will be little more than for the ordinary iron wire now used, while the carrying capacity for intelligence at 3,000 words per minute, simplex, will be about equal to 160 wires used for hand transmission, simplex. By duplexing the line, the carrying capacity is doubled, and becomes 6,000 words per minute."

The Lenoscope

John M. McIntire an inventor of this city, has just completed the mechanism of what he terms a lenoscope, and experiments show it to be a success. The inventor claims that the lenoscope is equal to fourteen kinetoscopes combined, and the pictures shown by him bear out his statements.

The Ampliphone

The ampliphone, the latest of instruments for magnifying sound, has produced little short of a sensation in medical circles. In fact, in point of value for diagnostic purposes, it is regarded by many as next to the Röntgen ray as an important addition to the resources of the profession. The stethoscope is manifestly out of date, and medical practitioners have long felt the need of an instrument less crude and clumsy and more sensitive and adequate to the requirements of modern medical science. A few months ago a remarkable sound-detector was brought out. It possessed a sensitiveness never before deemed possible, and for a while the medical profession congratulated itself that in the new appliance a valuable acquisition had been made. However, it was soon found that the instrument was practically too sensitive, inasmuch as, while it transmitted the most minute sound with the body, it carried at the same time an overpowering, ringing din, caused by the vibration of the particles of metal of which the instrument was composed. The effect was often that of a distant voice trying to make itself heard in a gale of wind. The instrument, however, did the doctors a most important service, in that in taught them that a much higher standard of aural diagnosis was possible if a practical means of accomplishing it could be devised. The realization of this imperative want has led to the singular resurrection of an instrument long forgotten and intended for use in an entirely different field. Ten years ago, when a great deal of important news was stolen in transit over the telegraph lines by hangers-on at railway station and telegraph offices, who would listen to the click of the sounders, A. A. Knudson, an electrical inventor, patented a device which he called an ampliphone, for magnifying, or amplifying, the tell-tale click under certain conditions. The invention enabled the armature of the telegraph instrument to be adjusted so close to the magnet that its movement when in operation could not be seen by the naked eye. The noise of such a slight motion could not, of course, be heard by the unassisted ear, but the ampliphone carried it distinctly to the receiving operator, and thus the secrecy of the message was secured. It was claimed that the instrument would save over 50 per cent. in current and consequently the expense of more than half the battery power employed. In 1888, however, the dynamo began to be used for supplying current for telegraph work, instead of batteries, and the ampliphone was laid on the shelf. By mere accident it has been taken up again and tested for medical purposes, with the result that many leading doctors have stated their conviction that it will fill the need of a microphonic appliance, of which the profession has become so sensible. Wonderful accounts are given of the sensitiveness and power of the instrument. Among other things, it enables the beating of the pulse to be heard. Its specialty is described as the ability to differentiate the many confusing sounds which may sometimes be heard within the body, without taking up any extraneous noises, and it is said to render possible a diagnosis of remarkable accuracy and amplitude. The instrument weighs about two ounces and can easily be carried in the coat pocket.

The Waterscope

If you go to the lakes or to the seashore this summer you should take a waterscope along with you.

A waterscope is a device which will enable you to peer down to the bottom of a lake or stream and see the sea-weeds, with the fish resting among them. Any boy can make one of them very easily, and he can have no end of fun using it.

The waterscope consists of a long, narrow box, covered at one end with glass—ordinary window glass. To make it, get four pieces of smooth straight-grained pine wood, one-quarter of an inch in thickness, 20 or 24 inches long and 2½ inche wide. Have these pieces made true and exact in measurement. Carefully tack them together with brads in the form of a long box. It may be well before joining them to daub on a little white-lead paint, so as to make the joints watertight. Now cut a piece of glass the size of one end of the long box. You can readily cut glass with an old pair of shears by holding it under water. Fasten this piece of glass to the end of the tube by means of a few small tacks driven close to its edge. Then putty it carefully round, and, when the putty is thoroughly dry, paint the box and putty, taking pains to fill all the cracks. This is necessary to make the box water-tight.

In a day or two your waterscope will be dry enough for use. On some bright, sunny afternoon push your boat out on the lake or stream where you wish to experiment. Thrust the glass end of the waterscope well under the surface of the water and place your eye at the other end. You will find that you can see through the water with great distinctness, often to the hiding places of fish among those forests of the lake bottoms, the seaweeds. The object of the waterscope is to cut through the disturbed surface of the lake where your boat stands, and also to protect your eyes from the reflection of the sun on the water. Of course it does not act like a telescope, and you cannot see to the bottom where the water is very muddy or where it is very deep.

But you will be astonished at what a fairyland of beauty the waterscope will reveal along the edges of some of our clear lakes on a sunny day. Often you can see a big clam, with its mouth wide open, waiting for his dinner to drop into it, or a lazy pickerel or a sunfish resting near the bottom, and sometimes you will see lost objects of various kinds, including trolling hooks and lines and other things of a similar nature. The writer once knew a man who found a watch which he had dropped into the lake by means of a waterscope.

Graphophone as a Witness

The graphophone has been held to be not a competent witness—at least not in Justice Truax's court. An attempt to introduce it was summarily squelched by the Justice in Special Term, of the Supreme Court, last month.

The case on trial when the ruling was made was that of Sauer against the New York Central Rail road.

Mr. Sauer is a member of the Park Avenue Property Owners' Association, which comprises ninety per cent. of the owners of property on that avenue between 116th street and the Harlem River.

His suit is a test case involving about sixty more suits. He claims damages from the railroad company on the allegation that his property has depreciated in value by reason of the construction of elevated tracks from 116th Street to Harlem River, which shut out light and air and produce an unbearable noise.

Unknown to the officials of the company the property-owners of Park Avenue had a number of graphophone receivers erected at various points along upper Park Avenue. The receivers were planted at the 125th Street Station upon the Avenue, and in the houses owned by the association.

Before the case was called last month the graphophones were tested in the offices of James C. Busbey, counsel for Mr. Sauer, and were found to give a very faithful reproduction of the noises made by the trains.

The graphophone apparatus was fitted with a megaphone or wide mouthed trumpet, and the noise it made was deafening.

The graphophones were in court last month when the case was called for trial. So were Electrician Goudge and several other experts, who were to testify that the graphophones were those which had been "planted" along Park Avenue.

When Attorney Busbey offered the graphophones in evidence, counsel for the railroad immediately entered a vigorous objection.

"Take those things right out of here," shouted Justice Truax, who evidently wasn't at all pleased with the tender of evidence.

Mr. Busbey noted an exception and the dumb witnesses were carried away.

It is probable that the graphophone company will endeavor to get a test case on the admissability of their machine as evidence before higher courts

Popular Science

How It Feels to Be Telephoned Through

There is only one man in the world who has been telephoned through. He is Torger O. Ende son, a swede of Rock Dell, Olmsted County, Minn.

He held the ends of a telephone wire while people several miles away talked through him. The electric current knocked him down, but he held bravely to the wires, and the remarkable experiment was a complete success. His performance has attracted wide attention among scientific men. Here is the first account that Mr. Enderson has ever written concerning it :

"To the Editor.—I believe that I am the ouly man in the world who was ever talked through. It is a strange experience, and one that I do not care to duplicate. Although it occurred very recently, it seems to have attracted the attention of scientists, and I have received a number of inquiries from them.

"I was getting ready to go and fix up the tele phone wire which seemed to be broken somewhere between Rock Dell and Hayfield. These two towns are seven miles apart, and we could not get a message through at all. The electricity would not work, or the wire was broken, or something was wrong, and as nobody knew what it was, we had to investigate. We suspected it was a broken wire, and so J. W. Lundale, the operator at Rock Dell, asked me to go out and find the trouble. If it was a broken wire, he said, he wanted me, when I got to the place, to take hold of the two ends so that he could send a message through me.

"You see, he wanted me to be the connection between the two broken ends of the wire. You know, when you talk through the telephone it ain't the sound wave from your voice that goes over the wire, but it is an electrical vibratiou. So it was this electrical vibration that was to go through me. I was afraid to try it, but Lundale told me that there would not be any danger at all, and so I said I would, provided it was a broken wire that caused the trouble. Lundale and I set our watches at the same time and started out to hunt up the break. It was a sure enough break, and it happened about three miles from Rock Dell.

"I looked at my watch after I got to the broken wire, and found that I had forty minutes to get ready to be the connection. I made a loop on each end of the broken ends of the wire, so I could get a good hold, and there would be no mistake about the connection being all right. I had not gone alone to this place, as there were four men with me —Yorkel Jorgenseon, Martin Hansou, Cyrus Rierson, and Audrew Olson. After a while it got to be the time when I had agreed with Lundale to try the experiment. I took hold of the loops and Martin Hanson held the watch. Then Lundale called up Hayfield, the call for which is two rings. I could feel in my body what station was called. If somebody had hit me on the head twice when Lundale called Hayfield it would not have been any plainer to me.

"Hayfield did not answer at first, and Lundale called it up three tiues. The last time was too much for me, and I fell to the ground, losing hold of one wire. I was not hurt any, only just knocked down, and I grabbed hold of the wire that I had dropped. After a couple of minutes Lundale called up Oslo. I could feel the five short rings for that place, just like five thrills going through me.

"After a little while Lundale called up Dodge Center by three rings. It was pretty hard for me, but I stood it, for I had made up my mind that I would not give in just as long as I could hold myself together, but when Lundale gave Austin a call he rang me down as flat as a pancake. I never did know what the Austin call was, but I think it takes a pretty good long ring to get the town.

Even this did not hurt me, so I got up after a minute or two and took hold of the ends of the wire and made the connection for the answer from Austin. I managed to hold out uutil the time Lundale and I had agreed that I was to hold the wire was up. Then I fixed the wire, and we all went back to Rock Dell. When I got back to Dell Lundale told me that while I was holding the wires he got an answer from Oslo, which was seven miles away. He had also a talk with Dodge Center, which is twenty miles from the Dell. He had quite a talk with Austin, forty miles away, but he did not hear from Hayfield, which, I believe, was because the operator at that place was not there when the call came. There is no reason why he should not have answered if he had heard the ring.

"I cannot say that my experience as a means of connection of telephone wires hurt me any to amount to anything. Of course, the electricity jerked my muscles terribly. I seemed to suffer the most in my arms, particularly in the arm that was holding the broken wire that ran toward the Dell. All the while the talking was going on I felt hard shocks in my chest, but I can hardly explain how it really felt. Just the same, if anybody is thinking of trying the same thing who has not very strong nerves, they had better take my advice and give the idea up.

"You see, it does not make any difference how strong a man is; if he has not got good nerves electricity does not agree with him. I've had lots of little shocks in fixing telephone wires, but they never have made me lame or anything of that kind before. It seems to me that there must have been a mighty powerful current of electricity passing along that wire when I acted as the connection. I remember at a fair once taking hold of the handles of one of those machines that they give you electric shocks with, and that made me feel just a very little bit like I felt when I was holding those broken wires. Besides the pains in my chest and in my arms, I felt just as if somebody was pricking me a little all over, and then as if in some way or other they had been able to grab hold of my nerves and give them little pulls.

"I am not at all nervous, and it takes a good deal to startle me, so I was not scared at all while these things I have written about were going on. It never seemed to me that as long as you were careful there was any danger in letting a little electricity into you. It all depends on how you do it. I thought of all those things when I was holding these wires. When it came so fast that it knocked me to the ground I thought it was getting sort of strong, but I did not feel there was any reason for me to be frightened.

"T. O. ENDERSON."

Mr. Enderson's experience was certainly most remarkable. That he was able to endure the continued shocks and be none the worse for acting as a conductor for a tremendous current of electricity falls little short of marvelous. It is no exaggeration to say that ninety-nine persons out of a hundred would have nearly died had they grasped the ends of the broken wires. These wires were not exactly what are known as live when broken, but immediately the connection was formed, and the telephoue put into use, they practically became so.

The facts stated—and there is no question about their accuracy — dispel some greatly cherished theories. In other words, no one knows exactly how much electricity a man can stand without producing death.—*Chicago, Ill., Inter-Ocean.*

A proof of the remarkable case with which dry coal dust may be brought to ignition, even by exposure to the sun's rays, and also an explanation of many a fire at similar surface buildings in collieries and elsewhere, in which timber covered with coal dust may be in intimate connection with heated metal plates, has been offered in a German colliery. The surface works of the colliery are made chiefly of iron, the galvanized corrugated sheets which form the walls of the building being supported by strong iron girders. It became necessary to repair a pipe passing through one of the sheets forming a wall facing the south. A mechanic, on going to remove the layer of coal dust from a girder close to the sheet, burned his hand. The official inquiry showed that the layer of coal dust, which contained a large proportion of pulverized rock, had become ignited along the whole length of the metal wall. The heat of the sun had struck right through, and the coal dust, as was proved by the layer of white ash on the top, had been burning for a considerable time.

Successful Inventions

The most notable exhibit at the Food and Industrial Exhibition in the Grand Central Palace and American Institute Fair, Madison Square Garden, this city, was the display made by Hamerschlag & Co., the well known manufacturers of patented electrical specialties. This firm are electrical contractors

and dealers in electrical supplies of every character. The principal feature of their display at the food show was the marvelous device invented by A. Hamerschlag and known as the Cathoscope, which has proved itself the most perfectly developed of the Roentgen or X-ray Machine. This apparatus shows the true inwardness of man in a remarkably plain

and distinct manner. It is being used in innumerable cities by Exhibitors, Physicians and the Scientific Fraternity, and being protected by patents, offers a lucrative field for investment as its money earning capacity is far larger than that of any machine in the world of equal cost. It attracted much attention at the show and excited the wonder of others.

Answers to Correspondence

We have had many inquiries relating to the cause and result of the late legal trouble between the Phonograph and Graphophone Companies. We print the claims of both concerns as put forth in circulars issued by their parent companies of the rival parties during the recent controversy. We are pleased to say, however, that the trouble has been amicably settled, and both concerns are now working for the general interest of the talking machine.

AMERICAN GRAPHOPHONE COMPANY,
WASHINGTON, D.C., October 15, 1896.

The American Graphophone Company owns the fundamental patents which created and cover the talking-machine art as it is known and practiced to-day; and every so-called "Edison Phonograph," unless it indents on tin-foil, infringes these patents. All of the so-called improved Edison Phonographs manufactured in 1889 were made under a license from the Graphophone Company and paid the Graphophone Company a royalty until Jesse H. Lippincott, President of the North American Phonograph Company, became brankrupt. Since then suits for infringement, injunction, accounting, etc., have been vigorously pressed against the Edison Phonograph Works, the United States Phonograph Company, the Ohio Phonograph Company, the Kansas Phonograph Company, the New England Phonograph Company, and others. Already several judgments have been entered in our favor, the latest being against the Receiver of the North American Phonograph Company, who voluntarily submitted to an injunction and paid damages.

The suit against Edison, the United States Phonograph Company, and others was argued in September, 1896, before Judge Green in the United States Circuit Court in Trenton N. J., although the defendants did everything in their power to retard trial, and or a time succeeded in postponing a hearing by urging upon the court that no phonographs had been made since 1889, and that they were doing substantially no business.

Shortly after final hearing Judge Green died suddenly, leaving the case undecided. This delay has emboldened the infringers, and they are now reembarking in the business with a hastily-constructed type of phonograph, some of which they hope to market before another judge can rehear and act upon our suit, leaving the purchasers of these machines to settle with us. We are pressing the matter with all possible haste in the courts, and meantime give public notice that every individual, firm, or corporation who sells or uses the so-called Edison Phonograph, or appliances therefor, does so unlawfully and will be *legally accountable* to this Company in damages.

AMERICAN GRAPHOPHONE COMPANY,
E. D. EASTON, President.

NATIONAL PHONOGRAPH COMPANY.
ORANGE, N. J.

Our attention has been called to a circular letter dated October 15, 1896, and signed and distributed by the American Graphophone Company, warning the public against the use or sale of Edison phonographs and appliances.

It is generally known and beyond dispute that Mr. Edison, and not the Graphophone Company, invented the phonograph. Most persons and concerns interested in the talking machine enterprise understand the controversy between the two interests too well to be misled by the Graphophone Company's reckless statements.

As to the Graphophone Company's claim, that its "fundamental patents" created and cover the talking art, it seems sufficient to call to mind the dismal failure which met the graphophone, made some years ago under those patents—a failure which continued up to the time the Graphophone Company appropriated the Edison improvements which made the phonograph a success.

The entry of the "several judgments" in the Graphophone Company's favor, as referred to in the circular letter, was upon consent and in no wise affected the merits of the Graphophone Company's patents. Particularly is this true as to the decree against the Receiver of the North American Phonograph Company, which was consented to in order to expediate the distribution of the assets in the receiver's hands. The Graphophone Company has never yet obtained a judgment at final hearing and upon a full showing of the facts. It did obtain, in Chicago, a final decree upon two of its claims, but this case was tried on affidavits, and not on the customary oral evidence, and the whole case was manifestly so incomplete that on November 10, 1896, the United States Circuit Court for the Southern District of New York refused to follow the Chicago decision, and denied a motion made by the Graphophone Company for preliminary injunction under the same claims.

The Graphophone Company has never sued Mr. Edison nor the Edison Phonograph Company, as stated in its letter to the public. One of the suits argued before Judge Green in September has been pending nearly four years. If the Graphophone Company had had any confidence in its patents this case would have been tried and decided long ago.

Suits are now pending against the Graphophone Company's factory and selling agents for infringements of the Edison patents on the phonograph improvements which the graphophone was forced to adopt to keep before the public. We believe that a decision on these suits will set the present controversy at rest for all time. Then the only persons or concerns "legally accountable" will be handlers of graphophones who have invaded our patent rights in the Edison Phonograph.

NATIONAL PHONOGRAPH COMPANY,
W. S. MALLORY, President.

X-Ray Items

X-ray of a Woman

What is in many ways the most remarkable achievement yet in X-ray experimentation, and certainly in X-ray photography, has just been accomplished. Ever since this new science came into notice experts in every country have been hoping to be able to get a skiagraph, or X-ray photograph of the entire body of an adult, made with one exposure. This has at last been done, and by a New Yorker, Dr. William James Morton. The negative, of course life size, of a woman five feet four inches in height has just been developed, and is very nearly perfect.

The film or plate is six feet long by three feet wide; and on it stands out clearly and distinctly the framework of bone of the woman's body, with all its joints; the casing of flesh, indications of rings, bracelets, hairpins, shoes and garters, and even more interesting yet, lines and markings that show the folds and texture of her dress just as it rested when she lay on the film with the Crookes tube suspended on a bracket over her. It took half an hour's exposure to make this negative, and the result gives the body in perfect detail, except that the hips are very faint, and the film needs to be held in certain lights to make them plainly visible.

Dr. Morton has been planning this scientific coup for some time, and realizing its difficulty, devised new apparatus for it. But without any technicalities about it, the scientific point Dr. Morton got over was this:—Ordinarily, in X-ray photography the source of the X-ray (or the Crookes tube) is about a foot away from the film or plate, with the object in between. To "skiagraph" an object of the size of a grown man or woman, however, the light must be much further off. Otherwise the shadow the object makes would be indistinct, exaggerated and wholly inaccurate. Dr. Morton found that to get a perfect shadow corresponding to the actual outline of the body it would be necessary to have the Crookes tube four and a half feet away.

The law of radiography and skiagraphy is that the intensity of the X-ray diminishes inversely to the square of the distance. That is, it is twenty and one-quarter times as difficult to take a picture at a distance of four and a half feet as it would be at a distance of one foot.

To arrange this Dr. Morton had a Crookes tube especially constructed for the occasion. An Eastman film was used for the complete experiment. This was stretched on a board lying on the floor and had been covered with three layers of black paper to prevent ordinary daylight striking it.

Flat upon it the subject was laid, upon her back, fully and completely clothed, care being taken even that her dress covered her shoes. Four and a half feet above the floor, suspended over the subject on a long armed bracket and midway between her head and feet, was the Crookes tubes. It was an induction current of high potentiality that fed this, and an interesting fact is that it was precisely the same current as Dr. Morton makes use of in all his experiments in this field, the additional intensity of the X-ray being gained by the improved mechanism of the tube.

When developed after half an hour's exposure it was found, as has been said, that the negative was perfected in all parts except the hips. Fifteen minutes, more exposure would have made these come out very clearly and the balance of the film would not have been injured at all. As it is, it is quite possible to distinguish the complete outline of the spine (it must be remembered the woman was lying on her back), the heart, stomach cavity and collar bone.

In the photograph the most interesting points to any one not a scientist are the clean cut and beautiful outlines of the bones of all four limbs, the feet and the hands, with the flesh surrounding them. The figure stands out a sort of ghostly white as the huge film is held up to the light, the background being black. In this white figure the bones are clearly defined in a sort of tint, which varies, as the bones do themselves, in penetrability to the X-rays. The science of this is that the bones, being less penetrable than the flesh, cast a sort of shadow—intercept, in part at least, these strange rays.

The coil of hair shows distinctly, and a dagger pin and a bunch of hairpins stuck into it. Two diamonds in the rings are indicated plainly by white spots, while the gold bands are dark, showing that the rays passed through the gems and were obstructed by the gold. As regards the shoes, not only the nails stand out clearly, but also the lacings of metal.

Before Dr. Morton proved that the taking of a radiograph of an adult in one exposure was possible the nearest that any one had come to it was to take the human body in sections (five or six exposures) and, having made prints, to piece them together into some sort of skeleton.

One use to which X-ray photography may be applied to the advantage of the archæologist will be in determining the composition of mummified remains, which it is claimed are now in many cases manufactured by skilled workmen and palmed off on the eager enthusiast as relics of antiquity. The application of the X-rays speedily determines whether these remains are manufactured or are *bona fide*.

New Films for "Screen" Machines

HI HENRY'S MINSTRELS, marching up Broadway.

CONGREGATION LEAVING ST. THOMAS'S CHURCH, Easter Sunday.

LEAVING THE CATHEDRAL, on Fifth Avenue, Easter Sunday.

THE PROMENADE ON FIFTH AVENUE, Easter Sunday.

A BOAT RACE ON THE HARLEM RIVER.

RIVERSIDE DRIVE.

TRAIN SCENE AT ORANGE. Showing Mr. Bryan addressing a crowd of people from the rear platform of a moving train.

OPIUM DEN. Depicting the interior of an opium Den.

DRINKING SCENE (Reversible). This subject is one of our first films made to show action reversed while running film through machine in the regular way Instead of showing two parties advancing and shaking hands, they shake and back out of room, beverage spilled from bottle, gathers itself up from the floor and jumps into the bottle, which rights itself on the table, etc. Other ludicrous effects are produced.

KISSING. By a loving couple at Coney Island. This subject promises to rival "May Irwin's Kiss" in popularity. Everybody wants it.

WINE GARDEN. A scene at a noted German wine garden in Harlem, showing a number of people seated at tables drinking, smoking and playing cards. Incidentally there is a lively flirtation going on between a pretty waitress and one of the guests.

HAPPY FAMILY. A companion subject to "Family troubles," "Papa" comes home and instead of smashing furniture, etc., he makes himself very agreeable. His good humor is hugely enjoyed by the rest of the family. Excellent subject, which appeals to all.

TALLY-HO, the Departure.

TALLY-HO, the Arrival. The above two scenes were also photographed at the Buffalo "Country Club." The first shows the four-horse drag leaving the club house, the occupants waving adieus to friends at the house. The second shows the same jolly party of coachers driving up to and alighting at the club house entrance. Of the two, the latter is somewhat the more attractive subject.

THE ENGLISH DERBY. This interesting and most popular event is photographed on film strips, about 80 ft in length, and will fit any projecting machine using standard gauge film.

BOAT RESCUE. Three small boys, chased from a dock, jump into the river and are rescued by a passing rowboat.

The Following Subjects Are Taken From The Grant Memorial Ceremonies.

U. S. NAVAL RESERVE.

THE OLD GUARD. This Picture shows Gov. Hastings of Pennsylvania.

BATTERY OF U. S. ARTILLERY.

RECEPTION OF PRESIDENT McKINLEY, at the 23d Street Ferry, N. Y. The above films are all clear, sharp, full of detail and produce unusually fine pictures when projected.

New Records for Talking Machines

The following list of new records has been compiled from lists sent us by the leading talking machine companies of the United States

A Hot Time In the Old Town To-night. Myers
Armor de Madre. Mexican Trio
Arrah Go On. Hunting
At the Fair, Galop. Columbia Orchestra
Banjo Duetts. Diamond and Curry
Bonny Doone. Æolian Trio
Casey as Auctioneer. Huntiug
Come Play With Me. Quinn
Come, Send Around the Wine. Myers
Crappy Dan. Spencer
Dancing in the Dark. Sousa
Dancing in the Sunlight (Xylophone). Lowe
Dancing on the Housetops. Issler
Dear Little Jappy, Jap, Jappy. Quinn
Dio Possente, from opera Faust
Departure from the Mountains. Schweinfest
Don't Tell Her that You Love Her. Gaskin
Down in Hogan's Alley. Quinn
El Capitan March Song. Quinn
El Curru. Mexican Trio
Eli Green's Cake Walk. Quinn
Emmett's Lullaby. Quartette
Erin, O Erin. Myers
Eve and Her Pal Adam (Banjo accompaniment). Paine
Fly Song (Chauncey Olcott's). Myers
From the Hour the Pledge is Given. Myers
Girl With the Naughty Wink. Quinn
Graee O'Moore. Gaskin
Handicap Rider I67. Quinn
Handicap March. Diamond and Curry
Hiram Wilkins on Superstition. Hunting
Hiram Wilkins's Girl Hannah. Hunting
Hot Stuff Patrol (Banjo). Ossman
I Love One Love. Æolian Trio
Isn't It Nice to be in Love. Quinn
I Want Yer, Ma Honey (English). Mlle. Yvette Guilbert
I Want Yer, Ma Honey (French). Mlle. Yvette Guilbert
Jus Qu La. Quinn
Kate O'Donoghue (Chauncey Olcott's). Myers
Katheriue (Yodle). Pete LeMaire
King Carnival March, Diamoud and Curry
Laugh and the World Laughs With You. Myers
Laughing Song. Geo. W. Johnson
Lesson iu Music. Signor Frejoli
Lulu Song. Spencer
Mamie Riley. Quinn
Maybe Mary Didn't See New York. Myers
Medley March. Diamond and Curry
Medley Reels (Banjo Solo). Vess L. Ossman
Monastery Bells (Orchestra Bells). Lowe
My Little Chorus Girl. Quinn
Nineteen Jolly Good Boys All In a Row. Myers
One Heart, One Mind (Xylophone Solo). Lowe
Pasage dans Izeyl. Mme. Sarah Bernhardt
Pasage dans Divoreons. Madame Regane
Pretty Blue Eyes. Æolian Trio
Pretty Molly Dwyer. Quinn
Say, Are You Single? Huuting
Sounds From Home (Orchestra Bells). Lowe
Spanish Dance (Banjo Solo). Vess L. Ossman
Sweet Inniscarra. Gaskin
Stephanie Gavotte (Zither). Wormeser
The Old Fashioned Mother (Chauncey Olcott's). Myers
Victor Hugo (Un peu de Musique). Mme. S. Beruhardt
Yankee Doodle (Banjo Solo). Vess L. Ossman
Yer Baby's a Coming to Town. J. T. Kelly
You're a Good Daddy. Gaskin
You're Not the Only Pebble on the Beach. Lottie Gilson
You're Not the Only Pebble on the Beach. Spencer

GRAMOPHONE RECORDS

Chin, Chin, Chinaman. Quinn
Handicap March Song. Quinn
Honey O. Gaskin
Love's Old Sweet Song. Gaskin
Medley of Jigs (Banjo Solo). Clements
Mixed Ale Party. Billie Golden
Mocking Bird Whistle. Billie Golden
Morning On the Farm. Maurice Forkon
Oh, Uncle John. Miss Maud Foster
Past and Future. Herbert Holcombe
Rastus On Parade (Banjo Solo). Clements
Rock of Ages. Herbert Holcombe
Southern Reels (Banjo Solo). Clements
The Bowery Girl. Miss Maud Foster
Then Give Us a Drink, Bartender. Quinn
The Midshipmite. Myers
Tommy Atkins (with Trumpet). Gaskin
What do You Think of Hooligan? Quinn
What Is the Gramophone? Geo. Graham

The Latest Popular Songs

The following is a list of the very latest popular songs published by the leading music publishers of the United States

A Diamond in the Rough. Safford Waters
A Dream of My Boyhood Days. Dresser
Ah, Could It Be! F. Ryan
Ain't I Your Honey Boy No More? G. L. Davis
Alma, Dear. E. A. Couturier
A Mother Never Can Never Forget Her Boy. Chrs. Miller
Back to His Childhood's Home. William Slafer
Belle of Avenue A. Safford and Waters
Belle of Hogan's Alley. James J. Blake and M. Bernard
Best Sweetheart of All. Will C. Carleton
Black Four Hundred's Ball. Billy Johnson and N. D. Mann
Breaking Home Ties. Joseph Hart
Casey's Dog and Traeey's Cat. Joseph Hart
Chimmie Fadden and the Duchess. L. A. George
Chippies on Broadway. Cooper and Francis
Cooehy Coochy Coo (Negro Comic). M. S. Fitzpatrick
Cycling Song. M. R. Knapp
Daisy and Nell (The Twins). W. A. White
Darling Paree Girls. Ilda Orme
Day Will Come. E. Selden and E. Holst
Dear Old Frieuds. Lindsay Lenox
Dilly Dally. Mays and Hunter
Dreams of My Own Land. Douglas Dean
Drummer's Dream of Home. Charles Robinson
Eli's Cake Walk. Reed and Kominsky
Ever Since Then. Scott and Orme
Handicap, Vocal. D. Reed
He Brought Home Another. Paul Dresser
He Fought For the Cause He Thought Was Right. Paul Hugh McCue. Cohan
Hurrah For a Life at Sea. J. C. McCabe
Hush Yo' Business! Oh, Go On! Midgley and Levi
Honey, Does You Love Yer Man? Ford and Bratton
I Don't Blame You, Tom. May
I Love You, Malinda. Al. B. Schultz
I'm Lonely Since My Baby's Gone. Barry Emerson
In the Baggage-coach Ahead. Gussie L. Davis
I Only Know I Love Her. Geo. Hassell
King Carnival, Vocal. D. Reed, Jr.
Love's Battle. Al. B. Schultz
Maggie Maguire; or, As Soon As I Buy a Home. W. Gray
Maloney's Leg. Joe M. Sparks
Mamie Reilly. Maude Nugent
My Gal is a High Boru Lady. Fagan
My Handsome Jim. Abeles and Witt
My Heart, Kathleen, Is Still Your Own. Chas. Graham
My Image In Thy Soul. Chas. Graham
My Little Chorus Girl. William F. Gould
Oh, Aunt Jane. Isaac G. Reynolds
Old Jim's Christmas Hymn. Wm. B. Gray
One New York. Safford Waters
On Sunday. Flynn
On the Benches In the Park. Thornton
Pat Malone Forgot that He Was Dead. Carroll
Pebbles On the Beach. Mann & Starr
Petticoat Lane. John and Harry Dillon
Ridin' on the Golden Bike. Petrie Music Co.
Rootie Tootie. Geo. F. Golden
Send Me a Picture of the Old Home. Fitzgibbons and Arnold
She Might Flirt with Others. Dave Marion
She's Only One of Many. Charles Miller
Since Mary Harris Went to Paris. Wm. B. Gray
Sweet Rosie O'Grady. Nugent
Take Back Your Gold. Monroe H. Rosenfeld
Ta Rum Pa Tum Tum. Ilda Orme
Tell Her That We Love Her Just the Same. A. J. Lamb
That's When You Learn to Love Them More and More Lawlor and Blake
The Angel of Sunset Rock. Chas. Graham
The Belle of Hogan's Alley. Bernard & Blake
The Battery. Evans and Dresser
The Black Four Hundred Ball. Billy Johnson
The Jolly Girl From Gay Paree. Charles Coleman
The Love for His Dear Ones. Al. B. Schultz
The Man In the Moon Is a Coon. Geo. M. Cohan
Then the Pipe Went Out. J. G. Reynolds
The Real Thing. Arthur Lamb
Time Will Tell. Harry S. Miller
When it is Love at First Sight. Mack
When it's a Boy. Goodwin & Morse
When She's Just About to Fall. Cy Worman
Will You Love Me, Sweetheart, When I'm Old? Lamb
Won't Somebody Give Me a Kiss?
Won't You Let Me Stay a Little Longer? Quimby
Would You Ask? Smith
Yankee Girl In Gay Paree. Ilda Orme
Yes, I Love You. R. M. Stults
You'll Be Sorry When I'm Gone. Monroe H. Rosenfeld
Your Ticket Is Not Good To-day. Chas. Graham

Wants and For Sale

Special "Want" and "For Sale" advertisements will be inserted in this column at the uniform rate of three cents a word, each insertion. Answers can be sent in charge of "The Phonoscope" if desired. All letters received will be promptly forwarded to parties for whom intended, without extra charge.

FOR SALE.—4 Edison Kinetoscopes, also 11 Nickel-in-the-Slot Graphophones (cheap). Address The Empire State Phonograph Co., 76 University Place, New York.

FOR SALE.—14 way Edison Class M, Exhibition Phonograph, including tubes, horn, battery, 25 good records and 25 blanks, almost new, must sell at once. Address J. T., care of Phonoscope, 4 East 14th Street, N. Y.

FOR SALE.—10,000 New Rubber Storage Battery Jars; various sizes; very cheap. Write for prices. Walsh's Sons & Co., Newark, N. J.

FOR SALE.—Great bargain. Six Edison Standard Kinetoscopes in excellent condition; cost $350 each. Great opportunity for man with small capital. Address Kinetoscopes, 23 South 8th Street, Philadelphia, Pa.

FOR SALE.—A First-class Duplicating Machine, also new and second-hand Talking Machines, Kinetoscopes, Batteries, Films, Records, Tubing, etc., etc. Address E. B., care of Phonoscope, 4 East 14th Street, New York.

FOR SALE.—300 Standard Edison Reproducing Sapphires, all new; perfect and made from the block sapphire; taken in trade. Price, in 50 lots, 50 cents each. Address International Film Co., 3 Mission Place, N. Y.

Exhibitors' Directory

Kaiser, John,
Care of "Phonoscope"
4 E. 14th Street, N. Y.

Gladden, M. C.,
Lowell, Mass.

Greenacre, George,
Bangor, Maine

Thayer, Frank,
Waterloo, Iowa