## IN THE FIELD OF ELECTRICITY

New System of Light Developed by a New York Inventor.

GREATER INTENSITY AND ECONOMICAL

Experiments with Sleeping Cars on Trolley Lines-Teala's Long Island Plant-Developments on Other Lines.

Peter Cooper Hewitt of New York has perfected a new system of electric light designed to supersede the are and incandescent now in common use. The new method has been discussed by New York electricians, but the details of the principles of the invention have been withheld pending the issue of patents applied for. These were granted recently, and the inventor has revealed his secret. In an interview in the New York Tribune Mr. Hewitt gives an extended account of his invention. What he undertakes to do is to render luminous by electricity a varpor or gas confined in a glase tube. In several ways his lamp differs from the familiar Geissler or Crookes tube. For instance, he finds that he can use an ordinary direct current of low voltage, like that which operates the Edison lamp, to produce the desired effect, whereas the X-ray tube requires an alternating (or at least an inter-mittent) current of very high voltage. Again, Mr. Hewitt succeeds in producing a light of great intensity, which is impossible with the apparatus with which his lamp is here compared.

The great merit which this system of lighting possesses is its economy. The ordinary are light gives a candle power for every watt and a baif of electric energy consumed. The incandescent lamp takes from three and a half to four watts for each candle power. Mr. Hewitt's mercury vapor lamp does not appear to need more than half a watt for each candle power. and the inventor last winter thought that he succeeded with a third. Hence the mercury system is three or four times as economical as the are light, and ten or twelve times as economical as the incandescent lamp. With nitrogen the advantage is not so conspicuous.

Mr. Hewitt thinks that his lamps will be suited to both indoor and outdoor service. A U-shaped tube about twenty inches high which he exhibited last week had an estimated brilliancy of 1,200candle power, but it is possible to make much smaller ones, which would be adapted to household and office use.

Although the researches which have borne this fruit have extended through a period of four or five years, Mr. Hewitt does not regard them as finished. His lamps might be introduced at an early day, but he is likely to give further study both to the sultability of the various vapors and gases which it is possible thus to utilize, and to certain mechanical details of the lamp construction. The inventor speaks in a modest tone of his work, and seems to have been animated quite as much by the intellectual delight which he has derived from his investigations as by the practical results and reputation which he was likely to achieve. But disinterested experts speak of his labors in terms of enthusiastic praise.

Trolley Sleeping Cars.

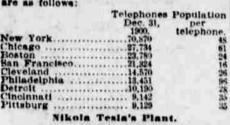
The Baudot multiplex typeprinting teleping the electric purpose of increasing effic

some effort will be made to have our suburban electric lines similarly equipped. These trolley sleepers will be found particularly work for the operators is not more arduous the "power falls" and the car stands sul General Guenther of Frankfort. Ger-'dead' for hours miles from any human habitation. Or when the car is snowbound, in the same eltuation, and the supply of fuel for the stove is soon exhausted, the graphic service. If the Baudot system be passengers need not be under the necessity introduced all over Germany, and, in addiof foraging in the woods for dry sticks and tion, if the quick telegraph of Pollak and risk losing themselves and freezing to Virag be utilized for newspaper telegrams. death, they can rent a berth and go to bed, and if Prof. Slaby succeeds in applying his where plenty of cover will keep them warm. These "sleepers" would be useful, too, not alone in the capacity indicated by the name. They would all be "through" cars, and could only be boarded by residents living beyond "fifty hundred." In the night journeys all citizens who live beyond that boundary invariably go to sleep anyway. because they are accustomed to go to bed at 8 o'clock, and they expect the conductor to see that they get off at the right street. By providing sleeping cars the companies in the suburbs of Baltimore which includes get some return for this service, which is now given gratis, and the suburbanite have a more comfortable nap.

Telephones in Big Cities.

According to a recent issue of the Elec- Dallas, Tex., being built by a Cleveland, trical World and Engineer San Francisco O., syndicate, will be completed by April 1. leads all cities of the United States in the It is thirty-two miles long. A part of the number of telephones to population. With electric line to connect Lexington and a population of only 342,782 it has 21,324—a Georgetown. Ky., has been completed and total only surpassed by New York, Chicago all of the contracts let. and Boston. It has a telephone for every sixteen inhabitants, whereas Philadelphia Petersburg, Va., is nearly completed. In has only one for every ninety-six

The cifies having 9,000 telephones or over are as follows:



One of the most important undertakings ever entered upon on Long Island is the establishment of the power and signal station of Nikola Tesla, the Austrian electrical wizard of world-wide fame. Mr. Tesla has purchased about 1,500 acres of land near Warden Cliffe, comprising a large stretch of hills and valleys, wooded bluff and fine beach, where he proposes to establish his great works, from which he will place himself in communication with the most distant parts of the civilized world. He has just finished his first building, a one-story brick and iron structure, ninetyfour feet square. A laboratory and other buildings are also being creeted and much of the plan is to be completed this month. Two fifteen-horse-power botters and a 250horse-power engine are now being installed, and the largest dynamo ever made, a machine of his own design. The current generated will be forced into receptacles of the inventor's own designing and thence into the earth.

Mr. Tesla proposes, through the earth as conductor, to send messages to all parts

immediately commence the work of excavating the world. Besides putting into effect his system of wireleass telegraphy, the inventor hopes soon to give the world a commercial commodity, a new system of filumination by diffused light.

Novel Auxiliary Battery.

A novel auxiliary Battery.

A novel auxiliary Battery.

A novel auxiliary use for an electric automobile was discovered by one of the proprietors of the Scientific American the other night at Stratford, Conn. Going to evening service at the local Congregational church, he found the assembled brethren "phased" by the sudden withdrawal of the electric current, owing to a breakdown of the scurce of public supply, thus leaving the church in darkness. The owner of the electric vehicle at once ran it under a window in the rear of the church, near where



one by means of the Baudot system. The

operation is said to be uninfluenced by

many: "The new successes in quick and

multiplex telegraphy will create a peculiar

situation for the administration of the tele

discoveries concerning multiplex-spark te-

legraphy to ordinary wires, then it will be

only a question of a short time when the

existing telegraph business will hardly keep

Electric Activity in the South.

reports received by the Manufacturers' Rec-

ord of Baltimore. A company has been or-

ganized to build another extensive avatem

The electric line between Fort Worth and

The electric line between Richmond and

A comparison of the mileage of telegraph

lines and wire in operation in the United

States and Europe is interesting, says the

Western Electrician. The Western Union

Telegraph company has 192,705 miles of line

and 933,153 miles of wire; the Postal Tele-

graph-Cable company has 29,882 miles of

line and 184,933 miles of wire in the United

States. This makes a total of 222,587 miles

of line and 1.118,086 miles of wire. Accord-

ing to the latest statistics of the interna-

tional bureau of Berne, Switzerland, there

is in all Europe 425,600 miles of line and

1,585,267 miles of wire. The United States.

therefore, possesses over one-half as much

line as all Europe and over two-thirde as

much wire In comparing the mileage of

wire to population. America has one mile

of wire to every seventy-seven persone;

Great Britain and Ireland has one mile to

every 130 persons; Belgium, one mile to

every 321 persons, and Switzerland has one

mile to every 222 persons.

struction in the south is indicated by

Philadelphia and Baltimore parties.

The activity in suburban railroad con-

all the lines busy.

Only the Truth Can be Told Over and Over Again.

The Cardul story is being told every day to thousands of suffering women who fly to this great remedy for relief. Over 1,000,000 suffering womenwomen who have been invalids for years—women whom doctors could not relieve—women who had given up in despair have been cured by the simple vegetable emmenagogue. Wine of Cardul. From all over this country come letters from cured women, praising Wine of Cardul. There is no mystery about the relief. A \$1.00 bottle purchased from your druggist and taken privately at home will benefit the worst case of female troubles. Read what a few women say of Wine of Cardul. The truth is the only thing that can be corroborated by so many witnesses.

Murphy Bayon, Miss., June 20, 1901.

I was suffer ng with female weakness, but after taking Wine of Cardui and Thedford's Black-Draught I have no trouble at all. I sincerely believe it is the best medicine I ever used.

LIVINIA GRAY.

Selma, Ala., June 15, 1901.

I have taken Wine of Cardui and Thedford's Black-Draught and they have done much good. It is the best medicine I ever took.

Mrs. HENRY BANKS.

Dothan, Ga., April 7, 1901.

I have used Wine of Cardui with auccess and cannot say too much for it. It is worth its weight in gold to me. I only used it six days, but I would not be without it at all.

Mrs. JOSEPH F. BAKER.

Infourche Crossing, La., June 18, 1901.

I feel it my duty to write and is you know that I have taken Wine of Cardui and Thedford's Black-Draught and I am now well.

ELLA V. NELSON.

Cunningham, Wash., March 22, 1901.
I use your Wise or Cardui in my family and have used it for eight years. I recommend your medicine to all that are in need of medicine.

Mrs. R. Q. TEAGUE.

Wakefield, Kan., March 27, 1901.
Wine of Cardul has helped me. The menthly pains are gone. I have used two bottles of Wine of Cardul and one package of Thedford's Black-Draught.

Mrs. ALBERT LUTHI.

Eims, Iowa, May 1, 1901.

I take pleasure in recommending Wine of Cardul and Thedford's Black-Draught. I have used it three months and it has brought me great relief.

Miss NELLIE HILLIARD.

Belva, Okla., March 22, 1901.

I have used Wine of Cardui and Thedford's Black-Draught for the past year and they have cured in of those terrible headaches that I used to suffer with.

Mrs. HILDEBRANDT.

McDonald, Tenn., May 2, 1901.
Wine of Curdui has done me more good in two months than three doctors did in seven years.

Mrs. IDA BAKER.

After my baby was born I was not strong. I did not feel like doing my work. After taking Wine of Cardui I am now in better health than I was for a long time. Mrs. EMMA SCHLIEF.

Quincy, Fis., April 19, 1901.
I am more than grateful to you for the benefit! have received from your Wine of Cardui.
Mrs. C. F. CHANCE.

Garretts Bend, W. Va., April 22, 1901.

I have been troubled with "whites and irregular menstruation for four years and one bottle of Wine of Cardui and one package of Thedford's Black-Draught have done me more good than all the doctors.

LIZZIE DUNLAP.

I have tried many different kinds of medicine, but have found nothing to compare with Wine of Cardul. Miss CLAGIE THORN.

Amboy, Ind., May 12, 1901.

lect the Pearls.

MARVELOUS NECKLACE. Twenty-Five Years Required to Col-

Around the neck of Mrs. William F. Dreer, the wife of a prominent merchant of necklace which even Cleopatra would repearls-thirty-seven tiny spheres of radiant. necreous beauty such as no woman in the world has ever before worn. Between the pearls white diamonds glitter, their blazing iridescence reflected in innumerable gleams of light, color and dazzling fire, from the glistening surface of the jewels whose

humble foils they are. To Egypt, and to the imperial Cleopatra, nature gave only the dull gray pearl whose value was its rarity. The pearls in the true lapidary, with the instinct for a

Mrs. Dreer's necklace are the pearls of precious stone which a Cousin Pons had the new world, sought after with indefatig- for a masterpiece, became enamored of able industry the country over for a these strange and lovely pearls. Their quarter of a century, until at last enough opalescent luster, hidden and lost among were found to make this marvelous neck- mud-buried shells in American creeks,

It is the history of expositions that they Philadelphia, is clasped, this summer, a alter tastes and broaden industries. One warm ruby. The pangs of the collector enof the consequences of the centennial of frain from drinking down. It is made of 1876 was that the American pearl revealed its splendid charms to the wealthy of the lands on either side of the Atlantic. Its all their gentle radiance, a bevy of these innumerable varieties of tint, the perfect beauties that nature had perfected. tion of its form and its rarity appealed to jewelers as the discovery of an eighth color would appeal to the artist. Tiffany, in New York, sought and obtained many speci- | "resh spl. ndor and been found and was at mene and they were set with all the exquisite taste the goldsmith's art could com-

mand. A Philadelphia jeweler, who was

felt that he, with his own hand, must hold, some time in his life, bare and naked in Year after year he sought them. Year from Wisconsin to the Carolinas, that some

ue, all putting to shame the gravhess knew and were so proud of. Those pearls

glowed tenderly before his eyes, whether

he handled cerulean turquoise or blood-

tered into the being of the lapidary. He

tints of delicate moss coses came and went and modified the brilliancies as the jeweler moved his hand.

Mr. Dreer, who is a good American hus band, came in one day while the lapidary was happy in his collection. The next day Mrs. Dreer, who is the wise American wife, came inquiring. The lapidary, trom the connoisseur, descended to the tradesman; wedded his virginal pearls to commonplace diamonds, and became \$3,000 richer at a jeweler and thirty-seven globes of fire poorer as a connoisseur.

And Mrs. Dreer nas a new necklace.

Street Railway Companies.

Plaintiff was a passenger on one of dehis command. He called them to him, one fendant's cars and secured a transfer to by one, with the magic of the gold that was anothe, line of defendant, and was directed to be their setting.

by the conductor who issued the transfer.

This summer the longing of a quarter of to take a certain car, the conductor of century of time was repaid by the mo- which informed him the transfer was not ment's joy that attended the completed col- good, and arked plaintiff if he was not golection. In the lapidary's hand there lay ing to get off, and took him by the arm and some thirty-seven pearls, matched perfectly loughly pulled him on to the pavement. in form, each rivaling the other in delicacy Held to justify a verdict for plaintiff. 19

Constipation is the rock that wrecks many had been born beautiful, and all that a lives; it poisons the very life blood. Regjeweler, who was an artist in the soul of planity can be established through the unhim, could bring to them was reverence. of Prickly Ash Bitters. It is mildly ca-The flames of diamonds glittered there: the thartic and strengthens the stomach, liver heat of opals glowed, and even the soft and kidneys.

## That Reminds Me Character Sketches Framed in Current Stories.

leve there is any immediate danger of bolishing the free pass system now in vogue among the railroads. Mr. Denew

pasteboard as a persuader Two years ago the New York Central railroad announced that it would grant no passes to the legislature. A few days after his announcement was made the Messrs Vanderbilt discovered that because of the absorption of the Wagner Palace Car company by the Pullman company they would to renew the licenses for several hundred Wagner cars which had forfeited their license by reason of change of ownership Senator Depew and several other officials vent up to Albany to see if they could not et a bill through the legislature relieving he company of these extra payments. When the matter was broached to one of the most nfluential members of the house he said Work is in progress upon a line which will connect Augusts and Alken, S. C., and will very frankly:

'Senator, this bill will never pass.' "What is the reason?" asked Senator De-

"There are exactly 200 reasons," said the assemblyman. The next day the New York Central rescinded its order prohibiting the issuance of passes to the 200 members of the legisla-

During the battle of Shiloh, relates the addition to these roads the Manufacturers. Cleveland Leader, an officer hurriedly rode Record reports plans to build street railup to an aide and inquired for Grant. ways in Jackson, Ga., Oklahoma City, Cle 'That's the man, with the field glass," burne, Tex., and Shreveport, La. Mileage of Telegraph Lines.

Wheeling his horse about, the stranger rode furiously at the general, and, touching his cap, addressed him thus: "Sheneral, I wants to make one rebort;

Schwartz' pattery is took. 'Ab," said the general; "how was that? "Well, you see, sheneral, der shecessionsts flanked us, and der shecessionists came

in der rear of us, und den Schwartz' pattery was took.' Well, sir, you of course spiked the

"Vot?" exclaimed the German in astonishment. "Schpike dem guns! Schpike dem new guns? V'y, it would spoil dem!" "Well," said the general, sharply, "what

did you do?" "Do? Py tam, ve took dem back again!

Mr. J. H. Stoddart, the veteran actor, who starring in "The Bonnie Brier Bush" at the Theater Republic, New York City, is a Scotchman by birth, as is also Reuben Fax, who plays the bibulous postman in Ian Maclaren's book-play.

Mr. Fax was abroad during the summer and visited relatives in Glasgow. there he heard a tale of two Scots, which he related with much unction to the appreciative Stoddart: "It was after the British had landed a

The Canadian Niagara Power company, which will build a large electric power plant on the Canadian side at Niagara Falls, has awarded the contract for the tunnel and the work is to be completed by January 1, 193, The tunnel will be 2,200 feet in length and 19x21 feet in diameter. It will be bricked throughout the same as the tunnel on the American side. The shaft has been sunk the required depth and the contractor will immediately commence the work of excavating the tunnel. force at Wei Hai Wei, in China," said Mr. Fax, "that two excellent Scots were discussing the war news in the Broomielaw quarter of Glasgow. 'I see, Sandy, mon, thet we ha' taken Wei Hat Wel," said Jock, peering over the edge of his evening paper.

'We hae, hae we? " 'We hae, aye, we hae.'

him suspiciously. 'I'm thinkin' it was a Scot named the toon.'

The hotel coach was filled with a crowd of happy, jubilant visitors and the horses toiled splendidly up the hills, relates Leslie's Weekly. As each eminence was reached and at every turn in the road the crowd would burst forth into cries of wonder and delight at the magnificent scenes which burst upon their view. The mountain Jehu alone preserved a dignity and silence which rather awed the others. At switch key, which no railroad man in serv-

Senator Chauncey M. Depew does not be- length, after a particularly lovely view had fee is ever without. It was sufficient proof been passed, one of the guests at the driver's left hand remarked

"You don't seem to take much interest s something of a railroad man himself in the scenery. No doubt it's an old story and entertains considerable regard for the to you.

The driver shook his head. "No, that's not it," he answered; "I just don't care." Then he leaned a little closer and whispered: "But I knows just how you folks must feel. You all come from a long distance just to see things, and you're bound to enjoy it anyhow, so as to get your money's worth and not feel as though you was cheatin' yourselves. Oh," said this Cullagh was entertaining some visitors driver in a superior tone, "I don't mind it when I upderstand how 'tis.'

A religious old darky had his faith badly shaken not long ago, reports the Memphia Scimitar. He is sexton for a white church in a Fayette county town, and one afternoon, as he was in front, sweeping tho pavement, a strong wind arose, tearing a iece of the cornice off and taking a few bricks out of the wall. Realizing that a Mr. Stevens responded in person. good run was better than a bad stand, the old man sought shelter in the station house on the opposite side of the street. Several minutes later a member of the church of which Uncle Isham is sexton came by and, noticing him in his retreat. remarked that he thought the station house a strange place for a man of faith to seek

shelter in a storm, when a house of worship was near. "Dat's so, but whut's a man gwine ter do when de Lord begins to frow bricks at

Here is a story told by President Roosevelt of an Indian guide who had a natural power of charming snakes. The party, of which Colonel Roosevelt was one, struck a little frontier town where a strolling show was in progress. "We went in," said the colonel, "and found a performer challenging the audience to handle his snakes. The guide at once accepted the challenge and having convinced every one of the perfect there was nothing to be seen more than one harmlessness of the reptiles, produced a number of rattlers from a basket he had with him. The performer incontinently fled! The same guide was a most ardent believer in the redskin tradition that it is an unjustifiable crime to kill a rattlesnake, as it plays fair in giving warning before it strikes. He repeatedly exhibited the immunity of all adherents to this creed by letting a rattler bite his heel!" "What beof him?" asked one of the listeners. Well, he tried to found a similar theory about bears and it didn't work." Colonel Rocsevelt replied significantly. "How so!" 'He went in for a couple of tame bears and then I thought it was time to part from his traveling menagerie, so I got him a job on a ranch we were passing. When I returned I asked after him and they told me that when he went to show that he was immune from bears one of his pets called him a liar and the other fellow proved the truth of his mate's accusation. They kent his meccasins as a memento."

A. J. Cassatt, president of the Pennsylvania railway, was making a quiet tour over one of the branches of the system recently, " 'Hoot mon!' exclaimed Jock, peering at and wandered into an out-of-the-way switch yard, where something one of the yard men was doing did not meet with his approbation. He made some suggestion to the man. who saked:

"Who are you that's trying to teach my business? "I am an officer of the road," replied Mr. Carsatt.

"Let's see your switch key, then," the man, suspiciously. Mr. Cassatt pulled from his hip pocket his key ring, to which was attached the

for the switchman, who then did as he was

Walter B. Stevens, the secretary of the Louisiana Purchase exposition, for which St. Louis is making great preparations, was for many years connected with the Globe-Democrat and was an especial favorite of Joe McCullagh, its chief editor. Since 1883 Mr. Stevens has been a Washington correspondent and was recognized as one of the best of the corps. On one occasion whe Mr. Stevens was in St. Louis Mr. Mc in his office, when the conversation turned upon the difference between men of equal ntelligence in the matter of seeing more than appeared on the surface of common

things. "Why, I have a man in this office," Mr McCullagh declared, "who can beat the world at such a game. I'll show you what He called through a speaking tube an

"Mr. Stevens," said the editor, "I have got to have something to fill about a column and a quarter in tomorrow's paper. I wish you would go out into the street and write up the first thing you come across. Don't stay more than thirty minutes. I need you for another assignment after you are through with this."

At the stroke of the balf hour in walked Stevens with a batch of copy in his hand. "I haven't quite finished that article." he remarked, "but it will take me but a little while more." "Oh, very well," said Mr. McCullagh.

winking slyly at his guests, "but be as quick as you can about it." It was not very long before Stevens re-turned, laid the finished manuscript on his chief's desk, took his further orders and retired, whereupon Mr. McCullagh and his friends examined what he had written.

as the nearest corner, where a new building was in process of erection. Apparently could see in any unfinished building. He was probably the only passerby who stopped and watched proceedings, and he talked with the contractor on the curbstone about the little dummy which was running up down by steam, supplying the bricks and mortar to the masons on the upper ficors.

essay on "The Passing of the Hod Carrier."

Speaking of cattle recalls the story of the sentimental man and his practical wife. relates the Courier-Journal. She looks like a dream, but she is right up to the mark in business. One day, just as the frost was on the pumpkins, he came in. "Darling. began, "I have just been thinking this is a most memorable day in our lives. Both yours and mine. Do you know what it re-'No," she declared; she didn't think she

'What! Not remember this particular date?" he asked in horror and reproach.

'Oh, surely you must." oblige him she would if she could, and he bowed his head and looked sorrowfully out

with red leaves. "Don't say it," he exclaimed. "Don't tell me you have no recollection of the serious import of this day. Remember, it was just this time in bygone days we made the date emorable, Think! See how I am impressed by the recollection; surely you recall it. A dawning light spread over her face. believe I do." she cried joyously. "Yes. it

was just this time we killed hoss last fall." He gave a hollow groan and left the room of his too, too practical wife. It was their wedding anniversary.

Begins Publication Nov. 3, in The Sunday Bee.

## "No Other Way"

Sir Walter Besant

The Last Work of This Gifted Writer.

Mr. Stevens, it seems, had walked as far steems, had walked as far steems the nearest corner, where a new build. Powerful and Dramatic Story. Unique in Plot.

> T is founded on a most peculiar condition of the English penal system and debtor's prison. The heroine, a beautiful young widow, is in imminent danger of being thrown into a debtor's cell when a crafty creditor shows her how, by marrying a condemned criminal, she can escape her debts, and as he will soon be executed, she will also escape the ignominy of this surreptitions marriage.

With this curious introduction into a plot unique in fiction, Sir Walter Besant enlists the sympathy of the reader and arouses the keenest curiosity in the final outcome of the strange al fiance. Contrary to expectations, the criminal does not die, and She said again that she didn't, though to the efforts of the heroine to escape her husband, together with the creumstances of a change of fortune which has come to her of the window at the swaying trees leaded gives a swing to the tale and a rapidity of action and development which ends only with the last chapter of the story.

> Begins Publication November 3, and Illustrated. runs 16 weeks.