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Recent Progress in the Field of Electricity

Rival Systems of Electricity.

AN INTERESTING TEST of rival systems of electrical propulsion is now in progress in New York City. The New York Central and the New Haven road, joint users of the New York Central station, have introduced electric power for their trains within zones of varying distance of the terminal. The Central employs the third rail and shoe system of contact. The New Haven chose the overhead wire or trolley system. In the third rail system all surface crossings are necessarily dispensed with, while the overhead wire method does not necessitate a change in grade crossings. Each of the four wires, one over each track of the New Haven road carries 1100 volts of electricity and is braced in such a way as to prevent danger. The motors are operated by a contact bar about four feet wide, which takes the place of wheels used on trolley wires in the operation of trolley cars. There is plenty of play on the bar; so that there is no danger of the wires sliding from it.

Another of the notable points of difference in the methods of the New Haven and Central companies relates to the manner of moving suburban trains. The former puts the power in front of the cars, employing an engine which can be detached like a steam locomotive. The latter has adopted the "multiple unit" system, which has worked so well on the elevated and underground roads of New York City. In the first case the engine is switched from one end of a train to the other. In the second the motorman makes the change of position. Which method will prove the more convenient and economical is a question in which the operating companies will feel the chief interest, the public having little choice.

ductors, of which about 25 have now been laid, and it includes forty-two long-distance switchboards for day operation, thirteen installing switchboards, one distributing switchboard and four long-distance switchboards for night operation. When a subscriber calls up the local exchange it connects him with the distributing switchboard of the signaling exchange, at which the calling lamp and at the same time the checking lamp are lighted. The official in charge of the signaling panel fills in a form relative to the conversation, which is next transmitted by means of a pneumatic despatcher, situated between each two working seals of a long-distance telephone switchboard to the panel of the long-distance exchange concerned in dealing with it. If she can get through, the official in charge of the long-distance panel connects herself to the local exchange of the subscriber, which in turn advises the local subscriber in question. At the same time the telephonist at the local exchange communicates to her colleague at the distant exchange the number of the local circuit, and the official of the long-distance exchange introduces her inquiry into the local connection jack. If now the subscriber in question replies, the long-distance plug having been inserted into another local connecting jack, the transmission switch is inverted, thus establishing the desired long-distance connection.

The telephonist finally records upon a form the details as to the duration of the conversation, and she transmits this form through the pneumatic tube to the checking and collecting station. Similar long-distance telephone exchanges have been installed by Messrs. Siemens and Halske in many other German cities, including Bremen, Leipzig, Krefeld, Flauen, Erfurt, Nuremberg and Wiesbaden.

and dear on the Pacific coast, was a serious obstacle to manufacturing growth. The problem is now fast disappearing. It is said in no other community in the country is the consumption of electricity per capita so high as in Los Angeles, and in no section of the country, says Mr. Miller, outside of a small part of the natural gas belt in the midwest, are the rates for power cheaper. Though pumping power supplied by the Edison company 1500 acres of desert land tributary to Los Angeles have been reclaimed.

Work on the plant was begun in May, 1906, after the completion of the survey. A dam was built across the canyon of the river at the intake far up in the lower Sierras, backing the water of the river up into a reservoir from which the conduit tunnels are fed. Instead of allowing the water of the river to fall nearly 2,000 feet on its way to the power house in small falls and rapids in its own bed, it is taken through the tunnel for a fall of only sixty-eight feet for practically the whole distance, and its power thus conserved for the sudden fall of 871 feet through the steel tube directly above the power house. It hits the impulse wheels at a pressure of almost 90 pounds to the square inch. The conduit is smooth, concrete lined, and the depth of the water is six and a half feet. The tunnel through the stone is nine feet high and eight broad. President Miller says that it is the longest underground tunnel in use. This use of a comparatively small body of water with a long head or fall at the power house is peculiar to California.

The pressure main directing the water from the conduit to the plant is a steel tube encased in solid concrete and lying underground from fifty to 150 feet beneath the sloping surface of the mountain. Danger of being thrown out of place by the force of the water or from falling boulders is thus avoided. Its maximum interior diameter is seven and a half feet. Branch pipes deliver the water to the impulse wheels, which drive the four units or generators in the power house, the water flowing over into a tailrace and back into the river bed.

Further north in California, around San Francisco, are two transmission lines from mountain power houses, longer than the Kern River line. They are the lines of the Bay Counties Electric Light and Power and the Standard Electric companies. The first supplies Oakland from its power house on the North Yuba river, 140 miles away. The second runs its lines 180 miles to the town of San Jose. In neither case, however, is the power generated or the pressure transmitted so high as in the Kern river plant.

people who are not expert electricians a doubt will arise which his article does not dispel. Tuning it has been repeatedly asserted, it is to be undertaken to prevent interference between messages sent at the same time within the same field of activity. If interference is the only trouble to be averted improved means of preventing it might materially promote long distance wireless telegraphic projects. If it is not, the outlook apparently remains a little uncertain. It is a matter of common knowledge, for instance, that the range of a given transmitter varies astonishingly from day to day. At one time Hertz waves travel much farther than it is necessary for them to do. At another time they fall short of the intended destination. Until this variability in atmospheric conditions can be successfully defied that regularity of service on which public favor must depend will remain impossible. Moreover, the danger of embarrassment to be overcome may contain many more items than the two here considered.

Electricity in a Sick Room.
In this day of scientific study of the law of health and of deep research to overcome the fatalities and sufferings of disease, electricity takes no insignificant part. In the hospital of the modern type the rooms are heated with an electrical humidor radiator, which does not vibrate the air; the cooking is prepared in electrically heated utensils and the work about the building is accomplished with the aid of electric power. Then, too, there are electric lights, ventilators, the cooling fans and the impaction telephone. The electro-therm, or heating pad, dispenses the hot packs. The surgeon prepares his instruments in the new electrical sterilizer. A powerful magnet is used to assist in extracting pieces of steel from the eyes of patients. The electric batteries are of great assistance in paralytics, and the electric vibrator is applied to skin, muscles and body. A device has even been invented in which it is said an electric current takes the place of ether and lulls the sufferer into insensibility while an operation is being performed. The baby milk warmer and electric water heaters are also useful adjuncts to the sick room.

Gleanings from the Story Teller's Pack

Politics Not a Profession.

REPRESENTATIVE LORIMER of Chicago, who is a great walker, was recently out for a tramp along the conduit road leading from Washington, when, after going a few miles, he sat down to rest.

"Want a lift, mister?" asked a good-natured Maryland farmer driving that way.

"Thank you," responded Mr. Lorimer, "I will avail myself of your kind offer."

The two rode in silence for a while. Presently the teamster asked: "Professional man?"

"Yes," answered Lorimer, who was thinking of a bill he had pending before the house.

After another long pause, the farmer observed: "Ray, you ain't a lawyer or you'd be talkin' for your profession, anyhow?"

"I am a politician," replied Lorimer.

The Marylander gave a snort of disgust. "Politics ain't no profession; politics is a disorder.—Success Magazine.

Why Their Paths Diverged.

The college boys who went away together last summer are planning to travel separate paths this year when school closes. They went to Europe together, but found before they had gone very far that they were not especially congenial. The final blow fell when, passing a cathedral in a trolley car, one of the students, with an ear for music and a taste for the divine and beautiful, leaned over to his companion and remarked:

"Aren't those chimes splendid?"

"What?" inquired the other, not taking his eyes off his paper.

"Aren't those chimes superb?" the first one repeated.

"Oh, wait till we get farther on," was the curt retort. "Those damn bells make so much noise I can't hear you."—Brooklyn Eagle.

Wanted the Real Facts.

Sam, a negro servant of a Harrisburg family, is very ambitious to appear well informed on all subjects. His master had installed electric lights throughout the house and was explaining the workings of the fluid to Sam as follows:

"You see, the whole thing comes from the dynamo and goes into the wires and then into the lights. Now, do you understand?"

"Yes, sah," said Sam. "I understand all 'bout dem dynamo and other things, but what I wants to know is how do the kerosene squirt three dem wicks?"—New York Sun.

Uses for Electricity.

California, which, according to the United States census of 1900, excels the world in the density, number and commercial success of its long distance electric transmission lines, drawing power for distances of almost 300 miles, has added another great work to its list in the Kern river plant No. 1, completed within the last few weeks.

This power house generates 2,500-horse power and is the first of the power plants by which 8,000-horse power is to be developed from the Kern river, a stream in the south central part of California, rising to the Sierra Nevada range.

According to President John B. Miller of the Edison Electric company of Los Angeles, which is carrying on the work, it is the largest hydroelectric plant west of Niagara, but probably its most novel feature, according to Mr. Miller, lies in the fact that the present 2,500-horse power, at a pressure of 8,000 volts, is sent over a line to Los Angeles, 117 miles distant, the longest distance for a pressure so high of any line completed in the world.

Then, too, the source of the power is novel. The river is deflected and carried through a concrete conduit tunnel cut through the rock of the mountains and lifts for eight and two-thirds miles, then shot through a steel tube 1,125 feet long for a sudden drop of 871 feet at an angle of 45 degrees against eight impulse wheels which start the generating machinery moving. It was in one of these tunnels through the mountains—there are twenty in all, making practically a continuous underground conduit—that Hinks, the miner, was entombed.

Until the utilization of water power from mountain streams was developed the problem of fuel, which had always been scarce

Future of Wireless Telegraphy.

A fresh expression of confidence in an ultimate triumph of wireless telegraphy may be found in an article contributed to the New York Electrical Review by Mr. E. Millan Trinks. The writer remarks that accurate tuning is practicable only where waves are technically known as "undamped" waves are employed. Several methods of utilizing this principle, he says, have been devised, but only one has yet been reduced to practice. From the company which now makes use of it and which controls the patents of Poulsen, a Danish inventor of note, Mr. Trinks expects a notable announcement soon. Only expert electricians can determine whether the facts which inspire Mr. Trinks' faith are correctly stated or not, but in the minds of

Started as a Telegrapher.

The Railroad Gazette in a recent number made mention of H. W. Stanley, new superintendent of the fourth division of the Seaboard Air Line, as follows:

"Mr. H. W. Stanley, trainmaster of the Seaboard Air Line at Atlanta, Ga., has been appointed superintendent of the fourth division, with headquarters at Jacksonville, Fla., to succeed Mr. Walter Hale, resigned. Mr. Stanley was educated at the Lynchburg (Va.) High school and entered railway service in 1885 as telegraph operator of the Norfolk and Western. He has served successively as agent, train dispatcher, chief clerk to superintendent, chief clerk to general superintendent and general manager, trainmaster of the Birmingham division of the Seaboard Air Line and trainmaster of the third division of that road, from which position he is now promoted."

You cannot pick up a single issue of any of the railroad magazines of this country without finding in the "Personal Mention" the names of some man appointed to a high place in the councils of the great railroad systems of this country. You cannot pick up a single issue of any of the railroad magazines of this country without finding in the "Personal Mention" the names of some man appointed to a high place in the councils of the great railroad systems of this country.

Comforting.

A good story is told of a learned canon of the Anglican church in Canada who is a very thoughtful and studious man, but very absent minded. One morning he was going from home and had his handbag packed and left in the hall, as he intended to walk to the railway station. After he had left the house his daughter came into the hall and saw the bag still there, and said to her mother: "Oh, mother, father has gone off and left his bag behind. I will run after him with it." Which she did, and when she arrived at the station she found the canon walking about with the coat which he had taken up in place of his bag.—New York Tribune.

Couldn't Corner Him.

City Superintendent of Education William H. Maxwell is telling a good story about a young medical friend of his who is interested in insanity symptoms, and is a sort of amateur alienist. The other day the student got a chance to visit one of the wards in the asylum for the insane at Mattawan, and having heard that there was a man confined there who labored about the hallucination that he was God, the student asked that he be allowed to see this patient first, as he appeared the most promising for investigation. He was taken to the ward where the lunatic was confined, and the following conversation ensued:

Student—Are you the Deity?

Lunatic—From everlasting unto everlasting, I am he.

Student—Well, I've been looking for you

His Profession.

A passing stranger was attracted by frightful screams coming from a little house not far from the road. Hurriedly trying his horse, he ran to the house and found out that a little boy had swallowed a quarter, and his mother, not knowing what to do, had become frantic.

The stranger caught the little fellow by his heels and, holding him up, gave him a few shakes, whereupon the quarter soon dropped to the floor.

"Well, mister," said the grateful mother, "you certainly know how to get it out. Air you a doctor?"

"No, madam," replied the stranger. "I'm a collector of internal revenue."—Philadelphia Ledger.

Politeness Overwritten by Daughters.

A death outcried by his daughter is the position in which a Chicago policeman who nightly ornaments a beat out of the West North avenue station is placed. Charles F. Outhank is the frustrated officer. His daughter, Irene, is 13 years old. The slouching process, relates the Record-Herald, started in Chicago, continued on a train speeding to Crown Point, Ind., and concluded in the Indiana town, where Miss Outhank and Gilbert H. Ayling, a Chicago medical student, were married by a justice of the peace. Meanwhile the policeman-father, with single glance, was scouring the town, searching every place but the room in which the young people were being made man and wife.

Anonymous communications, a broken engagement, tears and a hardly wrung parental consent all figure in the romance ending in the elopement to Indiana's Gretna Green.

A month ago Miss Outhank's engagement to Harry Thompson, said to be connected with the city police department, was announced. This little formality, however, in no way checked the friendship between the young woman and Ayling, who nightly traveled from the South Side to the Western avenue home to visit Thompson's family.

Neighborhood gossip linked the names of the young people, and calls on the Outhank telephone kept members of the policeman's family busy denying that the daughter was going to marry the medical student.

Cardinal Gibbons has been asked to christen the Princess Pocahontas, a Philippine baby born last week at the Jamestown exposition, during his visit to the fair in August.

The Good Provider.

"Through Mrs. McKinley," said a Canton clergyman, "left an estate of about \$20,000, she was one of the most charitable women in Ohio. Her experiences in charity work