

QUEEN REGENT AND UNCROWNED KING OF SPAIN



DUKE OF MEDINA-ASTORIA, MASTER OF COURT. THE INFANTA ISABELLA.



MARIA CHRISTINA, QUEEN REGENT OF SPAIN.



ALFONSO XIII, KING OF SPAIN. DUKE SOTOMAYOR, GRAND MASTER OF THE PALACE.

ELECTRICITY FOR RAILWAY TRAVEL

Further Triumphs Believed by Engineers to Be Imminent.

GREAT INCREASE OF SPEED POSSIBLE

Last Year's Experiments Reviewed. What Steam Road Managers Are Thinking and Doing—Trains Instead of Single Cars for Long-Distance Suburban Travel.

From the New York Tribune.

In a few years electric roads will have absorbed practically all the local (passenger) traffic, and will begin to cut into through transportation. The steam roads cannot afford this. Their only safety is to make electricity an ally instead of an enemy, and before it is too late. These words were uttered last summer by Dr. Louis Duncan, then elected president of the American Institute of Electrical Engineers. The most casual observer knows how abundant and strong were the reasons for such a prophecy then. And yet they are still more numerous and convincing now.

Take, for instance, the immediate outskirts of the metropolis. Above the Harlem river, over in New Jersey, and in the region lying south of older Brooklyn there has been a marvelous extension of trolley lines within the last two or three years. All of these roads have been taken from steam roads with which they compete a large proportion of their classes of patrons: First, typical suburban residents, who come into the business part of town regularly or irregularly; second, essentially rural passengers, who only ride from one station to the next, or possibly to the second or third beyond their homes; third, pleasure-seeking excursionists. The reduction in fare and greater frequency of trips are advantages which appeal to the masses and convenience of every one. It is not to be wondered at that the steam lines have suffered heavily in consequence.

Near Boston, Philadelphia, Chicago, St. Louis and other centers of population in the United States substantially the same revolution has been effected. Then out through New England and the middle states, in regions that are so well built up that small but thriving towns and villages are strung along the railway like beads on a cord, there is a great deal of social and business traffic between neighboring places. Heretofore the steam roads have had almost a monopoly of that business. But now the "inter-urban" trolley, running over the parallel route, providing more frequent service, and stopping anywhere between the regular stations of the old lines, has captured an enormous percentage of it.

TROLLEY TRAIN.

Then again there are more pretentious trolley roads which run trams, instead of single cars. The Cleveland, Plainville and Eastern, for instance, running through thirty miles of the Lake Shore territory, has regular coaches, hauled by a motor car something like those which are being built for hauling trains across Brooklyn Bridge. The Cleveland and Akron line, of about the same length, has similar cars and motors. The electric road from Buffalo to Niagara Falls, fourteen and a half miles long, had an enormous business last year with light cars, but is now being freshly equipped with heavier rolling stock. All three of these, like the road still under construction from Washington to Baltimore, compete with old established steam lines. The Niagara Falls road in particular has greatly damaged the interests of its venerable competitor. Perhaps half a dozen other surface roads and two or three elevated roads in Chicago could be enumerated which are already running regular trains, made up of a motor car and trailers. And it is needless to say that there are hundreds of schemes on foot, only a part of which will ever bear substantial fruit, which contemplate paralleling other steam lines for distances varying from ten to one hundred miles, or else reaching out into territory not now provided with better transportation facilities than a horse and carriage or a bicycle; and many of these programmes include first-class roadbeds, heavy rails and trains instead of individual cars.

Among the corporations whose passenger traffic has been thus injured or threatened the New York, New Haven and Hartford and the Pennsylvania companies have been the most active in adopting Dr. Duncan's advice. Such steps as have been taken thus far naturally have been to a great extent experimental. Last summer the New Haven company substituted electricity for steam on a branch road seven miles long, starting from Old Colony House station and reaching out to Nantasket Beach. Current was taken from an overhead wire by a trolley pole and carried to the cars by two, three or four open trailers were hauled by a motor car composed essentially of a baggage or express car with one or more motors on its axles. The Pennsylvania company, at about the same time, placed on its Burlington and Mount Holly branch closed coaches, one of which was equipped with motors so that it could haul the others. These cars were about the size of an elevated railway car, and somewhat lighter than the standard day coach of the steam roads.

The New Haven plan ran their road all summer without an accident, in spite of a greatly increased patronage. The immense success of that venture has encouraged the company to go further. At the present time, it is said, definite plans have been made for replacing steam with electricity on other short sections of road, altogether amounting to about one hundred miles. Moreover, experiments are being made on an extension of the Nantasket branch (up toward Boston) with a third rail and electric trolley wire as an electric trolley road, which has some novel features is being tried, and if it yields, the hoped-for results the equipment of the other portions of the road just referred to with facilities for electric traction will doubtless be pushed rapidly. The Pennsylvania company seems not less pleased with the outcome of its investigations. Rufus Hill, amateur mechanic of this extensive system is quoted as predicting that within five years nearly all of the feeder, or branches, of his road will be operated by electricity. What more impressive signs of the times could one look for than these?

ELECTRICITY FOR STEAM ROADS.

Meantime, by careful scrutiny of the reports of these ventures contained in the technical periodicals, by personal visits and by correspondence, the managers of other steam roads have been forming themselves as to the possibilities of electricity for traction purposes. Besides, there have been a good many anxious interviews with those electrical engineers and manufacturers of electrical apparatus who could best point out the way of salvation. The last year has been a period of intensive observation and thoughtful thought among progressive railroad people all over the country. A significant illustration of what is coming in the near future is afforded at Louisville, Ky. Between that city and New Albany, Ind., there is a bridge 2,455 feet long, over which railway trains have run for years. Over about four miles of track, reaching from the heart of one city to that of the other, electric trams, each composed of a motor-car and one or two trailers, are now running. The single track across the bridge is now traversed daily by 123 steam trains (freight and through passenger) and 141 electric trains. In like manner the heavy coaches of the Washington, Alexandria and Mount Vernon Electric road come over the same bridge and into the same station with the steam trains of one of the Southern lines.

Another fact, which has a closer relation to the subject than might be perceived at first, deserves mention in this connection. At several points, notably in New England, an electric engine is used to haul freight cars to and from factories situated on slings. At Whitfieldville, Mass., it is said, an economy amounting to \$18,000 has been effected by this change. The same scheme has been adopted in New Haven and Taftville, Conn., and negotiations are now pending for the construction of several more independent motors of this class for use in other places. They are not so large and mighty as the huge 1,500-horse-power electric engines now at work in the Baltimore tunnel, shifting long freight and express trains with their steam locomotives attached, but dead; but these, nevertheless, smokeless, money-saving substitutes for the present style of switching engine have a great future before them.

Few persons who are closely watching the progress of the great revolution in traction methods which has just begun can have failed to notice how cheap water-power is being utilized all over the country, by conversion into electricity, which is transmitted to a distance for a variety of uses. For instance the Baltic dam, near Norwich, Conn., is thus made to run a mill at Taftville, four miles away, and to run street cars from three to four miles more. No doubt a dozen similar instances can be found up in New England alone. Scores of them can be found in Switzerland, Italy, France and Germany. Among the most striking developments in this direction, though, are the Pacific coast enterprises. From a power plant at Folsom, Cal., capable of developing several thousand horse power when needed, electricity is sent over the wires to Sacramento, twenty-four miles away, and there distributed about the city for driving machinery, propelling street cars and affording light. Another such line starting from San Antonio Valley, supplies Ponona, fourteen miles away, and San Bernardino, twenty nine miles distant. The construction of other works on the Columbia, to give Portland light, heat and power, is well under way, while plans there are well advanced for the same purpose along the St. Lawrence at Lachine Rapids, and on the Potomac above Washington. Then there is Niagara, with its practically limitless possibilities, so far as the quantity of available power is concerned, and which, if there was a sufficiently large demand, could economically minister to places as far away as the metropolis, though of course Buffalo and Rochester will be the first served. These precedents are sure to be followed by shrewd business men all over the country during the next few years. Cheap water-power cannot fail to be an important factor in the development and operation of electric railways.

STEAM-FOR LONG HAULS.

Several questions in regard to the near future are now practically settled. The hauling of freight trains for long distances will be left for the present to steam. So will the great through express, with their enormous dead weight and infrequent service. The individual trolley-car will continue to possess city streets and run out a little way into the suburbs. But the most immediate and radical change which this age is likely to see is the use of electricity for running frequent, light, fast trains over the tracks of existing steam roads, or entirely new roads, which will compete with old lines. It seems probable that service of this kind for distances of ten, twenty, fifty or perhaps a hundred miles, will be abundantly afforded within the next five years. The type of coach to be used will be very much like the best elevated railway cars. The utmost effort will be made to reduce the percentage of dead weight to the live weight carried. The trains will be composed of from two to five cars, according to circumstances; but the tendency except on elevated railways will be toward fewer cars and greater frequency of service. It seems unlikely that an independent electric engine will be used to haul the trains. Instead, as on the Mount Holly and Nantasket branch roads, the leading car will be equipped with electric machinery. The type already adopted on some Chicago elevated roads will perhaps be tried at first. This is a regular passenger coach, with a steel frame and electric motor on each of its four axles, and controlling devices in a cab at the end. Such cars would really be double-tenders, just as our trolley cars are.

CONSIDERATIONS OF SPEED.

The speed to be developed would depend more largely on the track than anything else. It would be practicable to make 120 or 150 miles an hour. The latter is considered the maximum of safety by some experts. But to attain even 100 miles an hour it would be necessary to have no grade crossings, almost no switches, and exceedingly gentle curves. Grades are of little consequence. Electricity is more indifferent than steam to such difficulties, especially as the electric motor of the future will doubtless be momentarily changed into a dynamo when going down hill, and transform the force of gravitation into stored electric energy that can be utilized for the next climb. Another thing which is pretty well settled is that while direct currents will continue to be used on street railways

and for short suburban lines, a road running through fast trains for twenty, fifty or a hundred miles will probably employ the alternating current. This is the only one suited for economical long distance transmission. All, or nearly all, the great electric power plants of the world employ it.

Another matter on which opinions are not unanimous is the best way of leading a current to a railway motor. One serious drawback to the overhead wire is that it does not afford as broad a surface for contact with the trolley wheel as could be wished. When a large volume of current is to be transmitted from one electric conductor to another it is essential that there be a good contact. For single cars the present system is well enough, although none too good; but when it comes to moving a train of several cars, more current is required. The Intramural railway at the World's Fair employed a third rail for supply purposes; so does the Metropolitan Elevated, of Chicago. In both these cases the rail was outside the regular track. In the Nantasket experiment now being made, the third rail is placed between the two on which the cars run. But the third rail plan has objections of its own. It works well on the elevated or entirely inclosed structures, but it presents difficulties at crossings, where the conductor must be severed. Again on surface roads it would be possible to "short circuit" current and paralyze the road by laying an iron bar across from the third rail to another rail unless some special precautions were taken. And on the Nantasket branch upright boards will be erected on either side, reaching high enough to preclude any such possibility as is here suggested, and yet without interfering with the shoe which will come down from the car and take the current. But this, again, is largely a question of detail. Human ingenuity will sooner or later overcome the difficulties involved.

A FORECAST.

It should surprise no one, therefore, if some such state of things as this should be seen in Greater New York five years hence. Substantially all of the surface roads and elevated roads operated by electricity; all of the suburban passenger travel, within a radius of forty or fifty miles of the city hall, conducted in the same way; a through line of Philadelphia over which a trip could easily be made in less than an hour, and electric withering engines exclusively employed in bringing the great expresses into the Grand Central station. People would no more be getting cinders in their eyes nor be stifled by smoke when the steam locomotive chuffs for moving, all compelled them to open car windows. Not even tunnels would restrain them from the latter indulgence. If not here, at least in other great cities, it seems creditable that local ordinaries will require the suppression of the steam locomotive entirely for moving, all wholesale producer, just as Sacramento, Portland or other big cities will soon be doing. Economy may dictate this change, as well as many others in the fight of electricity, before the twentieth century is five years old.

IT RAINED A TERRAPIN.

Fact Cited to Prove That Fish Drop from the Skies. A terrapin about as large around as a silver dollar was the subject of a good deal of talk in Valdosta the other day, and the same terrapin has come near being the means of some people in the theory that fish, frogs and the like are often rained down in severe storms. During the heavy rain of last Friday, according to the Macon Telegraph, the terrapin fell in the street between Middleton's shoe store and Davis' beef market. It was seen by some people on the ground by two men in the shoe shop and by Mr. Davis' little boy. There is no explanation as to where it came from except on the theory that it rained down, and the question now is was that really the case.

Irrecoverable.

Mrs. Casey (belonging)—There's yer weeks wages, an' th' rint comin' due tomorrow? Mr. Casey—Be aisy, thin, Bridget. O' leath it troo a hole—so O' did. Mrs. Casey—In yer pocket? Mr. Casey—Be aisy, thin, darlint—it slipped troo a hole in me face.—Judge.

MEN WILL SOON FLY LIKE BIRDS

Chicago Experts Make Novel Experiments on Indiana Soil.

TRIALS OF TWO QUEER DEVICES

What Octave Chanute Has Hopes of Accomplishing—A Satisfactory Use Is Made of the Lilienthal Aeroplane, and the Natives of Hoosierdom Look On and Marvel—The Experimenters Sail Eighty Feet Against a Strong Wind in a Twenty-Foot Drop.

If a lake steamer had passed by the beach the other day opposite Millers, Ind., the other day, the passengers would have had a good opportunity of seeing a man flying through the air, borne not exclusively on the wings of the wind but apparently sustained by twelve gigantic white swans. Octave Chanute, No. 413 Huron street, executive secretary of the American Society of Civil Engineers, and three companions were practicing aerial navigation with a Lilienthal aeroplane. Mr. Chanute, who is regarded as an authority in aerodynamics, has closely followed the experiments of Otto Lilienthal, of Berlin, Germany, and he recently returned to duplicate them and go ahead on the same lines in the hope of evolving a machine which would be able to sustain a man safely in the air and which would be under perfect control. Temporarily the question of the motive power is left out of consideration.

The other morning Mr. Chanute, A. M. Herring, William Paul and William Avery, all of Chicago, took an early Lake train for Millers, thirty miles south of the city. The natives had their curiosity highly excited by the enormous and queer shape of the luggage of the party. Mr. Chanute and his friends went to a little hotel and left their personal belongings, but had the other things conveyed over to the beach about a mile east of the station.

ODD SIGHTS.

Some of the natives could not resist the temptation to follow and saw a tent erected under the protection of the shore of the hills near the lake shore. Son the other bundles were unwrapped, and what looked for the world like a three-mast schooner's rigging was erected, with sails set, as the natives waited patiently for the boat to be brought out, thinking a sail on the lake was in prospect. A panic struck them when they saw Mr. Herring mount the odd-shaped affair and sail through the air.

"Jess watch," uttered one of the natives; "I'll be bound it won't be long afore he'll come down from that 'ar high boss."

Mr. Herring disappointed this prophecy, and fulfilled every expectation of himself and Mr. Chanute. He succeeded in floating quite a distance in the air. The wind was not favorable, and the experiment was resumed yesterday. This time a number of comparatively long rides were made by all the younger members of the party. Mr. Herring sailed over 80 feet, measured horizontally, while falling only 20 feet. This was in the face of the wind, and none of the experimenters are yet willing to turn themselves loose before a breeze as stiff as that blowing yesterday in the neighborhood of the lake.

Mr. Chanute has two machines, one very nearly like the Lilienthal machine and another designed on different lines by himself. The Lilienthal machine is in appearance like six pairs of birds superimposed. It consists of twelve wings of oiled raincoat silk stretched tightly over a spruce and willow frame. Each upper pair of wings is connected with a lower pair by a fin of the same material about three feet long and a foot wide. The wings are a little less than seven feet long and are in a measure diamond-shaped. The machine is about fifteen feet long and fourteen feet wide, and weighs thirty-two pounds and has a spread of 189 square feet. It is curved about as much as a birch canoe. Mr. Chanute's own machine, which has not yet been fully tested, is formed of two large wings stretched on curved spruce sticks eight feet each way, with a fin nine feet long and four feet high in the rear, and a kite-shaped tail

hinged on. Its weight is also thirty-two pounds. It has a spread of 167 square feet, and is spoon-shaped, being nineteen feet from tip to tip. It will be tried today if the wind is not too unfavorable.

EASY TO OPERATE.

The Lilienthal machine is apparently easy to operate. It was carried yesterday to the brow of the smooth, sandy hill, and Mr. Herring, who had the most experience of any of Mr. Chanute's assistants in work of this kind, made for the purpose, and while the others balanced it in the air started on a run down the steep slope. Within ten yards Mr. Herring's feet were lifted off the ground and he went sailing over the valley. With every gust of the wind he would have to shift his weight to keep the machine going straight. The greatest difficulty is right there. The wind shifts so suddenly at times that no one can move fast enough to keep up with it. On this account both Mr. Herring and the others who essayed the wings of Pegasus came to grief. However, they met with no harm, as the machine always falls right side up and descends quite gradually.

A small model with a spread of 7.2 square feet was also operated. It was called as a kite without a tail. There isn't a small boy in the country that would not be proud to own a kite like this, for it can be made to rise from a valley while the operator stands on a hill.

Mr. Chanute was desirous of making the experiments without the knowledge of the press and sought Miller's of the press and sought Miller's of that account. "The trouble with most men that have experimented on this subject is that they have bitten off too much at once," he said. "This is only one phase of the subject. After a man is able to guide and control a machine in the air, it may, perhaps, be found less difficult than has been feared to secure a motor that will not consume too much fuel for its lifting power."

Lilienthal's experiments began in 1888 and have been continued ever since. Some of his machines have found their way to almost every country in Europe and to the United States, but few except the inventor have been able to master the problems of their manipulation.

BARBERS IN AUSTRIA.

They Must Serve a Three Years' Apprenticeship. From the New York World.

The Austrians take no chances with their barbers. They must be good, and the Barbers and Wigmakers' Union of Vienna sees to it that they are. Provision is also made in their code for women barbers who desire to carry on the business of their husbands in case of the latter's death or illness. But in order to do this the wife must have been enrolled in the union as an apprentice for three years. Apprentices, by the rules of the union, must appear in Vienna in the presence of judges of the union and show their skill before they are allowed to open shops of their own.

A properly certified barber must have a knowledge of and pass an examination in shaving, hair-cutting, hair-curling and wig-making, and during the period before the issuance of a certificate the poor and others who are frugal serve as subjects for experiment. At the examination the young men have their razors dulled by four strokes in a pine plank, and they must then sharpen them. A subject is assigned to each, who must be tonorially perfect in the opinion of the judges, when the apprentice is released him.

After this a certificate is issued and the apprentice serves two years as a journeyman before he may open a shop as an employer. The average age of apprentices when they begin to learn their trade is thirteen years.

From Bad to Worse. Mrs. Newlywed (to her bachelor brother)—Bob, where's your diamond ring? Brother Bob—Why—er—you—see, Sammy—hem— Mrs. Newlywed (scornfully)—Same old story, of course; your uncle's got it. Brother Bob—Why, no, confound it, it's my little nephew's this time; I let him take it to play with yesterday, and he swallowed it.—Judge.

See-Saw. Tourist (up in the lumber region)—There doesn't seem to be much to see up here. Practical Resident—No; but here's lots to see.—Judge.

MERCEREAU & CONNELL

Jewelers and Silversmiths, 130 Wyoming Ave.

DIAMONDS AND DIAMOND JEWELRY, CLOCKS AND BRONZES, RICH CUT GLASS STERLING AND SILVER PLATED WARE, LEATHER BELTS, SILVER NOVELTIES, FINE GOLD AND SILVER WATCHES.

MERCEREAU & CONNELL

Jewelers and Silversmiths, 130 WYOMING AVE.

STEINWAY & SONS' . . . Acknowledged the Leading

PIANOS

Of the World DECKER BROS., KRANCHE & BACHS and others.

ORGANS

Musical Instruments, Musical Merchandise, Sheet Music and Music Books.

Purchasers will always find a complete stock and at prices as low as the quality of the instrument will permit at

N. A. HULBERT'S

MUSIC STORE, 117 Wyoming Ave. . . Scranton

JAMES MOIR, THE MERCHANT TAILOR

Has Moved to His New Quarters, 402 Lackawanna Avenue.

Entrance on side next to First National Bank. He has now in a

Full Line of Woolens

Comprising everything requisite for the Merchant Tailoring. And the same can be shown to advantage in his splendidly fitted up rooms

A SPECIAL INVITATION

Is Extended to All Readers of The Tribune to Call on "OLD RELIABLE" in His New Business Home

AYLESWORTH'S MEAT MARKET

The Finest in the City. The latest improved furnishings and apparatus for keeping meat, butter and eggs. 223 Wyoming Ave.

Is this what ails you?

Have you a feeling of weight in the stomach—Bloating after eating—Belching—Vomiting of Food—Waterbrash—Heartburn—Bad Taste in the Mouth in the Morning—Palpitation of the Heart, due to Distension of Stomach—Cankered Mouth—Gas in the Bowels—Loss of Flesh—Fickle Appetite—Depressed, Irritable Condition of the Mind—Dizziness—Headache—Constipation or Diarrhoea? Then you have

DYSPEPSIA

In one of its many forms. The one positive cure for this distressing complaint is Ficker's Dyspepsia Tablets

by mail, prepaid, on receipt of 25 cents. CHARLES FICKER, Hotel Imperial, New York, says: "I suffered terribly from dyspepsia, but FICKER'S TABLETS, taken after meals, have cured me."

What Sarah Bernhard says