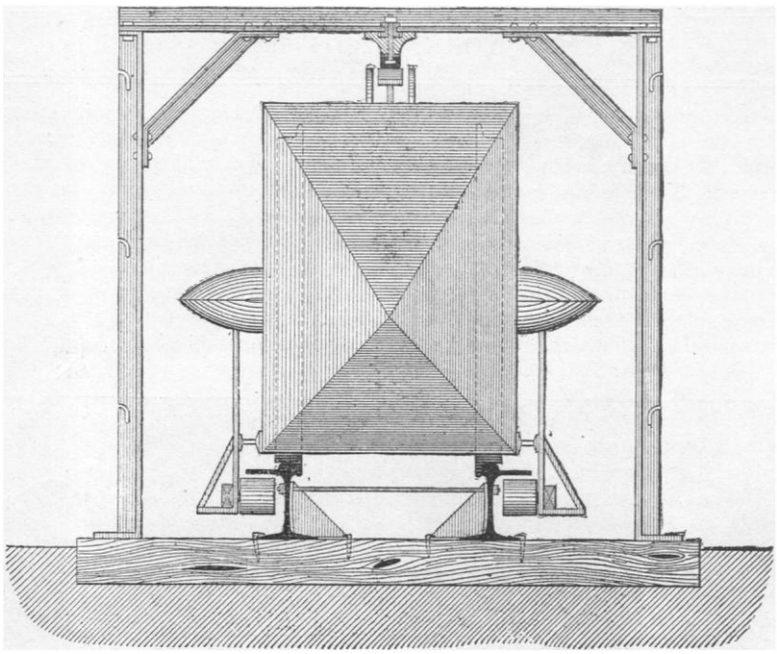
THREE MILES A MINUTE.

THE following account is sent us by the company interested, of what is claimed to be a great railway invention for the transportation of mails and light freight. The Weems railway system, incorporated under the name of the Electro-Automatic Transit Company of Baltimore, has patented its multiplicity of electrical and mechanical appliances in the United States and all over the world as a preliminary to putting the system regularly to work wherever required. By this electro-automatic arrangement the morning papers may be delivered for the breakfast-table, and the evening papers before supper-time, at distant points. It will deliver letters almost with the promptitude of the telegraph sending a message. The mails between New York and Omaha will be carried in a night. It will handle perishable light freight from long distances, will deliver with celerity the mails and parcels in cities and suburban towns, and will multiply many times the business of the post-office and express companies. Its advantages are not alone in its speed, but in the economy and frequency with which trains can be despatched. In addition to all these things, it will save interest on remittances at long distances, will bring the people closer together, and will create new enterprises. Doubtless, as in the case of the telegraph, its important uses cannot be anticipated in advance of its going into active operation. Its development will create new fields of usefulness not now thought of. Such, in brief, are what the persons interested in this invention claim for it.

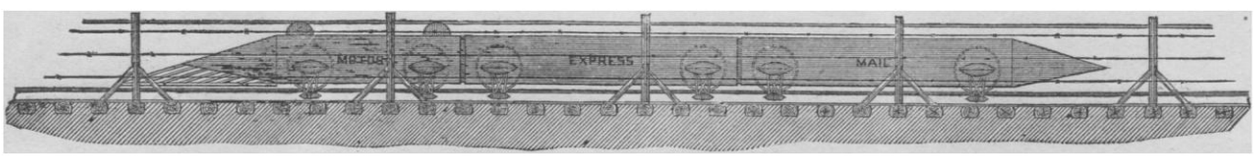


END VIEW OF THE WEEMS ELECTRO-AUTOMATIC RAILWAY.

The motor-car is 18 feet long and 2½ feet square at each end. It is pointed in front, the wedge or point being below the longitudinal centre, adjusting it to the air pressure, thus keeping the car down to the track. To reduce atmospheric friction to a minimum, all wheels and electrical appliances are placed within the walls of the cars. The road is to be built on the surface of the ground, with track of 24 inches gauge, and will cost about $5,000 per mile. In thickly settled districts the road can be elevated, the varied length of the uprights being a cheap mode of covering irregularities in the surface of the ground over which the road passes. The mail and express cars are telescoped in forming a train, the former into the end of the motor-car, and the latter into that of the one preceding it, forming a flexible train of cars, offering an unbroken surface to the air. The rear end of the rear car is pointed in a similar manner to the front of the motor-car, thus preventing any suction as the train rushes on its way. The motor may pull one car or a train of cars.

All trains will be controlled from a generating station, where will be placed an electrical generating plant. Electrical brakes are to be used, and trains are started, stopped, speed lessened, and backed at will from the station. Special appliances will inform the operator in charge of the generating station of the exact location of the train from the time it leaves or passes any given point until it reaches its destination. It has not yet been determined how far apart the generating stations shall be placed. Possibly 100 miles may not be out of range, as the current can be run for 50 miles each way from the station as a centre without much loss of electricity.

The patents of the company number 143 in the United States and the principal countries of the world, covering the vital details of this novel system. The principles patented involve special form of rail, making it impossible for trains to jump the track at any rate of speed; form of electrical safety rail, carrying the outgoing current and returning the same on the same rail (this rail can be crossed by pedestrians or vehicles with perfect safety); form of conductors and rails combined, with insulation of the same for carrying currents over long distances; means of starting, stopping, backing, and controlling trains from the generating stations; method of regulating the electrical current automatically on trains while in motion, increasing the power in ascending and decreasing the same in descending grades; means whereby trains automatically register themselves at every station as they pass every mile of track; form of journals and boxes for fast speed to avoid heating; reducing the air pressure at high speed to a mini-



THE WEEMS ELECTRO-AUTOMATIC RAILWAY.

mum by pointed cars splitting the air in front, and preventing suction in the rear, while in transit; reducing the cross-section of cars to a minimum, and enclosing the wheels and electrical equipment within the walls of the same to offer as little resistance to the air as possible; telescoping the cars of a train to present to the air an unbroken surface; special switch for rails; keeping the centre of gravity of the whole train below the axles. Patents have also been secured for a passenger system which applies to the conversion of existing steam railroads into electric railroads, which cover the only safe mode of rapid transit for passengers.

A series of experiments have been made at Laurel, Md., to show what the Weems railway system will do. This experimental line is a circuit of exactly two miles. Over this route there are 29 changes of grade, some of them very heavy, even to the extent of 108 feet to the mile. The generating plant there contains all the electrical appliances necessary to the attainment of high speed by a railroad-train. There is also special machinery for experimentation, and the perfecting of all mechanical and electrical inventions tending to advance and improve the system. All tests of speed have been made upon heavy grades and curves combined, too great ever to be required in the construction of a commercial line: therefore the experiments demonstrate the high rate of speed which will be obtained upon lines built for business puposes. At this experiment station 2 miles per minute are made around a heavy curve, or the equivalent of 180 miles an hour, or 3 miles a minute, on a level track. Prior to the inauguration of this system, 20 miles per hour was the fastest time ever made by any kind of electrical railroad travel.

At the experiment station there are no extensive works; and the motor-car, when it comes out from under its shed in obedience to the will of the engineer in the distant plant building where the electric dynamo generates the current, moves deliberately, slowly, and with absence of all sound. This cigar-shaped car, painted a bright red and moving sharp end foremost, at first sight does not seem a wonderful thing as it goes quietly along the track; but later, when the engineer at the dynamo puts on more power, or, as a steam-car man would say, more steam, and the creeping thing on the ground hastens its movement until it fairly flies, and becomes a moving speck of red, spectators feel the progress being made in applied science, and talk of the wonders of electricity, and the great things it will accomplish in the active affairs of life in the near future. All who have witnessed the successful trials at Laurel are impressed with the great stride made in the matter of rapid transit by electricity.

Arrangements are now being made for the building of an extended road between distant cities, and Baltimore will be one of the stopping-points on the line.

The officers of the Electro-Automatic Transit Company of Baltimore City are Dr. Julian J. Chisolm, president; O. J. Smith of New York, vice-president; Alex. Brown, treasurer; William M. Pegram, secretary; David G. Weems, general manager; J. J. Chisolm, Edward B. Bruce, B. F. Gambrill, O. J. Smith, Robertson Taylor, Franklin J. Morton, Alex. Brown, S. E. George, William M. Pegram, Edwin F. Abell, David G. Weems, directors.

Mr. David G. Weems of Baltimore is the inventor of the system. Mr. O. J. Smith, the vice-president, is president of the American Press Association of New York. The officers of the company have made frequent visits to witness the various trials, and with each successful increase of speed made have enlarged their expectations of future results.

WHO ARE THE AMERICAN INDIANS?[1]

WHEN Columbus discovered America, he discovered not only a new continent, but a new people, — the American Indians. From one end to the other of its broad expanse the continent was occupied by Indian tribes that had held the land from time immemorial, — so far, at least, as their own traditions aver, — knowing nothing of any country but their own. The commonly presented picture of the Indians as they appeared at the time of the discovery is that of a horde of wandering savages, half or wholly naked, living on roots and herbs, or existing by the capture of wild animals scarcely more savage than themselves, and the chief object of whose existence was to enslave, to torture, and to kill each other. Those who hold such opinions have ever taken a hopeless view of the Indian's present, and a still more hopeless view of his future. Such a picture conveys a totally false impression of the Indian, and of the state of culture to which he had attained at the era of the discovery. Though still living in savagery, he was in the upper confines of that estate, and was fast pressing upon the second stage of progress, — that of barbarism; that is to say, he had progressed far beyond and above the lowest states in which man is known to live, to say nothing of the still lower conditions from which he must have emerged, and had travelled many steps along the long and difficult road to civilization.

Already he had become skilful in the practice of many arts. Though the skins of beasts furnished a large part of his clothing, he had possessed himself of the weaver's art; and from the hair of many animals, from the down of birds, and from the fibres of many plants, he knew how to spin, to weave, and to dye fabrics. Basket-making he had carried to so high a degree of perfection that little further improvement was possible. The potter's art also was his; and, though his methods were crude and laborious, the results achieved, both as regards grace of form and ornamentation, may well excite admiration at the present day.

Copper had been discovered, and was mined and roughly beaten into shape to serve for ornament, and, to some slight extent, for mechanical use. In Mexico and Peru, gold, silver, and copper were worked; and many authors contend that the method of making bronze, an invention fraught with tremendous possibilities, had there been discovered.

In much of South and Central America, Mexico, and the eastern parts of the United States, so important an advance had been made in agriculture that it furnished a very large part of the food-supply, and it should not be forgotten that the chief product of the Indian's tillage, maize or Indian-corn, which to-day furnishes a large part of the world's food, was the gift of the Indian to civilization. A scarcely less important contribution to mankind is the potato, the cultivation of which also originated with the Indians. A third important agricultural product, though less beneficial, is tobacco, the use and cultivation of which had been discovered centuries before the advent of the European.

"Architecture" may seem like a large word to apply to the dwellings of the Indians; nevertheless many of their houses were more substantial and comfortable than is generally supposed, while in the North-west many tribes reared dwellings of hewn planks, sometimes as large as 210 feet long by 30 feet wide, which were capable of accommodating several hundred individuals. More pretentious and durable were the communal houses of mud and stone reared by the pueblo people of Arizona, New Mexico, and Mexico; while farther south, in Central and South America, were edifices of hewn stone, which from their dimensions, the size of some of the blocks contained in them, and the extent and ornate character of the ornamentation, justly excite the wonder and admiration of the traveller and archæologist.

The advantages of a beast of burden had been perceived, and, though the human back furnished by far the greater part of the transportation, yet in North America the dog had been trained into an affective ally, and in the Andes the llama performed a similar office. Insignificant as was the use of the dog as a carrier, its employment cannot well be overestimated as a step in progress, when it is remembered that the plain's tribes that most employed it lived in the midst of the buffalo, — an animal which must have become of prime domestic importance in the never-to-be-enacted future of the Indian.

The need of some method of recording events and communicating ideas had been felt, and had given rise, even among the ruder tribes, to picture-writing, which in Mexico and Central America had been so far developed into ideographs, popularly called hieroglyphics, as to hint strongly at the next stage, the invention of a true phonetic alphabet. Nay, more: the Mexicans and Mayas are believed to have reached a state of true phonetic writing, where characters were made to represent not things, as true ideographic writing, but the names of things and even of abstract ideas; and this is a stage which may be said to be on the very

[1] Abstract of a lecture delivered in the National Museum, Washington, D.C., March 30, 1889, by H. W. Henshaw.