



NEW DOUBLE DECK STREET CAR AT THE UNION STATION, COLUMBUS, OHIO

219578

## **WILL BUY NO MORE BATTLESHIP CARS FOR YEAR AT LEAST**

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**Four Student Inspectors Report They Are  
Satisfactory, but for High Street Only.**

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**HOW THEY FOUND OUT**

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**Listened to Passengers, Used Stop Watches,  
Counted Joy Riders and Experimented.**

(Columbus Evening Dispatch, June 8, 1914) – A laboratory on wheels runs from one end of Columbus to the other many times daily.

Its features for experiment are fares, electrical current and speed. It is the double-deck street car installed by the Columbus Railway Power and Light company last March and which has been operating on the High street line from 5 o'clock in the morning to midnight ever since.

Four senior students in the electrical engineering course at Ohio State University have used the car as a laboratory, and last week completed a joint graduating thesis on it.

## IN HORSE CAR TOWN.

The students are Thomas E. Mullen, 1021 Highland Street, Columbus; Wilbur C. Dyer, 303 West Ninth avenue, Columbus, son of Police Captain Oliver Dyer; Fred R. Shamel, Uhrichsville; and Paul R. Ford, Middletown. Ford lives in the only town in the Middle West displaying a horse car running the streets in practical use.

The main questions which the students sought to determine were these: Is the double-decker economical? Will it haul passengers at a lower cost to the railway company than the ordinary pay-as-you-enter car? Can it handle the traffic in rush hours more efficiently than separate cars, or a "train" of two cars? Can it be loaded and unloaded speedily enough to maintain the same schedule as other cars in High street?

After many weeks of tests, their answer to each question is "yes."

Railway officials agree mainly with the students' conclusion. In addition they declare the possibility of injury of employees on the double-decker is absolutely at the minimum.

The boys made statistical observations on all operations of the car. They counted the passengers boarding and leaving the car at every stop. They took the time occupied by stops with a stop-watch. They learned speeds under all circumstances. They wriggled beneath the car and lay all night, while it was in the barns, with their heads next to the motors to determine heat generated. They counted tickets, and made a census of passengers standing. They installed volt-meters and filled scores of paper sheets with figures. They questioned passengers to ask whether they liked the car. They tried to determine the proportion of "joy riders" as distinguished from those who rode only to get to destinations.

Now their work is finished, and appears to consist of many rolls of blue print and innumerable pages of figures with a summary of conclusions. In 10 days the students will get diplomas certifying to them the degree of electrical engineer, largely on the strength of the weeks of tests in the laboratory on wheels.

Here are the principal objections which they heard voice by passengers: There are no press buttons on the upper deck. It is impossible to hear street-calls of the conductor from the upper deck. Standing is more difficult in the double-decker than in the single-story cars. Egress from upper deck is difficult when persons are standing.

### SOME ADVANTAGES.

These are a few of the advantages to the public which the students claim for the new car:

It is a rolling example of "Safety first". It is made of steel throughout, excepting the window frames. The car cannot start until the entrance doors are closed, nor can the doors be opened until the car comes to a full stop. The doors are operated pneumatically by a press button under the conductor's foot. Passengers step directly from the street onto the car floor, which is only 11 inches above the ground; there is little danger of slipping and falling.

The car is ventilated by means of a suction fan, which draws bad air through vents in the roof of both decks. Men may smoke on the upper deck.

For such trunk lines as High street, a few double-deckers will be profitable and convenient to the company, the students' experiments indicate.

#### **CREW OF TWO MEN.**

A crew of two men can operate a double-decker. With the use of only about 35 per cent more power, the car can haul 171 passengers, seated and standing, or 88 seated which is a little less than twice the capacity of an ordinary pay-enter car. The empty weight is 46,000 pounds, 23 tons, or only about five tons more than the usual closed car.

Railway officials agree with the students that conditions in Columbus probably will not justify running double-deckers on any other line than High street. Only a few will be profitable eventually even on this line.

One of the greatest fears of the railway company before the car was put into operation was that loading and unloading, particularly during rush hours, would take too much time and the car could not run on the same schedule with other cars. This fear has been eliminated entirely. Actual test shows the average period required to receive and discharge passengers from the moment the car comes to a stop to the moment it starts is eight seconds. Even this is greater, however, than that required by the ordinary pay-enter car.

#### **HAVE NOT LEARNED.**

Columbus people have not yet acquired the habit of boarding the car through both doors and doing it quickly, say the conductors.

The car now makes the trip of 6.7 miles between North and South Columbus, in 44 minutes, an average speed of 9.27 miles an hour with stops. Stops take 18 per cent of the running time, and the average speed without stops is 11 miles an hour.

It carries an average of 118 passengers on a trip between the two ends of the city. Women appear to be riding more in the upper deck now than when it was first operated, apparently having found they are welcome if they do not dislike tobacco smoke.

Columbus people have not quit "joy riding," however, and many still wait deliberately for the arrival of the double-decker, according to the railway officials. Consequently traffic tests taken by the four students and by railway inspectors are not considered entirely reliable for permanent estimates.

The car consumes an average of 21 kilowatt hour of current in the trip of 6.7 miles, with an average voltage of 523. It is 45 feet 6 inches long, about five feet longer than the largest pay-enter cars, 8 feet 5 inches wide, and 13 feet 2 ½ inches high, only 18 inches taller than the usual cars. Each of its two motors can generate 55 horsepower at 500 volts, or 65 horsepower at 600 volts.

#### **IN TWO OTHER CITIES.**

Only two other cities in the United States use double-decker street cars, according to street railway officials. These are New York and Pittsburg. One has been ordered for Washington.

Four crews are trained to operate the double-deck street car during its 19-hour running day. They are experienced employees and have been with the street railway company for many years. The motormen are E.D. Carlisle, C.M. Hale, Albert Bisel, F. Snyder and William Armstrong. The conductors are D.D. Scott, G.C. Phinney, Edward Scherr and B. Furniss.

The conductor sits in his box opposite the door. Tickets are deposited in a fare box. He sells tickets, gives and takes transfers, opens doors with the foot press-button and calls streets. The motorman's section is not accessible from the interior of the car. This is expected to stop "gabbing" with the motorman.

Double stairways are at each end of the car. The end seats of the lower section are virtually on the floor of the car and directly above the wheels.

Railway officials declare they will not purchase another double-decker for at least another year, but may get others after that.