# Technology Review, November 1961

“Now, in the darkest night, even as the Purple Emperor said, if you will stand on the bridge across the freight-yard, looking down upon the four-track way, at 2:30 A.M., neither before nor after, when the White Moth, that takes the overflow from the Purple Emperor, tears south with her seven vestibules cream-white cars, you will hear, as the yard-clock makes the half-hour, a faraway sound like the bass of a violoncello. . . . That is .007 covering his one hundred and fifty-six miles in two hundred and twenty-one minutes.”

Efficient Locomotive

A NEW type of locomotive, equipped throughout with roller bearings which, it is claimed, make oiling necessary only once a year, has been developed by the Timken Roller Bearing Company. This new giant of the rails, for the engine is 102 feet long and weighs 720,000 pounds, has been in the test operation on the New York Central Lines between New York and Buffalo, It’s performance is reported it have been eminently satisfactory and the locomotive will later be loaned to other railroads for further tests under varying conditions.

The new roller bearings locomotive is said to have shown a saving of 12% in operating costs, and its builders claim it is capable of maintaining a speed of 85 miles an hour under average conditions. Its four driving wheels are 72 inches in diameter and its tender, with twelve wheels, has a fuel capacity of 21 tons, and carries 14,200 gallons of water. The test engine now in operation was built by the American Locomotive Works at Schenectady, and the special roller bearings with which it is fitted were designed by Tracy V. Buckwalter, Vice-President of the Timken Roller Bearing Company.

Cheer Leading from an Airplane

ONE of the most striking scientific features of the All-Technology Reunion Banquet on June 7 was a demonstration in which long distance land telephone communication and radio telephony were combined to bring to the diners the greetings of two alumni, one flying through the night over New Jersey, and the other on board the Liner Leviathan some 600 miles east of the New York.

The demonstration, aside from its attraction as entertainment, illustrated in a most dramatic manner the achievements of the modern communication engineer. The experiment was arranged by the Bell Telephone Laboratories under the direction of H. P. Charlesworth, ‘05. Captain A. R. Brooks, ‘17, a war-time Ace, flying some 1,500 feet over Morristown, N. J., in the company’s research plane, played the rôle of a celestial telephone exchange in directing the communication hookup which brought the voice of J. G. Chaffee, ‘23, also a member of the Bell Laboratories staff, from the Leviathan.

Captain Brooks made what to all appearances was an ordinary telephone call to Thomas C. Desmond, ‘09, Chairman of the All-Technology Reunion, and President-Elect of the Alumni Association, who answered on a telephone installed at the head table. After sending the greetings of Technology men who were unable to be at the dinner, Captain Brooks announced that Mr. Chaffee, on board the Leviathan, wanted to say a word, and in a moment his voice came clearly across 600 miles of sea by radio telephony. Mr. Desmond talked with Chaffee for a few moments and then Brooks came on again, suggesting that he would like to lead the Alumni in a cheer. And it was done with resounding echoes, the voice of Brooks leading, while Desmond performed the gymnastics that are part of college yells. The echoes of “We Are Happy,” with the usual reference to the limbo of the damned, went back to Captain Brooks In his flying laboratory over the darkened

landscape of New Jersey.
Installed in the plane was a Western Electric radio receiver and transmitter, the latter rated at 50 watts output. Captain Brooks spoke into a microphone provided with a housing which fitted closely against his face to shut out engine and propeller noise. From the plane the conversation passes by radio to and from the Laboratories' ground station at Whippany, N. J., whence it proceeded by long distance wire circuits of the American Telephone and Telegraph Company to Boston and into the banquet room.
The Leviathan's radio equipment, also a product of Bell Laboratories, is that regularly used for ship-to-shore telephony. From the ship, transmission is to a radio receiver at Forked River on the Jersey cost, and by wire lines to the long-distance office in New York. In the opposite direction, land lines are used from the long-distance office to a radio transmitter at Deal, N. J. The ship circuits were connected at New York to the Whippany-Boston circuits used for airplane conversation between Messrs. Desmond and Brooks.

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Bell Telephone Laboratories
INTERIOR OF PLANE USED IN THE RADIO-TELEPHONY EXPERIMENT DESCRIBED ON THIS PAGE

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