Telephone Cable, Trans-Atlantic Encyclopedia Article

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Contents

Telephone Cable, Trans-Atlantic Encyclopedia Article.....1

Contents.....2

Telephone Cable, Trans-Atlantic.....3

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Cross-Atlantic telephone transmissions started in 1927, via radio, but weather conditions frequently disrupted communications. An undersea cable seemed to be the logical answer, but it took nearly a hundred years to follow the first successful trans-Atlantic telegraph cable with a similar telephone cable.

Undersea telephony presented several difficult problems. Repeaters, to boost the signal as it weakened over distance, did not last long, and failed repeaters in an undersea line could not be replaced economically. Also, the interaction of two conductors, wire and water, caused distortion of the signal that could not be overcome with available insulating materials.

Bell Labs tackled the amplification problem in the late 1940s, developing a repeater that would last for twenty years. At the same time, plastic polyethylene was developed and found to have excellent insulating properties. A test line was tried between Miami, Florida, and Havana, Cuba, in 1950. It was successful enough for AT&T to plan a trans-Atlantic cable. In June 1955, the ship *Monarch* set out from Newfoundland, Canada, laying cable and adding a repeater every 10-40 mi (16-64.4 km). The *Monarch* reached Scotland in September. The following summer the ship made the return cable-laying voyage. The resulting trans-Atlantic telephone line went into service in September 1956. On the first full day of service, 75% more cross-Atlantic telephone calls were made by cable than had been made by radio in the previous ten days.

The world community responded enthusiastically to the reality of live person-to-person communication across the ocean. Overseas lines proliferated. The first cable included 64channels; the next one had 128 two-way circuits; within 15 years an SC cable carried 4,200 circuits.

Satellite transmission of telephone communications challenged submarine cables beginning in 1962. Satellite signals, however, were often hindered by electromagnetic interference, which blocked high-speed data transmission. As telephone usage increasingly involved data as opposed to voice messages, this interference became more troublesome. Also, satellite transmissions could be easily intercepted. Fiber optic transatlantic cables, beginning in 1988, are an answer to these problems, offering very secure transmissions with little interference.