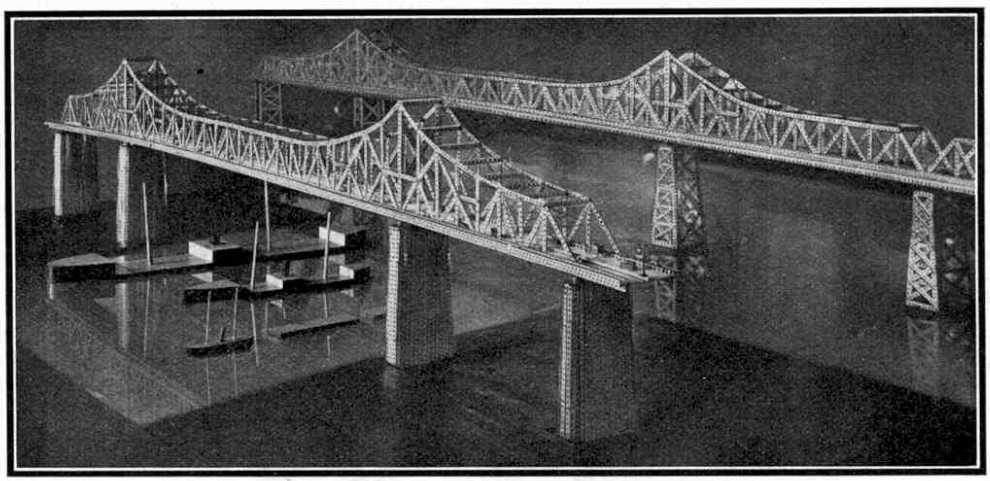
Meccano Helps American Engineers

Two Wonderful Bridge Models

BRIDGES have always played an important part in Meccano model-building, owing to the fact that they lend themselves to a wide variety of designs, and may be reproduced with remarkable accuracy even with small Meccano outfits. Among modern bridges are to be found some of the finest and most beautiful structures designed by Man, and the main features of their construction can be readily demonstrated in Meccano.

The remarkable adaptability of its parts has often led to Meccano playing an important part in real engineering, and a striking instance of the practical value of the system occurred in the United States. On this occasion large-scale models built from standard parts were used to demonstrate the possibilities of a proposed bridge in New York, for which the sanction of the United States War Department was required. The story of how this demonstration came about is very interesting.



These splendid Meccano bridges were built to demonstrate the practicability of "pier" bridges across the "Arthur Kill" Channel, New York. They were highly commended by the United States War Department Engineers.

Within the boundaries of New York City are to be found more great examples of the art of the bridge-builder than exist anywhere else in the world in a region of equal area. The municipality of New York controls no less than 44 bridges and three viaducts; and in addition there are in the city six bridges owned by railway companies. This large number is due to the fact that the central portion of the city is built on an island, cut off from the mainland by rivers on the north, east and west, some of these rivers being a mile in width. Until 1883 ferry boats provided the only means of cross-river transport, but in that year the first of the huge bridges, Brooklyn Bridge, or the "Great Bridge" as it was originally called, was completed, giving direct access to Brooklyn on the mainland. Since that time bridge construction has proceeded rapidly.

Until quite recent years, however, one portion of New York City, Staten Island, remained completely severed from the city proper. Staten Island is nearer to the New Jersey coast than it is to the remainder of New York City. A channel only 700 ft. in width separates it from Elizabeth and other New Jersey cities, whereas it is about a mile across the harbour to the nearest point in New York. Access from the island to New Jersey was provided by two ferry boat lines, but the volume of traffic increased so much that the boats were unable to cope with it, and long and exasperating delays occurred. Eventually it became necessary to consider other and more modern means of communication between the various points of the island and the mainland. With this end in view the Port of New York Authority recommended that two bridges should be built across the narrow straits. Their plans called for high-level bridges, so that any vessel would be able to pass beneath them. One of the bridges was to be at Elizabeth and the other at Perth Amboy.

It was clear that two such bridges across the "Arthur Kill," the name by which the channel is known, would bring about a great reduction in delay and general inconvenience, and the proposal was eagerly welcomed by pedestrians and motorists alike. Considerable opposition to the scheme arose from shipping firms and tow-boat men, however, on the ground that some of the piers of the bridges would be placed in the channel, and might prove to be serious obstructions to the freedom of movement of river traffic. It was of course possible to construct bridges that would completely span the waterway without any piers in the river, but the cost of such schemes would be far greater than that of the proposed bridges, and for this reason alone could not be considered.

The final word in all matters relating to waterways, bridges, and such works in the United States rests with the War Department, and their sanction must be obtained before a bridge can be erected over any navigable river. In making a decision on this question the War Department had to consider carefully the whole matter from every standpoint; and accordingly a hearing was arranged in order to give both those in favour of the bridge plans and those against them the opportunity of expressing their views before the engineers of the Department.

At the request of a committee formed by the municipalities in favour of the scheme, scale models of the bridges were built by the Meccano Company Inc. of Elizabeth, N.J., and these were placed on exhibition during the hearing. One of the models was 21 ft. in length and was built to a scale of 1 ft. to 100 ft. The models were placed on wooden bases covered with