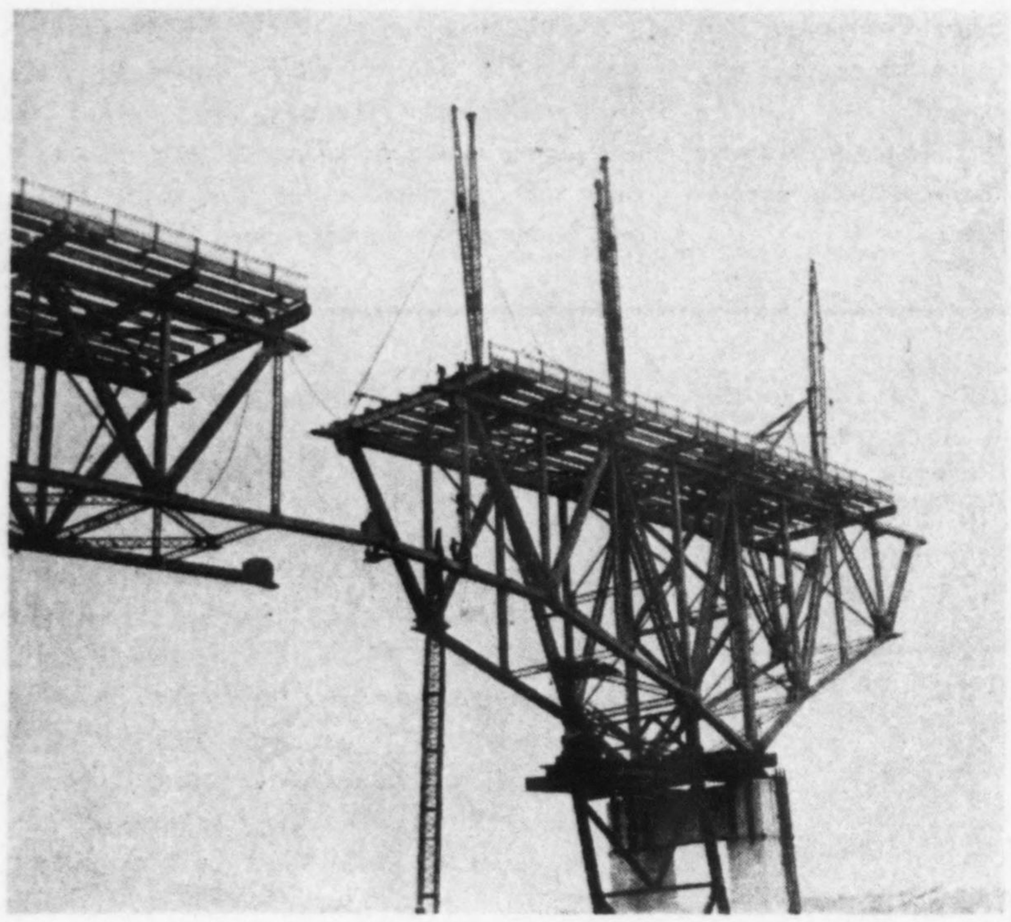
Balanced Erection for New London Brid

Balanced and cantilever methods were used for erection of the recently completed 5,926-ft. long Groton-New London, Conn. bridge over the Thames River (*ENR*, March 4, 1943, p. 326). The structure provides two sidewalks and two 24-ft. wide roadways separated by a center mall. Main river crossing is a 1,245-ft. deck cantilever with 352.5-ft. anchor arms and a 540-ft. channel span of which 216 ft. is a suspended deck truss. Adjacent to each end of the main span are four 312.5-ft. deck trusses arranged in two-span continuous units. Deck plate-girders of varying span to conform to existing conditions complete the bridge, which is more than a mile long.

Erection was from each side of the river in three separate operations; erection of approach girders, continuous deck trusses and the main span. The girders were erected by a large crawler crane operating on the ground and raising the girders in sections. The rest of th ers were lifted into place by th and a deck traveler operating previously completed spans.

The four 312.5-ft. deck trusses end of the main structure, were by traveling derricks operating deck. Usual procedure was to ca out six panels, 186 ft., from one a falsework bent, and then to c erection of the remaining four or 126.5 ft. also by cantilever m



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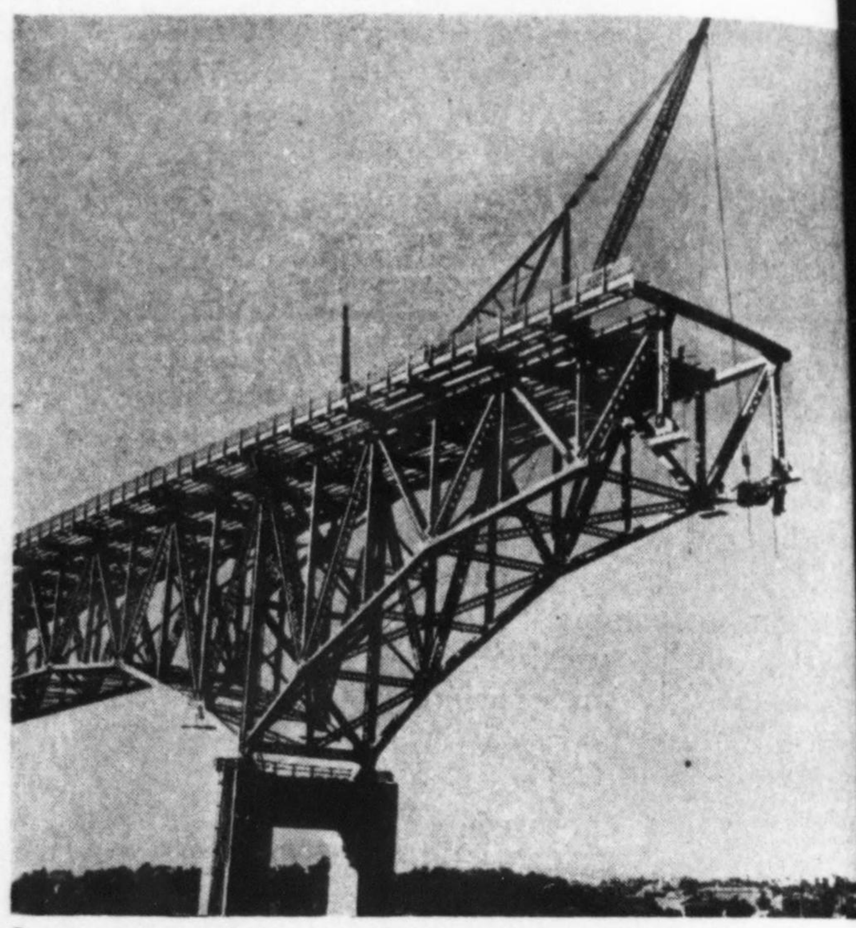

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Fig. 1. Balanced erection over a main meet the cantilevered section of an arm of the Groton-New London Bridge tral guy derrick was first set-up on form framed between an erection bent pier. As erection continued the der "jumped" to the deck to erect left g rick and right traveler.

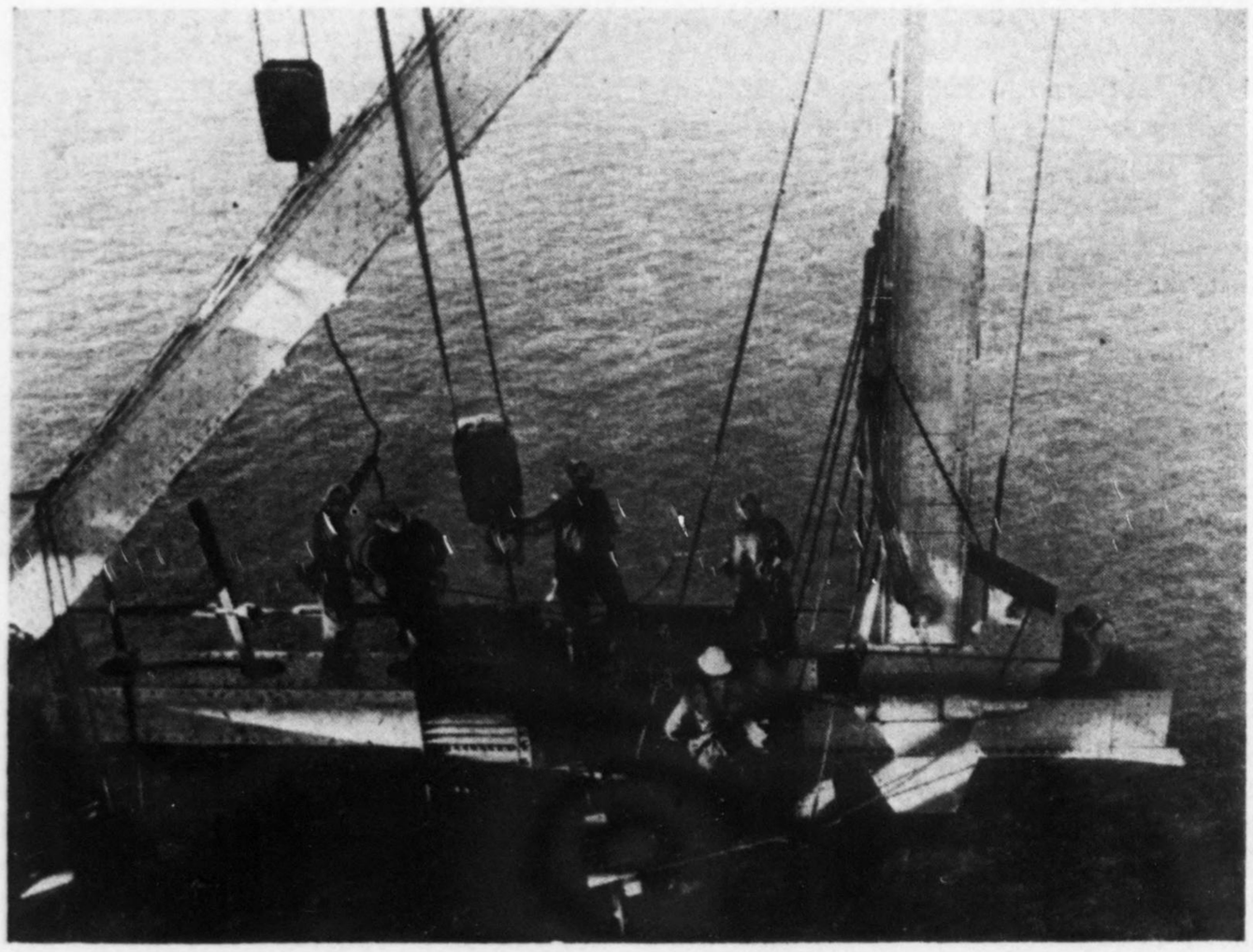

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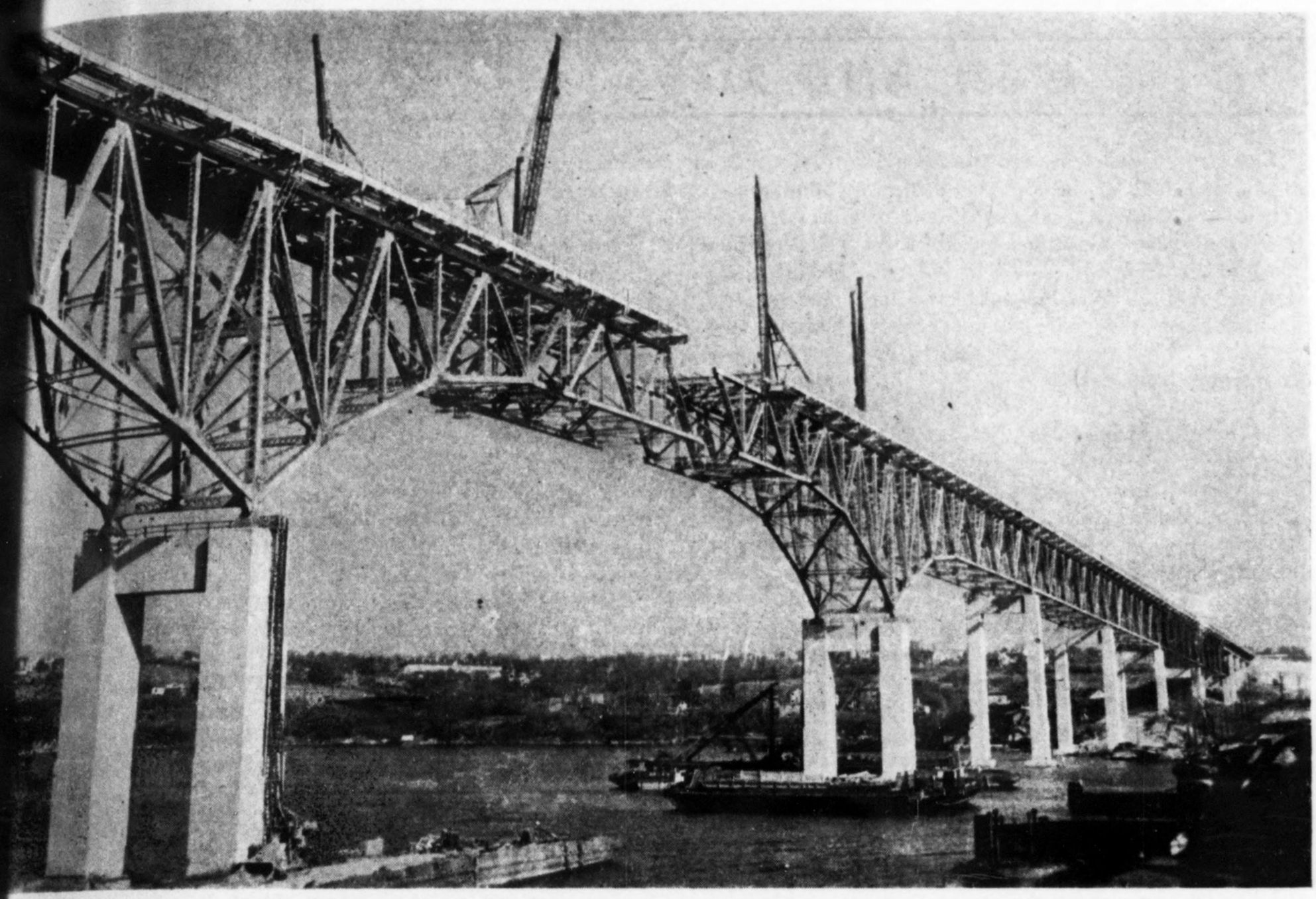
Fig. 2. Traveler moves out over cantile the main channel span. The main fall ing the jacking device for the suspende Similar jacking arrangements were provi the top chord at either end of the sus span.

Fig. 3. Close-up of jack installation in Fig. 2. Two 300-ton hydraulic jacks closed in the temporary (bolted) steel ing above and below the main bottom Pin with pilot nut and driving head at may be seen just below the panel poi



4. Suspended span approaching final closure. Right guy derrick was left in position to dismantle the two travelers and the small jinniwink rick used for placing the diaphragms and miscellaneous small members.

r the pier under the center of the -span continuous units no additional al in the members was necessary to ry the extended cantilevers. How-, at the simple support piers a pin the plane of the top chord and a ster in the plane of the bottom chord e used to permit continuous erection the steel.

Erection of each 352.5-ft. anchor arm tinued by the same cantilever thod and with the same equipment eight 27-ft panels. Over the main rs erection was by the balancing and tileving shown in Fig. 1, the steel ex-ding to join the anchor arm five -ft. panels away from the main pier.

After closure of the balanced section h the shoreward anchor arm, the ction of the 540-ft. channel span was ried on without falsework. The 216-suspended section is pin connected the top chord. During erection a vy member, and jacks for closure ig. 3) took the compressive stresses the cantilevered portion of the sus-ded span. The corresponding top rd member took the tensile stress.

The bridge was built for the Groton-w London Bridge Commission. sign of the structure was done by the nnecticut State Highway Department which W. J. Cox is commissioner and L. G. Sumner bridge engineer. A. W. Bushell, now deputy commissioner, was in direct charge of the work, with W. G. Brenneke project engineer.

Parsons, Klapp, Brinckerhoff & Douglas were consultants to the Groton-New London Bridge Commission on design and construction and were represented on the work by Irvine P. Gould. During part of the erection Fay, Spofford & Thorndike were consultants to the highway department. For the latter firm R. E. Crawford was resident engineer.

The superstructure was fabricated and erected by Harris Structural Steel Co. of New York. R. Smith was superintendent and E. L. Gerber engineer on erection.

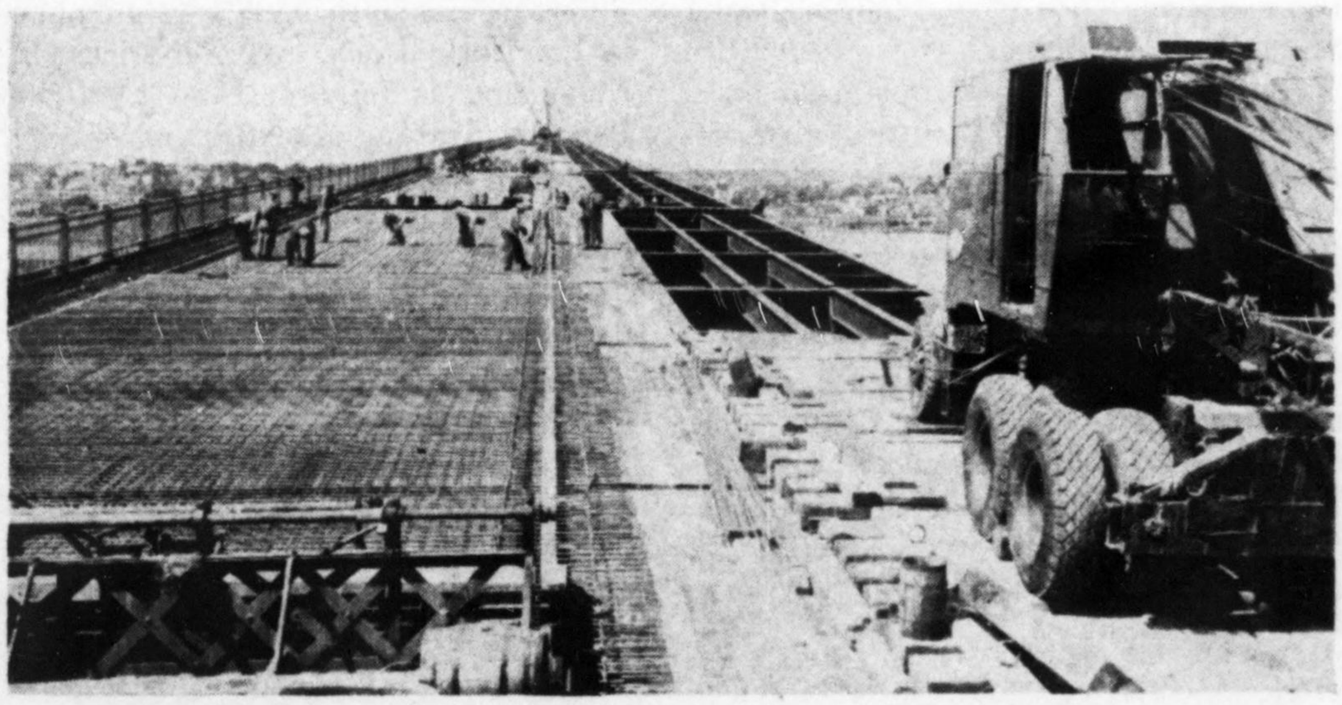


Fig. 5. Forms for the 7¾-in. thick concrete deck were carried on kneebraces supported on the lower flanges of the stringers. Approach concrete, supplied by a paver at ground level, was raised and placed by a truck crane. Truck-mounted mixers delivered most of the concrete for the central sections, a crane and bucket being used where trucking was prohibited.