

- 2 According to Thomas J. Archdeacon, *Becoming American* (New York, 1983), 224, 27.4 percent of the Jews in a series of surveys conducted by the National Opinion Research Center in the late 1970s had incomes over \$25,000 per year compared to 7.6 percent of Catholics and 6.4 percent of white Protestants. Episcopalians, the most prosperous Protestant denomination, had 12.4 percent over \$25,000.
- 3 In 1980, the Jewish vote went 39 percent Reagan, 45 percent Carter, and 15 percent Anderson, according to a *New York Times*/CBS News poll.
- 4 Ida Selavan, "The Jewish Labor Movement in Pittsburgh," unpublished M.A. paper, University of Pittsburgh, 1971, 3-12.
- 5 Arthur Hertzberg, "The Triumph of the Jews," *New York Review of Books*, Nov. 21, 1985, 18-22.

The Davis Island Lock and Dam, 1870-1922.

By Leland R. Johnson.

(Pittsburgh: U.S. Army Engineer District, 1985. Pp. ix, 170.

Foreword, preface, illustrations, maps, bibliography.

\$8.50 cloth; \$5.50 paper.)

In commemoration of the centennial of the opening of the first lock and dam on the Ohio River, the Pittsburgh District of the U.S. Army Corps of Engineers has published this small volume by Leland R. Johnson, the "noted historian of waterway engineering." In ten brief chapters, he tells the story of the planning, construction, and development of the Davis Island Lock and Dam which became the prototype of the fifty locks and dams later constructed on the Ohio River and, when completed, was the largest navigational lock and the longest "Chanoine dam in the world." Johnson puts the Davis project, located five miles from the Point, within the overall planning of the corps, the technological evolution of construction techniques, the support of some (but not all) business interests in Pittsburgh, the corrective engineering changes to the lock and dam, and the impact that this project had on subsequent and similar projects. In addition, the significant roles of Col. W. E. Merrill, who directed the project, his engineers, and the leaders of the Pittsburgh business community are made clear.

The continuing problem of low water at Pittsburgh during several months each year prevented steamboats, towboats, and barges from moving down the Ohio River. By 1871, it was determined that the city needed a harbor in order to have year-round navigation. After much debate and research, a lock and dam was deemed more appropriate

than a canal. However, coal shippers and rivermen opposed the concept because it would delay their progress downriver during high water when they would have to divide their tows to pass through the lock. Local ironmasters and businessmen successfully countered this opposition, and Merrill was able, by 1874, to develop an experimental plan that would alleviate the coal interests' objections; i.e., by building a chute that would allow the boats to go through the dam in high water.

After investigating the potential models, most of which were European, he chose the Chanoine system of "timbers bolted together to form rectangular panels called wickets." Named for a famed French engineer, this system would allow boats to pass through the navigable section by maneuvering the wickets down in high water. They would be raised during normal water levels.

After an initial appropriation of \$100,000 in 1875 and another of \$150,000 in 1878, Merrill conducted surveys and foundation studies. There were also delays because of problems of land acquisition. Despite strenuous efforts by Gen. J. K. Moorhead, who headed the Ohio River Commission, the Pittsburgh Chamber of Commerce, the Monongahela Navigation Company, and Congressman James Negley, the coal shippers were able to delay the project until 1878. They insisted that the locks, as planned in 1875 (78' x 630'), were too small for their tows. Accordingly, Merrill decided to enlarge the locks to one hundred feet-by-six hundred feet, and to use recessed, rolling gates, rather than the swinging type.

The two-story lock house was completed in 1878, and with another \$100,000 appropriation the following year, construction began on the lock and navigable pass. With low water that year, the more vocal coal interests dropped their vehement opposition to the project. By the summer of 1881, construction began on the navigable pass, which had to be completed in a single low-water season in order to permit the coal fleet to go downriver in the fall. It was the most critical phase of the project, and it was accomplished by almost superhuman planning and effort.

However, the remainder of the project, which included the balance of the dam, two piers, and the rolling lock gates, was delayed for four more seasons. Finally, on October 7, 1885, the city government declared a civic holiday and businesses were closed for the grand dedication. There was a celebration with steamboats carrying dignitaries from the Point to the new dam site. Thousands crowded the river front and rode the train to the lock where they crowded the area for the

dedication. Six steamboats, led by the *Geneva*, entered the lock. Speakers from the business community and the corps declared the venture a great success. Ironically, a pump had broken on the lower lock gate and the boats could not proceed down the river!

However, for the first time, Pittsburgh had a harbor for its expanding industrial giants. During the first year of operation, 14,015 boats went through the navigable pass and 314 went through the lock. By 1888, all opposition by the rivermen to extending the system down the river had ended.

Johnson, in Chapter IX, "Project Extension," tells the story of the beginning of the extension of the "canalization" of the Ohio River and the role that the Davis Island project played in this developmental process. The lock and dam, with some modifications, was in operation until 1922 when it was replaced by the nearby Emsworth Dam. During those years, "the people of Pittsburgh took great pride in the Davis Island project . . . and displayed models . . . at the annual civic fair . . . and photographers made and sold views of the lock and dam to the public" (p. 130). Johnson summarizes the significance of the project by stating that: "As an experiment, the Davis Island project was eminently successful, not only in creating a harbor for Pittsburgh but also in stimulating an international exchange of technology and in directing the attention of American waterway engineers to the potential application of movable crest gate designs" (p. 137).

This work is, obviously, a pro-corps study. Johnson often cites his own previous district histories, rather than the sources used in those works. There are fifty-eight photographs and illustrations. The close-up photographs of the work sites are fascinating; however, the sketches and maps are often of poor quality. There is no good map that indicates the location of the site relative to Western Pennsylvania and the upper Ohio River basin. The notes are, unfortunately for the reader, at the end. The bibliography is adequate and there is no index. ■

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