

preservationists of America's forests. Early advocates of forest and environmental preservation did not block the building of cement highways into the timber tracts; they even encouraged them. But they insisted that the timber stands lining the highways must be preserved and safeguarded.

In the 1930s the New Deal programs, especially the Civilian Conservation Corps (CCC), paved the way for improvement of recreational facilities, parks, and campgrounds. But the CCC's greatest contributions came in fighting forest fires and planting trees. By 1940 half of all forest planting in the nation was done by CCC units, creating a living legacy that endured for subsequent decades. Younger readers will be fascinated with the origin of the Forest Service's "Smokey Bear" program in 1945 to combat fires. Since 1945 the popular warnings of "Smokey Bear" have increased public awareness and resulted in the average number of fires in public forests being cut in half.

The authors conclude their study by pointing out that most of the nation's forestlands are still located in the East and South. But the eastern timberlands constitute forests almost entirely of second and third growth, testimony of indiscriminate leveling of trees east of the Mississippi in earlier centuries. Yet, ironically, today the most saleable timber is located in the West. The authors predict that the intensive pressures of earlier periods to cut timber indiscriminately will not recur, and that the conservationists and environmentalists have essentially won the battle. It would appear that Americans must "learn to live more with their environment and less upon it" (259). Like the mighty California redwood, this finely crafted study serves as a towering monument to solid research, and tells a beautifully written story of one of America's major natural resources. Read for pleasure or profit, it deserves close scrutiny by environmental enthusiasts and historians as well as general readers.

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*Great River: An Environmental History of the Upper Mississippi, 1890-1950*, by Philip V. Scarpino. Columbia: University of Missouri Press, 1985. viii, 219 pp. Notes, illustrations, bibliography, index. \$24.00 cloth.

Mark Twain was wrong when he prophesied that neither science nor technology would ever control the flow of the Mississippi River. With the completion of the Keokuk Dam in 1913, engineers had conquered the river, forever confining it to the channels they had designed and solving the problems of navigating the Des Moines rapids, which had

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challenged engineering minds at least since the early 1830s, when Robert E. Lee was assigned to find a way for river boats to escape the threatening rapids. The hydroelectric dam also began producing energy for industrial and domestic users of the area and for the city of St. Louis. The dam's proponents claimed that electricity from the dam would bring industrial and technical prosperity to the river valley. With much acclaim and celebration, the dam heralded a new era of prosperity and improved river navigation for the upper Mississippi valley.

In this richly yet unobtrusively documented study, derived from the author's 1983 doctoral dissertation for the University of Missouri, Philip Scarpino has given an interesting account of the interdependence of the river and the people along or near its shores. Convinced that in modern industrial societies "people have increasingly transformed the natural environment into a human artifact," Scarpino traces an evolving attitude from one of exploitation of natural resources for social and commercial ends to one of conservation and balanced use, the preservation of nature's gifts for the benefit of present and future generations.

In five chapters, Scarpino employs governmental reports, national as well as local, and other primary sources to track the interplay of the river and its neighbors from the original plans to erect a hydroelectric dam over the Des Moines rapids at Keokuk to mid-twentieth-century concerns about pollution resulting from human interference with the untrammelled natural river. The first two chapters deal with the construction of the dam and its consequences. Chapter one, subtitled "Synchronizing the River with Needs of an Industrial Society," relates the project to prevailing national attitudes of the early twentieth century, when natural resources were generally regarded as potential answers to commercial and social needs. As with lumbering in the upper river area and with mining and other exploitive industries nationally, little attention was paid to the lasting consequences to the environment. Chapter two turns to "The Unanticipated Consequences of River Development." Consumers who had listened to the glowing promises of the dam's proponents were dissatisfied with the effects of the magnificent engineering achievement, for the region never attained the promised heights of industrial and domestic prosperity, and steamboat operators failed to find the improved navigation for which they had hoped.

The remaining three chapters focus on conserving, rather than exploiting. The interplay between people and the river environment produced consequences that threatened the eventual vitality of the river. The first manifestation of destruction came in the rapid decline of the

pearl button industry which, by 1930, had all but disappeared. For almost three decades a thriving industry had produced pearl buttons from mollusk shells harvested from the upper river. But continued use of the river for urban waste disposal and the interruption of the free flow of the river eliminated the favorable climate for shell fish. Commercial and recreational fishing also suffered from the intrusions of industrial society. The Bureau of Fisheries and other public bodies increasingly expressed concern about what was happening to the natural resources of the river. By the mid-twentieth century the conflicting claims of exploitation and conservation were clearly defined. In the final chapter Scarpino discusses the efforts of the Izaak Walton League and other concerned groups to save the river from destructive exploitation by urban and industrial waste disposal. They also came into conflict with the Corps of Engineers, who approved a series of dams that created a nine-foot channel, changing the river from a natural stream to a series of reservoirs providing a navigable path for shipping. The dams created siltage and pollution problems that threatened the vitality of the whole river ecosystem.

*Great River* contributes a much needed understanding of the Mississippi River as a key influence on the region through which it flows. It creates a vivid picture of the promises and the problems related to the river during the first half of the twentieth century. A distinguished merit of the book is its businesslike tone. There is none of the romantic subjectivity that marks many books dealing with the river. Rather, there is a note of scientific objectivity derived from its careful documentation. At the same time, the book exhibits a human warmth often lacking in purely ecological studies. The nice balance between factual accuracy and judicious interpretation leaves the reader with a new comprehension of "changes in the relationship between people and river" (11), which is the theme of the study. Finally, at no time does the book become parochial or narrow in its perspective. Whether it is a reference to John Muir's defeat by the Hetch Hetchy project in Yosemite in the same year as the completion of the Keokuk dam (149) or to the evolving national trends from exploitation to conservation of natural resources, Scarpino keeps his eye on the large panorama while focusing on the specifics of a limited region. The result is a document in environmental history that sets high standards, both scientific and literary, for other scholars to emulate. The book deserves thoughtful reading by everyone interested in the upper river valley, its history and its promise for the future.

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