

## CHAPTER 5

# SUMMARY AND CONCLUSIONS

### *Introduction*

The successful search for, discovery and identification of the wrecks of the gunboat USS *Eastport* and the sidewheel steamer *Ed. F. Dix*, as reported here, does not represent a fortuitous or lucky happenstance. The discovery of the two boats followed a logical sequence of steps that relied on a careful evaluation of historical, geological, and archaeological data and, also, on the innovative application of modern remote-sensing technology. As Birchett and Pearson (1995) have noted, the search for these two vessels involved an approach that is reasonable, generally well understood, and which has been employed in other similar studies, although not always with the same degree of success. The steps followed in the discovery and examination of the two boats, as have been fully reported in previous sections, consisted of: 1) historical research to pinpoint the events and position of loss of the two boats; 2) geological research and channel reconstruction to determine the location of the river channel at the time of loss; 3) the implementation of a program of field research using remote-sensing technologies capable of locating the two wrecks; and 4) conducting archaeological research necessary and adequate to record, evaluate and identify the discovered remains. Neither of these phases of research was as simple in scope or application as it may appear in this enumeration. Each involved the collection and evaluation of a variety of information and careful weighing of facts and circumstances in making decisions about how to

proceed with the endeavor. Additionally, as in any scientific research, these phases of research were not independent of one another; they were interrelated such that information, conclusions and interpretations developed during each phase were relied upon and influenced the implementation of every other phase.

Overall, a comparatively small amount of archaeological research has been directed at the watercraft lost on the western rivers of the United States. However, some rather remarkable discoveries have been made. These include the discovery and excavations of the steamboat *Bertrand*, lost on the Missouri River in 1865 (Petsche 1974) and the *Arabia*, lost in 1856, also on the Missouri. While the searches for these two steamers were not initiated as purely archaeological undertakings, the approach used in both cases paralleled closely that employed in the examination of the *Eastport* and *Ed. F. Dix*. In both instances, historical research on the events of the sinkings was carefully correlated with reconstructions of historic Missouri River channel courses to ascertain the probable locations of loss. Like the *Eastport* and *Ed. F. Dix*, both the *Bertrand* and *Arabia* were deeply buried by recent alluvial sediments and magnetometer survey and corings were used to pinpoint the wreck locations and collect information on the condition of the remains and the general physical character of the sites. Ultimately, both the *Bertrand* and *Arabia* were excavated and both yielded well preserved vessel re-

mains in addition to remarkable collections of mid-nineteenth century goods that were being carried as cargo.

Advances in remote-sensing and diving technologies have revolutionized the search for and discovery of shipwrecks in the past two decades. The most extensive use of the new technologies has been in the oceans of the world, where numerous historic shipwrecks have been found. A great deal of this work has been undertaken for commercial purposes, driven by the rich cargoes found on some ocean-going vessels. Much less interest has been directed at American western steamboats because their cargoes are generally thought to be less valuable or less likely to have been preserved. However, the use of magnetometer survey and a program of coring in the discovery of the *Bertrand* in 1968 demonstrates the application of relatively sophisticated remote-sensing techniques in the search for western steamboats as long as 30 years ago. Even earlier, a relatively primitive, but practical, remote-sensing technology was used in the discovery of the Federal ironclad gunboat *Cairo*. In November 1956, a hand-held compass was used to locate the wreck of the *Cairo* on the lower Yazoo River near Vicksburg. The compass was held in a small boat and as the boat passed over the presumed location of the wreck, the compass needle swung off of north, influenced by the large mass of iron on the gunboat (Bearss 1980:8). Subsequently, the *Cairo* was raised and is now on display at the Vicksburg National Military Park. As far as is known, the *Eastport* and the *Cairo* are the only two Union Civil War river gunboats that have been found and studied.

### *Summary of Findings*

#### *Historical Findings*

All of the discoveries of lost steamboats noted above have relied heavily on historical records to direct the searches and to interpret the findings of the excavations, as has been the case for the *Eastport* and *Ed. F. Dix*. In addition to providing information on the events related to the loss of the two boats, the historical record has been used to trace their activities, first as packet steamers and then as a gunboat for one and as a government transport for the other. An effort has been made to place the activities of these two vessels within the historical context of the period. By doing this, the two boats can be used with reasonable credibility as “typical examples,” of their type, at least when they were serv-

ing as packet steamers. The activities of the *Eastport* have been followed during her almost 10 years in the Tennessee River-New Orleans trade. Historical sources, particularly newspaper accounts of her cargoes and sailings, have been used to follow her commercial life and, where possible, the data have been quantified. The *Eastport* differed from other Tennessee River steamers in that she had an unusually long life; however, in most other aspects she seems to have exemplified those steamboats involved in the same trade. As such, the *Eastport* provides a point of departure from which to examine the overall workings of the Tennessee River-New Orleans trade, including topics such as the types of cargoes carried, the nature of steamboat ownership, and the general economics of the trade. Similarly, the *Ed. F. Dix* has been used to examine the Missouri River trade of the 1860s, although in much less detail because of the very short time the boat was used on the river. The activities of both steamers have been used to shed light on facets of steamboat history and economics in western America that, in general, have received little attention and are not fully understood.

Historical information on the *Eastport* during the Civil War is relatively abundant because of her conversion and use as a United States gunboat. The historical distinction of the *Eastport* is assured in her existence as a gunboat, an existence that was truly unique among all of the warships of the Civil War. The *Eastport* was, first, acquired by the Confederates for conversion to an armored gunboat, one of the earliest ironclad gunboats built by the South. The selection and modification of the *Eastport* was reflective of the overall naval strategy of the Confederacy that centered around the construction of a few, large, heavily armed ironclads to defend Southern waters. It is unfortunate that so few documents have been found which provide details on this attempted conversion. These documents could give unique information on the concepts of gunboat design as they existed early in the war and on some of the ideas of Isaac Brown, the Confederate naval officer charged with the *Eastport's* alteration. The capture of the *Eastport* by Federal forces before her completion by the Confederates and her ultimate rebuild into one of the largest gunboats in the United States Navy, also, is unique. Union forces captured several Confederate gunboats during the war, but the *Eastport* was the only one that was under construction and was, ultimately, completed by the Union. Many details on the United States' modification of the *Eastport* into a gunboat, also, are unknown, so it is impossible to know how much of the original Confeder-

ate construction was incorporated into her final design.

Even though the *Eastport* was originally selected as the flagship of the Union's fleet of western river gunboats, she had a relatively undistinguished war career. The gunboat was large and heavy and ran aground repeatedly, requiring numerous repairs that kept her out of service for long periods of time. The *Eastport's* greatest fame, ignominious though it was, came during the Red River Campaign in the spring of 1864. The gunboat's damage by a torpedo and her ultimate abandonment and destruction near Montgomery, Louisiana, despite the courageous attempts by the gunboat's crew to save her, are somewhat reflective of the conduct and outcome of the disastrous campaign as a whole.

As when she was a river packet, the *Eastport* as a gunboat serves to exemplify aspects of gunboat activity and life in the Mississippi Squadron in general. Although the *Eastport* was involved in fewer engagements than many other boats in the Squadron, the general trend of her activities, consisting of long periods of mundane patrol and relative inactivity, punctuated by short periods of, often, violent battle was fairly typical. We, also, assume that the crew aboard the *Eastport* was rather typical of those serving on the river gunboats. This crew included men from many parts of the country drawn from a range of occupations, plus a number of foreigners and an increasing number of African Americans as the war progressed. By March 1864, African Americans comprised almost 28 percent of the gunboat's crew. The majority of these men are identified as "contrabands," or recently freed slaves. There is no reason to believe that the relative numbers of blacks serving on the *Eastport* was much different from the western fleet as a whole. The participation and contribution of blacks to the United States Navy during the Civil War has only recently become a subject of interest to scholars (Ringle 1998:14). The information on the *Eastport's* crew presented here represents one of the few attempts to look at this question as it pertains to the western river gunboats.

The activities of the *Ed. F. Dix* during government service are rather obscure, in part because of an absence of records but, also, because the steamer was in this service for such a short period of time. Like many other river steamboats, the *Dix* was seized by the Quartermaster Department when the government was in desperate need for river transportation. The 1865 Texas Expedition, for which the *Ed. F. Dix*

was apprehended, is a generally ignored phase of the Civil War. It occurred after the surrender of the major portions of the Confederate armies, a time when the nation's interest was concentrated on the newfound peace and, also, on the recent assassination of President Lincoln. As a result, many of the events of the expedition have been poorly recorded, including the participation of the *Ed. F. Dix*. The official records examined provide little information on the boat's use in the expedition or on her loss. For example, these records say little about what became of the cavalrymen carried on board the ill-fated steamboat. It is presumed that they traveled on to Shreveport, where most of the regiment was encamped in June 1865 (Hewett 1996). It is unknown if any members of the First Louisiana continued on into Texas with the rest of General Merritt's forces. The story of the *Ed. F. Dix* and her activities with the expedition to Texas remains incomplete and a full telling may never be possible unless new documents come to light.

Despite a lack of official records of her activities and sinking while in government service, the *Ed. F. Dix* appears prominently in 1865 Treasury Department and Quartermaster Department records related to monetary claims because of actions taken by her owners. Their request of over \$70,000 for the loss of the *Dix*, and their receipt of almost the full amount appears to represent the largest single claim paid for a steamboat lost while in service with the Quartermaster Department during the entire war (National Archives, RG 217, Steamboat Award Certificates, File E-653). It is not unreasonable to believe that the political connections of the owners of the steamboat, George Pegram and Henry Ealer, played a role in the payment of such a large amount of money. Of some interest is the fact that the official file for this claim that, presumably, contains all of the justifications for the payment, was removed from Treasury Department offices early in this century and has never been found.

### *Archaeological Findings*

#### ***Characteristics of the Eastport-Ed. F. Dix Archaeological Site (16GR33)***

The archaeological examination of the USS *Eastport* and *Ed. F. Dix* has validated conclusively the identity of the two wrecks and provided ample evidence that large portions of both vessels are intact and well preserved. When combined with data from the deep coring and augering program undertaken by the Corps of Engineers, it is possible to

make some reasonable estimates as to the full extent of the vessel remains and their condition. As shown in the cross sections derived from the deep cores (see Figures 4-9 and 4-10) and as discussed in Albertson and Hennington (1992) and Birchett and Pearson (1995), the wreck of the *Eastport* was believed to lie directly on top of Tertiary age deposits of the Cockfield Formation, the deposits that produced the “bar” or shallows upon which the gunboat finally grounded over 130 years ago. The borings suggested that the remains of the *Eastport* extended from about the midpoint of the sloping bank of the river eastward for a distance of about 140 ft (see Figure 4-9). Also, borings revealed that the shallowest portion of what was thought to be the *Eastport* was at an elevation of about 68 ft (NGVD) while the bottom of the wreck was at about 52 ft. This meant that as much as 16 ft or so of the height of what was believed to be the gunboat was extant. A few of the cone penetrometer probes struck wood, thought to represent upper portions of the *Eastport*, then penetrated a 6-to-8-ft-thick layer of soft sediment, thought to be silt- or clay-like, and then struck solid wood again. It was believed that these probes were penetrating, first, through an upper deck (presumably, the main deck) and then through the sediment-filled hold of the gunboat before striking the bottom, or interior of the hull. These probes supported the contention that large segments of the hull of the *Eastport* were intact. Cores and the cone penetrometer, also, struck metal in a number of places, suggesting the presence of iron armor. In some instances, metal was hit at elevations of 65 to 68 ft, at or near the top of the interpreted intact remains. This lead to the presumption that armored sections of the gunboat still existed intact and, possibly, in situ.

Albertson and Hennington (1992:20) argued that the wreck of the *Ed. F. Dix* lay east of that of the *Eastport*, as shown in Figure 4-9. They based this interpretation largely on soil boring T3, which struck solid wood at a depth of about 34 ft below the surface, equivalent to an elevation of about 67 ft (NGVD).

### ***The USS Eastport***

These interpretations of the lay and condition of the two wrecks have partially been supported by the archaeological investigations. Figures 5-1 and 5-2 present our interpretation of the extent of the remains of the two vessels and their positions relative to one another, to the Red River, and to the excavated “pool.” These interpretations have drawn upon the results of the archaeological excavations

and the various cores taken at the site. In these drawings, the length used for the *Eastport* is 280 ft, as given in most official accounts, although it may have been somewhat shorter. Figure 5-1 presents an east-west section across the site following the long axis of the wreck of the *Eastport*. As can be seen, approximately the forward one-third of the *Eastport* lies within the excavated “pool” and this was the portion of the vessel available for archaeological examination. The sloping edges of the pool are shown as they were planned, which is not exactly as they existed during the archaeological work. The bottom of the pool was actually slightly narrower than shown in the figure because of some sloughing of the sides and, apparently, because the initial hydraulic dredging did not clear the sides as far back as planned. What this means is that the bow of the *Eastport* actually extended under or slightly beyond the bottom of the eastern wall of the pool as it was constructed.

Probing and excavations revealed that much of the forward third of the *Eastport* is intact, at least from the main deck down. The wreck of the *Ed. F. Dix* rests on the forward end of the casemate and much of the forward main deck of the gunboat (Figure 5-1) so the specific condition of the *Eastport* under the remains of the *Dix* is unknown. However, there is no reason to believe that the condition of the *Eastport* under the *Dix* is much different from where it could be reached by probes or excavations. The main deck and the casemate deck of the *Eastport* lie at about the same elevation, approximately 35 ft below the surface of the pool, equivalent to a true elevation of 58 ft (see Figure 5-1). Reports on the depth of the hold of the *Eastport* range from 6 to 8.5 ft, meaning the bottom of the hull would be at a true elevation of between 49 and 52 ft. The cores taken by the Corps of Engineers revealed that Tertiary deposits were encountered at an elevation of about 52 ft (see Figure 4-9). In some cores, interpreted boat remains were found immediately above the Tertiary deposits, and it was assumed that both vessels rested directly on this formation. The bottom of the *Eastport* was not reached during the archaeological work, but if a depth of hold of about 6 ft is assumed, then the excavations support the data provided by the cores as to the elevation of the Tertiary deposits and to the fact that the wreck of the *Eastport* rests directly on them. However, it is assumed that the depth of hold of the gunboat was closer to 8 than to 6 ft, meaning that the bottom of the hull lies nearer to a true elevation of 50 ft, rather than 52 ft. These small differences between the elevations obtained during the coring program and those

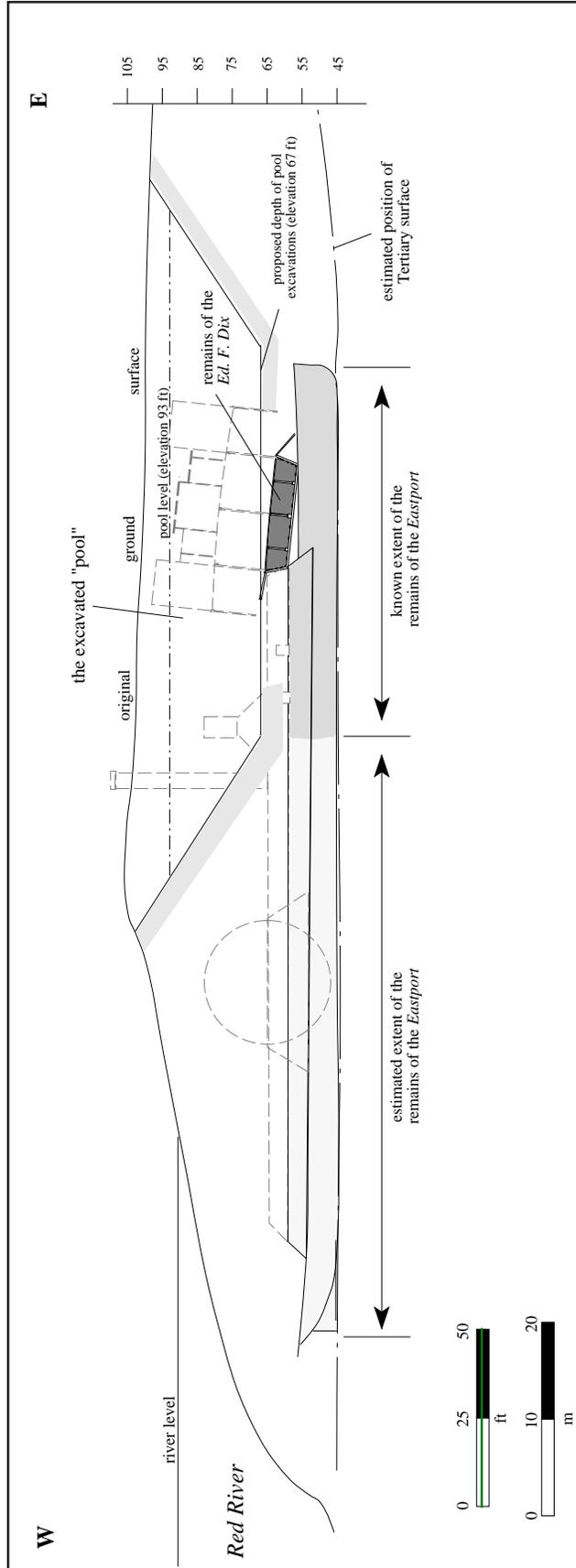
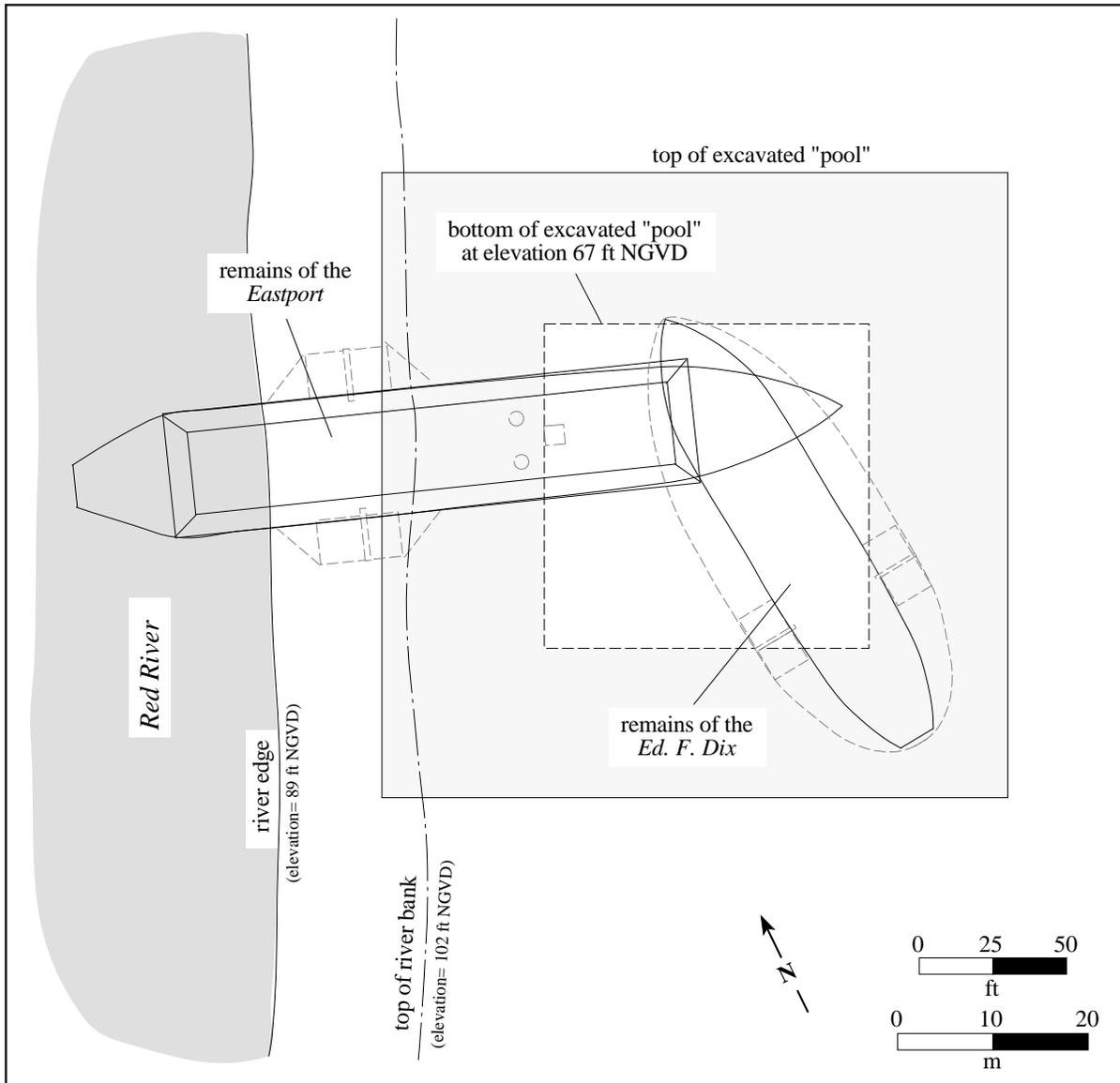


Figure 5-1. East-west profile showing positions and estimated extent of the remains of the *Eastport* and *Ed. F. Dix* relative to the Red River and the excavated "pool." Presumed missing portions of the two vessels are shown in gray.



**Figure 5-2. Plan view showing positions and estimated extent of the remains of the *Eastport* and *Ed. F. Dix* relative to the Red River and the excavated “pool. The guards of the *Ed. F. Dix* and presumed missing portions of the *Eastport* are shown in gray.**

recorded in the archaeological excavations are believed to be the result of minor inaccuracies in depth estimates obtained from cores because of the several feet of topographic relief at the site coupled with inaccurate positioning of cores, as discussed earlier.

The archaeological excavations verified that portions of the port and forward walls of the *Eastport*'s casemate are intact, with armor plating attached. Additionally, attached armor plates were found along

the starboard side of the gunboat, but it is not clear if these are on the casemate proper or on the exterior of the hull of the boat. Accounts indicate that armor extended down the side of the hull (a distance of 4 ft according to the *Cincinnati Daily Commercial* [August 23, 1862]), meaning the later interpretation is a possibility. One or two probes encountered metal near the identified bow of the *Eastport*, but the probing found no large expanses of metal in this area. If the *Cincinnati Daily Commercial* (Au-

gust 23, 1862) report that the decks of the *Eastport* were covered with 0.75-in-thick iron armor is correct, then much of the metal now appears to be missing from the forward deck. It is not known if this plating was removed to lighten the boat during its attempt to escape down river, by the explosion of April 26, 1864, by subsequent actions of the river or by purposeful salvage after the scuttling.

As shown in Figures 5-1 and 5-2, the aft 170 ft or so of the *Eastport's* hull, also, is believed to be largely intact. This area of the wreck could not be examined archaeologically, but the magnetic data and the results of the coring program support the belief that it is intact. As shown in Figure 4-11, the magnetic signature extends about 50 ft into the Red River, suggesting that the source object may also extend this distance into (under) the river. As depicted in Figures 5-1 and 5-2, the hull of the gunboat extends about 60 ft under the river, a distance very close to that indicated by the magnetic signature. Much of the wreck lies under the sloping bank of the Red River, including the location of the paddlewheels. As interpreted in Figure 5-1, the remains of the *Eastport* lie beneath only about 28 ft of sediment at the edge of the Red River, as opposed to about 45 ft where archaeological excavations were conducted some 200 ft from the river. These differences in depth of burial translated into significant differences in the distance between the source (i.e., the remains of the *Eastport*) and the magnetometer sensor when the systematic magnetic survey of the site was conducted in 1992. As discussed in Chapter 4, these differences in distance to the wreck, not the condition or content of the wreck itself, are believed to account for most of the variations in intensity of the recorded magnetic signature. This implies that the overall condition of the portion of the *Eastport* lying under the sloping bank of the Red River and under the river itself, is likely to be similar to the portion actually examined archaeologically. Thus, it is very reasonable to believe that much, if not all, of the hull, as well as the lower part of the casemate, are intact along the entire length of the vessel.

Several of the cores taken along the bank of the Red River support this conclusion. As shown in Figure 4-9, boring number 17 (one of the fishtail borings) struck wood interpreted as part of the *Eastport* at an elevation of about 60 ft. This is very close to the 58-ft-elevation of the identified casemate deck and it is assumed that the core struck this feature. As discussed, the exact position of many of the borings is questionable, but the location of boring 17 at the

top of the riverbank does not seem to be in doubt. This would place the boring near the center of the *Eastport*, probably a short distance forward of the paddlewheels (see Figure 5-1). No deep corings were made closer to the river because of the difficulty of getting the coring rig into this area, but several 3-in-diameter auger borings were placed in this area. Two of these auger borings, numbers 1 and 6, appear to have been placed along the fore-and-aft axis of the *Eastport*, as shown in Figure 4-9. Neither struck identified vessel remains and, as can be seen in Figure 4-9, Albertson and Hennington (1992) took this to mean that the wreck did not extend this far toward the river. However, it is our belief that the wreck does extend to and beyond (i.e., westward of) the locations of these cores, as is indicated by the magnetometer data. As shown in Figure 4-9, neither of these two auger borings extended below a true elevation of 60 ft, two feet above the known elevation of the intact decking of the *Eastport*. The two borings simply did not extend deep enough to hit the wreck. Both borings did encounter a sand deposit extending from an elevation of about 66 ft down to the bottom of boring number 1, at about 60 ft. This thick sand feature is almost certainly a sand bar that developed over the stern portion of the *Eastport*, probably part of the same feature found covering the bow of the gunboat during excavations in Area 4.

As shown in Figure 4-9, fishtail boring number 22 struck metal at a reported depth of 36 ft below the surface, equivalent to a true elevation of 68 ft (Albertson and Hennington 1992:20). No marker for this boring was found during the systematic survey of the site in 1992, such that its exact position cannot be determined. However, it did fall almost exactly halfway between soil boring T3, whose position is known (see Figure 4-12), and the edge of Red River. This would place the boring at the extreme western edge of the bottom of the excavated pool, or near the base of the sloping western edge of the pool. As shown in Figure 5-1, this would be in the vicinity of the pilothouse and smokestack of the *Eastport*, as the position of the remains are now interpreted. The shallowest intact boat remains found during the archaeological excavations were the guard beams and deck beams along the port side of the *Ed. F. Dix*, at a depth of about 29 ft below the surface of the pool, or a true elevation of approximately 64 ft. This is 4 ft lower than the metal struck in fishtail boring 22. It is possible that portions of the *Eastport* do rise several feet above this elevation along that portion of the boat lying west of the area exam-

ined archaeologically. In fact, it is likely that the shallowest pieces of the wreck would be in the area of the pilothouse, the feature that constituted the highest structure on the gunboat likely to have withstood the explosions of April 1864 and subsequent impacts of the river. The pilothouse proper rested on a six-sided cone construction, all of which was strongly built and heavily armored. These features rose 15 ft or so above the top of the casemate. A reasonable interpretation is that boring number 22 struck a portion of the pilot house structure that is still intact or it hit the displaced remains of the pilot house that are lying on top of or within the collapsed casemate.

As discussed earlier, in 1980 a trench-fill revetment was constructed along the riverbank at site 16 GR 33. There is no doubt that the revetment extended across the remains of the *Eastport*, but it is unsure if construction extended deep enough to impact the wreck. Revetments are built to halt bank line erosion. In the construction of a rock-fill revetment, a deep trench is dug behind an eroding riverbank. The land side of the trench is angled to form the desired bank slope and then the trench is filled with large rock. A thin balk of soil is left between the rock fill and the river, which, ultimately is washed away, leaving a thick mantel of rock covering and protecting the new riverbank. Auger boring 1 struck what was thought to be rock or metal at an elevation of about 72 ft, well above the remains of the *Eastport* (see Figure 4-9). No other similar objects were struck below this depth in the other auger borings, suggesting that, if these objects were associated with the construction of the rock revetment, they lie well above the presumed position of the *Eastport*. However, as shown in Figure 5-1, the remains of the *Eastport* are believed to extend under the river, well beyond auger boring 1. The extreme stern of the gunboat, if still intact, would lie about 20 ft beneath the present bed of the Red River. It is unknown if revetment construction extended this far out in the river or to the depth of the wreck. No records at the Vicksburg District indicate that anything unusual was encountered when the revetment was built. However, the wreck could have been unknowingly impacted during the construction, or, if something was struck, it may not have been recognized as a wreck and gone unreported.

Contemporary reports of the purposeful destruction of the *Eastport* generally emphasize that the gunboat was completely and “utterly” destroyed. Admiral David Porter reported that the gunboat “was completely destroyed, as perfect a wreck as ever was

made by powder” and noted that nothing but the “iron plates” remained after the wooden structure to which they were attached had burned away (ORN I:26:74). However, Porter, also, stated that the remains of the *Eastport* would create a “troublesome obstruction” and would block the Red River, meaning that some large portion of the vessel remained after the explosion. The archaeological evidence that all or most of the hull of the *Eastport* is extant would seem to indicate that the contemporary descriptions of total destruction referred, principally, to the upper works of the gunboat. These certainly would have been most affected by the explosions whose major force would probably have been directed upward and outward, imparting lesser damage to the hull of the gunboat. The strength of steamboat hulls and their ability to withstand all manner of injury are attested to by the discovery of several well preserved and intact hulls of nineteenth century steamboats, as has been discussed previously. And the hull of the *Eastport* was no ordinary steamboat hull; it had been heavily reinforced and strengthened during conversion.

It is possible that Union statements about the completeness of the destruction of the *Eastport* were slightly exaggerated, intended to inform and convince officials and the public that nothing of value was left behind for the Confederates. In fact, the Confederates did attempt some salvage of the remains of the gunboat, recovering two usable pumps that had survived the explosion (ORA I:34:585). It is unknown if other items were removed at this time, nor if any later salvage efforts were attempted. Pieces of armor were removed from the boat, as indicated by Dr. Milton Dunn’s notation that he had taken a piece and placed it in the fireplace of the “Congo Cabin” at Melrose Plantation south of Natchitoches, Louisiana (Dunn n.d.), and by the article in the Winnfield, Louisiana, newspaper reporting on the donation of a piece of the *Eastport*’s armor to a proposed museum (*Enterprise-News American* March 4, 1965). It is not known when either of these pieces of armor was removed from the wreck, but Dr. Dunn would have acquired his prior to the 1920s. Available maps seem to indicate that the river had shifted westward across the wreck by the 1880s, possibly burying it completely and ending any possibility of salvage.

### ***The Ed. F. Dix***

Hydraulic probing and archaeological excavation reveal that the wreck of the *Ed. F. Dix* lies in a north-south direction across the bow of the *Eastport*

(see Figure 5-2). Excavations were unable to reach the bow stem of the *Ed. F. Dix*, but it is believed to be located under the northern edge of the base of the pool, as shown in Figure 5-2. Similarly, excavations to examine the steamer in the southern corner of the pool were unsuccessful, but hydraulic probing suggests that most or all of the main deck (and, presumably, the hull) of the boat is intact and in place within the bottom of the pool. As shown in Figure 5-2, if the rest of the hull of the *Dix* is extant, as seems likely, then it extends about 35 ft beyond the southern corner of the bottom of the pool, placing the stern beneath the sloping sides of the excavation. Large numbers of buried logs, branches, etc., prevented careful delineation of what would be the central one-third or so of the hull of the *Dix*. However, probes in this area revealed flat surfaces of solid wood at depths ranging from 32 to 36 ft below the surface of the pool, equivalent to true elevations of 61 to 57 ft. It is believed that the shallower probes mark the main deck of the steamer, while those that extended to deeper depths were penetrating openings or holes in the deck planking and striking wooden structure inside of the hull. The one or two probes that reached elevations of 57 ft may have been striking the bottom of the hold of the steamer, but this cannot be confirmed.

The bow of the *Dix* is lodged on top of the forward casemate wall of the *Eastport* and several iron plates in the forward port corner of the casemate penetrate through the bottom of the hull of the steamer along the port side. Excavations revealed that the armor at this location represents only the lower several feet of the *Eastport's* casemate wall, meaning that the upper portions of the casemate were already missing when the *Dix* struck in June 1865. The position of the *Ed. F. Dix* suggests that she was following the east bank of the Red as she steamed upriver on the morning of June 23, 1865, because the 280-ft-long *Eastport* certainly would have occupied much of the central and western portion of the river, which is estimated to have been about 500 to 550 ft wide at this point. It is assumed that the pilots aboard knew about the *Eastport* and the dangers the wreck presented, but the casemate where the *Dix* struck was covered by water and could not be seen. The archaeological evidence supports this contention that the casemate was underwater at the time of the accident, because the iron plates penetrate through the bottom of the hull and extend upward into the hull no more than about 2 ft. Fully loaded, the *Ed. F. Dix* would have had a draft of at least 3 ft, and possibly more. Therefore, while the casemate of the

*Eastport* was underwater, it certainly wasn't very deep, possibly only one or two feet beneath the surface of the river. There are no reports that any part of the wreck of the gunboat was visible at the time of the accident. However, if fishtail boring 22 actually hit portions of the pilot house of the *Eastport* at elevations of 68 ft, as suggested above, these would place them about 7 ft above the top of the armor plates that penetrated the hull of the *Dix*. This was certainly well above the level of the river at the time of the accident. The pilots may have seen this portion of the wreck and simply came too close.

Where the hull of the *Dix* rests on top of the *Eastport*, it is tilted about 6 degrees down toward its starboard side. As shown in Figure 5-1, this list is produced because the port side of the *Dix* rests on top of the extant casemate wall, while the starboard side is resting on the main deck. The forward third of the main deck and hull of the *Dix* appears to be entirely intact and well preserved; the guard along the port side is even extant. Where it rests on the *Eastport*, the main deck along the port side of the *Ed. F. Dix* lies at an elevation of 63 to 64 ft, several feet above the shallowest portion of the identified main deck farther aft. It appears, then, that the hull of the *Dix* tilts down toward the stern, in addition to listing toward the starboard side. When the steamer struck the *Eastport* and sank, the stern simply settled to what was then the bottom of the river, while the bow remained perched on top of the wreck of the gunboat. It should be noted that the starboard list of the hull of the *Dix*, so obvious at the bow, was not so apparent farther aft. It could be that the entire hull of the steamboat is twisted slightly; containing an obvious starboard list along that portion that rests on the *Eastport*, while lying on a more even keel along that portion of the hull resting on the old river bottom. However, all of the depth measurements for the portions of the *Ed. F. Dix* not resting on top of the *Eastport* are from hydraulic probing; less accurate than those obtained during the archaeological excavations at the bow. Thus, it is impossible to state with certainty that the hull of the *Dix* lists toward the starboard side along its entire length.

During the hydraulic probing to try to delineate the hull of the *Ed. F. Dix*, metal was struck by several probes at grid coordinate N95E160 (see Figure 4-15). The exact size and shape of the metal object could not be determined, but it appeared to encompass a relatively small area, less than a few feet or so across. The location of this metal falls very close

to the estimated position of the starboard edge of the hull of the *Ed. F. Dix*, at or just forward of the starboard paddlewheel as the remains of the steamer are portrayed in Figure 5-2. It is possible that the probe was striking metal objects associated with the paddlewheel shaft and bearing or the engine and pitman, which would be located just forward of the wheel. The metal was struck at a depth of 31 ft below the pool surface, a true elevation of 62 ft, slightly above the 61-ft-elevation thought to represent the surface of the main deck in this area. The engine and paddlewheel mechanism would have been located on top of the main deck and it may be that the probes provide evidence that some of the machinery is still on the vessel. If an extensive amount of iron in the form of engines and machinery is still on the *Ed. F. Dix*, it may be reflected in the isolated magnetic high located toward the eastern side of the site (see Figure 4-11). However, this high is situated off to the side of the vessel and may not be associated with the steamer's machinery at all.

Also, as can be seen in Figure 4-11, the position of soil boring T3 is directly over the hull of the *Dix*, in the vicinity of the paddlewheels. As discussed previously, this boring struck solid wood at a depth of about 34 ft below the ground surface, equivalent to an elevation of about 67 ft (NGVD). Although Albertson and Hennington (1992) correctly interpreted the boring as being over the *Ed. F. Dix*, this elevation is almost certainly too high for the main deck of the steamboat, which lies about 6 or 7 ft deeper than this. What the core struck is unknown. It could have been one of the numerous logs lying on top of the boat in this area or it, may, very fortuitously have struck some intact portion of the wreck that rises above the main deck. This latter assumption seems rather unlikely, but hydraulic probing did reveal some solid wood surfaces at elevations a foot or two above the presumed level of the main deck on this portion of the wreck. For example, a probe at grid coordinate N99E180, about 20 ft northeast of the metal just discussed, struck a solid wood surface, apparently flat, at an elevation of 64 ft, about 3 ft above the presumed level of the main deck. Similarly, solid wood was struck 2 ft above the level of the main deck in the vicinity of grid coordinate N99E150 (see Figure 4-15). Probes were able to follow this surface for a distance of 6 or 8 ft. The identity of this feature is unknown, but it does appear to fall just outside of the starboard side of the hull and it may represent structure associated with the starboard paddlewheel box that would have been located in this area.

As with the *Eastport*, the combined data from the coring program, the hydraulic probing and the archaeological excavations reveal that most, if not all, of the hull of the *Ed. F. Dix* is intact and well preserved. Also, there is good evidence that much of the main deck of the steamer is still in place and some pieces of machinery may remain on the wreck, although this latter presumption is tentative. It appears that the entire superstructure is missing, probably torn away soon after the sinking by river current. Further, excavations into the forward hold of the *Dix* reveal that some of the vessel's military cargo is still aboard. The presence of the cargo may indicate that no efforts were made at salvage, however, this may apply only to the hold of the boat. The types of items found in the forward hold, principally food-stuffs, would have been ruined when the hull flooded and, thus, would not have been prime objects of salvage. The steamer's engines, pumps, and other machinery would have been very desirable and would have been recovered if at all possible. No record of salvage of either vessel has been found other than the accounts of the removal of material from the *Eastport* by the Confederates immediately after her sinking and the twentieth century reports of a couple of pieces of iron armor taken from the gunboat. The large claim paid to the owners of the *Ed. F. Dix*, obviously for the full value of the boat, suggests that they, at least, undertook no official salvage of the steamboat. This, however, does not mean that local residents would not have removed items if this was possible.

#### ***Assessments of Significance and National Register Eligibility***

One of the principal objectives of the present study was to gather sufficient information to make assessments of significance of the two wrecks in terms of National Register criteria. The assessment of significance of a cultural or historic property (e.g., an archaeological site) is an important element of Federally-driven cultural resources investigations. It provides a measure of the historical and archaeological importance of a property relative to other, similar properties, plus it represents a statement about the public value of the resource as an individual entity. Thus, the concept of "significance" has important management, as well as research, implications because it gives Federal agencies a basis for evaluating how individual and/or groups of cultural properties should be treated, a critical tool in establishing preservation goals and implementing management plans. In Federally funded, sanctioned, or per-

mitted projects, such as the present study, the established standard for determining site significance is the evaluation of a property relative to its eligibility for nomination to the National Register of Historic Places. Historic watercrafts, both as intact, floating vessels and as archaeological wrecks, have been recognized to be a distinctive type of historic property. Because of this, the National Park Service (1985) has published *National Register Bulletin 20* to deal specifically with the procedures and rationale for determining the significance of historic watercraft and for nominating them to the National Register of Historic Places.

*National Register Bulletin 20* identifies five basic types of historic vessels that may be eligible for nomination to the National Register of Historic Places. One of these types is “Shipwrecks,” the category into which the *Eastport* and the *Ed. F. Dix* fall. A shipwreck is defined as:

A submerged or buried vessel that has floundered, stranded, or wrecked. This includes vessels that exist as intact or scattered components on or in the sea bed, lake bed, river bed, mud flats, beaches, or other shorelines, excepting hulks [National Park Service 1985:2-3].

*National Register Bulletin 20* notes that a vessel’s significance is based on its representation of vessel type and its association with significant themes in American history and a comparison with similar vessels. Specifically, to meet the requirements for eligibility to the National Register a vessel must:

... be significant in American history, architecture, archaeology, engineering, or culture, and possess integrity of location, design, setting, materials, workmanship, feeling, and associations. To be considered significant the vessel must meet one or more of the four National Register criteria:

- A. be associated with events that have made a significant contribution to the patterns of our history; or
- B. be associated with the lives of persons significant in our past; or
- C. embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a signifi-

cant and distinguishable entity whose components may lack individual distinction; or

- D. have yielded, or may be likely to yield, information important in prehistory or history [National Park Service 1985:5-6].

In the case of shipwrecks, as opposed to intact vessels, significance requires that any given wreck display sufficient physical integrity to address architectural, technological, and other research concerns. Beyond the question of physical integrity, an assessment of significance of any given historic shipwreck must be considered within well developed archaeological and historic contexts. The archaeological context requires a consideration of the nature and scope of the known archaeological resources base of wrecks, while the historic context must consider the individual vessel within the appropriate political, social, military, economic, and technological spheres. Each of these types of contexts is briefly discussed below, as it is pertinent to the *Eastport* and the *Ed. F. Dix*.

An understanding of the archaeological database is particularly important in assessing whether or not a particular wreck is representative “of a type, period or method of construction.” Within Louisiana as a whole, a fairly large number of wrecks of various types have been discovered, primarily as a result of cultural resources management studies. However, very few of these wrecks have been identified and fewer still have been studied in any detail or assessed in terms of National Register criteria (Terrell 1990). No central comprehensive file of discovered wrecks exists within the state, but state site and report files and a wreck data base kept by the New Orleans District, Army Corps of Engineers, provide some indication of the numbers of historic wrecks that have occurred in Louisiana. While there are large numbers of wrecks reported in these files (close to 2,000), most are historically documented events, only a very few are confirmed archaeological properties. Particularly relevant to the present study is the work by Pearson and Wells (1999) that deals specifically with the Red River in terms of its known and potential population of steamboat wrecks. That study noted that, while a very large number of steamboats are reported to have been lost on the Red River (n=363) and its major tributaries, only a small number had been discovered and even fewer had been studied in any detail. The only steamboat wrecks known to have been subjected to any systematic archaeological study are the *Homer*, located on the

Ouachita River at Camden, Arkansas (Pearson and Saltus 1993); the *Kentucky* (16BO358), located at Eagle Bend on the Red River south of Shreveport (Seidel and Robinson 1997), and the two boats considered in this study, the *Eastport* and the *Ed. F. Dix*. A number of remote-sensing surveys have been conducted along Red River and several of these have located targets that may represent sunken and/or buried vessel remains of some sort, but none have been verified.

Interestingly, all four of the steamboats mentioned above represent Civil War-era wrecks. Several other Civil War-era shipwrecks have been discovered in Louisiana and adjacent areas, but few have received the level of archaeological study given the ones noted above. One that has is the Confederate gunboat *Arrow* (16ST99), whose well-preserved remains lie in the West Pearl River of Louisiana (Pearson and Saltus 1996). As far as is known, the wreck of the *Arrow* represents the only Confederate naval vessel to have received any scientific study in Louisiana, and it has been determined to be significant and eligible for inclusion in the National Register of Historic Places.

Because such a very small number of historic watercraft have been found and studied in Louisiana, Pearson and Saltus (1996) argued that almost any "historic vessel found in Louisiana waters that displays sufficient integrity to provide information on its manner of construction and place or date of build, and which can provide unique information on its type, has a fairly high chance of being determined significant." Dealing only with the Red River, Pearson and Wells (1999:217) similarly stated that any historic vessel showing "even minimal integrity" would almost certainly be considered significant. These arguments are still valid today and are applicable to the *Eastport* and *Ed. F. Dix*.

Assessments of significance require that the vessel of interest be evaluated within an appropriate historical context. In the present instance, the histories of the two steamboats, the *Eastport* and *Ed. F. Dix*, have been carefully followed. Information has been drawn from a variety of sources in an effort to provide a full and comprehensive story of the activities of the two vessels. In addition to examining each boat in detail, where possible, discussions have attempted to place the steamboats into broader economic, technological and military contexts. It is argued that the *Eastport* and *Ed. F. Dix* serve, in many instances, as "typical examples" and thus can be used

to elucidate broader themes. For example, the activities of the *Eastport* as a Tennessee River steamer is considered representative of the trade in general as it existed in the mid-nineteenth century and, thus, the operation of the steamer in this trade are examined in great detail. Likewise, the *Ed. F. Dix* provides some insight into the Missouri River trade of the period, although the boat was involved in the trade for such a short period of time that this development is not very strong. Additionally, both steamers enhance and expand our knowledge and understanding of many aspects of mid-nineteenth century steamboat technology and economics, ranging from the nature and value of cargoes carried, to the cost of construction, to the nature and structure of steamboat ownership.

Both of these steamboats were involved in the Civil War, but in very different capacities. The available historical record has allowed us to follow the activities of the *Eastport* through the war in great detail and from this vantage point examine the Mississippi Squadron in general, and its activities during the 1864 Red River Campaign in particular. Much less can be said about the wartime activities of the *Ed. F. Dix*, but even so her story provides an opportunity to examine two generally ignored and unstudied aspects of the war; Quartermaster Department transport steamers and the Texas Campaign of 1865.

While both of the steamboats can be considered typical in many ways, each also was very unique. The *Eastport*, in particular, had one of the most unusual and fascinating histories of any gunboat of the Civil War. She started her military life as one of the first ironclad Confederate gunboats and ended it as one of the largest and most powerful Union gunboats to serve on the western rivers. During her military career, the USS *Eastport* was closely associated with several prominent Civil War personages. First, there was Confederate Lieutenant Isaac Brown, who started her conversion, and then, as flagship of the Western Gunboat Flotilla, later known as the Mississippi Squadron, the *Eastport* served Flag-Officers Andrew Foote and Charles Davis. Finally, throughout her military career the gunboat was commanded by Seth Ledyard Phelps, less well known than the others, but certainly one of the more interesting Civil War naval officers.

In light of the above discussions, there is no doubt that the wrecks of the *Eastport* and the *Ed. F. Dix* meet the criteria for significance and are eligible for inclusion in the National Register of Historic Places.

It is quite obvious that the physical remains of both vessels possess sufficient integrity to meet these criteria. In fact, it may seem that the boat remains are surprisingly complete and well preserved, particularly in light of the purposeful attempts to destroy the *Eastport*, plus the fact that both vessels were subjected to the full impact of the current of the Red River for some period of time. As Pearson and Wells (1999) have noted, however, the geomorphic characteristics of the Red River provide many settings where sunken boats or, at least, large segments of boats, have a good chance of being preserved. We should expect that other sunken vessels now exist as archaeological sites along the river, even though few have been found.

The two wrecks meet National Register eligibility Criteria A, B, C and D as has been fully documented in this report. Both steamer's association with the Civil War means they were "associated with events that have made a significant contribution to the patterns of our history" and, therefore, are considered significant in terms of Criterion A (see above). Furthermore, both vessels meet Criterion C in that they "embody the distinctive characteristics of a type, period, or method of construction." This, of course, is particularly true of the *Eastport*. Only a small number of wrecks of Civil War naval vessels have been discovered and fewer still have been examined and studied carefully. In terms of Union western river gunboats, the *Eastport* appears to represent only the second of these to have been found and studied. The other is the City Class gunboat *Cairo*, raised from the Yazoo River and now a museum at the Vicksburg National Military Park (Bearss 1980). The *Eastport*, as a converted packet steamer, was a quite different type of gunboat and as an archaeological entity, represents our only physical representation of this class of military vessel.

While not as unique an archaeological entity as the *Eastport*, the steamboat *Ed. F. Dix*, also, embodies distinctive characteristics of an important type of American vessel, the western river steamboat. Historical literature on steamboats is fairly abundant, but certain aspects of that history are poorly documented and many gaps still exist in our understanding of steamboats. Some of the information needed to fill these gaps is going to come only from the physical remains of steamboats themselves. Because so few nineteenth century steamboat wrecks have been discovered, the remains of any steamboat of the period are likely to provide classes of information unavailable elsewhere. For example, the archaeo-

logical examination of the *Ed. F. Dix* collected many details on construction, some of which correspond with what is already known, but others appear to be unique. The wooden pump tube found on the wreck seems to be a unique feature, possible installed in the steamer because of her intended use in the New Orleans-Mobile trade. However, little attention has been paid to such mundane items as pumps and the type found on the *Dix* may have been more commonly used than is thought.

Further, the *Eastport* was closely associated with a number of important Civil War personages, as has been noted earlier. These include Isaac Brown, Seth Phelps, Andrew Foote, Charles Davis and David Porter, individuals who were nationally important, principally, because of their Civil War activities. In this regard, the wreck of the *Eastport* is significant in terms of Criterion B. The *Ed. F. Dix* is less easily considered significant in terms of this Criterion, however, the steamer was owned by a number of the most prominent steamboatmen of the period. These included John G. Prather, William H. Thorwegan, Henry Ealer and George Pegram. These men were involved with steamboats for many years and most made important contributions to steamboating and were consequential figures in the business history of St. Louis.

Finally, and possibly most importantly, both wrecks meet Criterion D in that they have provided information important in history. This includes history in the narrow sense, as it relates to the workings and lives of the individual vessels, as well as history in the broader sense, as it relates to the role that each vessel played in wider themes of American history. These two aspects of history have been fully discussed in earlier chapters. Like many archaeological sites, the two vessels provide points of departure for discussing and understanding a variety of questions of historical interest and importance. These include such historical topics as the technological development and economic activities of western river steamboats, the technology of gunboat construction during the Civil War, and the workings of the Western Gunboat Flotilla during the war. The histories of the two vessels, also, provide unique information on particular Civil War operations, the Red River Campaign and the 1865 Texas expedition. The former is well known and has been written about extensively, but the later has been largely ignored. The history of the steamer *Ed. F. Dix* provides some unparalleled and valuable information on the little-known Texas expedition.

In light of the above discussions, there is no question that the wrecks of the USS *Eastport* and the *Ed. F. Dix* are historically significant and eligible for inclusion in the National Register of Historic Places. Therefore, it is recommended that the Vicksburg District, seek a determination of eligibility for the wrecks.

### ***Conclusions***

The wrecks of the *Eastport* and the *Ed. F. Dix*, individually, certainly represent significant and invaluable cultural resources. The fact that they are found together at the same site, however, must truly be a singular and unduplicated circumstance. The authors know of no other archaeological site where a nineteenth century merchant steamer lies on top of a nineteenth century naval warship. This very unusual setting provided an opportunity to archaeologically study two quite different types of vessels at the same location. However, as has been detailed in this report, the examination of these wrecks was not an easy undertaking. Uncovering the two vessels involved a major construction effort and the archaeological diving and excavation proved to be arduous. Despite these obstacles, both wrecks were found and identified with certainty, even though the very difficult conditions prevented an examination of the wreck of the *Eastport* to the extent desired.

The discovery and verification of the identity of the two boats validated the approach implemented to find the wrecks. This search for the *Eastport* and *Ed. F. Dix* employed a sequence of phased and integrated research techniques. These included historical research, geological research and historic channel reconstruction, remote-sensing survey (including the innovative use of aerial magnetometer survey), and a program of coring to identify and delineate the target found during the remote-sensing surveys. This approach has been successfully used to discover other western river steamboats and, no doubt, will be used to find more in the future. The revelation that large sections of the two boats are intact and well preserved supports the con-

tentions of many researchers that lost vessels have a good chance of being preserved as archaeological entities in many settings found along the Red River (Pearson and Wells 1999). A few other similarly well preserved boats have been found along the Red and its tributaries, and many more are expected to exist.

Only a small quantity of artifacts were recovered from the two wrecks, but these items are significant and, in many respects, unique objects. The box and barrel pieces from the *Ed. F. Dix* represent rather mundane Civil War artifacts, but artifacts that are rarely recovered from archaeological sites. Similarly, the numerous fasteners from the *Eastport* constitute very ordinary objects. But, some of these are types that have rarely been found or reported. Perhaps most importantly is the fact that these artifacts represent physical expressions of these two significant Civil War vessels. As such, they provide a visible and tangible point of contact with the past. Some of the artifacts are still undergoing conservation and the entire collection is temporarily curated at Northwestern State University in Natchitoches, Louisiana. Once conservation is completed, the artifacts will be permanently stored at a federally approved curation facility. The Vicksburg District plans to place some of the artifacts on public display, as a means of bringing the histories of the two vessels to the general public.

The United States gunboat *Eastport* and the steamer *Ed. F. Dix* represent unique historic properties and their remains are invaluable public resources. In April 1864, Admiral David Porter wrote that the *Eastport* would “soon disappear under the sands;” she certainly did, but she did not disappear from history. At the completion of the archaeological research, the Vicksburg District had the “pool” refilled and the wrecks of the *Eastport* and *Ed. F. Dix* were reburied beneath 40 ft of Red River soil. The gunboat and the steamer are once again removed from sight, but it is hoped that this study will continue to keep their stories alive and bring these historic vessels the attention they so rightly deserve.