Microcosm of Revolution (The Gondola "Philadelphia")

by Philip K. Lundeberg

During the past year, the United States has found itself engaged in a broad range of urgent and oft difficult tasks in social, political and ecological renewal, by way of practical observance of our national Bicentennial. For perspective on these demanding, long-range undertakings, I would focus your attention this evening on discernible elements of human foresight, ingenuity and perseverance that are embodied in a battered yet still intact time capsule from the year of our stroke for independence, a veritable microcosm of that era surviving in the rugged form of the Continental Gondola Philadelphia. Exhibited for over a decade in the Armed Forces Hall of the National Museum of History and Technology, this venerable gunboat is the only man-of-war from the era of the Revolution that has yet been recovered in North America in relatively intact condition.1

Reminiscent of a medieval Viking ship as she rests today adjacent to our Hall of Underwater Exploration, the Philadelphia provides impressive evidence for the contention that we have neglected far too long the archaeological heritage of the American Revolution, a heritage increasingly endangered by suburban development, superhighway construction, and souvenir-oriented scuba divers. Located adjacent to the Museum's Hall of Military Ordnance also a deliberate juxtaposition — this flat-bottomed war vessel preserves very concrete data on the state of naval technology, both in ordnance and naval architecture, at the close of the Colonial Era. Happily, the Philadelphia also illuminates our national experience in microcosm, for her career, outlined in the Naval Documents of the American Revolution currently being published by the Navy Department, has recently achieved a fascinating human dimension. This has been provided by the discovery of her original payroll, a tattered document that was found in, of all places, the Fort Concho Museum on the western plains of Texas. Prior to that discovery this national treasure had been a very considerable enigma — her very identity was subject to serious doubt. That simple document, now exhibited adjacent to the Philadelphia, contains the names of no fewer than forty-four crewmen, mostly from New England, confirming the heavy manning of those fragile craft that defended our northern frontier in 1776, as well as suggesting the presence of numerous experienced watermen on board.²

Few of the *Philadelphia's* crewmen appear in the rolls of our military pensioners and at present only one, Captain Benjamin Rue of Bucks County, Pennsylvania, has been claimed by his descendants for admission to the Daughters or Sons of the American Revolution. Yet the research opportunities made possible by the payroll's discovery makes it clear that this historic national treasure is



now susceptible of virtually unending documentation. Two names that will not be found in our Pension Records are those of the gunboat's second in command, Lieutenant Jonathan Blake, a New Yorker who was cashiered from the service in 1778, and her mate, Joseph Bettys, also of New York, best known in American history by a grim entry in Lorenzo Sabine's Biographical Sketches of Loyalists. Recognized for conspicuous bravery while serving on board the Philadelphia, Bettys was subsequently captured on Lake Champlain, persuaded to enter the British service, and thereupon embarked on a series of bloody vendettas in New York that ended only with his capture, trial and execution at Albany at the conclusion of the Revolution.³ In terms of the familiar threefold division of opinion in America during the Revolution, the unhappy Bettys proved a "swinger" in more than one sense of the word. Such indeed is but a partial cross section of the men that contributed at one time or another to the winning of American independence, a cross section that affords intriguing insight into that distant era of high passions and fragile loyalties.

Let us focus now on that which was once lost yet paradoxically still survives, the time-weathered Philadelphia. Measuring some fifty-three feet from stem to sternpost, this shallow-drafted gunboat was not atypical of the early product of our colonial shipyards, being a rough adaptation of the New England gundelow, a single-masted grain carrier that plied our rivers and bays for nearly two centuries. We are doubtless more conscious today of those surprising works of 18th century American shipwrights such as the Portsmouth-built H.M.S. America, whose model is the oldest such maritime artifact in this country, a ship that handsomely represented a remarkable dimension of the colonial shipbuilding industry in New England: a capability in the construction of complex naval weapons systems that actually antedated the 18th century. Coincident with the launching of such stalwart precursors of American sea power had been the building of humbler fighting craft, vessels of a dimension frequently met in the



The Continental Gondola *Philadelphia*: Bow view showing main battery arrangement, with 12-pounder bow chaser on slide carriage.

Baltic, Mediterranean and indeed North American waters during 18th century coastal and riverine warfare.4 At the outset of our Revolution, even as the Marine Committee of the Continental Congress projected the building of frigates and privateers for high seas operations against British merchantmen, committees of safety and provincial assemblies began authorizing the construction of numerous inshore fighting craft in the process of establishing state navies, forces intended for coastal protection and riverine defense. The energies expended on such wartime shipbuilding and armament can scarcely be overestimated. Row-galleys, brigs and converted small merchantmen figured prominently in the development of the Virginia Navy from 1776 to 1778, affording a most tempting target for the British squadron of Sir George Collier, who reported destroying some 137 vessels during his raid in the lower Chesapeake in 1779, including, as he noted, "numbers of beautiful men-of-war on the stocks." Much the same was true in Pennsylvania and in New England.⁵

The character of such rapidly-built and highly-expendable fighting craft has remained obscure, however, save on the northern frontier, more specifically along the historic Champlain invasion corridor. Here it was that the human dimension of the *Philadelphia's* story first emerged, as early as the fall of 1775, when young Benjamin Rue of Bucks County marched northward with the First Pennsylvania Battalion on Brigadier General Richard Montgomery's surprising thrust against Montreal and, with tragic ill fortune, against Quebec, the last British stronghold in the St. Lawrence Valley. You are familiar with the narrow failure of that classic joint assault by the forces of Montgomery and Benedict Arnold on New Year's Eve and with the grim account of Arnold's stubborn retirement back up the St. Lawrence early in 1776, months in which Ensign Rue was entrusted with command of a schooner, according to his surviving pension application.⁶ In contrast to the dearth of information available on Arnold's St. Lawrence flotilla, extensive technical data survives in British and Canadian archives on a variety of fighting craft that subsequently were silhouetted in the Northern Campaign of 1776 on Lake Champlain, vessels ranging from small ships, schooners, galleys and radeaux (floating batteries) to single-masted gondolas and unarmed batteaux. Future efforts at underwater exploration may well recover one or more of those two-century old craft that figured in Arnold's paradoxically successful Champlain campaign in 1776, an epic with which readers of Kenneth Robert's masterful Rabble in Arms are minutely familiar.7

The distinctive fighting craft that served in Arnold's squadron that made its gallant stand at Valcour Island on October 11, 1776 — and indeed in Sir Guy Carleton's more powerful invasion force from St. Johns to the northward, have been strikingly depicted in two eye-witness watercolors by a young British participant, Charles Randle, whose works survive in the Public Archives of Canada. Randle caught Carleton's force just as it was about to round the southern tip of Valcour and discover Arnold's vessels, drawn up in a rough crescent to repel the British attack. The artist's second canvas documented Arnold's shrewd deployment precisely, with the flagship Royal Savage maneuvering in the foreground, flaunting her huge Cambridge flag, taunting the British as they attempted to beat to windward and mount an overwhelming attack. We need not detail here the five-hour cannonade that ensued, examine each of the ship types engaged, or recount at length the final moments of either the Royal Savage or the Gondola Philadelphia, the latter sunk as Carleton's Indian allies on the surrounding shores awaited a midnight massacre. A comprehensive view of the final tactical situation at Valcour Bay depicts Royal Savage already aground and gutted and a line of Hessian gunboats closely engaged with Arnold's trapped force. Meanwhile larger British ves sels, including the ship Inflexible, await a favorable shif in the wind, as depicted by the British artist Henry Gilder whose watercolor, found today in Windsor Castle, pro vides a classic example of 18th century intelligenc sketching.8

As befits a unique microcosm, let us turn from the broader canvas to that which yet survives, the durable *Philadelphia*, which although fatally holed by a twenty four pound shot at dusk, prior to the subsequent pursui and eventual destruction of Arnold's force farther down Lake Champlain, paradoxically reached the Smithsonian Institution in 1961, some 185 years after she had settled to the bottom of Valcour Bay. The exact identity of th American gondola sunk off Valcour on that occasion ha long been debated, for the British artist Randle, in caption ing his remarkable drawing, indicated that the *Philadee phia* was sunk on October 13, while the gondola *Bosto* was identified as being sunk on the 11th. This inconsist



Quarter view of the Philadelphia, showing disposition of armament, including swivel brackets on gunwales. Original mainmast and spars mounted alongside.

tency with Brigadier Arnold's own action report has finally been clarified by Captain Rue's own pension petition, which verifies that his vessel had indeed been sunk on 11 October 1776. Taken with the long-forgotten *Philadelphia* payroll, that statement conclusively establishes the identity of this national treasure.⁹

Captain Rue's flat-bottomed square-rigger, like much of the remainder of Arnold's Champlain squadron, was not simply the product of backwoods axmen but indeed a distinctive type of gunboat mass-produced by experienced shipwrights and carpenters drawn from several provincial seaports. The Philadelphia story, in a technological sense, had begun on July 3, 1776, when the Continental Congress, sitting at Pennsylvania's chief entrepot, had paused in its labors on the Declaration of Independence and empowered its Marine Committee, then digesting the grim news of Admiral Howe's arrival off the mouth of the Hudson, to dispatch scores of shipwrights and ship carpenters from Boston, Providence, New Haven and Philadelphia itself to the equally endangered northern frontier, to a mosquitoinfested timber factory, Skenesborough, located at the southerly source of Lake Champlain. Two days later, on July 5, some fifty ship carpenters had actually departed Philadelphia with their woodworking tools and proceeded via existing colonial roads and waterways to the small shipyard on Wood Creek, south of Ticonderoga, there oining a building program that was designed to reinforce he handful of vessels with which Arnold then held Lake Champlain. This venture proved decisive for the entire Northern Campaign of 1776, for, owing to the absence of passable roads on either side of Lake Champlain, Sir Guy Carleton was obliged to delay the British advance southward against Fort Ticonderoga until he had built a squadon at St. John adequate to blast aside Arnold's own growng flotilla. The mobility of these Yankee ship carpenters was indeed remarkable. By the end of July, Colonel Anthony Wayne was able to report to Benjamin Franklin hat some 150 ship carpenters from Connecticut and Pennylvania had reached Skenesborough and had already

completed four gondolas.¹⁰ These oak-hulled gunboats, earlier sisters of the *Philadelphia*, were constructed on specifications drafted by the farsighted Arnold early in May, before his forces had completed their withdrawal from Canada.¹¹ It was during the ensuing summer, the gestation period of Arnold's "fleet in being", that Benjamin Rue was designated commanding officer of the incompleted *Philadelphia* and assembled her crew, men drafted on August 10 from the Northern Army encamped near Fort Ticonderoga. The gunboat's 44-man complement included twenty-seven New Hampshire militiamen from the regiments of Colonel's Isaac Wyman and Joshua Wingate, a number of whom had been raised on the Piscataqua and Merrimack.¹²

The progress of Arnold's building effort, with an initial concentration on completion of eight gondolas, followed by four more maneuverable galleys, is well delineated in the *Naval Documents* series. Herein appear myriad supply

The *Philadelphia* Payroll, dated October 16, 1776, and including forty-four officers, privates and "Marreans".



The British Objective in 1776: Survey map of the Province of New York by Claude Joseph Sauthier, published in August 1776 by William Faden of London.

problems, professional controversies, a malaria epidemic and related intelligence activities on Lake Champlain that characterized this bright second chapter in Benedict Arnold's wartime career. Supplied with timber from Philip Skene's confiscated sawmills, one of which was depicted in Thomas Anburey's Travels Through the Interior Parts of America,13 Arnold's shipwrights laid down the oak-framed gunboats on simple, sloping platforms, fitting each vessel with a keelson rather than a keel and following his specifications for their fastenings, "Half Trunnels and Half Spikes", in completing their construction. Arnold had originally envisaged a 45-foot gondola, but the Philadelphia actually measured 53 feet 4 inches, with a molded beam of 15 feet 2 inches. By comparison, afforded in that vivid contemporary watercolor of the Valcour engagement by the British artist Henry Gilder, the Galley Washington ran some 72 feet in length, while the British Radeau Thunderer, the most powerfully armed vessel on the Lake, measured 92 feet long.14

The rugged quality of the *Philadelphia's* construction was not readily apparent when her sunken hull was discovered in 1935 by Captain Lorenzo F. Hagglund, a veteran New York salvage engineer who had recovered the gutted timbers of the flagship *Royal Savage* off Valcour Island the previous summer. Hagglund's achievement was based on careful study of surviving accounts of the Battle of Valcour Island and constituted a notably successful salvage operation. Particularly noteworthy was Hagglund's employment of heavy wooden spreaders which prevented the gunboat's hull from being crushed by the lifting cables during her recovery from a sixty-foot deep. The Philadelphia's discovery and recovery was indeed no undertaking in underwater or marine archaeology as that discipline is now defined. That discipline involving not only extensive historical research — which Hagglund undertook with most fruitful result — but also the establishment of a site grid, photographic survey and the methodical cataloging of individual artifacts in their original positions on board and about the vessel prior to their actual recovery, conservation and eventual reconstitution on the exhibited vessel. Such procedures were not then applied to underwater sites either in North America or overseas. Aside from an intriguing sketch of the position in which her main battery guns and carriages had been discovered by the diver, the Philadelphia emerged without the benefit of a detailed account of the location of the numerous artifacts found on board or nearby.

Although lacking such modern electronic search equipment as the magnetometer or side-scanning sonar, Hagglund and his steel-helmeted diver nevertheless accomplished an exceptional feat in both locating and raising the Philadelphia in intact condition, indeed with her mainmast still standing proudly erect. Lacking the magnetometer and airlift, Hagglund's team could not possibly recover all of the artifacts lying in some feet of Champlain mud about the gunboat's submerge hull, for visibility in those waters is exceptionally limited in all seasons. The relative jumble in which individual artifacts such as bayonets shot, ax heads, kettles and a broken whetstone were recovered has inevitably provided numerous challenges to our staff in developing authentic plans for the Philadel phia's rigging, crew accommodation, cooking and storage arrangements and miscellaneous ordnance equipment.¹⁵

The sturdy, professional character of the Philadelphia' construction was recognized and recorded soon after he recovery by the late Colonel Howard I. Chapelle, dean o historians of the American sailing ship era, who carried out a preliminary survey and drafted a comprehensive plan of the gondola's hull lines, inboard profile, deck lay out and sail arrangement, a survey made fully a quarte century before she was willed to the Smithsonian Institu tion. Although heavily dependent on their sweeps (oars for adequate maneuverability, Arnold's gunboats prove gratifyingly stable during the heavy gales that swep Champlain early in the fall of 1776. As Major General Hor atio Gates wrote Arnold from Ticonderoga on Septembe 5, "I am very much pleased to find the Gondolas are suc good Sea Boats."¹⁶ Whether fully representative of th inshore warcraft built in America in that distant era, th Philadelphia was in essence a simple, rugged gun plat form, being indeed overgunned, in the British naval trad tion. Massive oaken athwartship timbers, over fourtee inches (36 cm.) square, supported her midship gun decl but the tolerance for recoil of her two nine-pounder mounted there must have been hazardously narrow.¹⁷

Although constructed within barely five weeks, thes

oak-planked gunboats, which were fastened with treenails on their uncoppered bottoms, proved remarkably sturdy, a fact that became evident again in 1961, when the *Phila*delphia journeyed by land and water to Washington, her inal port of call. Thoroughly impregnated with polyethylene glycol, partly to render her limber, this venerable nan-of-war was jacked up from her former supports to permit the insertion of long supporting beams ("sleepers") o bear her weight and that of her wooden shipping enveope. Scarcely a creak was heard as she was lowered onto he sleepers and got under way. Throughout her passage, nitially by tractor tow, then lake barge and Coast Guard buoy tender, and finally a precarious lift into the National Auseum of History and Technology, the Philadelphia naintained her structural integrity — indeed she has ever been taken apart. Once installed in our half-finished Ordnance Hall, the gunboat was strengthened through the enewal of certain iron fastenings and the insertion of dditional frames and inner planking, deliberately painted ray, mainly on her starboard bow, where she had taken a wenty-four pound shot from a Hessian gunboat. Thus trengthened, the Philadelphia would doubtless have oated again had she been recaulked, for her oaken timers, still ninety per cent solid in cross-section, had gained ew resilience from the polyethylene glycol and a final urface bonding agent of liquid nylon.¹⁸

In reality, work on the *Philadelphia* had only begun, for ow commenced the task of accurately recording her conruction features and then reconstructing in scaled model orm the entire original vessel, including many elements of er equipage that had floated away from her lonely grave with the passage of decades. The *Philadelphia's* construcon very closely resembled that of Arnold's other gunoats, as it revealed by a comparison of her keelson and oor timber dimensions and spacing with surviving simir elements found in another gondola recovered by Capt. agglund after World War II, impressive evidence indeed the mass construction phenomenon at Skenesborough 1776.

As an initial step in the Philadelphia project, our able ip modeler at the Smithsonian, Howard P. Hoffman, ndertook a detailed survey of the vessel, as a precise asis for her model, which was planned on the ample ale of one inch to the foot. A standard surveyor's transit as employed, working against predetermined station nes and buttock lines laid out on the floor. The transit in fect developed a horizontal plane or datum line from hich all vertical measurements were taken, utilizing a rge rule fitted with a sliding arm. Waterlines scribed on o vertical supports positioned on either side of the vesl were also used with a sliding rule, providing the outer ill form at the desired station line. Dimensions from ese two setups were recorded on a standard worksheet, ch as the example illustrated showing a cross section of e gunboat's forecastle, revealing her keelson ''backne", flat bottom, miniscule storage space forward, and usual rails or slides for her twelve-pounder gun carge. Employing this method, Hoffman developed a lines

or hull plan from which he derived a loaded, fresh-water displacement of twenty-nine tons for the *Philadelphia*, over four tons being allocated for her main battery armament, which had originally been shipped on board at Ticonderoga.

The armament for this historic man-of-war had included not only the two aforementioned nine-pounders amidship and the twelve-pounder bow chaser but upwards of eight swivels, one of which was recovered by Hagglund's team. Here is one of the nine-pounders just raised, with Champlain mud still clinging to its wheeled or truck carriage. The flat breech on this tube indicates it to be of late 17th century Swedish origin, similar in design to several cannon exhibited at the Royal Arsenal Museum in Copenhagen.¹⁹ The twelve-pounder, mounted on an exceptionally rare slide carriage that is indeed the most unique technical feature of Arnold's gondolas, has been identified from its cascabel, breech rings and trunnion markings as a "Finnbankere", a Swedish export armament founded at Finspong in south central Sweden between 1670 and 1680, virtually a century before being seated in its archaic but servicable slide carriage.²⁰ The carriage of this 300-year old piece is itself a survival of the original solution to the problem of mounting heavy guns securely at sea, antedating the truck carriage with which we are familiar. Weighing some 1800 and 3200 pounds respectively, these heavier tubes required not only gingerly care but heavy supports in their installation. Although marked



The Champlain Frontier in 1776: Portion of a survey map of the Province of New York by Claude Joseph Sauthier, published by William Faden of London in August 1776.



Salvors of the *Philadelphia: Right to left:* Captain Lorenzo F. Hagglund, William Lilja and J. Ruppert Schalk. *At lower left* the emergent mast of the gunboat, identified with a hand-sewn Cambridge flat. The year is 1935.



The Gondola *Philadelphia* after her recovery in Valcour Bay, August 1935.



Artifacts recovered with the Philadelphia In Valcour Bay.

with the King's "broad arrow", the ¾-pounder swivel guns may well have been founded at the Salisbury iron works in northwestern Connecticut, a colonial manufactory that contributed significantly to the arming of Arnold's squadron.²¹

Up to this juncture, construction of the Philadelphia model involved essentially the scaled duplication in miniature of that which could be measured and reproduced in boxwood, linen, brass or cast aluminum. Illustrated here is a model of the swivel with its wooden training handle or "monkey tail"; the bow 24-pounder with its founder's mark (a raised "F") on the trunnion; one of the ninepounders with truck carriage and breeching; one of the gondola's anchors, whose wooden stock was fastened with treenails; and, finally, two stages in the construction of the gunboat's bow area. The first view indicates the manner in which the frames were set up and then secured with a heavy wale or rubbing strake, which added to the basic longitudinal strength provided by the keelson. A second stage view of the construction upon completion illustrates the profusion of ordnance gear required to serve the bow chaser, including rammers, sponges, boxes for shot, wadding and powder charges, and even a two-holed wooden shot gauge. Fascines (bundles of saplings) were lashed to the bow life rail to shelter the Philadelphia's gunners from Indian marksmen who infested Champlain's shores, to such a degree indeed that it was virtually impossible for Arnold's men to forage or bivouac ashore.² Reproduction of such features as the gunboat's gently tapered stem reflects the presence of experienced ship carpenters at Skenesborough, whose hand is still apparen today in the rugged yet well-faired lines of her bow plank ing.

Last minute alterations in the Philadelphia's layou become apparant in examining her quarterdeck area which reveals a row of unused square openings in the ceil ing (inner planking), suggesting a higher original position for her after-deck beams that would have permitte mounting a sizable stern gun as well. Charles Randle sketch of the Yankee squadron at Valcour Bay indeed sug gests that some of the gondolas did have such an ordnanc arrangement.23 Just how forty-four men actually foun sleeping accommodation on board this fifty-three foot gu platform remains a mystery — certainly they must hav used a version of the wartime Navy's "hot bunk" system - but we have intriguing indications that the men we provided at least a minimum of shelter. Examination the after gunwale reveals not only openings for thole pin (oarlocks) and iron brackets for eight swivels but als square openings that perfectly fit a number of timbers, more precisely stancheons, that survive, together with su ficient mortised and tenoned lighter timbers, to establish that Captain Rue's crew rigged a large tarpaulin in fo weather, probably as far forward as the mainmast.

No fragment remains either of the vessel's tarpaulin sailcloth, which brings us to that aspect of the *Philade phia's* reconstruction that affords the greatest challenge the reconstitution of her sail and rigging plan. Two of h spars as well as the mainmast survive, together with ring polts and openings for wooden bitts to secure her running rigging. Other clues also exist concerning the gunboat's rig, including the extremely useful contemporary drawngs of both Randle and Gilder. From Randle's impression and the actual shape of the upper portion of the mainmast we have strong evidence that the gondola carried a topsail as well as a mainsail. In addition to her mainmast, the Philadelphia retains her topsail yard, mainsail boom, restletrees and crosstrees, deadeyes and several wooden locks, the latter indicating several diameters of cordage used. Working from contemporary rigging treatises as well he surviving evidence just indicated, Hoffman was able o reconstruct the gunboat's rigging both as to dimension nd layout. Particularly interesting among the surviving vidence are four pairs of holes, actually built-in deadyes, bored in the side planking just abaft the mast, estabshing the location of the shrouds. The reconstruction, in hort, has been carried out with caution, keeping in mind oth the materials and methods of fabrication common in hat era and keeping the plan compatible with the survivng evidence. For the model builder it may be added that he actual fabrication of scaled cordage led Hoffman to rig p an electric-powered rope walk that utilized an xtended trolley on which linen strands, first twisted lockwise, were then laid up counterclockwise in dimenons required for the running and standing rigging. Linen loth was also employed for the sails and tarpaulin, sewn y hand.

The construction of this model proved indispensable in alidating the final plans for the Philadelphia, clarifying e purposes of her many fittings and equipage and familrizing us to a modest degree with the technological envionment within which American seamen fought their nips during the Revolution, that perplexing element hich is often overlooked by the armchair historian in his itique of violent men caught in the fog of war. Granted at the Philadelphia was indeed fashioned by experinced ship carpenters and not bushwhackers, our present aky knowledge of 18th century naval technology might ell lead us to include equipment not actually found on is gallant but ill-fated vessel. The survival of a single vivel, with its broken yoke, when supported by contemorary ordnance allowances for Arnold's squadron, sugsts that an actual armament of eight light guns was not reasonable. A discarded gunner's worm argues for the clusion of such related items as rammers, sponges, shot exes and water buckets. Fragments of casks and animal ones remind us that the gunboat's small 'tween decks ea forwarded must have stored at least modest quantis of ordnance stores and provisions. Shoe buckles, butns pillaged from British stores at Montreal, and other rsonal artifacts dimly outline the forms of those men ted on Captain Rue's faded payroll. The existence, ally, of a battered pair of dividers and a miraculously act time glass indicate that the Philadelphia's navigan involved her captain and was not simply a matter left the squadron commander's judgement.



Twelve-pounder bow chaser on slide carriage. Note raised "F" on trunnion. Quoin and stool bed for elevation are modern replicas.



Midship gun deck, with nine-pounders mounted on truck carriages and %-pounder swivel fitted on swivel bracket. Note additional supports to take weight of the tubes off the carriages.



Quarterdeck of the *Philadelphia*, viewed over a nine-pounder. Note restored benches and unused deck beam openings in inner planking. The gunwale reveals ring bolts, swivel brackets and openings for bitts, thole pins and awning stanchions.

Time, in the larger sense, was what this historic gunboat's great adventure was all about. Benedict Arnold's doomed squadron, as much by virtue of its actual construction as by its dogged delaying action on Lake Champlain, had won precious time for that decisive later reckoning on the fields of Saratoga.²⁴

NOTES

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- ⁹ Ibid. The *Philadelphia* payroll, donated to the Smithsonian Institution in 1973 by the Trustees of the Fort Concho Museum at San Angelo Texas, is exhibited in the Hall of Armed Forces History of the National Museum of History and Technology.
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- Erik Christensen, trans., The Cannon Hall: Guide to the Royal Danis Arsenal Museum (Copenhagen, 1961), 21, 28, 30.
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- ²⁴ Alfred Thayer Mahan, "The Lake Campaign", in William Lair Clowes, ed., *The Roayl Navy: A History* (7 vols., London, 1897-1903)
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Beam view of the *Philadelphia* model, showing rigging and awning arrangements. The necessity of mounting fascines to protect the forty-four man crew is evident.



Forward gun deck of the *Philadelphia* model, showing gunner's too ordnance stores, provision stowage and estimated position of the heart

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Benedict Arnold's Champlain Squadron at Valcour Bay on October 11, 1776: Watercolor by Charles Randle, courtesy of the Public Archives of Canada.

