

## **Pittsburgh shipbuilders produced 'workhorse' of the Navy**

By Laura Baccelli Vondas  
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Jim Knox, 25, native of the serene Ohio River community of Emsworth, stood on the bridge of USS LST 491, eyewitness to the reality of war. "Operation Overlord," code words for D-Day and the invasion of Europe, began on June 6, 1944, on a peninsula of northwestern France on the English Channel in a region called Normandy.

"It was an awesome experience," said Knox, "to observe the great battleships bombarding the French coast with huge explosives and then to look to England where the sky was black with aircraft bringing the attack to the enemy by air."

Normandy, the greatest military operation in the history of the world involved 4,000 ships and 11,000 aircraft. The day before the invasion Knox had sailed from England crossing the channel in a convoy of 36 LSTs, landing ships for tanks. The ships, ranging from 326 feet to 328 feet long and 50 feet wide, were loaded to capacity with troops, tanks, jeeps and other war equipment. Originally designed to carry tanks, the LST soon became the workhorse of the Navy carrying all kinds of supplies, railroad cars and refugees. "We transported horses for the French Foreign Legion," Knox said, "and sheep and goats."

LST 491 unloaded at Utah Beach, went on to Omaha Beach, unloaded the remainder of vehicles and troops and began to pick up survivors. Returning to England, June 8, the ship converted to a sea ambulance and hospital with seven operating rooms, six doctors and 45 nurses. More than 14,000 wounded men were carried back across the English Channel from the Normandy beaches. "Many lives were saved," Knox said, "because doctors were able to treat casualties immediately."

While transporting the wounded and dying, Knox quickly faced the brutality of war. He remembered, "the open wounds you could see, held together with tourniquets - all kinds of horrible stuff. Some had wounds about the face, body wounds. Some had leg wounds. Some had shrapnel. It was just a gory mess." Knox remains haunted by "the moaning, screaming, yelling - the pain."

D-day was not the first time Knox observed history in action. As a young newspaper boy, he sold 12 subscriptions and won a trip to the 1933 inauguration of President Franklin D. Roosevelt. The inaugural address included Roosevelt's famous

**James W. Knox**

Born: May 4, 1919, in Emsworth.

Parents: James Robert and Mary Reid

phrase "The only thing we have to fear is fear itself."

Eight years later and one day after the Japanese attack on the U.S. Pacific Fleet at Pearl Harbor, Knox sat uneasily with his classmates in Dr. Benjamin Williams' political science course in American Diplomacy at the University of Pittsburgh. The mood was somber, and the talk was serious. "We were all quite blue," he said. "We were devastated as a community and as a nation, because it was well-known that the Japanese officials were in Washington negotiating with the secretary of state about peace in the Pacific at the time of the Dec. 7 attack. Just about all of Europe had been conquered by (Adolf) Hitler and the German army; the outlook for a defeat of Hitler seemed like a formidable task."

"Well, the cards are on the table," professor Williams said. "The winner takes all leaving the vanquished nothing but his eyes to weep with. But," Williams added emphatically, "We will win! We will win because we will outproduce them."

Yet 22-year-old Knox could not have imagined his personal odyssey in the war nor the role that Pittsburgh would play in it. When he returned to civilian life several years later, he published a book, "The Ol' Double Trouble," about his experiences aboard LST 491. Last year Knox wrote a pamphlet, "The Birth of the LST," that tells the story of its impact on the city, nation and world.

Converting the nation from peacetime production to speedy, state of emergency wartime production was a staggering challenge and demanded a cooperative, heroic effort. One of the most unexpected and astonishing developments of the war in Pittsburgh was the speed and scale of the shipbuilding industry that seemed to appear like magic on the banks of the Ohio River at Dravo Corp., Neville Island and at the American Bridge Company Division of United States Steel Corp. in Ambridge.

Exactly one month after Pearl Harbor, Dravo Chairman J.D. Berg and President

Welsh Knox, emigrated from Ulster Northern Ireland.

Wife: Valerie O. Weber Knox.

Children: Jennie-Lynn, Christopher John and Ronald James.

Education: Graduate of Bellevue High School; undergraduate degree in political science and economics from the University of Pittsburgh; Ford Foundation Scholarship for executive development at the Graduate School Public and International Affairs, University of Pittsburgh.

Service: World War II, Amphibious Forces, U.S. Navy; communications, executive and commanding officer, respectively, aboard an LST that participated in the D-Day invasion of Normandy and later follow-up operations at Okinawa in the Pacific.

Employment: North Boroughs YMCA; American Steel & Wire Co., Donora; Allegheny County Department of Parks.

Public Office and Service: Allegheny County controller, 1947-1963; chairman of Democratic Party of Allegheny County; Allegheny County Planning Commission; board of managers, Juvenile Detention Home; Allegheny County Mass Transit Study Committee.

Memberships: Past president of Pennsylvania LST Association, Avonworth Post 866, American Legion; Robert D. Fleming Post 2454 VFW and Military Order of World Wars; present chairman of Irish Room Committee, Office of Cultural and Educational Exchange and Educational Exchange Endowment Fund and Nationality Rooms Council of University of Pittsburgh and Gaelic Arts Society of Pittsburgh.

V.B. Edwards, received an urgent telephone call summoning them to Washington, D.C., for discussions with Adm. Robinson, chief, Bureau of Ships, U.S. Navy. The Navy Department had observed the progress Dravo made in building gate vessels, sub chasers and minesweepers, and it was interested in Dravo's innovative manipulation of large pre-assemblies and efficient method of moving ship hulls progressively to final position for launching. Besides an easy waterway access to the Atlantic ocean via the Ohio, Mississippi rivers and the Gulf of Mexico, Pittsburgh had a strategic location for shipbuilding alongside the steel mills.

Aware that Dravo was well-known for management depth, strength and ability and for its high degree of skilled workers, the Navy Department proposed an enormous nine-part program of wartime activity for the relatively small company. Corporate officers considered and accepted the Navy's proposal, committing Dravo to serve as "lead yard" in the production of a \$195 million shipbuilding program and \$24 million plant expansion in Pittsburgh and at a second, smaller plant site in Wilmington, Del.

Four other inland river builders were outfitted with special handling equipment to use Dravo's techniques. They were American Bridge Co., Ambridge; Chicago Bridge and Iron Co., Seneca, Ill.; Jeffersonville Boat and Machine Co., Jeffersonville, Ind., and Missouri Valley Bridge and Iron Co., Evanston, Ind. They were commissioned to use Dravo's basic production line plan. Dravo also functioned as design and procurement agent and as agent for materials and components. The cooperative group effort of these five companies ultimately turned out 724 LSTs - 68 percent of the Navy's entire fleet of 1,058 LSTs.

A few miles downriver at Ambridge, the American Bridge Company, then the largest plant of its kind in the world, fabricated steel for many famous bridges and buildings. In 1942, the plant contracted with the Navy to build LSTs, and within nine months a swampland of 64 acres had disappeared and in its place was a shipyard producing LSTs. American Bridge produced a total of 911 vessels between January 1940 and August 1945. Among them were 77 destroyers, 52 destroyer escorts and 119 LSTs.

To handle larger, heavier LSTs, Dravo's physical plant and manpower had to be greatly expanded, shipyards had to be completely constructed and new shops built. Ground breaking took place without fanfare 27 days after receiving the assignment. Dravo's existing Neville Island plant was enlarged and called the West Yard. One-half mile away, a 66-acre field was purchased and called the East Yard. The East Yard was equipped for full-scale production, including an outfitting dock capable of handling 10 vessels at one time and an LST assembly line, the first of its kind. Each yard had its own launching way. Orders were received to concentrate major effort on construction of LSTs, then the secret weapon of the allies.

It was Prime Minister Winston Churchill who prodded his ministers of the need for such ships after the 1940 debacle at Dunkirk when tons of badly needed equipment were left behind because no vessels were capable of bridging the gap between the sea and the land. A vessel designed by British engineers,

while sound in concept, was considered unsatisfactory." The U.S. Navy's Bureau of Ships undertook the successful redesign in November 1941.

Powered by two General Motors diesel engines, LSTs could carry 2,100 tons and had a maximum speed of 11.5 knots and a cruising speed of 8.75 knots. Typically, LSTs were armed with 7 mm and 12 mm anti-aircraft guns. Two doors were built into the bow that opened outward to a width of 14 feet. The lower deck could hold 20 Sherman tanks, while lighter vehicles and troops could be carried on the upper deck. To load and unload vehicles, an elevator and later a ramp was used. When the LST lands at an invasion coast, a set of doors in the bow opens and a ramp is lowered directly to the beach. LSTs gave the Allies the ability to conduct invasions at any location that had a gradually sloped beach.

"In less than 11 months following initial discussions, a shipyard was designed and built; a completely new vessel concept - the LST - was developed and detailed: a reservoir of specialized workers was trained from a broad cross section of average people; the first ship was delivered; and a pipeline of components for subsequent vessels was filled and began spewing out the essentials in support of the war effort," according to the corporate history of Dravo, titled "A Company of Uncommon Enterprise."

The new government contracts swelled the work force at Dravo's Pittsburgh and Wilmington plants from 1,500 to 26,500 men and women. Office buildings, dispensaries, cafeterias, locker and washroom facilities and parking lots were built. A sign over the Neville Island main gate, "We Can. We Will. We Must!" reminded workers of the urgency of their mission.

During the peak of the war program the yards were in operation 24 hours a day, seven days a week. At Neville Island, the increased number of employees was so large that the Navy Department built five miles of modern four-lane highway and an auxiliary two-lane timber bridge across the Ohio River back channel, to get workers to and from the yards and to detour highway traffic around the shipyard.

In 219 days, Dravo launched LST 1 into the Ohio River from the West Yard on Sept. 7, 1942. Not only was it the first of a new, revolutionary design produced on an assembly line, it was also the largest combat ship ever launched on inland waters of the United States. Attached to the upper deck was a sign, "Forward to Victory, America." Dravo continued completing one LST every 6.1 days.

Early in April 1944, secretary of the Navy, James Forrestal, called on Dravo management and workers to produce 15 LSTs by May 31 in preparation for what became the Normandy invasion. Called the "hot ship" program, Dravo's men and women worked harder, faster, longer, in overlapping shifts. They produced 15 ships with two days to spare, or one LST every 3.5 days.

Dravo's World War II production contracts totaled nearly \$1/2 billion. Shipbuilding production alone included 20 sub chasers and minesweepers, 27

gate vessels, 27 destroyer escorts, 46 lighters and barges, 65 LSMs and 150 LSTs.

LSTs were involved in the European and Mediterranean campaigns in Sicily, Salerno, Anzio and in the initial invasion of Normandy where 173 LSTs were used in the Pacific theater, LSTs took part in the Aleutians campaign, Gilbert Island, Marshalls, Mariana, Palaus, Leyte, Mindoro, Luzon, Mindanao, Bonin Islands, Okinawa (343 LSTs were involved in the initial landing) and Anvil-Dragon. A total of 40 LSTs were lost during the war to mines, explosions, aircraft attacks, grounding, ship attacks or submarines.

Knox believes LSTs were a factor in Hitler's defeat. "The United States entered World War II with a well-developed amphibious theory that was adopted by all the major powers," Knox said. "The failure of Germany to develop an adequate amphibious doctrine was a major contributory cause of Hitler's ultimate defeat."

Knox served 3 1/2 years as an LST officer in Europe, the Mediterranean and the Pacific Theatre. "I was given tremendous responsibility that not only involved the war effort and government property, but people's lives." Knox said, "Our decisions had a direct effect on their safety. We had to make many decisions and there was no second guessing. We were too busy to be afraid."

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