Ross-Ade

Robert C. Kriebel

Published by Purdue University Press

Kriebel, Robert C.
Ross-Ade: Their Purdue Stories, Stadium, and Legacies.
Purdue University Press, 2019.
Project MUSE. muse.jhu.edu/book/76762.

For additional information about this book
https://muse.jhu.edu/book/76762

For content related to this chapter
https://muse.jhu.edu/related_content?type=book&id=2710146
Britain and France declared war on Germany. Russia invaded Finland. Germany attacked Denmark, Norway, Luxembourg, Belgium, and the Netherlands. Italy declared war on Britain and France. France surrendered to Germany. Italy invaded British Somaliland and Greece. Hungary and Romania joined the German-led “Axis powers.” Britain invaded Ethiopia. Bulgaria joined the Axis. Germany invaded Greece and Yugoslavia. Axis forces invaded Russia. Now World War II was getting serious.

Seagoing submarines, vessels the Germans called *unterseeboots* (anglicized as “U-boats”) threatened to sink strategic North Atlantic shipping by America’s friends in Canada, Britain, and other lands. Torpedoes fired from U-boats destroyed ships in waters from the Atlantic coasts of the United States and Canada to the Gulf of Mexico and from the Arctic to Africa. Because of their limited speed, range, and battery power, U-boats had to surface and run on diesel engines, diving only when attacked. U-boats commonly torpedoned shipping from the ocean surface at night. The torpedoes were straight runners fitted with one of two types of exploder. One type detonated the warhead upon impact with a solid object like the steel hull of a ship. Another went off magnetically upon sensing that it had neared a large metal object.

In this context in early 1941, Dave Ross turned his attention away from Purdue progress and factory management to combat U-boats. He designed what he called a “submarine-catching curtain.” His idea was to suspend magnets from buoys. In April 1941, he wrote to a friend at Duncan Electric Company in Lafayette
about the scheme. In one message the Duncan Vice President, Stanley Green, replied to Ross:

The basic idea of [your] curtain was to suspend the parts for it along a line to be established at certain points in the sea. This line could be maintained by a cable held taut by tugs, buoys or other means...

The lines could be made of some light, strong fiber, either wire or cord being suitable. The end of these lines would be weighted down by permanent magnets. The permanent magnet could be designed to produce any desired amount of pull once they had attached themselves to the steel hull of a submarine. From the length of line pulled out and the angle which the line marked with the vertical it would be possible to chart the exact location of any submarine being snared and to release a depth bomb to within a very close distance of the charted spot...

An electromagnet would be very difficult, expensive and unreliable to maintain beneath the surface of the sea. There has been developed, however, since 1932 a very inexpensive and strong magnetic alloy commercially called Alnico. This is quite capable of doing the contemplated job. We have tried numbers of these magnets of horseshoe shape weighing only one-quarter of a pound and they are capable of lifting 40 times their own weight...10 pounds. With care in design I feel sure that a magnet could be devised in Alnico having a weight of about one pound that would be capable of exerting a pull of at least 30 pounds on the hull of a submarine. The design of such an Alnico magnet would be quite largely a matter of routine and consequently the details of its design need not be discussed here...

It would appear that the detecting device mechanism through which the line is pulled so that the position of the submarine can be quickly plotted is a matter that should be taken up through the
Navy Department with one of their suppliers who have been accustomed to furnish them with remote control devices...It is possible that there may be something already in commercial production and available which would be entirely suitable for the problem at hand. (Stanley Green to Ross, April 4, 1941)

On April 14, 1941, Ross wrote to Charles F. Kettering, vice president in charge of research at the General Motors Corporation in Detroit.

Enclosed I am sending you rough sketches of two entirely different devices.

A. To attach permanent magnets to the sides of a submarine. The magnets are attached by light lines running up to a float. This indicates the location of a submarine for the fast destroyer boats to drop a bomb at the exact location.

B. A bomb laying on the floor of the ocean, with highly compressed gas in the top of the cylinder—or a chemical reaction like a fire extinguisher. Immediately, when the gas is released it displaces the water in the hollow shell and the out-rushing water acts as a propeller to propel the bomb to the surface. This can be accomplished in two ways, by a small tank of highly compressed gas in the top end of the bomb, or by freeing acid as in a fire extinguisher. Immediately the top of the bomb, being filled with gas, starts to rise to the surface being accelerated by the expulsion of the water from the shell of the bomb. This may be the answer to the so-called German magnetic bomb.

I am handing over all this description to Dean A. A. Potter to give to one of the admirals but want you to know what I’m thinking.
On the same day, Potter, Director of Purdue’s Engineering Experiment Station as well as Dean, was writing to Admiral H. G. Bowen, Director of the Naval Research Laboratory in Washington, D. C.:

Re: Submarine Locator

On April 3, 1941, I wrote to you about an invention by the President of the Board of Trustees of Purdue University, Mr. David E. Ross. Originally Mr. Ross had expected to turn over the details to you through Mr. Kettering. He has come to the conclusion, however, that time may be saved if I sent the enclosed material directly to you. Accordingly Mr. Ross wrote to Mr. Kettering this morning advising him that he is turning over to you through me certain disclosures regarding a submarine locator.

With this communication I am sending a blueprint of the locator, a statement by Mr. David E. Ross of the objectives and the workings of the locator, and copy of a letter by Mr. Stanley Green, Vice President and Chief Engineer of the Duncan Electric Manufacturing Co…

Mr. Ross has absolutely no personal interest in this matter, does not expect to receive any compensation, and the enclosed material will be turned over by him to the government for such use as the government may wish to make of it in connection with national defense.

The Navy never used Ross’s plan. It took awhile, but other approaches—advances in convoying, high frequency direction finding, radar, sonar, and depth charges—defeated the U-boats. In the end, Germany lost more than 740 U-boats—three-fourths of its fleet—and 28,000 men.
Through 1941, the U.S. made war preparations, among them a draft of registered men for future military service and the letting of “national defense” contracts for military equipment, weapons, ammunition, and vehicles. A report to Ross Gear stockholders on March 3, 1941 confirmed that the company already had begun “defense work.”

From a hillside view above West Stadium Avenue in West Lafayette, Dave Ross, at age seventy, confided to a lawyer friend one day that they were pausing in one of his favorite places. Ross wished out loud to be buried someday somewhere on the campus. “I don’t mean the original campus,” he said. “That honor belongs to John Purdue. But perhaps an appropriate place might be found.” The two sat silently for a moment before Ross continued, “Of course it would never do to have my grave on the grounds of Ross-Ade Stadium. If a Purdue player dropped a punt at a critical moment and the team lost people would say it was because the man had seen the ghost of Dave Ross. It would be said jokingly, sure, but I would hate to think I’d ever be called a jinx. The same [would be true] at the airport. If I were buried there and a pilot crashed it would be said that Dave Ross was ‘ha’nting’ the field” (Kelly, Ross, 175).

Late in 1941, President Elliott reported on even more government contracts for Purdue campus construction. The jobs involved building the final phase of the Electrical Engineering Building, the Duncan High Tension Laboratory, a new Physics Building, and a transmitter for Radio Station WBAA. On September 27, the Federal Communications Commission awarded a license for WBAA to broadcast for unlimited hours at 5,000 watts of power.
Sponsors within the Caxton Club at Knox College in Galesburg, Illinois, issued a collection of Ade’s old work under the oft-used title *Stories of the Streets and of the Town*. Named after the first English printer, William Caxton, the Club pursued literary questions and preservation projects. The book appeared in a limited edition of 500 copies dating to November 1941. The contents had, for the most part, been stories collected in the eight series published in 1894-1900 and in Ade’s early books. Two pieces from the Chicago *Record* in 1893 and 1896 made first book appearances.

Mal Elward’s 1941 football team stumbled again. The team won two games, lost five, and tied once. In Ross Ade Stadium, a team from Vanderbilt defeated the Boilermakers three to nothing before 17,000 subdued fans. Purdue beat Iowa seven to six before 22,000 and tied Michigan State nothing to nothing before 17,000.

At the end of 1941, Rostone showed its first profit, a modest $6,600. The top people explained this newfound success in several ways. First was the method of sales. In the building business, a salesman sells a home, but in the motor control business, the customers came to Rostone. Knoy and Wymer would get a customer’s designs and modify them so they could be molded. They convinced customers of Rostone’s engineering skill, then designed a tool that the die shop could build. Second was Dave Ross’s conviction that Rostone would succeed. Ross kept feeding the money to keep Rostone in the black. Ross attended his last Rostone meeting on February 12, 1940 but maintained close interest.

Meanwhile, in late 1941, production at Ross Gear became more fully focused upon “war work.” All three of the nation’s steering gear companies were turning out components and parts for war combat. Ross Gear plant workers made millions of track pins for tanks and armored vehicles. In Michigan, the Gemmer plant pro-
duced forty-millimeter armor-piercing shells, sixty-millimeter smoke mortar shells, and aileron control units for B24 heavy bombers. The Saginaw Company assembled machine guns beside its gear production lines. By the end of 1941, Ross Gear assets and liabilities balanced at an all time high of $2.6 million.

Then, Pearl Harbor.