

The Opana Radar Site

Harry A. Butowsky

U.S. National Park Service, Washington, D.C.

The events leading to the Japanese attack on Pearl Harbor on the morning of December 7, 1941, have been examined and reexamined by legions of scholars. Questions relating to why and how the attack took place have tended to obscure other facets of the Pearl Harbor story including the significant roles played by the ordinary servicemen and women and the new technologies of war in the circumstances leading up to and issuing from the events of December 7, 1941.

Even before the Japanese attack on Pearl Harbor the gravity of the situation in the Pacific was not lost on the American public. Japan's attack on Manchuria in 1931, her assault on Shanghai in 1932, and her invasion of China in 1937 turned the United States from a traditional friend of Japan into a potential enemy. Japanese actions during the 1930s posed an intolerable threat to American holdings in the Western Pacific and to the security of the United States. As the United States Government began to clarify its policy in Asia and the Pacific and to oppose Japanese expansion, relations between the two powers deteriorated.

While the diplomats argued, scientists in the laboratory were experimenting with a new technology that would change the face of warfare. This was radar (radio detecting and ranging), a system that had the ability to detect long-range objects. Radar could determine the positions of distant objects through the measurement of the time taken for the radio waves

to travel to an object, be deflected and return. Starting in 1935, Britain installed a series of radar stations on the southern coast of England. These stations proved to be a major factor in winning the Battle of Britain. Beginning in 1940, England and the United States collaborated in the further development and refinement of this new technology of war.

The United States Army closely examined the potential use of radar during these years. As early as December 1939, the Army, under the direction of the Secretary of War, established an Aircraft Warning Service (AWS), using radar for the defense of American territory including the Hawaiian Islands. Colonel Wilfred H. Tetley USAF (Ret.), was given command of the newly created AWS. Under Col. Tetley's direction mobile radar detector sets were installed at Kawaihoa, Wainae, Kaawa, Kokohead, Schofield Barracks, and Fort Schafter on Oahu. SCR-270 radar equipment, the latest in the Army inventory, and newly developed by the U.S. Army Signal

Corps at Fort Monmouth, New Jersey, was installed.

These newly installed radars appeared to hold great promise when in September 1941 the radars at Waianae and Koko Head, detected planes at a range of 85 miles. On Thanksgiving day in 1941, the same day the Japanese fleet sailed on the Pearl Harbor mission, the Schofield Barracks training set was relocated to the Opana site, on a knoll in the foothills of the Koolau Range near Kahuku Point on the Island of Oahu. By early December 1941, there were six operating radars on the Island of Oahu, including Opana.

The radar sets on Oahu were intended to be but one component of an integrated air defense system. The AWS with its six mobile long-range radar installations, the Aircraft Warning Communications net and the Aircraft Information Center were all to be tied together as one operating unit. The Army Air Corps was changing its pursuit squadrons into interceptor squadrons for a planned Interceptor Command. The Army Anti-Aircraft Artillery batteries were undergoing modernization to employ their new SCR-268 radar. The integration of these commands and missions into one smoothly functioning unit was planned to occur automatically at the onset of hostilities. By December 1941, although the pieces were in place, the integration had not yet occurred.

The SR-270B mobile radar set operating at the Opana site was a

complicated and heavy affair. Each unit consisted of four trucks.

One truck contained a van with a motor-generator set and a rectifier and another truck housed a van containing the transmitter and receiving equipment. The antenna was a folded frame that was towed behind another truck and the last truck contained equipment mounted on the antenna. The men who manned the radar installations were mostly volunteers with a technical background in electronics. At the Opana site, Private Joseph L. Lockhard from Harrisburg, Pennsylvania and Private George Elliot from Chicago, Illinois, were typical volunteers.

In the early hours of the morning of December 7, 1941, the roles of the ordinary servicemen stationed at Pearl Harbor and the use of this new technology came together when at 7:02 A.M., George Elliot, who was practicing with the radar set, detected the approaching aircraft. Elliot and Joseph Lockhard reported their findings to the temporary information center at Fort Schafter. Since this report came in after the designated watch time (4-7 A.M.), the information center staff had already gone to breakfast. On duty that morning was Lt. Kermit Tyler, a pilot with the 78th Pursuit Squadron, stationed at Wheeler Field, Hawaii and a telephone operator. Lt. Tyler had been on duty since 4 AM and this was only his second time at the Information Center. After receiving Private Lockhard's report. Lt. Tyler reasoned that the radar blip was a

flight of Army B-17 bombers due in that morning. Lt. Tyler instructed the Opana Radar operations to disregard the information and "not to worry about it."

Elliot and Lockhard continued to plot the incoming Japanese planes until 7:40 AM when the contact was lost in the background interference as the planes approached Oahu. Both men then secured the Opana radar shortly before 8 AM and headed down to Kawaihoa for breakfast. On the way down the road they passed a truck speeding back the other way to Opana. It was only after they arrived at Kawaihoa that they realized Pearl Harbor was under attack. Elliot and Lockhard immediately returned to Opana and helped to operate the radar around the clock. More soldiers arrived armed and ready to repel the expected Japanese invasion that never occurred.

The story of the Opana radar and the men who operated the site is world famous and has entered the mythology of World War II history. For most observers, the most immediate lesson of this history is the story of the first operational use of radar by the United States in wartime. In spite of this achievement, the Japanese were still able to carry out their attack. The failure to warn the Army command in Hawaii on the morning of December 7, 1941, was not a failure of the technology as much as it was a failure of organization. The use of radar was not fully integrated into an air defense system. While the

technology of radar functioned, as intended, and detected the incoming planes, there was no way to accurately assess the information and communicate this knowledge to those in command. The army planes remained on the ground and Army high command did not learn about the Opana radar sightings until after the attack.

In spite of this, the significance of the sighting and the important role of radar in wartime was immediately recognized by both the Army and Navy. Privates Elliot and Lockhard had detected the incoming flight of Japanese planes and had reported this fact to their superiors. Ordinary men, placed in extraordinary circumstances, they performed their duty as expected.

An even more significant aspect of the Opana radar story was the fact that the potential military implications of radar was now obvious for all to see. The use of radar gave the United States the important technological edge that was needed to redress the balance of power with Japan in the Pacific in 1942. In the months after Pearl Harbor the United States Army and Navy were to use this technology again and again to scoop Japanese ships and planes out of the fog of war and to mount an early defense against future attacks.

The implications of the events that occurred on the morning of December 7, 1941, at the Opana Radar Station were long-lasting and far-reaching. After the lessons of Pearl Harbor were assimilated, the United States embraced the

concept of large scale government-funded research to develop the weapons needed to win a modern war. Radar was quickly followed by electronic countermeasures for air and sea combat, infrared bomb-sights, the bazooka, the proximity fuse for artillery, jet engines, missiles, the first electronic computers and eventually the atomic bomb.

The large sums of money invested in this research and development by the United States would forever change the modern world and the role of Government in the direction of the Nation's scientific and educated elite.

What happened at the Opana Radar Site on the morning of December 7, 1941, illustrated not only the immediate value of technology in modern warfare, but also served to hasten the embrace between technology and the modern state. This embrace provided the advanced weaponry that would give the United States the edge necessary to secure victory in the war. In the years after 1941, this union would evolve into what President Eisenhower called the "Military-Industrial Complex."



Almost half a century after the end of World War II and two years after the end of the Cold War we are still grappling with the implications of state funded and directed research of science and technology, that had its origins, in part, in the events at the Opana Radar Site on the morning of December 7, 1941.

Final Note

Since the Opana radar was a mobile unit there is no physical evidence of the original radar installation today. The unit was never permanently anchored to the site. No monument or marker can be found on the site to identify its historic role in the history of the Pearl Harbor attack. A modern telecommunications station operated by the Navy occupies the top of Opana Hill which still provides an unobstructed view to the sea. The telecommunications installation is adjacent to the original Opana radar site and is surrounded by a high security fence. In 1991 the Opana Radar Site was listed in the National Register of Historic Places. The Opana Radar Site is now under consideration for designation as a National Historic Landmark.