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WONDERFUL FLYING MACHINES



A History of U.S. Coast Guard Helicopters

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Cover

Commander Frank A. Erickson flying a HNS on 14 August 1944 with Igor Sikorsky in sling on first experiments hoists. The hoisting device was created by Erickson and his crew at Coast Guard Air Station Brooklyn. The cable hoist became a major life-saving device used on most helicopters throughout its history.

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ONE: NO PROVEN VALUE

U.S. Army Starts Helicopter Development

In the late 1930s Captain H. Franklin Gregory, U.S. Army Air Corps, directed the program to develop rotorcraft for all U.S. military services. Part of that job was to investigate claims by inventors and builders of craft supposedly capable of vertical flight. This led him to the Vought-Sikorsky plant in Stratford, Connecticut, in 1939 to examine the helicopter simulator built the previous year based on the design by Dr. Igor Sikorsky. Sikorsky engineers Michael Gluhareff and Boris P. Labensky demonstrated the crude rig with which they evaluated different rotor systems.¹ Gregory later described the device as having three, two-blade controllable pitch propellers. Two were mounted horizontally on each side of the test unit and were lifting devices that controlled roll in the way ailerons do on an airplane. The third propeller was set vertically on the rear and operated like a rudder.

What Gregory did not see was the device for testing the single main rotor system with its anti-torque mechanism. This unlikely apparatus proved to be the genesis of the modern helicopter. The contraption consisted of a truck rear axle and differential gearbox set vertically, with a counterbalanced blade attached where the truck wheel and tire once were. An engine was connected to the axle by belts, and the whole welded-steel framework rested on the ground on three large parallel steel beams securely sunk into the turf. It was not meant to fly, even by accident.

The results of these experiments convinced Sikorsky to dedicate his efforts to advancing the single-rotor concept, whereas other aircraft manufacturers developing the helicopter during this period relied on multiple lift rotors to balance the torque. Sikorsky was convinced the single rotor theory afforded more efficient arrangement of major components and would give the “best compromise between hovering capability, horizontal speed, and precise control.”²

Gregory returned to Bridgeport, Connecticut, a year later and became the first military aviator to fly a helicopter when he lifted off in the VS-300 on 24 July 1940. Gregory was impressed enough with the progress of the development through the succeeding few months that, in January 1941, he approved a contract to produce a two-placed helicopter, the XR-4. But it was not until the day following the attack on Pearl Harbor, eleven months later, that Sikorsky’s experimental VS-300 flew with its single main rotor and tail-rotor-on-a-boom configuration, proving it workable. This final form was adopted, and the new XR-4 was redesigned forthwith to this common arrangement that now characterizes most modern helicopters.³

The first flights of the early helicopters were probationary. The phenomenon of controllable vertical flight was still speculative, so the first craft were restrained by rope tethers to keep the aircraft within a few feet of the takeoff spot in the event of unexpected uncontrollable flight. Helicopter control was still highly experimental. Despite the apparent almost instant success of vertical flight, Sikorsky’s VS-300 went through several configurations, with up to four rotors on a single variant spread across a skeletal tubular framework. One early version had difficulty attempting forward flight. It would go backwards and sideways satisfactorily, but as it started forward, it would lose control upon

reaching twenty-five miles per hour. The VS-300 was subject to constant modifications, including complete redesigns. It underwent eighteen major revisions before its final flight in October 1943.⁴

The First Helicopter

Then a chain of events occurred—some openly manipulated and others serendipitous—that propelled Erickson toward his dream. Commander William J. Kossler, USCG, as the aviation engineering officer in headquarters, had acquired a collateral assignment as the Coast Guard’s representative on the Inter-Agency Board administering the Dorsey Act of 30 June 1938. In 1940 this board, chaired by the U.S. Army Air Corps, had secured \$300,000 from the \$2 million appropriated by Congress in 1938 to purchase an experimental helicopter.⁵

Platt-LePage Aircraft Company’s proposal won the bid for the first experimental helicopter, but before funds were distributed, Sikorsky flew his experimental VS-300 in a public demonstration on 13 May 1940. Sikorsky’s startling feat roused the committee eventually to split the prize money between Platt-LePage and Vought-Sikorsky. Furthermore, LePage’s entry did not make its first tethered flight until a year later, 12 May 1941, six days after Sikorsky established an international helicopter endurance record.⁶

Kossler Witnesses First Public Flight

The first official American helicopter demonstration occurred on 20 April 1942 at the Vought-Sikorsky plant. Kossler, as a board member, was there to witness the flight of this new Sikorsky XR-4, the first production helicopter intended for military use to fly successfully.⁷ It had flown a total of merely nine and a half hours when it appeared for the demonstration.⁸ The XR-4 had room for an instructor and one student, with dual flight controls sufficient for flight instruction.

The helicopter performed admirably on that crisp day in April with its gray overcast sky. Winds were moderate, but gusty. The witnesses closed around the wingless craft as it sat in a meadow a hundred yards from the Sikorsky factory. Only a few members of the Inter-Agency Board had been curious enough to appear.⁹ They examined the helicopter’s peculiar details before it flew. Charles L. “Les” Morris, Sikorsky’s test pilot, wrote: “[They] didn’t get excited about it. There was a conspicuous Missouri-ness in their attitude.”¹⁰ He began his address to the dignitaries, “You, gentlemen, are about to witness a demonstration of the first successful basically single-rotor helicopter in the world.”¹¹ Later, he reflected: “On the whole the group that assembled could not be called enthusiastic. Interested, yes. Skeptical perhaps; courteous and open minded, definitely. But not enthusiastic.”¹²

How mistaken he was. Though Kossler may not have shown his enthusiasm, he later wrote vigorously about what he saw and would spend the rest of his life boldly promoting the helicopter.

Morris demonstrated maneuvers considered preposterous for flying aircraft: hovering, and flying sideways and backward. The helicopter lifted straight up about seven feet, then settled back to earth gently in the depressions made by its tires in the moist turf. A factory

employee held aloft a pole that had a ring about ten inches in diameter lightly attached to its end. The helicopter's pitot/static tubular structure extended out in front of the craft. Morris flew the probe into the ring, eased it off the pole, and flew the XR-4 over to Sikorsky, who reached up and plucked the ring from the probe while Morris held the helicopter steady. The craft likewise lifted a bag of eggs from a young woman's hands, flew around for a moment, then lowered the bag gently to the ground. None of the eggs was broken. Still later, the XR-4's wheels were removed and large inflated tubular bags were installed. The helicopter proceeded to land on both the ground and the nearby Housatonic River.¹³

Following these "extraordinary maneuvers" with intense interest, Kossler noted that the craft "remained almost motionless" at an altitude of about twenty-five feet, trailing a ladder to the ground. Ralph Alex, a Sikorsky engineer, climbed the rope ladder and entered the flying aircraft. Then it flew away. "What a magnificent demonstration!! This had to be the answer to the Coast Guard rescue problem!"¹⁴

A disaster was averted on one maneuver a short time later during the show. Morris buckled on a parachute, planning to fly higher than any helicopter had before, but he accidentally flew into the cloud layer at five thousand feet, losing visual contact. The helicopter slowed, then began the dangerous condition of settling with power. This phenomenon occurs at a low forward speed with an established descent.¹⁵ The XR-4 was thus partially out of control and vibrating heavily.¹⁶ Morris recovered successfully by forcing the nose down. The climax of the show came when he, still falling toward the earth but once more in control at two thousand feet, intentionally cut the power and auto rotated to a perfect landing.¹⁷

Kossler was so impressed that he dedicated the rest of his life to achieving a Coast Guard aviation organization built around the helicopter.

Another witness Morris misjudged that day was Wing Commander Reggie Brie of the Royal Air Force. Brie, an autogiro pilot, was in the United States seeking a suitable rotary-winged aircraft for Great Britain. He was encouraged to witness the demonstration flown by Morris. During the display, Brie commented to Gregory: "That chap has flown your rotor machine and what he's done, I say, beats anything I've ever observed. We've really seen something this day. I shall send a signal to my country stating the full import of this great event."¹⁸

It was Brie's recommendation that later provided Kossler and Erickson with an opportunity to introduce a helicopter program into the U.S. Navy.

Kossler Takes Action

Immediately following the helicopter flight demonstration, Kossler executed plans in earnest. He invited Lieutenant Commander W. A. Burton, commanding officer of the Coast Guard Air Station (CGAS) New York, to a Sikorsky demonstration.¹⁹ Burton was openly enthusiastic. He wrote a report to the commandant listing the many advantages of using the helicopter over the blimp that was also being considered for rescues at sea. In the same letter, however, Burton conceded the open opposition already forming against the helicopter. "Both the Coast Guard's Engineer-in-Chief, Rear Admiral Harvey Johnson,

and Assistant Commandant, Rear Admiral Lloyd Chalker, were convinced that the acquisition of helicopters at this time too costly, at a quarter million dollars for three aircraft, and its limited performance capabilities could not support missions essential to the war effort.”²⁰

Chalker already had experience with helicopter development. In 1939, on behalf of the Coast Guard, he attended a conference that set performance criteria for rotary-winged aircraft. The meeting was held in the office of General Henry H. Arnold, chief of the Army Air Corps, but Colonel C. L. Tinker conducted it in the general’s absence. Present at the meeting were representatives from the Air Military Service; Civil Aeronautics Authority; Navy’s Bureau of Aeronautics; Interior Department; Agriculture Department; U.S. Biological Survey; National Advisory Committee for Aeronautics; and Army.

Since no aircraft yet existed, real data were unavailable. Therefore, the committee established parameters that mirrored general requirements for fixed-winged airplanes of the period. But their recommendations were extreme. For instance, they agreed that an effective machine would have a useful load of fifteen hundred pounds, would take off and land vertically, would hover, and would fly at speeds of up to 250 miles per hour, with a minimum cruise speed of 120. However, since only \$300,000 was available to build such a helicopter, the committee compromised and conceded that the Army Air Corps could develop a machine incorporating the novel helicopter features—not necessarily meeting their required standards—until the vertical flight concepts were proven.²¹

Seaplane Hazards

Erickson could vividly recall the hazards to Coast Guard aviators from his own experience flying seaplanes during the 1930s. He felt the change to a more practical, safer, and more useful aircraft was essential. He also remembered his experiences flying Grumman JF-2 amphibians from Coast Guard cutters in Alaskan waters in 1938. Launching and recovering the bi-winged floatplane required the efforts of nearly the entire ship’s company. Flying the single-engine amphibians off the cutters was brutal to the airplanes because, as Erickson recounted, “[W]e were invariably dropped overboard and picked up from open roadsteads in fairly rough seas.”²²

From the beginning of its aviation experience, the Coast Guard chose what would often be referred to as “flying life boats” for rescue work. These aircraft were lightweight. Landing and takeoff speeds were slow, and the distances required across the water’s surface were short.²³ Successful open-sea landings were common.

Disasters were too. Erickson felt the PJ-I “was by far the best rough water plane that the Coast Guard ever had.”²⁴ By about 1937, however, these planes were over age, obsolete, and worn out, and replacements were no longer being manufactured. At that time, the Coast Guard also had a shortage of pilots: it could not fill both the pilots’ and copilots’ seats in its aircraft, so the Coast Guard qualified new pilots as “full-fledged aircraft commanders after only one or two flights in a new type aircraft.”²⁵ This practice soon led to tragedy and set some, like Erickson, to thinking about alternative methods for rescues at sea.

Five newly manufactured Hall PH-2s and seven PH-3s replaced the aging PJ-Is in the

late 1930s, but these seaplanes did not solve the problems of safety and well-trained pilots. Ultimately, they saw only about five years of service.²⁶ The design selected for this craft, moreover, proved to be a poor choice. The biplane—with its fabric-covered wings that were designed in the 1920s—was already obsolete in a period where modern aircraft were configured with a single wing and all metal construction. Alarming, for some, a dangerous design deficiency allegedly existed in the Hall aircraft. The twin engines were mounted in nacelles on struts between the wings, just above and behind the cockpit. Some pilots asserted that sudden deceleration or slamming caused by waves on water landings or takeoffs could tear the mounting struts loose, thus permitting the unrestrained engines' pods, with their spinning propellers, to lurch forward into the cockpit.

What these pilots feared finally happened on a rescue 150 miles off shore from the Brooklyn air station on 15 July 1939 during takeoff. The aircraft crew recovered an ill seaman from a freighter and began a takeoff run. Close to lift-off speed, the seaplane slammed into a wave. The engines ripped loose from their mountings, still running at full power, and the propellers gnawed into the cockpit, killing both the pilot and the copilot.²⁷

The frequency of such crashes at sea was troubling Coast Guard Headquarters. Shortly after the Hall seaplane accident, the Coast Guard Commandant, Admiral R. R. Waesche, requested in a 1939 bulletin that each aviator submit suggestions for developing safe procedures for open-sea rescues by airplane. Controversy over the execution of off-shore landings soon became an issue that divided aviators, and it would lead to a major split that did not start to heal until more than two decades later.²⁸

Kossler was inspector of Coast Guard aircraft at the Hall Aluminum Company in Bristol, Pennsylvania, at the time of the crash. Although he frequently rejected unsatisfactory parts, he believed they nevertheless found their way back into the airplanes over his objections. Kossler was also “very dissatisfied with the Hall Boats and the whole practice of landing aircraft at sea that already cost the lives of several Coast Guard fliers.”²⁹ Because of his guilt over his responsibility as inspector, and because of the loss of his friend Lieutenant William L. Clemmer, the pilot, Kossler suffered a nervous breakdown shortly after the accident. He was hospitalized for two months and afterwards traveled to Hawaii on convalescence leave where he spent time with Erickson.³⁰

During this visit, the seeds for better rescue methods were planted in the minds of the two friends, who first met at the Coast Guard Academy in 1930 when Erickson was a student in Kossler's thermodynamics class. Their early schemes, which resulted from many hours of discussion, dealt with dropping sophisticated packages containing rafts and survival equipment from overflying airplanes rather than having those planes land on the water. Kossler and Erickson felt this equipment offered survivors the means to persevere until they could be picked up by Coast Guard cutters or nearby surface ships directed to the scene by aircraft. Neither man knew of the helicopter at the time.

Their ideas did not rest there, however, nor did their interest lag after Kossler returned to Washington, D.C., in May 1940 for his new duty as chief of the Aviation Engineering Division. The two men continued to exchange ideas, and Erickson wrote numerous letters and articles describing in detail how to drop containers of rescue and survival equipment. All the schemes he devised avoided the dangerous practice of operating airplanes on the

sea's surface.

In 1941, before the attack on Pearl Harbor, Kossler—eager to pursue the development of deployable rescue equipment—wrote Erickson suggesting that he might work a transfer for Erickson to the Aircraft Repair and Supply Base, Elizabeth City, North Carolina. There both of them “could work on these problems.”³¹ The transfer did not take place, however. World War II obstructed any plans the two had. Erickson, caught in the middle of the Pacific, soon became obsessed with thoughts of the newly discovered helicopter. He confided to his wife, Betty, “I bet if we were back in the States I could get in on the ground floor of this development.”³²

Erickson Begins Helicopter Project

In June 1942, Kossler visited Erickson, who had been transferred to Floyd Bennett Field, where he was the executive officer. At the meeting, they plotted the helicopter's and their own future. Erickson acknowledged later that he “became a member of the Coast Guard's informal helicopter promotion team” at that time.³³ Thereafter, Kossler frequently visited the Brooklyn air station, conveniently situated about sixty-five miles from Sikorsky's Bridgeport plant. Kossler anticipated a larger role for the New York air station for he planned for them to receive helicopters from the Sikorsky factory. It was a grand plan, and Erickson, an integral part of it, was already in place.

On this particular trip, Kossler tried to interest other Coast Guard pilots at the station in the idea of using the helicopter for rescue operations. He confided to Erickson that his helicopter proposal was receiving a “cool acceptance at Headquarters.”³⁴ His proposition made little sense to most of the pilots as well. Academy officers initially rejected the helicopter because of its unknown future and out of a fear that any association with it might be a threat to their careers. Obvious signs of the indifference and outright rejection came from among the aviators later, when the program began.

Further proof of the lack of interest in this new craft among commissioned Coast Guard aviators was demonstrated when eight of the first ten Coast Guard helicopter pilots would come from the enlisted or former enlisted pilots ranks. Senior Coast Guard officers made it well known that they considered the helicopter useless. Some argued that it would fly only short distances and for a limited time; it could not carry any payloads; and it was not suitable for any Coast Guard missions. All of these naysayers' allegations were *true*.

First Operational Helicopter

The YR-4As, ³⁵ with a 180-horsepower Warner Super-Scarab seven- cylinder radial engine, could not carry much more than the pilot and one other person, and that with a limited fuel supply.³⁶ Often, with two aboard, the radio and possibly even the battery were removed for flight on hot windless days. Though it showed remarkable flight characteristics, this model was a long way from performing any lifesaving role for the Coast Guard. However, the HNS—the Navy's designation for the R-4—was never intended as an operational missions' aircraft. It was built to train a pool of pilots in the unique flight of helicopters. Moreover, it was produced just to develop the principle of the helicopter. Operational missions would be handled by later aircraft already on production lines.

Helicopter Not Accepted

Kossler met rejection everywhere. The Navy's Bureau of Aeronautics was buying aircraft for the Coast Guard during the war, and a "Coast Guard Admiral" in headquarters told Kossler, "Hell, Bill, the Navy isn't interested in life saving; all they want to do is get on with the business of killing the enemy."³⁷ Even the Navy's inspector of naval aircraft at the Sikorsky plant was similarly unimpressed.³⁸ He opposed helicopter development; it interfered with the production of fighter aircraft. (The Vought-Sikorsky plant was then building the popular F4U Corsair fighter.³⁹) Even though some Coast Guard officers gave Kossler "lip- service," he sensed they did not really mean it.⁴⁰

Army Begins ASW Experiments

Meanwhile, military strategists grasped at ideas to combat the extraordinary losses the Atlantic convoys were suffering at the hands of Germany's undersea raiders in 1942. Early propositions included the gyroplane or autogiro flown from ships or light scout airplanes equipped with floats and catapulted from merchant ships to ward off submarines. Both the Army Air Forces and the British had experimented during the mid-to-late 1930s with the autogiro.

However, it was from their very first experiments with the XR-4 that the U.S. Army Air Forces recognized the helicopter might have a potential as an antisubmarine weapon. The Army Air Forces was already flying wartime antisubmarine patrols, using fixed-wing patrol aircraft from land bases. The helicopter, some speculated, might be an extension of this mission, and so the Army Air Forces began to experiment with using the helicopter as a weapon in antisubmarine warfare (ASW).

The Army Air Forces added the first helicopter, the XR-4, to its livery on 30 May 1942, following its first cross-country flight from the Sikorsky factory to the Wright Field in Ohio. The 760-mile trip, flown by Morris, took five days.⁴¹

A few days after the XR-4 arrived at Wright Field, Gregory began to conduct bombing tests with it. He was aware then of speculation by military strategists on the use of the helicopter as an antisubmarine weapon. "Naturally," Gregory remarked, "Army men who had nursed the helicopter to success saw it as the ideal craft for such operations." However, its weapons delivery capabilities were yet unknown.⁴²

The experimental helicopter showed obvious advantages in scouting for submarines. The question in Gregory's mind was, "Could it bomb accurately?" Colonel Douglas M. Kilpatrick, director of the Bombardment Branch of the Army's Engineering Division's Armament Laboratory, helped Gregory prepare the helicopter as a bomber. "Doug was quick to see the possibilities of this hovering craft for bombing and enthusiastically cooperated in getting the necessary bomb sights and bomb racks fabricated and installed," Gregory recalled. Eager to test the craft, Gregory took Kilpatrick aloft before the helicopter was equipped with those devices. Kilpatrick simply carried a twenty-five-pound practice bomb on his lap. Gregory hovered the helicopter two to three hundred feet over a "sub" outlined on the ground with chalk. Then Gregory "would give Kilpatrick a poke and the bomb would be heaved overboard."⁴³ Gregory proudly noted that some bombs came within three feet of the target. He conceded with honesty, however, that "others missed by

thirty yards.”⁴⁴

When the XR-4 was finally outfitted with a pendulum-type bomb sight—used on early bombers—and external bomb racks, the bombing results were more accurate. Later, Gregory refined his target, substituting an old piece of oilcloth for the chalk marks. His accuracy became more predictable after he discovered that bombing runs on the target at forty miles per hour provided more consistent results. Thus it was that the bombing capabilities of the XR-4 were among the first operational tests for the machine that Kossler and Erickson envisioned using to rescue those in peril.

For his next test, Gregory had a twenty-by-twenty-foot platform built, which was raised three feet above the ground. This was done, according to Gregory, to make the demonstrations look more convincing to the pilot and onlookers since “an error would mean a crack-up.” His plan was to simulate a helicopter deck aboard ship. He and Morris even included vertically mounted two-by-fours to simulate masts just beyond the tips of the rotors.⁴⁵ (Having practiced on this platform proved helpful to Gregory, who was later chosen to pilot the helicopter for the first actual shipboard demonstrations.)

Gregory started what Kossler and Erickson would eventually continue; showing helicopter capabilities to senior officers and VIPs who were trying to focus some interest in the novel aircraft. On 7 July 1942, Gregory demonstrated typical helicopter flight maneuvers—vertical, backward, forward, sideways—for General Henry Harley “Hap” Arnold. Gregory felt Arnold “was greatly impressed,” but quite noncommittal. This feeling was dispelled later in Washington, when they discussed possible production of the new and larger helicopters, the R-5s. According to Gregory, before the first experimental R-5 model flew, Arnold said, “The Army Air Forces has taken fliers before with not so much to gain promised. I think we’re justified in doing it again in this case.” Gregory interpreted this to mean, “procure the craft right from the drawings, if necessary.”⁴⁶

One day, Gregory was summoned to demonstrate the “ship” while he was out flying around Wright Field. The control tower ordered him to land, adding the comment, “An important officer wants to see you.”⁴⁷ Major General James H. Doolittle, just returned from the Tokyo raid, was waiting at the ramp for him. Boastfully, Gregory greeted Doolittle with, “General, you may have had quite an experience over Tokyo, but this will be one of the tops in your career of flying.” Doolittle flew the aircraft and then asked when the Army was getting more. “The general had immediately perceived the utility qualities of the craft and expressed his desire to acquire helicopters for “evacuating the wounded, transporting key personnel, and for supplying isolated units.”⁴⁸

Erickson Learns from Gregory

Kossler knew Gregory from their association on the Dorsey Board. Later, Erickson was drawn into their collaboration, and he got to know Gregory well. Erickson picked up two quick lessons from the Army test pilot. First, he developed an unrestricted testing program; any idea was fair game. For a military pilot, he had an unusual situation few had before and probably none since. Erickson was virtually open as to what he could do with the aircraft, and he had a close personal working relationship with the key personnel at the manufacturer’s. In the military, he was given carte blanche, with apparently no directives restricting his activities. Second, and perhaps the most important lesson passed on by

Gregory, was the importance of selling the merits of the craft to influential leaders. Later, these freedoms instead would become the trap to end Erickson's career and nearly end the helicopter's development.

Conspiracy Begins

In the meantime, Kossler, undaunted by the opposition he experienced from the Navy and from within the ranks of the Coast Guard, orchestrated events with seemingly little to connect them. He needed an ally to push the failing cause, and it was no secret he admired Erickson⁴⁹ He integrated Erickson into the helicopter development program.

This seemingly spontaneous accord was contrived weeks before, with Erickson's orders to New York. Erickson's enthusiasm for helicopters was as unflagging as Kossler's. So it was not just coincidence when, a few days following one of Kossler's visits to New York, Lieutenant William Kenly, Kossler's assistant, arrived at CGAS Brooklyn. Kenly remarked casually at lunch one day that he had an appointment with Sikorsky and wondered if anyone could fly him to Bridgeport. "I didn't realize at the time that his little pitch was for my benefit," confessed Erickson. "It was the 26th of June, 1942, a day I will never forget."⁵⁰

Erickson was captivated with those he met at the manufacturing plant. "Igor Sikorsky and Michael Gluhareff, his chief Engineer," Erickson later reflected, "were two of the most charming people I had ever met." They spent several hours discussing the possibilities of the helicopter. Sikorsky showed a film of Gregory performing the first tests with the XR-4 at Wright Field. Then Sikorsky gave a personal, "convincing" demonstration in his VS-300. He landed within inches of a given spot. Erickson remembered: "This was something I could really appreciate after my experience of operating a JF-2 amphibian from the CGC *Hamilton* on the Bearing Sea Patrol... . What a pleasure it would have been to have an aircraft like that aboard ship."⁵¹

That night, writing with emotions whipped up by the day's events, Erickson drafted his proposal to the Coast Guard commandant outlining possible future missions for the helicopter. Erickson was well aware of opposition to Kossler's perception of the helicopter as a rescue vehicle and therefore slanted his report in a direction he anticipated the Navy might accept. The idea was perhaps suggested to him by Kossler and Sikorsky and influenced by the motion pictures of Gregory's experiments bombing a mock submarine and landing on a platform. Erickson noted the lifesaving and law enforcement possibilities of the helicopter, but he also introduced—hoping to capture a new interest in the helicopter—the potential capacity for "providing aerial protection for convoys against submarine action." To ensure his participation in his proposed project, he concluded his opening remarks by stressing that the helicopter antisubmarine warfare mission would be "an important function of Coast Guard Aviation."⁵²

Erickson's proposal might have had an immediate and vital impact on the war if helicopters were already capable and proven. They were not. In support of his vision for using helicopters in a war against submarines, Erickson cited the statistic that in the month of June 1942 alone, "German submarines sank a record fifty-five U.S. merchant ships for a total of 289,790 tons."⁵³ According to his formal plan, then, the Coast Guard should develop the ASW capabilities of the helicopter. Merchant ships could protect themselves

in convoy while helicopters would take off from small platforms built onto the decks of cargo ships and tankers to search for submarines. They might also carry a single depth charge.

Erickson further stressed the ability of the helicopter to operate from ships in convoy beyond the ranges that constrained patrols by land-based aircraft. He argued that helicopters could fly in poor visibility and they could refuel in flight by merely connecting a fuel hose that was lifted from a patrol boat to the hovering helicopter. He was confident that arguments about poor performance could now be defeated. As he wrote the letter, Erickson was already aware of the Army's order for the new more powerful operational model, Sikorsky XR-5.

Though Erickson pitched his focus toward the ASW mission, he did remind the commandant in carefully crafted prose of the helicopter's lifesaving features. "[I]t is also the ideal aircraft for rescuing personnel from torpedoed vessels." Erickson concluded his letter with a brief statement introducing anti-mine warfare.⁵⁴

Erickson was optimistic that his proposed program would be accepted. He was soon to learn, however, that the Navy was not willing to risk resources on an aircraft with no proven value. In Erickson's favor, though, his commanding officer, Burton, favorably endorsed his letter, noting that the Army accepted the idea of helicopters for military use. Burton's remarks suggested that the helicopter had even greater possibilities for service to the Navy. He closed his endorsement by writing, "Unfortunately the Navy has not shown any great enthusiasm for this type of aircraft."⁵⁵

Rear Admiral Stanley V. Parker, head of Coast Guard activities for the Third Naval District, added his endorsement three days later, supporting the ASW concept for helicopters.⁵⁶ He also suggested additional missions for the helicopter such as "captain of the port inspections" and "expeditious visits to a number of lifeboat stations in the interest of coordination of beach patrol activities and inspections." Parker concluded with a remark that almost destroyed the strength of his arguments, recommending the acquisition of merely two helicopters.⁵⁷

Commander F. A. Leamy, a Coast Guard aviation operations officer, concurred with Erickson and gave him a third endorsement. It lacked enthusiasm, however, and offered no additional support. Earlier, Leamy had requested that the Coast Guard buy helicopters, but he was refused.

It was Kossler's final endorsement, advising haste in acquiring helicopters, that brought results. Kossler knew that the Army planned to return its XR-4 aircraft to Sikorsky around the first of January 1943, following the contracted six-month test period. The Army had no other use for it. As Kossler wrote, "[It] would be highly desirable to test the XR-4 helicopter in this capacity as soon as possible." He feared that if tests of the new helicopter were delayed until production aircraft were built for the Coast Guard, there would be a further delay of several months before it could determine if helicopters should be purchased in quantity for ASW. Appearing at the bottom of Kossler's endorsement is a handwritten note: "Operations I concur. HFJ" [Harvey F. Johnson, engineer-in-chief].⁵⁸

The first resistance within the Coast Guard had crumbled. Kossler's superiors would,

from this time on, support his actions in acquiring helicopters.

One week had elapsed from the time Erickson first viewed the helicopter in Connecticut to the completion of the fourth endorsement. This swiftness in communications and action was to be the hallmark of Kossler's efforts throughout the succeeding three years he spent driving the Coast Guard's helicopter development program.

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