THE ABBOTT COLLECTION

Paintings of

Naval Aviation
INTRODUCTION

The Navy takes keen pride in the pictorial exhibit of Naval Aviation represented in this exhibition. Such a wartime record of its planes, its flyers and ground crews is an important historical contribution and a major accomplishment in enlightening the American people about this fast-growing branch of the Navy.

The artists whose works compose the exhibit visited Naval Air Stations in every part of the country. They talked to the students and instructors, gained a thorough knowledge of Naval Aviation, and studied its training program. The tangible result of their laudable enterprise has been to provide us with a permanent tribute to the Service. The hundred-odd paintings they have produced interpret the meaning of Naval Aviation with remarkable understanding.

The accuracy with which these paintings portray the most intimate details of our training activities was not accomplished by chance. For weeks the artists lived at Naval Air Stations, were quartered with the men, making a conscientious effort to absorb Navy traditions and customs.

They covered all phases of the program, from Pre-Flight School up to combat. There are pictures of pilots, enlisted men, and Waves, and of virtually all the Navy’s planes, both on the ground and in the air. To describe on canvas the action they saw, the artists made numerous flights in all types of naval planes. The oils, water colors, drawings and sketches which grew out of this research provide a spirited chronicle of the Navy in the air.

During a war, when military leaders are dedicating their full attention to a victory in the shortest possible time, it is sometimes difficult to inform the public adequately on many activities of the Services, activities in which every one has a vital interest. The actual battles, of course, are described from day to day by correspondents and photographers in the war zones. Training activity, of necessity, does not receive this intense concentration. Although Naval Aviation has made a faithful attempt to report to the public the various ramifications of its training, voluntary contributions of talented and responsible civilians are received with gratitude.

It is with such a feeling that the Navy views this record of Naval Aviation in training. It is felt that these works by patriotic American artists are a worthy addition to the written and photographic record of the training program in wartime. They have caught the spirit of the men who fly and maintain Navy’s planes. They have, in short, captured the essence of Naval Aviation.

J. L. McCain, Vice Admiral, U.S.N.
Deputy Chief of Naval Operations (Air)
The notable group of paintings and drawings by American artists included in this exhibition, depicting the varied phases of Naval aviation from pre-flight to combat, is an interesting survey in pictorial form of this highly important branch of Naval activity.

It is with pride that the Navy shows, through this medium, its men and planes in action, as well as the intensive program of training which Naval aviators and ground crews receive for their difficult and exacting tasks.

The Navy acknowledges, with appreciation, the gift of these pictures from Abbott Laboratories. The joint effort of private enterprise and the Navy, through which these paintings and drawings were produced, is desirable evidence of cooperation between Government and business in furthering the war effort.

Frank Knox
1. THE FIRST UNIFORM—Don Freeman. There is no thrill like that which comes when the naval aviation cadet tries on his first uniform. This typical scene shows a cadet getting an initial eyeful of himself in summer whites as a shipmate observes approvingly.

2. GET TOUGH—Don Freeman. The Navy’s aviation pre-flight schools put a premium on physical well-being and adopt a program of athletics, calisthenics, and games. The purpose is not to emphasize physical condition as a military proposition, but to develop pilots able to take in stride the physical strains of combat. The first thing a cadet learns at pre-flight school is part of this program. During his stay, he is instructed by the finest coaches, many of them nationally known figures.

3. BEAR A HAND—Don Freeman. The obstacle course quickly becomes a part of the life of every cadet. Here cadets are scrambling over a barricade in the relentless race against time. Their physical condition is important, because long hours of combat and patrol flying at high altitudes call for superior stamina.

4. GROUND LOOP—Don Freeman. The Navy aviation cadet still is a long way from the cockpit at pre-flight school. But nevertheless he gets some ground “maneuvers” on these loops, which sharpen his sense of balance and equilibrium while toughening him physically.

5. HAND OVER HAND—Don Freeman. Agility and strength are sharpened during the naval aviation cadet’s pre-flight course. One way it’s done is hand-over-hand work along ropes. There is a practical side, as well, in that some day he may be called upon to work his way through tropical jungles after a forced landing, or utilize his training on vines or ropes in crossing rivers or dangerous patches of jungle growth. But it is strenuous exercise and subject to slips—as witness the cadet tumbling into the net below.

6. HAND-TO-HAND COMBAT—Don Freeman. Blood, and brawn, and sweat—the stern aspects of war confront the Navy’s aviation cadets during pre-flight training. Navy fighting men must know the tricks of the grim trade of war—a blow for a blow, an eye for an eye. There’s no peace given for being second best in hand-to-hand battle, so a course in physical combat is an integral part of pre-flight training.

7. POINTS OF RECOGNITION—Don Freeman. To all naval aviation personnel instant recognition of aircraft—friend and enemy—is a matter of life and death. Recognition is doubly important to the pilot, whose reaction must be measured in fleeting moments. To sharpen that reaction, aviation cadets spend long, hard hours learning the points of recognition of all types of airplanes. There must be no fatal confusion between the similar P38 and the Fw-190—a Mitsubishi and an Allied bomber.

8. OVER THE SIDE—Don Freeman. How to abandon ship is part of every man’s knowledge. So, at naval aviation pre-flight schools, cadets get some elementary instruction in how to put themselves on the end of a rope, and in boarding an inflated rubber raft in the water.

9. COMING ABOARD—Don Freeman. Navigating an inflated rubber life raft and climbing the landing net on a ship’s side are not as simple as they may seem. For one thing, excellent physical conditioning is desirable. For another, it takes familiarity with raft and net to do it properly. These Navy aviation cadets go through their paces in a pool before the critical eye of an instructor. Note cadet in the water keeping the raft on even balance as a shipmate starts up the netting.

10. DUNKING MANEUVER—Don Freeman. Navy pre-flight training is a body-building course, and it is also a course to familiarize naval aviation cadets with seagoing problems. One eventually liable to confront every seagoing man, sailor and pilot alike, is the need of climbing from the water up the side of a ship. Aviation cadets at pre-flight school go through that strenuous maneuver in a pool.

11. "...AND KEEP YOUR POWDER DRY"—Don Freeman. Part of the training of naval aviation cadets is learning to meet every eventuality of war. A primary lesson for all fighting men is to keep their weapons in fighting condition. A little point in keeping a dummy rifle out of the water is practiced by a cadet, although the rifle could be any piece of equipment. Training such as this is intended to make swimming more difficult for the cadet, his physical condition better.

12. MEN IN TOW—Don Freeman. Morale in the U.S. Navy is high. One of the reasons is because the Navy places a premium on the life of every man. In order to help them protect themselves until help comes, aviation cadets are taught not only to save themselves, but to save others in case of forced landings at sea. Here they are shown practicing how to tow injured personnel in the water.

13. CRASH LANDING—Don Freeman. How to crash at sea may seem a little grim as a course of instruction, but the Navy prepares its aviation cadets for every eventuality. Possibly the first thing a cadet learns is that water is hard when he hits it. Simulated “dunks” are undertaken in a mock-up cockpit, in which the cadet learns about impact, scrambling loose while under water and weighed down with a parachute, and freezing himself while submerged upside-down. He learns that a fighting plane may sink in a matter of seconds and that he must act quickly, without panic.

14. "MET THE ENEMY"—Don Freeman. There comes a time in war when man is pitted against man, a time for the individual without his weapons. Such a time, the Navy knows, may come to its pilots—possibly in the rankness of enemy-infested jungle, on the beaches, or to the desert. In preparation for that eventuality, aviation cadets are taught the finer points of hand-to-hand combat. So that it may be instinctive, the Navy teaches cadets to fight blindfolded, such as they might have to do in the jungle at night.

15. FISTS ARE GOOD WEAPONS—Don Freeman. There are times when no weapon takes the place of a man’s bare knuckles—especially when bashing them off the jaw of a little yellow man. Navy pre-flight school teachers aviation cadets boxing both as a fighting art, and to impress upon them the lesson that they can absorb physical punishment and still keep going.

16. END OF PRE-FLIGHT TRAINING—Don Freeman. The arduous course of physical conditioning in the Navy’s pre-flight school is over for these aviation cadets, and they are embarked on the next course—primary training. Where they actually begin to fly. Before leaving for Pensacola, Florida, they shoot a boisterous farewell to underclassmen trotting on the double to the drill field for calisthenics.

17. "WIND HER UP!"—Goerge Scharer. An aviation mechanic’s mate winds up the inertia starter of a “Yellow Peril”—the Navy’s primary trainer. After a period of instructions in these training planes the aviation cadet will be ready for his intermediate training in the faster SNJ trainer.
18. FLEDGLING—Joseph Hirsh. The pull of parachute straps, the feel of helmet and goggles, the roar of airplane engines—these are combined to thrill the naval aviation cadet as he walks to the line for his first flight. Unless he is eager, he embarks on the long road which one day will bring him Navy Wings of Gold, and which will eventually lead him aloft from a carrier deck in the relentless stalking-down of the Jap.

19. THE "UP-CHECK"—Georges Schreiber. The fateful moment for every naval aviation cadet comes when the Flying Instructor, smiling faintly, turns in the front cockpit and lifts his thumb in the traditional gesture of success. Tensely the cadet waits for the green moment, which spells success or failure after months of study, dual instruction in the air, and physical conditioning. The "up-check" marks another milestone on the road to the coveted goal—Navy Wings of Gold.

20. FOOD FOR THE "YELLOW PERIL"—Joseph Hirsh. The naval aviation cadet's first serious contact with airplanes is the noted "Yellow Peril," familiarly named because of its color. It is the primary trainer in the Navy's training program. Here a mechanic and a pilot fill up the gas tank.

21. CLASS ROOM FLIGHT—Georges Schreiber. The ubiquitous Link trainer is the airman's cockpit-on-the-ground. Beneath its hood he learns to navigate by instrument. It is used for Gunnery and Fielding alike at every naval air station. To some extent, the Link is likewise utilized as a primary training aid for aviation cadets. When the hood is in place, the pilot simulates actual flight—"flying" by instrument as his "course" is recorded on the operator's desk.

22. MAN OF THE HOUR—Joseph Hirsh. His first solo flight! Evident, discoverer of the fact that he is master of his destiny, newborn of the elements—the artist has caught the spirit of the naval aviation cadet after his first flight alone in a primary trainer. He and his shipmates are keeping alive the proud tradition of the naval service. Tomorrow, whenever it may come—his voice will respond to the call to combat in the full discipline and training of his cadet days, an alert and capable naval flying officer. He's a pretty fine fellow, the Navy thinks.

23. AIR PILOT—Joseph Hirsh. With pencil and chart, an instructor lays out course and dispenses advice to Navy aviation students about to take off on a formation flight. Pilots already have donned their inflatable vests and are ready to take off when the word is passed.

24. AERIAL DRILL—Georges Schreiber. Formation flying, an essential to successful military and naval aviation, requires intensive practice. Their first taste of formations comes to naval aviation cadets at the intermediate training stage when they advance to Y3X trainer. Here an instructor gives careful instruction to student pilots over the radio.

25. SATISFACTION PLUS—Joseph Hirsh. There are no severer critics of squadron performance than men who constitute Navy ground crews. When performance is high, it is the ground crew which exudes self-satisfaction. This trio of Navy machinists rates put on expressions of pleased smugness as they critically observe fighter squadrons wheel aloft in formation. Their job is done; every engine purrs like a cat.

26. HANGAR FLYING—Joseph Hirsh. Divin on a jock of Japs somewhere over the Pacific takes know-how. That's why the Navy returns combat-toughened pilots to act as instructors at naval air stations. Here an instructor demonstrates a maneuver to his student, using the airman's universal language—his hands.

27. PILOT IN BLACK FACE—Joseph Hirsh. The Navy pilot, if unpretentious from icy bluffs while on cold-weather patrol, might suffer serious frostbite. To prevent facial freezing and maintain efficiency of air crews, wind masks are provided. Aerial observation and scouts require sharp observation, and sometimes it is necessary for the airman to open ports or push aside the cockpit enclosure for unimpeded vision.

28. TRAINING IN HOMICIDE—Georges Schreiber. The rear seat gunner of a Navy dive bomber or torpedo plane carries a heavy burden. His task is to ward off enemy fighters, usually faster and trickier than his rearward bomber. That's why training in Navy flexible Gunnery gets so much emphasis. Here a naval petty officer puts a group of gunner candidates through closely directed firing drill. The man at the gun is still a bit awkward—but he'll learn.

29. ON THE MARK—Joseph Hirsh. In a few months he will be sighting at the Jap rising sun as his bull's-eye. For the present, however, this Navy Gunnery candidate, chin braced on hand, lots loose with a few bursts on the gunnery range under the critical eye of an instructor. The rear seat gunner has written a distinguished chapter for himself in the story of naval aviation during this war.

30. THE MAN IN THE REAR SEAT—Georges Schreiber. The rear gunner's spot is, as on these SHD dive bombers, is a lonely, but vital one. It is the man in the rear seat who fires the rear guard action protecting his pilot while bombs are aimed at the target. His guns have scratched scores of Jap fighters on the Pacific tally sheets.

31. A NAVY CATAPULT BARKS—Georges Schreiber. An observation-scout is airborne from a catapult at the naval seaplane base, Pensacola, Florida. This action took place on the beach as part of training for naval aviation cadets and pilots in operational training. The plane is the Vought-Sikorsky OS2U, used in land-based operations and catapulted from cruisers or battleships to scout the enemy and to spot gunfire. With its crew of two, it can carry small bombs, scout relatively large areas, or engage in photo reconnaissance.

32. THE DUNKERS—Georges Schreiber. Eyes afloat, three members of a Navy beaching crew pull on their neck-high "boots" preparatory to beaching the observation-scout spiraling down to a water landing. The rubber suits protect the crew from the chill of icy water in beaching operations before the airplane is towed up the beach ramp by a tractor. In southern waters, or in warm water, or when equipped with pontoons, the boat can proceed through rough water.

33. BEACOMBER, NAVY STYLE—Joseph Hirsh. Clad in rubber suit, this member of a Navy seaplane beaching crew sits and meditates while awaiting a call to action. The beaching crew must wait in the water at seaplane beaching ramps and attach lines and beaching gear necessary to haul flying boats onto the ramp.

34. MEN'S LIVES IN THEIR HANDS—Joseph Hirsh. Para-chute rigging puts a premium on care and exactness. Navy chute riggers, through long training, are experts in their task. These sikorsky parachutes and lines will function to perfection when demand is made upon them.

35. BOMBER FACE LIFTING—Joseph Hirsh. Weathered and grimed from long patrol flights, this Navy Catalina undergoes a thorough check before its next mission. The Catalina, known to the Navy as the PBV, has written aviation history in patrol and bombing operations from the Aleutians to the Solomons. Among its many accomplishments—although an accomplishment never intended by its designers—was that of delivering through Aleutian fog. Its pilots affectionately called the PBV the "Alaska work horse."

36. EASY DOES IT—Joseph Hirsh. The big three-blade hollow steel "prop" which pulls a fighter airplane through the air at 300 miles an hour is a precision instrument. Mounting one on a propeller shaft requires care and skill, since incorrect manuhandling can tip threads or cut mating splines and thereby put an airplane out of commission as effectively as a 20 mm. shell. Navy mechanics, however, universally have personal interest in their squadron's airplanes, and no plane captain ever wants it said his plane is not ready for combat.
37. ROLLING OUT THE BEACH GEAR—Georges Schreiber. A ground crewman trundles out a wheel used in beaching flying boats or pontooned seaplanes. If a scouting plane is hoisted ashore by a crane, the plane is lowered on to the gear. If a flying boat, the wheel gear is attached in the water.

38. LENS HAWK—Joseph Hirsch. Aviation photography is a vital function of modern reconnaissance, and the big battles of today invariably are fought after preparations based on photographic scouting. The camera likewise has a vital function in recording the results of battle or bombing mission. Naval photographers are schooled in the camera arts from use of the grand snapshot to the aerial flight. Here, a candidate for a photographer’s rating works out with a pocketful of film holders in reserve.

39. NAVY METALSMITH—Joseph Hirsch. The men who wear the specialty mark of Navy metalsmith on their jumper perform miracles of repairs at advanced bases. A lot here, a piece there, and another plane is ready on the line. They are one group of the big number of specialists which operates to keep naval aviation at top efficiency.

40. “SHOOTING” THE WEATHER—Georges Schreiber. Navy weather men, or aerographers, check a weather balloon with a theodolite. From their findings, they will be able to compute the direction and velocity of the wind, at all altitudes aloft, for preparation of pilots’ weather reports.

41. LEARNING THEIR ALTITUDE ROPES—Joseph Hirsch. An essential training feature for Navy aviation cadets is to learn to live and fight in the thin air of high altitudes. From the safety of the low pressure chamber, they get their first experience with the tricks which lack of oxygen can play on the human system, and with operation of their oxygen masks. Under the watchful eye of a Navy rating, a pharmacist’s mate of hospital corpsmen, they “ascend” to 25,000 feet in the low pressure chamber at training school.

42. MAN IN THE OXYGEN MASK—Joseph Hirsch. He’s not pretty to look at, but he’s equipped with what the safely dressed airman will wear at high altitudes. The oxygen mask is important in preservation of efficiency. A Navy rating Ceci the mask here to demonstrate its use to aviation cadets about to enter a low pressure chamber, where high altitude atmospheric conditions will be simulated.

43. FLIGHT BOARD—Georges Schreiber. The flight board at a naval air training station has some of the advantages of the town pump. About everything you want to know may be learned here. These naval aviation cadets check the board to learn the day’s squadron formations, plane assignments, flight hours and a word or two about important weather conditions. The flight board is also a good spot to pick up a bit of small talk.

44. GETTING THE ONCE-OVER—Georges Schreiber. The observation and check tower of a naval air station keeps close watch over the air traffic. Here an incoming pilot is checked on having his wheels down, a practice followed at all naval fields. The air field personnel also checks all traffic moving in and out of the station, and notes any breaches of field rules.

45. HEAVE AWAY—Joseph Hirsch. Lines fast and beaching gear in place, a Navy PBM patrol boat swings tail out to seaplane ramp preparatory to being hoisted ashore after a patrol flight. Supervising the operation from the wing is an officer of the plane crew. Note the stinger gun in the big tail.

46. BACK FROM PATROL—Joseph Hirsch. A Navy PBM, the Martin Mariner, rides with idle engines off its ramp waiting to be hauled out. Already the beaching crew, clad in summer suits, is waiting out to attach lines and beaching gear. An officer of the bombard crew has climbed through a hatch and stands on the starboard wing root to observe operations.

47. ONTO THE RAMP—Joseph Hirsch. Caught by the tail like some dripping sea monster, a Navy PBY patrol bomber is hauled from the water up the seaplane ramp at the end of a mission. Beaching those big flying boats is a precision performance. Beaching crews must first take up and attach wheel fittings under the hull to permit the plane to be rolled onto the ramp. A towing line is fitted to the tail, and up she comes under the tug of a snorting tractor.

48. EYES OF THE FLEET—Joseph Hirsch. Curtiss scout-observation planes, ship-based, wing off on scouting missions over the sea. Catapulted from the deck, the chief mission of the 50’s is spotting the enemy and spotting enemy fire. Termed the eyes of the fleet, scouting pilots extend the vision of shipboard observers hundreds of miles in every direction.

49. READY ON THE LINE—Joseph Hirsch. But first, before the Navy gives its airplanes into the hands of the crews, a rigid schedule of inspection and maintenance must be observed. This is the 30-hour check, when plane captain and his crew swarm over their Beechcraft transport to assure airworthiness. The engine, propeller, cowling, skin, controls, rudders—every part is checked and inspected for the effects of wear and weather. Note here the baynet behind the empennage going over every inch of the elevator and its controls.

50. MAKING THE BUY—Joseph Hirsch. Back from hours in the air on patrol, a flight of four-engine patrol bombers settle to the water and maneuver up to the beaching buoys preparatory to beaching. To weary, hungry pilots and crew, the signals of the beaching crew are a welcome sight. After making their planes fast to the buoys, handling wheels and latches, the crew will be attached to the plane’s hull and it will be towed up to the ramp. The beaching crew, clad in swimming trunks, wait until time to want down the ramp to attach beaching gear.

51. FLIGHT’S END—Georges Schreiber. His parachute swung comfortably over his shoulders, a Navy pilot returns to squadron headquarters to check in after a flight at Pensacola, Florida. Behind him, a beaching crew hoists a Vought-Sikorsky observation-quito onto the concrete hangar ramp. This operation is the same as that followed at sea, where scouting planes are hoisted back aboard after being catapulted from the deck of cruiser or battleship.

52. “PILOTS, MAN YOUR PLANES!”—Joseph Hirsch. This command, the call to action station, sends Navy pilots scrambling for their planes. Months of training lead one day to this thrilling command, which finds naval combat fliersalert and ready.

53. INTO THE RIGGING—Adolf Dohn. Blimp maintenance crews need a lot of the same agility aloft required of sailing men in the days of windjammers. To scan the outer surface of a blimp envelope for rents or rips is a high job on lines or portable extension ladders. Navy crews periodically go over the big airships from engine to gas cells in a hunt for signs of stress or wear. Note the size of fins and rudder at the tail of the blimp.

54. OFF TO WAR—Adolf Dohn. With ground crews on the handling lines, these Navy non-rigid airships are being walked out of their vaulted hangars to go about the day’s business of protecting our shores. With a roar from their engines, they will take off to patrol coastal waters and convoy merchant shipping against the menace of the submarine. One of the big naval blimps is being towed by a portable mooring mast outside the hangar doors.

55. ALL SHIP-SHAPE—Adolf Dohn. Navy airship crews make last-minute inspections before their huge charges are walked out of the hangar to take off on patrol duty. Blower and tubing in the foreground are used to blow air into the airship’s interior balloon to maintain the shape of the envelope. The blimp’s buoyancy, however, is derived from helium. In flight, interior shaping pressure is maintained by air entering the balloon from the air scoop beneath the envelope and within the slip stream of the propellers. The portable mooring mast in the background is utilized to handle blimps on the ground, and to permit them to swing about with the wind.
56. LIKE LUMBERING PUPPIES—Adolf Dehn. Navy blimps cast off for patrol over coastal waters, their huge bulk on the ground belied by their agility aloft. Four of the big non-rigid airships have gone aloft in this scene, handling lines trailing, while a fifth waits poised for the command "Up ship" and the release of handling lines. Non-rigid airships are a large and important section of the naval aeronautical organization.

57. BLIMP NEST—Adolf Dehn. Engines humming, these Navy airships set a course over their great high-collared hangars after casting off on a morning flight. Airborne, the airship is at home in the elements. Great skill, however, is required to maneuver these giants to a landing and to stow them in their hangars.

58. OUT TO SEA—Adolf Dehn. Crest line and inland tidal waters pass astern as two Navy airships, caught by the artist against the setting sun, take advantage of a brisk breeze on the first leg of their coastal patrol. Armed with depth charges and with light armament in the control car, they are formidable lookouts above the ship lances. The crew stands watch and watches aboard ship on long cruises, always scanning the surface of the sea for suspicious craft or lights.

59. THE CONVOY BROOK—Adolf Dehn. Like maternal hens, Navy blimps hover over a sea-borne convoy alert to any danger on the horizon or beneath the surface. Airships capable of speeds of 60 knots or more, yet can ride indefinitely over danger spots. Their cargo of depth bombs makes them a deadly danger to the submarine. As convoy escort, the lighter-than-air heroes of the Navy has played its part in sweeping coastal shipping lanes.

60. LIGHTER-THAN-AIR FLEET—Adolf Dehn. Strung out over a coastal inlet, a fleet of Navy blimps stirs for home. Known to the Navy as "K-Ships"—denoting their class—they are a sturdy breed. The lines trailing from the blimp in the foreground are handling lines, which will be caught by the landing crews to ease the big craft to a soft landing.

61. LANDING LINES TRAILING—Adolf Dehn. A Navy blimp comes carefully in for a landing. Long training and expert ground supervision help the landing crew. Not each ship has been trained and skilled are Navy ground crews, that blimp landing accidents are rare. The big "K-Ships" possess stability and control from twin engines and their fins and rudders astern.

62. HOME BERTH—Adolf Dehn. Lounging big and awkward on the ground, a Navy airship is walked toward the portable mooring mast where a crewman waits to make it fast to the mooring swivel. Once brought snug against the mast, the blimp is able to revolve in a full 360 degree circle, or be towed into the berth to await other non-rigids.

63. DOWN SHIP—Adolf Dehn. Landing lines trail, and bow dops, as a Navy blimp noses up to its mooring mast at completion of the day’s mission. Other ships of the unit hover, meanwhile, over the field awaiting their turn. Note mooring man at the mooring swivel atop the portable mooring mast. He will take a line from the blimp's nose to make the ship snug to the swivel.

64. HOME THE WEARY BLIMPMAN MAKES HIS WAY—Adolf Dehn. Navigating lights atwinkle and cabin windows agleam, an airship unit comes in to a landing after dark as a portable floodlight illumines the mooring scene. The blimp in the foreground has made fast a line to the mooring mast, and is being worked in to attach it to the mooring swivel, after which it will be walked into its hangar. Ground crews strain at the hand lines, while the propellers still turn to allow the skipper maneuverability.

65. BY THE LIGHT OF THE MOON—Adolf Dehn. A Navy airship rests immobile at its mooring mast, engines idle, as its crew waits forward in a floodlight’s illumination. Engines soon will turn over, and it will be released to take moonlit skies on a night mission. Meanwhile, the ground crews hands in pockets against the sharp night air, idle alertly in position until they are called to the handling lines.

66. FREE BALLOONING—Adolf Dehn. The balloon was the first means by which man was able to ascend into the air. It is still going strong, for a knowledge of free balloonology is part of the stock-in-trade of the Navy lighter-than-air officer. A requisite to operation of the powered non-rigid airship is an understanding of the operation of a free balloon in air currents and in descent and ascent. Many an airship officer has successfully free-ballooners has contributed to this in emergency or without engine power. Here, at a lighter-than-air base, balloons ascend among the circling non-rigid Navy blimps.

67. A LADY OF THE NAVY—Howard Baer. They don't shoot guns; but members of the WAVES—enlisted personnel and officers alike—have won the admiration of the Navy, and are playing an important and vital part in winning the war. Keen, alert, cheerful, the Navy's WAVES are capable "seamen" and sailors. This is a typical example.

68. VICTORY SPARKS—Howard Baer. A WAVE machinist hends nubly over a grinding wheel, sparks flying from the tool which she is sharpening. WAVES have won a respected place for themselves as mechanics in Navy machine and repair shops.

69. SEWING MACHINE SAILOR—Howard Baer. Battles first must be prepared on the ground before they are won in the air. That's why this Navy WAVE has a vital post on the war front preparing airplane fabric with the sewing machine as her weapon.

70. BOMBER GLAMOUR—Howard Baer. The glamour of the Navy's aviation branch has lost nothing through its capable WAVE machinists. They overhaul and repair planes with male enlisted machine's mates, as this one working here on a bomber in for overhaul.

71. WAVE ON A WING—Howard Baer. That the needle may be applied to the war effort is demonstrated by the work of this WAVE as she laces a needle and thread in repair of an aeroplane in a seaplane hangar. WAVES familiarity with the sewing machine and kindred feminine skills has many definite advantages in the Navy. Note through the window the view of a Martin Mariner being beached.

72. BUSY HANDS—Howard Baer. With drill and punch, Navy WAVES repair the engine cowplings of airplanes. They work in the hangar side by side with naval mechanics, taking grease and dirt in stride.

73. A WOMAN'S TASK—Howard Baer. If she's a Navy WAVE, then woman's task may be anything that a man's task may be, and it's a pretty good bet that she will handle it efficiently. Here, three WAVES turn to with machine's mates to put the engine of an amphibian in tip-top running condition.

74. PATCHED TO FLY ANOTHER DAY—Howard Baer. In the Navy, it's everybody together. Here, it's the WAVE and sailor together to patch bullet holes in the wing tip pontoon of a naval flying boat in from patrol duty.

75. READYING FOR THE LINE—Howard Baer. Sleeves rolled to the elbow, WAVES take a hand in preparing an SNJ advanced trainer for flight. WAVES usually have proven adept at arduous, exact tasks requiring a sure touch and infinite patience.

76. WOMEN AT WORK—Howard Baer. In coveralls with grease on their hands, WAVES machinehs may be seen on the working grates of any seaplane ramp. Working side by side with their male contemporaries, they lend a capable hand on engine check and problems of maintenance.
78. FUEL FOR THE AIR FLEET—Howard Baer. Perhaps it wasn’t long ago that this WAVE was dispensing beauty oils and creams. She is still dispensing—but for the Navy now, and in coveralls and leather gloves and with high octane gasoline as her wares. Gray-painted Navy tank trucks rumble through her post at an air station her day and night.

79. MISTRESS OF ALL THEY SURVEY—Howard Baer. Above the teeming airfields of naval air stations stand the control towers, source of the crisp commands which maintain order and traffic discipline among navy air squadrons approaching and leaving the field. At the busiest end of the radio microphones in these towers may be found WAVE tower workers, doing a Navy man’s job in a war which is woman’s as well. Efficient and alert, the WAVES are directing aerial traffic in the Navy’s principal air stations.

80. LIFE IN THEIR HANDS—Howard Baer. The deft, sure touch of coverall-clad WAVES parachute riggers finds a vital outlet in their work. There is no place for error here. The parachute is the Navy flyer’s ticket to earth and safety. At the parachute left, these WAVES inspect, dry, clean and pack parachutes with navy skill.

81. GROOMING A WAR DOG—Howard Baer. Beneath the heavy, vicious nose of a Navy Corsair fighter, WAVE mechanics bear a hand in engine maintenance as they drench the oil preparatory to filling it with new oil. Not pretty work; not clean. But mighty important to hard-pressed machinist’s mates in keeping the Navy’s first line fighters ready for instant action.

82. SERVICED AND READY—Lawrence Beall Smith. The aircraft carrier, as well as being a mobile airfield, is a service station deluxe. Once aboard and spotted by the Flight Deck Officer at its appointed parking place, the plane is taken in hand immediately by a servicing crew. It is refueled, cleaned, checked and inspected for instant use. At the same time, a crewman laces down wings with running lines attached to deck fittings. Wing lashings are necessary on the exposed flight deck, where heavy winds and even seas sweep its broad expanse.

83. A LANGUAGE ALL THEIR OWN—Lawrence Beall Smith. Hand signals are the language of the flight deck aboard an aircraft carrier. Little else would be distinguishable above the roar of engines and the rush of wind. Here taxi signals impart their terse messages to pilots and code workers as they spot landed planes at appointed parking places. The signalman in the foreground signifies by clenched fist that he wishes the pilot to lock his brakes, while with his right hand he tells the codemen to pull clear the wheelchecks. Planes aboard a carrier are always checked against the wind and roll of the deck except when taxiing or when moving by a handling crew. In the background, an Argen torpedo bomber already has folded its wings to conserve deck space.

84. TO THE ATTACK!—Lawrence Beall Smith. The glinting flash of the checkerboard flag in the hand of the Flight Deck Officer . . . the thundering roar of smoothly harnessed horsemen . . . and a Grumman fighter races down the aircraft carrier’s flight deck to take off into the wind. Even as it rolls forward, plane directors wave another into the take-off spot to follow in a matter of seconds. The torpedo and dive bombers will swing away in turn as the fighters rendezvous aloft to form a protective air umbrella.

85. TASK FORCE HORNETS—Lawrence Beall Smith. The operations island a grim gray island against the sky, this aircraft carrier steams behind her task force screen with a swarm of fighters at ready on the flight deck. To be first off, planes of a fighter squadron stand at Fly One, the take-off spot. Behind them, in order, will be the dive bombers and the torpedo bombers. Meanwhile, as signal pennants snap from the truck, handling crews and pilots await the orders which will send these Grumman lighters soaring into the air.

86. COMING ABOARD—Lawrence Beall Smith. Back from patrol, Navy Dauntless dive bombers make their landing circle and come in on the broad flight deck of an aircraft carrier. From the “bird cage” on the island, where the white flying flag is hoisted, the Air Control Officer and the Group Commander observe operations. On deck, handling crews spring forward to take charge of each returning plane, spot it forward, and start servicing. Off the port beam an escorting destroyer rushes about busily in screening operations.

87. THE SLUGGERS—Lawrence Beall Smith. Aviation armoires break open cases of ammunition, the bolts of bullets which feed the insatiable maws of the machine guns of the aircraft carrier’s airplanes. These guns fire from fixed and flexible positions on the airplane, and their power has been sufficient to sink or critically damage enemy destroyers brought within their range on straining attacks.

88. SWAB DOWN—Lawrence Beall Smith. A crewman rubs down finishing the finish, the shop of a fighting plane parked on the deck of an aircraft carrier. Plane surfaces are carefully swabbed down to remove any accumulations of dirt, oil and salt.

89. IN THE BRYNE—Lawrence Beall Smith. Oceans are large and missions often are long, so a docking is the lot of the aircraft carrier pilot, lucky enough to have his fuel supply run out before he can reach the flight deck. This Grumman torpedo bomber ran out of gas just short of its carrier home, but the crew scramble to safety in their “Mae Wests” as the pilot signals a cheery all-well. They will be picked up by an escorting destroyer while the carrier steams on at un-reduced speed to take aboard other planes still in the air.

90. A FIGHTER HITS THE SACK—Lawrence Beall Smith. A Dauntless dive bomber, wings folded, is trundled to its parking place by a plane handling crew after completing a mission. The plane captain carries a wheel chock. However, the men at the rear of the plane probably will come in for a dressing down if spotted by a deck officer. They are violating the rule that plane handlers must not push against the trailing edges of wings or elevators.

91. SCUTTLEBUTT SESSION—Lawrence Beall Smith. The Navy has a word for it—“scuttlebutt”—the shipboard grapevine by which even the most secret thoughts seemingly can be divined and relayed with constant improvements. A plane handling crew, at ease in the lee of an aircraft carrier’s island superstructure, participate in the shipboard pastime of passing along the latest scuttlebutt while awaiting return of their squadrons.

92. THE ARMORER’S MIGHT—Lawrence Beall Smith. With an eye aloft for approaching customers, aircraft carrier armorers ready their plump and burly ammunition delivery. These aerial bombs will be trundled down the flight deck and fitted to the bomb racks of planes when they return to “bom” up” for new missions and targets.

93. "TOO LOW!"—Lawrence Beall Smith. Like an orchestra conductor, the Landing Signal Officer of an aircraft carrier leads his pilots through safe approaches and landings. Here, braced in a 30-knot wind and intent upon the approach of an incoming plane, he carries the “too low” signal to the pilot to come up a bit to improve his landing position. With his signal “paddles,” the LSO warns the busy-firing pilots against retracted landing gear, failure to lower landing hook, improper altitude, or any of the multitude of factors involved in landing a heavy combat plane on the rolling deck of a carrier at sea.

94. "THE CUT!"—Lawrence Beall Smith. An incoming Douglas Dauntless dive bomber makes a satisfactory approach to the flight deck of an aircraft carrier and the pilot gets the signal to cut his engine from the Landing Signal Officer. The waving "paddles" of the Landing Signal Officer are the guides of incoming pilots, and their semaphore signals is final authority in all landings. If the Landing Signal Officer is dissatisfied with the approach, he signals a "wave-off" and the pilot zooms up to go around again.
95. THE SMOKE WATCH—Lawrence Beall Smith. Aloft on a searchlight platform, the smoke watch stands a chilly vigil. In war, heavy black smudge from the stacks of a warship are dangerous tell-tales to the enemy. On an aircraft carrier, smoke is doubly dangerous as it also interferes with launching and taking aboard planes. To engineering officers below, the most desirable smoke condition is a light haze, so a smoke watch is posted to report to the engine room on smoke conditions above decks. Below may be seen bundled and hooded seamen cleaning the flight deck.

96. REPOSE—Lawrence Beall Smith. Moments of relaxation are rare aboard an aircraft carrier on patrol, and they are snatched with casual abandon after the immemorial manner of seafaring men who take their repose where they find it. All hands of this plane handling crew settle themselves comfortably on the flight deck until their squadrons return from missions beyond the horizon. Wheel chocks make handy pillows and benches.

97. SECURING FUEL HOSES—Lawrence Beall Smith. When all incoming planes have been parked or taken below, and servicing completed, plane handling crews secure the fuel lines. A detail is pictured here stowing a gasoline hose at the edge of the flight deck—a job requiring care and experience, since improperly secured fuel stowage aboard a carrier constitutes a deadly hazard.

98. THE KILL—Robert Benney. In this dramatic presentation of a sea-air battle, a Grumman Avenger torpedo bomber, bomb bay doors open, leaves death in its wake as it zooms away from a conclusive attack on a surfaced enemy submarine. All the vivid action in this scene has been repeated many times in actual combat by U.S. Naval aircraft. Naval planes from escort aircraft carriers wreaked havoc on submarine wolf packs attacking Atlantic convoys, and they virtually blasted them from the ocean for many months. Bombers were fitted with depth charges, one of which is pictured exploding off the U-boat’s beam here. In the attack, the plane’s rear “stinger” gun spits death at gun crews attempting to ward off these lethal hawks from the sky.

99. DEATH OF THE SHOHO—Robert Benney. In May, 1942, the United States Navy won the first major naval engagement in history fought without surface ships exchanging a shot. It was the Battle of the Coral Sea, in which the might of Naval Aviation shattered and turned back the spearhead of a Japanese battle force menacing the United Nations’ last Pacific stronghold of Australia. Here, afloat from stem to stern, the Japanese aircraft carrier Shoho falls victim to the lethal combat tactics of Navy dive and torpedo bombers. The Shoho plowed herself under within a period of minutes after dive and torpedo squadrons broke her back.

100. THE BATTLE OF MIDWAY—Robert Benney. A month after striking in the Coral Sea, the Japanese launched an all-out assault against Midway Island in what was obviously intended as the first step of a grand attack upon Hawaii and continental United States. The Navy was ready, and the heroic pilots from naval aircraft carriers inflicted a major sea defeat upon two great converging forces northwest of Midway. The enemy lost four aircraft carriers, at least two heavy cruisers, and a number of light cruisers, destroyers and transports—all by aerial attack. The artist here depicts a withering attack upon a Japanese cruiser by Navy dive bombers with fighter escort.

101. NAVAL AIR NIGHT AT SANTA CRUZ—Robert Benney. The victorious closing phases of the Solomon campaign in the Southwest Pacific found naval sea and air might taking heavy toll of frustrated and out-manuvered Japanese forces. In the Battle of Santa Cruz, fought in the early summer of 1943, combat pilots of the Navy and Marine Corps hammered enemy surface forces seeking to strengthen a slipping hold upon the southern Solomon Islands. Pictured here, Navy dive bombers blast a Japanese battleship in the foreground while shipsmate attacks other enemy ships in the distance. At Midway, naval pilots severely mauled and crippled at least two Japanese heavies.

ROBERT BENNEY

A native New Yorker, Benney had his first opportunity to devote full time to painting in 1936 and 1937, when he traveled to Haiti, the Dutch West Indies, and British and Dutch Guiana. Left New York soon after to live on Gaspé Peninsula in Canada. His paintings have been widely exhibited, and invited to national art exhibitions, including the Corcoran Gallery and the Brooklyn Museum. Worked in New York, prior to his travels, creating portraits of famous personalities, including Alfred Lunt, Claude Rains, Raymond Massey, John Barrymore, George Arliss and many others. Honored with their exhibition in the Museum of the City of New York and also the New York Public Library.

LAWRENCE BEALL SMITH

Born in Washington, D.C., 1909. Graduated from the University of Chicago and received art training extra nights at Chicago Art Institute, summers at Gloucester and under Hopkinson and Zimmerman of Boston. Exhibited in the International Exhibition of Lithography and Wood Engraving at the Chicago Art Institute. Represented in permanent collections of Herron Art Institute, Harvard University, Addison Gallery, University of Minnesota, Sheldon Swope Art Gallery, and many private collections. Appointed art instructor for city schools, Boston.
THE ARTISTS

DON FREEMAN
Born in San Diego in 1908; came to New York, 1929. Studied with John Sloan and Art Wickey at Art Students League. Started art career as trumpet player, spending much time backstage sketching members of the casts. These drawings soon appeared in the dramatic and magazine sections of the New York Times and the New York Herald-Tribune, as well as theater magazines. His paintings have been exhibited in the Art Institute of Chicago, the Whitney Museum of American Art Biennial Exhibition, Pennsylvania Academy of Fine Arts, and the Guggenheim Gallery. The Philadelphia Print Club awarded him first prize for lithography. Now an Army private, Camp Gruber, Oklahoma.

HOWARD BAER
Born in a little mining town below Pittsburgh, 1907. Received art education at the Carnegie Institute in Pittsburgh. Resident of New York since 1929, except for long trips into Southern France and Mexico. Achieved widespread attention for drawings, illustrations and cartoons in The New Yorker, Esquire and other magazines. Spent several months in 1941 in interior mountain village of Chapala, Mexico, where he found his first opportunity since graduating from art school to devote his time to easel painting. The series of paintings and large mural of the town which resulted from this trip made up a noteworthy exhibition in the Associated American Artists Galleries in New York.

ADOLF DEHN
Born in Minnesota, 1895. Studied at Minneapolis Art School and Art Students League of New York. Awarded Guggenheim Memorial Fellowship, 1939, on which he traveled throughout the United States and Mexico. Among his awards were Honorable Mention at the Philadelphia Alliance and First Print Prize from the Philadelphia Alliance. For seven successive years, his graphic works have been included in Fifty Prints of the Year. Represented in permanent collections of Metropolitan, Whitney, Boston, Seattle, San Francisco and British Museums, Addison Gallery, Honolulu Academy, Oslo National Museum, British Museum, London.

JOSEPH HIRSCH

GEORGES SCHREIBER
ACKNOWLEDGMENT

★ As a contribution to our National War Effort, this collection of Naval aviation pictures is presented by Abbott Laboratories to the American people through widespread granting of reproduction rights to appropriate agencies, and through gift of the original paintings to the Government of the United States that they may be a part of the permanent record of this war.

★ Abbott acknowledges with sincere appreciation the cooperation of the Navy Department and its officers and men, without whose willing assistance these pictures could not have been created. The Bureau of Aeronautics, and the Art and Poster Section of the Office of Public Relations, gave able direction and took care of the myriad details connected with the project.

★ Special thanks are also due to the Associated American Artists for administrative work, and to the artists whose fine interpretation in paint and pencil constitutes this collection.

★ My personal and deep appreciation is also expressed to many others who have contributed much to the completion of this program and its presentation to the United States Navy.

S. DeWitt Clough, President
ABBOTT LABORATORIES